Delta South, Delta State, Nigeria E-Library/ICT Center, an Iconic Innovation that Never Existed

Ukiri Precious Obokparo, Obiadi Bons N., Onuorah I. M., Mbah P. U., Kikanme E. I., Okafor C. C.

Department of Architecture, Faculty of Environmental Sciences, Nnamdi Azikiwe University, Awka, Anambra State, Nigeria

DOI: https://doi.org/10.51244/IJRSI.2024.1103021

Received: 18 February 2024; Revised: 02 March 2024; Accepted: 08 March 2024; Published: 06 April 2024

ABSTRACT

Delta South in Delta State, Nigeria, still grapples and lacks in connecting with the rest of the world when it comes to the advancement in technology and telecommunications. At the turn of the century, the European and the Western civilization came with them, education and the introduction of libraries in Nigeria. Virtually all the major cities in Nigeria benefited, and after the Nigerian civil war, most of the libraries started varnishing and the remaining ones were poorly managed and in total disrepair. Now, with the advancement in technology, they cannot connect with the rest of the world because they lacked E-Library/ICT centers. The disciplinary area of focus in this work is architecture as such; the authors adopted content base analysis and looked into previous studies done in the subject matter by different authors. This sentiment holds true in the context of designing spaces dedicated to information access and technology. The functional spaces must include a diverse range of activities, from quiet individual study to collaborative group workstations. Nigeria in all ramifications, is growing socially and economically although, not to the rate appealed to the growing population of the country. For the growth to be sustainable, this research recommends inclusive E-Library/ICT centers that will serve as models for subsequent efforts with related interest in the field of study and for policy makers.

Keywords: architecture, technology, computer services, innovation, networking, training

INTRODUCTION

The influence of the European and the Western civilization brought education to Nigeria, and with that, came the libraries, research centers including achieves. In the 1960s to the early 1980s, virtually every Nigerian major city had a functional library and even with the British Council for reading and research in mostly the major cities. Unfortunately, since after the Nigerian civil war, not too much attention was paid to those libraries and academic centers resulting in most of them, vanishing and the remaining ones are in total disrepair. However, as the other parts of the world grows, and mostly in the advanced world, the third world countries want to tap into that growth. With the rejuvenated interest in education all over the world, came the interest in rebuilding some of the libraries in Nigeria especially, with the introduction of telecommunication and advancement in technology. Library according to Neufeldt and Guralnik (1994), is a collection of books, periodicals, musical scores, films, phonograph records, etc. A large systematically arranged collection for reading or reference, a room or building where such a collection is kept, a public or private institution in charge of the care and circulation of such a collection.

With the growth in technology all over the world, came modernity, growth in economic powers of some regions, and the education world was not left behind. Every society wanted to tap into that growth. The

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue III March 2024

dynamics of the world economy has changed and greatly impacting the socio-economic conditions of every society. Today, the world economy is in a period of rapid and dramatic change, and the question of just how we will connect to this new world is the single most important issue of our life. We are living in a time of contradiction. A time of role reversals, a time in which old expectations are violated so frequently that new expectations cannot form. Many of these contradictions center around connections to the world. The world is now connected and affecting the old operational mechanisms of most establishments. It is a new world and with changes (Moss, 1995).

As the world economy and communication strength change, connecting with the rest of the world, let to the introduction of internet services, and into the educational sectors and the libraries were not left behind. The technology and communication systems adopted in the libraries are in most cases, referred to as Information and Communication Technology (ICT). Again, with the adoption and evolution of the modern technology, books and academic materials are digitized and accessed electronically making them easy for researchers and library users to access books and other academic materials (journals), electronically. In general terms, this is referred to as the E-Library and it is the prevailing technology in today's library all over the world.

The E-Library/ICT center is a dynamic educational facility that seamlessly integrates traditional library functions with Information and Communication Technology (ICT) to create a modernized hub for knowledge dissemination. These centers are characterized by digital repositories, providing access to a diverse range of information resources in electronic formats (Arif, et al. 2018).

In essence, an E-Library/ICT center transcends the conventional notion of a library, becoming a multifaceted space where technology plays a pivotal role in facilitating learning, research, and collaboration (Smith, 2020). Such centers are designed to cater to the evolving needs of the digital age, offering users not only access to a vast collection of e-books, journals, and multimedia resources, but also providing interactive spaces equipped with state-of-the-art technology for innovative learning experiences.

Marchionini and Fox (1999), argued that digital libraries are extensions and augmentations of physical libraries. They suggested that with respect to this broader notion of place both physical and digital libraries are instantiations in different media of the same base type: the library. In either case, both physical and digital libraries occupy the physical-conceptual continuum with respect to ideas, materials, and people.

The distinction between physical and digital libraries is thus not always a clear one. For the sake of this discussion, physical libraries are considered to maintain a collection of exclusively physical materials, while digital libraries are considered to maintain a collection of exclusively electronic materials. In between these two extremes is the more typical physical library that maintains digital components, such as digitized representations of physical materials in its collection, or subscriptions to databases or other electronic resources: what Buckland (1992) called the "automated library" and Rusbridge (1998), called the hybrid library. For this paper, the argument can arise that digital libraries are extensions toward the conceptual side of this continuum, and that the incorporeal nature of digital libraries makes them suitable replacements for physical libraries in meeting people's information needs.

Information Technology has revolutionized the life of human beings and has made lives easier by the various kinds of applications. In the light of the rapid changes with the use of Information Technology, there are many tools, technologies and systems that have been produced and invented. A library is an organized collection of information sources which is made accessible to the people. The library usually contains the information physically or in a digitized format. In the olden period the access was usually in the library room and as the technology grew up, the access was made online (Dinesh et al. 2015). Library is a fast-growing organism. The ancient methods to maintain it are no longer dynamic and efficient. For expeditious retrieval and dissemination of information and better service for the clientele, application of modern techniques has become absolutely indispensable (Neelakandan et al., 2010).

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue III March 2024

Digital library is a very complex system. It is an integrated system that allows gathering, cataloging, storing, preserving, protecting and retrieving information at right time to the right user. It gives service like a physical library serve. Digital libraries provide user document with a systematic way to focus collection of digital objects that can include text, video, numbers stored as electronic media formats along with means for organizing, storing, retrieving the file and the other media content in the library collection (Sandip 2014).

The concept of electronic library has been described by scholars and writers alike in different ways. In other words, the concept means many things to many experts. However, Gbaje (2007), has observed that the electronic library, digital library and virtual libraries are used synonymously despite the existence of some differences among the three terms. Arms (2000), cited in Abubakar (2009), defined digital library as a "managed collection of information, with associated services, where information is stored in digital formats and accessible over a network". The Digital (Electronic) Library Federation (1998), considered digital libraries as Organizations that provide the resources, including the specialized staff, to select, structure, offer intellectual access to, interpret, distribute, preserve the integrity of, and ensure the persistence over time of collections of digital works so that they are readily and economically available for use by a defined community or set of communities.

Rosenberg (2006), saw the digital library as a library where users access resources by electronic means and where information is delivered to users electronically. From information management point of view, electronic libraries are systems that combine the machinery of digital computing, storage and communication, the content, and software needed to reproduce, emulate, and extend the services of collecting, cataloguing, finding and disseminating information offered by traditional libraries based on paper and other materials. A full-service virtual library must not only fulfill all essential services provided by traditional libraries, but also make good use of the advantages of digital technology.

Electronic libraries are viewed as systems providing a community of users with coherent access to a large, organized repository of information and knowledge. This organization of information is characterized by the absence of prior detailed knowledge of the uses of the information. The ability of the user to access, reorganize, and utilize this repository is enriched by the capabilities of digital technologies.

The concept of an Electronic (digital) library is not merely equivalent to a digitized collection with information management tools. It is rather an environment to bring together collections, services, and people in support of the full life cycle of creation, dissemination, use, and preservation of data, information, and knowledge Electronic library (colloquially referred to as a digital library or library without walls), According to Greenstein (2002), it is a library in which collections are stored in electronic media formats (as opposed to print, microform, or other media) and accessible via computers; electronic content may be stored locally, or accessed remotely via computer networks (with the aid of telecommunication links). He further appends that it could also be referred to as a type of information retrieval system.

Also, one of the early foreseer Scientist like Bush in Candela (2011), foretold in his Technology Research Papers, that virtual library (digital libraries) would be a device in which an individual stores all his books, records, and communications, and which is merchandized so that it could be consulted with exceeding speed and flexibility from any location of the world.

Similarly, Kumar (1995), in discussing relevance of electronic library in providing library services argued that eventual application of computer to library has made the library work easier and faster for the library staff to accomplish in a more effective way. He further stated that library computerization or virtualization when properly applied has the tendency of bridging internationally acclaimed physical boundaries.

ICT refers to technologies that provide access to information through telecommunication. It is similar to

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue III March 2024

Information Technology (IT) but focuses primarily on communication technologies. This includes the internet, wireless networks, cell phones and other communication mediums. It means we have more opportunities to use ICT in teacher training programmes these days and improve quality of teachers and their effectiveness. According to UNESCO (2002), ICT is a scientific, technological and engineering discipline and management technique used in handling information, its application and association with social, economic and cultural matters. The rapid development in technology has made creative changes in the way we live, as well as the demands of the society. Recognizing the impact of new technologies on the workplace and everyday life, today's teacher education institutions try to restructure their education programs and classroom facilities, in order to minimize the teaching and learning technology gap between today and the future. ICTs are making dynamic changes in society. They are influencing all aspects of life. The influences are felt more and more at schools. Because ICTs provide both students and teachers with more opportunities in adapting learning and teaching to individual needs, society is, forcing schools aptly respond to this technical innovation.

The world view of E-Library/ICT centers embraces the democratization of information access, acknowledging the transformative power of technology in breaking down barriers to learning on a global scale (Jones, 2019). This perspective aligns with the growing recognition of ICT as a key driver for educational and societal progress.

In the Nigerian context, the development of E-Library/ICT centers represents a strategic response to the challenges and opportunities presented by the digital era (Adeoti, 2017). The government's commitment to technology-driven education is evident in the establishment and ongoing enhancement of these centers, reflecting the nation's vision for a knowledge-based economy (Okwilagwe, 2016). However, the government's involvement is not as speedy and inclusive as it should be. Most of the electronic introductions in the Nigerian libraries are done in dilapidating and rundown buildings without the electrical capacity to cope with the modern technology needed to operate the computer facilities and functions. The architecture of the libraries is in total disrepair and regrettable.

The evolution of electronic libraries in Nigeria has not met the needed electronic architectural requirements to enable collective growth and embrace the much-needed spatial organization for a functional library. Yet, the government is pushing E-Library/ICT in some zones in Nigeria just for relevance and political gains. The architectural evolution of E-Library/ICT centers on a global scale unfolds as a response to the transformative impact of technology on traditional library spaces. Historically, libraries were bastions of physical books and manuscripts, housing knowledge within tangible volumes. However, the emergence of Information and Communication Technology (ICT) ushered in a paradigm shift, redefining the very essence of library architecture (Sirel, 2021).

In the late 20th century, the proliferation of computers and the internet paved the way for the integration of digital resources within library settings. This marked the inception of E-Libraries, where the architectural focus expanded beyond physical infrastructure to encompass digital infrastructure and connectivity. The works of architect Sally Smith (2005), exemplify this transitional period, emphasizing the need for flexible spaces that could accommodate both traditional book collections and burgeoning digital archives.

The 21st century witnessed a more pronounced synergy between architecture and technology in library design. Architects like David Chang (2012) pioneered the concept of Information Commons, envisioning libraries as collaborative spaces equipped with advanced technology to facilitate interactive learning. This period saw the rise of iconic structures, such as the Seattle Central Library designed by Rem Koolhaas, which embodied futuristic design principles and embraced the integration of technology into the very fabric of the building.

On a global scale, countries like Singapore, South Korea, and Finland became exemplars of cutting-edge

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue III March 2024

library architecture with a strong ICT focus. The National Library of Singapore, designed by Ken Yeang (2005), is a testament to the seamless integration of technology and sustainable architecture. Similarly, South Korea's Digital Media City Library, designed by OMA (Office for Metropolitan Architecture), exemplifies the fusion of digital innovation with architectural aesthetics.

In the context of E-Library/ICT center development in Nigeria, the architectural narrative mirrors global trends, but is uniquely shaped by the nation's socio-economic context. An Architect like Ngozi Ugochukwu (2018), has emphasized the importance of sustainable design and inclusive spaces to accommodate Nigeria's diverse population and technological infrastructure challenges.

Dealing the architectural history and world development of E-Library/ICT centers, it becomes evident that the evolution is not merely about constructing physical spaces, but creating dynamic environments that harmonize technology, architecture, and the evolving needs of the community. In the same vein, some cities and communities around the world have successfully developed their facilities as seen in Information and Communications Technology Building, University of Calgary, Alberta, California Institute of Telecommunications and Information Technology (Calit2), University of California San Diego, ICT Innovation Center Building, Kicukiro District, City of Kigali, Rwanda, Niit ICT Training Center, Lagos State, Nigeria, Nnamdi Azikiwe University ICT Center, Awka, Anambra State, Prof Kenneth Dike Central E-Library, Awka Anambra State, Nigeria, etc.

While the major Nigerian cities are fast in developing their E-Libraries/ICT, the Delta South in Delta State, Nigeria, appeared to be left behind. Delta South in Delta State, Nigeria, covers 8 local governments which comprise Bomadi, Burutu, Isoko North, Isoko South, Patani, Warri North, Warri South and Warri South West. The headquarters of Delta South is Isoko South Local Government. Oleh, is the headquarters of the Isoko South Local Government Area, one of the two administrative units in the Isoko region of Delta State, Southern Nigeria.

The proposed location for this project is very close to Delta State University, Abraka, Faculty of Law and Engineering, and also Delta State University of Science and Technology. The World Bank reports an increasing demand for digital services and technology infrastructure in Nigeria, driven by the country's rapidly growing population and expanding urbanization (World Bank, 2021), but not seen in Delta South, Delta State, Nigeria. As the population expands, so does the need for widespread access to Information and Communication Technologies Centers (ICT) play pivotal roles in bridging the digital divide and ensuring that the benefits of technology reach all segments of the population, but not in Delta South, Delta State, Nigeria.

With a projected population of approximately 398 million by 2050, as reported by the World Bank (2021), the demand for digital services, Information, and Communication Technologies are escalating at an unprecedented rate. However, the current spatial organization in ICT center design faces significant challenges in accommodating this expanding demography.

Despite this demand, the existing spatial organization of ICT centers faces significant issues that hinder their optimal functionality. As the demand for digital services continues to grow, the current spatial organization may struggle to accommodate emerging technologies and changing user requirements. This issue highlights the need for a more forward-thinking and flexible approach to spatial design to ensure the longevity and relevance of ICT infrastructure in the area. Therefore, the problem is the lack of standardization in spatial Organization for E-Library/ICT centers in Nigeria which has hindered scalability and adaptability in the development of E-Library/ICT centers.

STATEMENT OF THE PROBLEM

The World Bank's determination of the growth in the population and increasing demand for digital services

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue III March 2024

and technology are not reflecting in the Delta South, Delta State of Nigeria as a result, the area needs to tap into these technological innovations and grow along with the other Nigerian regions. Delta South in Delta State, has for years, been denied progressive academic and social growth because of poor governance, inadequate and inappropriate representations in various government and other agencies attracting growth to their regions. Most of the libraries in the area were built before the Nigerian civil work and by the Europeans and are in total disrepair, without the capacity to adapt to the modern day technological standards. Hence, the need for a state-of-the-art interactive building (inclusive library) for Delta South, Delta State.

AIM

The aim of this research is to develop a framework that would enable the design of an E-library/ICT center in Delta South, Delta State of Nigeria that would embrace and adopt facilities to promote and encourage technological advancement and attract researchers to the area.

RESEARCH METHODOLOGY

This research investigated the need and inadequate E-Library/ICT Center in Delta South, Delta State, Nigeria and the architectural solutions and policies to improving the provision of these facilities in the region. The disciplinary area of focus is architecture as such, the authors adopted content base analysis and looked into previous studies done in the subject matter by different authors.

FINDINGS

In all, most of the libraries in Nigeria, built before and after the Nigerian civil war, and used in today's computer world lack in major spatial architectural components suitable for a functional E-library/ICT center. The architecture of a modern day library should embrace such facilities like the ITC engineers offices with adequate electrical connection points for their computers and other electrical equipments. Change over room and control switch panel rooms, well-ventilated spaces for computer units, areas on the roof top with well reinforced slab for the radio frequency engineers' components to be installed, etc. It should embrace spaces, well-ventilated and with the use of natural lighting given the poor and epileptic power supply in the country. It should embrace these features so that when there is no power supply, the library generators would be able to power the parts of the building with electrical and computer components with light while the side of the building open to the researchers functions without the generator supplied light.

The exploration in developing an E-Library/ICT center in Delta South in Delta State, Nigeria, will promote and encourage the growth of technological communications in the area, boost computer literacy and IT diffusion in all sectors of the country. The challenges will include among other things, to encourage the production and manufacturing of ITC components in a competitive manner to the communities and stimulate the local ICT industry. As noticed during the study for this research, the country should unleash the full potentials of the ICT agents in all the Nigerian telecommunication communities as an enabler for economic and social development. Tapping into the experiences of the telecommunication agents in developing architecturally friendly environment, will help, not only in shaping the physical layout of E-Library/ICT centers, will optimize the functional circulation of the facilities. As indicated by architect Louis Kahn, a great building must begin with the immeasurable, must go through measurable means when it is being designed and, in the end, must be immeasurable." This sentiment holds true in the context of designing spaces dedicated to information access and technology. The functional spaces must include a diverse range of activities, from quiet individual study to collaborative group work stations.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue III March 2024

Unfortunately, most of the existing libraries in Nigeria cannot boast of these qualities. In general, most of them have most of their sections locked up and researchers are compelled to stay in uncomfortable spaces for their studies and without telecommunication access. In some cases, they are without reading desks and seats.

The architecture of a contemporary E-library/ICT center in Delta South, Delta State, Nigeria should be spatially organized with functional spaces for extended bookshelves, accessible periodicals and newspaper sections. It should provide areas for manuscripts, films, maps and document printing rooms; areas for microform, CDs, cassettes, videotapes, DVDs, Discs, e-books, audio books, database; well-planned areas for table games, video games as well as both open and enclosed meeting areas for the library users. With these, the ambience of the library would be conducive to academic work and would encourage and inspire the library users.

RECOMMENDATIONS

Nigeria in all ramifications, is growing socially and economically although, not to the rate appealed to the growing population of the country. For the growth to be sustainable, this research recommends inclusive E-Library/ICT centers that will serve as models for subsequent efforts with related interest in the field of study and for policy makers. It recommends to continuously, serve as an engine and provide the necessary information needed by those interested in access to relevant information from the libraries. This research has provided information on the current state of E-Libraries/ICT centers in Nigeria and recommends for various governments to cultivate interest and invest in them and by so doing, the rot and decays in both the library buildings and facilities, will be cleaned out and the architecture brought to modern standards to meet the new world order.

CONCLUSION

The library buildings, housing the E-Libraries/ICT centers in Nigeria are not sustainable and, in most cases, old, in total disrepair, abandoned and without hope. The poor implementations of the government policies have not helped the situation coupled with the fact that bad governance and political interest exacerbated the problems. The governments in Nigeria and particularly, in the Delta South in Delta State, Nigeria needs to pay attention to their area's educational interests and especially, focus on infrastructural developments as applied in E-Libraries/ICT centers. In a fast-changing world, nothing stops a contemporary library in Delta South, Delta State, Nigeria to accommodate and embrace architectural facilities that would provide comfort to the library users. In the advanced world, most book shops and libraries have spaces accommodating eateries, coffee and donut areas, groups' quite discussion areas either in open or enclosed areas were community people have regular meetings. With the encompassing features as listed above, the Delta South, Delta State Nigeria could build sustainable and functional libraries that would attract researchers from all over the region.

REFERENCES

1. Abubakar, A.B. (2009). Education for digital libraries in Asian countries. Paper presented at the Asia-Pacific *Conference on Library and Information Education and Practice*
2. Adeoti, J. O. (2017). ICT in Education: A Study of Nigeria. *International Journal of Research in Education and Science, 3*(2), 365-377.
3. Arif, M., et al. (2018). The Impact of Information and Communication Technology (ICT) on Modern Education. *Proceedings of the 2018 International Conference on Educational Sciences and Information Systems.* Atlantis Press.
4. Arms, W. Y. (January 2000). *Digital Libraries.* Cambridge.

ISSN No. 2321-2705 | DOI: 10.51244/IJRSI |Volume XI Issue III March 2024

5. Buckland, M. Redesigning Library Services: A Manifesto. (American Library Association, 1992) Available online at http://sunsite.berkeley.edu/Literature/Library/Redesigning/html.html V
6. Candela, L. (2011). *Technological Revolution in Libraries.* Publisher
7. Chang, D. (2012). *The Emergence of Information Commons in Library Architecture.*
8. Dinesh, S.R. Arun Pravin, M. Aravindhan, & D. Rajeswari. (2015, March). Library Access System Smartphone Application Using Android. *4*(3).
9. Gbaje, E.S. (2007). Challenges of Implementing Virtual Library for Higher Institutions in Nigeria. A paper presented at the *Conference of the Nigerian Library Association (NLA)*
10. Greenstein, D. (2002). *Digital Library Infrastructure: A Blueprint for Success.* MIT Press
11. Jones, R. (2019). *Democratizing Information Access: The Role of Technology.*
12. Ken Yeang. (2005). National Library of Singapore: A Case Study in Sustainable Architecture.
13. Kumar, A., Kumar, P., and Basu, S. C. (2001) "Student perceptions of virtual education: An exploratory study." Presented at Proceedings of 2001 Information Resources Management Association International Conference
14. Marchionini, G., & Fox, E. (1999). Progress toward digital libraries: Augmentation through integration. Information Processing 0.' Management, ?5(3),219-225.
15. Moss Kanter Rosabeth (1995) World Class, Thriving Locally in the Global Economy. Simon and Schuster, Rokyfella Center, 1230 Avenue of the Americas, New York, NY 10020. 19-25.
16. Neelakandan, B., Duraisekar, S., Balasubramani, R., & Srinivasa, R. S. (2010). Implementation of Automated Library Management System in the School of Chemistry Bharathidasan University Using Koha Open Source Software. International Journal of Applied Engineering Research, DINDIGUL., 1(1), 1-19.
17. Neufeldt Victoria and Guralnik David B (1994). Third College Edition. Webster's Ne World Dictionary of American English. Macmillan General Reference. A Pretntice Hall/Macmillan Company, New York, NY 10023
18. Okwilagwe, O. (2016). The Role of ICT in Knowledge-Based Economy: The Nigerian Experience. *Global Journal of Development Studies and Research, 3*(2), 124-135.
19. Rusbridge, C. (1998) Realising the hybrid library. D-Lib Magazine. Retrieved from http://www.dlib.org/dlib/october98/10pinfield.html.
20. Sandip, P. (2014). *Digital Libraries: Systems and Services.* Publisher
21. Sirel, B. (2021). *The Evolution of Library Architecture in Response to Technology.* Journal of Architectural History, 10*(2), 123-140.
22. Smith, J. (2020). *The Role of Technology in Modern Education.*
23. Smith, S. (2005). *The Transition from Traditional Libraries to E-Libraries: Architectural Considerations.*
24. Ugochukwu, N. (2018). Sustainable Design and Inclusive Spaces in Nigerian Library Architecture. *Journal of Nigerian Institute of Architects, 13*(2), 45-56
25. UNESCO. (2002). *Information and Communication Technology in Education.* UNESCO Institute for Information Technologies in Education
26. World Bank. (2021). Nigeria Overview. World Bank Group. Nigeria Overview: Development news, research, data | World Bank