

Dynamics Of Information And Communication Technology (Ict) And Rural Community Communication: Implications On Language Use In Anambra State, Nigeria

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Abstract

The essence of communication is to effectively convey information between the participants. Over time, the dynamics of disseminating information as well as the use of language among rural community dwellers in Anambra State have undergone transformation. This paper investigates the changing scenario occasioned by the emergence of ICT and the prevailing circumstances that may have shaped the change. The survey research design is used while data is collected from primary and secondary sources. Data collection employed structured oral interview while purposive random sampling is used to sample five adult males, five adult females, six youths (three males and three females) and two community leaders each from two Local Government Areas in Anambra State of Nigeria. Descriptive method of analysis is adopted and the result is presented in simple percentage. In our results, a combination of the security challenges of the times, improved level of literacy, the mobility of persons, affordability of modern technology and ICT appliances and the convenience they afford have transformed the mode of transmitting information in the rural communities in Anambra State from the use of solely traditional methods of dissemination using Igbo language to the combined use of the ICT and social media employing a mixed code of English and Igbo languages.

Keywords: *communication, community, ICT, development, language use*

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I. Introduction

Information Communications Technology has made incredible leaps and bounds during the last century, with many more amazing possibilities on the horizon. Before the invention of the ICT, all communication was technology-free. Of course, communication was mainly spoken and written especially in rural communities. Indigenous languages were used to disseminate information. This is because, language is a powerful tool possessed by man. Uwaezuoke (2023:1) notes that "Language is a very important possession of man." Nwaozuzu (2017:1) asserts, "Language is one of the most fundamental aspects of human behaviour and the development of language into a refined instrument of expression and communication is one of man's greatest achievements." Rural development forms an important agenda of the Government. Information and Communication Technologies (ICT) is being used by the government and non-government organization for developing the rural and urban areas. ICT is one of the rapid developing fields in technology in the global society. Rural policy nowadays is at the heart of the policy discussions in many countries all over the world, in the effort to address and effectively support the specific needs and opportunities of rural places and their population in the new era. Rural areas in Africa in general and Nigeria in particular still face challenges like sustainable employment in agriculture, allied sectors like quality education, marketing infrastructure, over exploitation of natural resources; inadequate electricity,

transport, communication, health, food and storage facilities etc. The rural ICT applications aim to present these services to citizens at their village access stepladder. The emergence of Information and Communications Technology (ICT) has provided means for faster and better deliverables.

Nevertheless, with the emergence of ICT, the pace of technological development shows no sign of slowing down. Continued automation, artificial intelligence, robotics, and more connectivity are only a few of the possibilities already underway. This is already seen in most urban areas and rural areas are not left out entirely. According to Awati (2021) “The history that led to the development of ICT as it's known today goes back millennia. But the term *information communication technology* is a relatively recent development. The phrase first appeared in a 1958 *Harvard Business Review* article which predicted its future effects, titled ‘*Management in the 1980s.*’”

Undoubtedly, the emergence of ICT has brought about significant changes in the dissemination of information even among the rural dwellers as opposed to the traditional methods of communication. There have always been various ways of communicating in what we can call the traditional days. But not only that, these traditional methods synergise with the very modern means of communication. So, traditional communication has to do with those communication routes that used to be and still exist in rural regions. It usually involves verbal media more than any other medium. Of course, modern communication is more concerned with the use of machines and technology to affect communication. To share ideas, the people of the past would usually engage in conflict resolutions, cultural festivities and didactic artistry like oral literature that incorporates mystical rituals, folktales, drama, dance, and the like. Through the intertwining of these methods, a message receives amplification in the clearest form possible.

This, in a way, bears similarity with the methods through which modern people communicate. To pass information, people take to social media platforms with posts that give information as well as entertain. Everybody goes to these platforms for various reasons. While some just want to have fun, others take to telling people about what to do. But, one thing stands certain- creativity and entertainment drive information to the fore. Adenuga (2022) outlines the traditional methods of communication in rural settings in Africa. Just like we have in the modern communication arena, there were also various platforms through which messages were passed traditionally.

1. **The market square:** Apart from the original purpose of buying and selling, the market square serves well as a communication arena. Women who have picked information from various places spread it around by word of mouth. Just like the rural arena, ICT serves as a platform through which you can pay for your everyday services like airtime, data, electricity bills, and TV subscriptions. And of course, this helps you connect to the various other communicative platforms.

2. **Town criers:** This has always been a veritable way of communicating in the past.

3. **Social Functions:** Through social functions, information is easily passed around.

There are also non-verbal ways of passing information traditionally. For example, we have idiophones which have to do with high-sounding instruments that produce their messages just by beating. The Yoruba talking drum, the Igbo Ikoru, Ogene, and Ekwe are examples of these. Symbolic displays and gestures are also traditional non-verbal ways of communication.

It's good to reminisce about traditional ways of communication. But the world has since moved from these methods to more modern means. There is an urgent need to study the dynamics of ICT in rural community communication systems. This forms the thrust of this paper, aimed at finding out the changing scenario occasioned by the emergence of ICT and the prevailing circumstances that may have shaped the change in two major communities in Anambra State. The communities are Aguluezechukwu and Oraifite. Aguluezechukwu is one of the towns in the former Aguata Local Government Area of East Central State of Nigeria and one of the 45 towns of Aguata L.G.A in the old Anambra state of Nigeria; and now one of the 14 towns in the current Aguata L.G.A of Anambra state of Nigeria. It is bounded by Ekwulobia, Oko, Ogboji and Ezinifite. Oraifite is an autonomous community in the present Ekwusigo Local Government Area of Anambra State and the second-largest town in the mediaeval Anaedo kingdom. It is densely populated and situated about 12 - 16 kilometers from Onitsha on both sides of the Onitsha-Owerri Road popularly known as Ekwusigo. It is bounded on the East by Nnewi, West by Atani, North by Oba and South by Ozubulu. This paper investigates the:

1. traditional methods of communication in Aguata and Ekwusigo Local Government Areas of Anambra State
2. aspects of ICT that have affected the methods of communication in these LGAs
3. nature of the change on the method of communication and
4. prevailing circumstances that influenced the change of method of communication in the communities under study.
5. extent to which ICT has affected different areas of life in these rural communities.

II. Information And Communication Technology

UNESCO defines ICT as diverse set of technological tools and resources used to transmit, store, create, share or exchange information. These technological tools and resources include computers, the Internet (websites, blogs and emails), live broadcasting technologies (radio, television and webcasting), recorded broadcasting technologies (podcasting, audio and video players and storage devices) and telephony (fixed or mobile, satellite, Visio/video-conferencing, etc.). This definition is in line with Dutton (2001:7) when he asserts “ICT is an umbrella term that includes all technologies for the communication of information. It encompasses: any medium to record information (whether paper, pen, magnetic disk/ tape, optical disks - CD/DVD, flash memory etc.); and technology for broadcasting information - radio, television; any technology for communicating through voice and sound or images- microphone, camera, loudspeaker, telephone to cellular phones. Similarly, according to Owusu-Ansah (2014: 56) ICT refers to “all forms of technologies that are used to create, store, share or transmit, and exchange information. This broad definition of ICT includes such technologies as radio, television, video, DVD, telephone (both fixed-line and mobile phones), satellite systems, computer, and network hardware and software; as well as the equipment and services associated with these technologies, such as video conferencing and electronic mail.” He posits further that “the working definition of ICT focuses on the tools used by the selected academic libraries to enhance library services consisting of hardware, software, networks, and media for collection, storage, processing, transmission, and presentation of information (voice, data, text, images).” In other words, ICT can be seen as all devices, networking components, applications, and systems that combine to allow people and organizations (i.e., businesses, non-profit agencies, governments, and criminal enterprises) to interact in the digital world. A broad term includes communication devices, various services, video conferencing, online learning, etc. to enable users to access, store, transmit, and manipulate information. In her own perspective, Rouse (2023) opines

“Information and Communications Technology (ICT) is the use of computing and telecommunication technologies, systems, and tools to facilitate the way information is created, collected, processed, transmitted, and stored. It includes computing technologies like servers, laptop computers, and software applications, as well as the wired and wireless communication technologies that support telephones, the Internet, the Internet of Things (IoT), and the metaverse. The goal of ICT is to improve access to information and make human-to-human, human-to-machine, and machine-to-machine (M2M) communication easier and more efficient.” (Rouse (2023) pg 21

She posits further that “this broad label includes the infrastructure and telecom components that enable synchronous and asynchronous communication across short and long distances.

It consists of telecommunication and cloud computing services as well — and the governance policies that support their use.” From the afore assertion the importance of ICT cannot be overstated because it has become the foundation of modern society — driving innovation, enhancing productivity and fostering global connectivity. Chen (2015:28) opines that Information Communication Technology (ICT) is defined as “skills around computing and communications devices, software that operates them, applications that run on them, and systems that are built with them.”

From the above assertions, we can deduce that Information and Communication Technology (ICT) may be defined as the convergence of electronics, computing, and telecommunications. It has unleashed a tidal wave of technological innovation in the collecting, storing, processing, transmission, and presentation of information that has not only transformed the information technology sector itself into a highly dynamic and expanding field of activity- creating new markets and generating new investment, income, and jobs but also provided other sectors with more rapid and efficient mechanisms for responding to shifts in demand patterns and changes in international comparative advantage, through more efficient production processes and new and improved products and services. Today, the definition of Information and Communication Technology (ICT) is much broader, encompassing nearly every type of business. From manufacturers, retailers, banks, and publishers to research firms, medical institutions, law enforcement agencies, government companies, and libraries everywhere rely on Information and Communication Technology workers to run their daily businesses. Dictionaries consistently define ICT means: managing a network of computers, creating original web pages, producing videos digitally, designing computer systems as a consultant, selling products on the Internet, 3-D artwork, administering a company’s database, coding software, providing technical support, managing projects, and budgets, writing technical documentation.

It is very pertinent at this point to note that there’s a difference between ICT and IT. According to Library and Information Science Network “Information Technology (IT) uses technology to manage, process, and transmit information. This includes hardware, software, and networking systems that store, retrieve, and distribute data. On the other hand, Information Technology is defined in the Oxford Advanced Dictionary as “the study use of electronic equipment, especially computers, for storing out information.” IT is a broad term that encompasses a wide range of technologies and applications, including computer systems, telecommunications, databases, and programming languages. IT is critical in modern businesses, enabling organizations to process and manage large amounts of information, streamline business processes, and improve decision-making.

Some of the key areas within IT include:

1. Computer systems: This includes the hardware, software, and applications used to process and manage data.
2. Networking includes the systems and technologies used to connect devices and enable data transfer between them.
3. Database management: This includes the software and systems used to manage and organize data within an organization.
4. Web and mobile applications: This includes the development of software applications for web and mobile platforms.

Overall, IT plays a crucial role in the modern world, driving innovation, improving productivity, and facilitating communication and collaboration across various industries and sectors.

Communication Technology is the process of sending, receiving, and exchanging information through network systems with the help of IT & CT. Any information can be exchanged from anywhere and anytime without any borders. This information exchange is possible through LAN, expanding and connecting to other networks globally. According to the Encyclopedia of Computer Science, "Information Communication Technology (ICT) is an imprecise term frequently applied to broad areas of activities and technologies associated with the use of computers and communications". In line with this Mahaptra and Ramesh (2021) states that ICT, as "Information Communication Technology is the result of the technological convergence of existing single isolated technologies viz, computer technology, communication technology, information processing, publishing technology etc." Similarly, according to UNESCO "ICT is a scientific, technological and engineering discipline and management techniques used in handling information and application and association with social, economic and cultural matters".

In the words of Nwachukwu (2004), Information and communication technologies (ICTs) is the "application of computers and other technologies to the acquisition, organization, storage, retrieval, and dissemination of information." However, in this context, information and communication technology is the use of electronic devices such as computers, telephones, internet, and satellite system, to store, retrieve and disseminate information in the form of data, text image and others. American Library Association (1983) defined information communication technology (ICT) as "the application of computers and other technologies to the acquisition, organization, storage, retrieval, and dissemination of information. The computers are used to process and store data, while telecommunication technology provides information communication tools, which make it possible for users to access databases and link them with other computer networks at different locations." According to Rhine (2006) Information and Communication Technologies can be split into three components namely the technology part; information that the technology helps to deliver; and a communication process that the technology facilitates and serves as a medium for the information.

So, we can define Information and Communication Technology-ICT as 'the use and applications of computers, telecommunications, and micro-electronics in the acquisition, storage, retrieval, transfer and dissemination of information.' ICT is the combination of Information Technology and Communication Technology. At the base of communication is language. Anagbogu, Mbah and Eme (2010:1) posit that "it can indeed be said that the only thing that makes man distinct from other animal is language for he is the only animal that uses language systematically as a means of communication." Fellmann et al (2005:145) opine that, "language is an organized system of spoken words by which people communicate with each other with mutual comprehension." Anagbogu, Mbah and Eme (2010:1) define a language as "a means which human beings have devised for communicating ideas, feelings, emotions, and desires through complex vocal or written symbols." Noteworthy is the fact that every language has a community where it is spoken or specific geographical location before spreading to other areas. Nevertheless, language exhibits varieties. Ezenwafor (2016:14) notes that, "these varieties in a language can either be geographical, regional, occupational etc." Yul-Ifode (2008:9) opines that "these different varieties of a language are commonly known as the dialects of such a language." The people making up such language varieties are said to belong to an ethnic group.

Importance and effects of Information and Communication Technology (ICT) on society

Theories abound about why some countries are developed and some are not. Natural resources, colonialism, and even having better geopolitical situations can't be the basic reasons for development because there are many developed countries without these supremacies. Information and communication technology (ICT), is one of the signs of the presence of technology. Today, ICT is one other main technological and industrial improvement and progression signs. These days, we cannot ignore ICT since it has such a deep influence on political, social, cultural, and economical aspects of our lives. The influence of informatics technology is quite worthy to be studied both because it brings more opportunities to a society and more challenges into companies. It is obvious that the globalization of economy, culture, and many other modernization changes is not possible without information technology. The importance of information and its availability has changed

the developed industrial societies into informatics societies. It also has changed their industrial economies into economies based on information and science.

Methodology: the study was carried out in two LGAs namely; Aguata and Ekwusigo in Anambra State, Nigeria. The area of study is purposively chosen to represent other rural areas of the state because of their centrality and average level of adaptation to modern technological development. The study adopts the survey research design and data were mainly sourced from primary and secondary sources. The primary data for this research were gathered from competent L1 speakers from the two communities through direct structured oral interviews. The secondary data were from books and the internet. The sampling technique applied is the stratified random sampling technique in order to select the representatives of the population for this study. This method is to ensure that gender, social class and other social strata have equal consideration. Based on this, the informants are (adults) five males, five females (youths) five males and five females. Two community leaders (one male and one female) from each of the communities under study were also sampled. All respondents are competent L1 speakers of the dialects spoken in the two communities. We subjected our data to descriptive and inferential analysis and the results are presented in simple percentages.

Theoretical Framework: the study hinges on the Social Presence Theory developed by John Short, Ederyn Williams, and Bruce Christie in 1976. The theory measures the level of relevance of a media based on the awareness of the other person on the interactive channel. The more persons are aware and conversant with a media platform, the higher the social presence. The theory establishes the fact that communication media differ in their social presence. Social presence is defined as the degree of awareness of another person in an interaction and the consequent appreciation of an interpersonal relationship (Walther, 1992). The theory is considered appropriate as the addresses the objective of this research to find out which media platform the community members are conversant with and use more in communication.

III. ICT And Human Life:

ICT has an impact on human life in a number of ways depending on the local context in which they are highlighted as shown thus:

- ✓ Human Capital: Improved access to education and training through distance learning Programs and Educational tools for wide range of formats.
- ✓ Financial Capital: Support and strengthening of the local financial institutions including micro-credit Organizations to improve information provision on services and facilities available such as loans and Savings schemes.
- ✓ Social Capital: Improved 'networking' both at the community level with existing networks and potentially amongst a much wider community.

IV. ICT And Communication Inaguata And Ekwusigo Lgas Of Anambra State, Nigeria Traditional communication in Aguata and Ekwusigo LGAs

Traditional communication in the two LGAs under study is characterized by the manual and oral approaches to communication. Interpersonal and public communication entailed that people pass information from one person to the other physically or through signs.

The following are the major traditional methods of communication in these communities;

Two types exist – verbal and sign methods

Verbal methods: these are passed through word of mouth to either individuals or in public places.

Town Crier: usually, each community has a town crier who is saddled with the responsibility of disseminating information to the community when the need arises. The most commonly used instrument is the ÉKWÉ (wooden gong). The town crier goes around the villages either late in the evening or early in the morning. He first sounds the ékwé to alert his listeners before giving the message in a loud, clear voice.

In some instances, the town crier gives the information on a market day. He simply goes around the market, beats his ékwé and delivers his message to the people repeating the gesture from one point to another.

Other verbal methods: Sometimes the message may not concern the general public but rather a select group, for instance a particular village women group. They simply deploy an agile member who seeks out their members at their individual market stalls and deliver the message directly and verbally.

Most often, the different groups in the community hold regular meetings. They also use these fora to pass on information that concerns them. In this type of setting, if the message is coming from an individual or group, they usually present kola nuts (sometimes accompanied by drinks) as a sign of officiality to the message being delivered.

Sign/Symbolic methods: there are signs and symbols which are employed by the members of the community to disseminate information. These could be idiophonic, material, or symbolic.

Idiophonic sign: each community traditionally has an **ÍKÒRÒ** (giant-sized **ékwé** (wooden gong). This has its signals. The coordinated sounds pass information that the experienced community members can interpret and react to.

Symbols: the **OMU** (still tender yellowish palm fronds) is a symbol of sanctification or dedication among the community members. These are placed at the entrance to shrines to indicate the sacredness of the place and a warning that the place is secluded for certain persons. Some economic trees in which the owner does not want people to pluck their fruits may have **omu** placed on them to signify that the owner has put charms on the tree and nobody should trespass. It is also placed at locations to indicate danger such as a bad road ahead or gully erosion site.

Other forms of signs/symbols: individuals may agree on a sign or symbol. For instance, people on a journey from different locations may agree to place plant leaves at a crossroads to indicate that they have passed the point. Further information could be agreed on the meaning of a number or type of leaves.

Persons may agree to draw a certain pattern on the ground in someone’s house entrance to indicate that they visited the individual.

Thus, traditional communication in rural communities in Aguata and Ekwusigo LGAs takes various forms and employs diverse methods. Most importantly as the respondents stressed, these were efficient for them at the time they were using them exclusively and had no alternative means of communication.

Aspects of ICT that have affected communication in Aguata and Ekwusigo LGAs

Different aspects of ICT affect age groups differently in the LGAs studied. The results of the interviews conducted show that all the adults had access to GSM phones and that apart from voice calls, mainly social media applications SMS, WHATZAPP and EMAIL were used by both males and females who are literate and had access to smart phones. Those who had no smart phones made use of only SMS. However, the youth in addition to these applications, a few of them also made use of INSTAGRAM and TWEETER. The result is presented in the table below:

Table 1: ICT applications accessed by the rural community members in Aguata and Ekwusigo LGAs

S/ No	Social Media Applications		Voice Calls	SMS	Whatsapp	Email	Instagram	Tweeter
1.	AGUATA LGA	Adults	10	6	4	3	Nil	1
		Youths	10	8	7	5	2	3
		Community Leaders	2	2	2	1	Nil	Nil
		Percentage of usage	22 = 100%	16 = 73%	13 = 59%	9 = 40%	2 = 9%	4 = 18%
2.	EKWUSIGO LGA	Adults	10	7	6	2	Nil	1
		Youths	10	8	9	1	1	5
		Community Leaders	2	2	2	2	Nil	1
		Percentage of usage	22 = 100%	17 = 77%	17 = 77%	5 = 23%	1 = 5%	7 = 32%

Nature of affected change in communication in Aguata and Ekwusigo LGAs

Another aspect of the interview revealed that the use of ICT applications has changed the mode of communication among these rural dwellers. Formally in the traditional method, all public communication was by using the natural voice through town criers but currently, the town crier is hardly employed to disseminate information. Rather, social media is utilized.

The use of **ÍKÒRÒ** could be said to have stopped completely as none of our respondents seemed to remember when last they heard the sound of the **ÍKÒRÒ** neither did any one of them know the current person in charge of sounding the **ÍKÒRÒ** in the two communities under study. One community leader explained that this could be attributed to the fact that the **ÍKÒRÒ** was mainly used to summon members of the community during emergencies such as attacks by neighbouring villages or outbreaks of war. Such situations no longer exist as there are hardly land disputes or clashes among the neighbouring communities anymore as in the olden days.

Other means of communication such as the use of **omu** are used minimally. The **omu** is still used to indicate danger or in shrines of deities to indicate sacredness or during traditional rites or masquerade performances. Apart from the **omu**, other signs and symbols are hardly used as the sort of message they are used to communicate could currently be delivered through GSM and in real-time.

Prevailing circumstances that necessitated the change in method of communication in Aguata and Ekwusigo LGAs

A combination of factors brought about the change in the method of communication among the community dwellers. There are internal and external factors.

Internal factors: these are factors that emanate from the lifestyle of the people. They include the readiness of the people to embrace change, the increase in the economic activities of the people, better financial status, enhanced literacy level of the rural people, the mobility of the indigenes of the community, and the flexibility in switching codes between Igbo, English or pidgin English while using the ICT method of communication.

Anambra State is one of the Igbo-speaking states in the southeast geopolitical zone of Nigeria and is situated in the heartland of the Igbo people. The Igbo are known for their penchant for innovation. They take pride in learning and using new things. This attitude played out in the way the people in the two communities studied adopted the ICT technology especially the use of mobile phones. Nearly all the respondents agreed that there was nobody in their community that does not have access to a mobile phone even if they do not own one. There is usually a parent, sibling, friend or neighbour whose phone is accessible for use in communication.

The economic activities of the communities have increased in the recent past based on the developmental strides that occurred among them. The citing of a higher institution in Oko and the proximity of Oraifite to Nnewi and Onitsha metropolises opened up business avenues that necessitated their communication needs which the traditional methods could hardly meet. It is therefore not surprising that they embraced the use of mobile phones as soon as it became accessible to the communities.

An increase in economic activities usually translates to an increase in financial status. This was the case with the two communities of study. With the increased business engagement came financial independence and increased standard of living. Many of the citizens could therefore afford to buy mobile phones even if they couldn't buy smartphones.

The communities are situated in Anambra State which ranks high among the states with high literacy standards. Most of our respondents are literate. They are therefore predisposed to understand the usefulness of mobile phones and also possess the required intellect to operate mobile phones. It therefore became necessary to change from the traditional method of communication and embrace ICT-enabled social media.

The nature of high mobility of the indigenes of the communities necessitates the use of modern communication systems. The Igbo are known for their high mobility in search of greener pastures both within the country and in the diaspora. Every family in the communities of study has at least one person living outside the community either elsewhere in the state, country, or even outside the country. The need therefore to communicate with their loved ones living outside their communities becomes imperative. There is no way the traditional means of communication would have met this need.

The possibility to use any of the codes in use among the community members also made the use of the modern method of communication more attractive. People could afford to speak any of the languages of Igbo, English, or pidgin or even switch between the codes at will. More convenient also is the fact that there are aspects of the new method of communication that even the less literate can operate easily and efficiently such as making voice or video calls.

external factors: these are factors that emanate from outside the communities. They include electricity, ICT, and enabling mobile phones and social media.

Electricity had long been available in these two communities of study for decades. Every household has access to electricity which drives the ICT and other technological gadgets and equipment. Without electricity, the embrace of ICT and social media would have been a struggle.

The emergence of ICT and its accessibility to these rural communities facilitated the change from traditional to technologically moderated communication. Initially, only the affluent could afford GSM and mobile phones. However subsequently, GSM lines and mobile phones became accessible to even the poorest of the members of the communities. It therefore became easy and convenient for people to switch over to modern ICT communication since everyone could be reached.

Social media became the in thing as smartphones became popular and affordable to people. It was also an added business avenue as the sale of mobile phones, its accessories and airtime became new business ventures that the members of the communities engaged themselves with. The use of social media therefore became an added reason why the use of traditional methods of communication became moribund and less attractive and practicable.

V. Application Of ICT In Different Fields In Aguata And Ekwusigo Lgas

Agricultural sector

Today, in the human world and Aguata and Ekwusigo LGAs in Anambra State, Information and Communication Technology has great relevance in the field of agriculture. It has been harnessed accordingly and ICT has surely bridged the gap between economic and technology backward and forward social strata. With the ICT boom in Nigeria technology is easily accessible to government machineries with relevantly cheaper and convenient manner. Proper training and implementation of ICT programmes give meaning to human life directly or indirectly from agriculture. The role of Information technology in the agricultural sector is becoming more and more visible.

Increasing the efficiency, productivity and sustainability of small-scale farms is an area where ICT has made a significant contribution. Farming involves risks and uncertainties, with farmers in Anambra State facing many threats from poor soils, drought, erosion and pests. ICTs has to deliver useful information to farmers about agriculture like crop care and animal husbandry, fertilizer and feedstock inputs, pest control, seed sourcing and market prices. All thanks to the Anambra State government that use ICT to convey and spread information to people on matters relevant to crop production and crop protection. The techniques of remote sensing using satellite technologies, geographical information systems, agronomy and soil sciences are used to increase the agricultural output. The availability of these kinds of technologies has been ensured through efficacious internet tools and smart networks.

In Anambra State today, ICT supports new methods for precision in agriculture like computerized farm machinery that applies for fertilizers and pesticides. Farm animals are fed and monitored by electronic sensors and identification systems. Buying and selling online has begun to be popular in the State. ICTs based applications have also facilitated electronic trading like where-to-buy/sell, when-to-buy/sell and how-to-buy/sell.

Recently, Anambra State government organized training for youth in the state and many of them were trained in agriculture and ICT. This has, in no small measure, helped in extending research from lab to the field. Especially, FM, Community radio, mobile phones, soil sensors and testing devices are most compelling for making Smart Farmers. Various ICTs based systems including touch screen kiosks, online Agro-clinics, mass/social media, TV channels etc. have delivered useful information to farmers in Anambra State regarding crop care and animal husbandry, fertilizer and feedstock, drought mitigation, pest control, irrigation, weather forecasting, seed sources and market prices. It is worthy of note at this point that Anambra State has a large exporting capacity of agricultural products and this has been made possible by ICT.

Health sector

Categorically, health care is one of the most promising areas for poverty alleviation. In Anambra State, ICTs have contributed to improve the coverage of national health services in rural areas. Healthcare is important for the overall physical, social, and mental health, well being and status. It is the use of ICT in Anambra State that has helped in the area of health such as:

- Awareness of the presence of disease and its prevention
- Vaccination and treatment of diseases
- Assurance of quality of life
- Preventable death
- Life expectancy

With the presence of NHIA (National Health Insurance Agency) and ASHIA (Anambra State Health Insurance Agency) in Anambra State, health management requires the monitoring of the health status of the population, the provision of services as to the coverage and utility, drugs stocks and consumption patterns, equipment status and availability, finances, personnel on a regular basis even in the rural communities. ICTs are being used in Anambra State communities to facilitate remote consultation, diagnosis and treatment. They give confidence in their ability to communicate with healthcare providers, particularly if the patient is not fluent in English or has poor health literacy. They give confidence in their ability to use services without compromising privacy. They also give confidence in the quality of the care that they will eventually receive.

Education sector

There's no gainsaying the fact that ICT is an effective mechanism to make tremendous change and advancement in rural and traditional education scenario. The use of ICTs in education aims to improve the quality of teaching and learning as well as democratize the access to education. The economics of production of digital media and use of digital services, with very low marginal costs, allow significant scaling up. In Nigeria in general and Anambra State in particular, development of appropriate educational materials (involving high fixed costs) has been achieved economically. Nevertheless, target markets are defined and created by

overcoming the relatively high fixed costs of obtaining access to ICT resources. Rural ICT operators provide such educational services at low cost, as part of an overall array of services.

It is crystal clear now that students and even pupils are attracted more towards e-contents in the form of multimedia presentations and animations. With the launch of online courses and availability on e-study material of most of the education boards and universities, rural people in Anambra State also have opportunity to avail best educational facilities regardless of geographical distance and limited financial resources. Moreover, appropriate use of ICTs in the classroom has fostered critical, integrative and contextual teaching and learning; developed information literacy (the ability to locate, evaluate and use information). Thus, it has improved the overall efficiency of the delivery of education in schools and educational management institutions in Anambra State and its communities at all levels.

In Anambra State, there are rural deficits in all the key components of education – teachers, textbooks and interaction – digital material and ICT based interactions have helped to ameliorate some of these deficits. Even more importantly, the use of ICTs has allowed for interactive, visually appealing content that appears to greatly enhance student interest, learning and retention.

Grass root governance and poverty alleviation

Rural communities in Anambra State have been adequately reached and touched by effective use of ICT-compliant method of governance and ICT application in environmental management. Improved governance by using ICT surely has direct impact in reducing poverty and improving the environment in the state. Through ICTs all Government services are now accessible to common man in his locality, through common service delivery outlets.

ICT has contributed in a large way in making government processes in the state more efficient and transparent by encouraging communication and information sharing among rural and probably marginalized people. The Information and Communication Technologies (ICT) are being increasingly used by the governments to deliver its services at the locations convenient to the citizens. The rural ICT applications attempt to offer the services of central agencies (like district administration, cooperative union, and state and Federal government departments) to the citizens at their village door steps. These applications utilize the ICT in offering improved and affordable connectivity and processing solutions. Computerization of land records has been a great success in application of ICT in rural development in Anambra State. Notably, land records are great importance to contemporary socio-economic imperatives and their revision and updating of vital records are necessary for capturing the changes in rural social dynamics. This is because land records are an important part of rural development.

Anambra State government, through a centrally sponsored scheme of computer records of land facilities and ownership with main objectives of creating database of basic records facilitates:

- The issues of copies of records
- Minimizing the work load by elimination of drudgery of paper work, minimizing the possibilities manipulation of land records, and ultimately
- Creating a land management information system.

Consequently, the farmers and land owners are largely the benefactors of this scheme. The farmers, for instance, can get all necessary records when they need it, these records are free from human arbitrations, the updating becomes easy, free from harassment and the farmers and land owners have direct access to information regarding their property.

Rural and Economic Development

Information and Communication Technology in Anambra State has played a vital role in connecting the rural community to outside world for exchange of information, a basic necessity for economic development in the state. Effective use of ICT has demolished geographical boundaries and brought rural communities closer to global economic systems and be of meaningful help to the underprivileged.

Employment

Employment has been created with the use of ICT in Anambra State, particularly for young people who have some educational qualifications, but not enough to compete effectively for jobs in cities. Alternatively, such individuals may be constrained from moving by high search costs, or, in the case of gender bias, social constraints. ICT has been demonstrated to provide attractive job opportunities for such people, particularly young women. In addition to direct income and employment generation (which might be relatively small), our field interviews suggest that the confidence of these young people is boosted tremendously, and they provide attractive role models for others in rural areas who might consider non-traditional, non-farm rural employment possibilities. The transaction costs for obtaining jobs in Nigeria today are extremely high,

and the Internet and ICT in general provide efficiencies in advertising jobs by employers, searching by job seekers, and initial screening of applications. The costs for job seekers in villages and small towns have been particularly high, and the ability to overcome distance barriers through convenient Internet access has been a significant benefit for the Anambra State citizens.

Change in Climate Conditions

Ubom (2021) quips that the role of ICTs under climate change situation can be explored based on the linkages that exist between ICTs as a system component and its ability to withstand & its ability to recover and to change under changing climatic conditions. Using ICTs, climatology and agronomics in Anambra State, latest information on weather/climate change is given to farmers. ICTs handle massive data produced at different spatiotemporal scales by various sensors observing earth/environment in order to extract useful climate change information and patterns. Further, for natural resources, ICTs like RS, GIS are applied for scientific planning, management and monitoring. This means that ICTs have helped to strengthen the physical preparedness of livelihood systems for climate change related events through applications such as geographic information systems (GIS), and positioning and modelling applications. ICTs in the State have also strengthened institutions and organisations needed for the system to withstand the occurrence of climatic events, including the support of social networks and the facilitation of coordinated action.

Moreover, in Anambra State, ICTs enable swift access and mobilisation of financial assets, particularly through applications for mobile banking and mobile finance. By enabling rapid access to financial capital and transactions, ICTs have the potential not only to strengthen local livelihoods but also to improve the speed and efficiency with which Aguata and Ekwusigo LGAs are able to cope with and adapt to climate change related hazards and events. For instance, in the issue of flooding during rainy seasons in Anambra State, ICTs also helped to speed up access to such information. This is particularly important when an acute climate related shock such as landslide or flood occurs. Mobile based telecommunications networks allow rapid communication of information, thus improving the speed of disaster warning, response and recovery. ICTs in Anambra State have enabled access to the set of resources in the event of climate change related shocks or disturbances.

VI. Rural Community Development In Anambra State And The Challenges Of ICT

Rural areas are still underserved in terms of ICTs infrastructure and capacity building in Anambra state especially in Aguata and Ekwusigo LGAs. As a result, ICTs have not been able to play their expected role in the development of these areas. Some of the challenges faced by ICT in these areas are:

- ❖ **Illiteracy:** Illiteracy is a massive problem of people from the Aguata and Ekwusigo LGAs. Literacy rate is considerably low in these areas as compared to urban areas. The condition is more unsatisfactory when we talk about the Digital Literacy.
- ❖ **Dominance of Language:** The dominance of English on the internet bounds access of non-English-speaking Population especially the Igbo language of Anambra State. In the case of Nigeria, there's a complex linguistic situation.
- ❖ **Language barrier:** The information accessible on web is in the English language as it is an overall acknowledged International language. In Anambra State rural communities, English is not well known to people properly which causes a barrier for them to understand it.
- ❖ **Poverty:** In Nigeria in general and Anambra State in particular, most of the people are living under poverty condition and they put great efforts for their daily living. To them accessing the internet is a costly issue for necessary communications in the form of installing the required telephone lines needed for internet or email access which is similarly too exclusive in an underdeveloped country like Nigeria.
- ❖ **Scarcity of Professionals:** Acute shortage of project leaders and guides who could ensure implementation of the ICTs at the grass root levels. At village level, few digitally literate people are available. If villagers (especially farmers, youth, and beneficiaries) are willing to utilize ICTs based applications then who will regularly train them to acquire the desired knowledge and skills is a major concern.
- ❖ **Acceptance in Rural People:** Apart from other factors, user acceptance for the ICTs applications in Anambra State is a major challenge it is often taken for granted that any technology transfer to the rural areas would be accepted but we have to consider their own established cultural and traditional ways of doing things.
- ❖ **Unethical Use of ICTs:** In the era of digital world, personal privacy, data security, copyright infringement, computer crimes, cyber-crime etc are also coming in front as major concerns. Further unethical use of social media is also posing problems.

VII. Conclusion

The crux of this study has shown that ICT is the key factor for rural development in Anambra State. The awareness of ICT has increased the interest of people in the rural areas in the state. Information and Communication Technology directly and indirectly impacts on different fields of life such as agriculture, health, education, governance, employment, economic development etc. It is clear that the rural economy and helping in rural development by ICT is a major issue for developing countries like Nigeria and Anambra State in particular. In our results, a combination of the security challenges of the times, improved level of literacy, the mobility of persons, affordability of modern technology and ICT appliances and the convenience they afford have transformed the mode of transmitting information in the rural communities in Anambra State from the use of solely traditional methods of dissemination using Igbo language to the combined use of the ICT and social media employing a mixed code of English and Igbo languages.

Analyses show that effective applications and channels have been used to benefit rural economy. However, it is important that the government should make more efforts to use ICT in its development programmes especially in rural areas. People of rural areas should be educated to use ICT for effective and efficient livelihood. We hereby suggest that in order to have a stronger relationship between ICT and effective rural communication and economy, some points must be considered. For instance ICT should be used in such a way that it can improve the quality of life of rural people in Anambra State and can give more opportunities for employment creation. Thus, ICT in rural areas should be employment-oriented. There should be productive processes at the local level through the provision of employment and skills, as well as support services for micro-enterprise activities. In rural communities of under-developed and developing countries like Nigeria, with limited capacities and resources to respond to the effects of extreme natural hazards, drought, landslides, floods, and to the impacts of these events on local social systems (e.g. health, infrastructure, transportation, migration), ICT tools (the potential of telecentres for disaster preparedness and response) are emerging as an area of increasing interest. Our country, Nigeria should recognize the potential ICT has for its communities residing in rural areas particularly in Anambra State. The policies and schemes should be equipped with the ICTs enabled plan to avail the citizens the benefits of modern technologies in order to enhance their livelihood.

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