

Digitalising the Library Management for Effective Performance in the Nigerian Oil and Gas Sector

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Abstract

Advancement in information and technology in the 21st century has affected the manner and type of information required by library users. To effectively meet the emerging needs of information seekers, libraries need to be digitalised. The aim of this paper is to examine how the digitalising of library management can lead to effective performance in the Nigerian oil and gas sector. This study adopts an analytical research methodology that showed that there is still a huge gap in the delivery of library services in the oil and gas sector due to the lack of full digitalisation of libraries in the sector. Five subtopics were analyzed in order to articulate the aim of the study. The subtopics include; Introduction, Digitalisation of library management and digital libraries, the need for digitalisation of library management in the oil and gas sector, and how the digitisation of library management can lead to effective performance in the oil and gas sector, and challenges to the digitalisation of libraries. The study concluded that the oil and gas sector is the backbone of the Nigerian economy hence oil and gas professionals need easy and fast access to information for effective performance and safety. As such, libraries need effective service delivery. It also recommended solutions to the challenges of digitalisation of library performance in the oil and gas sector.

Keywords: Digitalisation; Library Management; Digitalisation of library Management; Digital Libraries; Oil and Gas sector.

1. Introduction

The effective storage and retrieval of information are important for human intellectual development. From time immemorial the library has served as a storage and a reservation facility of knowledge and resources for future purposes. The ultimate purpose of a library is to store the right information and make it available to the right users when required. Libraries preserve history, memories, and vital knowledge. Libraries play major roles in education, research, and human development.

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Library serves the continuous learning needs of an organization and the society at large. Rapid technological advancement in the 21st century has affected the role of librarians in the management of library resources. For a library to stay relevant, there is a need for digitization of functions and library resources to meet the advanced demands of library users.

Digitalisation of library management involves automation of library functions and making library resources easily available in electronic format. Digitalisation brings about efficiency and better service delivery. It is the use of computer software to perform basic housekeeping functions of the library and store resources in digital format (1).

Just like every sector needs effective knowledge and access to information for its development, the function of libraries as storage for information and learning resources in the oil and gas sector cannot be overemphasized. Either at the institution of learning or in the field, geologists and petroleum professionals require access to adequate information and materials to enhance research, service delivery and learn safety measures. A study on the information-seeking attitude of petroleum engineers in Nigeria (2), revealed that oil and gas professionals spend time seeking knowledge on safety measures, healthy practices, geochemical prospects, oil & gas E&P as well as effective service delivery.

The oil and gas sector relies heavily on accurate information for its effectiveness and safety of staff. This is the reason the industry invests heavily in providing its professionals with adequate and accurate information on safety measures, reports on interaction, geological models, models of the reservoir, measurement of production, and seismic data (3). Due to the fierce competition in the global oil production market as well as rapid growth in global best practices by oil & gas scientists, professionals need access to fast and effective information to keep pace with the competing industry (4). However, libraries in the Nigeria oil and gas sector lack adequate digital resources to meet the demand of their users.

2. Digitalisation of library management and digital libraries

Digitization is the process through which analogue materials are converted to digital or electronic formats. Digitization enables an accessible and convenient method of acquiring, preserving, and disseminating information by libraries (5). The characteristics of digital library materials include permanence, boundary, materiality, and flexibility. Digitalisation is the process of transforming materials into binary digits (6). Digitalisation of library management is the automation of manual library functions for effective service deliveries. This involves the use of automation software to deliver fundamental library functions. This special software enhances acquisition, arrangement, storage, retrieval, and making materials available to users at any time and location (7).

Although this software does not dismiss the role of librarians, it assists in the effective and efficient acquisition, cataloguing, circulation, referencing, serial management of library resources, and report generation for efficient service delivery to library users. Common digital library management software used in Nigerian libraries include LIBRARIAN, SLIM, X- LIB, Voyager, Adlib Library, OpenBiblio, NewGenlib, CDS/ISIS, TINLIB,

Bibliotheca, and Aleph (8).

Digitalisation of library management saves time and energy, prevents duplication of tasks, and enhances effective delivery of library service (9). With the aid of library management automation, users can easily access material inside or outside the library with the use of search terms such as author, title, subject, series, ISBN, call numbers, and keywords.

Digitalisation of library management does not necessarily mean a library that embarks upon digitization will be a digital library. Digitization of library management points to how resources in a library are managed while a digital library can be a part of a traditional library. A Digital library is a library where all information and resources are available in electronic format and can only be accessed online. United Nations Food and Agriculture Organization (FAO), defined a digital library as:

"a managed and organized collection of information resources, preserved for a long time, with associated user services, where the information is stored in digital format, and accessed over a computer network" (10)

According to another definition

"a digital library consists of digital services and materials that are stored, processed and transferred via digital (binary) devices and networks" (11)

Digital library materials include ebooks, electronic journals, videos, and pictures. Most libraries in Nigeria have a hybrid library arrangement. They maintain both physical materials and digital materials with an automated library management system both physically and virtually. Digitalisation of library management will enhance service delivery while digitization of library materials will make library resources available and accessible anywhere with an internet connection for people who have access rights. Access right grants users a license to access and make use of library materials. Access rights enable the library to control indiscriminate use of library materials and abuse of the author's intellectual properties. (12). To effectively function well in a digital library, librarians need good technical skills and managerial skills. Librarians need to be computer savvy and abreast of technological changes to function effectively in a digital environment. (13).

3. The need for digitalisation of library management in the oil and gas sector

The oil and gas sector is one of the backbones of the Nigerian economy. Since its first discovery in commercial quantity in Oloibiri, the present Bayelsa state, crude oil has been a major source of foreign income for Nigeria (14). Major players in the oil and gas industry are governments through the Nigerian National Petroleum Corporation (NNPC), the industry regulator, and commercial companies such as Shell Plc, Total Energies SE, Chevron Corporation, and Exxon Mobil Corporation. Professionals in the oil and gas sector include drilling engineers, petroleum geologists, reservoir engineers, technicians, mining engineers, exploration geologists, production engineers, oil and gas lawyers, and oil and gas economists. All these professionals require access to swift and adequate information and learning materials for their safety and effective service delivery.

Professionals in the oil and gas sector seek information through discussion with colleagues. Aside from oral inquiry and discussion with colleagues, oil and gas professionals rely heavily on electronic resources from online databases followed by equipment and practice manuals as well as literature on oil and gas in libraries (2). Research into the knowledge-seeking behaviour of oil and gas professionals showed that they majorly seek knowledge about safety measures and service delivery (15). Oil and gas lawyers and economists also use library resources to research local laws, international regulatory principles binding the sector and accurate data for better decision making.

Libraries in the oil and gas sector are designed to provide knowledge support for oil and gas professionals. These libraries arrange, store and make available oil and gas information and learning resources such as textbooks, equipment manuals, safety manuals, charts, atlas, images, and legal materials. Libraries in the oil and gas industries include libraries in the institutions of learning where oil and gas professionals are trained, the NNPC library, as well as libraries in various oil companies.

Activities in the oil and gas sector can be divided into upstream and downstream activities. Upstream activities involve remote site works which are exploration and production of crude oil. Downstream activities involve crude oil refining and distribution. Both upstream and downstream oil and gas activities pose potential safety risks. As such, the industry relies heavily on accurate information to ensure the safety of staff and effective delivery of services. Aside from safety information, the global oil and gas industry is highly competitive and rapidly evolving (4). Nigerian oil and gas professionals need adequate access to information to keep up with scientific research and global standard service delivery in the sector for better performance.

The challenges of oil and gas professionals are not inadequate availability of information but the ease of access to the required information (16). Time and location are the barriers to information by oil and gas professionals. Upstream professionals work at remote sites where there may be no access to a physical library. Downstream activities are also time-consuming and have little time for matching down to the company libraries when professionals are in need of information. These professionals are highly engaged, they have limited time to sit down in a library to search through physical materials. Yet they need adequate information for safety and effective service delivery.

A study of management of the Nigerian National Petroleum Corporation (NNPC) headquarters library showed a huge gap in the delivery of library services at the NNPC libraries across the country. Despite the fact that the majority of intended users of these libraries do not have time to visit the physical library, hence they rely on e-resources, the library is far from being digital. The library lacks adequate digital library management infrastructure and human resources. The library still relies heavily on manual library management. Users also lack adequate ICT knowledge to navigate the limited e-resources. There is also the problem of inadequate funds which has affected the morale of the library management to take adequate care of library resources (17).

The University community which is the first contact for petroleum professionals have also been unable to adequately keep pace with the digital needs of modern library management. Even though these libraries strive to employ the use of management software funding for the purchase and management of, erratic power supply,

incompetent and inadequate manpower has been a major stumbling block to the digitalisation of university library management (8).

The challenges encountered by petroleum engineers while seeking knowledge are verification of information credibility, lack of awareness of certain information sources, difficulty in retrieving information from information centres, high cost of accessing certain information, inadequate time to search for required information, long distance between work sites and libraries, as well as poor internet connections in remote areas (18). These challenges establish the fact that libraries in the oil and gas sector need to be digitalised to meet the needs of professionals in the sector.

4. How digitalisation can lead to effective performance in the oil and gas sector

Conversion of physical materials in the oil and gas libraries to electronic format and automation of functions in the libraries can improve access to knowledge by professionals. If libraries in the oil and gas sector are fully digitalised, professionals can easily access library material outside the library as the need may arise. There will be access to accurate information and reference without the need to consult colleagues. Digital libraries save time. Users do not need to drive down to a physical library to access information. Library materials can be easily accessed on personal computers and mobile devices. Digitalisation enables inter-library sharing and access to virtual materials (19). Librarians will be well equipped to help professionals source and keep up with trends and emerging scientific research in the global oil and gas industry. Materials from other countries' libraries can be easily shared via electronic networks. Scholarly communication is also encouraged through open access and open repositories.

The use of automation software brings about effective data collection and analysis in the library system. Librarians will easily keep track of available learning resources, borrowed materials and materials they need to add to their collections. Digitalisation also preserves library resources against physical damages. A physical library is at potential risk of fire, collapse, flood and other natural disasters. Digital library materials will be saved on the computer cloud where they can exist forever. As such, old research projects, manuscripts, photo albums, video and audio resources can be kept for several generations (20).

5. Challenges of Digitalisation of Library Management

Despite the desirability of digitalizing library management in the oil and gas sector, there are several impediments that may hinder its success. Finance is a huge setback to the digitalisation of libraries in Nigeria (21). Inadequate finance to purchase library management software and manage digital library portals is a stumbling block to the process of digitalisation of libraries. Professionals also have to purchase data subscriptions to be able to access the internet. Another setback is the lack of computer literacy by both librarians and users (13). Computer illiterates cannot utilize or manage a digital library regardless of its ease of access. Poor Internet connection is another challenge. Oil and gas professionals working in remote areas may not be able to access smooth internet connection when they are in need of access to information onsite.

6. Conclusion and Recommendation

This study has been able to establish the need for the digitalisation of library management in the oil and gas sector for the delivery of effective services to professionals in the industry. Oil and gas professionals require quality and swift access to information for their safety, better service delivery and to stay abreast. This study found a gap in the service delivery by libraries in the sector due to a lack of adequate digitization infrastructure and management. It also observed various barriers to the digitisation of library management in this sector which includes inadequate funds and computer illiteracy by staff and users.

In the light of the above observations, this study recommends the following as a way forward;

- Allocation of adequate budget to digitization projects in the Nigeria National Petroleum Corporation library. Practice manuals, safety manuals, research materials, atlas, charts and pictures required by petroleum engineers should be digitized with proper referencing and made available on the internet.
- Adequate budgets should be allocated to public institutions and oil and gas institutes libraries for digitization and effective management of library resources.
- Commercial oil and gas companies should also maintain an updated digital oil and gas library with qualified library staff for effective management. Free wifi access should be available in the library and data subscription allowances should be provided for professionals to access digital library resources outside the libraries.
- There should be continuous learning programs for library staff to learn the usage and management of computer and digital resources. Oil and gas professionals should also be well equipped with the knowledge of ICT.
- Internet access should be extended and improved in remote areas where oil exploration and production place.

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