

BENSON IDAHOSA UNIVERSITY

**FROM MEDIEVAL TO MODERNITY: ODYSSEY OF AN INFORMATION
SCIENTIST (INFORMATICS)**



An Inaugural Lecture

By

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DEDICATION

This Inaugural Lecture is dedicated to God Almighty for His infinite mercy, strength and protection over my life. This Inaugural Lecture is also deservedly dedicated to the African Information Scientists and the millions of those knowledge seekers in the continent who under the excruciating situation surmount all obstacles in a desperate need of survival. Ignorance, poverty and despair that are the bane of Africans' underdevelopment are certainly not our destiny.

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Gentle Men and Women of the Press	
Great Nigerian Students	
Great BIU Students	
Ladies and Gentlemen	

MY STORY: AN ACT OF GOD.

Mr. Vice-Chancellor Sir, my esteemed and invaluable Ladies and Gentlemen, I am extremely tickled and excited to stand before you this 17th day of January, 2023 to deliver the 16th Inaugural Lecture of the Benson Idahosa University, Benin City. Nigeria. I am extremely grateful to the Almighty Lord, the Creator of the Heaven and the Earth, the President, Bishop FEB Idahosa and the Vice-Chancellor of Benson Idahosa University, Prof Sam. Guobadia, for this once in a life time privilege given to me to deliver this Inaugural Lecture on my Odyssey as a Professor of Informatics and Information Science.

Mr. Vice Chancellor Sir, this 16th Inaugural Lecture is the first in the Department of Physical Sciences and the third from the Faculty of Science.

The first inaugural lecture in the faculty was the 4th series delivered by Professor Ernest Izevbigie, a Professor of Biochemistry and the second inaugural lecture in the faculty was the 8th series delivered by Prof. Clara Igeleke, a Professor of Microbiology.

Mr. Vice Chancellor Sir, to put the records straight without fear or favour, therefore this Inaugural Lecture is;

- The first in the series given by a Professor of Informatics and Information Technology
- The first from the Department of Physical Sciences.
- The third to be delivered by a foundation staff of the Faculty of Science
- The second by a male staff of the Faculty of Science.
- The third in the series to be given from the Faculty of Science.

Vice Chancellor Sir, the foundation for this Inaugural Lecture was laid by the Almighty God Himself who used the instrumentality of my parent, my family and by providence used Justice Victor Ovie-Whiskey (of blessed memory) to set a path of divine intervention.

Based on that divine intervention and some decisions I have to make, I attended several inaugural lectures as an undergraduate and postgraduate student while studying overseas, I am by the God's grace, and I am extremely honoured and excited to be invited by the Vice Chancellor of the citadel of learning to deliver my inaugural lecture.

Vice Chancellor Sir, let me confess before you and this august gathering of a very amiable and distinguished persons that my choice to Study Informatics and ICT came from the inspiration of modern field in science.

Mr. Vice Chancellor Sir, the topic of today's Inaugural Lecture; ***From Medieval to Modernity: Odyssey of an Information Scientist (Informatics)*** is an attempt to examine and do an analysis of the role of Informatics over the years vis a vis on key areas of human development be it environment and sustainability, development, agriculture, engineering, education, social, business and health. The lecture is organized into the following subheadings:

- My story. An Act of God.
- Philosophical preamble
- Medieval of Information Age to Modernity
- What is Informatics?
- The 20th Century Cybernetics.
- My Contributions to the body of knowledge
- Recommendations
- Conclusion
- Acknowledgement
- References

INTRODUCTION

The title of my Inaugural Lecture is one of the most novel in the history of Benson Idahosa University with only four key words out of eight **“From Medieval To Modernity: Odyssey of An Informatist”**.

Medieval

The Oxford Advanced Dictionary defined Medieval in relation or characteristic of the middle Ages. This definition incorporated the period of European history from about 500 to 1500 Anno Domini (After Christ). However, it is usually bad or unpleasant that existed in the past. Within the context of this lecture, it relates to anything that persists in traditional society with regards to information.

Modernity

The Oxford Advanced Dictionary defined Modernity as the condition of being new and in turn with present or recent time that is up to date.

Odyssey

The Oxford Advanced Dictionary defined Odyssey as a long journey full of experiences. From the Odyssey, Greek poem that was said to have been written about the adventures of Odysseus. After a battle, he had to spend ten years travelling before he could return home.

Informatics/Information Science

The Oxford Advanced Dictionary defined Informatics in relation to Information Science as the collection, classification, storage, retrieval and dissemination of recorded knowledge treated both as pure and as applied science. It entails the automation of information using the Internet of Things (IoT) and machine learning focusing on different fields of human endeavors like mathematics, engineering, physics, philosophy and computer science.

Similarly, He (2003) defined Informatics as the application of information technology to various spheres of human society like legal informatics, medical informatics, social informatics and organizational informatics. It covers the science behind information technology and a distinct science characterized by its own concepts, methods, body of knowledge and open issues. It has emerged in a role similar to that of mathematics as a cross discipline field underlying today's scientific, engineering and economic progress.

I shall come back to the role of informatics or information science in human development. But first pardon me to give a brief synopsis on the historical development of science, and then of computer and the national computer policy before reviewing the Nigerian information policies.

1. Philosophical Preamble

My Vice Chancellor Sir, we live in a global world with disappearing national economies. A world where traditional barriers to knowledge, trade, commerce, health and mobility of labour are gradually diminished. It is a modern world in which traditional basis of wealth are migrating to the economies of other nations, one in which the American dollar (\$) is preferred to the Nigerian Naira and international trade is considered more lucrative than domestic trade. It is a world of technology in which knowledge and information can be exchanged instantly and quality of service or product were recognized as essentials to economic competitiveness. It is a world in which knowledge and applied intelligence are the keys to survival and success for the individual,

enterprise, and the nation at large. If these must be, new skills must be developed rapidly to survive the competitive world.

According to Aina (1995), there was the case with the story of Paddy as told by David Hood at a conference in New Zealand. Paddy was a very religious man. He was also a part-time burglar. One very dark night, he broke the window of a neighbour's house and gained entry. As he entered the house, a voice out of the darkness said "***Jesus is watching you.***" Being a religious man, Paddy was overcome with fear, but the lure of the potential booty in the house overcame that fear and he went ahead to loot. As he groped around in the dark, the voice kept saying "***Jesus is watching you***". Eventually, he came face-to-face with a parrot. The parrot again said "***Jesus is watching you.***" Paddy quickly summed up courage and asked the parrot. "***Are you Jesus?***" The parrot replied "***No, I am Peter the parrot, Jesus is the Rotweiller***". Just like the determination of Paddy, this inaugural lecture has persisted from its inception in spite of all challenges through his sojourn in Europe to give credence to what we are witnessing today.

Vice Chancellor Sir, it is this instinct to survive that has made nations after nations ask serious questions about the role of information, the purpose and design of information science, the way it is organized and managed, the practice of teaching and dissemination, nature of curriculum and more relevant to the purpose of this *inaugural lecture*, the future of Information Science.

Informatics in line with Information Sciences connotes the collection, classification, storage, retrieval and dissemination of data or information into knowledge necessary for informed decision or result. In other words, it is regarded as the automation of information using Internet of Things (IoT), emerging technologies (nano, space etc), artificial intelligence and machine learning focusing on diverse fields of human endeavours. ***Odyssey*** is a very long and complicated journey towards achieving an aim/goal. The journey of a Homer hero captured from a Greek poem that was said to have had astonishing adventures and experiences about him and the world. After a long term battle, Odysseus spent about 20 years wandering during the Trojan War before he returned home. Informatics had been a journey liken to that of "Odysseus", which began about 70 years ago, in the United States when health practitioners and researchers were examining the role of computer in healthcare known as health informatics for the diagnosis of medical disease. Logic and probabilistic reasoning were utilized to address health problem in medicine at that time. Sadly, early informatics was introduced only for building and curating archives. However, as development progresses, Imhoff *et al.*, (2001) discovered that healthcare informatics was efficiently utilized by the application of computer technology to tackle health problems and other aspects of generation, handling, communication, storage, retrieval, management, analysis, discovery, and synthesis of data, information and knowledge.

Furthermore, informatics helped in the formation of the International Society of Cybernetic Medicine in 1958 after a meeting held by the Cybernetic Medicine Congress of the Naples and the launch of a journal in medical documentation. However, informatics has advanced significantly in different fields connoting its usage and application such as health informatics, space informatics, food informatics, nano informatics etc. In Odabi and Obahiagbon (2011), informatics described the science behind the development of biometric technology and automation of the business sectors such as finance, agriculture, library and infrastructure (Obahiagbon and Otabor, 2012).

This inaugural lecture will give analysis of my journey so far as an Informatician in the field of Information Sciences, Informatics and the transitive move of information utilizing diverse technological advancement in every facet of our daily lives. Informatics which encompasses the people, information and technology (Figure 1) harnesses the power of digital technologies to collect, select, organize, process, disseminate and transform data and information into knowledge that people can use to influence and enhance their daily lives (Paul et al, 2017).

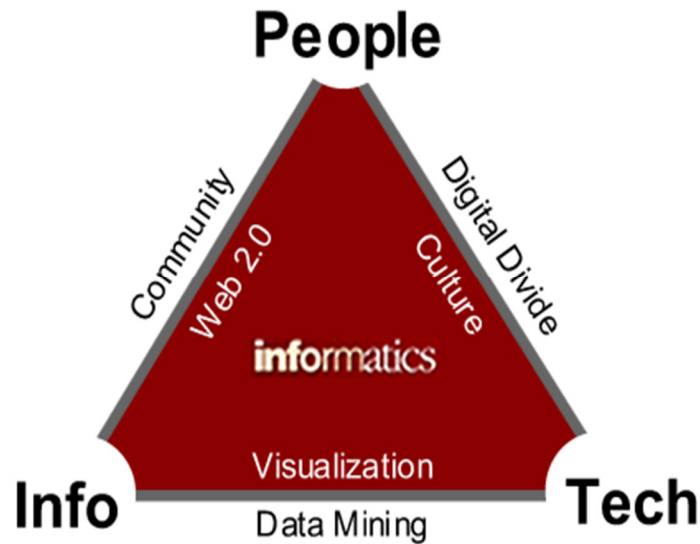


Figure 1: Structure of Informatics (Source: Paul et al, 2017)

1.0 MEDIEVAL OF INFORMATION AGE TO MODERNITY

The Oxford Advanced Dictionary defined *Medieval* in relation or characteristic of the middle Ages. This definition incorporated the period of European history from about 500 to 1500 Anno Domini (After Christ). However, it is usually bad or unpleasant that existed in the past. Within the context of this lecture, it relates to anything that persists in traditional society with regards to information. In the same vein, the Oxford Advanced Dictionary defined *Modernity* as the condition of being new and in turn with present or recent time that is up to date. The information age started in the mid-20th century with rapid shift by the industrial revolution from a traditional industry to a transistor economy in 1947, optical amplifier also known as the fiber optic communications in 1957 and Unix also called the coordinated universal time and network time protocol in 1970. Information age was invented based on technological shift in computer microminiaturization to modernized IT systems, making internet communication the driving force to social evolution.

Human history has been flooded with diverse innovations that are capable of transforming human lives ranging from the Neolithic age, scientific age and industrial age. Traditionally, these epochs of transformation have evolved some thousand years ago, however, information age swept to all parts of the globe few years ago. The reason for its rapid information age adoption is attributed to the rapid advances in information sciences. As a result, the periods of 7,000 to 10,000 years ago, referred to as the Neolithic period, when humans started to domesticate animals, farm grains and

use metals to replace stone tools. Consequently, nomadic gatherers were able to settle down, Neolithic developments, augmented by writing as an information tool paved way for the advent of civilization.

The Scientific Age started in 1543 when Galileo proved that the planets orbit the sun and Newton's publication of the laws of motion and gravity in Principia in 1697. It was an age of discovery in the 18th Century with widespread utilization of moveable type printing press invented by Johannes Gutenberg. However, the Industrial Age started in 1760 in Great Britain into the mid-19th Century affecting global lives. It harnessed steam and waterpower to reduce animal and human physical labor dependence which was the primary means of production in the Neolithic age. Thus, the core of the Industrial Revolution in the 20th century was the generation and distribution of energy from coal, water to produce steam and electricity.

The **Information age** which encompasses diverse fields in Information Sciences utilizes electricity for the production of global networks of computers that can process and store data. However, the speed of knowledge transformation dramatically accelerated the pace of adoption of the Information Age, as compared to other ages. Figure 2 shows how information science migration has been since 2,000,000BC till 2008 when computing information which encompasses knowledge and algorithm came in. This digital transformation of society became successful introducing informatics in diverse areas of application such as Nano technology, space technology, artificial intelligence etc. The odyssey of informatics is still evolving targeting every aspect of the society. Advances in information sciences and communication technologies present new opportunities for users to increase productivity, reduce cost, facilitate innovation and create virtual collaborative environments for addressing current challenges (Akinmuyisitan and Obahiagbon, 2017).

Vice Chancellor Sir, diverse technologies like nano, space, distributed ledger technologies, artificial intelligence and machine learning are evolving in automating information to required knowledge, addressing centralization, security, privacy and cyber security issues that plague information systems. Information Science is no longer in the medieval era but transited to modernity due to technological advancement which has sharpen various areas of our economy as well as global health starting with telemedicine as against the traditional medicine of the past.

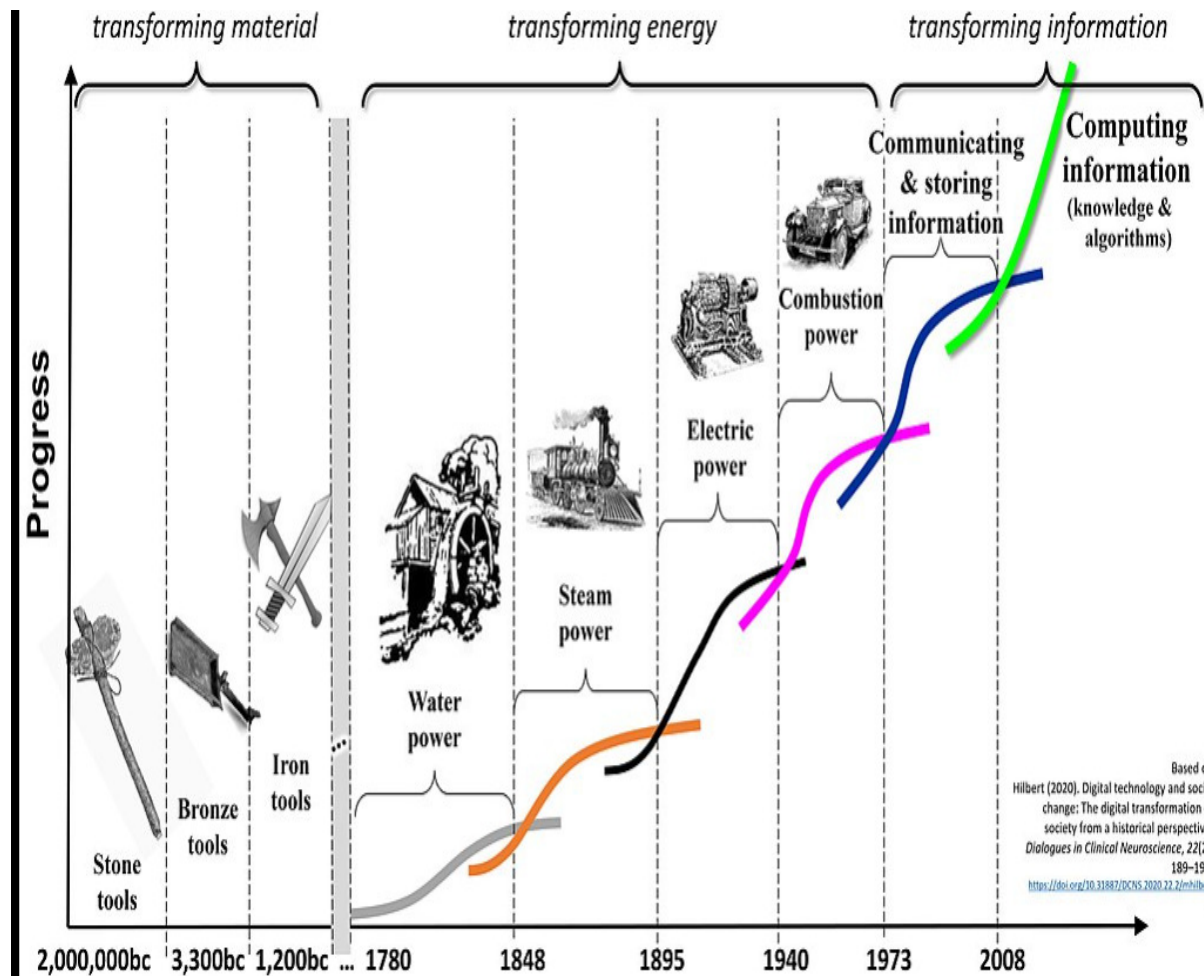


Figure 2: Information Ages (Hilbert, 2020)

A. Information as Computer Science

I went further to look at the terminologies used in different countries for information as regards Computer Science.

Table 1. Information terminologies in diverse countries.

Britain	United States	Italy	France	Russia	Germany
Informatics	Computer science	Informatica/scienza dell'informazione	Informatique	информатика (Latinized: <i>informatika</i>)	Informatik
Theoretical Informatics	Theoretical Computer Science	<i>Informatica teorica</i>	<i>Informatique théorique</i>	компьютерная наука	<i>Theoretische Informatik</i>
Technical Informatics	Computer Engineering	<i>Ingegneria informazione</i>	<i>Ingénierie or génie informatique</i>	компьютерная инженерия	<i>Technische Informatik</i>

Neuro information	Neuro Computing	<i>Neuroinformatica</i>	<i>Neuro-informatique</i>	<i>Нейроинформатика</i>	<i>Neuroinformatik</i>
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Vice Chancellor Sir, Information Science and Informatics are used interchangeably in the industries and academics. One of the terms is well known in some countries of the world. However, informatics in a more practical sense deals with information and technological utilization, while information science is a field with its agenda. Through interactions, information science and informatics have yielded hybrids by creating various fields like cybernetics.

B. Synopsis of the National Computer Policy

In view of meeting the strategic objectives of the national computer policy, some guidelines were crafted to look into the infrastructure related to computer and legal environment, promote computer education, literacy, application and appreciation, acquisition, utilization and access as well as self-sufficiency and information export. The national computer policy has the following objectives;

- i) Helping to meet the future desires of her national economy by guiding and promoting the development of computer applications and their related resources.
- ii) Helping the nation to meet with challenges in global scientific and technological advancements by increasing the flexibility and dynamism of Nigeria.
- iii) Improving the socio-economic development of the nation by harnessing computer technology for the benefit of citizens.
- iv) The quality of life, job satisfaction, and working conditions of the employees can be improved.
- v) Increase in efficiency, productivity of management and workers, enhancement and supplementing manpower resources at all levels.

Table 2: Industry Indicators

S/N	Indicators	%	Source
1	Access to mobile telephones by Individuals	64	Statistical report on ICT services access by National Bureau.
2	Ownership of mobile handsets by individuals	44	2009 Collaborative survey of socioeconomic activity in Nigeria by the NBS/CBN/NCC
3	Household ownership of mobile telephone	59% (representing 71% of those with access)	
4	Access to fixed telephony	<1%	
5	Access to computers	5	2011 Annual NBS/CBN socioeconomic report on access to ICT
6	Television access	68	2009 Collaborative survey of socioeconomic activity in Nigeria by the NBS/CBN/NCC
7	Radio access	41	
8	Ownership of radio	41	
9	Internet access	7	

10	Broadcasting stations operating nationwide	291	Nigerian Broadcasting Corporation
11	Broadband penetration	6	International Telecommunication Union
12	Post offices, postal agencies and post shops	2015	2009 Collaborative survey of socio economic activity in Nigeria by the National ICT Policy 2012

However, ICCI (International Centre for Computers and Informatics) is saddled with the following responsibilities; policy analysis, formulation and implementation, hardware and micro element development, education and training, dissemination of information and software development.

C. Review of Nigeria’s Information Policies

According to Yusuf (2005), Information and Communication Technology (ICT) policy in Nigeria can be categorized into infrastructural, vertical and horizontal policies which are adequately addressed in the country. The infrastructural ICT is addressed with the establishment of all facilities linked to telecommunication. The vertical aspect handled sectoral needs like education, health and tourism, while the horizontal aspect deals with the impact on boarder aspect of society such as freedom of information, tariff and pricing, privacy and security. Munasinghe *et al* (1985), asserted that the fight for economic growth and survival in the developing world has being changed by the emergence of information technology. This dynamics is of immense importance because it could enormously affect the socio-economic functions of a world economy.

Vice Chancellor Sir, it is true that there will be upsurge in Nigeria development opportunities with diverse and emerging computer technologies, capable of transforming data or information into useful knowledge. However, the manner in which computer driven theories of change will be managed will determine if the development goals will be achieved. The operational structure of that process will determine who will benefit, and in what ways from those technologies. Therefore, these change processes require systematic consideration in the formation and implementation of national computer and informatics policy.

2.0 WHAT IS INFORMATICS?

According to Edward *et al*, (2016), those who practice informatics are called Informaticians. Their role is to design, develop, manage and evaluate information systems. The amalgamation of “information” and “automation” to describe automatically processing of information culminated in the term called “informatics”. It was first used in 1957 as “the science concerned with gathering, manipulating, storing, retrieving and classifying recorded information.”

The term "informatics" has different meaning depending on the country of use. In Europe for instance, computer science is referred to as informatics while in the U.S., it is linked with applied computing. These are just nomenclatures. This was why (Groth and MacKie Mason, 2010), analyzed informatics in practical terms as a broad continuum of computing disciplines, applications, and contexts encountered in society today. Similarly, (Makice, 2007) described Informatics as the study of the relationships between people, information and technology.

The use of a triangle as shown in Figure 1 is to express the interdependence of the three main components of informatics: information, technology and people. The triad above situates people on top to reflect the relative importance over information and technology, materials serving and affecting the human condition. Informatics lives inside this triad examining the various relationships between these components.

Vice Chancellor Sir, there are a lot of academic areas of specialties, artificial intelligence, cognitive science and computer science which made up the aspects of Informatics (See Figure 3). In practical terms, artificial intelligence does the job of connecting role and designing systems that are found in nature, cognitive science relates to the study of natural systems while computer science deals with the computational analysis and the design of computing systems. Informatics play the cardinal role of being informed by other disciplines like mathematics, psychology, biology, electronics and linguistics. It facilitates the linkage between disciplines exploring their own methodologies and perspectives, by bringing together a common paradigm that is scientific and embraces engineering methods which has a pervasive stimulus from technological development and practical application.

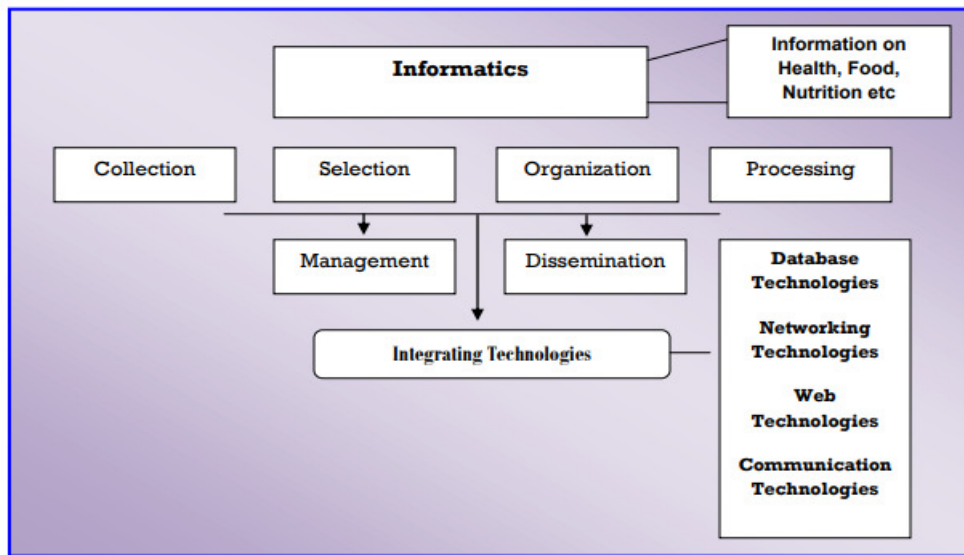


Figure 3: Dependencies of Informatics (Source: Paul *et al.*, 2017)

Vice Chancellor Sir, before proceeding with the field of informatics, firstly, I will like to elaborate on the past and future of development of information research.

3.1 THE PAST AND FUTURE OF INFORMATICS RESEARCH

Research in the development of Informatics has experienced four waves till date. These include:

- a) **Era One (1960s to mid-1980s):** This is the period between Information and Communication Technology (ICT) and development. It strongly involve the transformation of information to modernization and structuralize the stake of development. This era was scarcely characterized with information systems discipline and largely with partners in development and academic.
- b) **Era Two (mid-1980s to mid-1990s):** Here, academic knowledge experienced a positive growth due to the upsurge of *Information Technology for Development* journal and Social

Implications of Computers in Developing Countries. This era was largely characterized information systems for sustainable research agenda in socio-technical systems analysis and design, and cultural and other contextual issues. However, the era itself was short-lived as only a handful of academics appeared active globally.

- c) **Era Three (mid-1990s to mid-2000s):** This was the era internet was introduced into the mainstream activities of the world and its associated growth of debate and funding in ICTs and development. The core development informatics journals such as the *Electronic Journal of Information Systems in Developing Countries (EJISDC)* and *Information Technologies and International Development (ITID)* were introduced during this period.
- d) **Era Four (mid-2000s to mid-2010s):** This era gave rise to some intellectual creativity and innovation. Apart from the initial emergence of ICTs from the agenda of development which happened this period led to a slow recovery of an immense number of concurrent trends in the technological space. The emergence of more robust evidence on the impact of ICTs in development has its own attention on the shift to Information Communication Technology for Development (ICT4D). The concept of Technology for Development (ICT4D) has led to some empirical research works on conceptualizations like the Sen’s approach, actor network theory and Anderson and Hatakka acceptance model on technology (Anderson and Hatakka, 2013). This research on geographic capacity was what the third world countries like Nigeria built on in their growth in higher education and natural consequence with some donor funds. In addition, the disciplinary component that encompasses a higher level informatics discipline like the HCI (Human Computer Interaction) and Computer Science facilitated by the heralding of the ICTD series of workshops in the mid-2000s. These were the two major distinct expansions in the industry.

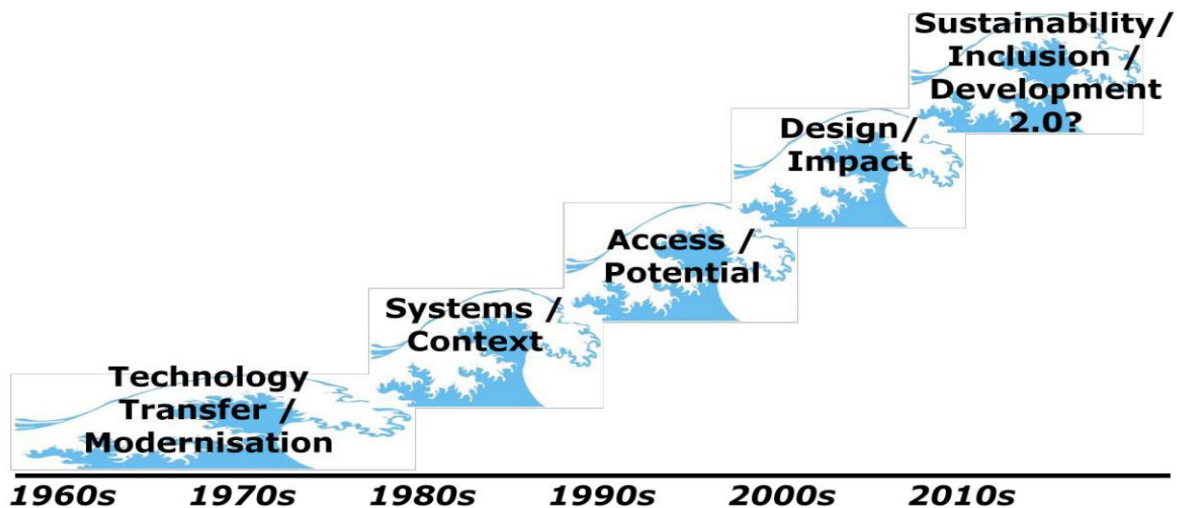


Figure 4: The Five Eras of Development Informatics Research
(Anderson and Hatakka, 2013)

3.2 INFORMATICS AT THE CORE OF A GLOBAL WORLD

The concept of Informatics constitute the base of the digital world. Let me take you through the journey of few select examples among many possible ones:

- The web searches practical that uses algorithms like “fixed-point” and “page rank” made possible by the efforts of Google’s 35-billion-euro business model.
- The complex informatics systems and algorithms used for vehicles navigation systems and GPS infrastructure.
- Example of the 5G mega projects to be built in Eko Atlantic City. It will be a remarkable investment in the training informatics experts with humongous wealth attached to it.
- Cell phones and particular smartphones are computer systems equipped with myriad of sophisticated algorithms and data-structures.
- The music industry has saddled with revolutionization due to the introduction of MP3.
- Weather forecast has upgraded from mere speculation to a trustful discipline. This is achievable with the remarkable creativity of computer models based on complex data-structures and algorithms.
- The introduction of modern programming languages in complex systems have led to the invention of Whatsapp, twitter, facebook, instagram and other social handles.
- The invention of cryptographic algorithms has built trust in e-commerce, resulting in a 260-billion-euro industry worldwide.

3.3 USES OF INFORMATICS IN NIGERIA

Informatics can be used in Nigeria in the following ways;

- a) **Health:** informatics can be used in the coding of medical system used in classifying types of diagnosis and procedures.
- b) **Engineering:** it can be useful in genetic and human engineering.
- c) **Education:** it will provide a platform to enhance learning. For example, true life practical curricula can be used to explain real world challenges and various technologies. It is also effective in the communication of educational language, information or knowledge built either visually or verbally in systems.
- d) Impact of Informatics in other sectors like banking, transport and agriculture as their contributions to national development.

3.4 FIELDS OF INFORMATICS:

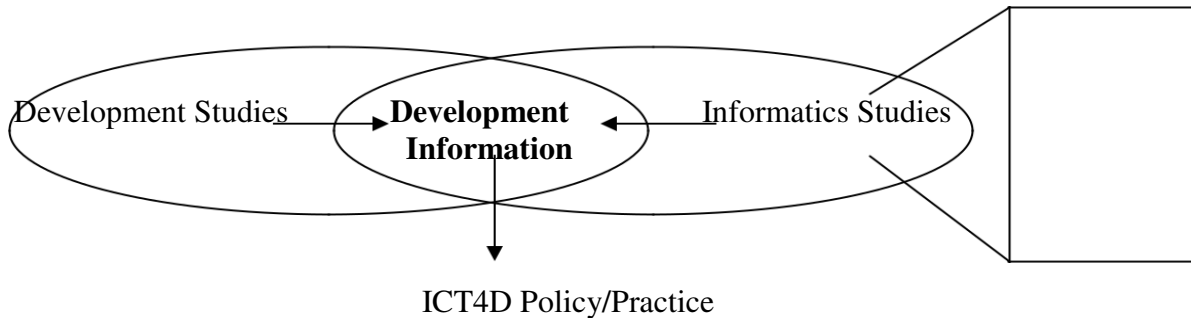
Informatics plays a similar role in mathematics as a multi-disciplinary enabler. Techniques in informatics play essential roles in major disciplines such as physics, mechanics, humanities, arts and innovation. However, like any other discipline in human endeavour, Informatics has many fields which contribute immensely to the growth, advancement and development of humanity. Some of which are; Science, development, computer, agriculture, engineering, social, business, health and environmental informatics. All of these fields are growing rapidly for the benefit of the Nigerian community and society at large.

1) Science Informatics

Science Informatics is Information Technology related. It is used in fighting cyber wars as well as in networking and cyber security. It is however originated from cybernetics which is the control of living things to enable them perform certain functions.

2) Development Informatics

Development informatics- Deals with the unification of development studies and informatics. The informatics view is a continuum from computer science through the lens of HCI to information systems. It is the academic sub-discipline that studied the role of information and communication technologies in international development (ICT4D) (See figure 4).



3.4.1 FUTURE OF DEVELOPMENT INFORMATICS

The future directions in development informatics studies constitute trends in development and informatics. Some competitors in the trends uses near-ubiquity of mobile, big/open/real-time data, field sensors/embedded computing, social media, crowd-sourcing models, cloud, smartphones and 3D printing.

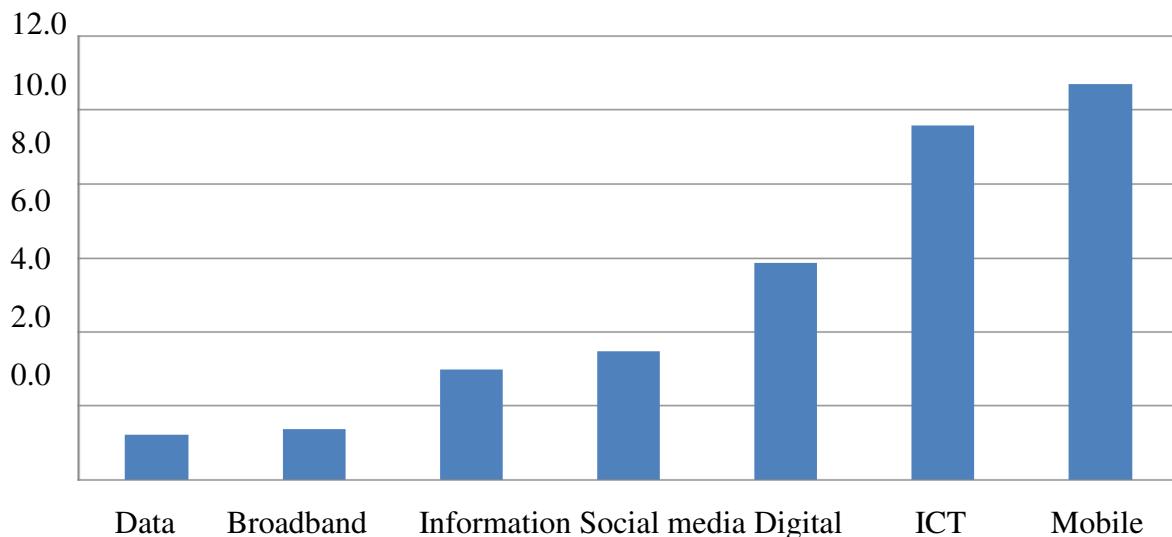


Figure 5: New Research Priorities central to the MDG post-2015 agenda (Heeks, 2014)

a. Environment and Sustainability

The ability to meet present need without compromising the capacity of future generations to meet their own needs is referred to as **Environment and Sustainability**. Within the context of development informatics, it means that informatics will operate in a way that development will not affect future generation's issues of information and communication technology. The connections between the environment and informatics lies between the sustainable development paradigm and informatics in general. However, climate change and global warming can be addressed through; adaptation, mitigation (green IT and smart Apps), monitoring (e-participatory methods) and strategies which provides support for climate change policy-making and National Adaptation Programmes of Action.

b. Development Management: This is extremely important to explore the role of digital technologies in the advancement of multi-partner actions in the form of identification, decision processes and cooperative participations. Consequently, post-2015 development would encourage multi-stakeholder partnership and cooperative initiatives. However, Information and Communication Technologies would facilitate this structure but there is a strong tendency for research in development informatics to focus on development outcomes other than organizations and business processes.

c. Development Finance: New areas of development finance in informatics have emerged. Some of which are; Investment, debt, aid/ODA, philanthropy, tax and remittances, mobile money, mobile banking, e-remittances and utilizing ICTs to improve tax systems, manage and monitor aid flows, debt and investment channels.

d. Inclusive Development: Issues of rights and justice as they act as impediments to inclusive development and practical constraints on economic growth that inequality. Research on digital divide helps to bridge the gap between ICTs and inclusion. Specific groups such as women, youth, disabled, minorities creates room for research on the emerging nature of exclusion and the framework for inclusive development.

e. Data Revolution: Data revolution encompasses open data, big data, and real-time. Besides, other elements to the research agenda includes geo-locatable data, mobile data, bottom-up data, and soft or emotion-oriented) data.

f. Gender/Women: There is a surge in the presence of women's development and of gender in development informatics. The issues of gender divide with regards to access, use and benefits of ICT can be enhanced by development informatics research. Some aspect of it explores the gender norms/relations to ICTs and explicit gender dimension such as child development and particular fractions of healthcare.

g. Cross-Border Flows: This is an issue that needs to gain prominence in development informatics. Issues of globalization which manifest in flow of labour, capital, goods and services is gaining future attention. It is accentuated by the integration and growing role of ICTs in most cross-border flows in the migration of ICT skilled workers, ICT support to families of which members have migrated overseas, global trade and investment, e-commerce.

h. Resilience: Resilience is defined in this context as the capacity to withstand and recover from short-term shocks and to adapt to long-term trends, has been greatly influenced by development informatics and is closely related to the environmental and sustainability agenda. Resilience has become increasingly relevant to the development of ICT-related tools and measurements, as well as to understanding how ICTs affect resilience and how resilience relates to ICTs, such as when trying to make ICT-based systems more resistant to external threats.

i. Governance: The discourse on government, governance, institutions, civil society and states have featured prominently in development informatics recently. The issues of e-governance focusing on institution and e-health are currently being discussed.

j. Urban Development: This has to do with urban informatics research. The growing demographic certainty of urban populations, the worldwide tipping point when the proportion of people living in cities over rural areas, poverty, and numerous other development issues are a few of them.

3) Agriculture Informatics

Mr. Vice Chancellor Sir, the need to feed the growing world population while conserving soil health and preserving environmental quality should be the primary emphasis of agricultural innovation, especially in our country Nigeria. Since nearly 11% of the world's greenhouse gas emissions come from agriculture, the intensification of agriculture has resulted in incredibly low nutrient use efficiency, which poses a serious threat to environmental quality. A significant amount of nutrients are lost to water and the atmosphere, warming the planet. According to UN estimates, 840 million people would experience hunger in the year 2030. But scientists are actively working to develop a roadmap that combines nano- and smart-enabled agriculture with Artificial Intelligence and machine learning skills that could help to lower this number (ScienceDaily, 2021). Therefore, it is imperative that Africa develop its own capacity in the fields of space technology (ST), nanotechnology (NT), and artificial intelligence (AI), particularly in key areas like information and communication technology (ICT), navigation, and Earth observation systems for the creation and management of geospatial information. In Nigeria's efforts to achieve sustainable development, capacity building to improve the use of space and information systems in planning, project execution, decision-making, and secure governance has become essential.

Agriculture Informatics often referred to as "e-agriculture," and a young field that focuses on advancing agricultural development through better information and communication systems. Utilizing information and communication technology (ICT) in agriculture allows for the implementation of creative methods. In terms of agro input supply, production, processing, and marketing, it offers a wide range of solutions. It offers a wide range of uses that can benefit from recent ICT advancements in the agricultural sector. With a major focus on the agricultural value chain, e-agriculture entails the conceptualization, design, development, assessment, and deployment of novel approaches to employ ICTs in the agricultural domain. It combines the field of engineering, technology, science, management and economics as an interdisciplinary approach. It also focuses on ICT applications in horticulture, environmental sciences, and other related fields of agriculture.

According to Tsekouropoulos, *et al*, (2013), Babu, Lakshmi and Rao, (2015) and Goraya and Kaur, (2015), The application of agricultural informatics in modernization, capacity building, and development results in greater crop and animal production yields. Agricultural Literacy creation could be considering another important area that may consider valuable contribution of Agricultural Informatics practice. With the help of agro based websites, portals, agro networks, and agricultural systems, the farmer can get knowledge of the current trends in farming. While Paul *et al*, (2020) defined agricultural informatics as an emerging area that deals with practices and technology that are responsible for the agro related activities of information documentation, internet of things (IoT) and machine learning are relevant because they have an impact on intelligent farming practices.

Agriculture informatics entails the application of innovative ways to use information and communication technologies (IT) in Agriculture, Computer Models in Agriculture: statistical, weather analysis and crop simulation models, concepts, structure, inputs-outputs files, limitation,

advantages and application of models for understanding plant processes, sensitivity, verification, calibration and validation. The IT application for computation of water and nutrient requirement of crops, computer-controlled devices (automated systems) for agro-input management, Smartphone mobile apps in Agriculture for farm advises, market price, postharvest management, geospatial technology, concepts, techniques, components and uses for generating valuable agri-information decision support systems, concepts, components and applications in agriculture, agriculture expert system, soil information systems for supporting farm decisions and the preparation of contingent crop-planning and crop calendars using IT tools.

Agriculture Informatics- This is also known as e-agriculture and an emerging field which focused on the enhancement of agricultural advancement through improved information and communication processes. It is the application of innovative ways through the use information and communication technology (ICT) in agriculture. It offers a wide range of solutions to many agricultural challenges of agro inputs supplies, production, processing and marketing. It has a broad spectrum scope that harness new ICT applications in the agriculture sector. E-agriculture involves the conceptualization, design, development, evaluation and application of innovative ways to use ICTs in the agricultural domain with a primary focus on the agricultural value chain. It combines the field of engineering, technology, science, management and economics as an interdisciplinary approach. It is also dedicated to ICT practices in agriculture and other allied areas like horticulture and environmental sciences.

Mr. Vice Chancellor Sir, also worthy of note, is the interaction between informatics, information science and other nomenclatures that have created emerging fields that have a sustainable, intelligent and technological focused agro system deployed with the knowledge of agro informatics practices in the agricultural sector. For the purpose of this lecture, the term ICT is defined as the umbrella body involving all devices, networks, mobiles, services and applications and the way they operate. These range from innovative Internet-era technologies and sensors to other pre-existing aids like fixed telephones, televisions, radios and satellites. Meanwhile, the Food and Agriculture Organisation (FAO) (see, e.g. www.e-agriculture.org) opined that development informatics research is being undertaken in the areas of growth to address food security, malnutrition and hunger, improve agricultural productivity and sustainable incomes, address an issue at the intersection of land relating ICTs to land degradation, land management, and land rights and tenure as well as manage and improve agricultural supply chains. This has tremendous implications in addressing the effect of climate change.

Effect of climate change- Climate Change is the alterations in climatic variables like temperature, rainfall patterns that can distort agricultural production and have tremendous impact on poverty, migration, social stability and food production. According to the Maplecraff's Climate Change Vulnerability Index Report (2014), the Nigerian climate change scenario got worse off as it went up the index rank from sixth to fourth position of the 32 extreme countries with high risk. Some report says Nigeria is the 55th most vulnerable country to climate change and 22nd least ready. It is projected to cost 6%- 30% of Nigeria's GDP by 2050 which translates to \$100 billion – \$460 billion in losses if nothing is done to abate. From this climate change constraint now emanated the concept of Climate Smart Agriculture (CSA) which is very new to many smallholder farmers in Nigeria. The CSA is a new global frontier for the sustainability of the food and agriculture systems which is hinged on 3 pillars; sustainable increase in farm productivity, enhanced resilience of agriculture and food security ecosystem to climate change at various levels and the reduction of

greenhouse gas emission. The poor knowledge of the farmers on the CSA concept has led to a lot of bewilderment among them. The knowledge of Smart farming techniques like the application of computers, internet of thing (IoT), sensors, location systems and artificial intelligence (AI), large data capturing, management and analysis for effective decision making are still a far cry in Nigeria. The main goal smart farming is to achieve reliability, predictability and sustainability of activities along agricultural commodity value chains.

The effects of climate change can be solved through precision and regenerative agriculture;

❖ **Precision Agriculture-** The concept of precision agriculture also known as Crop Site Specific Satellite Farming (CSSSF) is needed to move the Nigerian agricultural space to a higher level of productivity. It is a term used for production and farm management that utilizes the methods of observation, measurement, and responses to intra/inter field variability in crops and animal husbandry through the adoption of numerous technologies. Some examples are in the evaluation of natural soil variability of a measured field to determine water retention capacity, best crop capacity, soil minerals analysis and vegetation density. It will help farmers a great deal in the area of input management and lead to increased productivity and income. The main goal is to reduce environmental risks, monitor soil and plants physicochemical parameters and thereby optimize returns while preserving resources. The practice is expensive in terms of resource and knowledge base and still predominantly low among farmers.

❖ **Regenerative Agriculture-** The low level of awareness and knowledge of Regenerative Agriculture (RA) is another concept that has affected the production of quality and health friendly agricultural produce in Nigeria. It revolves around farming practices that help to rebuild soil organic matter towards promoting healthier ecosystem and restore degraded soil biodiversity. Most proponents of regenerative agriculture advocate for practices like no-till farming, crop-rotation, composting, livestock rotation, agro-ecology and agro-forestry.

4. Engineering Informatics

Engineering Informatics is the Information technology (IT) knowledge, methods, models, and algorithms that support engineering and management activities spanning from client requirements to design and manufacturing operations are the focus of the applied information science sub-domain known as engineering informatics. Processing information or computational systems that include engineering is basic. In terms of improving the usefulness, adaptability, efficacy, and consistency of information and computer technology (ICT) solutions in engineering, it is incredibly helpful. Engineering informatics applications' efficacy and efficiency in supporting a country's industrial growth directly affect that nation's industrial competitiveness in the global economy. Almost every part of business is altered by the use of IT solutions, including the manufacturing process, investment, and human resource management. IT now directly influences a nation's progress in the information and communications sector; the growth of internet technology creates a lot of new job opportunities.

5) Social Informatics

Social informatics is a conceptual approach to identifying the fundamental aims and obligations of social trends of civilization that includes the shift from an industrial to an information society according to Ursul (1990). It is a byproduct of what occurred in Russia in the middle of the 1980s, which is a legitimate example of science responding to a new societal demand by establishing a new line of inquiry in the field of informatics. The majority of the employed population during this time period focused mostly on information products and services in order to achieve their

desired objectives. As a result, a modernized educational system and a comprehensive study of the information society in the area of scientific knowledge are both objectively needed by society today. The idea was to link global problem of getting the society informed to a socially oriented one. He suggested that informatics and information technology simply serve as tools for the individual to better understand and utilize the knowledge for social advancement. One of the first scholars to emphasize the critical significance of the information society's humanistic orientation which could not evolve naturally because technology not only generates new opportunities but also challenges.

Informatics through internet technology offers numerous advantages in today's changing world especially in the local and international transactions embarked on by people on daily basis. Despite the potential benefits of internet, there are no standards to combat illicit acts during online transactions. (Osagie and Obahiagbon, 2014) researched on cybercrime and its impact on the youths. The study aimed at looking into the impact of cybercrime on the youths and the measures employed in avoiding criminal activities when surfing the internet.

6) Business Informatics

The discipline of information systems has some similarities with business informatics. A technology-focused business course has recently emerged as a recognized area for research and study. It is typically divided into three categories: formal science (which develops and uses rigorous description methods and models), applied science (which analyzes real-world events) and engineering (which methodically plans and builds information and communication systems) (Wissenschaftliche Kommission der Wirtschaftsinformatik, 1994). It focused on the creation of programming and device frameworks for the effective operation of an organization based on information technology application. It also focuses on socio-technical systems that include both machines and humans, or business information systems (Ferstl & Sinz, 2001; Heinrich, 2001; Retzer, Fisher, & Lamp, 2003; Wissenschaftliche Kommission der Wirtschaftsinformatik, 1994). However, it expressly blends and complements the business studies and informatics fields. The technologies of information and communication systems are its main focus, whilst business studies concentrate on management tasks. By utilizing informatics principles and tools, business informatics seeks to support business operations. Although electronic business utilizes internet technologies to improve the productivity of business, but the Web has consequently become criminals' pathway for spreading malware and other cyber-attacks.

Vice Chancellor Sir, most businesses today are been attacked by cyber criminals, resulting in profit and economic loss. It is as a result of this, researches into informatics and business has evolved in order to enhance business processes and build models against activities of cyber criminals. In an early research in the field of informatics, "Web danger and its implications for e-business in Nigeria" Obahiagbon *et al.*, (2012) dealt extensively on this challenge. According to the study, a web threat is any threat that makes use of the internet to aid crimes like identity theft, fraud, espionage, and information gathering. The study further exposed some methods used by cybercriminals to perpetrate web threat and the measures required by relevant authority to minimize the impact on e-business.

7) **Health Informatics**

According to the United States National Library of Medicine, health informatics is the interdisciplinary study of the design, development, adoption, and implementation of information technology-based advances in healthcare service delivery, management and planning. Clinical informatics, healthcare analysis, infectious diseases, and biomedical informatics are all related to this. It is used in telemedicine, electronic medical records, decision-supporting health information systems, mHealth, data warehousing, and eLearning technologies. It all comes down to providing the appropriate information at the appropriate time, location, and cost to the appropriate individuals both inside and outside of a system.

Vice Chancellor Sir, by utilizing cutting-edge tools and processes, improving data collection systems with IT solutions and standardized procedures, and developing patient-centered systems (i.e., information systems should enhance care by tracking patients through their treatment progress), health informatics will help to strengthen health information systems (HIS). For instance, Covid 19 patient-centered systems improve data management and general patient management while enabling better patient-to-provider communication, tracking drug supply inventory, and overall patient management for HIV-infected patients as they progress through antiretroviral therapy (ART). We collaborated with key stakeholders and actively sought their input in order to develop standards that allow datasets to be shared and decision makers can rely on to improve.

Vice Chancellor Sir, it is necessary to look for efficient techniques for the diagnosis, prevention, monitoring, and treatment of patients with high blood pressure due to the rising prevalence of high blood pressure-related problems. As a result, Obahiagbon and Odigie (2015) built a framework for poor nations' intelligent remote blood pressure monitoring and control system. In order to monitor and control the vital signs of patients with high blood pressure and its associated chronic conditions, including diabetes mellitus, chronic heart failure, and chronic obstructive pulmonary disease, the study used wireless communications and remote sensing technologies. The framework's implementation produced a software model that was tested on a Nokia 5200 smartphone, a Windows Mobile 5.0 emulator, and a backend web application with i-net clear report for reporting various decision parameters to hospital medical experts and providing remote patients with counseling and advisory support on healthy living. The study really confirmed one of my early findings in applying intelligent methods to health informatics. The study gave a way to hasten the supply of high-quality medical treatment to rural areas where wireless technology can increase communication.

In addition, I looked into the demand for an automated hospital information system in the Journal of Health Informatics in 2015, working with researchers like John-Okumu and Ukhunamure to enhance the effectiveness and caliber of health service delivery in the Esan-West Local Government Area of Edo State. In order to increase the effectiveness and caliber of health service delivery for medical centers within the local government, the study supported the need for an automated health information system. The use of machine learning for the diagnosis of malaria in Tropical Africa was also presented by (Uwadia and Obahiagbon, 2021). An artificial neural

network classification algorithm was created as part of the project for malaria early diagnosis. The software was created using Anaconda Spyder 3.7, and testing revealed that it is capable of accurately predicting malaria.

Using an expert system, Obahiagbon and Odigie (2015) developed a transportable architecture for children diseases that can be prevented by vaccination. The study's objective was to use the cutting-edge capabilities of telemedicine to create a system architecture for alert mechanisms on accessible vaccines and offer medical information and judgments to healthcare providers for efficient vaccination planning. A request for a systematic strategy employing best software modeling methodology is extremely important based on research that shows how communities and healthcare professionals may address the challenges of vaccine-preventable pediatric illnesses through effective vaccination communication. The patient/user model, the doctor module, the health institution module, and the supporting partner's module are the four components that make up the system, as shown in figure 6. The patient module (see figure 7) contains the physiological data collection equipment for patients and a Remote User Interface (RUI) program that enables them to connect to the server if they have Internet connection. A java-enabled mobile phone can launch the RUI application and connect to the server where they can instantly receive immunization health tips and SMS alert based on their health status. Other medically related devices include a glucometer for measuring blood glucose levels, a thermometer for measuring temperature, and a weight scale.

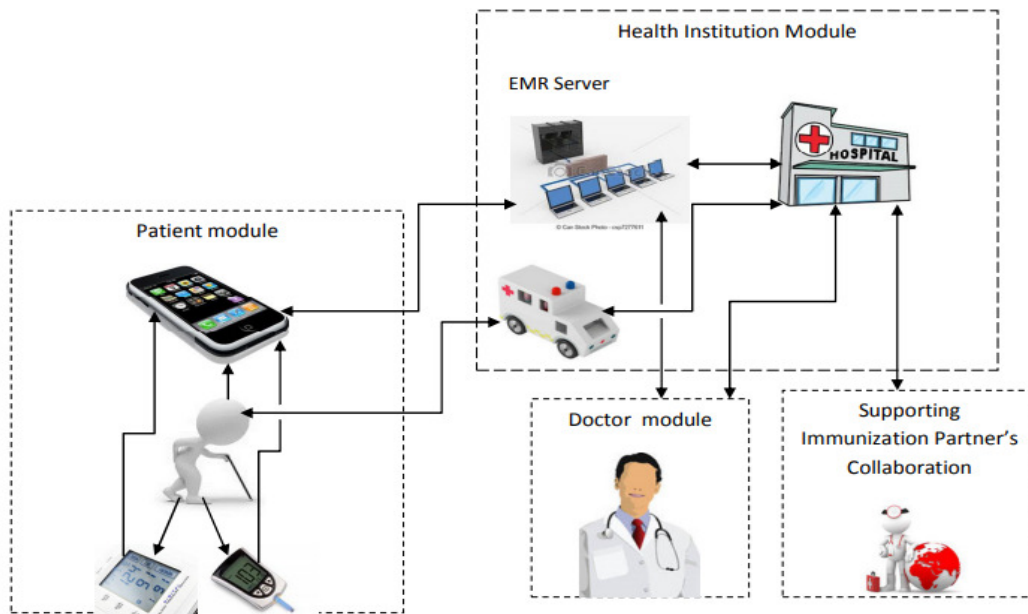


Figure 6: Modelling Childhood vaccine preventable illnesses

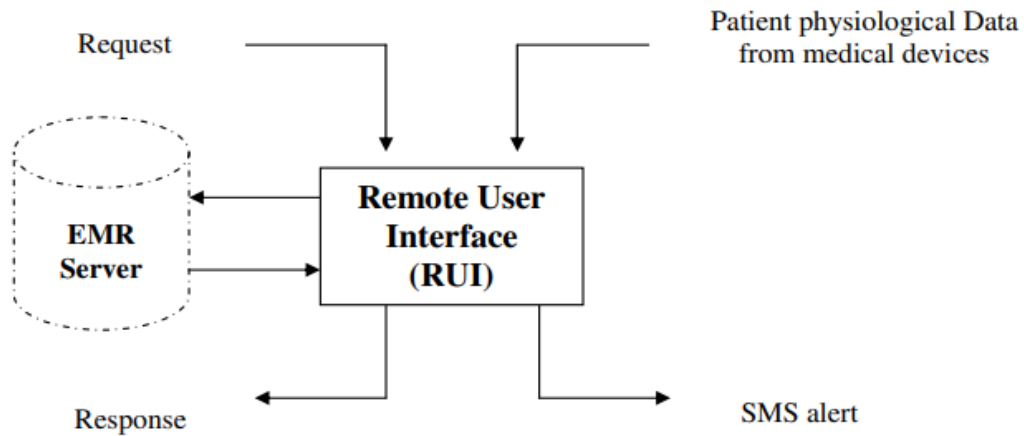


Figure 7: Patient Module.

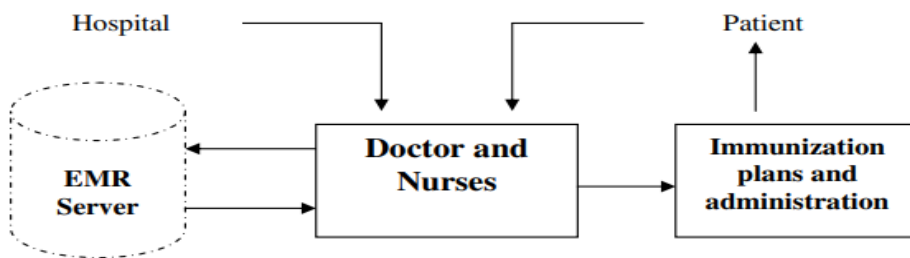


Figure 8: Doctor Module

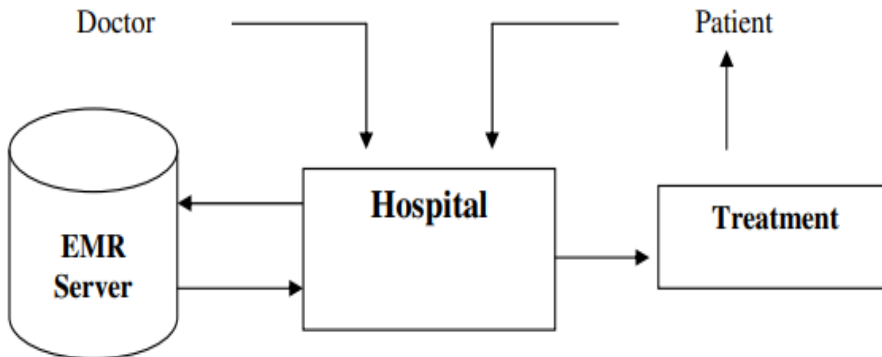


Figure 9: Hospital Module

As depicted in figure 8, the doctor module contains all medical professionals, nurses, and other healthcare workers who participated in immunizations and clinical treatments. The hospitals and Electronic Medical Record (EMR) server are included in the Health Institutions module (see figure 9). The EMR server has the expert system for effective communication and decision on

immunization issues. An expert system that manages and evaluates the EMR oversees the entire system. Java programming language and the open source MySQL database were used to implement the EMR. The physiological parameter was examined in the EMR server's knowledge base in the form of rules, each of which reflected knowledge of a certain childhood ailment based on the patient's age. Based on the provided fact, the inference engine searches for rules with conditions that turned out to be true (data from the user). Organizations and international partners actively engaged in immunization are listed in the supporting partners module, including WHO, UNICEF, and Immunization Partners in Asia Pacific (IPAP). Figure 10 depicts the Web-enabled vaccination preventive expert system.



Figure 10: Web-enabled Vaccine Preventable Expert System.

Vice Chancellor Sir, The system was an interactive expert system that offered a more precise solution to immunization coverage issues, kept track of the immunization schedule's progress in a centralized database, and informed doctors of the patient's current health status based on data provided from remotely sent physiological data via the RUI. It is possible to identify children who have had vaccinations against prevalent childhood diseases like measles, whooping cough, and polio (poliomyelitis), and they can schedule an appointment with a doctor. To make the work of doctors easier and reduce unnecessary diseases and deaths in children, a system of this size should be implemented in Nigeria's general healthcare system (hospitals, clinics, and maternity).

Furthermore, in my recent study in health informatics, Ihama et al., (2021) presented a web-based intelligent decision support system for early diagnosis of different classes of Hepatitis. The study focused on a web-based pre-diagnostic diagnostic system for early detection of the different classes of Hepatitis (A, B, C, D and E), which was shareable, inexpensive, and reliable. The system embodied a permissible threshold limit that served as a warning signal, if this threshold limit is exceeded, and then adequate attention will be given to such patient (Figure 11). On approval by decision and policy makers on the utilization of this system, the prevalent rate of

the disease will be curtailed, thereby reducing the induced burden of death as a result of the disease. Similarly, in the domain of health informatics, (Agenmonmen, T., Ihama, .E.I., **Obahiagbon, K.O.** and Eguasa, 2021) designed an expert system for early diagnosis of stroke that uses the human-like reasoning style, a Fuzzy Logic system to diagnose and suggest possible treatments for stroke through interactivity with user, with aim of developing an expert system and exploring the potential of fuzzy logic to assist clinicians in Nigeria to accurately predict and differentiate between the different types of stroke. It employed programs like MySQL, PHP, JAVA and XML. The system provided adequate and appropriate results and provided reliable predictions to users

Vice Chancellor Sir, the rate at which stroke is killing humans globally on a daily basis is becoming worrisome. Stroke is a medical emergency that needs prompt attention because it stops the supply of blood to the brain. Early detection of the disease depends on the approach/method utilized in diagnosing this disease. As such, a suitable method that can accurately detect it becomes a compelling alternative to overcome the challenges peculiar to the disease. An expert system for early diagnosis of stroke was presented to ameliorate the challenges because it is an intelligent system that aid physicians in managing the uncertainties associated with stroke and aid early diagnosis.

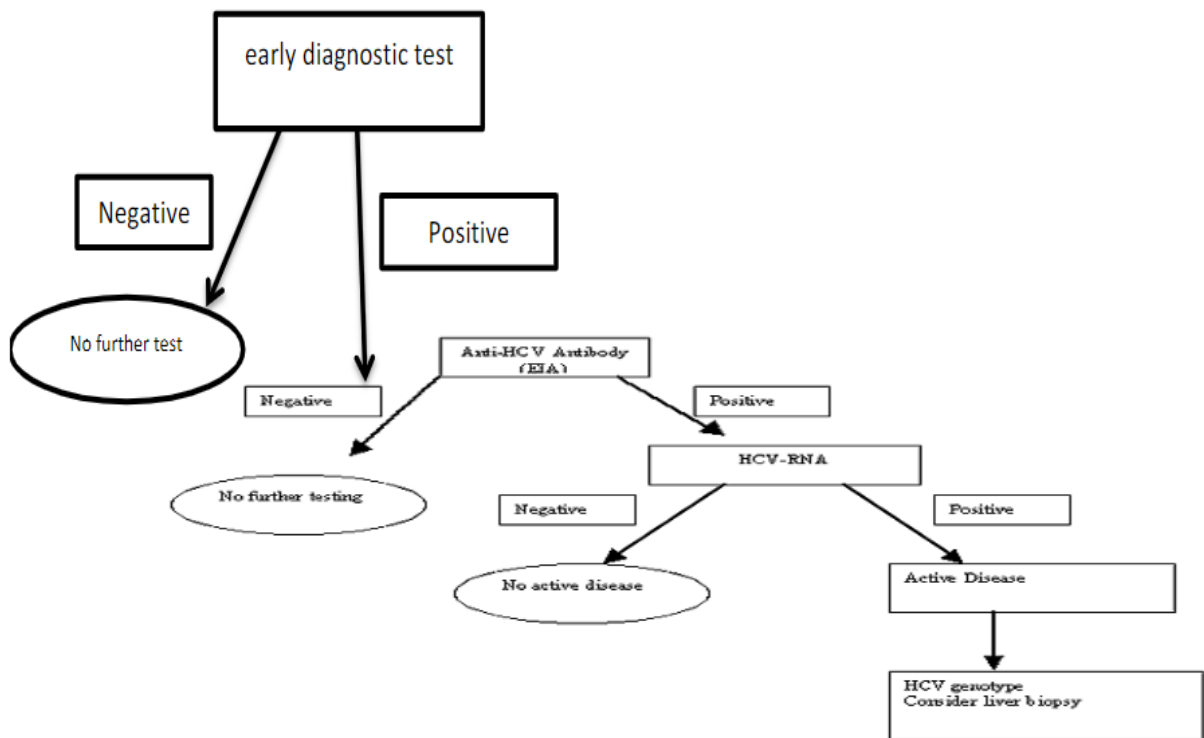


Figure 11: Expert System for early diagnosis of Hepatitis.

8) Environmental Informatics

Environmental informatics is the use of huge, multidimensional, complex information that can be both continuous and discrete in space or time to study environmental issues. It makes use of data mining-based EMR technology and the usability principle for EHRs. Remote access to dynamic subsets of environmental information that can be handled by query-able databases is made possible by these datasets and the necessary metadata, such as the geospatial web application programming interfaces (APIs). The storage-computing trade-off allows calculations to be transferred to data, which helps to establish its dependability and credibility. The increasing atmospheric carbon(iv) oxide, the Antarctic ozone hole, and the Gulf Stream warm-core rings are a few examples produced by examining long-term datasets. Others include geo-tagging, cloud computing, ubiquitous location sensing, and mapping evapotranspiration and snow water equivalent.

A generalized regression neural network was investigated by Obahiagbon and Isabona (2018) as a different method for a trustworthy prognostic analysis of spatial signal power loss in cellular broadband networks. The study offered a mathematical examination of the stochastic behavior of the propagated radio signal loss data from installed LTE networks in urban microcell using GRNN modeling approach. The root mean square error, standard deviation error correlation coefficient, and mean absolute error were the four main performance indicators used to assess the predictive analysis.

Vice Chancellor Sir, the world wide population of the elderly people is rapidly growing and in the coming decades, the proportion of older people will change significantly. Central to smart home security is the need for adequate awareness systems for remote exploration and control. However, these pose complex usage by the disabled and the elderly. Although, home security systems like CCTV provides non-flexible view and do not support users situation awareness. However, technological (Informatics) and human progress has made it necessary to automate a security system for the old and crippled. In lieu of this, (Obadan and Obahiagbon, 2013) presented a voice automated robotic surveillance system for the elderly and disabled. The study helped to combat the problem of present surveillance systems by introducing a vehicular remote exploration surveillance robot, capable of projecting in real time the environmental status in response to natural language command.

9) Education Informatics

The field of educational informatics examines the interactions between people, data, ICTs, education, and professional practice at the individual and societal levels. Additionally, it incorporated several institutional and organizational settings. Information systems, information management, literacy, educational psychology, learning technology, computer-supported collaborative learning, and instructional design are just a few of the sub-disciplines that each of these three broad disciplines, information science, education, and computer science, encompasses. The cognitive and psychological components of how each learner interacts with ICT-based information are the focus of educational informatics. The use of information and communication technology is a powerful weapon in the struggle against illiteracy. ICT and education research is progressing. ICT offers a practical and affordable method of education for both digital immigrants and digital natives. Obahiagbon *et al.* (2014) conducted a survey in five communities of

Obayantor, Oka, Ebo, Etete and Idogbo in Edo State on the impact of ICT in reducing adult illiteracy as a contribution to the field of informatics in education. Similar to this, Obahiagbon and Osahon (2014) conducted a survey to learn more about the awareness, accessibility, degree of satisfaction, and effectiveness of using ICTs to improve teaching and learning at the University of Benin and Benson Idahosa University, Edo State, Nigeria.

Vice Chancellor Sir, informatics in education has greatly received numerous attention from various researchers. A nation's educational system will be improved by integrating ICT into teaching and learning which will afterwards lead to a sustainable economy.

3.5 THE 20TH CENTURY CYBERNETICS

The field of information science and human endeavour used in social works, artificial intelligence and half human, half robot synergy is known as *Cybernetics*. The term "cybernetics" was originally derived from the Greek verb "to govern," which also means "to steer or navigate". It is the study of the general regularities of control and information transmission processes in many systems, including machines, animals, and social systems. According to Novikov (2016), the history of cybernetics navigates across the prospects in its contributions to the development of information science. However, the modern way of interpreting cybernetics as a term is "Norbert Wiener was a pioneer in the scientific study of control and communication in animal and machine in 1948. It is categorically focused on the biological and "economic" components of cybernetics (Ashby, 1956; and Beer, 1959). Cybernetics is an interdisciplinary field of study that has its roots in the fields of biology, logic, semiotics, sociology, mathematics, and physiology. It possesses the inherent qualities of the fundamental ideas and methods of scientific cognition. Operations research, communication theory, and control theory are a few of its important theories. Cybernetics is based on the idea that information is processed and changed by mechanical, biological, and digital systems in order to improve communication and control. Cybernetics components (Table 3) intersect with other sciences as Meta sciences which has manifested in general systems theory and analysis. The American Society for Cybernetics and the World Organization of Systems and Cybernetics are two international organizations connected to cybernetics.

3.6 NANO INFORMATICS AND SPACE TECHNOLOGY

Globally, human development has been accompanied by the increasing proliferation of digitized devices, and services and rapid changes in information and communication technology. The pace of change is accelerating as a result of "*smart technologies*" such as artificial intelligence (AI), robotics, biotechnology, nanotechnology, and space technology. ICT, Nanoinformatics, and geospatial information forms the basic unit of development in various aspects of a nation's economy including petroleum and energy, solid minerals, agriculture, water resources management, weather forecast, aviation, transport, environmental and disaster management /monitoring, defense and security, tourism, population census, telecommunication, education, and health. Additionally, nano informatics is essential for analyzing how plants and ecosystems react to newly develop nano-agricultural-based parameters and optimizing them to support secure and long-term agriculture. In a similar vein, nano informatics uses AI technology to enable secure-by-design development of nano-based agrochemicals. This technology integrates extensive experimental data from various soil conditions, data on the physicochemical properties of nanomaterials, and other data to provide crucial information.

Table 3. Different types of cybernetics

Type	Authors	Period
Cybernetics	N. Wiener W. Ashby S. Beer	1948-1950's
Second-order cybernetics	M. Mead G. Bateson H. Foerster	1960-1970s
Autopoiesis	H. Maturana F. Varela	1970's
Homeostatic	Yu. Gorsky	1980's
Conceptual cybernetics of third and fourth orders	V. Kenny R. Mancilla S. Umpleby	1990-2010s
Neo-cybernetics	B. Sokolov R. Yusupov	2000's
Neo-cybernetics	S. Krylov	
Third-order cybernetics	V. Lepsky	
New cybernetics, post-cybernetics	G. Tesler	
Control methodology	D. Novikov	
Evergetics	V. Vittikh	2010's
Subject-oriented control in no sphere (Hi-Hume Cybernetics)	V. Kharitonov A. Alekseev	

Vice Chancellor Sir, The problems and prospects, as well as the methods to increase crop yield and develop intelligent plant sensors, have all been covered in various reviews. Nanotechnology holds enormous potential for enabling smart and sustainable agriculture. Although there are greater opportunities for nanotechnology in agriculture, there are also challenges that must be overcome, including a lack of mechanistic understanding of the interactions between nanomaterials, the plant-soil interface, the uptake and translocation of nanomaterials in plant vascular structures, risks to humans associated with the use of nanomaterials, a lack of large-scale field studies demonstrating the effectiveness of nanomaterials, and unclear financial outcomes.

Informatics and Block chain Technology

Rapid advancement in informatics has brought about the development of an information system scheme based on block chain technology for medical information storage and sharing. Block chain applications for healthcare informatics is a comprehensive survey in 5G-enabled technology in healthcare applications. "Block chain" was originally applied to the financial sector as a distributed ledger technology on Bitcoin. However, this technology provides the integrity of transactions without third-party intermediary for validation. As decentralized transaction with features such as data provenance, data sharing, and data integration makes it a good fit for clinical trials and health information exchange.

Vice Chancellor Sir, following the modernity informatics, Ahubele and Obahiagbon (2022) presented an eavesdropping attack prevention model in E-auction system using blockchain technology.

6.0 My Contributions To The Body of Knowledge

Mr. Vice Chancellor Sir. With all sense of humility and modesty, I present before this august gathering an account of my contributions to the body of knowledge and human development solely, and in collaboration with some co-researchers in the field of information and communication science.

Mr. Vice Chancellor Sir. Kindly permit me to use the words of Abraham Lincoln who in his address before the Wisconsin State Agricultural Society in 1859 (cited in Basler, 1953:475 and Omotosho, 2015:12) stated as:

Every man is proud of what he does well,
And no man is proud of what he does not do well;
With the former, his heart is in his work;
And he will do twice as much of it with less fatigue,
The latter performs a little imperfectly, looks at it in
disgust, turns from it, and imagines himself exceedingly
tired. The little he has done comes to nothing, for want of finishing.

I developed the interest in Computer Engineering as a young school leaver, an interest that was transformed into a lifetime dedication in academics. Due to non-availability of time, I intend in this lecture to discuss the imperativeness of my subject area and my place in it for the sake of intellectual history and as an advancement of the course of human knowledge in the field of Informatics and Information Communication Technology (ICT) in particular and Science development in general. Informatics had so many fields of studying like Nano informatics, Health informatics etc.

My contributions in these aspects of ICT can therefore be discussed under the following categories;

Obahiagbon and Isabona (2018) in the study of Generalized Regression Neural Network (GRNN): An Alternative Approach for Reliable Prognostic Analysis of Spatial Signal Power Loss in Cellular Broadband Network provided a proactive mathematical analysis of stochastic behaviour of propagated radio signal loss data obtained from deployed Long Term Evaluation (LTE) network in urban microcell using the GRNN modeling approach. The predictive analysis has been evaluated by four key performance indexes which are root mean square error, standard deviation error, correlation coefficient and mean absolute error.

In a study on the measurement-based statistical method for estimating and verifying signal coverage and coverage probability in urban microcells, it identified some problematic site locations using statistical descriptive analysis in an established Universal Mobile Telecommunication System (UMTS) network, operational in Ikoyi, Lagos. The result shows that the quality of radio signals at the cell edge in some locations were weak as they recorded poor coverage probability performance of 89.25% and 81.7% and high outage probability performance of 10.7% and 18.3% respectively. It was also observed that the smaller the fade margin, the higher the outage probability and the lower the coverage reliability. These are locations within the coverage area where the propagated signal was not good enough for perfect reception at the mobile terminal. Therefore, the GSM (Global System for Mobile Communication) network operator should take action to deploy new cell or adjust the antenna tilts/azimuth of existing cells, among other things for adequate reception signal coverage at the mobile terminals in the specific cell

locations. In future, this inaugural lecturer intend to find ways to evaluate the entire cell area reliability which is often more useful than the edge reliability (**Obahiagbon** and Isabona, 2018). Oga, Egbokhare and **Obahiagbon** (2018) studied the Business Process Analysis as a precursor to software cost estimation in software development projects and concluded that software cost estimation is a major challenge in software development and has been identified as one of the root causes of software project failures. The study looked at the business process modelling approach as a precursor to cost estimation in software development project. The approach was tested using a hospital information system as a single case study.

In a study on the Cell Cluster Based End-user Satisfaction Assessment Methods for Mobile Telephony in Urban Radio Networks, Isabona and **Obahiagbon** (2018) found out that in wireless mobile networks, the quality of end-users experience usually changes dynamically depending on a large variety of factors due to traffic growth and geographical coverage demands with different QoS (Quality of Service) requirement and others of new buildings, growth of trees, changing foliage conditions and equipment deterioration, all of which contribute in the Radio Frequency (RF) properties in the system.

Isabona and **Obahiagbon** (2018) in a study on The Impact of Linear and Non-Linear Channel Equalisation Algorithm on User Achievable Rate and Rnergy Efficiency on Uplink Large Scale (multiple input, multiple output) MIMO Techniques for Next Generation Networks found out that the demand for multimedia services in mobile broadband communication systems was expected to increase a hundred or thousand fold by 2020 for future wireless networks such as the 5G owing to the requirement of super high speed data services, massive connectivity, low latency, high spectral and efficiency.

Towards an understanding of the factors that Determine Software Requirements in a Multi-Stakeholder Environment, **Obahiagbon**, Chimsunum and Egbokhare (2017) did a study on a case study of hospital patients record management system. The study found out that requirements engineering is one of the most critical phases of a software development project since unresolved requirements engineering problems can lead to project failure.

In a study on the Digitalized Responsive Logical Interface Application to Access Automated System for Examination and Record Unit for all Nigeria tertiary institution, Osagie, **Obahiagbon**, Inyang and Osagie (2017) found out that it has not only become a reality by the design of the Digitalized Responsive Logical Interface Application but has also open doors for both homogenous and heterogeneous computing as staff of the Examination and Record (E&R) units of all tertiary institutions are no longer restricted to the four walls of their offices but can now easily and profoundly executes any operation anywhere using Digitalized Responsive Logical Interface Application.

Against the background of the Micro Controller Based-Regulated Power Access, Akinmuyisitan and **Obahiagbon** (2017) examined the Micro Controller Based Regulated Power Access Controls for electronic appliances. It study showed that the design of a system was a challenging effort and an eye-opener into the world of Micro Controller. It was however fulfilling to see the kind of device that has been made and knowing the logic behind every design work.

Otabor and **Obahiagbon** (2016) examined the Statistical Approach to the link between Internal Service Quality and Employee Job Satisfaction: A Case Study of Some Hospitals. The result showed that management of hospital should upgrade and sustain the Internal Service Quality (ISQ) components in order to facilitate efficient ISQ delivery which is a prerequisite for external customer satisfaction, delight, loyalty and patronage.

With the emergence of a new dawn in homogenous and heterogeneous computing in Nigeria, Osagie, **Obahiagbon**, Osagie and John-Otumu (2016) examined the 5 Pen Technology and concluded that the increase amount in sophisticated gadgets currently in the Nigerian market and the rate at which people patronized these gadgets gives clear indications of Personal Computer (PC) impacts amongst end users.

The global trends on specific absorption rate and temperature rise computation in human tissue due to electromagnetic field emission, **Obahiagbon** and Isabona (2015) did a study on it and concluded that the biological effects of electromagnetic radiation are learnt through investigations and research such as numerical bioelectromagnetic modelling experimental (in vivo and in vitro) investigations and epidemiological studies.

Inyang and **Obahiagbon** (2015) examine the Determination of Manufacturing Qualities Utilising a Fuzzy-Based Approach and concluded with the demonstration of the practical application of fuzzy logic in determining manufacturing qualities. The model uses a set of fuzzified data set incorporated as more précised than the traditional system.

Obahiagbon and Odigie (2015) investigated the Mobile Architecture for Childhood Vaccine Preventable Illness Expert System. The study demonstrated the gains of improving effective immunization coverage in Nigeria through mobile remote monitoring. The study showed that remote monitoring will help improve better health care delivery towards meeting the yearning of citizens who cannot easily access health institutions because of distance and limited health care providers.

Obadan and **Obahiagbon** (2015) examined the rule based expert system approach towards the resolution of the Tower of Hanoi. This also refers to as Tower of Brahma or Lucas Tower and can be defined as a mathematical game or puzzle which consist of 3 rods which are also known as towers and a number of disks of different sizes which can slide onto any rod. The results showed significant usability difference in overall usability of expert system approach over the traditional recursive system approach within the confines practical problems such as resolving the problem of the tower of Hanoi.

With the reoccurring challenges of intelligent remote blood pressure monitoring and control system for developing countries, **Obahiagbon** and Odigie (2015) examined the framework for intelligent remote blood pressure monitoring with the conclusion that the gains from the study include continuous monitoring of patient remotely, easy accessibility, low cost and instance Short Message Service (SMS) alerts and health tips on proper health styles to patients irrespective of their locations for the health institution. It also provides useful data that help health care policy makers at the various levels of government to put appropriate legislature and funding towards improving the health care system.

In order to improve the health care information system, John-Otumu, **Obahiagbon** and Eriata (2015) did a study on Automated Health Care Information System in Esan West Local Government Area of Edo State, Nigeria and came to the conclusion that of the 28 health facilities in the study area operate on a paper based information system and 93% of the respondents acknowledged the imperative of a change in operation to an automated hospital information system.

With the growing rate of adult illiteracy on the use of Information and Communication Technology, **Obahiagbon**, Okpah and Omo-Egharevba (2014), examined the perception of respondents in Edo State. The study concluded that there is a dire need for a mobile solution to the ailing adult illiteracy problem in Nigeria. There is also the need to recognize the use of ICT instructional technology in the education and learning processes in Nigeria is vital to the progress and development of its citizens.

With the ever increasing demand to enhance the teaching and learning of ICT in Nigeria, **Obahiagbon** and Otabor (2014) examined the ICT key tools for enhancing teaching and learning in 2 tertiary institutions in the Benin Metropolis. The study shows that regardless of the obvious benefits ICT tools bring into teaching and learning, majority of respondents agreed that ICT are used more in administrative purposes such as hostel allocation and course registration as compared to teaching and learning. The study recommends that the institution should invest more in classroom educational tool teaching and learning tool and instructors should be trained in the use of these tools especially in students' studies, examinations and submission of assignment.

Enagbonma and **Obahiagbon** (2015) examined the Probabilistic Fixed Lifetime Inventory Model for Continuous Demand Rate. The study computed the ordering cost, expected holding cost, expected shortage cost, expected outdates cost and these computations were applied to determine the expected cost for the fixed lifetime inventory system. The models of this sort are still currently being investigated and will be reported in the future. The computations were facilitated using a computer program.

In order to adopt a practical optimization method to improve QoS and GoS-Based key performance indicators in GSM network cell cluster environment in Asaba, Nigeria. Isabona and **Obahiagbon** (2014) did a study on it and the results showed significant performance improvement in terms of cell drop rate, call setup success rate and call block rate across. Specifically, the end-user satisfaction rate has increased from 94%, 88% and 93% to 99%, 95% and 99% respectively across the three GSM cell cluster. The GoS is reduced from 3.3% to 6.6% and 2.4% to 0.0%, 3.7% and 0.0% respectively. Furthermore, ESA, which correspond end points service availability has improved from 94%, 93% and 97% to 100%, 96% and 100% respectively. In addition, the average throughput has improved from 74% kbits/s, 85 kbits/s and 87 kbits/s to 77 kbits/s, 92 kbits/s and 102 kbits/s respectively across the three GSM cell clusters.

With the upsurge in cybercrime in the global arena, Osagie and **Obahiagbon** (2014) examine the role of cybercrime and its impact on the youth in Benin City. Their study recommended that the Edo State government in collaborations with Federal government should commence the education of youth on the methodology of this new crime that is giving Nigeria a bad image. This can be done by integrating cybercrime as a course in tertiary institutions curriculum while culprits should be punished accordingly.

Against the background Radio Frequency (RF) Propagation Measurement and Modeling, Isabona and **Obahiagbon** (2014) examined its effect to support Adapt Planning of Outdoor Wireless Local Area Networks(WLAN) in 2.4 GHz Band. The study presented a Long Distance Model for signal path loss prediction in WLAN and the model reveals that the channel path loss exponent and the main path loss intercept are 1.82 and 84 dB respectively. In summary, the result shows that the obstructions in the environment considered had little effect on radio signal.

John-Otumu, Eriata and **Obahiagbon** (2013) examined the framework for developing and implementing an automated hospital management system on an intranet. The study found out the absence of a well-established information system to serve patient and staff that have led to inconveniences in the hospital system. It recommended serious efforts be made by both the government and private owned hospitals/clinics/maternity homes to automate all their information processes which will enhance workers attitude to work and improve their working conditions in terms of information accessibility and retrieval

In a study on the Practical-Based Radio Channel site survey approach, Isabona and **Obahiagbon** (2013) examined its impact for optimal deployment of a campus wireless LAN. It concluded that to provide reliable services, wireless network should be engineered to deliver adequate signal

strength in all areas where the wireless LAN technology is established. It recommended fine-tuning the power control parameters to extend signal coverage, position the AP optionally, use APs in repeater mode, consider the distance/obstructions factors, consider a direction antenna, pay attention to AP heights when covering outdoor spaces and the maintenances or replacement of faulty Access Point (AP) hardware.

Eguasa, **Obahiagbon** and Odion (2013) studied the performance of the logistics Growth Population Projection Model in three States in Nigeria. The data values from the National Population Commission(NPC) of Nigeria compares well with the estimated population model Z , Z_1 and Z_1 in each State considered. MATLAB was used as an inbuilt function to polyfit the data set and obtained a linear plot for the data set. It was discovered that Z_1 has the best approximation to the population data.

Obadan and **Obahiagbon** (2013) did a study on the Voice Activated Robotic Surveillance System for the elderly and disabled. The study recommended that future directions could be geared towards incorporating speech synthesizer to adapt the system to users with some level of speech impediment. A possible implementation could also be the combination of visual and voice interface in a single control console such as Personal Digital Assistants (PDA's), leveraging on Voice over Internet Protocol.

Sequel to the emerging challenges of web threat and its implication for e-business in Nigeria, **Obahiagbon**, Odion and Okpah (2011) did a study on its implication. The study concluded that although e-business utilizes internet technologies to improve the productivity of business, the web has become criminals preferred pathway for spreading malware with its associated negative impact such as identify theft, fraud, espionage and intelligence gathering. Stakeholders including internet service providers, email companies and government have a lot of responsibility to ensure that the menace of spam mails are addressed. Until the free email companies tackled this challenge, Internet Service Provider (ISP) will continue to use some spam filtering techniques along with the normal virus and other filters. Luckily, most modern email servers have or keep up with the latest filtering technologies which is a very heartwarming development. In my opinion, international collaborations to track down perpetrators of cyber criminals will deter those who are already in the business.

Looking as how imperative and germane the automation of library system is, **Obahiagbon** and Otabor (2013) studied the automation of library system using a case study of John Harris Library, University of Benin, Nigeria. The study concluded that the library management software monitors the routine operation in the library, saves time for both library patronage and staff in searching, locating and borrowing information materials and ensures accuracy. Others are speed and effectiveness in library staff performance of routine tasks as well as generate timely reports needed by the library management in planning and decision-making to enhance the working of the library departments.

My Contributions To Benson Idahosa University Community

Mr. Vice Chancellor Sir, I have had the privilege to serve in various capacities and on numerous committees over the past 12 years. I am the current Dean, Faculty of Science. I was the Director of General Studies (GST) from 2018-2021. I also had the opportunity to serve as the HOD of Mathematics and Computer Science from 2013 to 2018 I also acted as the Dean of Faculty of Science at various times. I was the Chairman of Faculty's Academic Quality Assurance Committee from 2018 to 2021. I was the Chairman of Webmetrics from 2014 to 2016. Coordinator, Departmental Post Graduate Programme for Mathematics and Computer Science from 2011-2018. I was the Head of Unit, Computer Science from 2012 to 2013. A member of Committee, Faculty

Academic Board from 2013 to date. Member of University Committee, ICT Strategic Planning Action from 2015 to 2017. Chairman, Investigation Panel on allegation of broken windscreen of lecturer's car, 2015. Member committee on shifting of Convocation ceremony, 2015. Member Planning Committee, International Scientific and Innovation Conference, 2016. And a member, University Part-Time Committee from 2018 to date.

My view on Transferring Knowledge

My mission is to improve and enhance the quality of students' learning, by helping colleagues develop their methods and approaches, and by helping students to develop their own learning skills. I am keen on both assessment and feedback in teaching and how these play positive and motivating roles in student learning and development. My original training was as a scientist, but over the years I became progressively more interested in teaching and learning, and gradually became an educational developer. Currently, I am a Professor in Benson Idahosa University in Department of Physical Sciences. In my spare time I am involved in consulting and training activities in teaching and allied related matters, and attending seminars to enhance my continuous professional development. My style is highly interactive, and I believe in getting workshop participants and conference delegates involved in post-IT brainstorming, prioritisation exercises, creative problem-solving rounds, and a variety of 'learning-by-doing' activities. I have worked in several countries; Italy and the United Kingdom and I have led workshops or given keynotes in Spain, Slovakia and France in recent years.

From Scientist to Educator

After an initial training in Mechanical Engineering, followed by 5 years doctoral research in Computer Networks and Communications at Milan State University, Milan, Italy. I was appointed Lecturer in Maths and Computing, Institute of Higher Education for Art & Design, Desio, Milan, Italy. While teaching there, I became progressively more interested in methodologies of teaching, learning and assessment. In 1990, I was appointed a Senior Lecturer in Maths and Computing, the Ferrarin Technical Institute of Aeronautics, Varese, Italy, my activities included; Staff Development, and an increased amount of study skills work with students on most of the Institute's courses and updating curriculum. In 1995, I migrated to the United Kingdom in search of new challenges and became a part-time Lecturer in B.Sc. (software engineering) at University of Nottingham, at the same time, I continued to work full time as Head of Department and Coordinator of Information and Communication Technology, Djanogly City Technology College Nottingham where I was the first head of ICT department and I developed an ICT curriculum for the college and framework that was the cornerstone of the delivery of ICT across all subject areas of the curriculum in the college. In my desire to seek more challenges and improve on my teaching and managerial skills I became the ICT Strategy Manager at Lea Valley High School, Enfield (UK) in 1999, where my job involved giving advice on newer and appropriate ICT technologies and sharing information with the local Borough on strategies for teaching and learning. Also, in four years, I was Head of Computing and Information Technology and my managerial and teaching scope has widened further to include; Supervision and training of colleagues (Postgraduate Certificate in Education students from Brunei University, London and St Mary's College, London) to become certified in professional teaching and computing certificates; and designing, implementation, evaluation and auditing of newer teaching methods and practices.

My views on Learning, Teaching and Assessment

I am convinced that in higher education too much emphasis has traditionally been placed on subject-content, and too little on learning processes and learner-experiences. In the present context of widening participation, I regard the development of students' capability (including particularly their skills in managing their own learning) more much more important than merely familiarising students with a particular range of subject matter. Teaching processes should not merely aim to be skilled performances, but rather should exploit a wide range of techniques to facilitate learning. I believe that learning should be an enjoyable experience, whether in lecture theatres, online, or in practical settings. I believe that adult learners need to be participants in each learning situation, not merely receivers. As participants, they can increase their self-esteem, and take credit for what they learn, adding considerably to the enjoyment and satisfaction that can come through learning.

Assessment and Feedback Design

I regard formative feedback as the lifeblood of successful learning. In the UK National Student Survey run from 2005, feedback has been found to be one of the areas where students indicate least satisfaction nationally, and I have now developed various workshop programmes to help staff to address this issue. I am currently exploring how best we can help students themselves to build on the feedback they gain not only from lecturers, but also from each other.

I am particularly interested in developing the quality of the processes and instruments of assessment. I regard assessment as presently constituting the weakest link in the higher education chain, and spend much of my time running staff development workshop sessions in Schools and Colleges, aimed at diversifying assessment, and helping staff to use assessment in ways that enhance student learning, rather than just to measure 'snapshots' of the information students have absorbed. I advocate strongly that assessment criteria should be shared with learners, and should relate clearly to well-articulated learning outcomes.

Student Self- and Peer-Assessment

I also believe that wherever possible learners themselves should be involved in the formulation of learning outcomes and assessment criteria. When students feel ownership of the agenda, their efforts to meet assessment criteria are vigorous. I believe that some of the most productive learning experiences arise from providing students with opportunities to employ self- and peer-assessment. I feel that successful learning experiences depend very much on the presence of a feeling of 'ownership' by learners. The more learners can become involved in the processes and procedures surrounding their studies, the more likely they are to achieve deep rather than surface learning. I believe it is particularly beneficial to encourage collaborative learning, enabling students to develop interpersonal and teamwork skills and attitudes.

Policy Recommendations

The following are my policy recommendations;

1. The Nigerian government should develop its own capacity in the field of space technology, nanotechnology, artificial intelligent particularly in the areas of ICT, navigation and geospatial information and management.
2. There should be more investment in improving computer literacy.

3. Government should invest in precision and regenerative agriculture through the Crop Site Specific Satellite Farming (CSSSF) model.
4. There should a national education policy on integrating ICT into teaching and learning.
5. There should investments in combating illicit cybercrimes especially among the youth.
6. There should investment in cutting edge tools and processes to improve on data collection in Nigeria's health sector to achieve efficient health information system.

Conclusion

In as much as new technology keeps emerging and technological innovations kept evolving, the field of informatics is a journey that has no end. Informatics is indescribable and covers every areas of human civilization. Informatics integrating with AI and nanotechnology will contribute positively to ensuring food safety in smart agriculture as well as predicting the impact of nanomaterials and reducing the issues associated with nanomaterials. However, the integration of machine learning models with nanotechnology can improve agricultural yield, safety, and sustainability. Similar to this, the Food and Agriculture Organization (FAO) (see, for example, www.e-agriculture.org) stated that development informatics research is being conducted in the areas of growth to address issues such as food security, malnutrition, and hunger, increase agricultural productivity and sustainable incomes, address a problem relating ICTs to land degradation, land management, and land rights and tenure, and manage and enhance agricultural supply chains.

Vice Chancellor Sir, as information technology develops, the world is changing, especially with the widespread adoption of nanotechnology in everyday items like needs and pharmaceuticals. However, thorough monitoring should be recommended because nanoproducts have unfavorable side effects (Ahmad et al., 2021). By making more strides in the fields of nano informatics and artificial intelligence, it will be possible to better understand the challenges of toxicity and safety associated with the incorporation of nanomaterials into consumer products, the rapid addition of nanomaterials with various functionalities, and the limitations of conventional safety evaluation tools.

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I thank Professor Sam Guobadia, the Vice Chancellor and Professor Johnson Oyedeji, the Deputy Vice Chancellor who was also the Dean, Faculty of Science (formerly Faculty of Basic and Applied Sciences) for their advice and encouragement. I acknowledge my indebtedness to the other Principal Officers of the University; the Registrar, Mr. Vinton Itoya, the bursar, Dr. Gladday Igweagbara; the Librarian, Dr. (Mrs) Rosemary Odachi and my Assistant Dean, Dr. Tinu Okugbo for their love, assistance and support.

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I am equally grateful to my bosom colleagues in the Faculty of Science; Professor C.L. Igeleke, Professor F.O. Oboh, Professor M. Ehigiator, Professor O. Akoma, Professor T. Ekrakene, Professor E.E.O Odjadjare, Professor. O. Enagbonman, Professor S. Enabulele and Professor D. Ojuh (Head of Physical Science) and their families. I most warmly thank my co-researchers in this journey; Dr. Joseph Isabona, Dr. SUM. Osagie, Dr. Betty Ahubele and Dr. J.O. Otabor as well as other teaching and non-teaching staff at the department, faculty and the University. I appreciate the loving companionship of you all. I warmly recognize the enthusiasm, support and inspiration of Dr. Dan Oyoboh and his spouse of Dennis Osadebay University, Anwai-Asaba during this pursuit.

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BENSON IDAHOSA UNIVERSITY
PREVIOUS INAUGURAL LECTURES AND TOPICS

1. Prof. Johnson Olajide – Bricks and Little Straws, “How efficient are the meat of Egg Type Chicken”, July 27th 2010.
2. Prof. Richard A. Masagbor, “Language: A complementarity of Being”, April 17th 2012.
3. Prof. A. A. Borokini, “Female Genital Mutilation: The Nexus between Anthropology, Law and Medicine”, May 19th 2015.
4. Prof. Ernest Izevbogie, “From Growth Biology to HIV Associated Neuropathy to Discovery of Anti-Cancer Agents: Economic Implication, December 8th 2015.
5. Prof. Andrew Oronsaye, “The Anatomy of Nigeria Federalism and Physiological Imperatives for Sustainable Development”, March 22, 2016.
6. Prof. Rex O. Aruofor, “Economic Poverty, Unemployment and Underdevelopment: A quest for Solution and Imperative for Developing the Nigerian Economy”, March 6th 2017.
7. Prof. Sam Guobadia, “It’s the Environment”, October 19th 2017.
8. Prof. Clara Igeleke, “Microbes, the Good, the Bad and the fascinating; Man the Effective Manager”, November 26th 2019.
9. Prof. Nora Omoregie, “Educational Administration and the Quality of Products of School System”, April 8th 2021.
10. Prof. Chinelo Duze, “Nigeria’s Legacy in Education, Nigeria’s Education System and Sustainable National Development: Thought for Food”, July 13th 2022.
11. Prof. Theresa Akpoghome, “Taming the Beast: IHL in a Bleeding Environment”, July 26th 2022.
12. Prof. Alexander Esimaje, Because “War is much too serious to be left to the military,” Campus linguistics is a thing, and it is a very useful thing too, October 18th 2022.
13. Prof. Mark Osamagbe Ighile, “The Poet-Prophetic Voice in the Wilderness of our Time: An Oral, Literary and Biblical Prognosis”, November 8th, 2022.
14. Prof. Augustine Ehijeagbon Akhidime, “Financial Gatekeepers, Watchdogs and Blood Hounds in the Eyes of the Storm of Public Trust; And the House that is Divided against Itself”, November 22, 2022.
15. Prof. Ehimen Pius Ebhomielen, “Take Responsibility: Comprehensive Accountability Culture is Mandatory for All and Sundry”, December 13th, 2022.

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Biography of the Author



Professor Kingsley Osamianmionmwan Obahiagbon was born in Benin City in the present day Edo State on the 15th day of August, 1959 to the families of Late Pa Josiah Ewere Obahiagbon from the Royal Ezomo-Uwangue- Obahiagbon of Ogbe quarters in Oredo Local Government and Late Princess Theresa Maria Osazuwa of the Oba N' Ugu of Umoghun-nokha in Orhionmwon Local Government Area of Edo State. He did his primary education at the Benin Model (Emokpae) Primary School, Benin City, Edo State from 1967 to 1972. He then proceeded to Elaho Grammar School in 1973 for his Secondary School education which he completed in 1977. He later enrolled for his General Certificate of Education (GCE) Ordinary Level from 1977-1978 at the prestigious Institute of Continuing Education (ICE) in Benin City.

His quest for further education took him overseas in 1979 where he studied for a B.Sc.(B.Eng) in Mechanical Engineering at the Carpi State Institute of Technology (Italy) from 1980-1983. Having done, exceptionally well at his undergraduate level, the Milan State University Milan, Italy offered him a Ph.D admission in Informatics in 1983 which he completed in 1988. He was one of those privileged students with exceptional and amiable records to do the Ph.D. programme without an M.Sc. degree. He has taught in various higher and post-primary institutions both in the UK and Italy. On completion of his Ph.D. degree, he proceeded to lecture Mathematics and Computing at the Institute of Higher Education for Art and Design Italy, between 1988 to 1990. He thereafter went to be a Rector of the Ferrarin Technical Institute of Aeronautics, Varese, Italy 1990 to 1995 and ICT Coordinator, Djanogly City Technology College in the United Kingdom from 1995 to 1999. While in the United Kingdom, Prof. Obahiagbon lectured Software Engineering on part-time basis at the University of Nottingham from 1996 to 1999. He thereafter proceeded to be an Assistant Principal and ICT Strategy Manager 1996 at the Lea Valley High School also in the United Kingdom in 1999 to 2004.

He has supervised numerous undergraduate projects and over one hundred (100) post graduate students both from National Open University (NOUN) and Benson Idahosa University (BIU) from 2011 to date. Professor Kingsley Osamianmionmwan Obahiagbon is a Professor of Informatics (Computer Science) and the current Dean of Faculty of Science and the Mayor of Legacy Campus, Benson Idahosa University, Benin City, Nigeria where he has continually demonstrated good leadership and accountability.

His sojourn in Benson Idahosa University(BIU), Benin City commenced as a lecturer II between 2010 to 2011 and Lecturer I (upgrade) from 2011-2012. He was promoted to the position of Senior Lecturer from 2012 to 2016, then Associate Professor from 2016 to 2019 and then promoted to prestigious position of a Professor of Informatics from 2019 to date. Prof. Obahiagbon has taught the following courses in BIU; Advanced Communication and Network, Advanced Software Engineering, Advanced Operating System, Current trend in ICT and Research Methodology, Management Information System & Computer Application, Legal Aspect of ICT, Computer Modeling and Simulation, Net-Centric Computing, Computer Architecture and Organization,

System Analysis and Design, Electronic Business Application and Principles of Operating System. His area of research includes informatics, Artificial Intelligence, Block chain Technology, Data Science and Machine Learning Algorithms. His current area of research involves Nano-informatics integrating with Machine Learning Algorithms and Artificial Intelligence.

He is a member of various professional bodies in the UK which include; British Computer Society (MBCS) in 1997, Chartered Computer Engineer (CEng.), British Engineering Council (1999), Chartered Information Technology Professional (CITP) in 2004, Chartered Information Engineer (IEng), General Teaching Council for England and the Nigeria Computer Society (MNCS) 2022. Professor Kingsley Obahiagbon is a Fellow of the Institute of Strategic Management of Nigeria (ISMN) in 2018. Professor Kingsley Obahiagbon was awarded the status of a Qualified Teacher by the British Secretary of State in 1995. He is a member of the following Professional bodies; British Institute of Information Scientist, Association of Science Education, General Teaching Council for England, British Engineering Council, British Computer Society, Nigeria Computer Society and Institute of Strategic Management of Nigeria (ISMN).

In addition to the administrative experience, he is a consultant to the National Open University of Nigeria (NOUN) as a Supervisor, Post Graduate and Undergraduate Projects on ICT and Computer Science. He is a member of Board of Trustees at IDRC financial by Action Aid, Nigeria chapter. He has 36 published articles in national and international journals and has also published book chapters in International Journal. His research interests are in computer modeling, simulation, computer network and communications. He is married with Dr. Luisa Vittoria Bonelli-Obaahiagbon.