Contemporary Practices, Processes, Challenges and Prospects of Digitization of Library Resources in Nigerian State Universities: The Experience of Akwa Ibom State University Library

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ABSTRACT

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| This study examined the processes involved in the digitalization of resources in Akwa Ibom State University Library, Nigeria. The paper also examines the success, benefits, challenges and the way forward of the digitization process. The paper also looks at the type and nature of resources selected for digitization, the resources include the human, software/hardware and information resources available in the AKSU Library. The research design used was a purposive sampling technique of the Staff in the System Development unit of the Library. Instruments for data collection were questionnaires, oral interviews and personal observation. Data collected were analyzed using Statistical Package for Social Science (SPSS) and the findings were discussed. The paper recommends that the University Management as a matter of urgency should train and retrain especially all Staff of the Unit, update existing software and acquire recent hardware needed for digitization especially modern scanners for maximum output and solar power facilities to enhance constant power supply. |

*Keywords: Digitization, Electronic Resources, Academic Libraries, D-Space, E-Journals, Database, Association of Research Libraries.*

1. INTRODUCTION

At present, there exist public, private, and State universities in Nigeria. The 1979 Nigerian Constitution makes it possible for State governments to establish State owned Universities as the need may arise. Accordingly, between 1979 to 2019, the record of National Universities Commission (NUC) showed that there were fifty-two (52) State Universities in Nigeria (Ekpo 2019). The Akwa Ibom State University was established in 2010 to meet the University’s Academic Goals of Teaching, Learning, Research and Community Services in line with the National Universities Commission (NUC) mandate for University (Academic) Libraries.

The Library is located on two Campuses of the University at Ikot Akpaden (Main Campus) and Obio Akpa Campus with eight (8) Faculties and Departments’ Research Rooms. The Library organizes its operation around several divisions which includes: Administrative, Resource Development, Processing, Reader Services, System Development, E-Library, References and Reprographic Divisions.

The University Library Caters for a total student population of 10,105 as of the 2024/2025 Academic Session and 1,430 staff, the Library serves an average of two thousand (2000) users daily.

The University E-Library currently has a total of 14,451 off-line-e-resources and millions of online e-resources in different fields of study. The following databases are available for easy access namely: Research 4 life ARDI, Research 4 life content ARDI, OARE, HINARI, Depress Digital Common, World Journal, Papareity, my science Work, J. Gate and IGPUB. The availability of print and non-print materials in different areas of specialization helps to access the Library resources and shows the capacity to serve the various needs of the academic community.

As opined by Ibraiye (2012) and Akpan-Atata (2013), the fragile nature of some Library resources, their age, values, and type of chemical components, sizes and shapes of information resources could really determine the condition in which they could be stored. The preservation of electronic resources also required specialized methods and skills to be able to preserve their value and contents for this to be successful, right personnel and machinery must be put in place. This opens up different ways, ideas and methods of putting the Library resources in a digital form. Association of Research Libraries (ARL) (1995), defines digital Libraries as Libraries whose collections are all stored in digital format and accessible via computer, the internet etc. Digital content can be stored locally or accessed remotely. Furthermore, Online Dictionary for Library and Information (2007) defines a digital Library as “A Library in which a significant proportion of the resources are available in a machine-readable format accessible by means of computers. REITZ (2007) The digital contents may be locally held or accessed remotely through computer networks. It further traced the history of digitization from the production of catalogue cards to that of periodicals, indexes, abstracts, reference books and finally book publishing.

**The Need For Digitization**

In the contemporary world, we are living in a time whose ventures are driven by technological advancements. This, therefore, suggests that, to a very large extent every form of human endeavours in the digital era is propelled not just by technology, but by the quality and extent to which it is employed. Akpan-Atata et al, (2015) Organizational growth, economic advancement, political stability, educational advancement and societal transformation to mention but a few are all determined and influenced by technology engagements and utilization. Thus, technological advancement has led to a massive increase in the amount of information generated and accumulated on a daily basis. As a result, the Library can no longer manage only the print collection. They are unto management and conversion of print materials into e-resources to ease management, create space and provide users with the opportunity to have convenient access to a large number of information resources. Akpan-Atata, (2024) In the era of e-resources, e-books; e-journals, internet resources, databases, and free universal access to information, Akwa Ibom State University Library cannot be an exception. Digital information is growing at an alarming rate and there is a need for AKSU Library to join the virtual or electronic league as this will improve searching and manipulation capabilities, timely information sharing, collaboration and accessibility and visibility of the Library resources and the University as a whole.

**1.1 Objectives of The Study**

The broad objective of this study is to investigate the digitization processes of Akwa Ibom State University Library Main Campus at Ikot Akpaden. In specific terms the objectives of this paper include:

\* To investigate the processes of digitization of resources in Akwa Ibom State University Library (AKSU), Ikot Akpaden.

\* To identify types of resources digitized in AKSU Library, Ikot Akpaden.

\* To ascertain the criteria used for selection of the resources digitized in AKSU Library, Main Campus, Ikot Akpaden.

\* To ascertain the level of successes achieved in the digitization process in AKSU Library Ikot Akpaden.

\* To find out the challenges and problems face in the processes of digitization of AKSU Library.

\* To profess solutions to the problems and way forward to the challenges.

2. **LITERATURE REVIEW**

It has been established that Digitization is a technology that has enriched the preservations, accessibility and utilization of local contents both in Nigerian University Libraries and others worldwide. Ukpanah and Nna-Etuk (2017) opined that in academic Libraries, digitization serves as a doorway to information and knowledge which provides indispensable backing for academic activities, concluding that this is becoming the standard for the creation and management of information resources in academic libraries as they seek to make resources of the libraries visible and accessible. Yoda and Adeoko (2016), opined that digitization project has been slow and expensive and that most libraries in Nigeria are still at the preliminary stages in digitizing their collection. But for Francis (2008), the most important idea is the sustainability of digital libraries is to have in place a plan that serves enduring access to an essential digital collection. As opined by Akpan-Atata (2024), electronic access provides considerable space for product bundling and pricing structures.

Nevertheless, Nicholson (1995) observed that most technologies have a life of three years, therefore a normal five-year plan can be difficult to follow beyond the third of implementing a digital programme. But for Akai et al, (2025) successful long-term plan will be flexible enough to encompassed whatever new technologies like digitization of resources by the library without tying the library down to current types of technology.

Ukpannah and Nna-Etuk (2017) observed that in planning for digitization, a committee should be form to plan for its creation, maintenance and consultants can be hired. This is in support of Reddy (2001) and Akpan-Atata (2013), that planning for digitization should include the creation of necessary infrastructure, creating the digital resources, accessing, identifying, processing, repackaging the web resources for the local users, entering into copyright/intellectual property right, agreement with publishers and content creators and connecting the web resources generated electronic resources for wider access over internet and conducting the staff and user training programs. Formson (2010) in access to richer resources in Nigerian state university observed that digitization of resources has come to stay as it advantages so much outweighs it disadvantages especially in terms of provision of remote access to users and unlimited information from multiple sources; provision of information flexibility and reformatting. Concluding that the intended gain of digitization should be breaking information isolation as the process enhances interaction, knowledge sharing, exposure and access to unknown ideas and information.

This paper seeks to explore therefore the extent of these contemporary practices and processes in digitization of Akwa Ibom State University Library in Nigeria. Within this background, the movement of AKSU Library resources towards a data-intensive, collaborative approach of the 21st Century has been the necessary option. This is more so as advent of digital technologies has both strengthen the power and research of the library services and raise new challenges for the Library Management. Libraries and other Research Institutions and individuals in third world countries worldwide faces many challenges while attempting to preserve and disseminate vast amount of resources for long term use, including how best to preserve information resources in a consistent way and consistently and effectively sharing information for millions of users and met up the demand of information, in this era of information explosion and society consciousness, Akpan-Atata (2014, 2015 and 2024).

**Benefits**

The ARL (2004) recognized digitization of resources as a method of preservation of resources. That is the more reason Conway (2010) describe digital of resources as a strategy for preservation with the following benefits:

* Universal Access: Ibinaiye (2012) also opined that people from all over the world gained access to the same information as long as an internet connection is available.
* Increased Capacity: There are limited storage spaces in traditional libraries while the digital libraries have the potential to store much more information simply because digital information requires very little physical space to contain them Ibinaye (2012).
* Cost-effectiveness: The cost of maintaining a digital library is very minimal as compared to that of the analogue (physical library).
* Improved searching methods through different search engines and manipulation of information.
* Improved facilities for information sharing.
* Accessibility to information is made possible in a short time.
* Improved collaboration with other information institution and centres.
* Enhanced opportunities to form consortia where they can pull their resources together and get a good bargain of scale to acquire library software.
* Visibility: Visibility of the Library resources, the Library and the parent institution.

**Processes:** What is the process of Digitization of Resources in Academic Library? There are basic principles involved in the process of digitization. According to ARL (2004) the process involve storing information as contained in a document, picture or sound file and making it available in any other type format or organizational choice. Again ARL (2004) have summarized the major requirements of digital libraries as:

\* Hardwares

\* Softwares

\* Skilled Manpower

\* Resources Management Skills and

\* Technical Management Skill

Akwa Ibom State University Library (AKSU) adopted the process as enumerated by Maxine (2000), thus;

A. **Planning**: Planning involves identifying various tasks related to creating a digital library collection, developing strategies for handling these tasks. Identifying require resources and formulating time line for accomplishing these tasks. In the planning stage the following requirements and processes are considered.

\* How to convert the source material to digital format considered.

\* The digital requirement

\* The work flow involved

\* Identifying resources and money requirement

\* The type of information Technology institution require

\* Personnel requirement and financial requirement for setting and maintaining the collection.

B. **Implementation:** This implies getting down to the actual steps require to set up the collection. This implies getting right approval and the required resources for the work. Thus the implementation involves.

i) Designating the project manager.

ii) Establishing the project team

iii) Setting up IT infrastructure

iv) Procurement and installation of digital library software.

v) Finalizing policies and specifications.

vi) Finalizing arrangement of workflow

vii) Obtain copyright permissions.

viii) Release of collection for use.

C1. Digitization process in AKSU Library, Main campus – Ikot Akpaden

a. Resources available in the Library: Hardware

i) Scanners

ii) Printers

iii) Computers

iv) Air Conditioners

v) Fans

vi) Furnitures

vii) Servers

viii) CPU

xv) UPS

C2). **Software Resources:** Resources Include

i) D – Space Software

 D – Space software Technology: This is the software system used for digitization work in the Library to effectively carry out the digitization process, Professional Librarians, Para and Non-Professionals were deployed to the system development unit – a unit that is responsible for the digitization processes.

The pre-requisite software technology building block used for the installation of the D-Space includes;

\* Java SDK latest version

\* DSR and SQL.8 x version

\* Jakata Tom Cat latest version

Before the D-Space Software Technology was installed the Management of AKSU Library sponsored the Head of Unit to a Seminar/Workshop at University of Ibadan organized up-to trained the staff responsible for digitization. Also, the university management embarks on Radio Frequency Identification System (RFID) installation in order to control digitized library resources.

3. methodology

A descriptive survey research design was used for this study. A purposive sampling technique that comprises of seven (7) staff out of nine staff of the system development unit of the Library was used. The remaining two were newly recruited Administrative Staff that were not suitable for the study. This design was considered most appropriate since the event had already occurred and the researcher only had to go to facts already on ground. Besides, the event were not manipulated by the researcher. The instrument used for data collection were researcher developed Questionnaire, Oral interview schedule and observation, percentages and statistical package for Social Science were used to analyze the data so collected.

3. results

**Research Question I**: What type of information resources are digitized in AKSU Library.

Below were the major types of information resources digitization in AKSU Library, Main Campus – Ikot Akpaden.

From table I below, all the respondents 7 (100%) indicated that so far only Books (both hard and soft copies were digitized).

**Table 1: Types Of Information Resources Avaiable For Digitization In Aksu Library**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| S/N | Information Resources | %Yes | % No | No frequencies | Total  |
| 1 | Text Books | 7(%) | (00)0 | 7 | (100)7 |
| 2 | Newspaper | (00)0 | (00)0 | 7 | (100)7 |
| 3 | Journal Article  | (00)0 | (00)0 | 7 | (100)7 |
| 4 | CD-ROM | (00)0 | (00)0 | 7 | (100)7 |
| 5 | Conferences paper  | (00)0 | (00)0 | 7 | (100)7 |
| 6 | Student projects | (00)0 | (00)0 | 7 | (100)7 |

**Research Question 2**: What are the criteria used for selection of Resources for digitization? As shown in table 2 below, nature of the resources, quality of paper, content of the materials and legibility were the deciding factors for the materials so selected.

**TABLE 2: Criteria For Selection Of Resources For Digitization In Aksu Library**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| S/N | % Yes | % No | %No Response | Total |
| 1.Nature of resources | (57.1)4 | (42.9)3 | (0.0)0 | (100)07 |
| 2. Quality of paper | (57.1)4 | (28.6)2 | (14.3)1 | (100.0)7 |
| 3.Content of the material | (57.1)4 | (28.6) | (14.3)1 | (100.0)7 |
| 4. Legibility | (42.9)3 | (42.9)3 | (14.3)1 | (100.0)7 |

**Research Question 3**: What type of training did you received to enhance your ability to handle digitization of resources in AKSU library?

Out of 7 (100%) respondents, 2(%) indicated that they received training through workshop/Seminar the Library Management sponsored while the rest 5(71%) indicated that they received their training from their business in their unit and from the RFID TEDFUND Contractor.

**TABLE 3: Types Of Training Received By Staff Of System Development Unit**

|  |  |  |  |
| --- | --- | --- | --- |
|  **Type Of Training** | Frequencies  | % | Total |
| Work Shop/ Scanner Conferences  | 2 | 28 |  |
| In-House Digitization Training  | 5 | 71.4 | 100.00 |

**Research Question 4**: What are the processes followed in the digitization of resources in AKSU Library? All the respondents 7(100%) described the process involved in the digitization as collection of materials from the shelves, sorting them according to subject areas, scanning, capturing, editing, tagging RFID.

**Research Question 5**: What are the problems encountered in the processes of digitization of resources in AKSU Library?

 From table 4 below, 7(100%) of the respondents claim that major problem encountered is the limited number of staff that are working in the unit, inadequate training in the steps involve in the digitization processes; lack of understanding between system administrators in libraries, the contractors and librarians, lack of modern computers, poor internet network connection/power failures and servers breakdown in that order.

**TABLE 4:** **Problems Faced In The Process Of Digitization Of AKSU Library**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **S/N** | **Nature of the problems** | **% Yes** | **% No** | **Total** |
| 1. | Power failure | (45.7)4 | (42.9)3 | (100.0)7 |
| 2. | Virus attack | (42.9)3 | (57.1)4 | (100.0)7 |
| 3. | Size and quality of materials | (28.6)2 | (71.4)5 | (100.0)7 |
| 4. | Lack of materials for rebinding | (57.1)4 | (42.9)3 | (100.0)7 |
| 5. | Lack of modern computers  | (71.4)5 | (28.6)2 | (100.0)7 |
| 6. | Poor understanding between staff and contractors | (85.7)6 | 1 | (100.0)7 |
| 7. | Limited numbers of staff in the unit | (100.0)7 | (00)0 | (100.0)7 |
| 8. | Lack of modern scanners and poor funding | (57)4 | (42.9)3 | (100.0)7 |

discussion

The study revealed that only text books are library resources digitized at the moment. The reason is not far-fetched as Textbooks still remains a major information resources in State Universities Libraries in Nigeria, seconded by Newspapers. Thus, other information resources like Newspapers and Magazines are to follow later. The finding also reveals that the criteria for selection was based on the directives of the University Librarian, as there were so many books to be attended to. Again, scanners and other hardware needs modern version to digitized Newspapers. Also the initial training given to staff was inadequate for this type of work, so also, the number of staff available.

The overall result is in support of earlier findings by Okoro and Okongwu (2017) who posited that funding cost have been a major issue in the digitization of libraries by parent organizations. These include cost of planning, implementation cost, training cost, hardware cost, software cost, server cost, operational cost, programming cost, back up cost, preservation cost and maintenance cost.

Okoro and Okongwu (2017) in their study also identified that poor infrastructure facilities in Nigerian University libraries constitute a major challenge that resist digitization and its sustenance. The non-availability of computers, computer networks, computer softwares, satellite services, printers, scanners, telecom facilities, electronic photocopiers, laptops, inadequate band width size and internet connectivity and unstable state of power supply characterized most State University libraries in Nigeria.

 Oky (2005) and Onuoha and Amposah (2013) noted that of all the different types of library in Nigeria, only university libraries have a clearly defined policy of funding because they are allowed 10% of recurrent annual budget of their parent institution. But as observed by Basahuwa (2017)and Akpan-Atata , it is regrettably that such funds are not forth coming as most university administrators tend to flout that policy, Yetunde (2008) also opined same especially State Institutions.

Posigha, Okongwu and Godwin (2017) found out that in the aspect of challenges encountered in accessing web resources, power or energy supply, limited band width, subscription issues, limited internet and ICT infrastructures in the same order are what is confronting Nigerian libraries. This result is in consonant with Fibril, Sabitu, Jamila Liman (2018) findings in their assessment of digital literacy of academic librarians of ABU. According to the authors, the major constraints to the acquisition of the digital library and literacy are inadequate electricity supply, lack of adequate digital facilities, internet network band width and cost of digital library skills training in that order.

Note also that the type of scanners, and other equipments now available in AKSU Library cannot perform a complete function of digitization or and other functions required in the digital section of the Library. Again technical problems are other serious challenges facing the digitization process. This is more so as the initial training received by the staff is not enough. They have to update and polish their professional and task involved skills. The result shows that most of the staff had difficulties in actual performance of their duties.

4. Conclusion

Libraries no longer need to prove that they should digitize their materials in the 21st Century, they just need to find ways to do it. Although the methods and means of achieving this mission grows more diverse overtime, ensuring equitable access to information resources is a trade of continuity that runs throughout library philosophy. It is a known fact that funding possibilities obviously depends on the focus of the university management and the size of the project undertaken by the library management but a variety of creative functions could make a cohesive digitization becomes possible and a reality even in state institutions like Akwa Ibom State University, Ikot Akpaden in Nigeria. Library digitization can be a major University project and sourcing for international and national funding can also help.

**RECOMMENDATIONS:**

Findings from this study have necessitatedthe following recommendations for efficient and effective digitization processes.

1. AKSU Library Management should provide effective solution to the problem faced in the digitization by purchasing more equipment for the services such as digital camera, Photoshop software, a standby generating sets of its own.

2. AKSU Library Management can also purchase additional Modern Computers and its software

3. To effectively tackle the problem and challenges face by the unit in terms of inadequate training, training opportunities should be provided for the staff of the System Development such as Seminars, Workshops and Conference on Software Management, Service maintenance and D-Space data base Management.

4. System Development Unit also need more staff especially ICT librarian to be able to perform the job optimally.

5. Provision for more UPS to sustain power failure.

6. Copyright Mechanisms should be developed to checkmate copyright infringement.

7. AKSU Library Management should acquire new model scanners, and other ICT Infrastructures.

8. Solar Power be provided to checkmate power failure.

Consent

The author obtained informed consent from all participants in the study.

**COMPETING INTERESTS DISCLAIMER:**

Authors have declared that they have no known competing financial interests OR non-financial interests OR personal relationships that could have appeared to influence the work reported in this paper.

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