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ELECTRONIC SECURITY MANAGEMENT IN LIBRARIES AND INFORMATION CENTRES: ISSUES AND CHALLENGES

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Abstract
This study investigated the issues and challenges of Electronic Security Management (ESM) in Libraries and Information Centres. It is a systematic review of literatures from Nigerian scene and global perspectives. The objectives included discussions on the conceptions of electronic security management and its rationale, types of Electronic Security Systems (ESSs) used in libraries and information centres and analysis of the various issues and challenges of ESM in library and information centres. Top management commitment and support, entrenching a security conscious culture, ESM policy, good governance and personnel management issues were highlighted. It was therefore concluded that ESM helps reduce or eliminate security risks against library resources, systems, facilities and equipment as well as safeguard the library staff and users respectively. Also, it is recommended among others that librarians should acquire lobbying and negotiation skills in order to assist them in community engagement and advocacy with their top management team and other donor agencies. These and many other skills are useful in seeking for funding or any support for the library.

***Keywords*:** Electronic Security Management (ESM), Library Security Systems, Security Challenges in Libraries, Top Management Commitment, Librarian Advocacy Skills

Introduction

Libraries are age-long institution and reservoir of human civilization and heritage of mass documented literature which shows human metamorphosis in history and advancement in art, tradition, culture, science and technology. Over the years, libraries are established to serve defined users and purpose. Some of the purposes for which they are instituted include but not limited to academic, research, public, private and business. In order to achieve these purposes, information resources, systems, facilities and equipment are acquired and processed for easy access, and use. In a university library, for instance, huge investments are being made in form of material and human resources in support of teaching, research and learning. Corroborating this point, Mutula (2008) and Hoskand and Stilwell (2011) as cited in Aba et al (2016) stated that academic institutions of higher learning devote a lot of financial resources to offer necessary information resources for their libraries in an environment of reduced budgetary provisions and inadequate funding. Thus, it has therefore become imperative for library

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managers to ensure and assure the safety of both human (staff and users) and material resources in the library.

Expectedly, libraries should not only provide its customers relevant and up to date information resources, systems, facilities and equipment, but also must assure and guarantee the safety and comfort of their customers, staff and the material resources. Security systems in libraries began in ancient times, immediately after the discovery of libraries in the world in the 7th Century BC to avoid the loss and damage of information resources (Abduldayan, 2019 & Watstein, 1983). Regrettably, libraries generally, "are often plagued with collection security which include theft and mutilation", (Gupta & Madhusudhan, 2017). Undoubtedly, these and many security incidences such as fire outbreak, theft, mutilation, etc. could greatly hinder effective and efficient attainment of the goals of the university library.

Consequently, libraries and information centres are now compelled to adopt and use Electronic Security Systems (ESSs) as a strategic option to mitigate the occurrence and reoccurrence of these several security breaches. Hussain & Ahmad, (2021) assert that Academic and research libraries around the world, including those in the underdeveloped nations have incorporated technology into all of their internal operations and activities. According to Nyemezu et al (2022) Electronic security systems are those modern technologies used in the library to secure library resources against unauthorized removal, theft, mutilation, vandalism, hiding of library materials, writing and drawing on pages, folding library resources, use of other patron's library cards, duplicating ownership stamps among others. These facilities include: Close Circuit Television (CCTV), Radio Frequency Identification (RFID), Barcode scanner, and digital camera.

It is noteworthy to state that, while many university libraries in Nigeria have in one way or the other adopted and use ESSs as a strategy to mitigate security breaches, still, several issues and challenges have continued to hinder their successful outcome and sustainability. These may emanate from technological, personnel and organizational factors, (Kotoroi, 2023). He further emphasized that ESSs are critical for efficient library management as they assist library managements in maintaining order and reducing or eliminating library material theft and unethical losses. It is against this backdrop that this paper attempts to provide a systematic review of issues and challenges of Electronic Security Management in University libraries in Nigeria. In specific terms, this study is set out to achieve the following objectives:

- Explain the concept of Electronic Security Management

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- Outline the rationale for Electronic Security Management in University Libraries
- Brief explanation of the concept of ESSs
- Highlight the various types of ESSs used in University Libraries
- Analyse the various issues and challenges to Electronic Security management
- Proffer actionable way forward to the issues and challenges

Electronic Security Management

Generally, security management is the identification of an organization's assets (including people, buildings, machines, systems and information resources and resources and services), followed by the development, documentation, and implementation of policies and procedures for protecting assets. FasterCapital (2024) conceived electronic security management as the process of designing, implementing, and maintaining electronic systems and devices that protect business assets from unauthorized access, theft, damage, or sabotage. It encompasses a wide range of technologies and solutions, which include but not limited to the following:

- The use of card readers; Biometric scanners; Keypads; Locks and gates.
- Cameras; video recorders; motion detectors; and alarms.
- Sensors; firewalls; antivirus software; and encryption tools.
- Phones; radios; intercoms; network and wireless devices

Today, with the rapid deployment of digital technologies in our libraries, it is apparent that electronic security management is a key and necessary option for librarians to adopt and implement to the latter in order to safeguard the safety and integrity of their information assets and human resources. By adopting ESM, libraries stand to be able to conduct threat assessment and analysis, risk assessment and analysis, identify asset and systems vulnerabilities and eventually develops preventive and recovery strategies. In this regard, some of these electronic security systems are now being deployed in our libraries as a supplement to the traditional security measures. These systems include: surveillance cameras (Closed Circuit Television-CCTV), 3M library security systems (electronic gates), Radio frequency identification (RFID) system, Perimeter alarm system, movement detectors, fire alarm system (Osayande, 2011).

The Need for Electronic Security Management in Libraries

Electronic security management is very important to libraries and information centres for several reasons, which include but not limited to the following:

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- It ensures and guarantees the protection of library's asset from both internal and external theft, vandalization and manhandling.
- It creates and enhances safety of lives and properties within the library working environment by preventing or reducing the risks of harm, loss or damage from internal or external risk factors.
- Access to instant security updates through different electronic devices such as computers, tablets or mobile phones.
- It improves the efficiency and productivity of library operations,
- It promotes transparency and accountability in the governance of libraries and information centres by ensuring that relevant regulations and procedures are duly adhered to.

Electronic Security Systems (ESSs)- Defined

Several scholars and scientists have viewed ESSs from different perspectives. According to Law Insider (2021) Electronic Security System "means an assembly of electronic equipment and devices that provides as its main purpose the protection of life or property, and the detection of threats or violations to the security of the protected premises, including, but not limited to, solely or in combination, the following systems functions: burglary detection, fire detection, access control, or closed-circuit television. Electronic security systems are the equipment that perform operations like access control and secure library materials (Nath, 2021). Rajendran and Rathinasabapathy (2007) conceived ESSs as devices that are used with the aid of an electrical gadget to secure library materials". These devices include CCTV Surveillance Systems, IP Surveillance systems, Detection and Alarm Systems, Access control systems and RFID electronic security systems (Usman Philip et al, 2019; Nweke, 2019; Osayande, 2019 & Gupta & Margam, 2021).

Simply put, ESSs can be regarded as technologies designed by human to monitor, guard and control access to lives and property in a library and by its capabilities send audio and video transmission or alarm to monitoring room located in an obscure place in an organisation or to relevant security agency for timely response.

Types of Electronic Security Systems (ESSs) in Libraries

As stated elsewhere, electronic security systems are technological devices used with the aid of electrical gadgets, terminals and circuits to protect and secure library collections from incidence of theft and mutilation and the sudden disappearance of library resources, (Song et

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al, 2018). Many of these technological devices have been adopted and applied in the overall management of libraries' operations and security. McComb (2004) asserted that the goal of a security system should be to provide safety and secure facilities for library employees, library resources, equipment and library patrons. Equally, Ezeabasili (2018) and Osayande, (2011) commented that in Southern Nigeria there are some electronic security systems such as Radio frequency identification (RFID) systems, Perimeter and alarm systems, movement detectors, and fire alarm systems. Furthermore, Komba (2020), acknowledged that "there are different types of electronic security systems which are used at the University of Dar es Salaam (UDSM) and Nelson Mandela - African Institution of Science and Technology (NM-IST) libraries including theft detecting machines at the entrance of the library to detect if the reader has gone out with library materials without permission from the staffs". A list of some types of ESSs is provided with their brief clarification for further comprehension:

Close Circuit Television (CCTV)

CCTV is one of the effective and efficient product of electronic security systems which has become manifest in all organizations including libraries in order to prevent and protect the library resources, systems and facilities from theft, mutilation, manhandling, abuse and general unruly behaviour from customers and staff. Corroborating this point, Lavanya, (2017); Gupta & Margam, (2021) maintained that in an academic library, the CCTV system serves the twofold purpose of ensuring the safety and security of library collection and library staff and enforcing discipline among the users. Furthermore, it is recommended by Gupta & Margam (2021) that CCTV implementation improves service efficiency in libraries and enables more diversified applications and service modes. Also, Circo and McGarrell (2020) suggested that integrated CCTV programs might increase the reporting of minor crimes that were not reported before.

The main components of any type of CCTV system include a camera, recording unit and a monitor and can be wired or wireless. All the three components have different functions but functions cooperatively to bring desired results. In any type of CCTV cameras, the signals are not transmitted in an open-channel manner; in spite of this, they use links which employ either point to point or point to multi-point, as well as mesh-type wireless channels, (Gupta & Madhusudhan, 2017).

Automated Access Control Systems (AACS)

AACS regulate access to areas by interfacing with locking mechanisms. The system will only allow entry after the credentials of the prospective visitor are verified; examples of such a system would be doors that require pins or biometric information to allow entry. These systems

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are not only capable of allowing or denying access but can also keep a log of all attempts to enter the secure area they may even alert authorities of unauthorized attempts to gain entry. It provides detection and audit to limit who can go where. They can be combined with assured physical barriers to provide delay into a secure site or can be used with demarcation barriers i.e. half height gates, to provide the only detection. Electronic access control involves the use of hardware and software such as plastic access card, biometric scanner, username/password etc. Thus, by adopting AACS, libraries can improve operational efficiencies and guarantee that their assets, resources, users and staff are well secured and protected.

Intrusion Detection Systems (IDS)

An Intrusion Detection System (IDS) is a security tool that monitors a computer network or systems for malicious activities or policy violations. It helps detect unauthorized access, potential threats, and abnormal activities by analyzing traffic and alerting administrators to take action. An IDS is crucial for maintaining network security and protecting sensitive data from cyber-attacks, (Geeksforgeeks, 2024). IDS observes network traffic for malicious transactions and sends immediate alerts when it is observed. Intrusion detection systems (IDSs) are software or hardware systems that automate the process of monitoring the events occurring in a computer system or network, analyzing them for signs of security problems, (Bace & Mell, 2001). Libraries as hub for digital technologies and innovation can adopt IDS in order to protect the sanctity and integrity of their digital collection from unauthorized access and use. By and large, it can help libraries detect intrusion into certain protected spaces, such as facility perimeter spaces (perimeter access locations like doors, windows, roof hatches, etc.), controlled areas (storage rooms, reserve book section and other classified and restricted spaces) and broken glass during a forced entry, a carbon monoxide detector getting triggered, or even a smoke and heat detector sounding off.

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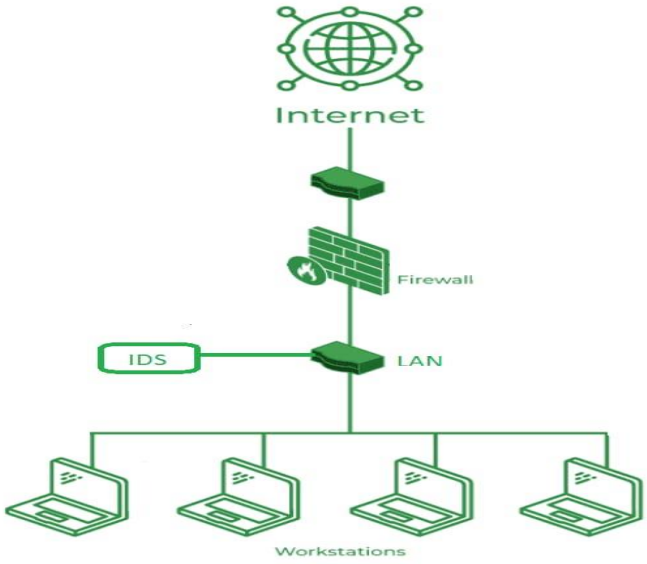

Fig. 1: IDS components
Adapted from Geeksforgeeks, (2024)

Radio frequency identification (RFID)

RFID is considered as one of the most fascinating and widely debated auto-identification and data capture (AIDC) technologies nowadays. The RFID system is generally used to describe any technology that uses radio signals to identify specific objects. RFID allows the automated identification of products by embedding chips with wireless antennas into them (Bose et al, 2009). In a library context, RFID tags are embedded within the objects of interest (such as books, journals, and DVDs) and the receiver is integrated within various systems such as self-checkout systems, security systems and inventory management systems, (Yogesh et al, 2013). Libraries began using RFID as a substitute for the electro-magnetic and barcode systems in the late 1990s (Ayre, 2005).

Each RFID tag is attached to all items of a particular library and instantly responds with its unique item ID number which is the same as the accession or stock number used by many libraries. It is important to stress that with the use of RFID tags the security of library information resources, systems and equipment is enhanced compared with the traditional electromagnetic strip. Additionally, the RFID system helps library staff in security, stock-taking, and patrons self-service such as auto door, drop-box, self-check-in/out, and many more (Sungkur et al, 2021). Libraries use RFID technology to increase the speed and convenience of their procedures and to improve the quality of their services (Boyd, 2018).

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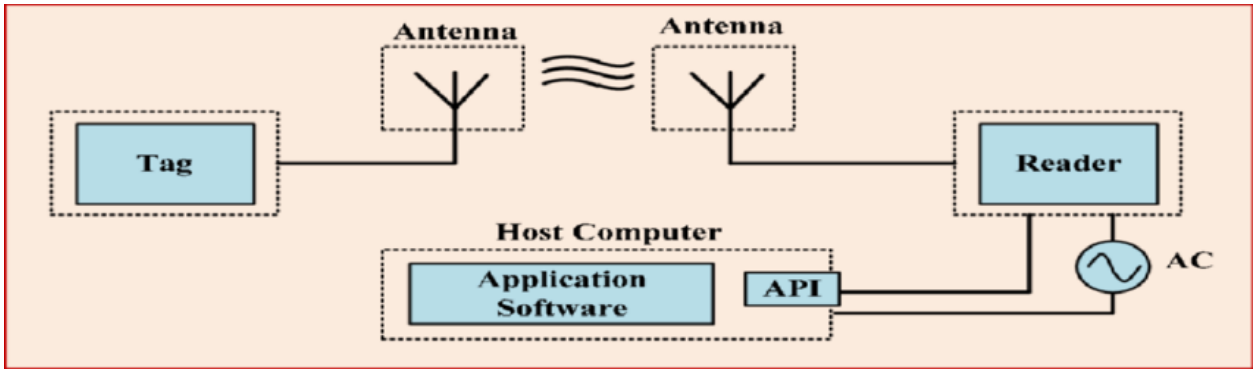

Fig. 2: RFID System Components
Adapted from Doğan et al, (2016).

Issues in Electronic Security management in Libraries

In order to successfully implement and achieve the goals of electronic security management in libraries and information centres, there is the need for library and information professionals to strategically plan and take proactive steps to address some vital issues associated with the success of electronic security management. The issues are outlined and briefly highlighted as follows:

❖ Top Management Support and Commitment

To successfully adopt ESM, the top management support and commitment is very crucial and non-negotiable. This is simply means that the Chief Executive Officer- who may in this case be the Vice Chancellor, Provost, Rector or the head of the library as the case might be must be seen to demonstrate his passion and zeal in support of ESM in order for the project to succeed. Conversely, if the CEO does not believe in the project, then it will certainly fail. It should be noted that the attitude and body language of top management has always impacted either positively or negatively upon the success or failure of strategic initiatives such as ESM. On the other hand, if the top manager agrees and demonstrate passion to the project, he or she will be seen to be actively involve and providing leadership and facilitating access to necessary requirements for the success of the electronic management system.

❖ Entrenching a Security Conscious Culture

Another critical issue in successful adoption and sustenance of ESM in libraries is entrenching a security conscious culture among library staff. Generally, organizational culture plays a dominant but strategic role in shaping the focus and the overall success or failure of the system as a whole. In particular, entrenching a security conscious culture in every business organization, libraries inclusive is a prerequisite for ensuring

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the attainment of the goals of ESM. This is because, it is only a security conscious library staff that can be so concern and diligent about the safety of his working environment. It would therefore behoove on the top managers to first imbibe the culture of security consciousness and then, instill same in the minds of their teaming staff as a core value and strategic priority. This will help the library build resilience, trust and keep pace with the ever-changing landscape of security threats.

- **Policy Issues**

Another important issue very close to entrenching security consciousness among library staff is the policy issues. It is pertinent to note that ESM policy serves as the foundation block upon which every other issue rest. First and foremost, it is expected and encouraged that library managers should develop a well-crafted and articulated ESM policy(s) containing procedures, principles, expectations and instructions on modalities for implementation. More importantly also the policy must be communicated to all staff for awareness and compliance.

- **Good Governance**

It is generally believed that good governance is a critical force that propel organizations to success, growth and sustainable development. According to Jeffrey et al (2019) good governance portrays good management, good performance and good stewardship of public money. The concept pays attention to the process of decision making and the process by which decisions are implemented or not implemented (UNESCAP, 2009). In this regard, libraries need to be proactive and to be ready, organized with a set of controls, trained personnel, and a written security policy, known by all staff, with defined rules and roles. It has to be acknowledged that cyber security is a moving target; hacktivism, fraud, and denial of service attacks are constantly changing their modus operandi. Controls should therefore be monitored regularly using audit techniques.

- **Personnel Management Issues**

Human resources are considered the most important asset in organizations, including libraries. However, managing human resources is unarguably one of the most skillful and challenging tasks. In order to achieve the goals of ESM, top managers and personnel managers in particular must recognized due diligence in the selection and recruitment processes. It essential they give priority to merit, competence and skills as the basic criteria for recruitment of their staff. Library managers must recognize the fact that their staff need to be highly motivated, make them happy and above all provide a safe working environment.

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On the other hand, managers at all levels, should note that, the consequences of hiring an incompetent staff in their mix will result in security risks in itself to the whole organization. Afterall, the greatest threats to any security system are the human users, who accidentally, forgetfully, lazily, ignorantly, or maliciously breach the security of systems on a daily basis, (Lachlan et al, 2013)

Challenges to Adoption of Electronic Security Management in Libraries

The following have been identified by several researchers as the major challenges inhibiting libraries to adopt electronic security systems in their efforts to safeguarding their information assets as well as the lives of their employees and customers. These challenges include among others: unreliable public electricity supply, poor maintenance regimes and sabotage, (Abifarin, 1997). Also, Dahiru, Ali & Mohammed (2016); Osayande and Odaro (2019); Komba (2020); outlined the challenges to include:

- Electronic security systems are very expensive for many libraries due to its maintenance cost.
- Poor library management
- lack of lobbying or negotiating skills
- absence of user training and education programs
- Inadequate experts to manage the system
- lack of commitments among library staff
- Lack of steady power supply
- Poor funding of libraries in Nigeria
- lack of information communication technology (ICT) policies

Conclusion

Libraries are integral part of socio-economic and political development of every nation through the consistent acquisition and processing of variety of information products and services on one hand and facilitating the unhindered access to and use of the information products and services. It therefore become imperative to effectively and efficiently deploy digital technologies to protect and safeguard the integrity of both the information assets and human resources in our libraries. This strategic decision will in no small measure help libraries and librarians enhance their service integrity, prestige, build strong resilience and collaboration, trust and above all remain safe and highly competitive in the information business environment. Nevertheless, ESM will help reduce or eliminate security risks against library resources,

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systems, facilities and equipment as well as safeguard the library staff and users respectively. It is therefore hoped that library managers at all levels should frontally adapt to the dynamics of electronic security management for the overall development of our libraries.

Recommendations

Arising from the above discussions, it is therefore recommended as follows:

- that the library and information should as a matter of policy advocate and actively embrace the philosophy and practices of electronic security management in their libraries.
- That adequate budgetary allocations should be provided to libraries in order to deploy variety of electronic security systems such as CCTV, RFID, IDS etc. in order to protect their information assets and human resources.
- Library managers should intensify efforts at acquiring new methodologies, knowledge and skills on electronic management system
- That libraries should as a matter of intervention provide solar power systems to steadily power the ESS gadgets and facilities deployed for general library security.
- That librarians should acquire lobbying and negotiation skills in order to assist them in community engagement and advocacy with their top management team and other donor agencies. These skills are useful in seeking for funding or any support for the library.

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