

**USE OF ELECTRONIC INFORMATION RESOURCES AT  
THE UNITED NATIONS ECONOMIC COMMISSION FOR AFRICA LIBRARY  
IN ADDIS ABABA ETHIOPIA**

by

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## DECLARATION

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ECONOMIC FOR AFRICA LIBRARY IN ADDIS ABABA ETHIOPIA

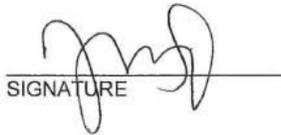
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I further declare that I submitted the dissertation to originality checking software and that it falls within the accepted requirements for originality.

I further declare that I have not previously submitted this work, or part of it, for examination at Unisa for another qualification or at any other higher education institution.

SIGNATURE



Nov. 12, 2019

DATE

## **DEDICATION**

To my hero, Col. Fekadeselassie Dubale Atnafu.

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## **ABSTRACT**

The United Nations Economic Commission for Africa Library (UNECA Library) has a collection of more than 90,000 electronic information resources and half a million-print collection. These resources are available freely to staff members of the UNECA, United Nations agencies, diplomats, researchers, students and others. The study investigated the utilisation of electronic information resources and the challenges faced by the different users of the Library. A quantitative research approach with a survey research method was applied. The population for the study was 600 users,, out of which 500 were internal users (UNECA and United Nations agencies staff members) and 100 were external users (researchers, students, or non-staff members). From the population, 20% from each category, that is, 120 users were taken as a sample. A web-based questionnaire built on SurveyMonkey was distributed through email to collect data from randomly selected users. The total response rate was 74%. The data were analysed using built in survey monkey analysis software and reported with simple frequency and percentages. The results shows that 92% of the respondents were aware of the availability of the electronic information resources in the UNECA Library. TInstitutional Repository (IR) and e-journals were frequently accessed and utilised. Highly accessed and utilised databases were the Economist, African Journal Online, JSTOR, Ebscohost, ScienceDirect, and Financial Times. 94% of the respondents reported that the electronic information resources were useful, with 84% agreeing that the resources were easy to use. High numbers of the respondents positively agreed that the quality of their output was improved by using the electronic information resources provided by the library. The respondents also indicated that using the electronic information resources have improved their research output, and overall, the resources have increased their performances. The challenges were information overload, access restriction with IP address, lack of training and remembering login credentials. 68% of the users reported that the library services met their expectations. The study recommends the development of strategies for enhancing accessibility and discoverability of the resources, providing information literacy trainings for all users, and finding alternative measures for IP restriction access.

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## LIST OF ABBREVIATIONS AND ACRONYMS

The following abbreviations and acronyms are used in this dissertation:

ASKIA	Access to Scientific/Socio-economic Knowledge in Africa
DL	Digital Library
EIS	Electronic Information Systems
ERMS	Electronic Information Management System
ICT	Information Communication Technology
IFLA	International Federation of Library Associations and Institutions
IP	Internet Protocol
NR	Non-Response
MARC	Machine-Readable Cataloguing
OAU	Organisation of African Unity
PEOU	Perceived Ease of Use
PU	Perceived Use
RFP	Request for Proposal
TAM	Technology Acceptance Model
UN	United Nations
UNECA	United Nations Economic Commission for Africa
UNISA	University of South Africa
UNSEIAC	United Nations System Electronic Information Acquisitions Consortium

## CHAPTER ONE

### INTRODUCTION AND BACKGROUND OF THE STUDY

#### 1.1 Introduction

The world is changing and becoming predominantly digital in all aspects. Libraries are part of this change – they are operating in the digital era, and are compelled to deploy electronic information resources that serve users more than ever before. Patra (2017) described the shift as holistic and disruptive. Digital disruption refers to “...advances in digital technologies that occur at a pace and magnitude that disrupt established ways of creating value, either within or across markets, social interactions and more generally, our understanding and thinking” (Patra 2017:1). The demands, expectations and requirements of libraries are likewise changing as libraries cannot be exempted from the changes that are occurring in the wider society (Patra 2017). As part in this global change, the United Nations Economic Commission for Africa (UNECA) Library is also acquiring more and more of its information resources in electronic formats.

#### 1.2 Conceptual Setting

When information is stored and accessed through a digital format, it can be considered as an electronic resource. Electronic information resources in libraries contain library resources in an electronic format which are accessible digitally within the library or remotely. According to Haridasan & Khan (2009:118), electronic information resources are “... resources in which information is stored electronically and which are accessible through electronic systems and networks”. Appleton (2006) and Dadzie (2005) have shown that a library provides electronic reference documents when the format of the resources is electronic. The resources include: journals in electronic formats, e-dissertations e-conference proceedings, e-books and other resources stored and accessed digitally. Electronic information resources are also denoted as “e-resources”, “digital resources” or “digital collections” (Patra 2017:12).

These digital information resources are easy to search and retrieve and are able to serve

many users with no boundary limitations in space and time. Patra (2017) has shown that libraries have begun to allocate budget and to acquire more digital information resources as digital resources proved their benefits, in convenient access and easy retrieval of information, relative comprehensiveness, simultaneous accessibility by multiple users, online browsing and improved searching, including searching by keyword and searching through various search engines, all of which saves time, increases work productivity and makes knowledge sharing simpler. The UNECA Library recognizes the value of electronic information resources and has been acquiring electronic information resources for its clients.

The digital era altered the information needs and the information-seeking behaviors the users. Das & Achary (2014) stated that in order to satisfy the change in way users seek information and their information needs, libraries also need to change the way they provide services, the collections they develop, and the quality and relevance of the electronic information resources they subscribe to or acquire.

However, the benefits of these resources depend on the awareness of users of the resources as well as the acquisitions of skills required to search, identify, access and use them. The degree in which the users know the existence and availability of electronic information resources is essential. Adeleke & Nwalo (2017) acknowledge the importance of awareness, as this will encourage users to appreciate and use electronic information resources more frequently. Creating awareness is seen to be a crucial aspect to encourage the utilization of electronic sources. However, just knowing what electronic resources available in a library is not sufficient.

To boost utilisation of electronic information resources, users must alter the way they search for or retrieve information from electronic information resources or need to adjust their information-seeking behavior. Kadli & Kumbar (2013) briefly described information-seeking behaviour as the procedure people follow to identify, search for, organize and use the information they want. To search for electronic information resources, information literacy is important. As one component in information literacy computer technology is

often used to search for, identify and download electronic information resources. Information literacy is a factor that enhances or influences the use of electronic information resources in the digital era. There is a link between information literacy and the number of electronic information resources discovered (Odede & Zawedde 2018).

Dadzie (2005) highlighted that convenience to access any information from anywhere, at any time, without visiting a library are the significant advantages of using electronic information resources. Staff members of UNECA and other library users have the right to use these resources from their offices or anywhere without their physical presence in the Library. Therefore, all users of the library should have adequate and latest information regarding all the services and products of electronic information resources relevant to their interest and area of work.

UNECA Library is a special Library. A *special library*, as described by Ard & Livingston (2014:519) as "...created by businesses, associations or even government agencies to support the information needs and work of the organization". The UNECA Library, intended to catalyze the effectiveness of UNECA by providing staff members with reliable access to high-quality information resources and services (UNECA 2019). In order for UNECA staff members to conduct multi-sectoral research and analysis, they need to use electronic information resources. There is a link between using electronic information resources and enhanced performance. Olanrewaju (2019:10) affirmed that using electronic information resources supported critical aspects of users' academic work, provided greater access, and enhanced performance. To identify, discover and use e-resources, greater level of awareness about the resources and information literacy skills are required.

### **1.3 Contextual Setting**

The UNECA Library was one of the pioneer structures put in place by UNECA. The Library was established in 1959, immediately after the founding of UNECA under resolution 671(XXX) (Amonoo & Ngay 1995:3). This resolution which was passed by the Economic

and Social Council (ECOSOC) of the United Nations (UN) established UNECA as one of the UN's five regional commissions, The commission was given a mandate to promote the economic and social development of its member States, foster intra-regional integration, and promote international cooperation for Africa's development.

In a brief Guide for Users by Amonoo and Ngay (1995) showed that the mission of the library was to satisfy a research and information demand for staff members of United Nations Economic Commission for Africa, meeting and conference participants. In addition, it served United Nations agencies and diplomatic missions in Addis Ababa, OAU research personnel, visiting scholars and students, African Government departments, as well as people in Africa and overseas who write seeking information on Africa in the field of economic and social development.

Staff members of UNECA and United Nations agencies are registered in the Library database and have the privilege to borrow resources from the Library. They are internal users of the Library. Other users who are not staff members, such as researchers and students, retirees, conference participants, and delegates from diplomatic missions, are considered to be external users. They cannot borrow library resources but they can use any resources within the Library. External users must register using a computer whenever they walk into the Library. Both internal and external users have access to electronic information resources without any restrictions, as long as they are connected to the internet in the Internet Protocol (IP) range of the organization.

The mission of the UNECA Library is to support research and intellectual pursuits pertaining to the developmental issues of the African region (Amonoo & Ngay 1995:3). The Library was designed to serve as a catalyst for achieving effectiveness in the organization and to "... continuously enrich and add value to the Commission's knowledge ecosystem, by providing reliable access to high-quality information resources and services" (Onyanha, RFP, 2015: 10).). To achieve this mission, the UNECA Library identifies, collects, manages, and disseminates the socio-economic collection on Africa. This collection of the Library includes a general collection that covers journals,

newspapers, periodicals, and monographs and maps, and an electronic information resources collection, comprising over 35 premium full-text online databases which provide access to over 90,000 e-journals, e-books and statistical databases and open sources and other freely available online resources. Other collections include the official United Nations documents and those from UNECA, World Bank and International Monetary Fund publications, and the African government publications collection, which hold official publications such as reports produced by central banks and statistical offices, and African intergovernmental organizations, such as the African Union and the African Development Bank (UNECA 2019). The UNECA Library is a member of the United Nations System Electronic Information Acquisitions Consortium (UNSEIAC), which allows member libraries to share the benefits of joint e-resources. All the electronic information resources are accessible through an IP-authenticated protocol system within the IP range of the organization.

The UNECA Library provides orientation during an induction program for new staff members joining the organization. This orientation provides information and hands-on training on all library resources and services, including how to access and utilize the resources, as well as the rules and procedures applied in the Library. However, this kind of orientation and training is not provided for external users. Users can request assistance from the Librarians at any time, in particular when they need help accessing the electronic information resources.

There is a trend in increasing the allocation of budget for acquiring more electronic information resources rather than print materials (Verminski & Blanchat 2017). The UNECA Library recognizes the value of electronic information resources for its clients and has allocated a budget of more than a quarter of a million dollars every year. However, according to the usage statistics for 2017 and 2018 (Figure 1.1), there were a very limited number of downloads and searches or hits for around 20 databases.

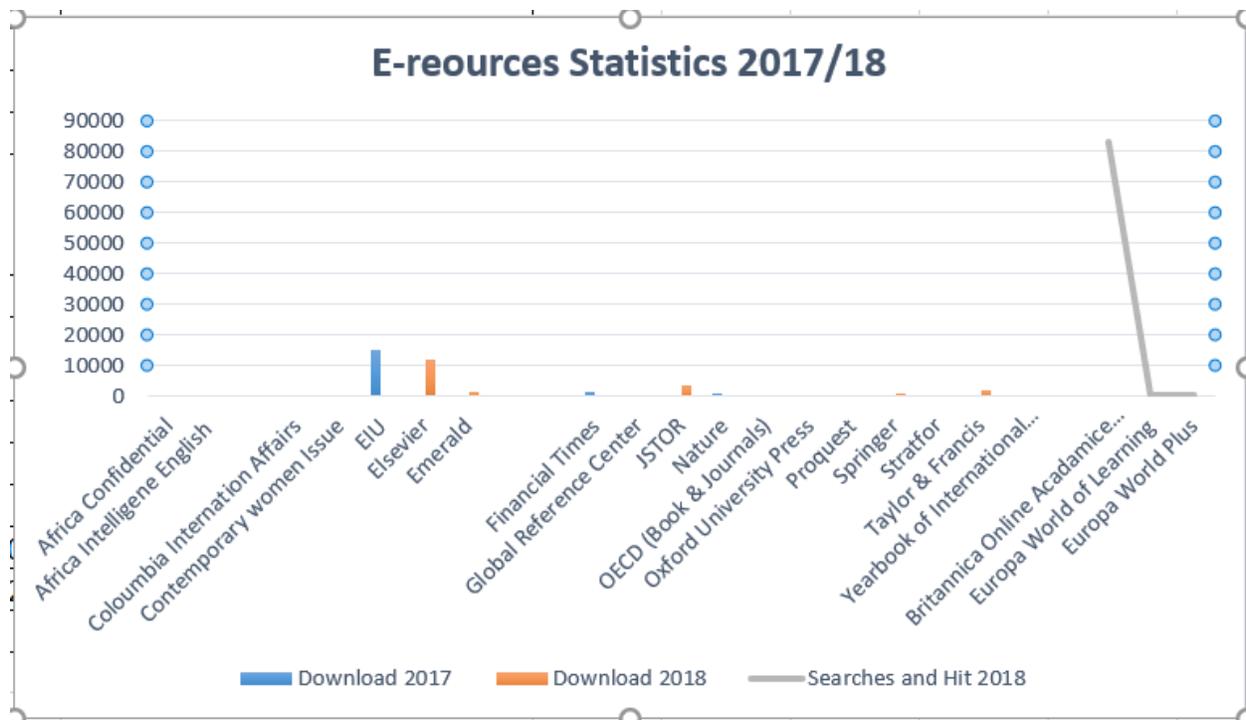


Figure 1.1 Usage statistics 2017/18

Source: Onyancha, personal communication 7 February 2019

However, although the usage statistics reveal low use of the electronic information resources, it is not enough to conclude that the resources are underutilized (Onyancha, 2019). Therefore, it becomes necessary to conduct this research in order to investigate and examine the level of access and utilization of the resources beyond the usage statistics. This study investigated access and usage of electronic information resources in the UNECA Library.

#### 1.4 Problem Statement

In digital world and as stated by Das and Achary (2014:553) "...libraries have shifted their collection into electronic information resources." Studies have shown that libraries are acquiring more electronic information resources as a recognition of the benefits of ease of use, comprehensiveness, getting authoritative and reliable information in a timely manner, accuracy, accessibility, convenience, and other benefits.

Notwithstanding these benefits, there are some challenges that hinder the efficient use of these resources. Some of the challenges include unfamiliarity of the resources by the users of the library, the infrastructure to access such resources, lack of knowledge of the existing resources, information overload, low users' orientation towards the resources, poor internet access, shallow skills to retrieve the resources, computer skills, and inability to familiarise with the different databases (Adeoye & Olanrewaju 2019; Adeleke & Nwalo 2017; Larson 2017; Moyo 2017; Patra 2017; Addisalem 2016; Ani 2013; Toteng & Hoskins 2013; Ekwelem, Okafor & Ukwoma 2009; Ozoemelem 2009; Appleton 2006; Dadzie 2005; Ibrahim 2004; Palmer & Sandler 2003; Hiller 2002; Majid & Tan 2002; Montgomery & King 2002; Macdonald, Heap & Mason 2001; Crawford & Daye 2000; Stewart 2000).

The UNECA library has joined other libraries because it recognised the advantages of electronic information resources and the increasing change of users' information seeking behavior. It then started acquiring electronic information resources. The UNECA library also has an ongoing digitising project for its print collection. However, to the best knowledge of the researcher, there has never been a study examining the use of electronic information resources provided by the UNECA Library in terms of as well as challenges faced by the users.

## **1.5 Aim of the Study**

The aim of the study was to examine the availability, use and access of electronic information resources in the United Nations Economic Commission for Africa (UNECA) Library, Addis Ababa, Ethiopia.

### **1.5.1 Objectives of the study**

The objectives of the study were:

- To investigate the electronic information resources in the UNECA library in the context of relevance;

- To determine the perceived usefulness of the electronic information resources in by the UNECA library are;
- To determine the perceived ease of use of the electronic information resources provided by the UNECA library;
- To examine the factors that affect the utilisation and access of electronic information resources in the UNECA library;
- To make recommendations to enhance access and utilisation of UNECA library electronic information resources.

### 1.5.2 Research Questions

The specific questions that the research investigated are grouped as follow:

- What are the current electronic information resources available in the UNECA library?
- What are the perceived usefulness of the electronic information resources provided by the UNECA library?
- What are the perceived ease of use of the electronic information resources provided by the UNECA library?
- What are the factors that challenge access and utilisation of electronic information resources provided by the UNECA library?
- What is the impact of access to electronic information resources on the performance of the users of the organization? and,
- What should the UNECA library do to enhance effective use of the electronic information resources?

Table 1: Research questions, objectives and possible sources of data

NO	Research Objectives	Research questions	Possible Source of data	Theory / Model
1	To investigate the current electronic information resources	What are the current electronic information	Literature Review and Questionnaire	Wilson (1996)

	provided by the UNECA library;	resources provided by the UNECA library;		
2	To determine the perceived usefulness of the electronic information resources provided by the UNECA library are;	What are the perceived usefulness of the electronic information resources provided by the UNECA library	Literature Review and Questionnaire	Wilson (1996) Davis (1989) TAM
3	To determine the perceived ease of use of the electronic information resources provided by the UNECA library;	What are the perceived easiness of the electronic information resources provided by the UNECA library;	Literature Review and Questionnaire	Wilson (1996) Davis (1989) TAM
4	To examine the factors that affect the utilisation and access of electronic information resources in the UNECA library;	What are the factors that challenge access and utilisation of electronic information resources provided by the UNECA library;	Literature Review and Questionnaire	Wilson (1996) Davis (1989) TAM
5	To investigate the role of access and use of electronic information resources to enhance performance;	What is the impact of access to electronic information resources on the performance of the users of the organization?	Literature Review and Questionnaire	Davis (1989) TAM
6	To make recommendations to enhance access and utilisation of UNECA library electronic information resources.	What should the UNECA library do to enhance effective use of the electronic information resources?	Recommendations Questionnaire	

## 1.6 Justification/ Significance of the Study

Justification or significance of the study is the section where the researcher answers major questions for instance the reasons why the study important; for whom the study important and the benefit(s) that the study will have to the community (Thomas (as cited in Komba 2013:25). The result of this study will give the UNECA library an opportunity to identify and take appropriate decisions to improve or enhance its electronic information resources services Hence, under utilisation of electronic databases is a cause for concern

for the library. As a result, factors contributing to such should be investigated and suggestions for improvement be put in place.

The outcome of this study provided information for library managers to decide on the budget allocation and distributions based on users' preferences, as well as ways to improve the services related to electronic resource services. As a result, the library can work towards serving the institution effectively, as well as budget the resources on relevant, important, and demanded electronic information resources. In addition, the results of this study will shed some lights to other UN and special libraries on how to identify and meet electronic information resources demands of their clients. The study will further recommend effective and efficient use, as well as retrieval of electronic information resources.

The study furthermore created an opportunity for library users to share their encounters with the librarians regarding their real needs and what can be done in order to improve services rendered to them. Added to this, the study will provide information for decision makers on identifying the level of utilization and importance of electronic information resources. Furthermore, this study will encourage researchers and librarians in the UNECA library to grow in their research and information service career, and improve their capacity in research, particularly with regards to emerging electronic information resources knowledge. Finally, this study will open more opportunities for research in similar libraries, thus leading to an improved UN library electronic information resources service system.

## **1.7 Literature Review**

Literature focusing on the topic were consulted. The literature review covers topics on electronic information resources, their use and accessibility, users' preference towards electronic information resources, challenges faced when using electronic information resources were consulted. The literature covered both special and academic libraries. Ard & Livingston (2014:518) have demonstrated the similarities among the different types

of libraries and stated that: “Libraries of all types are evolving, and just as special libraries can learn from the general literature on libraries, practitioners in general libraries can learn from the experiences and methods of special libraries” Ard and Livingston (2014:518).

## **1.8 Theoretical Framework**

There are different theoretical models related with users’ information seeking in relation with new technology a library. The models and theories used to guide this study were models in information seeking behaviors and Technology Acceptance Model (TAM). The theoretical frameworks will be discussed more in detail under Chapter Two.

## **1.9 Research Methodology**

Quantitative research approach was applied as a research methodology in this study to evaluate and measure the utilization of electronic information resources provided by the UNECA library. Under quantitative research approach, the study applied a survey method with a small sample group to be assessed at a cross-sectional time frame. From the total population, sample was drawn with probability sampling technique. Structured web-based questionnaires were distributed to the sample that was taken from the population through survey monkey. Data were analysed using survey monkey and reported with simple frequency and percentage methods.

## **1.10 Scope and limitations of the Study**

The study is limited to electronic information resources access and usage by the UNECA library users. The population of the study included internal users who are staff members of the organization and other UN agencies and external users who are non-staff members of the library, such as researchers and students, retired or meeting and conference participants. The study only covers the UNECA library that is located in Addis Ababa, Ethiopia.

## 1.11 Definition of Terms

This section provides definition of terms that are used in this study.

**Authorised User:** A license designation that specifies that qualified individuals affiliated with an institution are to access licensed electronic information resources. For an academic library, authorised users might include students, faculty, and staff. For a public library, authorised users might be much broader to include members of the public using the library (Verminski & Blanchat 2017:230).

**Consortium/Consortia:** A consortium is “An association of libraries and/or library systems established through formal agreement, usually for the purpose of resource sharing. Membership may be restricted to a specific geographic region, type of library such as public, academic, special, or subject specialization” (Verminski & Blanchat 2017:231).

**eBook:** This is an electronic book which can be “...born digital, be digitised from the print edition, or be simultaneously published in both print and electronic formats. Digitised ebooks could be considered backfile, or archive content.” (Verminski & Blanchat 2017:234).

**eJournal or Journal:** This is an electronic journal or serial. An electronic journal can be born digital, be digitised from the print edition, or be simultaneously published in both print and electronic formats. Digitised ejournals could be considered backfile, or archive content (Verminski & Blanchat 2017:234).

**Electronic resource lifecycle:** This is the ongoing, nonlinear, and repetitive processes associated with the selection, acquisition, management, evaluation, and renewal or cancellation of electronic information resources (Verminski & Blanchat 2017:234).

**Electronic Information Resources Management System (ERMS):** ERMS can be

defined as “An internal system or software program that assists in the maintenance of licensed electronic information resources, such as databases, eBooks, and ejournals. An ERMS may include a means to track license agreements; including license and copyright terms, renewals, access management, and collection development.” (Verminski & Blanchat 2017:235).

**IP Authentication:** Is an access that is based on recognising when a user is retrieving content by an authorised library, because the requesting computer fails within the library’s range of IP addresses. A user attempting to access a library’s electronic information resources from outside the library’s IP ranges will need to use a proxy in order to authenticate themselves (Verminski & Blanchat 2017:237).

**Electronic information resources (e-resources):** are defined as electronic information resources information materials that are in electronic form. Such includes electronic books (e-books, e-newspapers, e-journal) and internet resources; consisting of databases, magazines, archives, theses, conference papers, government papers, scripts, and monographs in an electronic form (Olandapo 2018).

**Electronic book:** a generic term for products of Electronic and Multimedia publishing, available directly from the Web or in physical format on Optical disc (Prytherch, 2005).

**Electronic journal:** a journal which is available in electronic format; a physical, printed version may also be available (Prytherch, 2005).

**Federated Search:** Is also known as met search, poly search, or broadcast search. Instead of searching for the e-resources one by one in different platforms, it allows users to opt for real time search of multiple e-resources simultaneously through a single search query (Patra 2017).

**Information Literacy:** Refers to the “...knowledge and skills necessary to correctly

identify information needed to perform a specific task or solve a problem, cost-efficiently search for information, organise or reorganise it, interpret and analyse it once it is found and retrieved (e.g. downloaded), evaluate the accuracy and reliability of the information; including ethically acknowledging the sources from whence it was obtained, communicate and present the results of analysing and interpreting it to others if necessary, and then utilise it for achieving actions and results.” (Lau 2006:17).

**IP Authentication:** Is an access that is based on recognising when a user is retrieving content by an authorised library, because the requesting computer falls within the library’s range of IP addresses. A user attempting to access a library’s electronic information resources from outside the library’s IP ranges will need to use a proxy in order to authenticate themselves (Verminski & Blanchat 2017:237).

**Online scholarly information resource or scholarly content:** means peer reviewed publications such as electronic books, electronic journals] made available and accessible on the Internet through subscription or open access means (Dulle, 2015).

## 1.12 Ethical Considerations

Ethical considerations for Library and Information professionals are the same as other professionals. Froehlich, in Powell and Connaway (2004:71) listed out ethical considerations of information professionals as: “issues related to plagiarism, falsification or fabrication of data, dual submissions of manuscripts to journals, and duplicate publication of identical or largely identical manuscripts without permission from the editors”. The researcher obtained ethical clearance from UNISA Research and Ethic Committee. Therefore, this study is bound by the ethical considerations of the academic institution of Unisa.

According to the guidelines for Master’s and Doctoral Studies (2019) for Information Science, the researcher should be: “Responsible for the well-being of your respondents /

participants during the time they collaborate as part of your investigation” (UNISA 2019:37). Based on this guideline, respondents were informed about the purpose of the study and they were requested to participate willingly in the survey. They were also informed the confidentiality of their responses. This research was conducted according to scientifically proven methods and the analysis was done without any bias. The anonymity or confidentiality of everyone involved was maintained. The study acknowledged works and sources used throughout the research.

### **1.13 Structure of the Study**

This section presents the structure of this study. The study is structured into five chapters. Chapter one covers the introduction and background of the study. This includes introduction, background on the UNECA library, problem statement, aims and objectives of the study, the significance and justification of the study, brief descriptions about literature review, theoretical frameworks, research methods, scopes and delimitation of the study, and definitions of key terms.

Chapter two discusses the literature relating to the topic and the theoretical frameworks that guided the study. In Chapter three, the research methodology is outlined, including research approaches, design and methods, population of the study, sampling techniques, sampling size, methods of data collection, as well as tools and procedures. Chapter Four outlines presentation of results and discusses the survey findings. Chapter Five deals with the summary of major findings, conclusion and study recommendations. A full reference list and an appendix are presented last.

### **1.14 Chapter Summary**

Chapter one provided the introduction of the research and covered the background information on the UNECA library, how and when it was established, the purpose of the library as well as the resources and services the library offers. It also covered problem statement, aim and purpose of the study, research objectives, scope, limitations, and

definition of key terms used in this study. The next chapter presents theoretical frameworks that guided this study, and the literature relating to the research subject under investigation.

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## CHAPTER TWO

### 2 THEORETICAL FRAMEWORK AND LITERATURE REVIEW

#### 2.1 Introduction

This chapter presents theoretical frameworks that guided this study and the review of relevant literature that supported the objectives of the study. There are different theoretical models that address users and the use of technology. The models and theories that this study adopted are Models in information seeking behavior (Wilson's model) and Technology Acceptance Model (TAM).

Literature that focused on electronic information resources, their utilisation and accessibility, users' preferences towards electronic information resources, as well as challenges in using electronic information resources were consulted. The consulted literature was mostly focused on academic institutions libraries than on special libraries because the researcher believed that studies done in academic institutions could be replicated on special libraries.

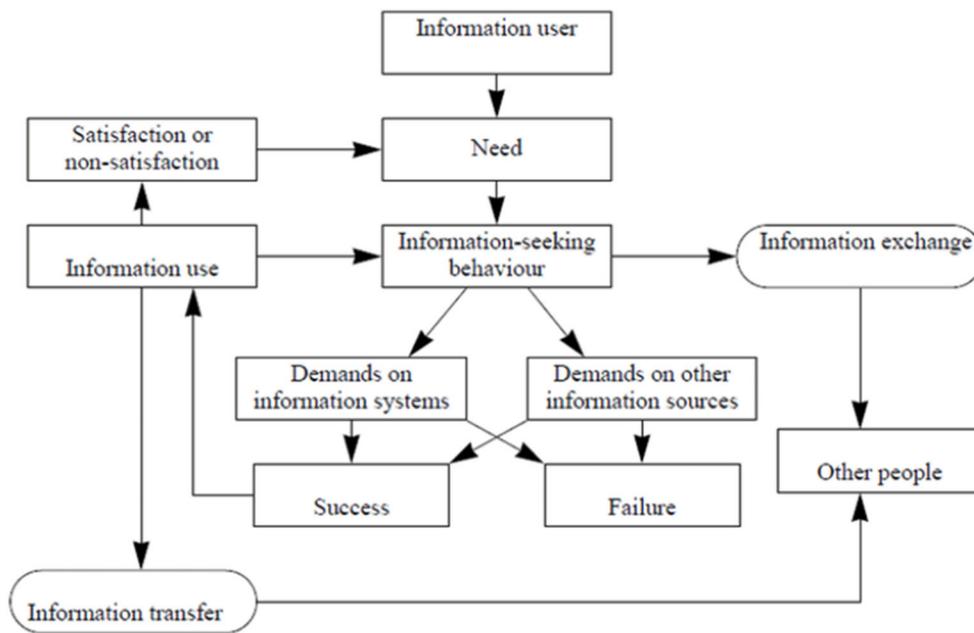
#### 2.2 Theoretical Framework

Models are guidelines that show relationships between theories. There are different models that have been developed by researchers in relation to information seeking behavior from time to time. The definition of a model given by Wilson (1999:250) is: "a framework for thinking about a problem and may evolve into a statement of the relationships among theoretical propositions. It means a model gives the structure and guideline to see the relationship between theoretical propositions (information seeking behavior, activity, the causes and consequences of the activity) in the form of diagrams'.

##### 2.2.1 Wilson's Models of Information Behaviour Research

Wilson has models developed to study information seeking behaviours. These are Wilson's 1981 and Wilson's 1996 (Wilson 1999). Wilson's model forms a conceptual

framework that highlighted the need to study information seeking behavior (Al-Suqri 2011). Wilson's model of 1981 suggested that when there is an information demand to satisfy, an information user starts to seek information and this is where the information seeking behavior begins. The demand and search might be successful or unsuccessful after searching with formal information system sources or other sources. However, the search continues until the perceived need is fully or partially satisfied (Wilson 1999).

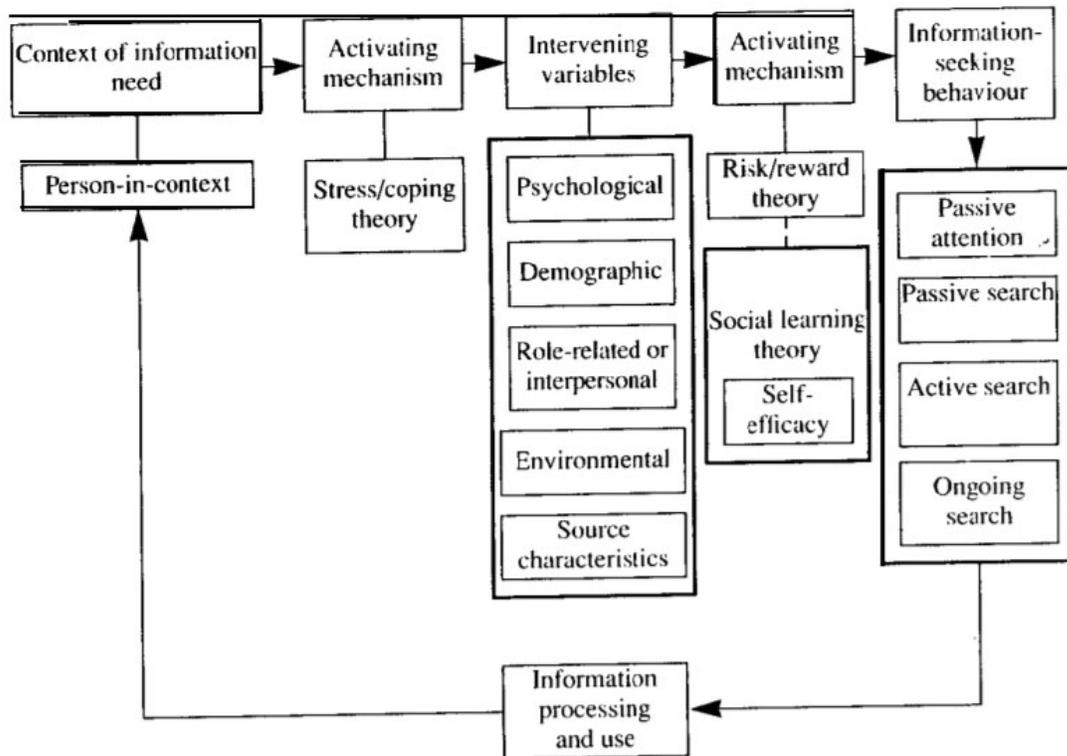


*Wilson's model of information behaviour*

Figure 2.1 Wilson's model of information behaviour

The 1981 Wilson's model was later revised and became Wilson's 1996. Wilson's second model of 1996 demonstrates the inclusion of barriers for information seeking behaviours as 'intervening variables'; activating mechanism which includes stress/coping theory, risk/reward theory, and social learning theory. Information seeking behavior consists of the active search, as well as information processing and use (Wilson 1999). Figure 2.2.2 illustrates the modified Wilson's 1996 model.

## INFORMATION BEHAVIOUR MODELS



*Wilson's 1996 model of information behaviour*

Figure 2.2: Wilson's 1996 model of information behaviour

Wilson's (1996) model is used to find the current electronic information resources provided by the UNECA library, and the factors that hinder access and utilisation of electronic information resources provided by the UNECA library.

### 2.2.2 Technology Acceptance Model

In 1989, Fred Davis developed a theory known as Technology Acceptance Model (TAM). This theory explained how perceived usefulness and perceived ease of use of new technology determine information and communication technologies usage (Davis 1989). Technology Acceptance Model (TAM) is a model that is used to explain factors that determine attitude towards using newly introduced systems and their impacts on their

acceptance (Adeoye & Olanrewaju 2019). Technology Acceptance Model (TAM) examines the factors affecting users towards the decision to use new technology (Durodolu 2016).

In the field of library and information science, Technology Acceptance Model (TAM) is a popular technology model applied to assess and demonstrate the two variables of usefulness and ease of use towards using and applying a new technology by users (Adeoye & Olanrewaju 2019; Durodolu 2016; Ani 2013; Mardis, Hoffman & Marsha 2008). The two important variables of the Technology Acceptance Model (TAM) are, “Perceived Usefulness” (PU) and “Perceived Ease of Use” (PEOU) (Davis 1989). The two variables are defined as follow: PU is “the degree to which a person believes that using a particular system would enhance his or her job performance”. Whereas PEOU is “the degree to which a person believes that using a particular system would be free from effort” (Davis 1989:320).

According to Adeoye and Olanrewaju (2019), using a new technology or an application depends on the impact it has on performance or the effort required to perform an action. In relation with this study, users can decide to use electronic information resources or not by weighing the benefit to enhance their performance or access all the information they needed with less effort.

The variables of the Technology Acceptance Model (TAM) are illustrated in Figure 2.3.

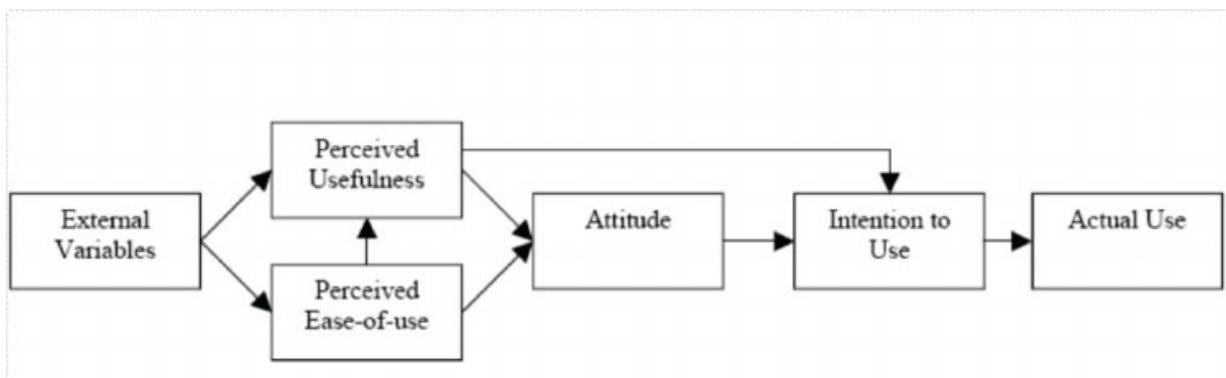


Figure 2.3: Technology Acceptance Model

The relationships between performance and the use of ICT can be explained by the concept of perceived usefulness. If a person perceived that the use of information system contributes to a better performance, they tend to prefer and use it.

Adeoye and Olanrewaju (2019) applied TAM in their study to evaluate how the Lead City University's library, in Ibadan, Nigeria, use of electronic information resources. The results of their study show that students perceived the usefulness of electronic information resources for their academic tasks to be positive. According to the study by Adeoye and Olanrewaju (2019), users tend to use electronic information resources because they perceived it to be user friendly as compared to other library resources in order to obtain the relevant information to their job or study.

The second variable in TAM is Perceived ease-of-use (PEOU). Ease is defined as "freedom from difficult or great effort" and PEOU is "the degree to which a person believes that using a particular system would be free from effort" (Davis 1989:320). There is a link and preference by users between use and easiness. Davis (1989) conducted a study to compare the usefulness-usage relationship with the ease of use-usage relationship. According to Davis (1989), the study proved that usefulness was significantly linked to usage than ease of use. In other words, users tend to use technology more when they think it is more useful than it is easier.

In relation to the ease of use, the study by Adeoye and Olanrewaju (2019) confirms that users find it effortless or easy to search and retrieve information from the electronic information resources provided by their library. Mardis, Hoffman and Marsha (2008) examine theoretical models and frameworks like TAM to understand ICT adoptions and their use in schools which revealed and examined the additional digital divide level. Ani (2013) applied Technology Acceptance Model to study the link and connection between accessibility and utilization of e-resources and recommended increased investment in ICT facilities at the surveyed universities to promote increase in accessibility and utilization.

Durodolu (2016) conceptualised how Technology Acceptance Model variables PU and PEOU can be applied to explain the correlation of information literacy and technology acceptance. The outcome of the study conducted by Durodolu (2016) indicated that Technology Acceptance Model is appropriate and suitable model to be applied for the development of information communication and technology.

Technology Acceptance Model further embraces the impact of external variables that affect the attitude towards its use. The external variables are principals of the attitudes towards the use and usage of technology (Durodolu 2016). These external variables refer to “the quality that is outside of an individual, for example, training, computer experience, quality of systems, etc” Durodolu (2016:12). The study concluded that having the skills to use technology increases personal control and flexibility.

Nowadays, libraries have started to use technology and embraced the shift towards digital collection. Adeleke and Nwalo(2017) highlighted that due to the impact of ICT on libraries, there seems to be a push to acquire and provide services for electronic resource. Therefore, it remains a question as to, how does this shift affect users’ perceptions towards using electronic information resources.

The present study applied Technology Acceptance Model (TAM) as a guide to explore and explain use of the electronic information resources in the UNECA library. Could it be due to the ease of use and usefulness of the resources and their contribution towards performance? TAM has been tested extensively and demonstrated significant results, but it has been seen as incomplete and has undergone many revisions. Mardis, Hoffman and Marsha (2008) listed some of the limitations such as, lack of consideration of factors that hinder usage. When the model in question is applied beyond workplace, it lacks critical factors. It also did not address barriers in usage. Tibenderana, Ogao, Ikoja-Odongo and Wokadala (2010) also indicated its failure to determine barriers that hinder technology adoption. Therefore, performance expectancy is how users perceived usefulness of the use of electronic information resources to facilitate or get easy use and access to information.

## 2.3 LITERATURE REVIEW

### 2.3.1 Special Library

Depending on the clients or users they serve, libraries can be categorised as public, school, academic, or special library. Murray (2013) indicated that when an organisation has its own library with special collection and targeted group users, it can be considered as a special library. According to Murray (2013:275), a special library is “any library that doesn’t fall into the academic, public, or school categories, or any library with a specialized collection or “...a special library is not a separate entity, but ‘exists as an integral part of a highly specialized kind of organisation whether it be an industrial corporation, research, or service institution, a trade association, a government agency or a museum” (Murray 2013:275).

Even if they have different name from the other categories, special libraries also identify, collect, analyse, organise, and disseminate information exactly the same way as other libraries. The services provided, common skills required, challenges and problems they encounter; impacts of technology are the same as academic or public libraries. Special libraries share concerns with more general academic, public, and school counterparts as they all provide information resources to meet peoples’ needs. However, special libraries have unique characteristics that relate to the complexity of the communities they serve. Special libraries can therefore learn from the general literature on libraries. Practitioners in general libraries can also learn from the experiences and methods of special libraries (Ard & Livingston 2014: 518).

Weaver (2012) listed some of the features of special libraries on Feliciter as a guest editorial. The features that make a library “special” are its special collection, the customer it serves, size and the heterogeneity of the community. Weaver (2012) states that the customers of special libraries target the organization rather than individuals.

Despite the differences in names of libraries, at their core, all libraries share central roles of collecting, organising, and making available information. As libraries are evolving in the digital era to the human age and beyond, everyone can learn from one another (Murray 2013: 282).

### **2.3.2 Emergence of Electronic Information Resources**

The practice of using electronic information resources in libraries started in the mid 1960's with the emergence of the Machine-Readable Cataloguing (MARC) (Hawthorne 2008). Around the same time, libraries provided the bibliographic databases. In the 1970's, libraries started to have access to data sets. Then, in the in the 1980's, with the acquisitions of data on diskettes and software by libraries, electronic information services started by providing databases with full text in CD-ROMs to the users (Hawthorne 2008).

The emergence of World Wide Web, in mid-1990's, resulted with an improved electronic information services provided by libraries to their clients. According to Hawthorne (2008), following world wide web, services like full-text databases, bibliographies, electronic journals, Web-based catalogs, electronic serials, and electronic books were available to users. Some of the challenges for using the databases during the 1980' and 1990's were difficulties in identifying and locating relevant resources, having different interface, moving searches from one source to another, and high cost of e-books reader (Hawthorne 2008). Since then, the emergence of electronic information resources highly increased in volume and demanded a mechanism to manage.

In the early 2000s, Electronic information resources Management Systems (ERMS) was introduced to expand information sharing and keep track of the full life-cycle of electronic holdings (Verminski & Blanchat 2017). The life cycle for identifying, acquiring, processing, and managing electronic information resources is different and time consuming for librarians when it is compared with print collection. Verminski and Blanchat (2017) described the process for print resources as once purchased, claimed, processed, and

ready to be used by users. On the other hand, electronic information resources have nonlinear, repetitive, and ongoing lifecycle.

There are different terms used interchangeably with electronic information resources. To mention some of them are electronic resource, digital resource, digital collection, e-resources and eis, Electronic information resources can be anything that is not printed, and available in an electronic format, including CD-ROMs. For the purpose of this study, electronic information resources refer to the subscribed journals and databases that are listed on the UNECA library website. This includes the Institutional Repository (IR) of UNECA, e-books, e-journals, statistical databases, as well as additional online resources; such as, a portal known as Access to Scientific and Socio-Economic Knowledge in Africa (ASKIA), and electronic or digital UN regional resources. These resources have been selected and subscribed to by the librarians and are available and accessible on the library's website.

### **2.3.3 Use and Access of Electronic Information Resources**

Convenience, ease of accessibility, unlimited and unrestricted time or location, and saving of physical spaces pushed libraries and users to shift towards the electronic information resources. Electronic information resources could be any information that is not in a printed format but available in digital formats, that can be accessible through the internet, from CD-ROMs, databases, digitally born e-books, e-magazines, e-journals, and any resource available electronically. Libraries have started to scan and digitise their print collections so that users can access digital formats of the resources as they understand the benefits of electronic information resources. Studies show that libraries also shifted to buy more electronic information resources because of the their benefits. Adeleke and Nwalo (2017) highlighted that due to the impact of ICT on libraries, there was a push to acquire and provide services using these electronic information resources.

In view of the benefits, importance, and increasing use of electronic information resources in libraries; many researchers have studied and examined the extent and pattern of use

of electronic information resources in libraries (Adeoye & Olanrewaju 2019; Adeleke & Nwalo 2017; Larson 2017; Moyo 2017; Patra 2017; Addisalem 2016; Ani 2013; Toteng & Hoskins 2013; Hadagali, Kumbar, Nelogal & Bachalapur 2012; Ekwelem, Okafor & Ukwoma 2009; Ozoemelem 2009; Appleton 2006; Dadzie 2005; Ibrahim 2004; Palmer & Sandler 2003; Hiller 2002; Majid & Tan 2002; Montgomery & King 2002; Macdonald, Heap & Mason 2001; Crawford & Daye 2000). These studies indicated that libraries are acquiring more electronic information resources for the benefits of easy access to information, comprehensiveness, getting authoritative and reliable information on a timely manner, accuracy, accessibility, and convenience.

Information seeking behavior of users have changed through time to search and get access to a large volume of information to meet users information need. Electronic information resources can be searched and found through freely available sources from the internet like searching google or through a library subscription to get scholarly reviewed and authenticated resources. According to Appleton (2006:620), internet resources are categorized as 'freely available' and 'scholarly resources'. Addisalem (2016) studied Unisa postgraduate students located in Ethiopia regarding their utilization of electronic information resources. This study highlighted that electronic information resources were preferred for ease of access, availability, and accessibility. This study indicated that the respondents were using both printed and electronic information sources. However, the study demonstrated that most of the respondents agreed that easiness, accessibility and availability, handiness, up-to-date, trustworthiness, and appropriateness of electronic information resources were reasons why majority of respondents preferred to access and use electronic information resources.

The option of getting different formats of information resources, accessing fast, reliable and wide range of information resources, having unlimited and multiple access to information without geographical restrictions in a short period of time were the advantages opinionated by four different university students of Karnataka state (Hadagali, Kumbar, Nelogal & Bachalapur 2012).

### **2.3.4 Flexibility and Accessibility**

A study conducted by Adeoye and Olanrewaju (2019) regarding Lead City University Library's use of electronic information resources, indicated that the electronic resources were useful and easy to use for any academic task as the resources were flexible in terms of searching for information as compared to paper-based resources. Moreover, these resources are accessible from anywhere and at any convenient time. Adeoye and Olanrewaju (2019) also indicated that electronic information resources can be easily used to obtain the required information. According to this study 74% of the respondents positively affirmed the use of electronic information resources and how they eased their job. The respondents mentioned that their job would be difficult to perform without library electronic information resources Adeoye and Olanrewaju (2019:10). This study affirmed that using electronic information resources supported critical aspects of the users' academic work, provided great access, enhanced their work performance, saved time, helped them accomplish tasks quickly, and are easy to use. Overall the study affirmed the usefulness of electronic information resources.

Dadzie (2005:290) showed that to access information without any geographical and physical location restrictions, to get current and latest information, to explore additional resources and extensive links, electronic information resources are vital research tools. The study by Dadzie (2005) highlighted users' preference to electronic information resources at which the findings reported convenience in accessing information from anywhere, at any time without visiting the library. The study discovered that the first attempt of finding information is through internet, using electronic information resources.

When libraries introduced web-based services for instance, e-books and e-journals in the 1990s, and since then, accessibility of electronic information resources was well received by library users and they should not go to any library to do their research (Hawthorne 2008). Larson (2017) discussed the importance of electronic information resources and studied the level of awareness, as well as usage of these resources. Saving time, increase productivity and sharing information easily were some of the benefits of using electronic information resources (Patra 2017). Using electronic

information resources is flexible and more accessible because searching and accessing the same information from the same source by multiple users at the same time is possible; it is also possible to search using simple keywords, it is possible to play around and search through various search engines; it is possible to search, browsing, scanning, retrieve online (Patra 2017).

Ekwelem, V., Okafor, V. & Ukwoma, S. (2009) studied the increase use of technology and EIS in everyday life and found that most users are familiar with EIS as a traditional collection. The frequency of using this particular electronic resource is higher, as it is found to be simple to utilize for obtaining relevant and latest information.

Ozoemelem (2009) also revealed that there is an increased use of electronic information resources by library and information science students than the print collection, despite the challenges and factors that hinder the efficient usage of the electronic information resources.

All respondents of the study use electronic information resources with a high frequency level. Montgomery and King (2002), as cited in Tenopir (2003:1) quoted why libraries prefer digital collections "... digital journals can be linked from and to indexing and abstracting databases; access can be from the user's home, office, or dormitory whether or not the physical library is open; the library can get usage statistics that are not available for print collections; and digital collections save space and are relatively easy to maintain".

There are different reasons why users prefer to use electronic information resources. Some of them are, they are ease in terms of searching; possibility of copying, saving, or printing resources without any restriction. Other reasons include validity of information, convenient to access, and the ability to instantly share articles with their peers (Palmer & Sandler 2003; Sathe, Grady & Giuse 2002). According to Stewart (2000), electronic information resources are easier to use because of their strong searching convenience and capability, speed, completeness, and their ability to accommodate many people at a time. Vicente, Crawford and Clink (2004) reported that electronic resources are more

time saving than print resources for their respondents.

Studies and evidences are showing that there is a strong drive to using more electronic information resources than print resources. Generally, for many users, electronic information resources are more exciting, unique, storage and retrieval is easy, more efficient and flexible (Macdonald, 2001:423). A study conducted by Macdonald, Heap and Mason (2001) indicated that utilising electronic information resources had brought some new opportunities such as preference, variety of options for searching, and easily accessing information whenever required.

### **2.3.5 Information Need and Information Seeking Behavior**

The advancement of IT in libraries, emergence and use of electronic sources, accessing and using different electronic databases such as e-books, e-magazines, and the likes have greatly changed information need and seeking behavior by researchers or library users. These changes directly affect or change the way users search and identify information sources. Information need is the way we try to know what information or input we want to do something. The operation of accessing information has changed globally due to the change in information accessing formats and electronic networks (Kadli & Kumbar 2013). Currently, whenever we want any digital information, the first source that comes to mind is Google search or any other searching database in our library than referring to any card catalogue which we do not find in many libraries now. The internet makes information available freely (Kadli & Kumbar 2013) which changed the information need and seeking behavior of users in Libraries. Folorunso (2014) conducted a study which discovered that majority of the respondents 'always' check what is available on the internet and other on-line reference sources. Social science scholars studied by Al-Suqri (2011) indicated that the availability of online and electronic information resources has changed their information seeking behavior.

Information is defined in so many ways by different writers. According to Franks (2018:427), information is data that has acquired value through "analysis, interpretation,

or compilation in a meaningful form”. The *Oxford Dictionary* (2018) defines information as: “Facts provided or learned about something or someone”. Das and Achary (2014) indicated that the revolution in information technology changes information seeking and ways of accessing information. Nowadays libraries feel the ‘so-called’ information explosion and it is real and happening (Das & Achary 2014:553). The information explosion changes and increases the information demands of users, as well as alters the way they search information. Das & Achary (2014) also stated that in order to satisfy the change in information requests and the way users search information, libraries also need to change the way they provide services, the collection they develop, and the quality and relevance of electronic information they subscribe or acquire.

Information need in its direct meaning is the demands and wants for information. “When considered from a task performance point of view, information needs are the requirements for information as they are necessary to fulfil a task” (International Organisation for Standardisation (ISO) as cited in Blom 1983:4). “The term ‘information need’ does not necessarily imply that people are ‘in need of’ information as such, but that the use of information can lead to the satisfaction of a more basic need” Wilson (1981:5-6). Factors that affect the way users search information are level of knowledge about the information sources and/or information content, accessibility, quality, cost, timeliness and trustworthiness (Du Preez 2008).

Krikelas (1983:5-20) defines information-seeking behavior as “... any activity of an individual that is undertaken to identify a message that satisfies a perceived need” (Krikelas 1983:5-20). In other words, information seeking behavior is initiated by information seeking and it involves the actions someone has taken to satisfy the information need. According to Wilson (1999) information behavior is “activities a person may engage in when identifying his or her own needs for information, searching for such information in any way, and using or transferring that information”. Kadli and Kumbar (2013) described information seeking behaviour as the way people identify, locate, find, search, organise, and use the information they are looking for whenever necessary.

Information seeking behavior “involves a set of actions that an individual takes to express information needs, seek information, evaluate and select information, and finally use this information to satisfy his/her information needs” (Das and Achary 2014). In the digitized era, the way information is organized and retrieved is different from the traditional ways (Kadli & Kumbar 2013).

In a nutshell, the information seeking behavior is the approach users take to identify, search, and retrieve specific information from different formats currently available using different methods. Therefore, it is desirable to understand sources available to start the search, the way to search in different databases, the way we download or access the resources to satisfy our information needs. Before the emergence of IT in libraries, information seeking behavior was completely different from what it is now. In the present-day context, searching the card catalogue might not be the first approach to look for an electronic database. Knowing what information is required for an identified problem leads to the question of how to retrieve or obtain information. Therefore, information seeking behavior always follows the need to satisfy information need.

The findings from the study conducted by Al-Suqri (2011) on information seeking behavior of scholars in the social science field indicated that users followed different stages to search and retrieve information. According to Al-Suqri (2011) the stages included initiation where the users had their ideas about what information they would be looking for, what outputs to expect and their different searching strategies that they would apply. The next stage was exploration where the scholars refer and consulted different electronic information sources available. Then monitoring, categorizing, sifting, resource selection, collecting the information and ending the search comes. These stages covered checking for latest information and relevant resources, classify what format they would refer, skimming the relevant resources after identified them before the selection and collection of the resources (Al-Suqri 2011). The searching ended with the scholars outputs that were depended on their information seeking behavior skills applied (Al-Suqri 2011).

Das and Achary (2014) studied the information demands and the way users seek electronic information resources for nine traditional universities and three research

institutions. The study distributed 600 questionnaires to participants who were selected using random method of sampling. The paper reported that participants use more than one library tools to access information from various information sources. The results revealed that the way and procedures users follow to search has changed as the information sources have been broadened. The study collected data on users' information seeking behaviour and revealed that the current information and research articles users seek information. Mostly, participants preferred electronic information resources, followed by text books, and then reference books.

Folorunso (2014) summarised that the rise of digital resources, electronic databases, digitally born materials are most likely to have impact and change the way users search for information. This development has changed users' information seeking behavior. Libraries are now building relationships with their users using technologies such as Facebook, Flickr, blogs, and Twitter.

### **2.3.6 Users Preferences towards Electronic Information Resources**

Institutions are converting their collection to digital or electronic format as users' preferences are shifting to electronic information resources as they have become convenient, time saving, easy to share or use. For instance, Western Illinois University library in the United States converted most of its print-only serials subscriptions from 2003 to 2009 to be accessed digitally only or any print resources that encompassed electronic access (Matlak 2010). The UNECA library digitised its publications since 1959, to afford users convenient and timely access to all users around the world. Collection development is also giving emphasis and attention to electronic information resources worldwide. Larson (2017) reflects on the importance of electronic information resources as 'a backbone' for academic libraries. Unlike print collections, electronic information resources are noted to be more advantageous.

Access to electronic information resources has changed the information seeking behavior of users. To access information, users are not no longer expected to visit libraries if they

can connect to the internet using their devices at the comfort of their homes or personal spaces. Moyo (2017) studied third year Unisa students regarding their electronic resources awareness and usage. Moyo (2017) indicated in the study that majority of the respondents agreed on the advantage of using electronic information resources. The study found out that 72.2% of the respondents make use of these important electronic library resources even if there are challenges students face when using them (Moyo, 2017).

A study conducted by Folorunso (2014) on Nigerian Institute of social and Economic Research discovered that majority of scholars are users are more enthusiastic of electronic information resources and they relayed on these resources heavily than print resources. The respondents indicated that the scholars use electronic information resources highly (Folorunso 2014). The study by Folorunso (2014) however, recommended the need to create more opportunities to enhance access to electronic information resources in order to meet users' research needs.

### **2.3.7 Challenges to Utilise Electronic Information Resources**

Studies disclosed that users prefer to use electronic information resources and have already started to use the resources to access library services. Libraries have also advanced from printed collections to electronic information resources recognizing the many advantages and convenience that come with using electronic information resources. However, despite of the many advantages, there are also challenges that users encountered that limited the efficient and maximized use of electronic information resources. Just to name but a few, the challenges include lack of knowledge or shallow level of awareness on the availability of the resources, not being familiar with the resources, infrastructure to access them digitally, information overload, and users' orientation towards them.

#### *2.3.7.1 Awareness of Availability of Electronic Information Resources*

The degree of your knowledge about the availability and existence of electronic information resources in your library plays a very crucial role in using the resources efficiently. Adeleke and Nwalo (2017) acknowledge the importance of the awareness of availability of electronic information resources provided by your library since it will encourage users to appreciate and utilise the resources more and easily. Creating awareness about the available resources to the clients should be a crucial aspect in terms of encouraging the users to utilise the sources confidently.

Several studies done by for instance (Adeleke & Nwalo 2017; Larson 2017; Moyo 2017; Kwadzo 2015; Das & Achary 2014; Kwafoa, Osman & Afful-Arthur 2014; Ozoemelem 2009; Ibrahim 2004; Majid & Tan 2002) highlighted the degree of awareness about the electronic information services provided by your library is an significant factor in enhancing and maximizing the use of electronic information resources. The studies supported also unawareness was equally highlighted as a major factor to hinder to the maximum use of valuable electronic information resources

Larson (2017) conducted a study on 210 students at the University of Ghana in Accra to explore the level of awareness and use of e-resources provided by the Library. In this study, 75% of the participants knew the availability of the electronic information services provide by the Library. The study further revealed that participants were familiar with the different databases. The author concluded that awareness could provoke and elicit the high level of usage of the electronic information resources. Bajpai and Sharma (2017) conducted a similar study on users' awareness of electronic information resources and found that more than 80% of participants were aware that there are search engines, e-journals, and e-books. Kwafoa, Osman and Afful-Arthur (2014) assessed the use of electronic information resources at the University of Cape Coast in Ghana, which indicated that 92% of the respondents were aware of the existence of electronic information resources provided by the institution. The study conducted by Kwadzo (2015) on the graduate students of University of Ghana reported that 94% of the respondents were aware of the electronic information resources. Hadagali et al. (2012) studied four different Universities in Karnataka state regarding the use of electronic resources and

their findings indicated that 61.70% of the users know the about the availability of the resources. However, according to this study, the researchers indicated that more proper orientation should be given to the users to enhance the awareness level. 53.79% of the respondents knew about the availability of the electronic resources provided by trial and error than 14.48% from guidance from library staff or training offered by the library (Hadagali et al. 2012)

There are studies that indicated, majority of their respondents were not informed or not aware of the electronic information services provided by their Library. For instance, the study conducted by (Mayo 2017) revealed that not having the information about the availability of the electronic information services provide by the library were mentioned as a challenge faced by the users. Ozoemelem (2009:2) also proved that users may not have been exposed to library sources, or their level of awareness regarding services available at libraries and how to access the services, were very low. The findings of the focus group study at the University of Tennessee in the United States by (Tenopir 2003) also indicated that majority of the students did not know in detail what electronic information resources the library offered.

Intensifying awareness campaigns is necessary to enhance the utilisation of electronic information resources (Adeleke & Nwalo 2017: 65). After studying the use of information sources, Das & Achary (2014) recommended that awareness and training programs for electronic information resources should be run from time to time so that users are well informed of services available to them and use them to a maximum advantage.

#### *2.3.7.2 Complexity of Procedures on the Web*

There are different procedures to follow when searching for resources on the web. The process ranges from identifying the need, searching with appropriate key words, retrieving precisely, and identifying the relevant sources. Web based information sources differ respectively. Electronic information resources can be freely available online through search engines or through scholarly resources subscription by the library (Appleton

2006:620).

According to the study conducted by (Ard & Livingston 2014:521) users prefer to use information available freely on website than using scholarly resources and miss proprietary information that more effectively answers the need at hand.

Ozoemelem (2009) stated that internet search engines are straightforward, hence they are preferred over library databases. Moyo (2017) presented the respondents' average rating of 4.64% whereby freely available web-based resources were preferred, followed by subscribed electronic library resources. Moreover, in the same study, for 68% of the respondents the dominant source of information were searching the internet. Some participants in the study conducted by Ekwelem et al. (2009) at the University of Nigeria indicated that they prefer using the internet over other electronic information resources, subscription databases, and CD-ROM because internet search is more popular. Although participants in the study conducted by Hewitson (2002) indicated that the users have acknowledged about the information they have on the availability of different electronic information services including scholarly subscribed databases, however, they predominantly preferred to use freely available internet search engines.

There were some barriers such as forgetting log-in details (passwords and usernames) for subscribed databases, unfamiliarity with different search methods for accessing and utilizing eis. Dadzie (2005) noted access and login issues faced by users and explains that "too many passwords to remember" is one of the reasons for scholarly databases have not been fully utilised by the users. According to Toteng and Hoskins (2013), students are not making use of all electronic databases to the full potential because of "password requirements". The major challenge that was raised regarding user IDs and passwords involved the difficulty to use the services of getting the new ID/ passwords after office hours, once it is forgotten.

In using IP authenticated access, users will not have to worry about remembering their ID and passwords because login depends on the IP range of the institution. Patra (2017)

indicated that IP authentication is an ideal way of accessing electronic information services for on-campus users, however, it is not working well for off-campus users. Patra (2017) suggested for users outside of the designated IP range, either they use assigned login options to the database or use proxy server which allows the users to login with their credentials. This means that only authorised users can pass through the proxy, and this makes access complicated. The finding of Larson's (2017) study identified that 15.69 % of participants had issues regarding accessing the databases using passwords as this would discourage them and make them loose interest on the usage of databases in general.

Notable in Ozoemelem (2009:1) study, participants highlighted a common obstacle in the use of library sources, particularly electronic information resources. The common obstacle is that the use of electronic sources is not straightforward. Ozoemelen (2009:1) further highlighted that users' need skills, training, and knowledge on how to maneuver around different databases; as well as searching or querying different formats of electronic information resources. Issues highlighted by participants in this study included; not having knowledge regarding services offered by libraries, lack of exposure to library sources, lack of awareness campaigns by libraries on sources available to users, and how to make use of the services. Participants further expressed some challenges that came with using library information sources. Such challenges expressed include; getting confused, making errors, and inability to pay too much attention when using electronic information resources (Adeoye & Olanrewaju 2019). According to Adeoye and Olanrewaju (2019), 33% of the respondents attest that interacting with library electronic information resources is often frustrating.

Scotti (2010) indicated that users admitted that they get not only frustrated with information overload but also the disorganization of information retrieved. Users prefer to get filtered, relevant and important electronic information from their library (Scotti 2010:3)

Patra (2017) reports the disadvantages of using electronic information resources, namely; distress when reading from the screen, poor graphic quality of the documents, and

information or computer literacy skills to access the electronic information resources. Internet access, lack of skills to browse through internet resources, lack of computer and information skill, and familiarity with different databases or lack thereof; were some of the challenges expressed by participants in Addisalem (2016) study in using electronic information resources. These challenges or shortcoming restrict users to freely access resources from the internet and scholarly databases.

#### *2.3.7.3 Infrastructure*

Low internet connection and limited access to IT infrastructure are some of the challenges that were identified and associated with the use electronic information resources by users. A study by Toteng and Hoskins (2013), reported that students were not utilising all the electronic databases to the fullest because they struggled with slow Internet connection and lack of enough computers. The delay in downloading was also one of the challenges addressed by Ozoemelem (2009). The findings from a study conducted by Larson (2017) show that users of the library did not access and utilize electronic resources regularly because of the challenge of poor internet connectivity.

Research conducted by Addisalem (2016) reveal that Unisa students in Ethiopia are also affected by the issue of poor internet connectivity to use the electronic resources provided by the Unisa regional office library. Challenges to accessing the internet regularly, power interruptions from time to time, and low internet facilities were constraints identified by Adeleke and Nwalo (2017). Ani (2013) conducted a study with a population of 2035, for the University of Calabar and the University of Ibadan on the accessibility and utilisation of electronic information resources with 55.29% response. This large sample study concluded that better availability of computers and infrastructure produces better and efficient use of electronic information services.

The study conducted by Adeoye and Olanrewaju (2019) shows that 39% of the respondents at Lead City University strongly agree that they are discouraged to access and utilise the library electronic information resources due to the poor and slow internet

connection. A study by Adeleke and Nwalo (2017) indicated that infrastructure was a challenge to utilise the electronic information resources. In relation to this problem, Das and Achary (2014) suggested that having an IT policy that ensures sustainable access to technology will address the infrastructural problems such as poor internet connectivity.

#### *2.3.7.4 Information Literacy*

Using electronic information resources requires one to possess information literacy skills. Searching, identifying and downloading information are activities that are commonly performed using computer technology during the use of electronic information resources. Information literacy is a factor that enhances or influences the use of electronic information resources in a digital era (Odede & Zawedde 2018; Addisalem 2016; Ard & Livingston 2014; Kinengyere 2007; Ashoor 2005).

Adeoye and Olanrewaju (2019) investigated the skills needed by library users to utilize electronic information resources in connection with information literacy. The study reported that 27% of the respondents agree that they have been denied adequate opportunity to learn digital literacy skills needed to use the library electronic information resources. Odede & Zawedde (2018) investigated the various dimensional construct of information literacy in using electronic information resources. The study targeted a population of three universities with a response rate of 92%. This study highlighted information literacy to be the most crucial skill in the era of technology and ever-growing electronic information resources. Similarly, Odede & Zawedde (2018) studied the link between information literacy and the use of electronic information resources and discovered a present and direct link between information literacy and efficient use of electronic information resources.

Odede & Zawedde maintain that institutions that provide information resources services should also be information literate in order to be in a position to impart knowledge to library users. This is supported by Kinengyere (2007), who found that institutions that lacked the information literacy skills and knowledge to train library electronic information

resources users will impart inadequate information literature to users.

Kinengyere (2007) argues that the level of information literacy affects the efficiency and effectiveness in research process. According to Kinengyere (2007), if library users and librarians are not information literate, this will have a negative impact on users as they require such skills to access and use information needed for their researches. In support of this view, 35.7% of the respondents from Kinengyere (2007) strongly agree that information literacy skills are required to have a smooth research journey, and to locate electronic information resources from various multiple sources. Another 43% of participants in the same study agrees with this perspective, stating that information literacy skills are needed for easy browsing of online databases to locate pertinent information.

Kinengyere (2007) found that majority of respondents in the study supports the need for information literacy skills as this will help in recognising the different methods of information resources access. According to Kinengyere (2007:329), to be information literate involves the knowledge about how to define a subject to be investigated, identify and use appropriate key words that clearly express the concept, knowing how to develop a searching strategy for various sources, retrieve relevant, quality resources as well as organizing and analyzing the resources to formulate knowledge. The findings of this study concluded that competency in information literacy affects the level of access and use of the electronic information resources provided.

Ard and Livingston (2014:526) emphasised the impact of information literacy as follows:

“Perhaps now more than ever there is an understanding of the true impact of information literacy in today’s work-force. The volume, velocity and veracity of information is overwhelming. Everyone knows that. Perhaps what everyone does not realise is that, through a life-long cycle of teaching information literacy in today’s digital age, librarians are teaching the critical skills needed to effectively manage the information intake of end users” (Ard and Livingston 2014:526).

The core skill required to meet the need of users of special libraries includes analytical and research skills. Information professionals must know where to send users for information. But knowing where to go for information must be accompanied by knowing how to use the sources (Ard & Livingston 2014:526). This study conducted by Addisalem (2016) proved that information literacy is the most important skill required in the information age and it is the area where respondents expressed a need for searching skills training. Addisalem (2016) also indicated that lack of knowledge on how to search databases for information was identified as a challenge for users who make use of electronic information resources effectively.

The findings from Adeleke and Nwalo (2017) showed that lack of knowledge for effective information searching techniques (Mean = 2.08) was identified as one of the constraints. The writer concluded that low level of usage of electronic information resources is linked to lack of searching techniques and skills by the users. Ard & Livingston (2014:519) suggested the need for quality reference services and complex analytical skills to understand users' needs, and to further assist them in the ever-growing collection and open access resources.

The case study conducted by Das & Achary (2014) on social sciences scholars regarding information seeking behavior indicated that majority of users has internet proficiency. However, some of them have expressed their limited knowledge in retrieving relevant information from internet sources. The study found that 39.14% of the users still need assistance from library professionals to locate or identify sources of information.

The findings of the study conducted by Hadagali et al. (2012) indicated that 97.24% of the university students highlighted the need for training on how to do online resources searching skills followed by how to filter online resources (57.93%).

#### *2.3.7.5 Usage Analysis*

Libraries analyse the usage of their electronic information resources. It is important to

clarify the users of subscription services and other electronic information resources. It is the librarian's responsibility to check the number of downloads or access to each database and the items they contain. Verminski & Blanchat (2017) argue that: depending on users' interactions with digital contents, the libraries can measure the success and demonstrate whether or not a resource is relevant. Based on the measurement of information, budget related decisions can be taken.

There are different tools and mechanisms that are put in place to navigate the usage of library resources such as evaluation and monitoring tools for library electronic information resources. According to Patra (2017) usage statistics; downtime analysis and review problems, uniqueness of resources, and users' feedback are such important evaluating and monitoring tools. Evaluation and monitoring management are crucial aspects of appraising the performance of electronic information resources. Evaluation and monitoring management serve as guides for librarian to make certain decisions on the usage electronic information resources, such as renewal or cancelation processes.

The study conducted by Larson (2017) suggested that: "Libraries should carry out assessment needs of all the databases subscribed to, and those that are not in use should not be subscribed to again". Feedback and useful input from users are great tools for evaluation of the nature of electronic information resources. Users' feedback may include issues relating to relevance and quality of content, and research on the usability of electronic information resources (Patra, 2017). With complete information about usage, it becomes easier for librarians to evaluate the cost-effectiveness or usage of resources Patra (2017).

Libraries keep direct usage statistics for every title provided by vendors (Matlak 2010:145). For the library, this is the prime determinant or deciding factor for ordering or canceling users' subscriptions. Downloading signifies the use of resources by the library. When using electronic information resources libraries should focus on usage statistics to make an informed decision.

### **2.3.8 Chapter Summary**

This chapter covered theoretical framework that guided the study and literature review related to the study objectives. Theoretical framework this chapter covered included Wilson's models in information behavior and Technology Acceptance Model. Topics that this chapter has covered included electronic information resources, its usage, awareness, challenges and reasons why they are relevant. The chapter further outlined literature on special library, information literacy, electronic information resources, challenges and barriers, users' information seeking behaviors, preferences and importance of evaluation and monitoring. The next chapter covers methodology used in this study.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.0 Introduction**

Research methodology applied for this study covered under this chapter. It discussed the different research approaches applied, research designs and methods, population of the study, sampling procedures and methods followed, data collection procedures and presentation and analysis of data, and ethical considerations during data collection.

##### **3.1.1 Research Approach**

According to Creswell (2014), research approach comprises of strategies and steps to be followed in carrying out a research project. The process begins from the philosophy, ways of collecting data, analysis, and interpretation. There are three known research approaches applied in any research. These approaches are quantitative, qualitative, and mixed methods (Creswell 2014; O'Dwyer 2014; Lohr 2010; Creswell 2009; Sekaran & Bougie 2009).

The main characteristics of quantitative research approach are: it is a research approach that is applied to solve a particular problem which abstracts instances to get general conclusion; it depends on quantification and number of ideas, phenomena, and concepts; it is applied to evaluate measurements and helps to test theories by using variables; it is a replicable and structured approach that tests a hypothesis and theories based on instances that create and check relationships among variables, and the results are measured using statistical procedures. Some of the techniques applied are Experiments, Surveys and using existing statistics (Creswell 2014; O'Dwyer 2014; Lohr 2010; Creswell 2009; Sekaran & Bougie 2009).

Some of the characteristics of qualitative approach as described by (Creswell 2014; O'Dwyer 2014; Lohr 2010; Creswell 2009; Sekaran & Bougie 2009) are; it explores and study the social and personal problems as a group or an individual; it tests texts to give meaning of data collected; it requires rigorous research and creativity, it is associated

with the nature of reality, truth of existence and being, which makes it ontological. Data analysis for qualitative approach analyses numbers and interpretation of the meaning of data collected. The data collection for qualitative approach involves than open-ended questions closed-ended questions rather than closed-ended questions (qualitative interview questions).

Mixed methods research approach combines or incorporates both qualitative and quantitative methods. According to Creswell (2014); Creswell (2009); Lohr (2010); O'Dwyer (2014); Sekaran & Bougie (2009), mixed research approach focuses on global philosophical assumptions; the use of qualitative and quantitative approaches, and the mixing of both approaches in a study. Thus, it is more than simply collecting and analysing both kinds of data.

According to Creswell (2014), there are four assumptions of research approach, namely; post positivism which represents traditional form of research that is more of quantitative in nature, constructivism which represents social constructive and is more of qualitative, transformative which focuses on inequalities and uses qualitative approach, and pragmatism which is not committed to any of the systems and applies mixed research. This study is closer to the post positivism assumption, which is known as scientific research. According to Creswell (2014), this assumption determines effects or outcomes which assess and identify the causes that influence the outcome.

The researcher used quantitative approach to describe the current status for access and utilization of electronic information resources provided by the library and explore if there are any challenges faced by the user. The researcher used primary data to draw generalised conclusion about the use of electronic information resources for the UNECA library.

### **3.1.1 Research Design and Method**

O'Dwyer (2014:149) explains research design as follows: "Researchers should choose

research designs, procedures, data collection instruments, and data analysis methods that: are appropriate for addressing the question(s) posed; allow generalizations to be made to other participants and settings beyond their study; and that minimize all feasible alternative explanations for the results observed". As explained by Creswell (2014), survey design as a quantitative or numeric description adopted to study a sample from the population in order to get information that can be used to generalise trends, attitudes, and opinions of the population is being studied. Gideon (2012) stated that researchers use surveys to share knowledge, test assumptions and, challenge existing assumptions, and develop new theories or policies.

For this research, the non-experimental quantitative research approach was chosen, under which survey method was used to access a sample at a cross-sectional time frame, to investigate the use of electronic information resources by UNECA library users.

### **3.2 Population of the Study**

A population means an all-inclusive group of individuals, persons, events that possess the characteristics that the researcher aims to study and examine (Creswell 2014). According to O'Dwyer (2014:76), a population "...includes all individuals or groups that possess the characteristic that the researcher aims to investigate."

The registration database of users in the library has information about internal users namely staff members of the organization who use the resources. Staff members include staff of UNECA and UN Agencies. There are also external users, that is, non-staff members who use the library resources. They include: researchers, students, retirees or meeting and conference participants.

This study investigated both internal and external users of the library. At the time of the study, there were 500 registered internal users and 100 external users. Thus, the total population for the study was 600 users of the UNECA library.

### **3.3 Sampling Procedures and Methods**

In a survey research that involves large population, it is not feasible to conduct census because of time and money constraints, difficulties in accessing general population, and large size of population (O'Dwyer 2014). The next and most important step is sampling. Sampling allows the researcher to select samples that must represent the general population (O'Dwyer 2014).

Sampling is the process of selecting enough elements from the population (Powell & Connaway 2004:93). Sampling procedures are very crucial in quantitative research as generalisation is derived from the sample selected (O'Dwyer, 2014).

#### **3.3.1 Sampling Technique**

The two major sampling procedures that can be applied in social sciences are probability or random sampling, and non- probability or non-random sampling (Creswell 2014; O'Dwyer 2014; Lohr 2010; Creswell 2009; Sekaran & Bougie 2009). In probability, sampling every element has a known probability of being selected from the population and considered the "gold standard" (O'Dwyer 2014:78). Examples of random sampling procedures include stratified random sampling, simple random sampling, systematic sampling, and cluster random sampling. In non-probability sampling procedure, the probability of an element being sampled from the population cannot be established (O'Dwyer 2014). Some examples are convenience, quota, and snowball sampling (O'Dwyer 2014).

This study was guided by a random sampling technique. Using a stratified random sampling, the population is grouped into homogenous blocks or strata then within each stratum a sample is randomly selected. The simple random sampling was applied to have equal probability of being selected in each group.

The UNECA library has two separate registration lists for internal and external users. For

the internal users, the list is registered once when the users created their library accounts to for all the services. However, for the external users' registration was created whenever users walked in to use the library.

### **3.3.2 Sampling Size**

There is no clear-cut rule for the size of data that should be used. However, the general rule of thumb for sample size is, the larger the better (Connaway & Radford 2017). According to Fraenkel & Wallen (2011 in O'Dwyer 2014:87), it is recommended that descriptive studies should have a sampling minimum of 100 individuals, whereas Mertler & Charles (2010) recommend sampling size of between 10% and 20%. O'Dwyer (2014) recommended that the researcher should size that it is enough to provide a degree of generalization in addition to the consideration of the response rate, as not all potential respondents might be available.

Considering the above discussion, the researcher decided to select 20% sample size (100) from the target population of the internal users, and sample size (20) from the target population of the external users.

### **3.4 Methods and Data Collection Procedures**

Research methods involves forms of data collection, analysis and interpretation that researchers propose for their studies (Creswell 2014). Data can be collected through observation, conducting interviews, or through prepared questionnaires.

Questionnaires is the most popular and commonly applied data collection tools (Creswell 2014; O'Dwyer 2014; Lohr 2010; Creswell 2009; Sekaran & Bougie 2009), some of the advantages of using questionnaires as measurement instruments are: respondents report about their own attributes, respond to questions, endorse statements, report on behaviors, and provide data to answer the research questions. Questionnaires are efficient data mechanism when the research knows exactly what is required and how to measure the variables of interest (Sekaran & Bougie, 2009). In survey research,

questionnaires are used as primary data collection instruments. For data collection, the researcher applied a web-based questionnaire.

### **3.4.1 Data collection procedures**

In this study, structured web-based questionnaire was distributed to users who were randomly selected from the total population through email. Some of the advantages of questionnaires are: respondents give frank answers, respondents can complete forms without the presence of the researcher, avoids interview bias, the questions are in a fixed format, the contents are organised, quantitative data are easy to collect, and are relatively less expensive to administer as compared to other data collection methods (Powell & Connaway 2004:125).

Sekaran & Bougie (2009) informed that the language and wording of the questionnaire should focus on issues such as the type and form of questions asked (i.e., open-ended and closed questions, and positively and negatively worded questions). They advised avoiding “double barreled questions, ambiguous questions, leading questions, loaded questions, questions prone to tap socially desirable answers, and those involving distant recall.”

There are various ways to administer questionnaires, depending on the budget and time allocated to the research. Such ways include mail, telephone, internet or web-based (O’Dwyer 2014). Recently, administering questionnaire through web-based tools is becoming more popular. Few researchers (Adams 2018; Raubenheimer 2016; Hlongwane 2014; Mavodza 2010) applied web-based tool in their study to administer questionnaire for academic purpose at the Masters and doctoral levels at UNISA in the field of Information Science.

Other studies conducted by Adams (2018); Raubenheimer (2016); Hlongwane (2014); Mavodza (2010) applied web-based tool known as survey-monkey. According to the researcher, using survey monkey is the easier method as it is able to reach large number

of users, it is easy to administer, easy to collect data, easy to analyse the collected data, and no limitation on geographical distance, and it reduces data entry errors. E-mail surveys are defined as surveys in which a computer plays a major role in the recruitment of potential respondents. Email surveys have quick delivery, respondents can send questionnaire through email, and collection of data can be done through email from actual respondents (Jansen et al. (as cited in Gideo 2012).

Gideon (2012) highlighted that e-mail-based surveys are perceived to be cheaper methods of data collection as compared to face-to-face, phone, and mail surveys; because the cost of administration and delivery is low. Administering survey with email has the advantage of low research costs, easy administration in terms of time frame, and the response is quick. Participants can respond to the questions directly on the web-based interface and submit back to the sender using the same method.

For this study, a total of 120 web-based questionnaires were send through to users' email. The web-based questionnaire was designed and distributed using survey monkey, with a brief introduction about the researcher, explanation on the purpose of the research, and reasons why the respondents were selected. Informed consent was also sent through to the study participations. The link to the survey was sent with the message through email to randomly selected users.

### **3.4.2 Structure of the Questionnaire**

The questionnaire was prepared based on the research objectives to answer the research questions of the study. The web-based questionnaire contained a cover letter with a brief description about the purpose of the study, consent to participation for the study. The researcher prepared 13 questions in the questionnaire in order to address the research questions (Refer to Appendix I). The types of questions are open ended, close ended, ranking, number ranking, and scaling. The study used the same questionnaire for both internal and external users. The questions were based on the initial scale items for perceived usefulness and perceived ease of use developed by Davis (1989). The initial scale used by Davis (1989) was worded in reference to electronic mail system. However,

the researcher modified the worded scale to electronic information system and changed the items accordingly to suit the objectives of the study. The questionnaire has six sections, namely; user profile information, information about the services of the library, sections regarding usefulness, easiness, satisfaction, challenges and demanded services for recommendations. Prior to formulating the questionnaire, the researcher examined previous studies on the use of electronic information resources. For the full detail of the question used in this study please see appendix I.

### **3.5 Validity and Reliability of the Instruments**

Validity and reliability are means of assessing instruments in quantitative research. The instruments should measure what it is intended to measure and should produce consistent results at different times. O'Dwyer (2014:60) stated that validity is the accuracy of the inferences made from the data provided by a measurement instrument. Reliability on the other hand, is the degree to which a measurement instrument provides consistent information. Ngulube (2003:215) mentioned that pre-testing plays an important role in maximising the reliability and validity of the data collection instruments.

To ensure the validity and reliability of the instrument in this study, a pre-test on the instrument was conducted. The purpose of the pre-test was to revise problematic questions, eliminate any ambiguity, and rephrase or delete unnecessary questions based on the feedback received. To pre-test the instrument, four UNECA Library users from both clusters were selected by the researcher to determine the effectiveness of the questionnaire in producing valid and reliable results. Based on the feedback collected from the users, the researcher reviewed the questions, made necessary amendments, and redesigned the questionnaire to a final version for distribution. The subjects used in the pretest were not involved in the survey.

#### **3.5.1 Data Presentation and Analysis**

Once the researcher collected the necessary data, the next step is to present and analyse

the data. It is important to analyse the collected data, to give meanings for the findings, and discuss them for further understanding. Data analysis can be on numbers or text information that is collected through the data collection methods (Creswell 2014). It can be from scaling the numbers to recording the texts.

The analysis process involved coding the responses, placing each answer in a category, tabulated the data, and performing statistical computations (Connaway & Radford 2017). All the analysis of data was done using the built-in analysis software in survey monkey. Tabulated presentation was applied to summarise and describe the data using simple frequency and percentage. The analysis was done based on the exact number of respondents' answers and the percentages vary for individual questions because not all respondents answered all the questions asked in the survey.

### **3.5.2 Ethical Considerations**

Ethical considerations for library and information professionals are the same as other professionals. Froehlich, in Powell & Connaway (2004:71) explained ethical considerations of information professionals as: "issues related to plagiarism, falsification or fabrication of data, dual submissions of manuscripts to journals, and duplicate publication of identical or largely identical manuscripts without permission from the editors". Ethical clearance applications was submitted to Unisa at the beginning of this study and the researcher obtained a clearance from Unisa Research and Ethics Committee.

According to Guidelines for Master's and Doctoral Studies (2019), the researcher should be: "responsible for the well-being of your respondents / participants during the time they collaborate as part of your investigation" (UNISA 2019:37). Following the guidelines by UNISA, this study informed the participants about the purpose of the study and requested voluntary participation. Participants were fully informed and guaranteed of their rights and issues of confidentiality. This research was conducted according to scientifically proven methods. Issues of biasness were addressed and avoided. Anonymity and confidentiality

of participants were maintained. The study acknowledged works and sources of other authors used by providing a complete list of referencing.

### **3.5.3 Chapter Summary**

The chapter covered the research methodology, research approaches, research design, data collection techniques and procedures applied in this study. Quantitative research approach was used. The instruments used for data collection in the study was questionnaire, which was distributed to the sample selected from the population. To ensure validity and reliability, Pre-test on the instrument was conducted prior to the main study, to get feedback and opportunity to revise the questions accordingly. Simple random sampling was used in the selection of UNECA library users. The data for the study were analysed through built-in analysis tool using survey monkey.

## CHAPTER FOUR PRESENTATION OF RESULTS

### 4.0 Introduction

This study examined the access and use of the electronic information resources in the UNECA library. This chapter reports the results of the findings of the study conducted, by applying the research methodology discussed in the previous chapter. Data were collected using structured web-based questionnaire distributed through survey monkey for both internal and external users of the library.

The results of the survey are presented as follows: demographics of respondents, level of awareness, access and use of e-resources, perceived usefulness and easiness of the electronic information resources, the effects of utilising electronic information resources on performance, challenges of using UNECA electronic information resources and recommendations to enhance usage of the resources.

#### 4.1 Demographic Characteristics of the Respondents

It was observed that from the total questionnaire distributed for both internal and external users, the response rate was 84 (70%). Table 4.1 shows the overall response rate.

**Table 4.1 Distribution of respondents by category**

Description	Internal (N=100)		External (N=20)		Total (N=120)	
	Frequency	%	Frequency	%	Frequency	%
Responses	66	66	18	90	84	70
Non responded	34	34	2	10	36	30
Total	100	100	20	100	120	100

The analysis of the results indicated that out of a total of 84 responses 53(63.1%) were male and 31 (36.9%) were female. In both clusters, majority of the respondents are male.

**Table 4.2 Distribution of respondents by gender**

Gender	Internal (N=100)		External (N=20)		Total (N=120)	
	Frequency	%	Frequency	%	Frequency	%
Male	39	59.1	14	77.8	53	63.1
Female	27	40.9	4	22.2	31	36.9
Total	66	100	18	100	84	100

#### **4.1.1 Availability of Electronic Information Resources in UNECA Library**

Respondents were asked if they are aware of the electronic information resources provided by the UNECA library and their answers are indicated in the table 4.3. The analysis of the responses shows that 92.3 % of the total population or 91.4% of internal users and 93.3% of external users are aware of the electronic information services provided by the UNECA Library.

**Table 4.3 Awareness about availability of Electronic Information Services**

Awareness of availability of EIS	Internal (N=100)		External (N=20)		Total (N=120)	
	Frequency	%	Frequency	%	Frequency	%
Yes	53	91.4	14	93.3	72	92.3
No	5	8.6	1	6.7	6	7.7
NR	8		3		11	13
Total	66	100	18	100	84	100

##### *4.1.1.1 Types of Electronic Information Resources available to UNECA Library users*

There are different electronic information services provided by the UNECA library to serve its clients. This question sought to know how frequently the scholarly databases are accessed and utilised. The respondents were asked: Which of the following Electronic Information Services provided by the UNECA Library do you use frequently?

The results in Table 4.4 indicate that all resources are accessed and utilised by the users. The most frequently used Electronic Information Services are e-journals (59.2%), the Institutional repository (55.3%), Internet access (47.4%), E-Books (46.1%), subscribed online databases (Pro Quest, Ebscohost, Emerald (40.8%). This finding indicated that there is variation between internal users and external users. For the Internal users, the

Institutional Repository and E-journals are highly consulted. However, for the external users, Internet access and E-journals are highly accessed and consulted.

**Table 4.4 Frequently used Scholarly Databases**

Scholarly databases	Internal (N=100)		External (N=20)		Total (N=120)	
	Freq	%	Freq	%	Freq	%
Subscribed online databases (Pro Quest, Ebscohost, Emerald...	29	47.5	2	13.3	31	40.8
Open Source Online Databases (Google Scholars, AJOL	21	34.4	7	46.7	28	36.8
E-Journals	36	59.0	9	60.0	45	59.2
E-Books	29	47.5	6	40.0	35	46.1
Library website	28	45.9	5	33.3	33	43.4
Institutional Repository	37	60.7	5	33.3	42	55.3
Knowledge portals like ASKIA	17	27.9	1	6.7	18	23.7
Internet access	27	44.3	9	60.0	36	47.4
Others	2	3.3	1	6.7	3	3.9
NR	5		3		8	9.5

Note: Multiple response questions

#### 4.1.2 Frequency of use of Electronic Information Resources

Respondents were asked how frequent they used the electronic information resources provided by the UNECA library. The results in Table 4.5 indicate that 27 (35.1%) of the respondents use the resources at least once or twice a week. This was followed by once a month 19 (24.7%) and everyday 17 (22.1%). There are 7 (9.1%) respondents who indicated that they use the electronic information resources whenever the need arises.

**Table 4.5 Frequency of using Electronic Information Resources**

Frequency of use	Internal (N=100)		External (N=20)		Total (N=120)	
	Freq.	%	Freq.	%	Freq.	%
Everyday	16	25.8	1	6.7	17	22.1
At least once or twice a week	18	29.0	9	60.0	27	35.1
Once a month	19	30.7	0	0.0	19	24.7

Once every 6 months	5	8.1	1	6.7	6	7.8
Once a year	0	0.0	1	6.7	1	1.3
Others	4	6.5	3	20.0	7	9.1
NR	4		3		7	8.3

Note: Multiple response questions

#### 4.1.3 Utilisation of Electronic Information Resources

The results in Table 4.6 indicate a list of scholarly databases and electronic information resources which are frequently utilised. The respondents were asked the question: Which of the following Electronic information resources /Scholarly Databases do you use frequently? All the resources are utilised by both internal and external users frequently. However, the range varies from high, medium, and low usage. As indicated in, among all the resources, highly utilised resources are: The Economist (47.3%), African Journals Online (AJOL) (32.4%), JSTOR (31.1%), Ebscohost (27%), Sciencedirect (28.4%), Financial Times (25.7%), World Bank e-library (25.7%), Emerald Insight e-resources (24.3%), Economic Intelligence Unit (EIU) (21.6%), OECD Library (21.6%), Proquest Central (18.9%), and Wiley Online Library (18.9%).

Other resources are utilised from 10% to 15 % of users. For instance, EconPapers, Safari Online Library, Cambridge Journals Online, Oxford Journals Online, Oxford Journals Online, OSO e-books, Econlit and UN ILibrary. Other resources such as CIAOnet, Global Economic Monitor (GEM), Contemporary women's issues, North Africa Journal, Gale and Project Muse have low utilisation rate by internal users and none by external users.

**Table 4.6 Utilisation of Scholarly databases and Electronic Information Resources**

Electronic Information Resources	Internal Users %	External Users %	Total %
African Journals Online (AJOL)	33.3	28.6	32.4
Cambridge Journals Online	16.7	7.1	14.9
CGIAR Virtual Library	11.7	7.1	10.8

Electronic Information Resources	Internal Users %	External Users %	Total %
CIAOnet	8.3	0.0	6.8
Contemporary women's issues	3.3	0.0	2.7
Ebscohost	28.3	21.4	27.0
Econlit	13.3	7.1	12.2
EconPapers	13.3	21.4	14.9
The Economist	48.3	42.7	47.3
Economic Intelligence Unit (EIU)	21.7	21.4	21.6
Emerald Insight e-resources	26.7	14.3	24.3
Financial times	28.3	14.3	25.7
Gale	3.3	0.0	2.7
Global Economic Monitor (GEM)	8.3	0.0	6.8
JSTOR	33.3	21.4	31.1
Nature.com	11.7	14.3	12.2
North Africa Journal	6.7	0.0	5.4
OECD Library	21.7	21.4	21.6
OSO e-books	15.0	7.14	13.5
Oxford Journals Online	13.3	21.4	14.9
Project Muse	3.3	0.0	2.7
Proquest Central	20.0	14.3	18.9
Safari Online Library	13.3	14.3	13.5
ScienceDirect	26.7	35.7	28.4
Taylor and Francis Online	10.0	21.4	12.2
UN ILibrary	11.7	14.3	12.2
Wiley Online Library	18.3	21.4	18.9
World Bank e-library	28.3	14.3	25.7
Others: Please specify	6.7	7.1	6.8
NR	6	4	10
Total	60	14	74

Note: Multiple Response Questions

#### 4.1.4 Place of access

Respondents were asked about the location from where they access UNECA electronic information resources. Table 4.7 shows that 59.52% of the respondents access and utilise the resources within the UNCA library. On the other hand, 40% of the respondents access and utilise the resources remotely. To make it clear, remotely in this context refers to any location in the UNECA compound. As indicated in the introduction part the resources are accessed within limitation of the IP address of the organization. Beyond this IP address the resources are not accessible.

**Table 4.7: Place of access to the electronic Information Resources**

Where do you access e-resources	Internal users		External users		Total	
	Freq	%	Freq	%	Freq	%
In the UNECA Library	35	53.0	15	83.3	50	59.5
Remotely	31	47.0	3	16.7	34	40.5
Total	66	100	18	100	84	100

#### 4.1.5 Perceived usefulness

Table 4.8 below shows the distribution of perceived usefulness of electronic information resources for users. A likert scale with eleven items was applied to evaluate the opinions of the users on a rating scale of 1-4. Scale rating numbers represented the following: the scale of 1 “Strongly agree”, 2 Agree, 3 Disagree, 4 “strongly disagree”, 5 for “NA”. Scale 1 and 2 represent positive affirmation while response 3 and 4 represent negative affirmation. The individual items were asked under the question: How useful are the Electronic Information Resources provided by the UNECA Library to you? Generally majority of the respondents positively affirmed that using electronic information provided by the UNECA are useful because the resources saved their time, improved their outputs, made it easier for them to access information and facilitate their research work, and the

service allowed them to access different materials at the same time.

A total of 87.5% of the respondents have positively affirmed (52.8% strongly agreed and 34.7% agreed) that accessing and using Electronic Information Resources anytime anywhere is convenient. 34.3% strongly agreed and 57.5% agreed with a total of 91.78% of the respondents confirmed and positively agreed that Electronic Information Resources addressed their information needs related their job, 97.18% of the respondents indicated that accessing and using Electronic Information Resources saved time. 91.55% similarly indicated that Electronic Information Resources enabled them to accomplish tasks more quickly; 89% of the users affirmed positively that Electronic Information Resources provided by the UNECA Library improved the quality of output. 93.1% moreover, agreed positively that accessing and using Electronic Information Resources made it easier to do any research". 97.22 indicated that using Electronic Information Resources is more convenient for them to use, and 93.06% affirmed that Electronic Information Resources afforded them the opportunity to access multiple resources at the same time. Overall, accessing and using the electronic Information Resources provided by the UNECA Library was useful to 87.67% of users of the UNECA library.

**Table 4.8 Perceived usefulness of the Electronic Information Resources**

Usefulness Measures	Strongly Agree		Agree		Disagree		Strongly Disagree		N/A		TOTAL	
	Fre q	%	Fre q	%	Fre q	%	Fre q	%	Fre q	%	Fre q	%
Accessing and using Electronic Information Resources anytime anywhere is convenient for me.	38	52.8	25	34.7	4	5.6	1	1.4	4	5.6	72	
The Electronic Information Resources addressed my information need related to my Job	25	34.3	42	57.5	3	4.1	0	0.0	3	4.1	73	
Accessing and using Electronic Information Resources saved time	42	59.2	27	38.0	1	1.4	0	0.0	1	1.4	71	
Electronic Information Resources enabled me to accomplish tasks more quickly	30	42.3	35	49.3	4	5.6	0	0.0	2	2.8	71	
The Electronic Information Resources provided by the UNECA Library improved the quality of output I produce	24	33.3	40	55.6	2	2.8	0	0.0	6	8.3	72	
Access and using Electronic Information Resources made it easier to do any research	36	49.3	32	43.8	3	4.1	0	0.0	2	2.7	73	
Using the Electronic Information Resources is more convenient for me to use	37	51.4	33	45.8	1	1.4	0	0.0	1	1.4	72	
The Electronic Information Resources gave me the opportunity to have access to multiple resources at the same time	40	55.6	27	37.5	2	2.8	0	0.0	3	4.2	72	
The Electronic Information Resources helped me to find current and Up-to- Date information in my field of work	27	37.0	37	50.7	5	6.9	0	0.0	4	5.5	73	
The Electronic Information Resources are relevant to the subject matter of my interest	25	34.3	38	52.1	7	9.6	0	0.0	3	4.1	73	
Overall, accessing and using the Electronic Information Resources provided by the UNECA Library is useful.	38	52.1	31	42.5	1	1.4	1	1.4	2	2.7	73	
NR							11					

Note: Multiple Response Questions

#### 4.1.6 Perceived ease

Table 4.9 shows the distribution of perceived easiness of the electronic information resources for users' work or research. A likert scale with ten items was applied to evaluate the opinions of the users on a rating scale of 1-4, with these scale representations: 1 "Strongly agree", 2 Agree, 3 Disagree, 4 "strongly disagree", 5 "NA". Scale 1 and 2 represent positive affirmation, while response 3 and 4 represent negative affirmation. The analysis shows that 32.9% strongly agreed and 52.1% agreed that is a total of 85% of the respondents positively affirmed that it is easy for them to understand the Electronic Information Resources. Similarly, 86.3% of the respondents have positively affirmed that it was easy for them to remember how to search and retrieve what they want using Electronic Information Resources. Likewise, 86.3% positively affirmed that it was easy for them to interact with the Electronic Information Resources. 84.7% also positively affirmed that it was easier for them to search and retrieve resources they wanted. For 73.9% of the respondents positively agreed (43.8% strongly agreed and 30.1% agreed) that Google search is easier for them than the electronic information resources provided by the Library. However only 24.7% of the respondents negatively affirmed that Google search is easier for them than the Electronic Information Resources. 88.9% positively agreed that Using the Electronic Information Resources provided by the UNECA Library is easier to use than print resources. 62.5% of the respondents strongly disagreed or disagreed that that they often became confused when they were using Electronic Information Resources.

However, only 30.5% agreed that they often became confused when they were using Electronic Information Resources. It is only 24.7% that expressed that they often became frustrated when they were using Electronic Information Resources, but the majority 68.5% of the respondents disagreed or negatively affirmed that they became frustrated when using electronic resources. Overall, majority (83.6%) of participants agreed or strongly agreed that access and use of Electronic Information Resources provided by the UNECA Library was easy to use.

**Table 4.9 Perceived easiness of the Electronic Information Resources**

Easiness Measures	Strongly Agree		Agree		Disagree		Strongly Disagree		N/A		TOTAL	
	Fre q	%	Fre q	%	Fre q	%	Fre q	%	Fre q	%	Fre q	%
It is easy for me to understand the Electronic Information Resources	24	32.9	38	52.1	6	8.2	2	2.7	2	4.1	73	
It is easy for me to remember how to search and retrieve what I want using Electronic Information Resources	24	32.9	39	53.4	6	8.2	2	2.7	2	2.7	73	
It is easy for me to interact with the Electronic Information Resources	27	37.0	36	49.3	7	9.6	1	1.4	2	2.7	73	
It is easy for me to search and retrieve resources I want	24	33.3	37	51.4	8	11.1	1	1.4	2	2.8	72	
Google search is easier for me than the Electronic Information Resources	32	43.8	22	30.1	18	24.7	0	0.0	1	1.4	73	
Using the Electronic Information Resources provided by the UNECA Library is easier to use than Print resources	34	47.2	30	41.7	6	8.3	0	0.0	2	2.8	72	
I often become confused when I use the Electronic Information Resources	6	8.3	16	22.2	29	40.3	16	22.2	5	6.9	72	
I often become frustrated when I use with the Electronic Information Resources	7	9.6	11	15.1	34	46.6	16	21.9	5	6.9	73	
Overall, access and use of Electronic Information Resources provided by the UNECA Library is easy.	18	24.7	43	58.9	9	12.3	2	2.7	1	1.4	73	
NR												11

Note: Multiple Response Questions

#### **4.1.7 Factors that affect the utilization and access fo electronic information resources in the UNECA Library**

Table 4.10 reveals the impact of accessing and utilising electronic information resources for the performance of users at the UNECA library. The table 4.10 shows the four items with four scale, the responses were as follow: Overwhelming majority of the respondents (89.2%) positively agreed that access and use of Electronic Information Resources in research increased their research productivity. For 87.9% of the respondents agreed or strongly agreed that access and use of Electronic Information Resources improved the quality of my research. 89.2% of the respondents also strongly agreed or agreed access and use of Electronic Information Resources promoted efficiency and effectiveness in my research. Overall, majority (89.24%), 32.4% of the respondents strongly agreed or 56.8% of the respondents agreed that access and use of the Electronic Information Resources provided by the UNECA library has improved their performance.

**Table 4.10 Utilisation of the Electronic Information Resources**

Productivity Measures	Strongly Agree		Agree		Disagree		Strongly Disagree		N/A		TOTAL	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Access and use of Electronic Information Resources in research increase my research productivity	20	27.0	46	62.2	1	1.4	0	0.0	774	9.5	74	
Access and use of Electronic Information Resources improve the quality of my research	23	31.1	42	56.8	2	2.7	0	0.0	7	9.5	74	
Access and use of Electronic Information Resources promote efficiency and effectiveness in my research	21	28.4	45	60.8	0	0.0	1	1.4	7	9.5	74	
Overall, Access and use of the Electronic Information Resources provided by the UNECA Library has improved my performance.	24	32.4	42	56.8	1	1.4	0	0.0	7	9.5	74	
NR											10	

Note: Multiple Response Questions

#### **4.1.8 Challenges to use UNECA Electronic information resources**

Users have indicated different challenges that they faced when using electronic information resources. As indicated in the literature review, some challenges included lack of digital literacy skills, not being aware of the resources provided, slow internet connectivity, information overload, logging credentials, lack of knowledge and skills including information literacy, and lack of training by the librarians.

The challenges were measured by eleven (11) items. Table 4.11 shows the distribution of challenges experienced by users in using electronic information resources provided by the UNECA library. Respondents were asked: What challenges did you face in using Electronic Information Resources provided by the UNECA library?

The findings reveal the most common challenge, which was “there is no training provided by the UNECA library on how to use the resources” (65.28%), followed by “Information overload is challenging when using the Electronic Information resources” (53.5%), “Limited IP address access is disappointing when using the Electronic Information Resources” (48.61%).

The remaining items in the list of challenges indicated negative affirmation by majority of the respondents who stated the following: “I do not have adequate digital literacy skills to use the Electronic Information Resources” (72.97%), “I am not aware of the available Electronic Information Resources provided by the UNECA library” (73%), “Slow internet connectivity discouraged me to use the Electronic Information Resources” (60.3%), and “searching and using electronic information resources is time consuming” (64.4%).

The response for the question regarding login credentials received the following response: “Remembering all the login credentials for online databases discouraged me to use the Electronic Information Resources”. Surprisingly, this question received equal percentage degree of responses (46.6%) for both positive and negative affirmations.

**Table 4. 11 Challenges of the Electronic Information Resources**

Challenges	Strongly Agree		Agree		Disagree		Strongly Disagree		N/A		TOTAL	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
I do not have adequate digital literacy skills to use the Electronic Information Resources	4	5.4	10	13.5	30	40.5	24	32.4	6	8.1	74	
I am not aware of the availability of Electronic Information Resources provided by the UNECA Library	3	4.4	13	17.6	37	50.0	17	23.0	4	5.4	74	
Slow internet connectivity discouraged me to use the Electronic Information Resources	5	6.9	18	24.7	31	42.5	13	17.8	6	8.2	73	
Information overload is challenging when using the Electronic Information resources	11	15.1	28	38.4	22	30.1	6	8.2	6	8.2	73	
Remembering all the login credentials for online databases discouraged me to use the Electronic Information Resources	8	11.0	26	35.6	27	37.0	7	9.6	5	6.9	73	
Searching and Using electronic information resources is time Consuming	2	2.7	18	24.7	33	45.2	14	19.2	6	8.2	73	
Lack of knowledge about tools and techniques used for searching and retrieving of electronic resources	8	11.1	12	16.7	33	45.8	14	19.4	5	6.9	72	
Limited IP address access is disappointing when using the Electronic Information Resources	11	15.3	24	33.3	24	33.3	8	11.1	5	6.9	72	
There is no training provided by the UNECA Library on how to use the resources	12	16.7	35	48.6	14	19.4	5	6.9	6	8.3	72	
Overall, I find it challenging to use and access the Electronic Information Resources provided by the UNECA Library.	3	4.2	16	22.2	36	50.0	14	19.4	3	4.2	72	
NR												10

Note: Multiple Response Questions

#### 4.1.9 Expectations about Electronic information resources

Users were asked to rate their expectations of the electronic information services provided by the library. They range from 0 (Lowest) to 5 (Average), and 10 (highest). The findings on Table 4.12 show that the majority (23.7%) of the respondents rate the service average. However, 92.1% of the respondents indicated that the electronic information resources provided by the library meets their expectation either on average or more than average. This means that the UNECA Library meets the expectations of its clients above average for both internal and external users.

**Table 4.12 Challenges of the Electronic Information Resources**

Rating for expectation	Frequency	%
1	0	0.00
2	2	2.63
3	2	2.63
4	2	2.63
5	18	23.68
6	4	5.26
7	14	18.42
8	15	19.74
9	8	10.53
10	11	14.47
NR	10	
Total	76	100

#### 4.1.10 Recommendations

Respondents were asked to express their concerns, suggestions, and recommendations at the end of the questions in order to improve the services provided by the UNECA library. There were 37.5% (n=45) concerns and recommendations, which are highlighted in Table 4.13.

**Table 4. 13 Recommendations**

Answer options	Frequency	Percentage
Resources are underutilized;	18	40
Users are aware the availability of the resources however not clearly know the depth of the collection;	25	55
There are too many databases that makes searching difficult;	18	40
The resources are difficult to search and access;	9	20
Not able to use the resources from home or mission	25	55
Users prefer to use google search than subscribed resources	20	44
Many databases not relevant to the UN	7	15
Create Library Marketing and promote the electronic resources and products using the different platforms the library manages;	15	33
Train users on how to use the resources, how to do develop query and then Searching requires skill (Give information literacy skill)	10	22
Create awareness about the different electronic resources and products	15	33
Create a mechanism to access resources remotely by using UN login credentials on home computer or while travelling on mission	10	22
Improve IP limitation range	12	26
Conducting users information needs analysis before subscription	12	26
Fort the staff (librarians) e-resources management training would help to better serve the users.	8	17
Customized and selected service provision would help to avoid information overload and time-consuming exercise to filter relevant information/documents.	14	31
Provide 24/7 online reference services	5	11

## **4.2 Discussion of Findings**

This section discusses the findings obtained from the study in line with the objectives of the study and previous studies in the field. The section is presented under the following sub-headings:

### **4.2.1 Awareness of availability of Electronic Information Resources**

In order to use the available electronic information services provided by the UNECA library, users should know whether the resources are available or not. Awareness is critical because it is one of factors that could enhance or hinder the level of access and use of the resources. The findings from the study showed that majority of the respondents (92.3%) from both internal and external users of UNECA library are aware of the availability of the resources. These findings coincide with the study conducted by Larson (2017); Kwafoa, Osman and Afful-Arthur (2014); Bajpai and Sharma (2017); and Kwadzo (2015).

Following awareness, additional information was collected from the users to find out about the volume of utilisation and accessing the electronic information services. Majority of the positive responses indicated that all electronic information resources provided by the Library are frequently accessed, consulted and utilised. As the findings indicate, all resources are accessed and utilised well by both the internal and external users. E-journals, the Institutional repository, Internet access, E-Books, and Subscribed online databases such as ProQuest, Ebscohost, Emerald... are highly accessed, consulted and utilised. There is a variation between internal users external users. The study indicated that the Institutional Repository and E-journals are highly consulted by the staff and internal users of the Library. However, for the external users, internet access and E-journals are highly accessed and consulted. This finding concurs with the study of Bajpai and Sharma (2017) and Hadagali et al. (2012).

The study tried to capture and shed some light on the different scholarly databases that

are subscribed or freely accessible as electronic information resources that are compiled and listed on the library websites to be accessed with IP access restriction. The findings of this study indicated that the top ten databases that are highly used were, The Economist, African Journals Online (AJOL), JSTOR, Ebscohost, ScienceDirect, Financial times, World Bank e-library, Emerald Insight e-resources, Economic Intelligence Unit (EIU), and OECD Library. The least or hardly used databases were CIAOnet, Global Economic Monitor (GEM), Contemporary women's issues, North Africa Journal, Gale, and Project Muse.

Although the list is not a full representative of all libraries, there are similar studies on the high use of Ebsco host, Science Direct, and Emerald. Such studies were conducted by Atakan (2007); Kwafoa et al. (2014); Larson (2017). The findings of this research will be helpful to the library institutions as it will shed some light on what decision they need to implement to provide better and improved information electronic information resources. It will also act as a guidance for library officials to take informed decisions to users in terms of reviewing their subscription services to better serve their users. There is further need to create more awareness campaigns regarding their library services.

The question of the frequent usage of library resources by library users yielded the following findings: 35.1% of the respondents use electronic library resources once or twice a week, 22.1% of the users use library electronic information resources every day, another 24.7% reported that they use electronic information resources once in a month, 8% indicated that they use electronic information resources occasionally or whenever there is a need. According to Moyo (2017), 81% of the respondents indicated that they use the electronic information resources daily, weekly, and monthly.

Respondents were also asked the location from where they usually access the resources as access to electronic resources by UNECA Library is limited to IP range. The finding indicated that 59.5% of the respondents access electronic information resources at the library, and 40.5% access electronic information resources remotely. However, there is a significant difference between location of access between the internal users and external

users. Majority of external users 83.3% (n=15) access electronic information resources in the library and 16.6% (n=3) access them remotely. For internal users the difference is not significant because users are not necessary be in the Library to get the resources as long as they are in the IP range of the organization. This proves that since the resources are limited to IP range, external users are forced to use within the Library. This cause a restriction on the convenience of accessing electronic resources anywhere any time

#### **4.2.2 Usefulness of the Electronic Information Resources**

The study revealed that the electronic information resources provided by the UNECA library are highly useful for the respondents. Majority of the users positively affirmed the usefulness of the electronic information resources. The findings shows that, the resources are useful because they save time, improve their outputs, make it easier for users to obtain information and facilitate their research work, and the services allowed them to access different materials at the same time, wherever they are, and created the opportunity to obtain latest, up-to-date and relevant information.

The findings of this study concurred with the study conducted by Adeoye and Olanrewaju (2019), in which it was revealed that the respondents' affirmed the use of electronic information resources as useful. Moreover, it was revealed that electronic information resources helped users to accomplish tasks quickly, saved their time, enhanced their performance, improved quality of outputs, and finding relevant resources easily. These findings further confirm the same finding in the study conducted by Dadzie (2005:290). Al-Suqri (2011) also agreed that using electronic resources made research much easier, faster and overall improved the quality of their research for Social Science scholars. This is further confirmation that electronic information resources are useful, easy to use, flexible and easily accessible from wherever one is accessing them from.

#### **4.1.1 Easiness of the Electronic Information Resources**

The findings of this study revealed that electronic information resources provided by the UNECA library are simply and easy to use. Overall, majority of the respondents positively

affirmed the perceived easiness of using the electronic information resources. Library users indicated that electronic information resources are easy to search and retrieve sources needed or required. Users find it easy to use electronic information resources than print collection, as they find them less frustrating and hardly confusing. Also noted as easier to use by majority of users, is Google search engine. This study confirmed other findings by other studies such as Adeoye and Olanrewaju (2019). In addition, it was revealed in this study that an overall of 74% users find electronic information resources useful, less frustrating, and hardly confusing. The findings support Komba (2013), which revealed perceived easiness and use of electronic information resources.

#### **4.1.2 Performance and electronic information resources**

The findings of this study proved that for majority of the respondents, using electronic information resources provided by the UNECA Library has increased their productivity on their research. Additionally it also indicated that the use has improved quality in their research, as well as efficiency and effectiveness in research. Overall, access and use of Electronic Information Resources provided by the UNECA library users showed significant improvement in the production of work. This result corresponds with the study conducted by Ani (2013) which proved the direct relationship between using electronic information resources on increasing productivity.

#### **4.1.3 Challenges to use UNECA Electronic information resources**

There are different challenges that hinder the maximum use of electronic information resources. The analysis of the results in this study indicated four major challenges faced by the UNECA library users, namely; lack of training from UNECA library officials on the usage of resources, limited IP address access, information overload, and the challenge of remembering all the login credentials for different online databases. Other challenges included issues related to inadequate digital literacy skills, lack of awareness campaigns on services available for users, slow internet connectivity to access library electronic information resources, time consumption in searching and using electronic information resources.

However, not all users experienced all the challenges stated above. For instance, only 18.9 % expressed inadequate literacy skills, 21.7% indicated lack of awareness campaigns on the available resources at libraries, a portion of 31.6% reported on slow internet connection, and 27.4% agreed that using this resources is time consuming and the searching and retrieval skills about the databases is required to comfortably search and retrieve the information demanded from the electronic information resources. The issue of information overload, problem with login and password correspond with the findings of studies conducted by Moyo (2017); Adeleke and Nwalo (2017); Das and Achary (2014); Toteng and Hoskins (2013) and Komba (2013); Hadagali et al. (2012) and Dadzie (2005).

#### **4.1.4 Recommendations to increase use of Electronic information resources**

Users were asked to express their concerns and provide recommendations on how to improve the services related to electronic information resources. The concerns expressed by users were: under usage of resources, users are not updated on recent developments on electronic information resources, unnecessary and irrelevant databases, outdated and old resources, different online databases that impede on smooth usage of e-resource, and systems offline preventing users to work from the comfort of their home, not acquiring resources based on individual interests. They also expressed their concerns about under utilisation of the e-resources.

Users suggested on the following recommendations:

It was suggested that the library should create marketing strategies to promote electronic information resources and products using the different platforms the library manages; more training on how to use the resources, skills developments on information literacy, log queries, search the information without any IP authorisation restrictions, implementation of available different electronic information resources and products,

creation of mechanism to access resources remotely by using UN login credentials at the comfort of your space, improvement on IP limitation range, conducting users' information needs analysis before subscription, electronic information resources management training for library officials to better serve the users, customised and special provision on services to avoid information overload and time-consuming exercise to filter relevant information or documents, providing 24/7 online reference services, and maintaining easy access.

#### **4.2 Chapter Summary**

This chapter presented and discussed the findings obtained from the questionnaire distributed to UNECA library users. The researcher discussed the findings of the study based on the objectives of the study. The findings were discussed making comparisons with the relevant literature review and studies of other researchers. The results of the study addressed all the objectives indicated in chapter one. The next chapter will present summary of major findings, conclusion, and recommendations.

## **CHAPTER FIVE**

### **5.0 SUMMARY OF MAJOR FINDINGS, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter provides the summary of the findings, conclusions and recommendations made for the study entitled: Use of electronic information resources for the United Nations Economic Commission for Africa Library: Addis Ababa, Ethiopia.

The aim of the study was to investigate the use of electronic information resources in the UNECA library, Addis Ababa.

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

Based on the findings collected in previous chapter, this section provides a summary of the results in line with the study objectives.

##### **5.2.1 Electronic information resources currently provided by the UNECA library**

The UNECA library provides electronic information services through access to subscribed online databases (Pro Quest, Ebscohost, Emerald), Open Source Online Databases (Google Scholars, AJOL), E-Journals, E-Books, Library website which has OPAC, the Institutional Repository, Knowledge portals such as ASKIA, and free Internet access. The findings encourage result regarding users' awareness of the availability of the electronic services provided by the library. Majority of participants are aware of the library electronic information resources and how they should access and utilise them frequently. The findings show that all subscribed Journals and databases are accessed and utilised by users. The commonly used resources include: The Economist, followed by African Journal Online, JSTOR, Ebscohost, SciencDirect, Finacial times, Econlit, Nature.com, Taylor and Francis Online, Wiley Online Library, UN ILibrary and CGIAR Virtual Library.

Users are not using library services as frequent as they should be used. External users make use of the following services: CIAOnet, Ilobal Economic Monitor (GEM), Contemporary women's issues, North Africa Journal, Gale and Project Muse, quite frequently. Internal users use these resources, but at a low frequent level. Despite the fact that anyone can access electronic information resources at the comfort of their space anytime they want, other users still prefer to visit libraries to use resources. The limitation that was highlighted in this study includes IP restrictions. As a results, users find themselves visiting libraries to access resources.

### **5.2.2 Usefulness of the electronic information resources provided by the UNECA library**

The findings this study proves that electronic format resources provided by the UNECA library are useful to its clients. Resources are convenient for users to access them anywhere and anytime. The users proves that using electronic resources have saved time. The resources provided are relevant to their interest and programme of work. The users also confirmed that they could have access to use multiple resource at the same time. They also proved that the resources make easy to do any research. Respondents indicated that the resources are more advanced, fulfil users' information needs. Accessing and utilizing have improved the quality of their research Overall, this study confirms that clients of the UNECA Library acknowledge the usefulness of the electronic information resources provided by the Library.

### **5.2.3 Easiness of the electronic information resources provided by the UNECA library**

The findings confirmed that using electronic information resources is easy for users. The users indicated that it is easy to understand the resources, it is easy for the users to remember how to search and retrieve whatever information they wanted from the different databases and electronic information sources. For the majority, interaction with the resources and retrieval is easy. High number of respondents positively agreed that Google search is easier for them than scholarly e-resources. Majority of users prefer to use e-resources than using print collection. Majority of the respondents are not confused

or frustrated to use the resources, however, there are many respondents who also indicated that they get frustrated and confused to use these resources. Overall, the findings of this study confirms that accessing and using different electronic database are easy for UNECA Library users.

#### **5.2.4 Use of electronic information resources to enhance performance**

Majority of the respondents have highlighted that using electronic information resources provided by the library has contributed towards the enhancement of their research output. All the responses are positive for all the questions asked regarding utilisation of the resources and its impact on their productivity. Access and use of these e-resources have enhanced the performance and research productivity, the quality of work, efficiency and effectiveness of their research work, and the achievement on the organisational goal as this is seen to be a step in the right directing in becoming the African think tank. The results of this study confirmed that the Library is contributing positively towards the improvement of research quality. Overall, the findings of this study confirms that for UNECA Library users, access and use of electronic information resources provided by UNECA Library have improved their performance

#### **5.2.5 Challenges that affect the utilisation of e-resources in the UNECA library**

Using any service comes with its own challenges that would hinder the smooth use of that particular service. For the UNECA Library users, the main challenge that was highlighted was the limited IP address access to the resources. Staff members could not have access to all the resources when they are away from the IP range and hinder the access and utilization of any e-resources provided by the Library. Information overload also highly indicated by the users as a challenge to use the resources. Since there are many different scholarly databases, search results are overwhelming and creates information overload. Another challenge highly mentioned is lack of training given to users from library staff members regarding how to search and retrieve relevant information. Remembering all login credentials was also a challenge for majority of respondents.

However the same number of respondents did not agree with this issue as a challenge. However, large number of respondents have a problem to remember login credentials. Overall, majority of respondents accessing and using electronic resources provided by the Library are not challenging for them.

### **5.3 Conclusion**

The library provides different electronic information resources to its clients. These resources are subscribed and made available to users with allocation of budget. Library officials have a responsibility to make these services discoverable, accessible, and easily usable for users. The results of this study are encouraging regarding the awareness of the availability of the resources. Some respondents indicated that they access and use electronic information resources every day, some once or twice a week, while a small amount mentioned that they use the services not very often. The results in this study show that electronic information resources overwhelmingly contributed positively towards improvement in quality of users' research outputs and performances. Users mentioned that electronic information resources are useful, more advanced, meet users' expectations, easy to use, and save time. The overall majority of respondents' results confirm that the use of UNECA library electronic information resources are useful, despite the challenges that were raised.

### **5.4 Study Recommendations**

Based on the findings of the study, this section briefly summarises the recommendations.

- **Developing an Electronic Information Resources marketing and awareness strategy**

The results of this study regarding the level of awareness on the existence of electronic information resources is appealing and encouraging. However, the UNECA library should create electronic information resources marketing and awareness strategies to serve both

internal and external users better. Allocating budget, acquiring, listing and making electronic information resources available do not warrant for an efficient and effective utilisation of the resources. Instead, the library still needs to focus more on strategies that will engage with users regarding new trends that will increase interest to persistently use the electronic information resources. Platforms such as social media should also serve as a better start since everyone nowadays uses social media to engage.

- **Reconsider the limitation of accessing in IP address boundaries**

As a rule or agreement with vendors, all electronic library resources should be accessible by the specific library group under the library system. IP authentication is mostly a standard and acceptable method for accessing electronic information resources in libraries. The nature of work for UNECA staff members sometimes requires travelling and working from home. Therefore, it is difficult and at times impossible to access the IP restricted resources beyond the range of the UNECA compound. As indicated in previous chapters, the main advantage of electronic information resources is to have full access at the comfort of your space anytime you want to access resources. Thus, UNECA library should provide alternative remote platform that allows users to access the resources outside UNECA through a proxy server or UNITE ID and password.

- **Develop a strategy to make resources more accessible and discoverable**

Although the survey results are very encouraging, UNECA library should invest in increasing access of electronic information resources by making them more discoverable. Marketing and awareness strategies should include services that will allow users to discover and use library electronic services. After all, there is no point in creating awareness and marketing strategies if users' are not able discover and utilise the e-services. Clients should be able to freely navigate through the e-services databases. This should be done through one search gate without having to search for different sources in different databases or search engines. One challenge that participants highlighted was information overload that is caused by using different databases and end up with a large

number of resources. Having one search gate that enables users to search for information on one database and get required specific results, will eliminate this challenge. As a result, the library should develop subject specialised dissemination service and enhance the federated searching option for easy and simple discover of electronic information resources.

- **Provide Information Literacy trainings for users and Electronic information resources Management trainings for Librarians**

Managing and using electronic information resources need some essential skills and requirements for maximum use of resources. The training should focus on information literacy skills, such as; develop skills on how to use key words related to the subject to be investigated, how to use Boolean search strategies, how to retrieve relevant and precise search results, how to organized information, analysis the retrieved resources, how to focus on quality, up-to date and relevant information sources (especially e-resources) and subsequently turn them into knowledge.

Librarians should also be information literate and possess core competencies in managing electronic information resources; including acquisitions, accessibility of administration, evaluation and monitoring of resources, and implementation of ERMS. This could be achieved through proper training, conferences, workshops, and webinars related to electronic information resources and library services. Library officials should also form networking and socialising forums with other electronic information resources librarians and vendors to update themselves with new strategies, tools and trends. This will directly improve service delivery in libraries.

- **Demand driven acquisition**

Informed decisions for any new subscriptions or renewal and termination of subscriptions should be based on the demands of users of libraries. Previous groups or divisional demands should be shifted to individual demand driven. UNECA library should either conduct timely survey to find out about users' needs, and monitor their resources usage statistics as a means to make informed decisions related to acquisitions. Demand driven

acquisition have greater return value.

- **Suggestions for further studies**

This study was limited to the UNECA library located in Addis Ababa, Ethiopia only. Further studies should be extend to all the regional offices of the United Nations Economic Commission for Africa as they all share the same resources and services. The researcher therefore recommend to replicate this study to the five regional offices of the United Nations Economic Commission for Africa located in Central, Eastern, Northern, Southern and Western Africa Libraries.

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## APPENDIX I



### Use of Electronic Information Resources at the United Nations Economic Commission for Africa (UNECA) Library

Dear UNECA Library Users,

My name is Frehiwot Fekadeselassie DUBALE, a student at the University of South Africa (Unisa) and I am conducting a research towards a Master's program in Information Science.

This online survey investigates the use of Electronic Information Resources provided by the UNECA Library. The findings will assist the UNECA Library to provide an improved service to the clients. The survey should not take longer than 6-8 minutes to complete. Please click on the following link to open the survey: <https://www.surveymonkey.com/r/surveyunecalibrary>

As a user of UNECA Library, you are randomly selected for this study and your participation is completely voluntary. Anonymity will be maintained, all information provided will be treated as confidential.

Please take note that this research is bound by the Unisa Policy on Research Ethics.

If you have any questions about this study you are welcome to contact me via email: [frehiwotfs@gmail.com](mailto:frehiwotfs@gmail.com).

Thank you in advance for  
your time. Regards  
Frehiwot Fekadeselassie Dubale

1. What user category are you?

- Staff member of the UN and UN Agencies (Internal User)
- Researcher, Student, or Others (External User)



6. Which of the following Electronic Resources Databases provided by the UNECA Library do you use Frequently? (Please select all that apply)

- |   |  |
|---|--|
| <input type="checkbox"/> African Journals Online (AJOL)   | <input type="checkbox"/> Nature.com                |
| <input type="checkbox"/> Cambridge Journals Online        | <input type="checkbox"/> North Africa Journal      |
| <input type="checkbox"/> CGIAR Virtual Library            | <input type="checkbox"/> Wiley Online Library      |
| <input type="checkbox"/> CIAOnet                          | <input type="checkbox"/> OECD Library              |
| <input type="checkbox"/> Contemporary women's issues      | <input type="checkbox"/> OSO e-books               |
| <input type="checkbox"/> Ebscohost                        | <input type="checkbox"/> Oxford Journals Online    |
| <input type="checkbox"/> Econlit                          | <input type="checkbox"/> Project Muse              |
| <input type="checkbox"/> EconPapers                       | <input type="checkbox"/> Proquest Central          |
| <input type="checkbox"/> The Economist                    | <input type="checkbox"/> Safari Online Library     |
| <input type="checkbox"/> Economic Intelligence Unit (EIU) | <input type="checkbox"/> ScienceDirect             |
| <input type="checkbox"/> Emerald Insight e-resources      | <input type="checkbox"/> Taylor and Francis Online |
| <input type="checkbox"/> Financial times                  | <input type="checkbox"/> UN ILibrary               |
| <input type="checkbox"/> Gale                             | <input type="checkbox"/> World Bank e-library      |
| <input type="checkbox"/> Global Economic Monitor (GEM)    | <input type="checkbox"/> Others: Please specify    |
| <input type="checkbox"/> JSTOR                            | _____  |
|   | _____  |

7. How do you access and use UNECA's Electronic Information Resources?

- In the UNECA Library
- Remotely

Other (please specify)

8. How useful are the Electronic Information Resources provided by the UNECA Library to you?

	Strongly agree	Agree	Disagree	Strongly disagree	N/A
Accessing and using Electronic Information Resources anytime anywhere is convenient for me.	<input type="radio"/>				
The Electronic Information Resources addressed my information need related to my Job	<input type="radio"/>				
Accessing and using Electronic Information Resources saved time	<input type="radio"/>				
Electronic Information Resources enabled me to accomplish tasks more quickly	<input type="radio"/>				
The Electronic Information Resources provided by the UNECA Library improved the quality of output I produce	<input type="radio"/>				
Access and using Electronic Information Resources made it easier to do any research	<input type="radio"/>				
Using the Electronic Information Resources is more convenient for me to use	<input type="radio"/>				
The Electronic Information Resources gave me the opportunity to have access to multiple resources at the same time	<input type="radio"/>				
The Electronic Information Resources helped me to find current and Up-to- Date information in my field of work	<input type="radio"/>				

	Strongly agree	Agree	Disagree	Strongly disagree	N/A
The Electronic Information Resources are relevant to the subject matter of my interest	<input type="radio"/>				
Overall, accessing and using the Electronic Information Resources provided by the UNECA Library is useful.	<input type="radio"/>				

9. How easy are the Electronic Information Resources provided by the UNECA Library to you?

	Strongly agree	Agree	Disagree	Strongly disagree	N/A
It is easy for me to understand the Electronic Information Resources	<input type="radio"/>				
It is easy for me to remember how to search and retrieve what I want using Electronic Information Resources	<input type="radio"/>				
It is easy for me to interact with the Electronic Information Resources	<input type="radio"/>				
It is easy for me to search and retrieve resources I want	<input type="radio"/>				
Google search is easier for me than the Electronic Information Resources	<input type="radio"/>				
Using the Electronic Information Resources provided by the UNECA Library is easier to use than Print resources	<input type="radio"/>				
I often become confused when I use the Electronic Information Resources	<input type="radio"/>				
I often become frustrated when I use with the Electronic Information Resources	<input type="radio"/>				

Overall, access and use of Electronic Information Resources provided by the UNECA Library is easy to use.

10. How do you think using Electronic Information Resources improved your performance?

Strongly Agree      Agree      Disagree      Strongly Disagree      N/A

Access and use of Electronic Information Resources in research increase my research productivity

Access and use of Electronic Information Resources improve the quality of my research

Access and use of Electronic Information Resources promote efficiency and effectiveness in my research

Overall, Access and use of the Electronic Information Resources provided by the UNECA Library has improved my performance.

11. What challenges did you face in using Electronic Information Resources provided by UNECA Library?

Strongly agree      Agree      Disagree      Strongly disagree      N/A

I do not have adequate digital literacy skills to use the Electronic Information Resources

I am not aware of the availability of Electronic Information Resources provided by the UNECA Library

Slow internet connectivity discouraged me to use the Electronic Information Resources

Information overload is challenging when using the Electronic Information

resources

Remembering all the login credentials for online databases discouraged me to use the Electronic Information Resources

Searching and Using electronic resources is time Consuming

Lack of knowledge about tools and techniques used for searching and retrieving of electronic resources

Limited IP address access is disappointing when using the Electronic Information Resources

There is no training provided by the UNECA Library on how to use the resources

Overall, I find it challenging to use and access the Electronic Information Resources provided by the UNECA Library.

12. How did the Electronic Information Resources provided by the UNECA Library meet your

0 Not at all

5 Likely

10 Highly

expectations?

13. Do you have any comments, suggestions and concerns on how to improve the access and use of Electronic Information Resources provided by the UNECA Library?