

THE DIGITAL AGE: INTERNET –THE UNCHECKED GLOBAL SENSATION?

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Abstract

As the latest of the series of information and media technologies that emerged during the twentieth century, the internet is a bearer of enormous hopes and deeply seated fears. With statistics showing a dramatic increase in internet usage, the emergence and popularity of the internet has brought concerns about representation, and the impact of the media on social values and cultural identity. This paper aims at exploring the impact of internet explosion on the socio-cultural, economic and political identities of the Kenyan audience. The paper is literature based. Literature reviewed shows that internet use has an impact on socio-cultural, economic and political environment of the Kenyan audience. The paper reviews censorship and its effects in countries where it has been enforced. Objectives of the paper are to study internet penetration in Kenya and its effects on the socio-cultural setting. One finding of the paper is that protection of the Kenyan cyberspace is lacking. Another finding is that Internet penetration is on the rise, and user awareness on secure internet practices is lacking. This paper is informed by Uses and Gratification Theory which suggests that media users play an active role in choosing and using media .The paper recommends an internet regulation policy to protect society, these regulation policies need to be within the rights of expression and free speech, and internet service providers should be compelled to provide internet user education.

Key Words: Internet, Impact, and Socio-cultural.

1.0 INTRODUCTION

1.1 Presentation of the topic, thesis, motivation and importance of the topic

The internet has been playing an increasingly vital role in the political, social and economic sections globally. The past few years have seen the internet exalted to a new level as a communication medium in Kenya. The internet allows even the weakest of voices to be heard on an international platform. It allows banks to carry out transactions electronically with clients; politicians to campaign and communicate with an infinite number of citizens via websites and social media.

During the most recent elections in 2012, foreign journalists flooded the country. Perhaps in anticipation of a repeat of the 2007 post-election chaos; some foreign journalists' reported that communities were arming themselves. Kenyans from different ethnicities trashed the allegations in a show of unity, through a public outcry on Twitter and Facebook. Several public figures have also been exposed in their various shortcomings and brutally sacrificed on the altar of social media.

The estimated number of internet users rose by 11.6 percent to reach 16.2 million (2012) from 14.5 million users the previous quarter (2011). This increase is attributed to growing demand for internet and data services, including use of social media especially among the youth (CCK 2013). Statistics clearly show that the internet is a growing force in the media industry.

As the internet becomes increasingly influential in the country, so does the need of in-depth study by scholars into it. Thereby creating a reliable and effective means of dissemination of information. The internet as it is in Kenya today appears to be unmonitored a "free for all" with barely any rules governing it.

The internet in Kenya is unprotected by law from manipulation and misuse by the government or any other hostile party. This paper will look into the situation as it is and possible recommendations to help curb the many potential problems threatening internet in Kenya. A global debate has been controversially raging over whether it is ethical to censor the internet. Governments and civil rights activists have found themselves on opposite sides of the debate. This debate has not yet stirred up any controversy in Kenya. This paper aims at exploring the diverse role the internet plays in the country, how it can be governed and if it should be governed.

2.0 Objectives

2.1 general objective.

The paper aims to critically study the role of internet as a media tool in political, economic and social aspects in Kenya in comparison with the global situation.

2.2 specific objectives.

The paper's specific objectives are:

- To discuss the socio-cultural impact of internet penetration.
- Comparatively examine the economic impact of internet use in Kenya and globally.
- To comparatively discuss the role of internet in political awakening in Kenya and globally.
- Explore internet censorship as observed globally

3.0 Literature Review

At the end of Quarter 2 of the 2012/2013 financial year, in the Internet/data market segment, the number of subscriptions rose by 11.5 percent during the period to reach 9.4 million from 8.5 million recorded during the previous quarter. Compared to the same period of the previous year, there was an increase of 75.1 percent. The estimated number of internet users was recorded at 16.2 million up from 14.5 million posted the previous quarter, representing an increase of 11.6 percent during the period. Internet penetration went up by 4.3 percentage points to reach 41.1 percent up from 36.8 percent during the previous period. (CCK 2013)

3.1 Socio-cultural impact of internet penetration

No one today disputes that the Internet is likely to have a significant impact on social life; but there remains substantial disagreement as to the nature and value of this impact. Some people believe internet will change almost every aspect of our lives private, social, cultural, economic and political because it deals with the very essence of human society: communication between people. The social changes over the coming decades are likely to be much more extensive, and to happen much faster, than any in the past, because the technologies driving them are continuing to develop at a breakneck pace. (Manasian 2003) Several scholars have contended that Internet communication is an impoverished and sterile form of social exchange compared to traditional face-to-face interactions, and will therefore produce negative outcomes (loneliness and depression) for its users as well as weaken neighbourhood and community ties.

Sproull & Kiesler's (1985) "filter model" of CMC focuses on the technological or engineering features of e-mail and other forms of computer based communications. According to this perspective, CMC limits the "bandwidth" of social communication, compared to traditional face-to-face communication settings. They considered CMC to be an impoverished communication experience, with the reduction of available social cues resulting in a greater sense or feeling of anonymity. This is said to have a deindividuating effect on the individuals involved, producing behaviour that is more self-centred and less socially regulated than usual. This model of Internet communication assumes further that the reduction of social cues, compared to richer face-to-face situations, must necessarily have negative effects on social interaction.

Spears et al. (2002) contrasted the engineering model with the "social science" perspective on the Internet, which assumes instead that personal goals and needs are the sole determinant of its effects. In the domain of communications research, Blumler & Katz's (1974) "uses and gratifications" theory is an influential version of this approach. According to this viewpoint, the particular purposes of the individuals within the communication setting determine the outcome of the interaction, regardless of the particular features of the communication channel in which the interaction takes place.

According to research the internet's deindividuating nature causes increased hostility and vulgarity in online communication. Individuals feel free to say in cyber space what they would not otherwise dare in a room full of people. This has been observed locally as

several celebrities and political figures have been crucified at the altar of social media e.g. Emmy Kosgei, Ciku Muiruri, Caroline Mutoko and Willy Mutunga. They have been the objects of vicious Twitter and Facebook attacks which are sometimes unjustified. The deindividuating nature sees that no particular person can be held responsible for their vicious and often slanderous comments. It is important to note that most of the victims are women.

From the perspective of social identity theory, (Spears et al. 2002) have argued that CMC is not so much deindividuating as it is depersonalizing that the decreased salience of personal accountability and identity makes group - level social identities all the more important, so that the real effect of CMC is to increase conformity to those local group norms. Thus, whether the depersonalizing effect of CMC leads to more negative or more positive behaviour relative to face-to-face interactions is said to depend on the particular content of those group norms (Postmes & Spears 1998).

In Kenya the situation is proving to be so with many internet savvy youth spending too much time on Twitter, Facebook and other social sites leaving their relatives exasperated. Due to their internet addiction, they prefer to exist in cyberspace which satisfies their social and entertainment needs rather than interact physically with their relatives and friends. The internet has become the reference for youth on fashion, entertainment events and what is trending. This has led to the mushrooming of blogging sites and websites on virtually any and every interest area to the youth. This has led to thousands of youth with internet access being parented by strangers on the internet; dictating aspects such as dressing, 'cool' events, and lifestyle in general. Due to this, corrosion of culture caused by interaction with more liberal cultures online has occurred.

There has been a worrying upward shift in 'un-African' trends among our youth. Young men are dressing in tight and brightly coloured attire promoted by online fashion bloggers and music videos. Men have become increasingly feminine as witnessed by the increasing male clientele at beauty salons. In my opinion, the recent trends are contradictory to the male African persona, who is portrayed as independent, responsible and macho. Young ladies have adopted an increasingly materialistic attitude due to their desire to feed the need for an expensive lifestyle popularized by the internet. In 2012 a controversial Facebook page "Campus Divas for Rich Men" left the nation in shock. Young ladies auctioned themselves online to the highest bidder. This fades in comparison to the shockwaves sent through the nation as the police arrested six girls and a German man for acts of bestiality with a dog on film to be relayed via the internet. Clearly, the traditional place of the woman in Kenya is shifting with females becoming more aggressive in the pursuit of 'happiness'. The family front is headed for a nosedive with the culture that holds the moral fabric of our society together weakening at an alarming rate; internet being a major culprit.

Media reporting of the effects of Internet use over the years has consistently emphasized this negative view (McKenna & Bargh 2000) to the point that, as a result, a substantial minority of (mainly older) adults refuse to use the Internet at all (Hafner 2003). Others believe that the Internet affords a new and different avenue of social interaction that enables groups and relationships to form that otherwise would not be able to, thereby

increasing and enhancing social connectivity. To that effect, some relationships have been formed on the net some have flourished some have been complete scams. Many criminals have preyed on innocent users, gained their trust and proceeded to mete out unbelievable acts on them including murder.

Research, however, suggests that online communication is less beneficial than offline communication. For example, communication on-line is less interactive than face-to-face or telephone conversation, and it conveys less contextual information per unit of time (Sproull & Kiesler, 1991). Relationships developed or maintained online are slower to develop (Walther, 2002) and weaker than those developed or maintained in more traditional settings.

The main reason people use the Internet is to communicate with other people over e-mail and the principal reason why people send e-mail messages to others is to maintain interpersonal relationships (Hampton & Wellman 2001, Howard et al. 2001, McKenna & Bargh 2000, Stafford et al. 1999). As Kang put it, “the ‘killer application’ of the internet turns out to be other human beings.” The HomeNet project by Kraut et al. (1998) and a large-scale survey reported by Nie & Erbring (2000 & Nie 2001) concluded that Internet use led to negative outcomes for the individual user, such as increases in depression and loneliness, and neglect of existing close relationships. Several other surveys have found either that Internet users are no less likely than non-users to visit or call friends on the phone, or that Internet users actually have the larger social networks (DiMaggio et al. 2001). Howard et al. (2001) concluded from their large random-sample survey that “the Internet allows people to stay in touch with family and friends and, in many cases, extend their social networks. A sizeable majority of those who send e-mail messages to relatives say it increases the level of communication between family members these survey results suggest that on-line tools are more likely to extend social contact than detract from it” Wellman et al. (2001) similarly concluded from their review that heavy users of the Internet do not use e-mail as a substitute for face-to-face and telephone contact, but instead use it to help maintain longer distance relationships (Wellman et al. 2001)

Nie (2001) has responded to his critics by arguing that time is a limited commodity, so that the hours spent on the Internet must come at a cost to other activities. “We would expect that all those spending more than the average of 10 hours a week on the Internet would report substantially fewer hours socializing with family members, friends, and neighbours. It is simply a matter of time”.

It is important to note that Kraut carried out his research earlier when the internet craze was just hitting America. His results, that internet use increased depression and loneliness though later contradicted by other surveys may not have been wrong for that timeframe. Kenya has not yet reached internet maturity, the internet is still a fad that the youth are excited about and some addicted to. Therefore, Kraut’s research is more applicable to our unique setting.

3.2 Internet as a political tool

One could argue the internet has had a greater impact on politics than any technological invention since the invention of the printing press nearly six hundred years ago. (Nelson;

Olson 2009) While this statement is not yet a fact in Kenya and many third world countries, the internet is certainly gaining momentum as a tool in politics. The vast amounts of information available on the web, the speed at which this information moves, and the capacity of any individual with internet access to communicate with broader audiences is changing the political scene. As seen with more traditional forms of media, any influential media comes under scrutiny and attempted control from the government. This is no different for the internet.

Internet has a number of diverse uses in politics, it impacts the art of politics in the form of strategic decisions made by political leaders and the civilian population they rule. In the March 2013 general elections, some presidential contenders such as Peter Kenneth and Martha Karua launched an intense online campaign which had much following especially from the youth. This however didn't translate into votes as their performance was below par. Their competitors, the current president and his deputy however campaigned on the same platform of digital generation, even promising to issue class one pupils with laptops in the year 2014 as a demonstration of their commitment in digitizing the country. In my opinion, their strategy favored them by using youth's desire to be progressive in a changing world.

Surveillance of the internet and mobile phones has become a growing concern in Kenya over the past years. In March 2012, the CCK announced its intention to set up a surveillance system aimed to monitor private emails, citing a rise in cyber security threats. The regulator notified telecom service providers on the need to cooperate with the installation of the internet traffic monitoring equipment known as the Network Early Warning System, which was to be set up by International Telecommunication Union (ITU) experts and was expected to be operational in mid-2012. This was viewed as a breach of Article 31 of Kenya's Constitution, which grants citizens the right to privacy, including preventing infringement of the privacy of their communication.

Compelling telecom service providers to cooperate with such activities is viewed as the first step in internet censorship and regulation as observed in countries with stringent internet policies e.g. China. Much of the responsibility for censorship is devolved to these Internet service providers, who may be fined or shut down if they fail to comply with government censorship guidelines. To comply with the government, each individual site privately employs up to 1,000 censors. Additionally, approximately 20,000–50,000 Internet police (*wang jing*) and Internet monitors (*wang guanban*) as well as an estimated 250,000–300,000 “50 cent party members” (*wumao dang*) at all levels of government—central, provincial, and local—participate in this huge effort.

One potential case of online surveillance was reported in March 2012, when blogger Dennis Itumbi was arrested on suspicions that he had hacked the International Criminal Court (ICC) website. While no evidence was produced to prove Itumbi guilty, it was suspected that his communications had been monitored. However, he was never arraigned in court and was released after questioning, pending further investigations.

The main reason for internet censorship is to control the information relayed via the internet, the audiences it reaches and the time taken for relaying information. Internet and

social networks have been conclusively established as tools for protest, campaigning and circulating information, and as vehicles for freedom. More than ever before, online freedom of expression is now a major foreign and domestic policy issue.

This was demonstrated by the Arab Spring, a revolution that swept through Arabic nations that were geographically dispersed. With internet bridging the geographical distance and enabling the citizens to disseminate information and inspire the revolution. After the revolution in Libya, the Egyptian government tried to control the internet access by shutting down the internet for five days. It was however too late, their youth had already undergone the political awakening that saw the end of Hosni Mubarak's and Muammar Gadhafi's dictatorial era

In January 2009, the government passed a controversial Communications Amendment Act despite warnings from civil society groups that it could hinder free expression. The Act established that any person who publishes or transmits obscene information in electronic form commits an offense. It also outlines other forms of illegality associated with the use of ICTs. The prescribed punishments include up to KSh 200,000 in fines and two years' imprisonment. In January 2012, the National Integration Cohesion Commission (NCIC) announced that one of the new areas of focus for the commission's work would be to monitor hate speech on the internet ahead of Kenya general elections, which were held in March 2013.

The internet continues to be an important platform for political debate and mobilization around critical issues such as the rising cost of living and insecurity affecting ordinary Kenyan citizens. For example, the Unga (Flour) Revolution protests against rising food and fuel prices throughout 2011 were organized largely through Twitter, Facebook and other websites. In July 2011, a demonstration against Kenya's Minister of Education over unaccounted funds from the Free Primary Education Fund was also organized through text messages, Twitter, and Facebook. Nevertheless, the Unga Revolution protests did not translate into a reduction of food prices, and the Minister of Education did not resign, reflecting the limits of ICT activism in affecting change in Kenya. The scenario has since changed as the activists successfully held a demonstration in June 2013 against the proposed taxation on basic products such as Unga which is a staple food. The current government beat a hasty retreat on learning on how unpopular the proposal was; the demonstration against the Members of Parliament press for pay hike however didn't yield fruits as they still went ahead and had their salaries increased.

Digital media has revolutionized the way that human rights groups in Kenya network and share information. Today, they mobilize its members and discuss issues primarily through online communication. In February 2012, Mzalendo.com re-launched its portal designed to allow citizens to communicate with their representatives in parliament and rate their services. The website has played a key role in online debates, and Mzalendo comments are moderated to guard against abuse. Kenyans have unrestricted access to the social-networking site Facebook, the video-sharing site YouTube, and the blog-hosting site Blogger, all of which rank among the ten most popular sites in the country. All major television stations now use YouTube to rebroadcast news clips and have accounts on Facebook and Twitter.

Kenya is known to be the birthplace of Ushahidi.com (Swahili for “testimony”), the Crowd sourcing website that was created in the aftermath of the country’s disputed 2007 presidential election to document and map eyewitness reports of violence around the country, which were collected via text messages. The Ushahidi open source software and platform has since become a popular tool for social activism and citizen journalism around the world.

3.3 Internet and economic advancement

Kenya, East Africa's biggest economy, has benefited from being the first country in the region to install fibre-optic cables, but industry insiders say the price for Internet use needs to come down further and services need to increase. "Speed and reliability have significantly improved, and this has had an impact of increasing the number of Internet users in the country," said Jonathan Somen, managing director of Access Kenya, one of the country's leading Internet service providers. "Today, many people have moved from basic checking e-mail to undertaking business online." E-commerce, thus, refers to conducting business via electronic media and most commonly the internet, which allows instantaneous transfer of data. (Kinuthia & Akinnusi 2013)

The Internet has, in a short space of time, become fundamental to the global economy. It offers access to a host of activities through both wired and wireless technologies. It also raises concerns, notably in the area of reliability, scalability, security and openness of access. If global supply-chain management depends on the internet, a breakdown or security breach could cause major economic damage. If people’s personal data are compromised online, it may breach their privacy or affect many other aspects of their lives. The current state of infrastructure is still a major hindrance to the full exploitation of the economic and commercial potential of the sector. Various policy initiatives are now being implemented to enable achievement of universal ICT access in every part of the country.

The Internet is making economic activity more efficient, faster, and cheaper, and extending social interaction in unparalleled ways. Increasingly, the largest productivity gains for businesses come from using online networks in some form. The multinational food giant Nestlé, for example, now receives all of its orders directly from supermarkets over the Internet. Locally, Kenya Power Company has enabled their clients to pay their bills online and via mobile money transfer services. This undoubtedly saves on manpower and improves efficiency by reducing queues at their offices. The County Government of Nairobi has rolled out a digital parking fee system to the same effect

Kongongo (2004) studied the readiness status of one of the leading manufacturing enterprises in Kenya by assessing the e-business strategy and the level of investment in technology which are indicators of the organization's readiness for e-business, on the one hand, and a focus on the extent of automation of both the supply and demand chain, which are indicators of execution of e-business strategy, on the other hand. The research indicated that although the organization was internally ready for e-business, external impediments had limited the extent to which it could reap the benefits of value chain integration; the pre-requisites for e-business success were largely internal

rather than external, hence organizations could achieve a lot by improving their own internal readiness before extending the scope of their e business initiatives.

The Internet has also brought unprecedented user and consumer empowerment as well as opportunities for new innovative and social activities. Individuals have greater access to information, which facilitates comparisons and creates downward pressure on prices. Internet users are extremely active, creating new content themselves and interacting in new ways. OLX and N-Soko are two websites that promote this. People buy and sell products and services online via these sites. Consumers being able to compare prices by a click rather than previous tedious window shopping, and buy products at competitive rates from their smartphone or computer.

The Internet is quickly permeating all economic and social domains, and most public policy areas. For instance, e-government has become the prime tool for supporting government functions and interaction with citizens and businesses. There have been an increased number of government portals seeking public feedback on availability and quality of services offered e.g. the Kenya judiciary has recently unveiled an effective system that enables citizens to look up when and where their cases will be heard and by whom; online. Many positive economic campaigns such as Hands off Our Elephants - which is an anti-poaching crusade - have been championed online

The Internet and information and communications technologies (ICTs) are profoundly changing how research and creative activity are undertaken, for example by enabling distributed research, grid and cloud computing. They are also changing the organisation of science, research and innovation, by linking the creativity of individuals and allowing organisations to collaborate, pool distributed computing power and exploit new ways of disseminating information. This is fostering competition, stimulating the restructuring of industries and institutions, with potentially major impacts on innovation and growth. ICTs and the Internet account for a significant share of total research and development, patent applications, firm start-ups and venture capital. The global nature of the Internet is further spurring the pace and scope of research and innovation, and encouraging new kinds of entrepreneurial activity.

An important use of CMC in the corporate world and elsewhere has been to conduct negotiations between parties who are separated by physical distance (Carnevale & Probst 1997). Thompson et al. (2002) have conducted extensive research on the process and outcomes of such negotiations, compared to those of traditional face-to-face negotiations, and have noted several pitfalls and traps to watch out for. The main problem with such “e-gotiation,” according to these researchers, is the implicit assumptions people have concerning time delays in hearing back from their adversaries as well as about the motivations of those adversaries. For example, people tend to assume that the other party to the negotiation reads and is aware of the content of the e-mail message one just sent to them as soon as that message is sent thus any delays in hearing back are attributed to stalling or intentional disrespect by the other party.

Since 1998, Kenya has made progressive reforms in its mobile telephony and Internet services (Mbeke, Ugungu, Okello-Oriale, 2010). The policy reforms coincide with Kenya's

international commitments initially under the General Agreement on Tariffs and Trade, now the World Trade Organization. Progress from the commitments includes: Communications Commission of Kenya (CCK) independence from telecommunications suppliers and government; the 2010 CCK regulations, which safeguard anti-competition practices; and the promulgation of procedures for interconnection negotiations, dispute settlement and for the allocation and use of scarce resources. The cost of communication via internet and mobile phone, while still prohibitive for most Kenyans, has gone down as Kenya has liberalized ICT policy (Internet World Stats, 2011).

3.4 Internet and Cyber Security

Cyber criminality has become a multi-million dollar industry that takes advantage of the borderless nature of the Internet. Cybercriminals develop malicious software to infiltrate or damage computer systems and to steal identities and confidential data such as credit card details. However, “Internet criminals” can be on another continent, and frequently route through several third-party countries, making their precise location difficult to determine and creating challenges for law enforcement. Cyberspace belongs to no one but has key stakeholders including: end users, private and public organizations, internet service providers and the government - regulators and enforcement. (KCSR, 2014) Cyber insecurity is a growing concern about the rise of cyber threats and the ability to defend oneself and mitigate risks in cyberspace. This usually occurs when vulnerabilities of computer systems are exposed, including flaws or weaknesses in both hardware and software, and individuals with access to them. It takes the form of cyber warfare, espionage, crime, attacks on cyber infrastructure and exploitation of computer systems. Consequences of cyber insecurity include but are not limited to, loss of critical and sensitive information, loss of revenue, violation of privacy, lack of access to legitimate online services, exposure to cyber attacks and exposure to cyber fraud.

Cyber security focuses on addressing the need for efficient and effective information sharing, co-ordination and incident handling amongst the four stakeholders. It strives to ensure the attainment and maintenance of the security properties of the organization and user’s assets against relevant security risks in the cyber environment. The speed at which technology is evolving makes it difficult to stay current with security without proper processes and structures in place. In 2013 the number of cyber threat attacks detected in the Kenyan cyberspace grew to 108% to 5.4 million attack compared to 2.6 million attacks detected in 2012. (KCSR 2014)

The Kenyan cyber security landscape is evolving fast with a fast growing digitally-enabled ecosystem characterized by increasingly sophisticated insider and outsiders launching more frequent and targeted attacks. These attackers are using clever tactics to penetrate inherent weaknesses in information security programs and systems, rendering standard methods of detection and incident response obsolete. Top 2013 threats according to the cyber security report are:

- I. Insider Threats – malicious activity by current employees in organisations see privileged users probe systems for unauthorized access, co-opt other user’s access privileges and attack systems.
- II. VoIP PBX Fraud – Increasing popularity of internet telephony (Voice over IP – VoIP) services has increased the number of attack vectors available to be exploited where they have not been secured. PBX hackers make long duration

- calls at the expense of an unsuspecting company. They at times lease the service to long distance callers.
- III. Social Media – Criminal offences related to social media have increased including posting of defamatory, hate speech, cyber bullying, obscene matter or images. During the Westgate terror attack of 2013, the terrorists utilized Twitter to gain information on rescue efforts being conducted by law enforcement.
 - IV. Denial of Service Attacks – continual growth of new online services launched by organisations is increasing susceptibility to targeted Denial of Service attacks. Attacks are originating from compromised servers at hosting providers that are slow to respond to malware clean-up requests, and those out of reach of international authorities.
 - V. Botnet attacks – The number of compromised computers increased by 100% from 2012 to 1,800,000 in 2013. This is attributed to the increasing number of broadband and high speed internet subscriptions, which expose new unsecured computers and routers to the internet. Once compromised these devices can be used to spread viruses, generate spam and attackers use this network to attack targeted infrastructure such as financial institutions and government ministries to defraud, cripple or steal information.
 - VI. Online and Mobile banking – Many financial institutions are introducing vulnerable web and mobile applications. A recent study sampling 33 banking institutions revealed only 2 banking portals had adequate online security deployed on their web application. Most lack strong encryption and are susceptible to phishing attacks.
 - VII. Mobile Money Fraud – Continued popularity of mobile money adoption has attracted criminals who are targeting this new money transfer channel. Mobile money fraud targets individuals and organisations, fraudsters are finding loopholes in new controls implemented by merchants, banks and customers.
 - VIII. Cyber Espionage – Stealing of secrets stored in digital formats on computers and IT networks. Cyber criminals are using highly sophisticated and carefully constructed methods to gain access to a network and steal information quietly.

The top three attacks of the year were proxy attacks, DNS attacks and web app attacks. Proxy servers are susceptible due to poor configuration by their respective custodian of the identified asset. Anonymous proxy servers, computer systems that allow users to access the internet without leaving a footprint, grew by 480% to 290,000 from 50,000 in 2012. Any cyber criminal can use these servers to attack other users in Kenyan cyberspace with little or no likelihood of detection.

Protecting privacy is also becoming much more difficult in the Internet age. The Internet makes it possible to store or transfer huge amounts of data at little cost. At the same time, vast amounts of personal information are searchable, linkable and traceable. As a result, privacy-related risks are increasing. The information accessed could be used for fraud or identity theft purposes, it could be made public and severely damage a large number of individuals' privacy or it could simply be lost or damaged if no backup copy had been made.

Kenya has a considerably higher percentage of computers infected with malicious software compared with the global average. The most common type of malware

Worms which affected 36.1 percent of all computers cleaned, compared to the worldwide average of 11 percent. The second most category in Kenya was Miscellaneous Trojans, it affected 29.6 percent, compared to the 20 percent worldwide average.

More worryingly, The Kenya Cyber Security Report exposed four banks and a leading media house that had been compromised online due to poor website design and protection policies. The fact that our banks have been hacked, leaves one to wonder just how safe our money is.

The challenge for the government to put in place serious measures to protect Kenyans against cybercrime, a hard task considering 103 government websites were hacked into by an Indonesian hacker. The hacker defaced the websites and left them inaccessible to the public. Kenyan organisations, our government included, are ill-equipped and unprepared to respond to information security threats. They need to train and grow security experts needed to secure this infrastructure. It is imperative that local organizations take action before the situation worsens and the cost of inaction becomes even greater.

4.0 Conclusion and Recommendations

4.1 Conclusion

While the internet in Kenya is growing at an exponential rate, it remains largely unchecked. It has a great influence on the socio-cultural, economic and political scenes in Kenya. The security of Kenyans online is alarmingly low.

4.2 Recommendations

- The government should put in place clear policies on cybercrimes and their penalties.
- Internet service providers should be compelled to offer public awareness on proper and safe internet practices.
- Professionals on cyber security should be trained by the government.

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