

Sustainability Strategies for Electronic Information Resource (EIR) Services in University Libraries (UL) of North Central Nigeria

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ABSTRACT

Electronic information resources has a significant status in all university libraries. The adoption and use in this libraries is challenged heavily which hinders the consistency of services provision in most libraries in developing nations like Nigeria specifically libraries in the Northern Nigeria. Sequel to the implications on academic and research output as well as consistency in provision of information services, this study was compelled to investigate the status of available resources, strategic initiatives adopted in sustaining the electronic information resources and services in the selected university libraries in North Central Nigeria. The study employed the UTAUT theory and Bridge Decision model to guide the findings. Pragmatic paradigm was adopted and mixed method design was employed combining quantitative and qualitative. The population for the study includes selected four federal university libraries, 126 respondents comprising academic librarians, support technical staff and management team. North central Nigeria as the location. Instrument for data collection include focus group interview, questionnaire, observation checklist and document analysis. Software Package for Social Science and thematic analysis will be used to analyze the data collected.

KEYWORDS

Sustainability, strategic initiative, University library, Electronic information resources, library services, Nigeria

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1. INTRODUCTION

The purpose of this study is to examine the strategic approach in sustaining electronic information resources (EIR) in university libraries (UL) in Nigeria. [1:97] defined electronic information resource as “a resource which requires computer for access”. In this context, it is a broader term to information databases in libraries, used in dissemination of information contents. It constitutes key sources of knowledge and information in all ULs [2]. The 21st century has witnessed a global revolution in UL services via the integration of EIR in the provision of these services including ULs in Africa and for developing countries like Nigeria. EIR transition from traditional

collections (book) to e-resources is a sustainable development and demands the need for a strategic drive by information services providers.

The EIR services are the managerial roles of the librarians, concerned with the dissemination of the available resources. Thus, the initiatives adopted for the provision of EIR services with a focus on user satisfaction by ULs are the strategies enhancing sustainable services, which in turn is the emphasis of the present study. These EIRs include e-books, e-journals, databases etc. [1]. Universities globally share expectations when adopting EIRs to enhance and to ensure the effective operation of the services they provide. However, contrary to expectations, adoption of EIRs has caused dissatisfaction, as evidenced in literature. This includes licensing costs, inadequate internet, and funding [3]. If students and staff must consistently utilize these resources for a qualitative academic and research output [4], there is need for sustainability of service provision.

Sustainability according to [5] is “management of a resource for maximum continuing production, consistent with maintenance of a constantly renewable stock”. [6] defined sustainability similarly but with emphasis on maintenance for future, and consistency in production and services. Sustainability for this study, is the strategic initiatives applied in the provision of consistent services for satisfaction of library users. However, this concept sustainability cannot be discussed without the inclusion of status of services, funding sources, strategic planning implementation as well as policy framework.

Since the adoption of EIR services in Nigeria, ULs are to provide information satisfactorily to the users, but this has posed challenges [7]. [8] observed that these challenges emanate from economic, social and environmental forces, resulting in dissatisfaction with EIRs services. A lack of funding for EIRs was affirmed by [7] with budget cuts hitting ULs and worsening the situation. Despite budget cuts and lack of funding, UL in the north central Nigeria are continuing providing EIR services to their users. It is obvious that there are using alternative sources of funding and strategic approaches for this that are unknown. Furthermore, the inadequacies of available EIR for services provision, have grown since the inception of EIRs in ULs, although they differ with institution, with some ULs having adopted a strategic approach for sustaining the EIRs [9]. The strategic initiatives includes technology innovation, open access etc. [10]. These have been attained

coincidentally in some ULs without a strategic planning and policy design prioritizing EIR [11].

In developing countries, like Nigeria, EIRs require sustainable initiatives due to the challenges faced such as poor academic/research and unqualified graduates [12]. University Libraries in the north central are vital in their academic institutions in terms of teaching, learning and research. EIR is integral for the supply of information resources both to the local and global communities. Thus, for achievable academic and research goals, the strategic approach adopted by these ULs such as external funding support, partnership and institutional collaboration for acquisition, green library, literacy skill strategy, open access, subscription negotiation and NUC virtual collection, should be tailored to meet the demands for sustainable EIR service delivery by integrating sustainability in the practice of librarianship. Therefore, this study seeks to investigate the strategies adopted by librarians in sustaining EIR services in Nigerian ULs and to reveal alternative strategies for sustaining the services. The decision to study librarians was motivated by the fact that management has been cited in the literature as being responsible for creating a sustainable business/institution.

2. RESEARCH PROBLEM AND OBJECTIVE

The main objective of university libraries is to provide users with adequate, effective and accurate information. To achieve this objective, university libraries globally are increasingly embracing strategic initiatives for sustaining electronic information resource services (EIRs) that they offer. In developing nations, libraries have adopted several initiatives such as collaboration, consortium, grant application, license negotiation, social media application, enhanced reference services, web 2.0 application, consultation and partnership, information literacy skill and more as affirmed by [13] and [9] to promote, enhance and facilitate the provision of EIR services.

From a Nigeria context, ULs jointly enter into EIRs subscriptions, creating NUC virtual libraries, and accessing TETFUND intervention e-resources funds. Thus, some of these ULs have long embarked on various strategic initiatives, which is basically for economic, social and environmental challenges hindering EIR services [14]. These initiatives were all undertaken with the view to improving EIR services delivery, in order to enhance consistent user satisfaction and to ensure access to global literature [7]

The main objective of this study therefore is to investigate the strategic initiatives adopted for sustaining EIR services provision in ULs in North Central Nigeria. This will be guided by the following specific research questions:

1. What EIRs are available and what is their status in regard to their use in the ULs under study?
2. What are the sources of funding EIRs in the ULs under study and are there other funding opportunities?
3. What strategic plans and policies are in place for provision of EIR services in the ULs under study?
4. What innovative initiatives have been adopted to enhance sustainability of EIR services?
5. What are the challenges facing the sustainability strategies concerning EIR services in the ULs under study?

The scholarly literature indicates that EIRs in Nigeria university libraries face numerous challenges which include (but are not limited to) a depreciating currency against rising EIR subscription/acquisition costs, poor electricity supply, inadequate ICT skills, low funding and budget cuts, as well as inadequate facilities [15]; [16]. Thus, some ULs partner with their parent institutions internationally to accomplish the institution's stipulated mandate, while many collaborate with other institutions nationally. Through a consortium of libraries in the country, ULs collaborate to acquire EIRs, in partnership with governmental educational agencies such as the National University Commission (NUC) and the Tertiary Education Trust Fund (TETFUND).

Based on the fact that in any academic community, the library is essential and key to information access, and on the increasing use of EIR in service provision in Nigerian universities, this study is significant. [16] revealed inadequate facilities as major challenges to the effective and efficient provision of EIRs. [17] highlight dwindling funding. [7] Acknowledge that there is no specific funding for EIRs and recommend the need for sustaining EIR. [18] observe that sustainability issues were pursued coincidentally without a clear strategic planning and [11] submits that ULs need to monitor any strategic plan's implementation and to systematically observe the challenges hindering the provision of EIRs, which need to be addressed for dependable service provision. The present study focuses on the university libraries in North Central Nigeria, which have been heavily impacted by economic factors in particular. Therefore, this study will address the gap in the literature as well as propose a possible course of action for strategic initiatives adequate to sustain EIR services in university libraries in North Central Nigeria.

The literature reporting innovative initiatives and practices sustaining EIR services in the field of librarianships is sparse [11]. [16] argue that ULs need to respond to the gap in the available literature on the need for a sustainable approach, without which the provision of EIR services will not succeed. On this premise, this research therefore, becomes critical and imperative to the ULs under study, as well as to other ULs in Nigeria more broadly. The outcomes of the study are expected to help inform ULs the status of their available EIR resources, funding opportunities for EIR provision, strategic planning and policy relevance in sustaining EIR services.

3. PRINCIPAL THEORIES TO UNDERPIN THE STUDY

The following theories and model have been relevant to analyze and underpin this study in EIR services provision and sustainability strategies in ULs. They include:

- The HC Bridge Decision Model
- The Unified Theory of Acceptance and Use of Technology (UTAUT)

These theories are briefly discussed. [19] noted that the combination of more than one theory is known as theoretical triangulation. [20] posited that theoretical triangulation facilitates fidelity and enhances the validity of explanations in the research process. The purpose for the use of two theories is because the UTAUT and HC Bridge Decision model complements in responding to the research questions

of the present study. Though the DOI is relevant to the present study because of its innovation strands but will not be used because it is incorporated in UTAUT. Table 1 below presents the mapping of the constructs to the research theory.

HC Bridge Model: The HC Bridge model by [21] is the linkage for strategic management in cooperate business organizations. It enhances high production, satisfactory services and addresses organizational sustainability which makes it very relevant for the present study. The framework presents the logical connections supporting qualified and informed human resources in the management of organizations and leading organizations to enhance the execution of their financial goals in business [21]. Though the Bridge decision framework is not commonly used in information studies because of its robust nature in management and sustainability studies it is deemed suitable for this present study. The Bridge framework is based on three anchor constructs: efficiency, effectiveness, and impact, which are common to all managerial decision sciences. The Bridge Model's three constructs will be significant to this study in understanding the variables studied. The figure 1: below illustrates the constructs in Bridge model.

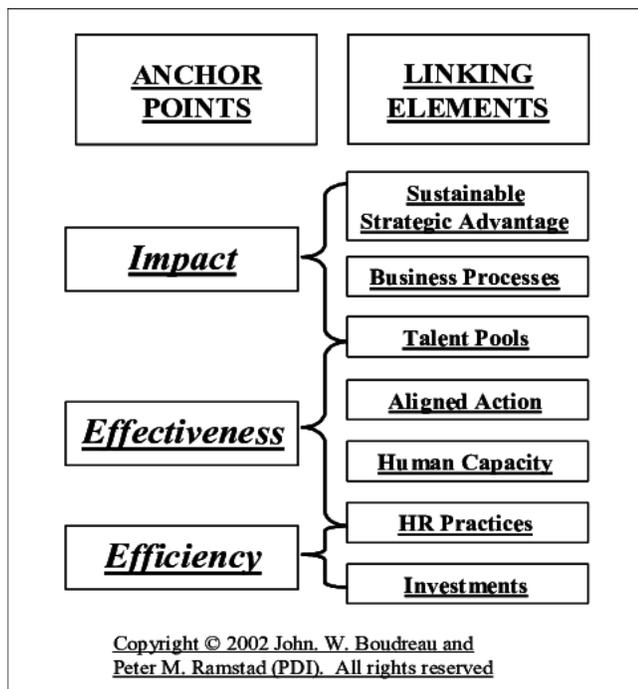


Figure 1. HC Bridge Decision Model [21]

The Unified Theory of Acceptance and Use of Technology (UTAUT): This is a more robust management theory. It encompasses about eight theories and it captures all variables in relation to technology services and use. [22:445] posit four constructs that play a significant role as direct determinants of user acceptance and usage behavior in regard to technology: performance expectancy, effort expectancy, social influence, and facilitating conditions. UTAUT's four constructs are significant to this study in predicting the intentions of usage of EIRs for service provision by librarians in university

libraries if these services are strategically sustained by the information providers. Performance expectancy is significant to predicting the usage for service provision by librarians adopting strategic planning in the libraries since librarians will be more motivated if the performance of a task relating to the provision of EIRs is expected to yield positive outcomes. Facilitating conditions measure the strategies' influence on the services provided, since whether the right equipment, connectivity, databases etc are in place or not will impact on the determination to continue to promote and effectively use EIRs. Effort expectancy will also be significant in measuring the usage of and service provision by librarians, since the more effort is required, the less likely it is that usage will remain sustained. The social influence will be of importance in measuring the usage of services provided by librarians in contexts of minimized skill levels, placing challenges on EIRs. Through a supportive social influence, skills will be enhanced, thereby removing impediments to sustained usage. The figure 2: below illustrates UTAUT theoretical constructions.

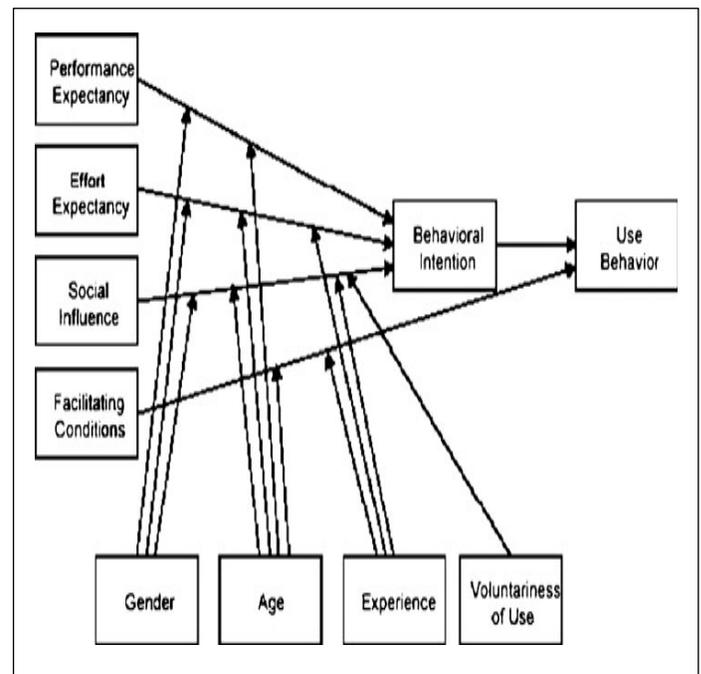


Figure 2. The Unified Theory of Acceptance and Use for Technology (UTAUT) model [22].

Table 1. Mapping: Operationalizing the Theories to the research questions

Research question	Theory variables/ construct	Operationalizing the variables
What EIR (databases) are available and what is their status in regard to their use in the ULs under study	HC Bridge model: effectiveness	Librarians perceived that the adequacy of the available EIR should be sustained to influence usage. Library manager must ensure that available resources are adequate and effective.
What are the sources of funding EIR in the ULs under study and are there other funding opportunities?	HC Bridge model: Efficiency	It is expected that management should strive to improve the library investment to adequately sustain services.
	UTAUT theory: Effort expectancy	This is the degree at which the librarians believed that sufficient funding will ease database subscription.
What strategic plans and policies are in place for implementation toward achieving sustainability goals in UL under study?	HC Bridge model: Impact	Strategic planning and policy if adequately implemented, is envisaged to impact process in sustainable strategic advantage in EIR services.
	UTAUT theory: Performance expectancy	This is the degree to which a librarian believed that strategic planning and policy adoption and implementation will enhance sustainable EIR services via job performance.
What innovative initiatives have been adopted to enhance and sustain EIR services?	HC Bridge: Effectiveness	It is believed that strategic innovative application from capable librarians, with the allied action are effective in sustaining EIR services provision.
	UTAUT: facilitating condition	The strategic initiative applied is expected measure to facilitate the sustainable EIR service provision.

4. PRELIMINARY LITERATURE

University libraries across the globe are strategically integrating sustainability initiatives into their provision of EIRs, such as engaging in national, institutional, or local collaboration [23; 24]. [8] submits that a large volume of research literature has been produced in related areas like information and digital literacy, social inclusion, among others. However, other researchers have focused on the issue of the social sustainability of digital information, or on the economic sustainability of EIRs. [25] investigates the status of information

technology and strategies adopted by Tanzanian academic libraries in facilitating the sustainability of information technology acquired through external support, recommending the development of local institutional sustainability of technology resources.

Numerous libraries have become intensely involved in sustainability initiatives to promote and enhance library services [10]. In addition, [26] indicates that in the face of growing struggles to sustain libraries' EIR services, institutional libraries have strategically attuned themselves to local initiatives to produce greener results. This is in line with the view of [16] that any initiative that improves and sustains EIR services and the use thereof is worth sustaining.

Brundtland Commission of the United Nations, in [8:602] defined sustainability as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". Alternatively, sustainability is a practical process that develops and pursues a dream of community that makes sensible use of all its resources of all sorts [27:5]. [28] underscores the need for sustainability in digital archives, in any repository and EIRs in libraries. [29] on the other hand, examine sustainability science for saving the future. The above works provide a clear definition of the concept and have deemed it fit to integrate sustainability strategies in the provision of EIR services in ULs. Though the above literatures have discussed sustainability from different perspectives, none has focused on sustaining EIR in Libraries and ULs of North Central Nigeria. [30:2389] examined energy consumption of ICT and its implication to sustainable Digital services, and recommended for further studies on users assessment basically for green information technology, green information system to reduce the environmental impact and improve sustainability of digital collections and services. Globally from developed nations: Britain, USA, Australia, UK, Germany, Netherland, have drilled on sustainability from institutional perspective, digital collections, sustainability study model, strategic approach for public libraries [31; 32; 33; 34; 35; 56]. Similarly, [57] studied e-book in UK. This includes Dutch public library cooperation [53]. Few amongst these studies adopted case study approach, most sustainability studies reviewed neglected the empirical research procedure. Though the studies brings in better understanding of the relevant of sustainability in the field librarianship none examined the initiatives adopted by libraries in sustaining EIR services which is most vital information resources in all academic institution. [8] from Australia studied actors influencing sustainable digital information resources, adopted research and policy analysis of document as well as environmental scan. Chowdhury affirms that sustainability of information has not been explored within the normal information science research and suggests that research efforts are needed in order and recommends the need for concerted research effort in this capacity to enhance sustainable EIR services. This gives credence and originality mark to the present study. Chowdhury mirrors the various factors of sustainability and their interrelationship in the ULs, which will help this research to apply its investigation into sustainability strategies to the identified sustainability models in regard to EIR innovations.

From developing nations like China, Sierra Leone, Uganda emphasis on institutions future, approach in evaluating user satisfaction, library support services [36;54;55]. Sustainability of EIR was not the priority

of these reviewed studies but emphasis on the general library and education services.

[37] from Nigeria studied sustainable consortium building within university library in Nigeria. Among all the reviewed literature only [38] studies was found related to the present study because it evaluated the innovative approach adopted by Federal University Owerre. Their study revealed with evidence based statistics, the improvement from the initiatives adopted as it improved information content, number of registered users and the university global impact. The study identifies the influencing factors as library frontier, management team and community environment, concluding that library position is determined by its visible impact. They recommend technology improved provision of services should not elude the library. Though it is related to the present study as it gives a good background on various initiatives and their relevance to the university library. It adopted case study approach and neglected the research procedure, the study emphasizes on the general library services unlike the present study which focuses on electronic information resources and its sustainable initiatives in University libraries in the North Central Nigeria as well as adopting mixed method and relevant theories to underpin the research. Funding has a vital role in sustainability practices in all organisations and cannot be separated thus its challenges on EIRs in ULs has been a global issue. [39:250] reports that developed country institutions are sourcing for alternative financial support adequate for sustaining the provision of EIR service in their respective institutions. [39; 250] argues that adequate availability of information resources in UL, is a signal that the strategies adopted and efforts imputed by UL in sourcing for funding and support for the EIR services are enormous. [40] found out that government subvention is the main source of library funding; respondents indicated that 5% of an institution's yearly subvention is allocated to the library, while other respondents did not know the source of library funding. As the major issue in all organisations, this study seeks to explore the revenue sources for sustaining EIR.

Furthermore, [7:131] reveal the poor funding status of EIRs, stating that "there was no specific budget allocation for the development of EIR". However, [14:82] affirms that some ULs in Nigeria are funded by external grants that enable the library to sufficiently and consistently sustain its EIRs subscription and services. In addition, International Network for the Availability of Scientific Publications (INASP), subsidized cost from publishers for the provision of journal databases to developing nations [40:792]. In order to proffer solution to the problems, [41] recommends that librarians should seek to explore alternative funding opportunities. The present study will examine how the ULs in the North Central Nigeria are benefiting from alternate funding opportunities.

Strategic planning in the services that provide EIRs in ULs appears mainly in the literature focusing on developed nations. [11] examines EIRs strategic plans, revealing trends and under-represented areas of the library's services within these plans. [11] reviewed 63 libraries' strategic plans out of 170 institutions sampled, and findings revealed that new trends in library services and user satisfaction are given the least attention in the strategic plan documents reviewed.

5. RESEARCH METHODOLOGY

The present investigation will be informed by the pragmatic paradigm which addresses actions, situation and penalty [42]. The pragmatism method ropes in a mixed methods approach (qualitative and quantitative) and places emphasis on the research issues, applying multiple approaches to streamline the findings. The mixed methods research enable researchers to present a comprehensive analysis of the research problem [43]. In this approach, the examiner can organize both singular data reports, and analyze the report findings collectively. This study will merge the case study and survey research designs because they are considered the most appropriate designs. The case study and survey research designs are best suited for the study of phenomena, and for examining specific challenges and particular situations [44]. The survey design will adopt a quantitative approach, due to its flexibility in the context of a general population, using questionnaires for data collection. The case study design in contrast is a qualitative approach allowing investigator to evaluate a practice, or bounded system through comprehensive data collection scenarios such as: observation checklists, document evaluation, interviews etc. [45].

The North Central region of Nigeria is the area of focus for this study. Four of the Federal Universities were purposely selected, because the other two Universities are very new and one did not meet up to the ranking range. The statistical data for the 126 population can be viewed in Table 2.

Table 2: Population of university library staff, in the universities under study.

S/N	Institution	Year	R	LSS	LM T
1	Federal University of Abuja	1988	9	14 + 4	5
2	Federal University of Ilorin	1975	5	11 + 5	5
3	Federal University of Jos	1971	23	26 + 7	7
4	Federal University of Mina	1983	11	28 + 6	7
TOTAL:		126		102	24

LMT= library management staff; LSS=Library and support staff; R=Ranks

A census of the entire population will be used for this study. This is known as a "saturated survey". [46:139] states that in a saturation survey the researcher opts for general coverage of the population, in which target population is maintained as survey population. [46:140] points out that a census is useful for small population of 200 or less. Therefore, there is no need for sampling, as the whole population is selected. The sample population will include all 102 academic librarians, and ICT technical support staff for quantitative, because

they all have the capacity to share their experiences in provision of EIR services. While qualitative will administer to 24 library management team.

The data for this study will be obtained through various methods such as: focused group interviews, questionnaires, document analysis and observation checklist [46]. Data will be obtained from academic librarians and ICT technical support staff through structured questionnaires, with the help of trained research assistants. Appointments will be scheduled with the library management team for face to face focus group interviews. Document analysis will be used to review library strategic planning documents and observation checklist will be used to confirm academic librarian's response on the availability and status.

Statistical package for social sciences (SPSS) will be used for quantitative processing and presentation of data because, it is a common statistical analysis package usually used in quantitative data collection, a social science research software used in presentation of large data processing and interpretation [47]. Descriptive and inferential statistics will be applied in analyzing the collected data because [48] affirms that organization and summary of finding are best interpreted and understood with descriptive statistics. On the other hand, the qualitative data will be analyzed using thematic content analysis because the use of thematic content presents an easy, accessible theoretical approach for qualitative data analysis [49].

Validity and reliability: [50] stated that the use of triangulation enhances the validity of study, thus adoption of mixed method approach will complement validity of this study. Because [51] affirms that validity of a study can be influenced by poor sample, research error, fouts measurement and poor research technique, [52] present two process that can be applied to test questions in questionnaire, this study will adapt to Dillman process, the instruments will be reviewed for interrogation by three professionals.

The study will conform to the UKZN ethical policy and will seek ethical clearance, while permission to conduct the study will be sought from the universities selected for the research. The participants will be adequately informed and ensured of their anonymity and that their participation is voluntary and they are at liberty to withdraw at any point of the research if they so desire.

Table 3: Research questions, methodology and theoretical construct's relevance.

Research Question	Methodology	Theoretical framework
What EIR services are available, and the status in ULs?	Observation checklist, questionnaire	HC Bridge model: Effectiveness UTAUT: Social influence
What sources of funding are there for the EIR services?	Focus group interviews	HC Bridge model: Efficiency UTAUT: effort expectancy
What strategic plans and policy designed for sustaining EIR services in these selected ULs?	Focus group interviews and document analysis	HC Bridge - Impact UTAUT: performance expectancy
What strategic initiatives are employed for sustainability of EIR services?	Questionnaires, focused group interview	HC Bridge Model: effectiveness UTAUT: Facilitating condition
What constrain the adoptions of sustainability strategies in this libraries?	Questionnaire, and focused group interviews.	UTAUT: Social influence

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