Biometric Authentication Systems: Religious Ideology and Implications For Human Capital Development

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Abstract

The Internet is a connection of millions of computers all over the world and a pool of information resource. Internet is a source of large number of electronic services (e-services). Thisimplies that, almost every human endeavor can be carried out electronically on the internet: e-mail, e-commerce, e-banking, e-relationship, e-money, e-learning, in short e-life are all products supported by the Internet. Thus, information and communication technology (ICT) has transformed the society, time is collapsing, and distance is no longer an obstacle. Crossing the ocean only takes a mouse click, people are connected 24/7. "Instantaneous'' has a new meaning. Internet has actually changed everything; as a result, life generally has been redefined and so means of securing life. With e-life came e-crimes, subsequently, e-security. Biometric Authentication Systems (BAS) is one of the latest e- security measures but poses serious threat to some religious and traditional beliefs. This study investigates the degree of understanding of practitioners about BAS, the beliefs that discourages its use and the implications of refusal to learn or use new technology on the human capital development.

Key words: Biometric Authentication systems, Information Communications Technology, e-commerce, e-security, internet, networking

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Introduction

Security is a word that is synonymous with freedom. The Merrian Webster's dictionary defines security as a quality or state of being secure, freedom from danger; freedom from fear or anxiety; and freedom from the prospect of being defrauded. The issue of security is one predominant factor that takes the highest priority of mankind.

Computer networking involved the integration of two or more computers so that they can seamlessly communicate and share

information and other rsources, Okonta et al [8] Networking facilitates fast sharing and transferring of files, multi-user, cost management, promotes data security and ultimately centralizes software management. Computer networking gave birth to the internet in the mid 20th century; it is a connection of international network of computers, a pool of information resource. The internet subsequently led to electronic services such as e-services: e-mail, e-commerce, e-banking, e-relationship, e-money, e-learning, etc.

Ezeagu [(2011) declared that internet has transformed the society, time is collapsing and distance is no longer an obstacle. 'Instantaneous' now has a new meaning. As a result, criminals now step up their trade by hacking into every electronic activity to perpetrate fraud and theft, so the emergence of e-crime. "e-banking just opened various other ways to conduct financial crime" [9]. Osuagwu went further to say that so much robbery and kidnapping was recorded worldwide as a result of e commerce that the word "cybercrime" has entered the English dictionary. E-crime is so fast and deep that it requires a special kind of force to prevent or catch its perpetrators.

According to industry analysts, there are over 800 million people online worldwide as at 2009. An FBI survey cited in Harby, Qahwaji & Kamala [9] showed that in 2010, over 234 billion dollars commercial sales was made over the net while over 12% of US citizens reported a computer crime of one type or another the same year. Furthermore, in 2002/2003, British crime survey showed that 18% of households with internet access reported a form of computer crime; this increased to 27% in 2003/2004 and exploded to 62% in 2006. A pandemic level of 80% was hit in2009/2010, Harby et al (2012).

Types of crime

- Credit card fraud
- Misuse of non credit card accounts (bank account debit)
- Identity theft for unauthorized access
- Corporate espionage
- Ransom opportunity (sell my information back to me)
- Malicious software (malware)
- Virus, Trojans, worms, spyware, spams, e. t. c

Some e security measures: The electronic nature of conducting commerce requires also that electronic means of securing those systems be developed - e security. E security is the application and use of electronic means to prevent unauthorized access to valuables and properties, Yerokun (2012). With the alarming spread of e crime, programmers and organizations are working tirelessly to develop measures to curb this surge:

- Firewalls
- Software solutions (antivirus)
- Authenticating system passwords
- Hardware cryptography
- Patches and lately
- Biometric authentication system (BAS)

Biometric Authentication System (BAS)

According Osuagwu [9], BAS refers to brand new technology to reliably indicate whether people are who they say they are using traits unique to them. DNA, finger print patterns, iris – arrangement of tissue in the eye's iris, timbre of a person's voice, are some of the examples of a peculiar biometric

data in humans which can be used to identify a person. It is an automatic method for identifying a person on the basis of some biological or behavioral characteristics of the person, Khusial & McKegney [(2005). Even though researchers claim BAS has been around since 29000BC when cavemen would sign their drawings with hand prints, the first official record of BAS was in 1880's when Alphonsus Bertillon, Chief of the Criminal Investigation Department used a number of bodily measurements (Bertillon System) to identify and arrest a criminal. It has since then gone through series of modifications to arrive at the sophisticated BAS of today.

Human Capital Development

According to the United Nations Development Programme (UNDP) [10], human capital development is an approach to economic growth that emphasizes improving the quality of life of all citizens while conserving the environment and natural resources for future generations. It means the use of every available technology to eliminate poverty and achieve sustainable human development in the country. ICT has brought unlimited opportunities to the Nigerian populace and it will not be an overstatement to say that the acceptance and use of BAS will definitely impact positively the human capital base of this country.

Religious and Traditional Beliefs

Webster's dictionary defined religion as the service and worship of God or the supernatural; commitment or devotion to religious faith, or observance; a set of institutionalized system of religious attitude, beliefs and practices; and a scrupulous conformity to a set of beliefs. Religion is a very volatile aspect of human existence. In an attempt to uphold their belief in a system, attitude, and in conformity to a set of beliefs, people have bled, died and perished. Lagay (2005) claimed that some parents endanger their unborn children's life and are willing to sacrifice their adult lives for their religious beliefs. Akilaya [2] stated that Nigerian culture and traditional beliefs has been greatly affected by westernization, but westernization in turn brought another set of beliefs. Bello in Agogo [1] said it has been observed that African attitude to issues and situations today has been influenced by what he called "the view point cultivated as a result of slavery as well as colonial education".

However the emergence of computer and its subsequent innovations made Aminu (2004) to say that the impact of information technology revolution goes beyond information and pervades all different aspect of globalization. The power of computer information technology has changed the nature of finances and trade, putting an end to geography, creating a borderless world. He went further to say that development in commerce and transportation technology has given rise to the new form of cultural production, consumption and exchange. He cited Pickering (2001) and Giddens (1999) as saying that ICT has 'claimed the invisible overthrown of old pattern of living'.

The volatility of religion has raised a lot of issues in the past, preventing the acceptability and subsequent further development of various machines. In the early 19th century, various ethnic groups fought wars to prevent the 'white men' from invading their lands. Agogo [1] mentioned the resistance of the Igede tribe towards removal of certain traditional practices, to the extent that it affects the teaching of science subjects in schools. Sa'adu and Wasagu (2011) said that

science and technology are both developed as human endeavors seeking to understand nature, predict nature, control nature and solve human problems. But several factors such as religious beliefs which has led to misunderstanding the purpose and intent of new technologies, have prevented Nigerians from utilizing and partaking in new technology. Most financial and security & defense organizations in several countries - Britain, US, Malaysia, Australia, India, Saudi Arabia, and others – have resulted to the use of biometric methods to secure their nations, people, migration, transactions, and every of their international and internal affairs. The fight against terrorism has given wings to BAS and most multinational corporations are joining the league of BAS in securing their assets, Harby et al (2012).

Problem definition

The emergence of Biometric Authentication systems as a form of securing conglomerates, databases and systems has begun to generate questions, reactions and controversies among staff, users, clients and customers worldwide. The study is aimed at:

1. To find out the understanding and acceptance level of BAS;
2. To find out the aspects of religious beliefs that clash with the use of BAS;
3. To determine the extent to which practitioners are willing to defend their beliefs; and
4. To find out how this affects human capital development in Nigeria.

Research questions

1. What is the degree of knowledge and understanding of the people about BAS?
2. What areas or aspects of Religion or traditional beliefs clash with the use of BAS?
3. To what extent are religious practitioners willing to consider, accept and practice the use of BAS?
4. What are the implications of rejection or acceptance of BAS in human capital development?

Methodology

The study employed a survey research design. The population of the study consists of all the worship centers in Asaba metropolis. Stratified sampling technique was used to select a sample of two hundred and five (205) worshippers at ten (10) worship centers comprising of: six (6) Christian worship centers; two (2) Islamic worship centers; and two (2) traditional worship centers. Questionnaire was used for data collection. The questionnaire was a 20-item piece designed by the authors and validated by two computer science educators, senior colleagues of the authors.

Results

Research Question One: ***What is the degree of knowledge and understanding of the people about BAS?***

Table1: *Percentage distribution of people's knowledge and understanding of BAS.*

Peoples level of understanding	frequency	Percentage
Very well	126	61.5
Well	46	22.4
Not well	21	10.2
Not at all	12	05.9
Total	205	100

126 remaining persons representing 61.5% of the population interviewed claimed to have good understanding of BAS, 46 (22.4%) respondents know just well enough, while the 21 persons (10.2%) have heard but do not understand, but 12 respondents (5.9%) claim not to have any knowledge of BAS.

Research Question Two: ***What areas/aspects of religion/traditional beliefs clash with the use of BAS? Table 2:*** *Various religious beliefs and their percentage distribution of peoples conviction*

	Religious / Traditional Beliefs	Frequency	Percent
1.	Blood is sacred, should not be tampered with for any reasons	205	100
2.	Only God has the right to gather data through blood (DNA)	205	100
3.	Quality of individual blood (DNA) can be endangered or destroyed while taking BAS tests	180	87.8
4.	Worldwide database will lead to emergence of the Antichrist	182	88.8
5.	Biometric data can be used to foretell the future	145	70.7
6.	Personal information which only God should have will be exposed to man.	201	98.0
7.	Unintended identification and exposures	205	100
8.	Exposure of body (for scanning) is forbidden	195	95.1
9.	Removal of clothing and personal handling by strangers (data collection officers) is an abomination	195	95.1

Consideration and acceptance level	frequency	percent
Acceptance without fear	22	10.7
Acceptance if there are no options	35	17.1
Acceptance if better understanding is received	56	27.3
Total rejection	92	44.9

Over seventy percent of the entire population is strongly convinced about their beliefs as listed.

Table 3: Response from the religious practioners

Research Question Three: ***To what extent are religious practitioners willing to consider, accept and practice the use of BAS?***

A total of one ninety two (44.9%) respondents bluntly refuse to submit to bas for the reasons of their beliefs, while thirty five respondents (17.1%) agree to use bas if left with no options. only fifty six respondents (27.3%) are willing to reconsider if they get further information that can lead to better understanding of bas while only twenty two respondents (10.7%) are ready to accept and use bas despite their convictions.

Research question four: ***what are the implications of rejection / acceptance of bas in human capital development?***

The answer to research question four can only be deduced from the three preceding research questions, especially three. despite the literacy level of the respondents, it is pertinent to note that about half of the sample population is willing to lose whatever is necessary to stand for their religious or traditional beliefs. This can only point to the fact that they are equally willing to refuse training or to train others in the use of bas. yerokun (2009) cited the united states department for education declaring that ***"the age of technology, information and communication rewards those nations whose people learn new skills".*** fifty six (27.3%) of the respondents are however willing to reconsider their stand if they get further information to lead to a better understanding of bas. invariably, if the nigerian populace is not willing to follow the pace of other nations in the use of technological advancements, then the human capital development in this area will for a long time to come remain a mirage.

Summary

Nigerians are very religious people. they are willing to hold on to what is known for as long as possible. in other words, they do not easily accept change as it can be seen in the popular saying "this is how we have been doing it". but the study has also proved that Nigerians are willing exploit new frontiers, even though from a safe distance, to move in the global direction. with adequate public awareness, orientation and campaign, Nigerians are willing to participate and enjoy the full benefits of the internet by building and developing the human capital base in that direction. Hhuman capital development in Nigeria cannot be achieved in this era of e-everything without sufficient level of acceptance of e–security-bas and other paraphernalia of the e –highway.

Recommendations

1. Religious leaders should be enlightened on the benefits of e commerce. This will go a long way in calming the followers on the safety of BAS.
2. The federal government should take a Step further by sponsoring campaign and orientation agencies in teaching the populace more about bas.
3. The school curriculum should be

revised to include the use of latest technological advancements in the teaching and learning of all subjects at all level of the education in nigeria. this will inculcate understanding in the people from lower level. practice should come after theory for better acceptance.

4. Use of bas should be restricted to computer networks and buildings or infrastructures requiring high level security.
5. Use of bas should be the end of a sequence of security measures, not the only security measure.
6. BAS should be limited to only those that need it.
7. Users should be well warned and informed about the privacy risks before its installation.

References

[1] Agogo, P.O. (2004): Cultural Practices / Beliefs as Factors in Integrated Science Learning: A Case Study of the Igede Culture in Benue State. *Multidisciplinary Journal of Research Development,* Vol.3, No.1.Benue, NARD.

[2] Akilaiya, O. (2002): Refocussing Fuctional Literacy for National Development. *Refocusing Education in Nigeria, A Book of Readings*. Benin, Da Silva Influence.

[3] Aminu, A.B. (2004): Imperatives on Globalization and Information Technology: Issues and
Challenges in Science Education for National Development in Nigeria. *Multidisciplinary Journal of Research Development*, Vol.3, No.1.Benue, NARD.

[4] Crowley, M.G. (2006): Cybercrime and biometric authentication- the problem of Privacy versus protection of business assets. http://ro.ecu.edu.au/ism/63.

[5] Harby, F; Qahwaji, R. & Kamala, M. (2012): End-Users' Acceptance of Biometrics Authentication to Secure E-Commerce within the Context of Saudi Culture: Applying the UTAUT Model. www.igi-global.com/chapter/end-users-acceptance-biometricsauthentication/62889

[6] Matazu, S.S. & Wasagu, M.A. (2011): Strategies for reforming Science, Technology, Engineering and Mathematics (STEM) Teaching and Learning in Nigerian Schools. 52nd Annual Conference of Science Teachers Association, Nigeria. Book of Readings. HEBN Publishers.

[7] Nwosu, U. A. (2005): Teaching and Learning in Nigerian Languages for National

Development: The Challenges of Modern Technology. *Nigerian Journal of Teacher Education and Teaching.* Vol.7, No.1.

[8] Okonta, O.E; Iyawa JIB & Ugboh E. (2006): Computer Studies for School and Colleges 2. Asaba, His Bride Publishers.

[9] Osuagwu, O.E. (2006): Software Engineering: A Pragmatic & Technical Approach. Oliverson Industrial Publishing House, Owerri, Nigeria

[10] United Nations Development Programme (UNDP). (2012): Encyclopedia Britannica. *Ultimate Reference Suite.* Chicago: Encyclopedia Britannica.

[11] Woodford, C.(2011): How e commerce Works. www.ibm.com/ca.

[12] Yerokun, O.M. (2009): Sustainability of Programmes in Nigeria Growing Technological Society. *Nigerian Journal of Teacher Education and Teaching*. Vol.7 No.1.