THE ROLE OF INFORMATION AND COMMUNICATION TECHNOLOGY IN LIBRARY SECURITY: AN OVERVIEW

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Abstract

The purpose of this paper is to highlight the role of Information and Communication Technology (ICTs) applied in library security. The ICT facilities discussed include RFID technology, Closed Circuit Television (CCTV), verification, circulation, reprographic services and electronic access technology. The paper adopted on exploratory approach through review of related literature which succeeded in highlighting the role of Information and Communication Technology (ICTs) in library security. This paper found out the difference areas in which information and Communication Technology (ICTs) can be applied in the library security. The menace of the theft has disrupted the conduct of library activities across the globe. The emergence of Information Technology (IT) has caused a paradigm shift in the securing library resources/materials. It is therefore left to libraries to adopt and apply these opportunities in securing library resources/materials. In order to remain secured, libraries should maximize the opportunities provided by Information and Communication Technology (ICTs) on securing library resources.

Keywords: Information and Communication Technology (ICT) and Library Security

Introduction

Libraries are institutions set up to cater for the educational, cultural, research, recreational and information needs of their users. Libraries have the main objectives of being entrusted with the selection, acquisition, organization, storage and dissemination of information to their patrons. Libraries are the knowledge and information foundation of any nation. A library collects, organizes and makes information resources accessible to all kinds of users regardless of their ages, background and interests. Islam (2004) defined library as a learned institution equipped with treasures of knowledge, maintained organized and managed by trained personnel to educate the children, men and women continuously and assist in their self improvement through an effective and prompt dissemination of information. There are different kinds of libraries and each performs different kinds of functions to meet the

determined purpose and needs of the people they serve (Ode and Omokaro 2007). These libraries include the following: academic libraries, public libraries, special libraries, school libraries, and private libraries.

Library resources are the information bearing materials which enable the library to fulfill its goal of meeting the information needs of its users (Pernia, 2008). Libraries in their effort to provide a broad array of resources to meet the needs of their users collect resources in various sizes and formats. These library resources can include manifestation of the printed world, audio and video recordings, microforms, visual and electronic resources and generations of requisite equipment for accessing or listening to data stored on them‖. These resources constitutes library collection that help in meeting the users information needs Library collections are changing rapidly as more and more electronic resources become available. The proliferation of electronic resources does not mean that printed resources will disappear.

Recent advances in IT have not only increased tremendously the ability to access, store and process information within the library but also have brought significant changes in the concept, organization, functioning and management of library and information systems (Peyala, 2011). The IT revolution has facilitated the processes of searching for and recovering information; ICT improves the efficiency of organizational management processes and provides new ways of improving the capacity of response to its users (López, Peón, & Ordás, 2009). Use of ICT applications can assist in creating, storing, transferring and using tacit and explicit knowledge (Okumus, 2013). ICT services have greatly impacted on each sphere of academic library activity as well as giving an opportunity to provide valueadded information services and access to a wide variety of digital-based information resources to its users (Ghuloum, 2012).

According to Ajidahun (2007), ICT is an umbrella term that includes all technologies encompassing medium for recording information such as Magnetic disk, tape, optical disks (CD/DVD) flash and paper record, technology for the broadcasting, information, radio, television and technology for communicating through voice and sound or image microphone camera, loudspeaker, telephone to cellular phones. It also includes a wide variety of computing hardware, desktop computers, laptops, storage devices etc. Onyeneke (2007) sees Information Technology (IT) as the computer hardware, software that facilitates the, storage, organizing processing and the retrieval of information. Onyeneke further defined communication technology (CT) as all other technologies that enable humans to communicate and transmit information, such as radio, television and telephone.

This implies that IT and CT were integrated which developed to ICT, that encompasses all technologies that enables man to record, organize retrieve compute, communicate and transmit information. From the foregoing definitions given above one can define ICTs as electronic devices that encompass CD-ROM, computer hardware and software, CD, Internet, radio, television, disk, tape etc. that libraries and information centers manipulate to facilitate recording, organizing, storage, retrieval, transmission and dissemination of information within and outside their buildings. The emergence of the information revolution as championed by information and communication technology

(ICT) has enabled libraries to devise viable strategies for improved service delivery (Igwe, 2010). Library uses various technologies to provide information to its users.

Information security systems typically provide message integrity in addition to data confidentiality and availability Ashcroft and Watt (2004) opined that for any information

bearing materials and system to serve its purpose, the materials, the system and the information contained in them must be available when it is needed. This means that the physical materials such as books carrying the information, the computer systems used to store and process the information, the security controls used to protect it, and the communication channels used to access it must be functioning correctly. High availability systems aim to remain available at all times, preventing service disruptions due to power outages, hardware failures, and system upgrades. Ensuring availability also involves preventing denial-of service attacks, such as a flood of incoming messages to the target system essentially forcing it to shut down. Authenticity In library, information security is necessary to ensure that information bearing materials or documents (electronic or physical) are genuine (Thomas and McDonald, 2005).

It is also important for authenticity to validate that both parties involved in the exchange of information and information bearing materials are who they claim to be. Information security is the protection of information, information bearing materials and minimizes the risk of exposing information to unauthorized parties (Sastry & Reddy, 2008). Feature of a good security measure (Physical and Electronic) ensures that only authorized users (confidentiality) have access to accurate and complete information (integrity) when required (availability) (ETS, 2002). The protection of information bearing materials i.e. book and non-book materials and information systems from unauthorized access, use, disclosure, disruption, modification, or destruction in order to provide confidentiality, integrity, and availability (CILIP, 2004).

LIBRARY SECURITY

The technology has a great contribution in the security of library through computer after having been civilized various technological processes. It can provide great security for the reading material of the library. This security arrangement is provided by applying RFID technique, CCTV
etc.

RFID Technology: New technology has changed the way of library transaction (check-in and check-out). Libraries are providing ICT-based library services to increase the possible ways of fast and user-friendly services. One of the best inventions of technology for library is the _Radio Frequency Identification‘ (RFID). Nowadays, libraries are adopting RFID technology to provide enriched and efficient library services. This technology achieves the fourth law of library science,
(i.e. _save the time of the users‘) by providing quick and effective services (Ranganathan, 1931).

Closed-Circuit Television (CCTV): CCTV stands for Closed Circuit Television and also known as video surveillance (Kumar & Svensson, 2015). This technology plays an important role in the library management. Through the help of CCTV librarian can supervise the whole activities of libraries. It helps to look after the staffs as well as the users.

Stock-taking/Verification: The use of the computer in stock verification is the most important. The verification of the stock is carried out with the storage of library through the database in the computer. Stock available in the library is scanned through RFID reader/barcode scanner and data are collected. These collected data are compared with the available data in automation software. In this way, how many books have lost we can find out.

Circulation: The use of electronic gadgets such as computer, barcode scanner and the library management software helps to perform circulation routine operations in an easiest and quickest way. After the invention of barcode technology, library transaction has become faster.

Nowadays, for any type of communication we depend on the internet, email, telephone, etc. These technologies are also used in the library for the day to day activities of the circulation. Basically, the following duties are performed in the circulation by using ICT

• Issue, returns

• Overdue reminder

• Renewal

• Reservation of books/documents

• Membership registration

• User guides

• Daily check-in and check-out statistics

Reprographic Service: Reprographic technology is used for the reproduction of the documents. Using technology, the photocopy and the reproduction of the documents has become very easy and accessible. In this technology, printed documents are converted into digital form, and then photocopy is prepared. For the same, computer scanner and software is required. This service is provided to library users for photocopy of some pages of books, journal articles or other materials.

Electronic Access Technology: Electronic access technology is the best system for controlling access to library building, facilities, resources and rooms. Authorized people are allowed to enter a controlled area by automatically unlocking of the door. Plastic access cards are inexpensive and software can be programmed to restrict access to certain areas while recording the time, date and location of authorized and unauthorized access. According to Miliszewska (2008), ―for extra security, access control can be used in conjunction with video

surveillance to control and monitor large collections and equipment's.‖ Access cards can be integrated as photo ID cards for library employees and can be used as temporary keys for library clientele to have access to restricted areas. The access system can also be used for monitoring employee time and attendance, security patrols of the property and can limit access to sensitive areas, information or equipment.

Electronic access control system enhances safety and protects valuable library assets. Access control solution range from simple authorized access systems to advanced close circuit monitoring and exception reports delivered through secure internet connections. The most popular types of cards is the magnetic strip cards, which looks like a credit card and carries two or more tracks of information on the magnetic stripe, these can be used for access control and other services. Miliszewska (2008), asserts that the proximity card is more expensive but is also more durable an easier to use. For internal use, a close range type is used; for car parking entrance, a longer range of up to one yard or so is possible.

Proximity card readers can be hidden behind a wall surface for aesthetic purposes, with just a marker on the wall.

Benefits of Information and Communication Technology in Library Security

According to Kumar & Svensson (2015) the major benefits of using ICT/electronic security system in the library include:

a. **Maximum security**: Patrons of all ages and types use libraries every day. Security cameras places around the library can help to keep safe while reading, researching and browsing as well as the information resources they are using.

b. **Prevent theft**: Every part of a library‘s collection is valuable. A video surveillance system working in conjunction with a barcode and magnetic book control system could help prevent book theft and monitor the move of books and other resources as it moves from one user to another.

c. **Flexibility**: If video systems allow users to place cameras where they are needed, and reconfigure them in a whim libraries, especially those that host community events, author readings or children book clubs, could greatly benefit from the flexible security that IP video provides

d. **Remote monitoring**: Video surveillance systems that use the cameras and network recorder (NVR) allow libraries to broadcast their surveillance footage over the internet. This allows management and security to check in on libraries at any time should security concerns arise, the broadcast function could also be to archive speakers or special events at the library.

Challenges associated with the Role of Information and Communication Technology in Library Security

Inadequate fund: Libraries and information centres lack the financial; resources to purchase and install the telecommunication security systems and devices that can help to protect the level of security required as a result of the budgetary allocations from their parent organization.

Lack of literate or skilled personnel: libraries and information centres lack skilled personnel that can operate, teach and instruct the use of these telecommunication security systems even when they are made available in the library.

Poor power supply: These telecommunication security systems or devices need electricity to power them and due to the poor power supply, these systems often time are not working and as such are incapable of performing their expected task of securing the library and its collection.

Hardware and software failure: This is major threat to the use of telecommunication security system in the library, when there is software failure or hardware breakdown that may require the need for an engineer who may not be available to put them in place as at when due, then the library system and its collections is at risk.

Inadequate staffing: For effective library security to parent organizations, library must have sufficient staff capable of acquiring, processing, preserving and managing all resources to ensure their maximum utilization among users. Insufficient library staffs will no doubt affect the utilization of information resources which are catalyst for security and library development.

Internet terminals: Majority of libraries in Nigeria are not sufficiently connected to internet to enable quick and remote access to information resources and services among users. Absence of internet connectivity in libraries particularly in this period of insecurity will no doubt affect quick access to information which is very vital for library development.

Lack of enabling IT infrastructure: Information technology (IT) is essential for effective library security in any library today. However, this technology seems to be absent or insufficient in most of Nigerian libraries. Hence, lead to under-utilization of library information resources and services which may affect library security and security development at any given period of time.

Lack of Internet access: Libraries in remote areas do not have access to telecommunication security system because they cannot afford the money to purchase the devices and cannot adequately cater for them.

Conclusion

Libraries are essential cultural institution, we use them at every stage of our lives, and their facilities make large bodies of books, research materials, and the internet available to the public for universal use, video surveillance security cameras and other security measure are great tools for libraries, as they can protect large areas of space and allow librarians and staff to immediately check in on concerns from the reference desk or office.

The study also concludes that ICT otherwise called electronic security systems has greatly helped the libraries to provide maximum security for their resources and equipment; so also, there are problems and difficulties faced by libraries and information centres on the role of ICT security systems and devices.

Recommendations

Base on this study, the researcher recommends that the role of ICT for securing the library can be enhanced if the factor militating against the effective role of the ICT security systems and devices is solved through;

1. **Enlightening the parent organization on the importance of using ICT security devices and systems in the library**:

The librarian and information experts should take out time to educate their parent organization on the benefits associated with libraries and information centres in the use of telecommunication security systems and devices so that the library parent body can release adequate fund which will be used for the purchase of telecommunication security devices in the library.

2. **User education**:

This is very important, because most of the staff do not know how to operate ICT devices, especially the security system devices that require extra skills. As a result of these, there is need for user education so that all library staff will be taught on how to operate these devices to how they are mounted and where.

3. **Making available an organizational based engineers**:

An organizational based engineer should be made available who will always be available to take up issues in case of hardware breakdown or software failure.

4. **Making available alternative power supply**:

There should be a stand-by generator that can serve the whole library when there is failure in power supply. Since the essence and usefulness of ICT security system and devices in libraries are to help provide maximum and adequate security for the library employees, resources and equipment as well patrons and the entire library building, it is necessary that these ICT systems and devices are made available in the library. The usefulness of ICT security systems and devices in the library cannot be over emphasized due to the following benefits: maximum security for library building and resources, prevention of theft in the library, flexibility, remote monitoring etc.

However, the role of ICT security system and devices require budgetary management support, staff support, software development and hardware upgrade for the attainment of the set goals thereby appealing to the library management to release funds that is needed to accomplish this task. Specifically, based on this, the researcher‘s advice libraries to consider the under mentioned:

1. Ensure that sufficient/adequate fund is allocated to libraries for the purchases, development and maintenance of ICT security systems and devices.

2. Organize user education program and in-service training for the staff on how to use ICT security system and devices to secure resources.

3. Organize seminars, workshops, conferences etc. for the board members, directors, administrator and management of libraries and information centers in other to create awareness among library authorities about the advantage and benefits of using ICT facilities and security systems.

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