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## **EMERGENT INTERNET SERVICES IN NIGERIA: PROSPECTS AND CHALLENGES**

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### **ABSTRACT**

Information and communication technology and internet services in particular stand today at the very centre of human and social progress. The world today has become a global clan with internet services as part of the major driving force. Internet services are rapidly cascading from developed countries to developing countries including Nigeria. This paper, therefore, examines the emergent internet services in Nigeria and their worldwide multidimensional capability and the mechanism they have become with regard to information dissemination and interactions between individuals and their computers without regard for geographical boundaries. In this research work, the authors admit that while the internet, as a new global media tool, has powerful potentials and opportunities, it has also brought along with these potentials, certain challenges which must be put on a short leash lest they destroy or reduce society, particularly Nigeria to a state of anarchy, lawlessness or anomie. Suggestions are made on how to mitigate these challenges.

**Keywords:** Information and communication technology; Internet; internet services; new global media tool; computers.

### **INTRODUCTION**

The advent of the internet has been one of the most exciting major events in the second half of the 20<sup>th</sup> century. The ancient dream of a scholar knows all things happening in the world without venturing outdoors has finally become a reality. The internet has brought about a tremendous revolution in the world of communication with its worldwide broadcasting, a mechanism for information dissemination, and a medium for collaboration and interaction between individual and their computers without regard for geographical location (Imhonopi & Urim, 2004). As far back as 1996, the internet had spread to more than 180 countries

and regions, connecting more than 600,000 domestic networks of various types, hooking up more than 20 million computers available to 120 million users, 2% of the entire global population (Moyo, 1996; Imhonopi, 2009; Ogunsola, 2004). Within the internet are the information treasures shared by the human civilisation (Howe, 2001).

Various studies have shown that Nigerians are not unconcerned in the quest to catch up with the rapid development in ICT in general, and internet connection in particular. More and more people and organisations are getting connected to computers and telecommunication networks and internet ser-

vices in order to ease and facilitate their communication efforts and manage information for personal and organisational benefits (Udoh, 2001).

However, each internet user accessing and utilising internet services is responsible for their own computer, facilities and internet connection. Hence, the internet is said to belong to everyone and no one in particular. Still, its various interest groups all have a claim. Business people want the internet to put them on a sounder financial footing; government people want the internet more fully regulated; academics want it dedicated exclusively to scholarly research while military people want it spy-proof and secure, among others (Sterling, 1993).

### ***The Internet***

For all those connected to the internet, the technology can be used to announce all they think others should know about. The internet not only has an inexhaustible amount of information as vast as the ocean, but also has its interactive mechanism – net-to-net, net-to-people and people-to-people communications – that make the internet seem able to take on any task: entertainment, impersonal exchanges, education, health and medicine, information gathering, securities and investment, trade and settlement of commercial goods, even on-line voting, etc (Oyinloye, 1999).

According to Onu (2004), the internet is one of the technological revolutions which have changed the way people live, interact, communicate, see operational information, and generally do business with each other. The popularity and the usage of internet are on the increase and have had considerable effect in the provision of library and information services in Europe and other West-

ern countries. The opportunity the internet provides was captured by Onwubiko (2004). He states that the internet is the information superhighway and that it provides promotional information which has revolutionised different aspects of human life today. He goes further to say that the internet provides a new vista in the process and procedures of information location, collection, organisation, storage, retrieval and dissemination, which are useful to the "town and gown." For Ibegwam (2004), the tremendous growth of the internet and World Wide Web (www) over the last decade has transformed communication.

The internet has become an important component of the electronic services in academic institutions and has permeated all aspects of life and thus has removed the barrier to communication and information access worldwide (Wall Street Journal, 1997). Onwubiko (2004) posits that the changing nature of the internet prompts information specialists made up of members of the academic community, professionals, knowledge workers especially in developed countries, to regularly hold lectures, seminars, symposia and demonstrations to keep abreast of new findings, latest trends and technologies that come with and aid a better understanding of the workability of the internet.

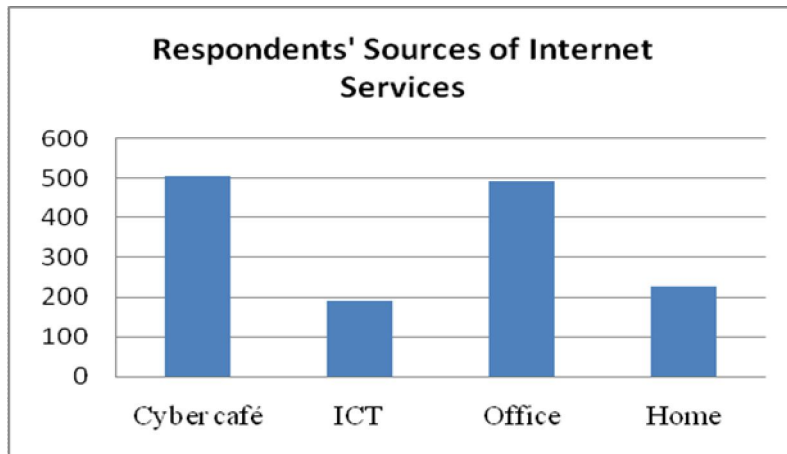
### **SOURCES, TYPES AND PURPOSE OF INTERNET SERVICES IN NIGERIA**

A brief evaluation of the sources, types and purpose of internet services in Nigeria has been considered here.

#### ***Sources of Internet Services in Nigeria***

In a study on the influence of the utilisation of internet services on teaching and research output of 944 academic staff of selected uni-

versities in South-western Nigeria, Imhonopi (2009) identified the following as the sources of internet services among re-



Source: Im-

In the study, Imhonopi found out that more respondents made use of cybercafés for internet utilisation, followed by those who made use of internet facilities in their offices and institutions' ICT centres. This may mean that power supply may not be regular enough for the respondents to make use of internet services in their homes forcing them to visit internet cafes, spend time working in their offices and institutions' ICT centres than they would in their homes. But the case is different in most cy-

bercafés and ICT centres where there is provision of generators, an alternative to the epileptic and unstable power supply situation in the country.

#### ***Types of Internet Services in Nigeria***

In the same study of 944 respondents, Imhonopi (2009) listed the types of internet services available and preferred by respondents as follows:

**Table 1: Types of Internet Services Available to Respondents**

Use of Internet Services	E-mail services		Browsing for Scholarly Materials		Tele-conferencing		Peer Paper Review		Electronic Library	
	Freq	%	Freq	%	Freq	%	Freq	%	Freq	%
Yes	417	44.2	682	72.2	54	5.7	273	28.9	324	34.3
No	527	55.8	262	27.8	890	94.3	671	71.1	620	65.7
TOTAL	944	100	944	100	944	100	944	100	944	100

Source: Imhonopi, 2009

According to Imhonopi (2009), the different internet services available to respondents were mainly used for academic purposes. The table reveals that 44.2% of the respondents used the internet mostly for e-mail services, while the highest number of respondents (72.2%) utilised the internet mostly to browse and search for scholarly materials. Only 6.0% of the respondents used the internet for teleconferencing. Furthermore, 28.9% utilised internet services

mostly for paper peer reviews, while (34.3%) committed their time and resources mostly to browse electronic libraries.

In an earlier study conducted by Olasina (2006) on a user requirement analysis of internet resources by clients at cybercafés in Ibadan, he considered the percentage rate of types of internet services used by respondents as follows:

**Table 2:**

S/No	Types of Internet Services	75-100%	50-75%	25-50%	0-25%	Total
1	Email	180	10	8	2	200
2	Browsing on the internet	150	35	10	5	200
3	Internet relay chat	100	50	30	20	200
4	Internet telephoning	5	10	15	170	200
5	Internet fax	-	-	-	200	200
6	Electronic board	-	-	-	200	200
7	Multi-media services	-	-	-	200	200
8	Uploading/Downloading	100	-	-	100	200
9	Internet conferencing	20	10	5	165	200
10	E-commerce/banking/ shopping	-	-	-	200	200
11	Internet (Advertisement)	-	5	15	180	200

Source: Olasina, 2006.

Unlike the study conducted by Imhonopi (2009) which was targeted at a specific group comprising academics in South-Western states in Nigeria, Olasina carried out a general study targeted at individuals using cybercafés in Ibadan for their internet services. Thus, their findings are a bit different. As Olasina (2006), about 75-100% of respondents in his study spent more time engaging in email internet services, followed

by browsing, internet relay chat and uploading and downloading of documents. This is different from Imhonopi's study where over 70% of respondents spent their time browsing for scholarly/academic materials. However, Olasina (2006) identified more types of internet services open to internet users in the country which include internet telephoning, internet fax, electronic board, multimedia services, internet conferencing, e-commerce,

e-banking and e-shopping and internet advertisements, among others.

internet service utilisation in Ibadan among users of cybercafés as described in the table below:

### Purpose of Internet Services in Nigeria

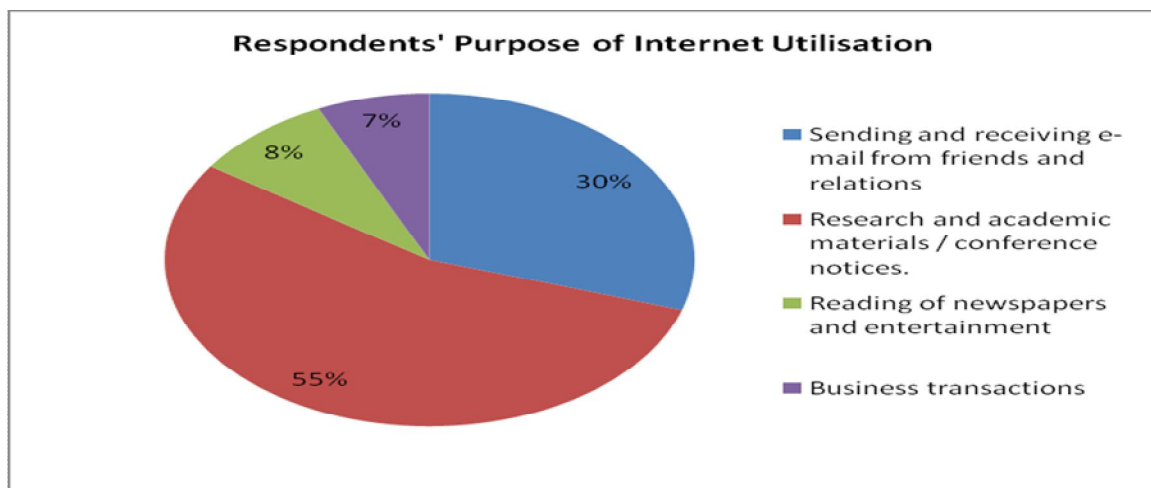
Olasina (2006) has identified the purpose of

S/No	What users do on the internet?	Respondents	Percentages
1	Sending and receiving email	150	75
2	Browsing on the internet	25	12.5
3	Internet Chatting	15	7.5
4	Internet telephone	6	3
5	Internet fax services	3	1.5
6	Entertainment	0	0
7	Others	1	0.5
	Total	200	100.0

Source: Olasina, 2006

According to the Table above, Olasina (2006) found out that emailing was the commonest internet activity engaged in by most of the respondents, followed by browsing, internet chatting, internet telephone and fax services in that order.

In contrast, in the study conducted by Imhonopi (2009), he observed the following as the purpose for the utilisation of internet services among the 944 academic staff of selected South-Western universities in Nigeria as follows:



Source: Imhonopi, 2009

According to the study, the feedback of respondents as regards their main purpose of internet service utilisation shows that (30.0%) of respondents mostly utilised the internet for sending and receiving e-mail messages from friends and relations, while (55.0%) spent their time to browse for academic purposes. Only (8.0%) used internet services for reading newspapers and for entertainment purposes, while (7.0%) used the internet for business interactions. This shows that most of the respondents spent a greater part of their time on the internet to acquire current information relating to research and academic purposes, while a sizeable number still had time for other activities such as sending and receiving emails, engaging in business interactions and reading of newspapers. The findings on the purpose of internet utilisation here seem to be positive, but as Imhonopi & Urim (2004) observed, some Nigerians, especially unemployed youths have resorted to the use of the internet to perpetrate cybercrimes and other vices, while some others have become victims of pornography and other extreme acts of sexual perversion. On the whole, the above findings show that the utilisation of internet services is gaining ground in Nigeria among different people. Furthermore, many Nigerians are using the various available internet services to further their career, educational and other legitimate pursuits, while internet services have been employed to foster education, agricultural science and research, medicine, banking and commerce, governance, climate studies, among others.

#### THEORETICAL FRAMEWORK

This study is cast against the background of the Diffusion of Innovation Theory. In his scholarly discussion of the theory above, Rogger, (1995) emphasized that the adoption process is the mental process an indi-

vidual passes from first awareness about an innovation or technological breakthrough to the final application or adoption of such innovation.

Between the time an individual hears about an innovation to the point of adoption, he or she may need to pass through four (4) stages. According to Rogger, these stages are as follows: (1) Innovation decision process; (2) Individual innovativeness; (3) Rate of adoption; and (4) Perceived attitude.

In the first stage, which is referred to as innovation decision process, the main point is that diffusion of any particular innovation or technology always takes a long process and can be seen as having five distinct segments. These segments include: knowledge, persuasion, decision, implementation and confirmation. In this segment of the theory, potential adopters of an innovation or technology must learn about it, be persuaded as to the benefit of such technology, decided to adopt it, implement and confirm the decision to Utilise such new technology and innovation.

In the second stage which Roggers (1995) referred to as individual innovativeness, he emphasizes that individuals who are pre-disposed to being innovative will adopt an innovation much earlier than those who are less pre-disposed. He further illustrates this by guiding a bell-shaped distribution model of individual innovativeness and the percentage of potential adopters theorized to fall into each category.

The next stage according to this theorist is that of rate of adoption. It is emphasized here that innovation or technology is diffused overtime in such a way that it looks like an s-shaped curve. Rate of adoption states that an innovation or technology goes

through a period of slow, gradual development before experiencing a period of relatively dramatic and rapid growth.

In the last stage, which is referred to as 'perceived attitude', emphasizes that potential adopters judge an innovation based on their perception with regard to the 5 attributes of the innovation. These are; trialability, observability, relative advantage, complexity and compactability. This segment holds that the technology or innovation (1) can be tried on a limited basis before adoption (2) offers observation results (3) has an advantage relative to other innovation (4) it is not overly complex and (5) is compatible with existing practices and results.

Therefore, globalisation, which is more or less a product of rapid change in ICT, involves the diffusion of ideas, innovations and technology on a global scale. It is a fact that there is a sort of intensification, diffusion and sharing of world-wide social relations, ideas and technologies which are linking and merging distant countries and locality. The revolution in the field of ICT, engendered by the invention and diffusion of computer and related internet facilities, is impacting on several areas of social, educational, political and cultural lives of people. Consequently, people adopt and utilise the internet based on their perceived attitude. While it may be relevant to enhance personal and national development, the negative use of internet could constitute danger to the society.

The internet has facilitated research activities and has become a virtual library for information seekers and researchers. There are now thousands of internet 'home pages' which serve as information sources for institutions and organisations. Most universi-

ties, polytechnics and colleges of education throughout the world, especially in developing economies, have established their presence on the internet, thereby making it possible for researchers to access past and current research output. Prospective students can also access information on courses being offered by institutions as well as their admission requirements. There are also numerous individual home pages, where people construct a site either as a means of expressing creativity or for a very limited range of potential visitors (Jagboro, 2003).

The World Wide Web also provides very easy access to some government documents and legislative materials. Journals, magazines, newspapers, books and archives provide other important avenues for the construction, output and circulation of internet texts. Many classic literary and philosophical books are available for reading in electronic forms. The only costs that readers incur are the standard internet connection fees and hourly rates. Unlike print versions of the same volumes, the books themselves have no prices attached. Most of these books have been converted to hypertext markup language (HTML) while a few are still available in other formats. Additionally, there are now hundreds of serials published via the internet. These include informal newsletters constructed for small groups on individual personal computers to sophisticated, highly specialized, fully referred academic journals (Jagboro, 2003).

According to Jagboro (2003), some newspapers in Nigeria such as *The Guardian*, *The Punch*, *Time* and *The Independent*, among an increasing number, produce electronic equivalents of their print output, while the paperless nature of these versions make it easy for electronic readers to access, store,

retrieve, manipulate and analyse at their own time and convenience. Increasingly, therefore, serials of all kinds are being released in electronic form only. Some of these make the most of the new medium, and would be impossible to duplicate in the print world.

As a matter of fact, anyone with access to the necessary hardware and appropriate software can now "publish" their work. This is obviously not possible in a print-dominated publishing environment. It is arguable that the potential advantages of moving towards electronic output for scholarly work far outweigh any possible disadvantages associated with such a move. With growing specialisation and continuing pressure to publish, academics have been producing ever-greater number of articles and books every decade of the twentieth century. In some fields, the growth in published paper has followed a roughly exponential path.

### **PROSPECTS AND OPPORTUNITIES ON THE INTERNET FOR THE NIGERIAN SOCIETY**

Imhonopi & Urim (2004) enumerated the potentials available through internet usage for the Nigeria society. According to them, internet as a new global media tool is a fantastic instrument of discovery, which has opened a wide vista of attractive opportunities to humankind world over.

These opportunities include:

***Speedy Exchange of information/ideas:*** The internet has made it possible for people from and at different geographical spaces to interact and exchange information at the speed of light. With its electronic mail facili-

ties, the internet makes it possible for information and ideas to exchange between and among people at a mind-boggling speed. With the provision of a chat group facility as valued added service to electronic mail, two people thrown apart by distance, can on the spot be talking, exchanging and receiving ideas and information at the same time. This has contributed a lot to speedy communication and information among the people of the world.

#### ***Access to a vast ocean of information:***

The internet could almost be described as one of the wonders of the 21<sup>st</sup> century. This is partly because, apart from information sharing, the internet contains tons and tons of snippets of information, almost as the ocean contains water. Though this information swings from the dirty to the holy, from the serious to the ludicrous and from entertainment to academic and research materials, humankind is exposed to almost a scenario of endless breathless information at the speed of light. Academics, for instance, now rely on the internet for their research, teaching and publications (Imhonopi & Urim, 2004; Imhonopi & Urim, 2009; Okafor, Imhonopi & Urim, 2011). In this instance, academics retrieve such pieces of information, ferment and localise them to suit their subjects, focus and context, and their findings, reports and studies are also published on the internet for the use of the academic and non-academic communities.

#### ***Integration of societies into one cultural bloc:***

With the internet, different societies have been merged into one cultural bloc. In recent times, friends, business partners and couples residing in remote locations within the country or in different parts of the globe are still able to interact on a daily basis as frequently as they desire. Although the inter-



net is heavily pregnant of different cultures battling for dominance and significance, it has however been hijacked by Western nations or developed economies whose economic might and strategic technological advantages make it easier for their overriding omnipresence on the net. This is why a developing nation like Nigeria must invest heavily on technology and join smart nations in making its presence, along with its cultural uniqueness and content, felt on the net.

***Abundant wealth creation opportunities:***

Today, the internet has created more millionaires and billionaires in the shortest possible time than in any other era or dispensation known to man. Even Bill Gates' wealth was boosted and influenced by the launch of Microsoft Internet Explorer, which was a sign of Bill Gate's determination to capitalise on the enormous growth of the internet. Today, the internet has created billionaires in the likes of the duo owners of Yahoo!, owners of Google, Oracle, Facebook, and numerous millionaires too numerous to mention.

***Instrument for E-commerce, E-business and E-trade:***

Businesses recently have experienced gargantuan leap in their operations and organisation as the internet has provided them with an electronic platform to market their basic products and services to an audience that runs into millions of people (and has the potential of a billion audiences). For instance, a businessman in Nigeria can browse the site of a company that produces industrial machines for his product. When he finds the relevant ones that he needs, he pays online through credit card or other acceptable forms of payment, and then the goods are shipped or cargoed to the country through appropriate chan-

nels. In a different scenario, the same businessman can have a website for his business, where he advertises his products. People from other parts of the world can browse the site, pick the needed products they want, make payment and he sends the good to them through the appropriate channels. With the internet, e-commerce, e-business and e-finance have been made literally possible and accessible (Ajayi, 2000; Imhonopi & Urim, 2004).

***Electronic Education and E-learning:***

One of the difficulties encountered by so many in their bid to get an education, a degree (whether first or postgraduate), a diploma, training, seminar, and others, is a result of the non-availability of time which is either due to tight work schedule or family obligations in the case of married women. But with the internet, this difficulty or challenge has found a solution. People can now study online. As a matter of truth, most universities, colleges and training institutes are beginning to introduce online education or e-learning. Beside this, so many sites now can give visitors their sites free tutorials on different topics based on what the visitors wants. This has made it possible for more people to access educational opportunities and training. Of course, the earlier forms of this kind of training have been in form of correspondences and distant learning; but with the internet, speedy communications and brighter opportunities are available to those who make use of this option.

***Entertainment:*** If anything, the internet is a medium where anyone can have entertainment galore. Particularly, teenagers and "twenagers" browse the net often times to access and enjoy available internet services. With the provision of audio-visual facilities on the net, users are pampered and cooed to

avail themselves of a wide array of options, most even come free of charge.

### **CHALLENGES/NEGATIVE IMPACTS OF INTERNET ON THE NIGERIAN SOCIETY**

While the internet has been applauded as a new global media tool with powerful potentials possessing tremendous capabilities, which have further turned the world into a global community and diminished the barriers of time and distance, the internet has brought with it certain negatives that need to be checked lest they destroy or disrupt society's harmony, cohesion and balance (Imhonopi & Urim, 2004). These challenges have been enumerated below:

***Cultural Invasion and Integration:*** The world has become a global village and with the internet at the driver's seat, there is an emergence of cultural invasion. The internet advocates willy-nilly Western life-styles. Many websites display various aspects of western society and life, and the overwhelming majority of them show positive portrayals of western cultures. The west is painted as a place of absolute freedom and paradise where private life is without obstacles and pressures. Partial information such as this is particularly appealing to our youths whose life philosophy and worldview are yet to mature. Many of these youths therefore struggle to go abroad just to change their way of living and to enjoy the new life. Beyond this point, the films, music and pictures displayed on the internet further push western culture to the foreground while homogenising other cultures to reflect the content and complexion of western values (Imhonopi & Urim, 2004).

***Moral decadence:*** The internet displays both dirty and decent information. How-

ever, since the internet as it were, is no man's land, many perverse practices are fast finding their way into cyberspace (the imaginary place where electronic messages, pictures, and others, exist while they are being sent between computers). Some part of the internet corrupts people's mind, influences and change people's moral perspectives and ethical values. Driven by profits in the number of hundreds of million dollars, pornography merchants in western countries have opened pornographic websites, massively producing various kinds of sex information. Nude males and females everywhere; performance by real and "computer" prostitutes have also turned the internet into a sex parlour of pervasion and immoralities. This development has led the commerce committee of the US Senate to propose the "1995 Communication Acts for Good Behaviour" to prohibit sex crimes committed on the internet. Our teenagers and youth are fast becoming victims of men and women sold out to promote stuffs set to blow off the lid on the moral sanity of society.

***Computer hackers and computer viruses:*** Internal networks have now become susceptible to invasion. Various kinds of computer hackers (excluding the just curious) consist of complicated groups with all sorts of ulterior motives. They can strike anywhere, making trouble to no end. Some hackers defaced the website of the US Department of Justice and changed it to Nazi emblem (Imhonopi & Urim, 2004). Others have entered other people's computers and destroyed programs and data. As Nigeria and Nigerians get active on the internet, internet governance has to be stepped up in order to forestall the potential of hacker attacks. The internet can also and in fact is being used to launch computer viruses targeted at specific networks so that the networks will be damaged or paralysed.

At present, live computer viruses are numbered more than 14,000 and they constantly evolve, the danger of which can be incalculable (Imhonopi & Urim, 2004).

**Security challenges:** The internet makes it easy to lose and leak secrets. Because the staff of any organisation can freely send and receive electronic mail, voluntary leaking of secrets has become remarkably easy. Under the current circumstances, stealing secrets by people from outside an organisation or country is not all that difficult either. As long as one knows the working mechanisms and the techniques of breaking passwords, many internal networks can be broken into at ease. Therefore, obtaining political, economic and technological intelligence through the internet has become one of the important methods in contemporary political and economic espionage. To use the internet to steal new and advanced technologies, economic policies and other classified information is a modality of obtaining enormous benefits with relatively low cost. According to the statistics of the US FBI, incidents of the American internet networks being broken into are rapidly increasing by 30% annually, making the US suffer tremendously (Imhonopi & Urim, 2004). Back here in Nigeria, young Nigerians who are "network literate" and some masters at the game, are becoming expert crooks and hackers breaking into vital networks within the country and abroad and stealing vital information and in some cases stealing credit cards and using same to make large purchases which are later sent into Nigeria.

**Information warfare:** The internet poses the potential threat of information warfare. It may sound ludicrous. But it is true. Some countries have applied internet into military operations, have conducted mock attacks

against other countries networks or have fabricated deceptive information harmful to other countries' military forces. At a time when information networks have become an important infrastructure of the nation and the military, the information warfare will be a war without explosives, a war with a high invisibility, low cost, international, and multi-area (covering political, military, economic, social and psychological spheres) approach. The high-tech nature and unpredictability of compact intelligence in information warfare have made it extremely difficult to organise information defence.

For instance, the US Department of Defence has specifically established an "Executive Committee on Information warfare" which is devoted to studying national policy for information warfare, and conducting war games on some websites. According to a report by the Sunday Times of England, on 29 June (1998), experts from Great Britain and the United States conducted a secret military exercise in the destructive attacks on computers, with the object of preventing a blitzkrieg in an information war. The result of the exercise indicates that just a few hackers can paralyse the stock market, military system and airports, making the superpower, United States, unable to move around. This exercise greatly shocked the Clinton Administration. In a future information war, national financial transaction centres, stock exchange centres, air traffic control centres, communications control, railway control headquarters and various military networks, will inevitably become the main targets of information warfare (Schwab, 2004).

**Internet crimes in the ascendancy:** The internet can be used to commit crimes. The globalised internet has provided wider horizons and more enormous technical means to

commit computer crimes. In recent years, internet crimes have skyrocketed. Mainly, these crimes include illegal intrusion into people's computer facilities, spreading viruses through the internet, stealing and modifying computer secrets, unlawful transfer of people's funds, and international destruction of parts of the network by using computer programs. In the United States, where the internet was invented, the financial sector loses \$10 billion every year to internet crimes (Ogunsola, 2004). Other developed countries also suffer losses between tens of million dollars and several billions of dollars annually. As Imhonopi & Urim (2004) observes, if people are not careful, the information superhighway will soon become a criminal superhighway.

### **MITIGATING THE INTERNET'S NEGATIVE IMPACTS AND CHALLENGES**

The following are strategies that can be adopted to mitigate the negative impacts the internet could have on the Nigerian society.

First, there is need to develop educational programmes on civic education with focus on patriotism. Government and the respective ministries and agencies in Nigeria must develop the country's unique democratic ideology taking into consideration its uniqueness, peculiarities and idiosyncrasies. This ideology must be included in a civic education curriculum and taught to Nigerians starting from primary school to university level. This education must advocate values of nation building, promotion of the country's cultures, peoples and beliefs. Imbibing what the World Bank and other international financial institutions tell us, hook, line and sinker, is not only injurious to us as a nation, this could also be harmful to the country's short, medium and long-

term interests. Government and its representatives must test every foreign ideology or interest on the touchstone of Nigeria's peculiar national experience and interests.

Second, public and private sector players in the country must increasingly make the country's presence felt on the internet by developing the country's information industry, expand the influence of the country on the internet, and increase the percentage of information resources from Nigeria on the internet to the rest of the world.

Third, as a corollary to the above, there is need to mainstream Nigeria's cultural stock, including the country's material and immaterial cultural heritage, so as to preserve the country's traditional civilisation through massive influx of Nigerian cultural information on the internet.

Fourth, strategic efforts and actions should be made to forestall the possibility of an information warfare against Nigeria. In any case, technical actions must be put in place to reduce loss and leakage of classified national secrets and to quarantine harmful websites from destroying the country's internet technology.

Lastly, there is need to protect places where sensitive data reside. Important data must be placed in safe locations. Network servers and databases that contain secret contents should be made to use various kinds of conventional classified information protection methods to make sure that only authorised people can reach them. Internet networks can be protected from intrusion by setting up many "firewalls" or by using fibre optic material which can prevent many known methods of eavesdropping.

## CONCLUSION

In Nigeria, today, one of the fastest growing sectors of the economy is in the area of information and communication technology, reinforced by the introduction of digital technology. The dramatic acceleration in the development and use of ICT among Nigerians in the last few years has led to a better appreciation of information for national development. This therefore encourages, more than ever before, the process of transition from the industrial to the information age.

This paper has examined emergent internet services in Nigeria with their tremendous benefits and the associated challenges. The internet system is a fragile one and in order to guarantee its healthy development and the wide application of its services, there is need to strengthen the power with which to deal with internet crimes, and to enhance the protection of internet networks and infrastructure and e-business platforms. In this direction, the Nigerian government, its ministries and agencies, like the Economic and Financial Crimes Commission (EFCC), should brace up to meet the challenges of effective internet governance and security and ensure that the long hand of the law catches up with cybercriminals and their ilk. In addition, it is also imperative to stop the spread of internet viruses, participate in international cooperation to identify and weed out the sources of viruses, and to punish virus originators.

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