INFORMATION AND COMMUNICATION TECHNOLOGY AND CHANGES IN MASS MEDIA PRODUCTION, DISTRIBUTION AND RECEPTION

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ABSTRACT

This paper examined how Information and Communication Technology (ICT) has caused changes in mass media production, distribution and reception. Regardless of the diverse research studies conducted on ICT as it relates to news processing and reporting, there are a very limited number of studies that especially examine how Information and Communication Technology (ICT) affects changes in Mass Media production and Distribution. Gone are the time when one had to read a newspaper, watch television or listen to the radio to keep abreast of the happenings in the society. Today, one can get all information on websites, social media pages, and mobile devices. This diversification has made it possible for communication to be efficient, effective and reach all four corners of the world. Despite this advantage, little or no studies have been conducted to examine how ICT has caused changes in the distribution, production and perception of broadcatst media messages most especially in Nigeria. However, regardless of these impediments, Nigeria has recorded considerable progress in the use of the new ICTs in different sectors. Many Nigerian media for instance, are now on the Internet. The NTA, AIT, MBI, Channels TV, RayPower FM, Cool FM, Rhythm FM and a few others are now embarking on satellite broadcasting. With this, Nigeria is now launched into the globalization scheme. The world can now hear, see and read us through our own media perspectives. This is a good development.

1. INTRODUCTION

The Information Society or Information Age is a phenomenon since 1950 which brings with its new challenges as we seek to integrate an expanding universe of print and multimedia sources into our daily lives (Adigwe, 2012). The two terms often are used to describe a cybernetic society in which there is a great dependence on the use of computers and data transmission linkages to generate and transmit information (Adigwe, 2012). By contrast, our familiar reference frame of an industrial society relied on machines to augment human physical labor to produce goods and services.

Now, through a process of continual change, geographic barriers are being dissolved, businesses are more interconnected, and relationships between media and the general publics have improved due to a phenomenon involving the interconnection of information and communications technologies, computer networks, and media content called "media convergence".

The technological dimension of convergence is the most readily understood. With the World Wide Web, smartphones, tablet computers, smart televisions, and other digital devices, billions of people are now able to access media content that was once tied to specific communications media (print and broadcast) or platforms (newspapers, magazines, radio, television, and cinema) (Flew, 2020). Since a diverse array of content is now being accessed through the same devices, media organizations have developed cross-media content. For example, news organizations no longer simply provide just print or audiovisual content but have portals that make material available in forms of text, video, podcasts, as well as providing links to other relevant resources, online access to their archives, and opportunities for users to comment on the story or provide links to relevant material (Flew, 2020). These developments have transformed journalism by breaching longstanding boundaries - between who is and is not a journalist (*for instance,* citizen journalism), between deadlines and other time, between journalists and editors, and between content platforms.

New and different forms of media become possible in a world where information and communication technology (ICT) has become pervasive - media that seem very different from that which preceded them. For example, a wide variety of new media emerged around the infrastructure of the Internet such as text and video blogs, Internet radio and television, real time news sites with individualized feeds, podcasting and web portals, to name but a few (Introna, 2019). Similarly, new ways of interacting emerged such as e-mail, online forums, virtual chat, webcams, peer-to-peer file sharing, online multiplayer games, and multi-user dungeons (MUDs). It would seem reasonable to say that the range and scope of possible connections and interactions, for those connected to the ICT infrastructure, has increased by orders of magnitude. If one adds to this the even more pervasive mobile telephone infrastructure, as well as voice-over Internet protocol (VoIP), then the possibilities for an ICT mediated sociality seem almost endless (Introna, 2019).

In the twentieth century for instance, there has been a radical transformation in the role of information in society as well as in the technology used in its production and dissemination. The mass media are all those media technologies that are created to reach a large audience through mass communication (Ramey, 2017). Broadcast media (also known as electronic media) transmit their information electronically and comprises of television, radio, film, movies, CDs, DVDs, and other devices such as cameras and video consoles. Alternatively, print media use a physical object as a means of sending their information, such as a newspaper, magazines, comics, books, brochures, newsletters, leaflets, and pamphlets. The organizations that control these technologies, such as television stations or publishing companies, radio stations and even online stations are also known as the mass media (Pace, 2010). Hence, the study seeks to identify information communication technology as it causes changes mass media production, distribution and reception using Pulse TV and Channel TV as study areas.

1.1 Statement of the Research Problem

Going by global trend, which foretell an increase in the employment and the deployment of ICTs in news processing, in order to achieve better efficiency, accuracy, and speed up operations of news processing, the Nigerian broadcast and print media like other facet of life and human endeavour in the country have embraced Information and Communication Technology to a greater extent. However, negligible research has assessed evaluating information in using ICT (Samah, Shaffril, Hassan, Hassan and Ismail, 2019). The authors argued that:

> Regardless of the diverse research studies conducted on ICT as it relates to news processing and reporting, there are a very limited number of studies that especially examine how Information and Communication Technology (ICT) affects changes in Mass Media production and Distribution (Samah *et al.,* 2019, p12).

This therefore forms one of the gaps that triggered this research.

Similarly, while there exists an extensive body of literature explaining conventional methods of producing and distributing of media content (Introna, 2009, Ramey, 2017, Pavlik & McIntosh, 2017), there are not enough efforts to put forth how changes in mass media production, distribution and reception has been hinged on ICT. This therefore forms another problem that called for this research.

Additionally, gone are the time when one had to read a newspaper, watch television or listen to the radio to keep abreast of the happenings in the society. Today, one can get all information on websites, social media pages, and mobile devices (ESCAP, 2019). This diversification has made it possible for communication to be efficient, effective and reach all four corners of the world. Despite this advantage, little or no studies have been conducted to examine how ICT has caused changes in the distribution, production and perception of broadcatst media messages most especially in Nigeria. This is another gap this research intends to fill.

Also, the technological advancement and proliferation of New media have transformed the media landscape. The new technologies has not only ease access and distribution of media content but also facilitate quality transmission and feedback. Several studies have investigated the impact of new technology on broadcast sector in advanced countries (Samadar, 2015, Rodriguez & Wilson, 2013), however little has been done in term of how the new technology shape and influence content production, distribution and reception of online (Pulse TV) and offline (Channel TV) broadcast stations in Nigeria.

1.2 Aim and Objectives of the Study

The aim of this research is to assess the changes Information and Communication Technology (ICT) has brought to mass media content production, distribution and reception. The specific objectives include:

1. To study how ICT facilities have aided Pulse TV and Channel TV content production,
2. To ascertain how ICT facilities have aided Pulse TV and Channel TV content distribution,
3. To find out how ICT facilities have eased the reception of media contents produced and distributed by Pulse TV and Channel TV.

1.3   Methodology

This study is fundamentally based on the review of relevant literature that were obtained from secondary sources these comprises; journals, newspapers, research works, published books, reports, and articles that dealt with the role of ICT on the production, distribution and perception of media contents in Nigeria and developed countries.

2.   REVIEW OF RELATED LITERATURE

This section reviews related literature and discusses the theory to which the research was hinged. The chapter is review under the following headings: Conceptual review, literature review, empirical review and theoretical review.

2.1   Conceptual Review

2.1.1   Information and Communication Technology (ICT)

The most common view of ICT is that it is an artefact, tool, or system that is designed to be available for humans to achieve their objectives and outcomes—to e-mail, to write, to store, to manipulate, to interact, and so forth. This view is rooted in our everyday intuitions about the world in which our tools are seen as something distinctly separate from us—thus, where the subject/object dualism is taken for granted. Tools are seen as objective and neutral 'technical things' (separate from us) that we can draw upon, or not, to achieve our particular ends. This relationship between us and our tools is often expressed as a means–ends relationship where technology is designed—based on some technical rationality—as means (or tools) to achieve particular ends. Some of these tools might be useful and others not.

Information and Communication Technology (ICT) is a generic term used to express the convergence of telecommunications, information, broadcasting and communications. According to Rodriguez and Wilson (2010) ICT is seen as a set of activities which facilitate and enhance the processing, transmission and dissemination of information by electronic means. ESCAP (2000) also perceived ICT as techniques people use in order to share, distribute, and gather information for communicating through computers and computer networks. Promoting Information and Communication Technology as an integral   part for enhancing timely news delivery in the broadcast industry was articulated by Samadar (2015) who submitted that ICT is a tool for facilitating the creation, storage, management and dissemination of information by electronic means. Meanwhile, Marcelle (2015) did not only see ICT as a complex entity but an application and services used for the production, distribution, processing, transformation of information.

The term Information and Communication Technology (ICT) refers to forms of technology that are used to transmit, store, create, share or 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 videoconferencing and electronic mail.(Wikepedia,2009).

Lievrouw (2011) cited Bermiger (2015:4) viewed Information and Communication Technologies as the nervous system of contemporary society, transmitting and distributing seasons and control information and interconnectivity, a myriad of

independent units". Operationally, Lievrouw (2011) sees ICTs comprise digital devices either notifies of the hardware or software for transferring information. Indeed, the emergence of ICT as mechanisms of control for industrial revolution is pivotal in almost every sphere of the production, distribution and dissemination of manufacture and finished product. (Liebling, Mencken, Norman and Arthur 2015:4).

2.1.2 Mass Media Production

New media technologies promise profound changes in how global citizens obtain news and feature programming as well as how we communicate among ourselves and contribute to the emerging de-centralized, many-to-many media system. By becoming aware of how mass media is controlled and biased by a few corporations, by choosing alternative media sources and by taking action to publish news and original content with digital production tools, the internet and independent media-vehicles – the public can create a true revolution in the control and presentation of media (Nag, 2011).

Continued dramatic improvements in computer memory and processing speed per unit of cost led to steady increase in affordability and ubiquity of computers. Combined with breakthroughs in storage technology, this made it increasingly possible and desirable to capture and store information, entertainment and other forms of valuable information and content in digital form (Henten, Samarajiya and Melody, 2015). One can state that this digitization, in turn, made it easier to reuse, repurpose, manipulate and combine content, anywhere at any time, for the specific purposes of the user, through a variety of electronic means.

Lievrouw, (2011) observed that steady and substantial increases in telecommunications bandwidth, fuelled by the widespread deployment of fiber optic cables, satellites and wireless technologies, made it easier and cheaper to share information globally and to communicate instantaneously at long distances. These new technologies and the optimism they engendered about their economic and social potential, led to an extraordinarily dynamic period of innovation, investment and growth in the mid-to-late 1990"s.

"Convergence" is the label most often used for the integration of communication mediums that the digital revolution has made possible. This may prove to create as radical a change in the relationship between people and the institutions of society as did the invention of movable type – the Gutenberg Revolution. With the digital revolution, we no longer can say "freedom of the press belongs to those who can afford one" **(**Liebling, Mencken, Norman & Arthur, 2015**).** No longer is it just the major institutions of society that are able to disseminate information now, virtually anyone with a computer can.

The rise of more sophisticated communication and information technologies, such as satellites or the Internet, has opened new horizons and opportunities. The potential of the new technologies has not only increased the penetration of mass media, for instance, through satellites, but it has also created new opportunities to enhance communication at the local level utilizing technologies such as the Internet or mobile telephones (Nag, 2011).

From a technological point of view, it is difficult to ensure the proper operation of such technologies in places where there are no phone or electric lines. Even where those services are guaranteed, regular maintenance and updates and issues of compatibility among different standards, become major issues. Technical support is a necessity for individuals in richer countries and would be even more necessary in countries where people are less technology literate. In many countries, users need

basic training in computer use and prior to that, literacy skills to communicate effectively on the Internet (Parmar, 2013). .

From a cultural point of view, there are also a number of constraints. The language in which most of the information is available on the Internet can pose a barrier. Additionally, given the high illiteracy rate of many areas of developing countries, many potential users are excluded from the start. Even when language barriers are overcome, often cultural issues remain crucial in gaining fundamental knowledge and the needed frame of mind in order to take full advantage of the power of these technologies (Parmar, 2013).

Despite such shortcomings, there is no doubt that ICTs can have a stronger appeal than participatory processes, which appear more complex to manage and require longer and closer interactions. In fact communication technologies are more effective when used within proper cultural frameworks and in processes that engage stakeholders in the selection of the objectives, key issues and appropriate channels. ICTs and media can certainly play a key role in development communication, but they are not a panacea capable of solving all problems and of filling all gaps related to knowledge and perceptions.

2.1.3 Mass Media distribution

To many, ICT is seen as more of a convergence of technologies rather than a mechanism that can help transport, convey or disseminate timely information. One key impact of ICTs on news gathering is not only to improve quality news delivery but also facilitates the creation and dissemination of information, by electronic means. In this regard, Quibria and Tschang (2017) maintains that Information and Communication Technologies have transformed the world in all spheres of life in time past. He further elucidates the   potential of ICT in reducing manual operations in fostering the growth in the media has increased rapidly. For this reason, ICT bridges the constraints of distance and time by possibly bringing news sources closer than ever before to the news gatherers and reporters.

Mansel (2016) is of the view that the telephone has bridged the time between the reporter and the source, reporter and editor, saving costs such as travel logistics. As news can be reported from any location and at any given point in time. Still, cost is one of the immediate impacts of ICTs on news gathering, as the cost of gathering news has drastically and significantly reduced with the advent of information and communication technologies. In addition to improving the delivery of News, Computer and Telecommunication Technology serve as a medium for improving both the quality and quantity of information in broadcast media. This serves as a springboard to the fact that broadcast stations reports live incidence of occurrence of any sort in real-time (Mansel, 2016).

Adamali (2014) is of the notion that Information and Communication Technology improves News reporting. More so, news reporting refers to the act of conveying or relaying, or communicating the message to the audience. Meanwhile, Adamali (2014) further elucidates that ICTs have made exchange of ideas, (which is a form of reporting) between communicators and receivers easy. He argues that "Participation which necessitates reasoning and moreover trust, will help reduce the social distance between communicators and receivers, between teachers and learners, between leaders and followers as well as facilitate a more equitable exchange of ideals."

The ICT is now also used to refer to the merging (convergence) of audio-visual and telephone networks with computer networks through a single cabling or link system Carnoy, 2019). There are large economic incentives (huge cost savings due to elimination of the telephone network) to merge the audio-visual, building management and telephone network with the computer 21 network system using a single unified system of cabling, signal distribution and management. This in turn has spurred the growth of organizations with the term ICT in their names to indicate their specialization in the process of merging the different network systems (Berger, 2019).

2.1.4 Media Message Reception

Reception studies share with other hermeneutic approaches to research the fundamental assumption that the meaning of a message - including all forms of media message - is not fixed or pre-given but must be interpreted by its recipient. Fiske (2987) is an important reference point for reception studies, for it outlines one of the field's central arguments, that meaning, crucially, is considered to emerge from the context-dependent interaction between a polysemic text and an interpretative reader (Fiske 1987), something the author extends later in his use of the term "audiencing" (Fiske 1992).

Eco (1979) theorized account of reception rooted in semiotic theory, in which he theorizes interpretation and reception as processes of meaning construction centered on the interaction between texts. Texts are understood to encode a particular "ideal" or "implied" reader, and empirical readers are understood to decode texts in accordance with particular knowledge and interests as shaped by the social context. Notably, for reception studies this approach represents more than a theoretical assumption, for the ways in which meanings emerge from the text-reader interaction also raises empirical questions for research (unlike, for instance, in the tradition of literary aesthetics), as advanced, for instance, in Livingstone (1998), a book on the reception of television soap opera. Also, by contrast with linear approaches, reception studies eschew a cognitive focus on what individuals understand of or recall from a message. Instead, it emphasizes that interpretation should be understood as a collective process, situated in an interpretative community or communities, and divergent among audiences from different communities.

In his account of the circuit of culture, Johnson (2010) made a key statement for British cultural studies regarding the dynamic interrelations between production and consumption in the production and reproduction of meanings. Situating reception within broader sociocultural contexts thus allows audience researchers to embrace broader questions of identity, participation, politics, and power through the exploration of how people make sense of media texts in their daily lives. Much of this work was influenced by a feminist rethinking of the implicit "feminization" of early conceptions of the audience (Modleski 2007).

Silverstone (1994) represents some of these core arguments, focusing on the role of television and its reception in everyday life, and Ginsburg, et al. (2002), a collection of ethnographic studies from around the world, is an excellent empirical inroad into reception studies in recent times. Note that efforts to contextualize the process of reception has permitted audience researchers to recognize how people engage with media as goods or objects as well as engaging with media as texts or genres;

consequently, in recent years the traditions of audience reception and media ethnography have become closely entwined.

5 THEORETICAL FRAMEWORK

5.1 The Diffusion of Innovation Theory

The Diffusion of Innovation Theory according to Anaeto, Onabajo and Osifeso (2008, P. 116), is associated with Ryan and Cross (1943) and Everett Rogers (1960). The concept, innovation, as later defined by Rogers and Shoemaker (1971:19) is "an idea, practice or object perceived as new by an individual". The newness here, the scholars argue does not presuppose that such "idea, practice or object" is entirely novel to members of a social group. It rather means that though members of the target group may be aware of such idea, practice or object, they have no particular disposition towards the idea, practice or object prior to the lunching of the campaign for social change.

On the other hand, diffusion according to Katz (1963:77) means "The process of spread of a given new idea or practice over time, via specifiable channels or through social structures. Simply put, diffusion means internalization, adoption, practice and application of new ideas by man either as an individual or member of a social group. Innovation diffusion therefore involves conscious exposure to adoption, application and utilization of new ideas, practices or objects. Thus, the main thrust of the Diffusion of Innovation theory lies on how new ideas, discoveries, practices or technologies spread to members of a social system.

Ogboho (2008) in Ogah (2017) puts it this way "the Innovation Diffusion Theory refers to how media technological products and facilities are introduced and adopted by the international community, comprising external broadcasting service stations, using technological products to reach out the world and the international audience who are the beneficiary of the new media contents and products". This submission rightly buttresses the suitability of the theory to the objective of the study, which aims at evaluating the adoption and application of ICTs in the Nigerian mass media. However, Beckett (2011) believes that in the innovation diffusion process, the media present information that makes us aware of the existence of an item. From there, the person gets interested, constantly evaluates the item, takes a trial of the item and finally acquires it.

Innovation campaign is therefore hardly hypodermic in effect. This means that it is difficult to achieve instant change of attitude and behaviour through innovation diffusion. Hence, Rogers (1965) cited in Wogu (2008:164) explains that when new technological innovation is introduced, they will move across a series of stages before they are generally adopted. Firstly, majority of people will know of the innovations; secondly, the innovation will be adopted by a very small group of innovators or early adopters; thirdly, opinion leaders take a cue from the early adopters and try out the innovation themselves; fourthly, if opinion leaders find the innovation helpful, they persuade their friends, the opinion followers. Finally, after the majority has adopted the innovation, a group of laggards or late adopters join.

Early experiments on Roger's Diffusion of Innovation theory in the U.S. show that the theory aids the taking up of new innovations that were hitherto not preferred by adopters. It was discovered that this process applied to nearly all American agricultural

innovations. Today, many agricultural practices like the use of fertilizers have been promoted even here in Nigeria.

However, diffusion of innovation has been criticized of taking longer time than we believe. The time between the actual development of innovation and its widespread adoption is known as the Innovation Diffusion Gap (IDG). For instance, the IDG of the invention of the Laser and the Mouse took about 20 years to their widespread application.

In all, the following constitute the basic assumptions of the Diffusion of Innovation Theory.

1. Diffusion research centres on the conditions, which increase or decrease the likelihood that members of a given culture will adopt a new idea, product, or practice.
2. The information flows through networks; the nature of networks and the roles opinion leaders play in them determine the likelihood the innovation will be adopted.
3. Opinion leaders exert influence on audience behaviour via their personal contact, but additional intermediaries (called change agents and gatekeepers) are also included in the process of diffusion.
4. Diffusion of Innovation Theory predicts that media as well as interpersonal contacts provide information and influence opinion and judgment.

Daramola (2003) wraps it up by saying that "diffusion of innovation theory is a theory that seeks to disseminate information about new discoveries to the masses of a social set up".

5.2   Application of the Theory to this Study

The diffusion theory added more to the limited effects paradigm and became the foundation for various promotional communication and marketing theories. The theory aided the taking up of innovations that were, at times, not well understood or even preferred adopters. This theory is related to the subject matter of the study in the sense that most technological innovations applied in the mass media industry were picked up by the Nigeria mass media by way of diffusion of the communication technologies from the more advanced European, American and Asian countries to Africa vis-à-vis Nigeria.

6   CONCLUSION

This paper has taken an in-depth review of both local and foreign existing literatures and empirical studies on ICTs adoption and utilization in the Nigerian mass media. Most of the works reviewed show that ICTs have become a powerful force in every facet of contemporary life. In the media industry, it is even a more serious matter, because the media is a product of science and technologic. However, our analysis so far has shown that despite the inevitability of these new technologies in all aspects of modern day life, Nigeria, Africa, and indeed the third world is still seriously lagging far behind, in their adoption and utilization. Notable among the impediments are lack of infrastructure, poor knowledge of ICTs at all levels, from suppliers to users, few trained or skilled personal, high cost of acquisition and maintenance, absence of ICT policy or its implementation, corruption and political instability, poverty, wars, hunger, diseases and fear of insecurity, among others.

However, regardless of these impediments, Nigeria has recorded considerable progress in the use of the new ICTs in different sectors. Many Nigerian media for instance, are now on the Internet. The NTA, AIT, MBI, Channels TV, RayPower FM, Cool FM, Rhythm FM and a few others are now embarking on satellite broadcasting. With this, Nigeria is now launched into the globalization scheme. The world can now hear, see and read us through our own media perspectives. This is a good development.

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