

Advanced Surveillance and Security in the Social Media Regime: An Analysis of the Role of Information and Communication Technologies (ICTs)

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Abstract

The use of the information superhighway, which is enabled by Information and Communication Technologies (ICTs) has helped to strengthen and extend security surveillance and information sharing across the entire continents of the world. The potential of the Internet and its associated social media tools as an open communication system to create an alert on impending security problem and provide first-hand information/evidence when crimes are committed is high. It provides valuable opportunities for individuals, groups, and organisations to establish their own spaces and sites and report such cases. However, its net benefit depends strictly on certain factors such as the nature and number of ICTs installations and use security agencies' connection to and use of such equipment, and their willingness to synergise with the public. This paper, therefore, examines the role of information and communication technologies for security surveillance. The survey research design was applied for the study. Primary data were generated from a sample of 250 purposively selected security personnel. In the analysis of data for the study, both descriptive and inferential statistics were utilized. All analyses were done with the statistical package for social sciences (SPSS) version 22 while results were presented in tables. The results of the study showed a significant relationship between ICTs and effective security surveillance. The paper, therefore, recommends among others, the procurement and/or installation of security software, for effective security surveillance, security sensitization programmes for the public and the development of pro-masses security software and instrument that are accessible to the public through the social media.

Key Words: social media, security, internet, ICTs, information, Nigeria, surveillance

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Introduction

The security of lives and property is one of the global challenges facing world leaders. These security challenges include armed robbery, banditry, housebreaking, communal clashes, ethno religious conflict, kidnapping, assassination, terrorism, among others. There is also cybercrime such as Internet fraud, identity theft and hacking, piracy. The situation in Nigeria also includes the conflict between farmers and herds. These security challenges have threatened global peace. The latest report of the Institute for Economics and Peace (2018) revealed that the global level of peace has deteriorated by 0.27 per cent in the last year, marking the fourth successive year of deteriorations. The report said that Ninety-two countries deteriorated, while 71 countries improved. The report reveals a world in which the tensions, conflicts, and crises that emerged in the past decade remain unresolved, especially in the Middle East, resulting in this gradual, sustained fall in peacefulness. The four most peaceful regions – Europe, North America, Asia-Pacific, and South America – all recorded deteriorations, with the largest overall deterioration occurring in South America, owing to falls in the safety and security domain, mainly because of increases in the incarceration rate and impact of terrorism. Iceland remains the most peaceful country in the world, a position it has held since 2008. It is joined at the top of the index by New Zealand, Austria, Portugal, and Denmark. Syria remains the least peaceful country in the world, a position it has held for the past five years (Institute for Economics and Peace 2018). Overall, the report showed that peace has eluded the world for the past ten years. In particular, and that global peacefulness has deteriorated by 2.38 per cent since 2008, with 85 GPI (Global Peace Index) countries recording deterioration, while 75 improved. It added that the index has deteriorated for eight of the last eleven years, with the last improvement in peacefulness occurring in 2014. In Europe, the world's most peaceful region, 61 per cent of countries have deteriorated since 2008. Nigeria had an index score of 2.873 and was ranked 148. It was classified among countries with high security challenges. Gever and Nwabuzor (2014) in describing the security challenges facing the world note: “For some time now, peace has remained elusive in different parts of the world. From Mali to Egypt, to Kenya, to Somalia, to Syria, to Pakistan, to Nigeria; the story is the same. Commenting on the particular challenge in Nigeria, they note: “The situation in Nigeria is particularly enmeshed such that a country which cannot boast of factories to cater for her teeming unemployed graduates, now has bomb manufacturing factories deployed against the citizens by anarchists/terrorists.”

Countries of the world have continued to troubleshoot ways of addressing the growing security challenges. Improvements in technologies and the emergence of Information and communication technologies (ICTs) and its features have raised hope regarding its potentials for security surveillance. Dike (2013) notes that ICTs are very cardinal for curbing crime in the world. He adds that sensitive buildings like banks, government establishments and the likes, should install monitoring equipment that surveys peoples' movement in the building to capture some form of data from people like time-in, time-out and bio-data which will greatly assist the security agents to trace and apprehend suspected criminals. Dike in stressing the important role of ICTs in security surveillance adds that government do not need 10,000 policemen to fight 10,000 criminals rather, it should computerize the police force; properly secure our borders; keep correct statistics of births, deaths and people in the country with the aid of capture machines and computers. Troubled spots should have surveillance cameras mounted in the area which should transmit live feeds to the security agents. Ibikunle and Bide (2013) aver that the world is in an era of law enforcement where ICT and other advanced technologies are becoming a powerful tool for responding to crimes, engaging in hotspots policing, solving violent crimes, monitoring employees' performance and many other functions. Ibikunle and Bide add that technologies, such as video cameras, data mining systems, heat sensors, biometrics, GPS (Global Positioning System) tracking, Internet and telecommunication systems are being used for the detection, investigation, prosecution and prevention of crime in the law enforcement community and that just like it was the case in the middle of the 20th century, technology is beginning to alter the nature of policing and to impact on

the management and delivery of police services. Therefore, in this study, the researcher sought to ascertain the role that ICTs could play in security surveillance in the 21st-century computerised world.

Nigeria’s Efforts at Combating Security Problems

Nigerian government long recognized the need to address the country’s security problems through the use of legal means. Therefore, the Origin of Criminal law in Nigeria is traced to Lord Lugard when in 1904, then as the governor of the Northern protectorate, introduced by proclamation, a Criminal Code which was made applicable to the whole of Nigeria in 1916 after the amalgamation in 1914. Following intense advocacy by the Northerners, the Penal Code Law, No. 18 of Northern Region was introduced in that Region. That exercise also restricted the Criminal Code of 1916 to apply only in the Southern part of Nigeria. The Penal Code was tailored against the background of the Code of Sudan which, itself, had its origin from the Indian Penal Code of 1860 (Essien 2009). In this study, crime will be examined in the context of the Criminal Code which applies to states in Southern Nigeria. This is so because the study is limited to South Eastern Nigeria. The Criminal Code section 2 defines an offence thus: ‘An act or omission which renders the person doing the act or making the omission liable to punishment under this code, or under any Act, or Law, is called an offence.’ The code further identified punishable offences to include, to disturb the public peace; (d) to be part of any association, society, or confederacy, formed for doing any such acts as aforesaid; (e) not to inform or give evidence against any associate, confederate or other person, stealing, killing, abduction, sexual assault, child abuse, among others. According to Nigerian Watch (2014), crime is one of the basic causes of violence. The Nigerian Watch further notes that crime is more in the South than in the North. This makes a study of the effectiveness of ICTs in curbing crimes in South-East Nigeria very essential. Based on this, therefore, this study investigated the effectiveness of ICTs in curbing crime in South-East Nigeria. South-East Nigeria has experienced different types of crimes over the years. The region has battled to address crimes and criminalities like murder, armed robbery, kidnapping among others. The region is said to have the highest number of crimes in Nigeria. A survey conducted by Sherrif Deputies (2014) revealed that the number of victims of crime was highest in Enugu State with 70%, followed by Ekiti and Ebonyi State (both 65%). The national average was 25%. Katsina State had 9%, while Ogun had the lowest score of 5%. The result also showed that an analysing experience of crime by regions in Nigeria, the South-East recorded highest with 44% while the North-West recorded the lowest score of 18%. Lagos State also recorded 18%. Further analysis by gender indicates that more men (27%) had actual experience than women (23%). A study by the CLEAN (2012) also showed that the South-East states of Nigeria had the second highest incidence of kidnapping in Nigeria, next to South-South Nigeria. Osuji, Obubu and Obiora-Ilouno (2015) found that the common crimes in South-East Nigeria are: armed robbery, murder, and grievous harm and wounding. The table below shows the crime rate in South-East Nigeria.

Table I: Crime Rate in South-East Nigeria

	Mean	SD	N
Murder	33.972	21.061	10
Grievous harm and wrongdoing	21.80	14.031	10
Rape	10.100	2.737	10
Armed Robbery	35.402	22.359	10
Kidnapping	13.190	3.028	10
Store breaking	17.801	7.448	10
House Breaking	13.409	3.591	10

Source: Osuji, Obubu and Obiora-Ilouno (2015)

The table above reveals the type of crimes that are most common in South-east Nigeria. Based on the table, armed robbery had the highest mean followed by murder while grievous harm and wrongdoing came third.

ICTs and Security Surveillance

Information and communication technologies describe the application of computer and telecommunication networks to create services or products which can fulfil man's information or communication desires. Adamu (2007) says that ICTs includes computers, ancillary equipment, software and firmware. (Hardware) and similar procedures, services, including support services and other related resources. The term "information technology" also includes any equipment or interconnected system or subsystem of equipment, that is used in the automatic acquisition, storage, manipulation, management, movement, control display, switching interchange, transmission or reception of data or information. In the views of Tiamiyu (2001) cited in Ekhareafu, Asemah, and Edegoh, (2013), information and communication technologies are now generally perceived as strategic activities and the management of resources for stimulating personal, organisational and national productivity, growth and development. Bature (2007) defines Information and Communication Technologies as those technologies that allow access to information through telecommunications. It is information exchange which facilitates the way information flows faster, more generously, and less expensively throughout the planet for decision-making and development (Ayuba & Aliyu, 2014). The essential features of the ICTs lie in their interconnectedness, their accessibility to individual users as senders and/or receivers, their interactivity, their multiplicity of use and open-ended character and their ubiquity. Thus, this affordability makes a person an instant publisher with access to an audience of millions of Internet users, creating a whole new class of mass communicators (Dominick, 2002). With the emergence of the ICTs, the traditional mass media i.e. print and broadcast, which were believed to have brought the age of the media to the highest point, began to dwindle (Sanda & Kurfi 2013). The technology was being replaced by an age of personal or participatory media – the ICTs. ICTs could be useful for security surveillance. Security surveillance describes closely monitoring events to ensure the safety of lives and properties. Daramola (2001) says the word surveillance means keeping close watch over someone or something. McQuail (2005) notes that police and intelligence services are paying more attention to the need of surveillance and control, especially in respect of potential trans-border crime, child pornography, terrorism, domestic disaffection as well as many new kinds of cybercrime. Zack (2009) holds that ICTs could be useful for crime prevention by gaining advance information about crime before they happen.

Ogunleye, Adewale, Alese and Ogunde (2011) conducted a study to find out the place of Closed Circuit Television (CCTV) in crime prevention. Ogunleye et al used a descriptive survey to achieve the study aim. The researchers studied fifty respondents and reported that most of the sample studied noticed the presence of a CCTV system and they clearly indicated the places. Also, most of the respondents agreed that the purposes of these cameras are for monitoring and some security reasons like: to catch people who commit a crime; to scare off somebody who might commit a crime and to make people feel safe.

Similarly, Ayuba and Aliyu (2014) surveyed the role of Information Communication Technology (ICT) in combating corrupt business activities in Nigeria. They studied a sample of 200 respondents, and reported that ICT helps in reducing organizations spending and increased earning, identification of ghost workers and elimination of corrupt practices of following files and cheques, as well as enhancing marketing practice and tracking of financial fraudsters and other fraudulent banking services which significantly helped in achieving greater transparency, accountability and effective management and reduce opportunities for corruption. Ibikunle and Adefihan (2013) examined the use of ICTs by the police for crime prevention and reported that the use of ICT and other technologies leads to a corresponding improvement in the performance and

effectiveness of the Police force. Tanui and Barmao (2016) did a study on the use of ICT in the detection and prevention of crime in Kenya. The researchers employed a mixed methods research design of qualitative and quantitative approaches. A total of 40 respondents from police officers, court officials, bank employees and civilians were purposely selected for the study from Eldoret town. Using simple random sampling the police officers, court officials, bank employees and civilians were stratified into strata and the total study respondents were 40. The questionnaires were administered to police officers, court officials, bank employees and civilians and whereas interview schedule was administered to magistrates and police in charge. Data collected was processed, coded and analyzed to facilitate answering the research questions. This was done using descriptive statistics. It was found that ICTs are critical for crime prevention. The researchers suggested that regular training of law enforcement agents could be beneficial regarding the uses of ICT in prevention and detection crime. Quarshie (2014) examined the ICT tools available to law enforcement institution to fighting crime in Africa. It was found that the police in developed countries have come up with ICT methods of crime detection and combat. The result also revealed that legislations have equally been amended to allow the police to gather evidence on the criminal activity carried out via the Internet but Africa is yet to take advantage of ICT in fighting crime. Quarshie (2014) further said that ICT tools such as CCTV technology, tracking technology, social media and mobile phone are efficient in fighting crime. Uchenna, Chukwuemeka and Chukwuka (2018) examined the use of ICTs among officers and men of Nigerian Civil defence and reported they do have the required ICT tools in combating crime, and that information gathering is beneficial to Corps in the discharge of their duties. Based on these studies, the researcher hypothesized:

H1: ICTs tools application is significantly associated with effective security surveillance.

H2: Challenges to ICTs acquisition are significantly associated with the application of ICT tools for effective security surveillance.

H3: Challenges to ICTs use are significantly associated with the application of ICT tools for effective security surveillance.

Theoretical Framework

The researcher used two theories in this study. They are the Uses and Gratification theory and the Technological Determinism Theory. The gratification theory was propounded by Katz in 1970 (McQuail, 2005). It is concerned with how people use media for the gratification of their needs. The theory holds that people use media for many purposes and that the audience is active and its media use determined by goal. People have various needs they seek to satisfy through media. Audience members take initiative to link need gratification to a specific media. It propounds the fact that people choose what they want to see or read and the different media compete to satisfy each individual's needs (Suresh 2003 and Katz, Blumler, and Gurevitch (1974) in Asemah (2011) In general researchers have found four kinds of gratifications:

1. **Information** - People want to find out about society and the world- they desire to satisfy our curiosity. This would fit the news and documentaries.
2. **Personal Identity** - People may watch television to look for models for their behaviour. So, for example, people may identify with characters that they see in a soap.
3. **Integration and Social Interaction** - People use the media to find out more about the circumstances of other people. Watching a show helps them to empathize and sympathize with the lives of others so that we may even end up thinking of the characters in the programme as friends.
4. **Entertainment** - sometimes we simply use the media for enjoyment, relaxation or just to fill time.

In this study, ICT features were regarded as media options with the potential of meeting the needs of users. In the study, such users were considered to be security agents who will deploy ICTs for

security surveillance. Though this theory is good, it does not address the technology aspect of the study, hence, the need to augment it with the Technological Determinism theory. The theory according to Nwanwene (2010) posits that the global village so eloquently forecast by Marshal McLuhan in the 1960s has arrived. White (1990) cited in Nwanwene (2010) posits that it is a revolution which has brought us nearer to the universal understanding which McLuhan and others hoped for. The theory states that media technologies shape how we as individuals in a society think, feel act and how a society operates as we move from one technology age to another. This theory is relevant to the study because it explains how improvement in technology has led to a change in the approaches towards crime-fighting in Nigeria and the world at large. Before the improvement, curbing crime was solely done with the use of human power, but in the contemporary society, combating crime also includes the use of ICTs. This is made possible as a result of advancement in technology.

Method

The survey research design was used for this study. The survey research design was used because it is usually the most applicable design when a study aims to describe, explore or explain a phenomenon (Anol 2012,p.73). The study was conducted in Enugu State, South-East Nigeria. South-East Nigeria is the area with the highest number of criminal activities in Nigeria. A total of 250 security agents was sampled for the study. The details of those sampled are presented as follows:

Table 1: Sample details

Security agents	Sample
Police	50
Army	50
NSCDC	50
Air Force	50
Navy	50
Total	250

It should be noted that the essence of the sample was not to get a representative sample of security agents within the study area but to gain insights into the application of ICTs for security surveillance. The purposive sampling technique was used to select the sample. The questionnaire was used as the instrument for the study. The questionnaire was self-developed for the study. The questionnaire was validated by three communication experts at the department of mass communication, University of Nigeria, Nsukka. The reliability of the instrument was ascertained through a test re-test approach. Therefore, earlier 20 copies of the drafted questionnaire were administered to 20 persons in Enugu State. After two weeks, the same persons were again administered the instrument. The correlation coefficient of .89 was arrived at. This suggests that the instrument was reliable.

In the analysis of data for the study, the researcher used both inferential and descriptive statistics. All inferential statistics were tested at 0.05 level of significance.

Results and Data

There was 100% returned rate for this study. This could be because the researcher administered and retrieved the instrument immediately. The sample was 81% male and 19% female. The dominance of male could be because the security agencies in Nigeria are dominated by male. The mean age of the respondents was 41 (range 34 and 47). The respondents were largely junior officer as senior officers could not be reached.

Table 2: Relationship between ICTs and security surveillance

Item	$\rho_{X,Y}$	p. value	Decision
1 Closed Circuit Television	.783**	0.001	Sig
2 Access Control and Detection System	.783**	0.001	Sig
4 Video cameras	.769**	0.001	Sig
5 Security alarm to detect unauthorized access	.830**	0.001	Sig
6 Biometrics capturing devices	.756**	0.001	Sig
7 Use of telecommunication services to trace criminals	.721**	0.001	Sig
8 Use of social media	.921**	0.001	Sig

The result of table two above sought to ascertain the relationship between the use of ICTs and effective security surveillance. The result tested ICTs features like Closed Circuit television, video cameras, Global Positioning System, Access Control and Detection System, security alarm, social media as well as biometrics capturing devices. Security surveillance was used as a one-dimensional measure. The result showed that all the ICT features studied are significantly associated with effective security surveillance.

Table 3: Challenges to ICTs acquisition and effective security surveillance.

Item	$\rho_{X,Y}$	p. value	Decision
1 Insufficient up-to-date ICT tools	.712**	0.001	Sig
2 Complete absence of state of the art ICT tools	.883**	0.001	Sig
3 Poor budgetary allocation for ICT tools	.821**	0.001	Sig
4 Government lack of interest in the acquisition of ICT tool	.668**	0.001	Sig
5 Siphoning of funds for ICT tools	.732**	0.001	Sig

The result of table three above sought to ascertain the relationship between obstacles to ICT acquisition and effective security surveillance. The result showed that all the obstacles to ICT acquisition are significantly associated with effective security surveillance. That is, challenges to ICT acquisition negatively affect effective security surveillance.

Table 4: Challenges to ICTs use and effective security surveillance

Item	$\rho_{X,Y}$	p. value	Decision
1 Challenges of skilled manpower	.912**	0.001	Sig
2 Absence of regular training on ICTs use	.681**	0.001	Sig
4 Poor motivation of personnel	.961**	0.001	Sig
5 Problem of constant retraining and retraining of personnel	.933**	0.001	Sig
6 Poor maintenance of ICTs tools	.851**	0.001	Sig

The table above sought to ascertain the relationship between challenges to ICT use and effective security surveillance. The result showed that all the items presented significantly correlate with

effective security surveillance. That is challenges to ICTs use negatively impact on effective security surveillance.

Test of Hypotheses

The researcher tested three hypotheses. In the first hypothesis, it was assumed that ICTs tools application is significantly associated with effective security surveillance. The assumption was supported ($P, < 0.05$). Consequently, the researcher concludes with 95% confidence that ICTs tools application is significantly associated with effective security surveillance. In the second hypothesis, it was assumed that challenges to ICTs acquisition are significantly associated with the application of ICT tools for effective security surveillance. The assumption was also supported ($P, < 0.05$). Thus, the researcher concludes with 95% confidence that challenges to ICTs acquisition are significantly associated with the application of ICT tools for effective security surveillance. In the final hypothesis, it was assumed that challenges to ICTs use are significantly associated with the application of ICT tools for effective security surveillance. The assumption was equally supported ($P, < 0.05$). Therefore, the researcher concludes with 95% confidence that challenges to ICTs use are significantly associated with the application of ICT tools for effective security surveillance.

Discussion of Findings

In this study, the researcher examined the role of ICTs in security surveillance. The objective was not to look at public perception but to ascertain the role ICTs have played in security surveillance. Therefore, security officers and men were examined. The study tested three hypotheses. The result showed that the sample reported that ICT tools like Closed Circuit Television, access control and detection system, Global Positioning System (GPS), video cameras, security alarm, social media, biometrics devices, and telecommunication have been variously deployed for security surveillance. The result of the hypothesis testing also showed a significant relationship between the application of these ICT tools and effective security surveillance. The result of the current study is in agreement with that of Dike (2013) who noted that ICTs hold the key to curbing crime, In the views, 'with the latest ICT equipment available in the market now, we can now use names, thumbprint or even date of birth of individuals to apprehend criminals and reduce crime.' The result of this study is also consistent with the submission of Adegoke, Phillips and Keshinro (2015) who reveal that Access Control and Detection System ICTs devices are useful in curbing crimes. They note:

In some public places (such as worship centres, banks, airports, stadia etc) where a multitude of crowd is inevitable, security cannot be efficiently contained through physical checking. Rather, a more robust approach through the use of ICT should be adopted. Access control systems are systems that protect by establishing a checkpoint at entry points to a location through which only authorized persons may pass while detection systems look for dangerous objects and agents on persons, their belongings, and their vehicles at entry points (p.19)

These results have shown that ICTs are critical for security surveillance in the current dispensation. The world is becoming more complex than ever before. The population is increasing, people are finding it more difficult to get a job than ever. People now face hunger problems than before, their house rents are becoming more expensive, their desires and wants are increasing but access to finance is more difficult than ever. These complexities breed security challenges. Crimes like armed robbery, kidnapping, housebreaking, assassinations, among others are on the increase because people are adopting criminal means of survival. Security surveillance is important under such a situation and ICTs could be beneficial in that regard. However, the acquisition and use of ICTs are limited by challenges. The result of the current study showed that challenges to the

acquisition of ICTs for security surveillance include: insufficient up-to-date ICT tools, a complete absence of state of the ICT tools, poor budgetary allocation for ICT tools, government lack of interest in the acquisition of ICT tool, siphoning of funds for ICT tools. The result of the hypothesis testing showed that these challenges significantly have negative impacts on the application of ICT tools for effective security surveillance. This result is consistent with that of Nwosu and Soola (2007) who found that absence of ICTs policy or implementation, lack of infrastructure, , poor knowledge of ICTs at all levels from suppliers to users, corruption and political instability, few trained or skilled ICTs personnel financial constraints, wars and fear of insecurity that may be caused by cyber or ICT fraudsters or hackers, poor ICT regularisations are limitations to the application of ICT tools for security surveillance. It was also found that the use of ICTs for effective security surveillance is limited by challenges like lack of skilled manpower, absence of regular training on ICTs use, the poor motivation of personnel, the problem of constant retraining and retraining of personnel and poor maintenance of ICTs tools. The result of the hypothesis testing also revealed a significant relationship between challenges to ICT use and application of ICTs for security surveillance. This result is partly similar to that of Nwosu and Soola (2007). Quarshie (2014) in making a case for the use of ICTs for security surveillance notes that the fight against crime in Africa needs a cohesive and coordinated strategy supported by a virile ICT security system. Quarshie adds that as a result, security agencies deserve full support.

Conclusion/Recommendations

In this study, the researcher has examined the role of ICTs for effective security surveillance. Based on the result of this study, the researcher concludes that ICTs are essential for security surveillance. The researcher, however, adds that effective application of ICTs for security surveillance in Nigeria has been limited by challenges related to acquisition and use. This study has practical, scholarly and theoretical contributions. Practically, the result of this study could be useful to government agencies who are responsible for the acquisition and use of ICTs for security surveillance in Nigeria. Such agencies could, therefore, be guided on how to ensure that up-to-date ICTs tools are made available for security agencies for security surveillance. Theoretically, the result has contributed to our understanding of the uses and gratification and technological determinism theories. Concerning the uses and gratification theory, the result has shown that ICTs has some security-related gratification that could satisfy the security surveillance needs of security personnel. Regarding the technological determinism theory, the result has shown how improvements in technologies have changed approaches to combating security challenges. The results also have scholarly contributions by providing empirical evidence on the relationship between ICTs and security surveillance. Based on these result, the researcher recommends:

1. The government should improve on budgetary allocation for the acquisition of modern ICT tools for effective security surveillance.
2. There is a need for the training and retraining of security personnel on how to use ICTs for effective security surveillance.
3. The government should remove all barriers to acquisition and use of ICTs for effective security surveillance.
4. It is also suggested that there is a need for security sensitization programmes for the public, the development of pro-masses security software and instrument that are accessible to the public through the social media.
5. Further studies should be conducted in other countries to enrich literature in this regard.

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