



HARNESSING NEW TECHNOLOGIES IN LIBRARIES FOR INFORMATION GATHERING AND DISSEMINATION FOR NATIONAL SECURITY

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Abstract

The paper investigated the harnessing of new technologies in libraries for gathering and disseminating information for national security. It illustrated how the new technologies such as: Artificial Intelligence (AI), Machine Learning (ML), Natural Language Processing (NLP), Data Visualization, Cloud Computing, Internet of Things (IoT), Cybersecurity, Big Data Analytics, Social Media Monitoring, and Virtual and Augmented Reality (VR,AR) can be used by the libraries/librarians in supporting national security efforts in providing timely and accurate information, enhancing situational awareness and facilitating informed decision making through them (New Technologies) for national security purposes. The result revealed that Internet of Things (IoT) 56 (28%) is the most available new technology in the library, on how these new technologies have been harnessed for improvement of national security showed 115 (57.5%) that agreed on low level used while 82 (41%) said lack of trained staffs/librarians was the major challenge faced by the library/librarians in harnessing these new technologies to improve national security. The study recommended that the new technologies introduced in this study for information gathering should be harnessed and adopted by the libraries/librarian for gathering of information on national security, the libraries/librarians should take proper training and be well literate on the uses of new technologies, and government should also ensure to make availability of these new technologies for both security agency organization and the libraries/librarians.

Keywords: Dissemination, Gathering, Harnessing, Information, Libraries, New Technologies, National Security.

Introduction

Technologies and Library: The Relationship to National Security

Introduction and uses of new technologies in libraries have enhanced the effectiveness of gathering and disseminating information on national security by librarians. The impact of new technologies on national security has been discussed many times. According to Malit & Dr. Daniel Muendo (2017), technology control regimes have formed a vital component of national security strategies for controlling proliferation. The library is an important intellectual resource of the nation at large, as it helps to promote information sharing, studies and research. Ezennia (2012) defined the library as “an institution for the care of a collection of books that makes them accessible to prospective users”.

He went further to say that stocks in the library are audiovisual materials (magnetic tapes, phone records, films) arranged systematically to allow for easy access and location of individual items for loan, reference or research.

“Traditionally, a library is a collection of books, manuscripts, journals, and other sources of recorded information. In the last 50 years, libraries have increasingly developed into a provider of information resources and services that do not even require a building” (Njoku & Ken-Agbiriogu, 2020). A library is a collective of resources in various format that is gathered by information experts or other professionals who provide convenient physical, digital, bibliographic, or intellectual access and offer targeted services and programs with the mission of educating, informing, or entertaining variety of audiences and the goal of stimulating individual



learning and advancing society as a whole. A library is the collection of information's, details, resources gathered, made available and accessible to individuals for borrowing and reference. It provides physical or digital access to material, and may be a physical building or room, or a virtual space, or both. A library's collection can include books, periodicals, newspapers, manuscripts, films, maps, prints, documents, microform, CDs, cassettes, videotapes, DVDs, Blue-ray Discs, e-books, audio books, databases, and other formats. The world is described as global village today and part of the reason for this claim is because the impact of information technologies (new technologies) that has represented crucial part of globalization. Effectiveness and efficiency of information on national security depend on the power of available and dependable information, because information is power (Offiong et al., 2022). On the support of this claim, Eniekebi Regina Ejiroghene (2019) stated that libraries and its resources, such as information, are one of the important factors that contribute to national development and national security, and the ability to utilise information tools is considered a source of power. "With information as power, it is expected that improved information sources, processing channels, sophistication, and complexities could better be managed through information technology (new technologies); which in turn have a strategic and pivotal role to play in a country's national security" Although insecurity is a global issue, the challenge is more pronounced in Third World countries, as compared to the technologically advanced societies with highly sophisticated information technology mechanisms for managing their national security (Offiong et al., 2022).

As stated by Al-Suqri & Gillani (2022). "National security is highly interconnected with the conduct of information." The rapid and comparatively recent diffusion of social-media-based

information, while bringing numerous benefits, has also demonstrated the urgent need to craft new national security mechanisms to cope with deteriorating circumstances. "The inevitable security issues leading to subsequent destruction of lives, properties and the environment call for a holistic approach through effective use of information technology" (Kemi, 2016).

According to Paschal Uchenna (2018), harnessing information technologies has impacted all aspects of life globally. The development has enhanced the transmission in storing, processing, and disseminating of information, "from paper to virtual and from atoms to bits, which are now setting new standards of speed, efficiency, and accuracy in human activities". Computerised databases are extensively used to store all sorts of confidential data on national security, of political, social, economic or personal nature to support human activities and bring various benefits to society.

National Security and Insecurity: The Concept

Security is a stable, peaceful, calm, safe environment in which everyone or a group of people can carry out their activities and pursue their objectives with free of danger, disruption, harm, disturbance or injury. Security is an encompassing phenomenon that is paramount to individuals, entities, communities and even nations. Security has to do with self-preservation, which is the first law of existence. Security implies a stable, relatively predictable environment in which an individual or group may pursue its ends or objectives without disruption, harm, danger and fear of disturbance or injury (Dasuki, 2013).

National security refers to the security of a nation-state, including its citizens, economy, and institutions, and is regarded as a duty of government. Originally conceived as protection against military attack, national security is now widely understood to include non-military



dimensions, including economic security, energy security, environmental security, food security, cyber security, etc. Similarly, national security risks include, in addition to the actions of other nation states, action by violent non-state actors, narcotic cartels, and multinational corporations, and also the effects of natural disasters. (Wikipedia, 2018).

National security was defined by (Al-Suqri & Gillani, 2022) as the national strategy to ensure the protection of a nation's fundamental and enduring needs while protecting every citizen's essential safety needs with personnel and social values. National Security could refer to a state absence of everything and anything that could be a threat to peace, progress, development and tranquillity within a society. National security is stated as the process of being not wary of fear, anxiety, danger, poverty and oppression (Njoku & Ken-Agbirigou, 2020). It is the preservation of core values and the absence of threats to these values. Security is a state by which the citizens and things are free from danger and oppressions such as kidnapping, unreasonable killing, such as serial bombing and assassinating, rapping, armed robbery, ritual killing, human trafficking, organ trafficking, baby factories, drugs dealing, smuggling and so on. The rapid growth of insecurity across the globe has become a major issue and worry for all individuals. Insecurity is a threat to the peace, security and the economy of the nation. Destruction of lives and properties has almost become a common practice worldwide. This has created an atmosphere of threat and fear that discourages investors, both national and international.

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Insecurity has now become a topic among people when they gather. Several illegal armed groups, ethnic militia groups, religious fundamentalist and fanatics, are proves of insecurity in the world which has resulted in activities such as kidnapping, armed robbery, rapping, ritual killing, series bombing of gatherings like churches and mosques, weapons and hard drugs smuggling, human trafficking, organ trafficking, baby factories, money laundering and others corrupted activities. It clearly shows that all these corrupted activities and happenings are affecting the national security and national development. Individuals, organisations, and other concerned groups are losing confidence in the law enforcement agencies (Udoh, 2015).

Libraries and New Technologies: Harnessing for Information Gathering and Dissemination for National Security

Libraries can leverage new technologies to enhance information gathering and dissemination for national security. Some ways libraries can harness technology include:

Artificial Intelligence (AI): AI-powered tools for data analysis, pattern recognition, and predictive analytics. AI-powered autonomous systems are capable of carrying out a variety of operations, including targeted operations and surveillance with minimal risk to human life. AI improves security by enhancing threat detection, response capabilities and overall cybersecurity measure In advanced threat detection and real-time



monitoring, AI analyse data for unusual patterns and behaviours, enabling early threat detection.

Machine Learning (ML): ML algorithms are used for sentiment analysis, entity extraction, and topic modelling. Machine learning is used in applications to facilitate and expedite detection and responses to attacks and threats to national security. Large datasets of security events are analysed to identify patterns of malicious activities.

Natural Language Processing (NLP): NLP is used for text analysis, information extraction, and sentiment analysis. Natural Language Processing involves the interaction between computers and human language. In the context of cybersecurity, NLP is a potent tool that allows machines to analyse and understand textual data, thereby enabling a more effective response to security threats. NLP is critical to fully and efficiently analyse text and speech data. It can work through the difference in dialects, slang and grammatical irregularities in day-to-day conversation.

Data Visualization: Visualizing complex data to facilitate understanding and decision-making. Data visualisation helps security teams and analysts to quickly detect and identify patterns, anomalies and potential security threats. However, in a world where information overload is increasingly common, a well-designed data visualisation turns complicated data into actionable insights.

Cloud Computing: Scalable infrastructure for data storage, processing, and analysis. The best cloud computing providers will provide data security by design, offering strong access controls, encryption for data at rest and in transit, and data loss prevention (DLP) to secure your cloud data wherever it is located or managed. Cloud computing and national security relate to each other through cybersecurity; however, despite the great advantages that cloud computing provides, there are some drawbacks to the

technology that might expose data privacy and confidentiality to dangers.

Internet of Things (IoT): Leveraging IoT devices for real-time data collection and monitoring can enhance information gathering on national security. IoT security can be understood as a cybersecurity strategy and protection mechanism that safeguards against the possibility of cyberattacks which specifically target physical IoT devices that are connected to the network. The integration of IoT technologies into national security frameworks offers unprecedented opportunities for enhancing situational awareness, proactive threat detection and effective response mechanisms.

Cybersecurity: By implementing robust cybersecurity measures to protect sensitive information. A data breach or disruptive cyberattacks can cause significant damage not only to the nation but also its people. As a result, implementing strong cybersecurity to protect against these attacks is a major responsibility for the government, libraries and other bodies.

Big Data Analytics: Analysing large datasets to identify patterns and trends can help in gathering and disseminating information on national security. Security analytics tools help in the security aspect and serve multiple purposes, such as identifying and blocking unauthorised access attempts to systems and data, known as intrusion detection. They also help detect and mitigate insider threats by monitoring and analysing employees' activities within the organisation's network.

Social Media Monitoring: Monitoring social media for situational awareness can help libraries in gathering and disseminating information on national security and threat detection. Social media monitoring involves tracking, analysing, and responding to social media activities. For librarians, security agencies and governments, this means keeping a close eye on public



conversations, mentions and sentiments related to policies, public services, and political events.

Virtual Reality (VR) and Augmented Reality (AR): Utilising VR/AR for immersive training and simulation by the librarians can help in gathering and disseminating information on national security. VR is the technology that provides almost real or believable experiences synthetically or virtually, while AR enhances the real world by superimposing computer-generated information on top of it. This dynamic interplay between the physical and digital worlds is made possible through a combination of advanced sensors, cameras and processing power in AR devices. In augmented and virtual reality, VR headsets, AR glasses, smart cameras, and related devices play an active role in collecting an extensive array of personal data, including details like head movements, eye movements, facial expressions, and voice recordings. By harnessing these technologies, libraries can support national security efforts by providing timely and accurate information, enhancing situational awareness, and facilitating informed decision-making.

Result and discussion

Table 1: Distribution of respondents on the new technologies available in the library

Which of the new technologies is available in the library?	Frequency	Percentage
Artificial Intelligence (AI), Internet of Things (IoT), Library Automation Virtual/ Augmented Reality (VR/AR), Big Data	11 56523942	5.5%28%26%19.5%21%
Total	200	100.0

Source: Field Survey, 2024.

Result in table 1 showed the respondents take on the new technologies available in the library with 56 (28%) for Internet of Things (IoT), 52 (26%) for Library Automation, 42 (21%) for Big Data, while 39 (19.5%) and 11 (5.5%) for Virtual/Augmented Reality (VR.AR) and Artificial Intelligence (AI) respectively.

Table 2: Distribution of respondents on how these new technologies have been harnessed to improve national security.

Objectives of the study

1. To evaluate the new technologies available in the library
2. To find out how these technologies are being harnessed to improve national security
3. To investigate the challenges and prospects of these technologies.

Methodology

This study adopted a descriptive statistical method using a questionnaire to collect data from respondents. One hundred and fifty (200) questionnaires were distributed to lecturers and librarians in the department of library and information science schools in South West Nigeria. Both descriptive and inferential statistical tools were used to analyse the data in line with the study objectives. To achieve this, statistical analysis software tools like Statistical Package for Social Science (SPSS), NVivo and Excel were used to analyse the data generated from the respondents.



How have these new technologies been harnessed to improve national security?	Frequency	Percentage
Very High HighLowVery Low	20 4911516	10%24.5%57.5%8%
Total	200	100.0

Source: Field Survey, 2024.

Table 2 revealed the distribution of respondents on how these new technologies has been harnessed by the libraries/librarians to improve the national security, majority 115 (57.5%) agreed on low level, 49 (24.5%), 20 (10%), and 16 (8%) agreed on high, very high and very low respectively. With the responses, it showed that the new technologies have not been fully harnessing for the improvement of national security.

Table 3: Distribution of respondents on the challenges of harnessing these new technologies on the improvement of national security.

What are the challenges faced in harnessing these new technologies to improve national security?	Frequency	Percentage
Lack of funding, Insecurity/Privacy, Lack of trained staff/librarians, cost of ICT infrastructure	72 158231	36%7.5%41%15.5%
Total	200	100.0

Source: Field Survey, 2024.

The above Table 3 reveals the findings on the challenges faced by libraries/librarians in harnessing these new technologies for the improvement of national security. The result showed majority, 82 (41%) agreed on the lack of trained staff/librarians, 72 (36%) lack of funding, 31 (15.5%) high cost of ICT infrastructure, while few 15 (7.5%) said insecurity/privacy was the challenge.

- The government should ensure to make availability of these new technologies for both security agencies and libraries/librarians.

Conclusion

Recommendations

- This study recommends that libraries/librarians should take proper training and be well-literate on the uses of new technologies
- New technologies should be introduced for information gathering in harnessing national security.



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