

THE ROLE OF INFORMATION TECHNOLOGY IN COMBATING SECURITY CHALLENGES IN NIGERIA

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ABSTRACT

The growing challenge of security in Nigeria is of concern to all and every effort must be employed to combat this challenge. Some of the pertinent questions raised in the paper are, Can the security agencies and their strategy guarantee internal security in Nigeria? Do these agencies have proper Information Technology Infrastructure in place for the purpose of information gathering, sharing and dissemination? Do they have adequate surveillance equipment? Information technology (IT) will play a critical role in strengthening Nigeria's National security against potential future attacks. Specifically, IT will help enable the nation to identify potential threats, share information more readily, provide mechanisms to protect the Nation, and develop response capabilities. The use of Emergency Communication Systems, GPS-enabled devices, Social Networking Tools, emergency-operation centers (EOCs), Intelligent Monitoring systems, Data Mining and Database Tracking systems and Information Sharing will greatly improve the ability of the security agencies to combat security challenges in Nigeria.

Keywords: Security, information technology, Surveillance

INTRODUCTION

The development of any society to a large extent depends on the extent of the security of lives and properties of the citizens. A secured atmosphere will encourage intellectual minds who will be a great asset to Nation building; it will also guarantee an environment for the growth of infrastructural development.

The growing erosion of internal security and responses from the populace and the Nigerian state raises some serious questions such as; can the security agencies and their strategy guarantee internal security? Do these agencies have proper Information Technology Infrastructure in place for the purpose of information gathering, sharing and dissemination? Do they have adequate surveillance equipment? These are some of the questions central to the issues addressed in this paper.

Nigeria Security Challenges

National security is important not only to the government, but to the nation as a whole. National security serves many purposes. First of all, the armed forces are a very important aspect of national security. The Federal Republic of Nigeria has a very strong military to help ensure that the nation stays safe, however Nigeria's security concerns and threat perceptions emanated from many quarters, these includes the threat of extreme Islamic sects like Boko Haram, high level of unemployed youths, Militia from the oil rich Niger delta, ritual killings, the widening economic gap between the poor and the rich, influx of illegal migrants from the neighboring countries, emergence of political and regional thugs, and the collapse of the justice system . In addition, when threats are directed at the country there is an attempt to keep these threats isolated. National security is also concerned with emergency preparedness among many other things.

The Library of Congress Country Studies noted that:

The country's dependence on the production and export of oil was aggravated by naval deployments of the major powers along the maritime transit routes of the South Atlantic and the Gulf of Guinea. Its experience of incursions by neighbors coupled with fears of foreign influence or of subversion of neighbors by such potential adversaries as France, Libya, and South Africa, heightened Lagos's sensitivities about border security. Regional conditions also produced a sense of isolation and uncertainty, particularly shifts in the balance of power across northern Africa, political instability in West Africa, and encirclement by relatively weak francophone states with residual or formal defense ties to their former colonial power. More generally, conflicts throughout Africa and the related propensity for great power intervention (for example, in Chad, Zaire, Angola, and Ethiopia) and occasional eruptions of radicalization or militant pan-Africanism were inimical to Nigeria's interest.

Nigeria's security conditions and concerns can be grouped into three separate but related categories: local and bilateral, African and regional, and global.

The freedictionary defines security as the following, "Freedom from risk or danger; safety; Freedom from doubt, anxiety, or fear; confidence; Measures adopted by a government to prevent espionage, sabotage, or attack; Measures adopted, as by a business or homeowner, to prevent a crime such as burglary or assault". (thefreedictionary, 2011).

The merriam-webster dictionary define security as "the quality or state of being secure as a freedom from danger ; safety freedom from fear or anxiety; freedom from the prospect of being laid off ; something that secures protection or measures taken to guard against espionage or sabotage, crime, attack, or escape. Internal security is seen as the:

Freedom from or the absence of those tendencies which could attenuate internal cohesion and the corporate existence of the nation and its ability to maintain its vital institutions for the promotion of its core values and socio – political and economic objectives, as well as meet the legitimate aspirations of the people. Finally, internal security also implies freedom from danger to life and property and the presence of a conducive atmosphere for the people to pursue their legitimate interest within the society. (Imobighe:1992).

Noting the importance of security and development Mc Namara (1968) in Mijah (2007) stated that: "In modernizing society, security means development, security is not military force though it may involve it; security is not traditional military activity, though it may encompass it; security is not military hardware though it may include it. Security is development and without development, there can be no security."

Kofi Anan also noted from a development centered Human perspective that:

Today we know that "Security" means far more than the absence of conflict. We know that lasting peace requires a broader vision encompassing areas such as education, health democracy and human rights, protection against environmental degradation, and proliferation of deadly weapons. We know that we cannot be secure amidst starvation, that we cannot build peace without alleviating poverty, and that we cannot build freedom on the foundations of injustice. These pillars of what we now understand as people centered concept of 'human' security are inter – related and mutually reinforcing (1998: p.13).

National security can be defined as the actions and policies taken by a nation against all internal and external threats to its borders, economy, and stability. It doesn't have to be terrorism or an enemy nation, though it often is.

Some views on what security are: "national security" revolves around the idea of protection of the nation and its interests. "I think it occupies a large role in American Government because of the Constitution in its Preamble cites the concept as critical to the mission of the U.S. Government. The

goals of "ensure domestic tranquility" and "promote the general welfare", National security, means "security from threats or attacks from people, organizations or countries that are impact the well being of a nation and its citizen as a whole rather than of any specific individuals or within the nation. Such threats and attacks are usually directed at harming the lives of people and property. However, this does not rule out other illegal acts. For example, counterfeit currency may be circulated in a country to damage its economic health. I believe, national security is equally important for every country. However, the reaction of different countries to the perceived threat and the best way to counter it, determines their approach to national security".(eNote.com, 2011)

In 2010, United State of America listed Nigeria among countries that are prone to terrorism. This followed a failed attempt by a 23 year old Nigerian Umar Farouk Abdutalab to blow up a commercial plane at Detroit Michigan. Though the Nigerian government protested by saying "Abdulmutalab's behavior is not reflective of Nigeria and should not be used as a yardstick to judge all Nigerians." It must clear to the Nigerian government today that terrorism, the wanton criminal acts of kidnapping, hostage taking, bomb blast and various crises in different locations in the country are signals of insecurity which can lead to anarchy if not addressed and arrested.

Terrorism is the most alarming criminal acts and the major challenge of the government and the Nigerian people. It is noted that:

Between January to August 2011, over 50 attacks have been launched on the police, military and individuals including several assassinations by Boko Haram. For the first and the second time, the group launched suicide attacks on the police Headquarters and the united Nations building all in Abuja, killing and injuring several people with a promise to sustain the attacks until the government heed to their demands to Islamize the Country, a preposterous and tall demand to meet. (Abu, 2011).

These attacks have exposed the weakness in the Nigerian security. The Nigerian security forces in their present state does not appear to be in a position to defeat the terrorist and kidnappers. Between 1999 and 2005, it was noted that Nigeria witnessed over 90 violent ethno – religious communal political conflicts of varying intensities and magnitude. (Elaiwu, 2005 pp 57 – 76).

The central pillar of Nigerian national security policy includes Safeguarding the sovereign, independence and territorial integrity of the Nation. The other guiding principles of the security policy are African unity and independence, nonintervention in the internal affairs of other states, and regional economic development and security cooperation. The Subordinate goals included military self-sufficiency and regional leadership. In pursuing these goals, Nigeria has been very diplomatic and flexible, but it employed coercive methods or measured force when necessary. The country has been an active participant in the United Nations (UN), the African Union (AU), and ECOWAS. (The Library of Congress Country Studies; 2011).

Information Technology and National Security

Information technology (IT), as defined by the Information Technology Association of America (ITAA), is "the study, design, development, implementation, support or management of computer-based information systems, particularly software applications and computer hardware." (enotes.com, 2011). IT deals with the use of electronic computers and computer software to convert, store, protect process, transmit, and securely retrieve information. Today, the term information has ballooned to encompass many aspects of computing and technology, and the term has become very recognizable. IT professionals perform a variety of duties that range from installing applications to designing complex computer networks and information databases. A few of the duties that IT professionals perform may include data management, networking, engineering computer hardware, database and software design, as well as the management and administration of entire systems.

Information technology (IT) will play a critical role in strengthening Nigeria's National security against potential future attacks. Specifically, IT will help enable the nation to identify potential threats, share information more readily, provide mechanisms to protect the Nation, and develop response capabilities.

Tjin-A-Tsoi chief executive officer of the Netherlands Forensic Institute (NFI) one of the leading forensic service providers in the world is convinced that a true breakthrough in the near future will be

that security measures are transparently implemented within software. According to him “Users need not to be aware of these security measures anymore. IT offers great possibilities for the welfare and health and safety of people. In order to use all the benefits of this great technology, special care should be taken of a number of challenges such as mobile security and secure identification. New technological innovations and their implementation need the involvement of politicians, the public and private sector and other stakeholders”.

For the Nigeria security services to be able to address Securities issues adequately there is need to focus on three research areas, these are Security, (these includes authentication, availability, containment, detection and identification, privacy, recovery, and new security models); Information fusion (Information fusion includes research in data and text mining, data integration, language technologies, image and video processing, and evidence combination), and critical infrastructure-based as recommended by a National Research Council Committee on Science and Technology for Countering Terrorism in the USA.

That committee also called for research in information and network security, new information technology for emergency response, and new information technology for the detection, remediation, and attribution of attacks (information fusion).

Information technology for emergency response includes a variety of problems- most notably problems for critical infrastructure.

As a result of the April 16, 2007, shootings at Virginia Tech , campus leaders in safety, security, emergency management, and information technology met in Washington, D.C. August 2008, to put emergency management firmly at the top of the agenda during an EDUCAUSE summit on “The Role of IT in Campus Security and Emergency Management.” In the closing session, the group put together an Action Agenda “rooted in a common desire to increase information sharing between one another and to put emergency management and campus security at the forefront of campus conversations and at the top of the research agenda, even after the national spotlight has dimmed”.

Emergency Management according to The International Association of Emergency Managers (IAEM) is “the managerial function charged with creating the framework within which communities reduce vulnerability to hazards and cope with disasters.”

Most campuses in the conference accept a four-phased approach to emergency management: These include:

- **Preparedness:** Mobilizing and preparing the campus response to emergencies, from the development of emergency response plans and the procurement of supplies to educating the campus community about procedures for disaster response
- **Mitigation and prevention:** Taking steps to reduce or prevent the possibility of disaster on campus, from identifying and assessing risk to putting preventative measures in place to reduce the risk occurrence
- **Response:** The way that a campus reacts to disaster, including crisis communication and the treatment and protection of key assets, from university students and personnel to critical information systems and university property
- **Recovery:** The timely resumption of standard operating procedures on campus, moving from “disaster” mode to “normal” mode through treatment, rebuilding, reorganization, and recovery³.

All the above measures must be employed in addressing security issues in most public places. All emergency management, as defined by IAEM, must be applied by the Nigerian security authorities:

- **Comprehensive:** Taking into account the full range of hazards and societies vulnerabilities while preparing a response that encompasses all assets (cyber, human, and physical) and members of the society / community.

- **Progressive:** Anticipating new and emerging threats and securing the society and community against them.
- **Risk-driven:** Rooted in sound principles of risk and impact assessment and identification
- **Integrated:** Considering all members society and surrounding communities, from federal response agencies and local law enforcement to society police and IT
- **Collaborative:** Cultivating a sense of trust, respect, and responsibility among all parties
- **Coordinated:** Providing a safe, efficient, and well-manuevered response to disaster and recovery.
- **Flexible:** Allowing for creativity and innovation when established responses may fail or fall short of needs and expectations
- **Professional:** Relying on a knowledge-based approach to research and planning.

Summit participants, noted that the hallmarks of Effective Emergency Management are:

- Relevant players understand their roles in advance and execute accordingly.
- Crisis communications are clear, consistent, and well received.
- Life and property are preserved to the greatest extent possible.
- Response plans are easily accessible, appropriate, and updated.
- Critical technologies work without delay or interruption.
- Society transitions from “crisis” to “normal” in a timely fashion.
- The Country image is maintained in the eyes of internal and external communities.

Emerging Opportunities for Security Management

The integration of information technology and emergency management presents significant opportunities for innovation in the way to assess, manage, and respond to security challenges. Most technologies today are increasingly mobile, highly integrated, and inherently flexible. From social networking sites to geospatial imaging, the society today can take advantage of emerging tools to address critical security needs. (An EDUCAUSE White Paper, 2008)

Emergency Communication Systems

Emergency notification systems are Vendor applications that offer a plethora of opt-in services that can push emergency messages to cell phones via text messages, e-mail accounts, instant message accounts, or college or university voicemail systems. This system can help the Nigeria Security system respond to distress call from citizens.

The most frequently cited technological answers to emergency notification system according to (Young, 2008), are Sirens, digital signage in common spaces and classroom buildings, notification systems that include both e-mails and text messages, and automatic messaging to classroom projectors and alarm systems.

GPS Technology

GPS-enabled devices can also help citizens signal for help when emergency situations arise. For example cell phones with Rave Guardian software, can activate a timer on their device when they would like surveillance from the police. On a University campus for example “student stepping outside the library at night, might activate the system while crossing campus. If the timer is not deactivated within a given time frame, authorities can use GPS technology to track the student’s location. Students can also press a panic button, alerting officials that they may be in trouble and broadcasting the specific coordinates of their position” (An EDUCAUSE White Paper; 2008).

Social Networking Tools

To reach members of the society who are constantly connected to the Web and actively creating and sharing content in their own time, security agencies should be turning to familiar social networking tools to share news and strategies for community security. Social networking sites like Facebook and MySpace will usually allow communities to create pages that store information about security plans, emergency procedures, and community events. The widespread popularity of networks like YouTube and iTunes can create opportunities for security agencies to educate through quick, entertaining videos and podcasts, these can easily be shared and stored.

Members of the society are encouraged to become “friends” with security agents on Facebook and MySpace, this can create an alternate pathway for pushing information to the wider community. Facebook and MySpace allow members of the community to add their own commentary through “on the scene” reporting, sharing messages with security agents.

Virtual Emergency Operations Centers

Physical emergency-operation centers (EOCs) can be used as a hub of community response in times of emergency. Communities can consider supplementing physical locations with virtual EOCs, these can coordinate response teams across geographic areas. It is noted that a virtual EOC dashboard can store and integrate unit response plans, incident reports, and operational reports from a variety of community agencies. A single user can access the virtual EOC to send communications through various channels to relevant players. In cases when the physical communities are unreachable or unsafe, the virtual EOC provides a safe and accessible alternative to coordinate groups across the wider community (An EDUCAUSE White Paper; 2008).

Intelligent Monitoring

Important buildings and business areas in Nigeria must turn to using new advances in intelligent monitoring, from biometrics and speech-recognition software to intelligent video and swipe-card access to such buildings. These must be done by striking a balance between security and openness, personal freedoms and reasonable expectations of privacy must be maintained.

Data Mining and Database Tracking

Weeks after the shootings at Virginia Tech, It is noted that “ campus administrators were criticized for failing to heed potential warning signs during Seung-Hui Cho’s time at the university, particularly a history of mental illness and a faculty member’s request that Cho seek counseling.” One of the issues that came up after the shootings is whether predictive modeling, aided through data mining software and other actuarial tools, offers some promise for preventing campus violence or suicide in colleges and universities. Many believe that the ability to predict violence is a nebulous process. Being able to turn to databases to share information between institutions will also be very helpful. The report by EDUCAUSE White Paper (2008), also indicated that “After two separate incidents in 2004 at the University of North Carolina Wilmington in which students were murdered by other students, officials at the UNC system’s 16 campuses began feeding suspension and expulsion data into a shared database, allowing schools to check to see if a potential applicant had a violent history at another university. The 2004 murders were not connected, but both assailants concealed past offenses from school officials.” (Cox, 2007)

Information Sharing

One of the most frequent barriers to effective emergency management generally is a lack of communication between security agencies. Greater communication might include sharing case studies that showcase best practices or offering open solutions to the society needs on security issues. The government must encourage information sharing and open dialogue between all the security agencies in the society. For example all personnel in the agencies must have e-mail addresses and subscribe to a discussion group where they can chat and share ideas real time online.

CONCLUSION

To adequately address Nigerian security challenges, modern intelligence gathering devices must be acquired and deployed by security services, like the police, the SSS, the Army, the Navy, the Air Force and other Para - military . Surveillance system that can monitor most sensitive equipment and public places must be put in place. Real time communication systems that will enable information sharing must be installed.

Adequate scanning of imported goods using modern scanners that can detect weapons and other materials used in making bombs and explosives must be put in place. There is need for adequate border patrol and use of GIS and surveillance equipment to monitor people and weapon proliferations. There is need to ensure the loyalty of security agents because lack of loyalty can cause the leak of security information to agents of destabilization in the Country.

REFERENCES

- Abu. S. (2011). Anarchy in the Land. *Today's Challenge*. \Vol 6 No. 8.
- Annn, K. (1998). *The Causes of Conflicts and Promotion of Durable Peace and Sustainable Development in Africa*. Report of the UN Secretary General to the Security Council. New York, UN Department of Public Information.
- An EDUCAUSE White Paper. (2008). The Role of IT in Campus Security and Emergency Management. Retrieve from <http://creativecommons.org/licenses/by-nc-sa/3.0/>
- Elaigwu. J. I (2005). *Crisis and Conflict Management in Nigeria Since 1980* in Yakubu . Kaduna, Nigerian Defence Academy Academy Press.
- A. M et al (2005) (eds) *Crisis and Conflict Management in Nigeria Since 1980* (vol 1). Kaduna, Nigerian Defence Academy Academy Press.
- e-Note.com (2011). *Understand what "national security" is and the importance of it in American government*. <http://www.enotes.com> Retrieved on 13/9/2011.
- Imobhege T A (1992). *Doctrines for the threats of Internal in security*. In A. Ekoko and M Vogt (Eds). Nigerian Defence Policy: Issue and Problems. Lagos, Malthouse Press.
- Cox J. (2007). *After Virginia Tech, Security Firms Ramp Up*. CNN.com, April 26, 2007, http://money.cnn.com/2007/04/25/news/companies/campus_security/index.htm.
- Gale Cengage, (2001). "Information Technology." *Encyclopedia of Business and Finance*. Ed. Allison McClintic Marion. Vol. 2<h Accessed on 13/9/2011 <http://www.enotes.com/information-technology-reference/>
- The Merriam Webster (nd). *An Encyclopedia of Britannica Company*. <http://www.merriam-webster.com/dictionary/security> Accessed on 13/9/2011
- The Library of Congress (2011) Nigeria National Security Issues and Perceptions: The Library of Congress Country Studies; CIA World Factbook. Retrieved on 13/9/2011 from: <http://www.wcit2010.org/tracks/Security%20&%20Safety/Track%20Leader>.
- McKeown K, Clarke L, and Stankovic J (2003). *CRA Workshop on Research Related to National Security: Report and Recommendations*. Retrieved on 13/10/2011 From http://www.cra.org/uploads/documents/resources/rissues/national.security_.pdf
- Mijah E. B (2007). *Democracy, Internal Security & Challenges of internal Security in Nigeria* . International Association of Emergency Managers, "Principles of Emergency Management," September 11, 2007, 4, <http://www.iaem.com/publications/documents/EMPrinciples091107.pdf>.
- Jeffrey R. Young, (2008). *Virginia Tech is among the campuses using LED displays in the classroom to broadcast notifications to students*. See Jeffrey R. Young, "Virginia Tech Adds LED Message Boards for Emergency Notification," Chronicle of Higher Education, September 3, 2008, Retrieved on 13/9/2011 <http://chronicle.com/wiredcampus/index.php?id=3288>
- Tjin-A-Tsoi (2011). *IT breakthrough for safety*: Retrieved from 13/9/2011 <http://english.forensischinstitu.nl>
- Young. J R, (2008). "Virginia Tech Adds LED Message Boards for Emergency Notification," *Chronicle of Higher Education*, September 3, 2008.