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# The Role of Information Technology in National Security: “A Case Study of 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 our Information Technology skills & strategy guarantee internal security in Nigeria? Do the security 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 and threat. 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.

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This paper examines key trends and developments in information technology, and the implications of those developments on National Security. Focus is on Terrorism. The paper also examines the prospects for the future, particularly the threat of terrorism. Finally, it summarizes initiatives and recommendations for improving National Security.

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## I. BACKGROUND OF THE STUDY

ICT (Information and Communication Technology) is a widely defined term that has several meanings across different sectors. Though, essentially, it is used as an umbrella term to refer to the use of communication devices (such as radio and cellular devices, satellite devices and channels, computers, amongst others) and utilities (programs) to manage information (acquisition, dissemination, processing, storage and retrieval). In lay terms, National Security could refer to a state of absence of everything and anything that could be a threat to peace, progress, development and tranquillity within a society [1]

Thus, ICT has consistently been proven a powerful double-edged sword with a capability for both overwhelming good and devastating evil, all depending on the skills and values of the user(s) in harnessing its powers in either or both directions. There is general agreement among historians that insecurity have been the core cause of bloodshed in Nigeria and the world at large [2]

The deep scars that insecurity leave on people and nations are often obscured by historical accounts that, more often than not, glorify conquest and ignore aggression. One major challenge been faced by Nigerians deserving for more attention as far as security,

mapping and conflict management is concerned is their effect on everyday life [3]

The inevitable security issues leading to subsequent destruction of lives, properties and the environment calls for a holistic approach through effective use of information technology [2]. Although Nigeria have taken bold steps to settle their insecurity issues through combat approach, there still exist several unresolved issues bordering the country peaceful coexistence on one hand and accurate mapping of contiguous areas using geospatial science and technology such as satellite Remote Sensing (RS), Geographic information Systems (GIS) and Global Navigational Satellite Systems (GNSS) on the other hand. In this paper, we trace the evolution of Nigeria security challenges possible causes of insecurity and methods of solving the challenges through using Information technology and compliance with laid down rules/treaties and the possible areas of collaborations in the areas of space science and technology (with reference to Nigeria space programme), culture and politics. [9]

Hofstede, 2002, stated that “One of the most important features of the digital age is the use of new communications technologies to build digital citizen ships.

The state of insecurity in Nigeria today is no news to anyone and although it can be blamed on some factors that have been left unchecked for a long time by both the Government and people of Nigeria but the level of insecurity in the country today is threatening to tear her apart and requires quick, adequate and a new approach to deal with the security challenges plaguing the nation. Apart from food insecurity, financial insecurity, terrorism, health insecurity and others, security failure has eaten deep into the fabrics of the country. The situation in Nigeria since the beginning of this decade in which dozens of militant groups emerged and challenged in the most violent form the authority of the Government; the growing level of urban crime including armed robbery, kidnappings, ritual killings, and cultism; the continuing erosion of the moral authority of religions in which people engage in acts in open defiance of their religious and moral teachings; the culture of impunity that characterizes public affairs; the corruption that is submerging the average Nigerian; and the collapsing social and political institutions in the country over the last few years, more than anything demand for quick

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and lasting solutions that will at least reduce the security threats facing Nigeria today. [10]

The quest for stability and development is, without doubt, the Holy Grail for Nigeria; a condition under which the country would be able to develop institutions and structures with the capacity to ensure economic growth, equitable distribution of national wealth, political stability and accountability. To do this successfully, however, requires reduction of threats (actual and potential) that are capable of generating insecurity for the country. Accordingly, there is the challenge to rethink and improve on policy and institutional means of dealing with security concerns arising in the country. Apart from the role that has been played by the traditional security agencies, Information and Communication Technology (ICT) is now the focus to lead Nigeria in the new era of globalization and knowledge and consequently development to manage and possibly eradicate threats facing the nation as expressed by the following top law enforcement agents in Nigeria. [11]

National security threat has been a major issue for the government of Nigeria in recent years. Recently, Nigeria has been characterized with different turmoil ranging from human abduction, political mayhem, terrorism and bomb attacks. Governments have tried several methods in order to curb these menaces but all of them have been proved abortive. According to Philip Zelikow Executive Director of 9/11 Commission and now a Professor at the University of Virginia, USA, the most significant lessons learned from the 9/11 catastrophe is: "The United States of America would have done, before the 9/11 saga, most of the things (i.e.: reactionary measures taken) that we did post 9/11!" A valid example is the establishment of the Homeland Security Institutional framework with its complex, colossal, multi-dimensional and highly-critical information infrastructure and expansive Database systems on Cyber security and Terrorism. It is all for public safety. [12]

Nigeria is currently faced with a similar challenge –informed by the magnitude and complexities of the several bomb blast in various parts of Northern Nigeria. Would we have done some of the things we now intend to do – about 10 years ago? Would we have created a National Security Intelligence Database, adequately prepared with disaster recovery plans and mastered the related operational complexities before they stuck? 21<sup>st</sup> century Information clusters are dynamic knowledge architecture for developing Intelligent and security systems.

The role of Technology and in particular, software systems in National Security Database Intelligence dynamics has therefore become a critical and significant component as well as a fundamental necessity for understanding e-security life-cycle. Also, it amplifies the needs and accelerated urgency for deploying strategies capable of protecting Critical National Infor-

mation Infrastructure (CNII) with result-oriented and sustainable implementation process.

To actualize this important national objective, one global best principle is mandatory, that is: *National Security Database Applications Software must be developed through and by harnessing internal resources and know-how and NOT by external forces*. Swim or sink, Software-Nigeria is the key and the secure Roadmap to our future and *Indigenous skill-sets must be called to national duty*. The reason is not far-fetched, the task is a very sensitive initiative which represents and is indeed, the knowledge laboratory for national survivability. The reality today translates to the fact that it should be abundantly clear to us, that the era and long-addicted habit of physically and blindly chasing the containers and cargo packages at all our import terminals and air/land borders and throwing away the content of the manifest documents that represent the knowledge-base and real world inside the containers, must be over by now. Today, Information Technology (IT) is undoubtedly the world's fastest growing body of knowledge for sustainable development and national survivability. At the centre of these very complex processes is Software Infrastructure, capacity and capability which determines the equilibrium for national security, peace, growth, creation of wealth and for business continuity of nations at all levels. [4]

## II. STATEMENT OF THE PROBLEM

Since the advent of Information Technology, it is assumed to have been of greater advantages than the disadvantages most especially in the area of Security, even at that the Security situation of Nigeria is getting deteriorated and more complicated by the day. The major challenges of security in Nigeria include: Terrorism by the boko haram in the Northern Nigeria, Kidnapping in the Southern part of Nigeria, armed robbery, the most recent pipeline vandalisation caused by some Militant group known as the Niger Delta Avengers in the South-South region of the country and Herdsmen killings in some part of the country.

Therefore, the question this study is out to answer is: how can Information technology impact positively on National Security in Nigeria?

## III. OBJECTIVES OF THE STUDY

The main objective of this study is to determine the role of information technology in national security and the specific objectives include:

1. To determine the relationship between Information Technology and National Security;
2. To find out the various ways in which Information Technology can impact positively on National Security;
3. To find out reasons why Information Technology has not been able to help in achieving full National Security in Nigeria; and

3. To find out reasons why Information Technology has not been able to help in achieving full National Security in Nigeria; and
4. To determine how National Security can be achieved through Information Technology.

#### IV. SCOPE OF THE STUDY

The essence of this research work is to primarily study the role of Information Technology in National Security. The research intends to focus on Nigeria's security situation.

#### V. CONCEPTUAL CLARIFICATIONS AND LITERATURE REVIEW

We shall clarify some concepts and review some literature with regards to developing the subject in Nigeria:

##### a) *National Security*

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.

National security is a concept that a government, along with its parliaments, should protect the state and its citizens against all kind of "national" crises through a variety of power projections, such as political power, diplomacy, economic power, military might, and so on.

##### b) *Information technology*

This is the application of computers and telecommunications equipment to store, retrieve, transmit and manipulate data, often in the context of a business or other enterprise.

##### c) *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 and the citizens well secured, however Nigeria's security concerns and threat perceptions emanated from many quarters, these includes the threat of sects like Boko Haram, high level of unemployed youths, Militant from the oil rich Niger delta, ritual killings and kidnappings, the high rate of inequality, influx of illegal migrants from the neighbouring 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.

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 Abdul mutalab to blow up a commercial plane at Detroit Michigan. Though the Nigerian government protested by saying "Abdul mutalab's behaviour 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 want on 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. [5]

These attacks have exposed the weakness in the Nigerian security. The Nigerian security forces in their present state do 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. [6]

The central pillar of Nigerian national security policy includes Safe guarding the sovereign, independence and territorial integrity of the Nation. The other guiding principles of the security policy are African unity and independence, non intervention 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. [7]

##### d) *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." [5] 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.

Specifically, IT will help enable the nation to identify potential threats, share information more readily,



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.

e) *Some Security Challenges in Nigeria*

- Poverty and unemployment
- Insurgences – Boko haram, militants, religious or ethnic wars
- Insecurity of lives – kidnapping, armed robbery, ritual killings
- Corruption – Rigging of election, fake licenses, etc.
- Theft – Oil pipeline, public funds or piracy
- Information security – defacing government websites, theft of critical data, Denial of Service attacks
- Insider threats - Moles within security agencies, disgruntled employees
- Over-reliance on foreign technology
- Inadequate regulations: e.g. cyber security and the most recent
- Farmers/Herdsman clashes

f) *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. [8]

g) *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. [13]

h) *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 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. [14]

i) *Virtual Emergency Operations Centers*

Physical emergency-operation centres (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 [8]

j) *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. [15]

k) *Data Mining and Database Tracking*

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. [9]

## VI. METHODOLOGY

There are diverse set of people in Nigeria both the Young and old, unemployed and employed, students and so also different states and geopolitical zones Using the simple random sampling technique, six different offices were visited which include Federal Ministry of Defence, Federal Ministry of Science and Technology, National Defence College, Defence

Headquarters, the Police Force headquarters and National Information Technology Development Agency (NITDA). Using the purposive sampling technique, the researcher purposively selected a sample size of 120 respondents from the five offices. Each offices contributed 20 sample sizes Therefore, the sample size for the study were 120 respondents.

Data was collected using the questionnaire which the researcher administered face to face to the respondents. Out of 150 copies of questionnaire distributed to the respondents, 120 copies were retrieved. This represented a response rate of 80%.

## VII. RESULTS AND DISCUSSIONS

This deal with the presentation, analysis and interpretation of the data collected during the field survey of the study.

### a) Socioeconomic characteristics of the respondents

Table 1 presents the socioeconomic characteristics that express information which include sex, occupations of the respondents and their opinion on whether IT can impact NS.

*Table 1:* These characteristics show the relationship IT and NS in Nigeria

Characteristics	Frequency	Percentage
Male	84	70
Female	36	30
Total	120	100
Military officers	46	38.33
Police officers	31	25.83
FMST	12	10
PRIVATE IT ANALYST	10	8.33
NITDA	21	17.5
Total	120	100
Yes	117	97.5
No	3	2.5
Total	120	100

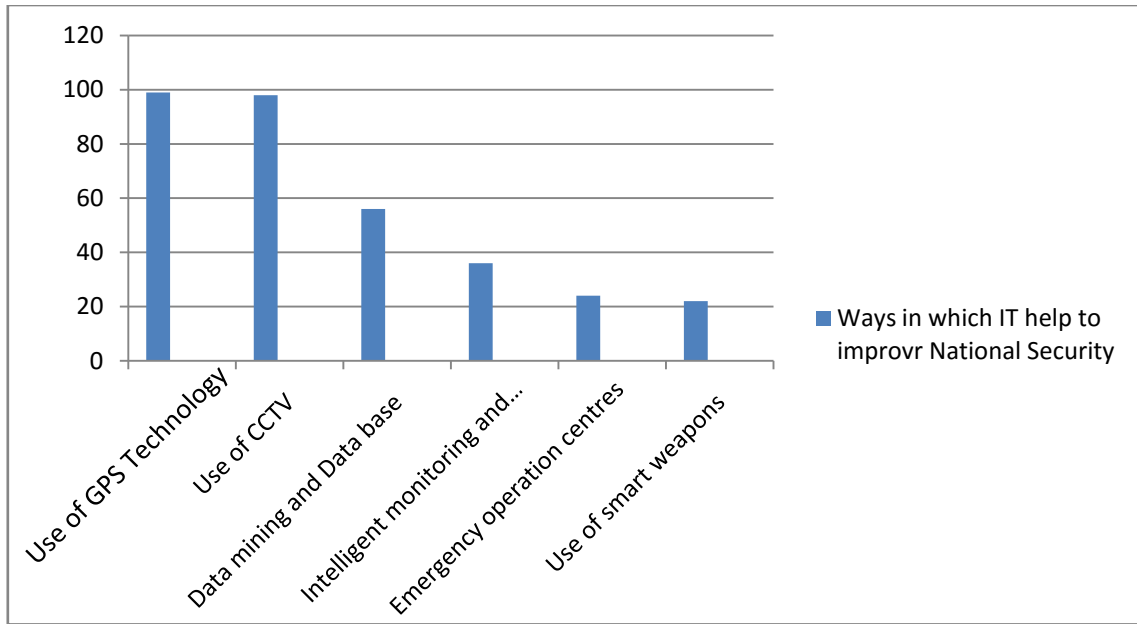
One way or the other, the Security agents and the IT analyst are the major set of people we can get information on the security situation of a country. 38.33% of the Respondents are Military officers, 25.83% were Police officers, 10% are civil servants, 8.33% are private IT personnel's and 17.5% are NITDA officials. This indicates that these set of people are the major

determinant of the role of information technology on National Security in the study. 70% of the Respondents were male while 30% are female. This implies that the military and paramilitary is been dominated by Men. 97.5% of the respondents believe IT can help to improve National Security.

### b) Major ways in which IT can help to improve National Security?

*Table 2*

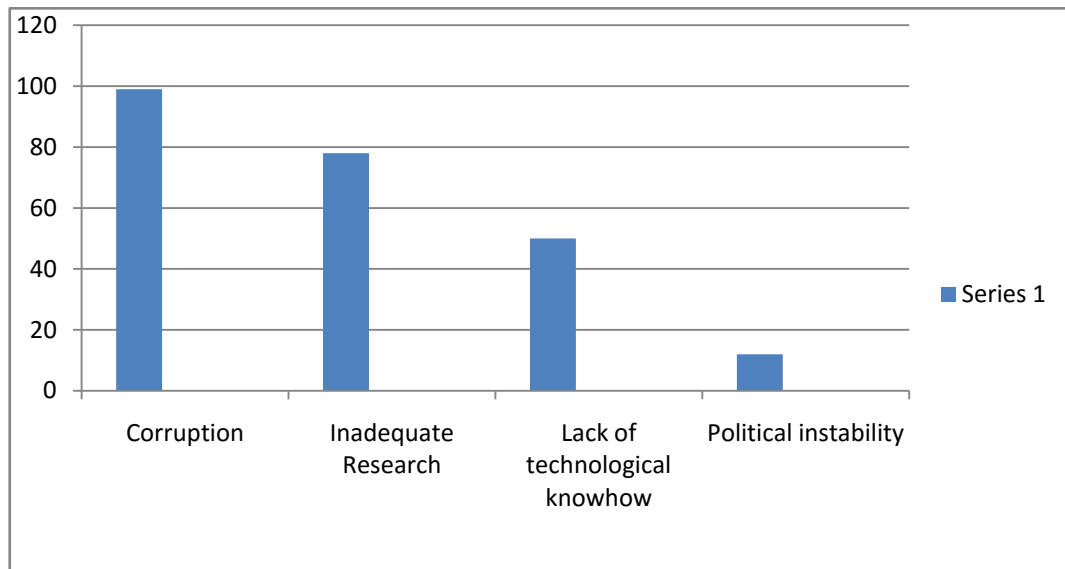
Characteristics	Frequency	Percentage
Use of GPS Technology	119	99
Use of CCTV	117	98
Data mining and Data base	68	56
Intelligent monitoring and gathering	43	36
Emergency operation Centres	29	24
Use of Smart weapons	26	22
Use of Social networks	14	12



c) Reasons why IT has not been able to improve National Security in Nigeria?

Table 3

Characteristics	Frequency	Percentage
Corruption	119	99
Inadequate Research	94	78
Lack of technological knowhow	60	50
Political instability	38	32
Inadequate funds	25	21



d) Ways in which Nigeria can achieve a stable National Security through IT?

Table 4

Characteristics	Frequency	Percentage
Government should invest more in the Defence Sector	111	92.5
Government and private individuals should focus more on Science and Technology related Research	89	74.2
Collaboration between the IT sector and Security agents	72	60
Capacity building	11	9.2

## VIII. SUMMARY, CONCLUSION AND RECOMMENDATION

### a) Summary of Findings

The findings showed that:

1. A great number of the officers in the Nigerian military and other security agencies believe IT can be of great impact in National Security so therefore there is a great relationship between Information technology and National security.
2. The reasons why IT has not really been able to impact in National security include: Corruption. Inadequate research, lack of technological knowhow, inadequate fund and political instability.
3. IT has been of 97.5% impact on Nigeria's National Security.
4. IV. IT can improve National security through the use of GPS Technology, CCTV, Social networks, intelligent gathering, Smart weapons, Data mining and data base tracking.

### b) Conclusion

This paper has examined the issue of Information technology and its role on National Security. Some issues that are central to information technology and national security include Corruption, Inadequate research, lack of technological knowhow, inadequate fund and political instability. All these constitute a major source of insecurity in Nigeria.

It is quite glaring that information technology has a great role to play on national security in Nigeria. The growing importance of information technology presents not only new opportunities to benefit modern society, but also brings challenges to the approach and methodology of securing that society from outside attack.

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.

### c) Recommendation

The problem of insecurity in Nigeria has been further compounded by lack of technological knowhow majorly in the aspect of using information technology as a tool in tackling insecurity in Nigeria.

- Hence, some recommendations were derived from this study:
- Government should invest more in the defence sector
- Government and individual should focus more in Science and Technology related research
- Military officers and other security agents should be adequately involved in Capacity building
- The Government of Nigeria should continue in the fight against corruption
- There should be proper collaboration between the information technology sector and the Defence and security sector.

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