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Benefit of Digital Switchover

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***Abstract*— Nigeria plans to switch from analogue to digital broadcasting by June 17, 2011, in response to the drive of the International Telecommunication Union (ITU). This innovation is being championed by the National Broadcasting Commission (NBC). Despite the uncountable advantages of digitization in terrestrial broadcasting, Nigeria still seems to be encountering some challenges in terms of application. This research was designed to ascertain the level of preparedness of the government and awareness of her citizens on the application of digital technology in Nigeria terrestrial broadcasting. It also addresses questions like: what is the measure adopted by the Nigerian government to subsidize the cost of digital technology as well as ensure its adoption in the national policy and plans? Power networking society theory was employed in interpreting and analyzing the research problem. This research employed survey method. Purposive sampling technique was employed to select FRCN Training School, Ikeja Lagos with a sample size of 300 drawn from the population of 300, who constituted the staff and students of the school. Questionnaire was used as data collection instrument. Findings among other things revealed that the level of public sensitization on the application of digital technology in Nigerian terrestrial broadcasting is simply not enough.**

***Index Terms*— Benefit, Digital, Switchover.**

I. INTRODUCTION

Digital technology application in modern broadcasting has transformed and revolutionized the traditional terrestrial broadcasting into a positive innovative concept of global networking society often referred to as digitization technology convergence. Contextual emphasis on technological innovation which has a leapfrog effect on broadcasting has yielded to change. This change has tremendously revolutionized broadcasting from the monolithic model (analogue) to an interactive Omni-directional model (digital) in line with modern global trends.

Communication media are hence, on the move, constantly evolving and changing the world we live in. It is no longer enough to learn about the conventional (print, radio, television and film) mass media as computers and telecommunications are converging to create exciting new media forms[1]. The arrival of digital broadcasting has brought outstanding exciting changes to mass communication. Digital technologies are shifting the indispensable principles of broadcasting as its application in Nigeria has brought tremendous improvements in her terrestrial broadcasting. Interactivity is adding important new dimensions to broadcast services. Listeners now have easier right of entry to wider range of content through various transmission media. They are now able to opt for the services they want at a time expedient to them and to benefit from superior two-way communication. Little wonder[2] affirms that "we are living in a digital revolution era." This is made more lucid by[5] who wrote that with the diffusion of the Internet, a new form of interactive communication has emerged, characterized by the capacity of sending messages to many irrespective of their place of origin, in real time or chosen time, and with the possibility of using point-to-point communication, narrow casting or broadcasting depending on the purpose and characteristics of the intended communication practice.

In this regard, digital technology is seen through the dimension of what[6]characterize as "the inflection" or what some time ago, Rice, et al cited in [5] identified as the emergence of new media through the interaction of technological change and communication. The convergence of media has been made possible by digital technologies which have transformed sending and receiving of messages as many rapid growing technological advancement and innovations have cut across all strata of our private, public and national life. Technology has continued to affect the way we do things. For instance, broadcast journalism has gone through various transformations from the ancient to modern times. The advent of information and communication technologies (ICTs) has indeed led to technological revolution across the globe and it has continued to change the global, social and economic milieus of countries making use of these technologies thereby reinforcing the reality of the globalization concept.

Globalization is a process of interaction and integration among the people, companies as well as government of different nations. This process is driven by international trade and investment as well as information and communication technology". The dynamics of broadcasting has contributed immensely towards the reunification of our society, recognizing the interest of the various segments in our society. For instance, Nigeria which is composed of different tribes, cultures, beliefs and religions, with the adoption of digital broadcasting technology, the various needs of the groups could be accommodated. The National Broadcasting Commission recognizes this digitization, the conversion of the broadcast and communication systems from analogue to digital as an important global movement driven by the International Telecommunications Union (ITU) that will revolutionize broadcasting as we know it. Digitization both improve the quality of reception and ensure
more efficient use of the spectrum, which is scarce and finite natural resource belonging to all Nigerian's and held in trust by licensees.

The digitization of analogue broadcasting signal is one of the most significant changes in broadcast environment today. There has been a clear prospect internationally for some years

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that existing analogue television and radio be replaced by digital transmission. The International Telecommunication Union (ITU) set a deadline for the full transition to digital broadcast (VHF) for 2015 and (UHF) for 2020. Nigeria is a signatory to this agreement. As a result of the presidential approval in December 2007 for digital terrestrial broadcasting, Nigeria has joined the global train on transition to digitization. This undoubtedly has placed some burden on the mass media, educational institution and government through its regulatory agencies in sensitizing and educating Nigerians on the implications of the new technology.

The scheme for Nigerian transition from analogue to digital broadcasting started in 2004 when the country attended the ITU conference in Senegal and another in Geneva in 2006. At both conferences, it was collectively agreed that by 2015, all VHF channels should have gone digital while UHF transition was placed for 2020. Nigeria however, adjusted theirs to 2012. The endorsement for digitization of broadcasting was immediately followed with the inauguration of Presidential Advisory Committee on digitization on Monday 13th October 2008 in Abuja. At the inauguration of the committee in Abuja, the president, Umaru Yar'Adua represented by the then minister of information and communications Mr. John OgarOdey said digitization would lead to efficient use of the spectrum as well as increase the audio and video quality of broadcast contents. He reiterated the government's doggedness not to be left at the rear in the digital revolution[47].

As a result, the application of digital technology in terrestrial broadcasting has continued to generate tremendous prospects and challenges in Nigeria. The benefits and challenges of digitization have continued to trigger reactions among media professionals and stakeholders. In Nigeria for instance, the adoption of high definition radio (HDR) which is favoured in the United States, the digital audio broadcasting (DAB) favoured by the Europe and the digital audio Mondia (DAM) favoured by Asia continues to generate argument in favor or against which of these technologies will best suit Nigeria.

HD radio will favor Nigeria,this is because consumers wouldn't have to dispose of their analogue radio set or remove the antennas. All they need to do is purchase a settop-box (STB). In the broadcast station, they will need a digital compliance exciter. This is a mini-transmitter which receives the program signal from the station en route to the transmitter where the modulation takes place and amplified to where radio frequency is generated. The exciter can transmit signal on its own only that the reach will be limited. Therefore, it needs a real amplification to get larger reception end.

Nevertheless, the National Broadcasting Commission in Consultations with Stakeholders in the industry set a deadline for Nigeria at December 31st 2012 for switch-on with a provisional timetable and has embarked on a nationwide enlightenment campaign, and committees have been constituted to take care of the project.

This goes in accordance with [15] that it is imperative to tell your own story, to tell it all and to tell it fast. In Nigeria, most people are comfortable with the use of their analog radios and televisions, so it becomes difficult to convince them of what digitization is all about. It is pertinent to help them understand the benefits of digitization. For instance, if our transmission is still in analog and that of Republic of Benin in digital, there could be interference and this will attract penalty on the part of Nigeria.

In Africa, we must march through this transition from analogue to digital signal; it is an opportunity we must get right. This means that procurement of transmitting equipment, re-training of cameramen, presenters, producers and even more so technicians are necessary. This is in harmony with Wilson's assertion that "the digitization of information and the convergence of one separate industry into a new amalgamation of production, distribution and consumption activities is made possible by the shift from analog to digital technologies" as quoted in [11]. Abayomi Bolariwa, the Director General of National Broadcasting Commission thus gave illustration of what digitization is all about in this way:

Digitization is not only about broadcast equipment; it is about digitization of broadcast signal. Today from the broadcast station to our homes is analog; tomorrow it will be digital. For instance, if you have a modern car and the local mechanic tells you that there is something called brain box, it means that you have all the electronic system in the car being controlled by one source (the brain box) and if you interface it with a computer you can diagnose what is wrong with the car. Again, if you have modern cell phone, you can make calls, check e-mails data, watch videos and that's a triple play which is digitization at one level, you have microphone and remote controls telling you the level of digitization in your own equipment, and at your homes today you have satellite receivers and they have digital signals coming into your home and you receive them with an interface or converter called decoders to enable you receive the digital signal coming from the satellite station.

In like manner, those in terrestrial broadcasting like NTA will now digitize their signals in their transmission stations and send to our homes. Viewers will be able to receive signals if they have a high breed turner receiver called a set-top box as a decoder which converts the digital transmission to their analog receivers. In this sense, it means stations now have new digitized transmission equipment; it also means viewers at home must have a new means of receiving digital transmission. However, it is important to note that analog is not compatible with digital signal. Before now, we converted from black and white television to colour; this was because the technology was compatible. If one has a black and white television and a station is transmitting in colour, he will receive it in black and white but in this case if a station is transmitting a digital signal and one has analogue set there is no way he can receive that signal unless there is an interface. Producers of broadcasting contents have to invest in broadcasting hardware; they have to imbibe on a new way of doing things both in their camera acquisition, equipment and in their production and post production. Further, editing machine and films will be digitized and in a new way different from the way things were done ten years ago.

Digitization is more or less something like an evolution of technology. It is not like something that started new. The one we are concerned with is the digitization in terrestrial

broadcasting i.e. the UHF and VHF band which is the most popular band because that is where people watch and tune most without paying for it. Apart from that, we have several other broadcasting Channels that started much earlier before all these. Digitization is an evolution of science because telephone service and G.S.M phones are all products of digitization; computers started from the mainframe to desktop to laptops and now there is notebooks and palmtops. Everything is becoming miniaturized and small. The term "Convergence" is often used to describe "the synergies between technology, media and information that are changing societies worldwide. It is also in conjunction with journalism and media to help us understand how the Internet and broadband wireless devices have shifted control from the source to receiver" [43].

Satellites and cables are already digitized; the decoders are used to convert their digital signals. Put in terrestrial broadcasting, we need a set-top box that will convert their digital signals so that viewers and listeners can access their content. One advantage of digitization in broadcasting is the compression of the frequency band spectrum. For example, the frequency that could carry only one channel will now be able to carry six or more channels. According to Musa Kamarudeen, the Chief Engineering National Broadcasting Commission (NBC) Abuja, "South Africa has given only one frequency to transmit six channels". Now assuming Nigeria has up to 30 frequencies that will transmit six channels each, it then means that we are going to have up to 180 channels. Finally, terrestrial broadcasting eludes the fear of cultural imperialism while the regulation will still be under the control of the various regulatory bodies like, National Broadcasting Commission, Broadcasting Organization of Nigeria e.tc.

II. Statement of the Problem

The impetus of digital technology in terrestrial broadcasting in Nigeria was enunciated by Nigeria's involvement in the transition from analogue to digital broadcasting following the ITU's conference in Senegal and Geneva in 2004 and 2006 respectively. Since then, there has been growing concern among stakeholders in the broadcast sector on the preparedness of Nigeria to adopt this new technology. Also, is the Nigerian broadcast environment adequately prepared for the application of digital technology in terrestrial broadcasting? Again, how prepared is the Nigerian government in their policies and plans towards the adoption of this new technology in creating awareness and sensitizing the citizenry?

Similarly, the application of digital technology depends to a large extent on the level of manpower to man this new technology. Therefore, adequate training to enhance capacity building and utilization will be enhanced through skill acquisition and manpower development. Thus, does Nigeria have enough manpower to operate this new technology? Further, the cost of new digital technological acquisition is usually high both on the side of the media- owners (content-providers) and on the side of consumers (the Nigerian-populace). What steps therefore should be taken to reduce or subsidize the high cost associated with digital technology? Answers to these challenge leaves one with no option than to carry out a study of this nature that would examine the place of Nigeria in the application of digital technology in the broadcast industry.

III. OBJECTIVES OF STUDY

The objectives of the research shall be as follows:

1. To ascertain the level of people's awareness of digital technology.
2. To examine the extent of Nigeria's preparedness for the application of digital technology.
3. To examine the measures adopted to subsidize the high cost of digital technology and ensure the adoption of this project in the national policy and plans.

IV. RESEARCH QUESTIONS

The digital technology application in terrestrial broadcasting is a new concept. In Nigeria, it is important to imagine the curiosity and interest these might have generated. Consequently, to buttress and achieve the purpose of this study the following research questions will aid understanding of this phenomenon:

I. What is the level of people's awareness about digital technology?
II. How prepared is Nigeria for the application of digital technology?
III. What are the measures adopted by the Nigerian government to subsidize the high cost of digital technology?

V. CONCEPTUAL REVIEW

A. Digital Technology Application

In recent times, digital technology application process in the Nigerian broadcast environment is blurring, distorting and erroneously interpreted by many. Sadly, inadequate in-depth knowledge of the global digitization technology convergence in terrestrial broadcasting especially its application process in Nigeria has generated serious reactions and deep concern amongst stakeholders and non- stakeholders in the communication sector. For instance, up until the end of June 2010, the level of awareness and benefits accruing from the transition from analogue to digital in terrestrial broadcasting is still at a snail speed; thereby creating doubt towards the actualization and success of the digitization process. As such its application in modern times seems a mirage.

Meanwhile let us have a brief overview of digital formation as this will help us have a sheer frame of reference. Digital originates from digits which is a conversion of binary values. According to [16] "a binary alphabet has only two symbols 0 and 1, known as binits derived from binary digits". Again " a digital quantity has a value that is specified as one of two possibilities such as 0 and 1, low or high, true or false and so on" [29].

On the other hand, digitization is not automation which is computer mediated system in broadcasting. It is not webcasting, narrowcasting, podcasting or multicasting,

although all of these have links with digital technology often referred to as Digitization. "In the Digital age however, all these pale into insignificance. Audio signals from a barking dog, metrological signals from a security post, reportorial text from a news agency, stock indexes from the capital market and even planetary data from space probes are gathered, stored, processed and retrieved, as well as distributed uniformly in the form of "ones and zeros" in the digital domain. They remain in this convenient form until humans need to interact with them" (Adegbola cited in NBC News, 2001:10a). Apparently in furtherance of his belief in digital technology application in broadcasting, Adegbola buttresses his conviction by saying that "in a broadcasting environment, such data, representing audio and video signals can be borne on traditional wireless media via terrestrial transmitters, satellite broadcast transponders or cable distribution networks for dissemination. This is Digital Broadcasting" [19].

B Evolution of Digital Terrestrial Broadcasting In Nigeria

Digital technology is constantly on the move. Ever evolving and changing, as its application in modern communication is on the swift increase. Researchers and scholars have continued to document their findings in order to demystify the perception of the audience on digital terrestrial broadcasting.[43], the online editor and researcher with the Voice of Nigeria (VON) observes that the application of digital technology is the revolutionary strength of modern mass media and broadcasting in particular. Digital technology convergence in terrestrial broadcasting in Nigeria, as well as its application is enunciated by the International Telecommunication Union (ITU). The historical perspective of digital technology application in Nigeria is driven by the National Broadcasting Commission (NBC).

Following the International Telecommunications Union (ITU) conference in Senegal in 2004 and Geneva in 2006 where it was unanimously agreed that 2015 will be the deadline for transition from analogue to digital broadcasting, the Nigerian Government immediately set up a Presidential Advisory Committee to advise government on the way forward. In June 2009, the Committee submitted its findings to the Presidency. Nigeria thus adopted 2012 for its terrestrial switchover. This marks the beginning of digital application in Nigeria (NBC NEWS, 2008:5, Dunu&Ukwueze, 2009:2-3, AIRWAVES, 2006:14-17). On July 15, 2009, the Federal Executive Council approved the release of funds to the Nigerian Television Authority (NTA) to upgrade its equipment and facilities digitally. Meanwhile, Voice of Nigeria (VON) and African Independent Television (AIT) have stated digital transmission adoption, while Federal Radio Corporation of Nigeria (FRCN) have started the process of digitization as well as other state-owned and private radio stations. Earlier, in 2006, the Advertising Practitioners Council of Nigeria (APCON) organized a public forum on "Digital Broadcasting and Advertising" in which Jijiwa emphasized that "broadcasting and advertising have a symbiotic relationship, as the survival of broadcast establishments depends largely on advertising revenue…" (Jijiwa, 2006:1).

C Audience Perspective

One of the cardinal challenges posed by digital application in Nigeria is getting the audience members sensitized and to ensure efficient and effective utilization of the technology. For instance, there are reports that countries like South Africa, Tanzania, and Kenya have already on ground, solid policy documents, regulatory and licensing framework as well as well defined roadmap for digital broadcasting. It is therefore hoped that in Nigeria as the perceived giant of Africa, it will work for the citizenry who must be carried along via proper awareness and knowledge creation (Dunu and Ukwueze, 2009:6).

In their study on "Students' Awareness and Knowledge of Digitalization of Broadcasting in Nigeria: Implications for Journalism Curriculum", [47] studied 3 universities within the South-East geo-political zone. They chose one federal university, one state university and a privately owned university. Nnamdi Azikiwe University, Awka represented the federal, while Anambra State University, Uli – state and Madonna University, Okija representing the private university. The study while examining student's awareness level found that out 180 students selected from the three universities, 32 or 17.8 % agreed to have knowledge of the on-going digitization process, as 148 representing 82.2 % said they were not aware of the exercise.

Furthermore, examining respondents sources and level of awareness, found that out of 32 respondents, none got information of the digital application process through the university. 18 representing 56.2% said they know about it via mass media. 12 or 37.5% replied from NBC campaign, while 2 or 6.3% said other sources. On respondent's level of awareness, 3 or 9.4% have high awareness level, while 10 representing 31.2% rated theirs as moderate, as well as 19 or 59.4% were found to be very low. On respondent's knowledge of digitization and ability to differentiate analogue from digital mode of broadcasting, the researchers found that out of 180 respondents, only 28 respondents or 15.6% claimed to know the concept of digitization, while 152 representing 84.4% do not know anything about digitization. On the other hand, of the 28 respondents examined on the ability to differentiate between analogue and digital broadcasting, it was found that 10 or 35.7% said they can differentiate the two concepts, while 18 representing 64.3% agreed they cannot differentiate them.

The above results or report is enough evidence to show that Nigeria still have a long way to go as long as migration from analogue to digital broadcasting is concern. The import is that if those in academic do not have any consolable knowledge of digitization let alone its application in Nigeria terrestrial broadcasting, then a lot of bridges lie ahead for us to cross. This is why this study has become significant and imperative in the academia approach to switchover and the setting of a common timescale. Commissioner Reding explained that 'by recommending 2012 as EU deadline for the analogue switch-off, I would like to give a political signal to market participants and customers alike that digital TV will soon be a reality' (EC, 2005b).

However, the great diversity in terms both of national levels of digital television take-up and approaches to digital switchover makes the 2012 EU-wide deadline unrealistic. The following section outlines the national approaches

towards analogue terrestrial television switch-off and assesses the countries' readiness for the process.

D The Challenges of Digital Technology Application across the Globe: Collapses of DTV Consortia and ITV Digital AndQuiero TV.

In Britain, the satisfaction of the above main criteria of availability, affordability and accessibility were until recently considered unrealistic. The digital switchover policy was conceived at the end of the 1990s, in the middle of the dotcom euphoria. The take-up of DTV services was then relatively high, but following the collapse of the digital terrestrial pay-TV platform ITV Digital in 2002, the initial high rate was not maintained as digital television failed to meet some customers' expectations. In particular, in April 2002 ITV Digital, jointly owned by commercial broadcasters Carlton Communications and Granada Media Group, filed for bankruptcy. "This financial crisis was the result of a poor management policy, technical problems and the decision to give away free set-top boxes to emulate the strategy of pay satellite broadcaster" . Above all, though, the consortium's collapse was caused by overbidding for football rights. In particular, in 2001 ITV Digital signed a three-year £315 million deal to show Nationwide League (First Division) games, the largest broadcasting contract in the League's history. The intention was to compete with BSkyB, which had previously acquired the rights to show live Premiership matches. The problem was that the Nationwide is a lower league and so ITV Digital attempted to copy BSkyB's strategy by using less appealing football matches, attracting fewer football fans and viewers. Its inability to create a large subscriber base (in early 2002 ITV Digital only managed about 1.2 million viewers compared to BSkyB's 5.5 million) resulted in huge debts and eventual shut-down. Not only had the closure a negative effect on the 72 English football clubs that depended on ITV Digital for much of their income, but it also held back the government's plans for an all-digital Britain.

The simultaneous closure of another pay digital terrestrial television (DTT) platform in Spain put the viability of the technology in serious doubt. DTT operator Onda Digital (later renamed Quiero TV) was introduced in 1999, making Spain the third country in the world to launch DTT (the other two being Britain and Sweden). The main shareholder of Quiero TV was Retevision, controlled by the Spanish bank Santander Central Hispano and Spanish electric utilities Endesa and Union Fenosa. Owing to huge debts and limited subscriber base, in April 2002 Quiero TV's shareholders decided to close the platform. Quiero TV's failure can be attributed to a number of factors, including the relatively limited number of services compared to those offered by rival digital satellite platforms Canal Satellite Digital and Via Digital (now merged), limited geographical reach as it covered only 60 percent of the Spanish population, and prohibitive cost (about €400–500) of purchasing the digital decoder.

E THE FREE-TO-AIR MODEL – THE CASES OF FREE VIEW AND FRE ESAT

Given the low subscriber base of the Swedish pay DTT platform (securing just 150,000 customers in 2002), a new strategy was urgently needed to target more viewers. Until 2002, the economic model for DTV (not only terrestrial, but also cable and satellite) had been largely based on pay-TV services offered by private consortia.

These consortia have acquired exclusive popular programming (particularly sports and film rights) and require subscribers to buy a decoder (and, in the case of satellite, a dish) to access it. While pay-TV has driven the initial uptake of DTV in Europe, saturation of the pay-TV market in terms of penetration may be occurring. Already, the market may have arrived at a situation in which those consumers prepared to sign up to digital payTV services have already done so. In the highly competitive British digital pay-TV market, about 37 percent of homes had taken up digital television by 2002, leaving more than 60 percent of homes unconvinced. Attention was focused on the free-to-view market and with the launch of the BBC led Free view service in September 2002, DTT in Britain has turned into a free-to-air only platform.

Free view, which is backed by the BBC, BSkyB and the transmission company Crown Castle, is aimed at an audience confused by DTV and hostile to subscription services. The redirection of DTT towards a primarily free-to-air system has proved compelling to many households who are negative about pay-TV. Evidence of this is that from the third quarter of 2002 (the time Freeview was launched) until the first quarter of 2005, DTT showed a strong increase in its share of the digital television market from 10.6 percent to 32.8 percent, whereas over the same period digital cable saw a decline from 21.1 percent to 16.5 percent, and digital satellite showed a drop from 68.1 percent to 47.7 percent (Ofcom, 2005a). In terms of numbers, digital satellite remained the market leader in 2005

(BSkyB's subscribers in Britain reached 7,349,000 at the end of the first quarter of 2005), while the total number of subscribers to cable television was just under 3.3 million (digital cable accounted for just over 2.5 million). However, Freeview's household numbers were estimated to have grown to around 5,059,350 in just over two years since its launch. Total DTV penetration was estimated to have reached 61.9 percent of British households by 31 March 2005, up from just 37 percent in 2002, mostly thanks to the launch of a free-to-air DTT platform. The subscription-free scheme helped to rebuild public confidence in DTV. As it is a free-to-view platform, it helped to combat the common misconception that DTV is necessarily pay-TV. Since the launch of Free view, DTV has become considerably more affordable as competition between manufacturers and retailers of Free view receivers resulted in significant price reductions (in mid-2005 digital adapters were being sold for as little as £50).

Perhaps more importantly, Free view appeals to those who reject satellite and cable payTV services and to whom, as a BBC (2004, p. 10) report states, 'a terrestrial free-to-air service is a welcome bonus'. In fact, the popularity of free

digital service Free view has contributed to DTV take-up from previously sceptical groups (Iosifidis, 2005). Analysis of the demographics of Free view subscribers reinforces the notion that free-to-air digital customers are largely additional to pay-TV subscribers. In March 2003, a Quest survey gave demographic data on the types of households that were using each platform and concluded that Free view had a different profile to other platforms. In particular, the findings suggest that many of Free view's customers are affluent, older people who have no interest in purchasing satellite or cable pay-TV services. Many of Free view homes comprise of an age group of over 45, compared to satellite subscription television takeup, which is heavily skewed to the under- 45s. The fact that the free-to-air package includes far fewer available channels (about 30 compared to over 200 from BSkyB) made no difference to this group, who have no interest in multi-channel television (Quest Survey, 2003).

Research undertaken by Oliver and Ohlbaum (2004, p. 17) on behalf of the BBC reinforced the notion that Free view penetration has been largely additional to, rather than a substitute for, digital pay-TV take-up. The research found that those considering getting subscription television services continued to do so, as evidenced by the rise of pay- TV (both cable and satellite) following the launch of Free view, albeit at a slower rate than before. Without doubt, the healthy growth of Free view reinforced competition between different platforms and established free-to-air digital reception as a viable alternative to pay-TV services. However, because of a technical shortcoming of the digital terrestrial signal, at switch-off, only an estimated 73 percent of the population will have access to digital terrestrial television, well short of the 95 percent target set by the government. For this reason it was thought that the launch of an attractive, viewer-friendly free-to-air satellite option available to everybody without having to pay a subscription would perhaps contribute to universal digital coverage and certainly push forward the withdrawal of analogue services. This is true because, unlike digital terrestrial television, satellite signals are technically available to every British household.

Ultimately, in late 2004, BSkyB launched a subscription-free satellite service, a move that deepens its involvement with free-to-view services (the satellite operator is also a partner in Free view). The new digital platform from BSkyB, dubbed FreeSat, enables customers to receive about 140 television channels, 80 radio stations and 13 interactive services for a one-off fee of £150 that includes a satellite dish, a set-top box and installation. As Shah (2004) argues, the launch of FreeSat seems to be a response to the runaway success of Free view and can perhaps be seen as a defensive move given the success of the digital terrestrial package. The strategy is expected to enable BSkyB to target a wider range of potential customers, notably those who do not wish to pay subscriptions, but either cannot receive Free view (rural British households), or are not satisfied with the limited channels available on

it. The service is part of an evolving strategy being formulated under the new chief executive of BSkyB, James Murdoch, to target a wider range of potential customers (Shah, 2004). Regardless of BSkyB's motivations, the launch of this service is expected to encourage DTV take-up and accelerate the digital switchover process.

VI. THEORETICAL FRAMEWORK

To address these three-dimensional groups that is associated with the application of digital technology in terrestrial broadcasting calls for a high sense of digital theoretical concept. It is in view of this that the researcher felt strongly to apply the power networking society theory. This theory was developed in 2009 by Prof. Manuel Castells in his work entitled 'Communication Power' (Castells, 2009: 8).

Castells opines that "an understanding of the construction of power relationships through communication in the network society requires the integration of three key components:

- The structural determinants of social and political power in the global network society.
- The structural determinants of the process of mass communication under the organizational, cultural, and technological conditions.
- The cognitive processing of the signals presented by the communication system to the human mind as it relates to politically relevant social practice" (2009:8).

To understand the theory of power networking society (as in above) in the process of digital technology application, Castells explanation of network society is noteworthy. He explains network society as the social structure that characterizes society in the early Twenty-First Century, a social structure that is constructed around digital networks of communication. In his furtherance of explicatory analysis on power networking society he puts it that "the process of formation and exercise of power relationships is decisively transformed in the rise of global digital networks of communication as the fundamental symbol-processing system of our time".

Castells made it clear that the"communication process decisively mediates the way in which power relationship are constructed and challenged in every domain of social practice" [5]. However, it is assumed that the basic form of power lies in the ability to shape the mind of society (individual elements). If the primary battle about the definition of the norms and values of society, and the application of these norms and values in everyday life, goes around the shaping of the mind, communication (by means of digital technology application) is central to this battle. "This process of communication operates according to the structure, culture, organization, and technology of communication in a given society" [5].

Nevertheless, the application of digital technology in terrestrial broadcasting in Nigeria depends largely on the government and its regulatory agencies. The Nigerian government through its regulatory agencies could sensitize the minds of individual media content consumers toward accepting the digitization broadcasting as most excellent. This goes with Castells statement that "power is more than communication, and communication is more than power" (2009:3). Management of power relationship affects mass

communication to a large extent, thus, business of the media and politics of the nation (government) forms the bedrock of the communication that reaches the general public.

VII. RESEARCHMETHODOLOGY

A RESEARCH DESIGN

For this study, survey research design was employed in order to meet the challenges of the study. This design focuses on a representative sample derived from the entire population of study. This implies that the method works on the promise that a given population is too large for any researcher to realistically observe all the elements in the population, hence, the researcher goes into the field and select samples out of the entire population relevant in that situation.

This design was however the most relevant for a study of this nature since it can guarantee the researcher the privilege of going into the field to carry out opinion survey among cross-sectional segments of the study population on the application of digital technology in terrestrial broadcasting in Nigeria. The import is because this is an opinion survey study which the application of survey research design can solve. Consequently, the researcher found interest in this design in that, it has been found the most appropriate method to assess the knowledge level of respondents

on the concept of digital technology application in terrestrial broadcasting in Nigeria. It will as well study their feelings, perceptions, and understanding of respondents on the concept being studied.

The population for this study included experts in the field of broadcasting in Federal Radio Corporation of Nigeria (FRCN) Training School Ikeja Lagos; who can provide all needed information about the application of digital technology in terrestrial broadcasting. The experts here included the students, the teaching and non-teaching staff.

A population size of 3000 was used for this study; reason being that the population under investigation is a very homogeneous one whom the researcher can easily access. This population includes all the teaching, non-teaching, administrative, technical staff as well as students of the said institution.

The choice of this school was based on the fact that they have been in the business of training professionals in broadcasting across West Africa for decades.

According to the in-house journal of the Federal Radio Corporation of Nigeria (FRCN) ('THE RADIO HOUSE', 2009); the FRCN Training School, Ikeja, Lagos has a population size of over 3000 students and over 60 for both contract and permanent staff strength (per annum).

Based on this, the sample size for this research was 300 respondents who the researcher randomly selected from the entire population size of 3000. The population is made up of the students, teaching and non-teaching staff of the FRCN Training School. According to 51, "if the population is a few 100, a 40 percent or more samples will do; if many hundreds, a 20 percent samples will do; if a few thousand, a 10 percent samples will do; and if in several thousands, a 5 percent or fewer samples will do".

In agreement with the above statements, the stated 300 samples were drawn as a 10 percent of the population since the population is 3000 elements that constitute the study population size. It is represented thus: 10/1000; therefore 3000:10= 3000.

B INSTRUMENT FOR DATA COLLECTION

The instrument for collecting data for this study was the questionnaire. The questionnaire was a combination of closed-ended and open-ended questions. It was structured in such a way that the target audience would fully participate and appreciate the data collection exercise.

The questionnaire was divided into two parts: the part A elicited information on the personal data (demographic) of the respondents, while part B (psychographic) focused on eliciting response to answer the research questions.

C METHOD OF QUESTIONNAIRE ADMINISTRATION

Questionnaire to be used for the study was administered on one-on-one by the researcher and again by proxy due to special handicap of the researcher (visual challenge).

D METHOD OF DATA PRESENTATION AND ANALYSIS

The procedure for data presentation for this study was simple frequency distribution table and bar chart, while simple statistical percentage was employed for data analysis.

VII DATA PRESENTATION AND ANALYSIS

A. DATA PRESENTATION AND ANALYSIS

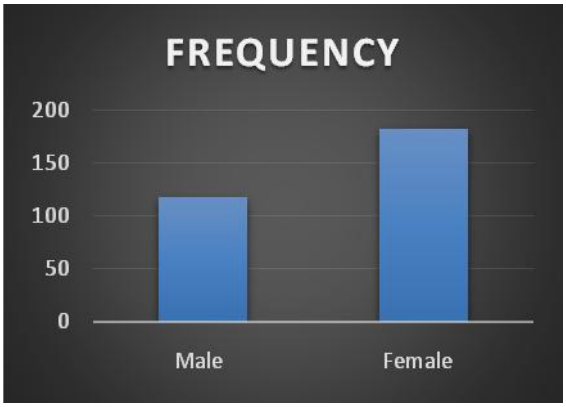
In this chapter, the data generated in the field are presented in tables following the research questions to ensure that answers to the burden of this research are gotten. It is worthy to note here that a total of 300 questionnaires were circulated and collected with 100 percent returns from the respondents used for this study.

B. DEMOGRAPHIC DATA

4.1.1 TABLE 1: Sex Distribution of the Respondents

SEX	FREQUENCY	PERCENTAGE
Male	118	39.7%
Female	182	60.3%
Total	300	100%

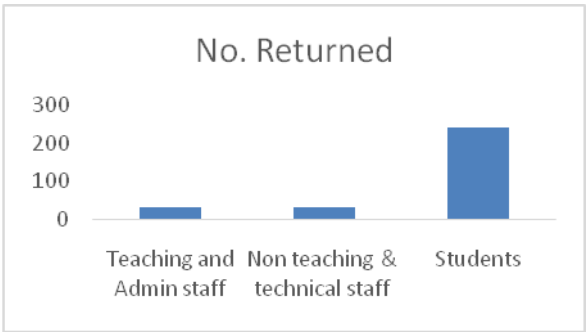
Table one above shows that the total respondents of males that filled the questionnaire have 118 constituting 39.7% of the population, while the females have whopping majority of the samples by having 182 respondents constituting 60.3% of the population



4.1.2 TABLE 2: Questionnaire Administration Procedure

TOTAL No of questionnaire	No Returned	No not Returned
300 = 30:30:240	300	nil
Teaching and admin staff Non-teaching & technical staff Students	30 (100%) 30 (100%) 240 (100%)	- - -
Total	300 (100%)	-

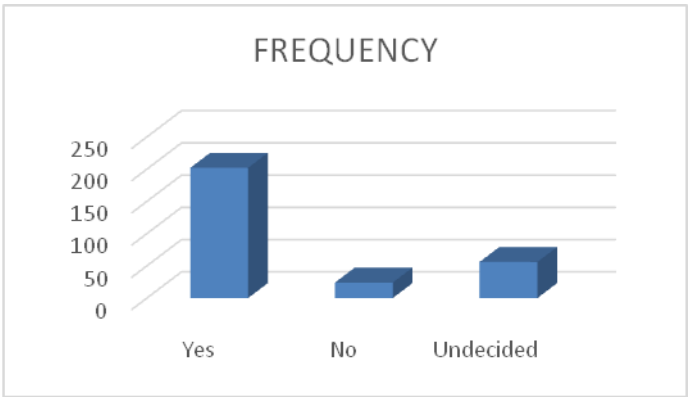
In questionnaire administration pattern, the result shows that there is 100 percent returned. The questionnaires allocated to each of the stratum of the population were dully collected with none missing.



D TABLE 6: AUDIENCE MEMBERSAWARENESS OR KNOWLEDGE LEVEL ABOUT DIGITAL TECHNOLOGY IN THE TERRESTRIAL BROADCASTING IN NIGERIA.

VARIABLES	FREQUENCY	PERCENTAGE
Yes No Undecided	202 24 56	73.3% 8.0% 18.7%
Total	300	100%

The result from the table above shows that 202 or 73.3% of the respondents have knowledge of the application of digital technology in terrestrial broadcasting in Nigeria, while 24 or 8.0% of the respondents says they are not aware as well as 56 or 18.7% are undecided audience. This is to say that the knowledge level of the audience on the application of digital technology in Nigeria is high.



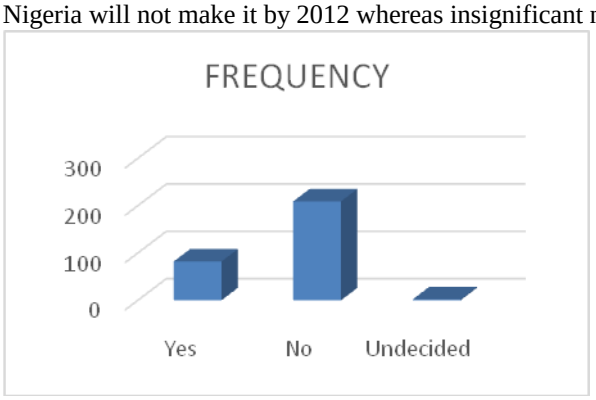
4.2.2 Research Question 2: How prepared is Nigeria for the application of digital technology?

To answer this question, items number 9 and 10 in the questionnaire will be analysed.

E. TABLE 7: HOW PREPARED IS NIGERIA FOR THE APPLICATION OF DIGITAL TECHNOLOGY?

VARIABLES	FREQUENCY	PERCENTAGE
Yes	82	27.3%
No	209	69.7%
Undecided	2	3.0%
Total	300	100%

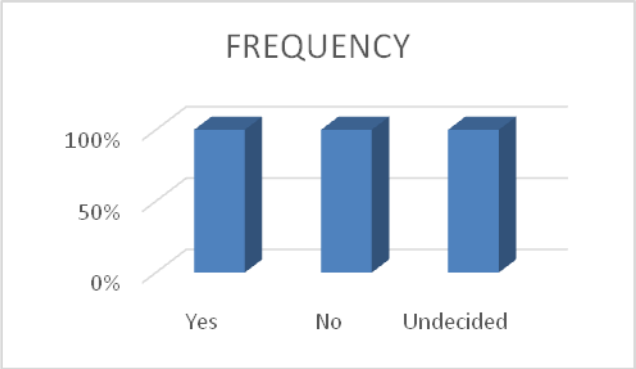
The result in the table above shows that 82 or 27.3% of the respondents agreed that Nigeria will meet up the deadline of 2012 digital switch from analogue to digital application, while 209 or 69.7% of the respondents are of the opinion that Nigeria will not make it by 2012. 5 or 3% on the other hand are undecided respondents. The import shows that whopping majority agreed Nigeria will not make it by 2012 whereas insignificant numbers were positive and undecided.



F. TABLE 8: ASSESSMENT OF THE PEOPLES PERCEPTION OF DIGITAL TECHNOLOGY IN CONTEMPORARY SOCIETY

SEX	FREQUENCY	PERCENTAGE
Yes	63	21.0% 58.0%
No	174	21.0%
Undecided	63	
Total	300	100%

The table above shows that 63 or 21.0% of the respondents agreed that Nigeria has all it takes to sustain or man this new digital technology as well as being indecisive on the topic of our discussion. The import is that, 63 or 21.0% agreed that Nigeria will benefit from it, as 63 or 21.0% are also undecided audience on the issue. 174.58.0% of the respondents however was of the view that Nigeria does not have sufficient man power to man the application of this new technology. The implication therefore, is that Nigeria does not have manpower sufficient to man this new digital technology.



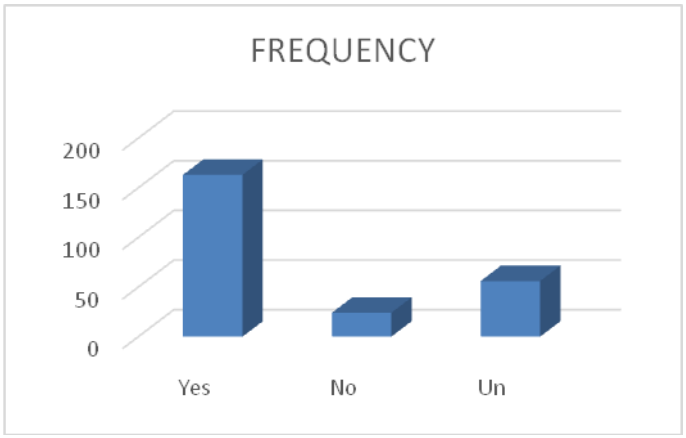
4.2.3 Research Question 3: What are the measures adopted by the Nigerian government to subsidize the high cost of digital technology and ensure the adoption of this project in the national policy and plans?

To answer this question, item number 13 in the questionnaire will be analysed.

G. TABLE 9: GOVERNMENT'S PLAN TOWARDS THE SET-TOP BOXES ACQUISITION:

VARIABLES	FREQUENCY	PERCENTAGE
Yes	163	64.3%
No	24	8.0%
Un	56	18.7%
Total	300	100

The result from the table above shows that 163 or 64.3% of the respondents are aware of the government's plan to subsidize the high cost of digital technology and the national policy and plans in Nigeria, while 24 or 8.0% of the respondents says they are not aware as well as 56 or 18.7% are undecided audience. This is to say that the knowledge level of the audience on the application of digital technology in Nigeria is high.



VIII. CONCLUSION AND RECOMMENDATIONS

Application of digital technology in Nigeria terrestrial broadcasting like in many other countries has tremendous prospects and challenges. The contextual elucidation on the preparedness to the adoption of digital technology in terrestrial broadcasting forms the back bone to this research. It is important to reiterate this global convergence in digital transition from analogue to digital. Terrestrial broadcasting is driven by the international telecommunications Union, ITU, deadline of 2015 on VHF and 2020 in UHF respectively.

In Nigeria, 2012 has been adopted and is being championed by National Broadcasting Commission, NBC and other regulatory bodies like the Broadcasting Organization of Nigeria.

Nevertheless, this research work was poised to unearth the level of preparedness in sensitization and manpower development to man this new technology. Also, the measures taken by the government towards the cost reduction in the acquisition of the new set top boxes (decoder) and the integration of plans and policy framework.

Power Network Society theory propounded by Professor Manuel Castells was used as the theoretical framework to give this work a very strong theoretical foundation. This theory was considered appropriate because it treated the three component parts of the new global digital technology convergence.

To give this study a solid empirical elucidation, very current and relevant literatures in the subject matter were reviewed. The literature harped such important areas of the new technology as the evolution of digital technology in Nigeria, digital technology experiences in different continents of the world, the challenges posed by the application of this

technology and finally, establishes the various digital technologies radio options for Nigeria.

Survey research method was employed in gathering the relevant data to explain the phenomenon. The quota sampling technique was used in selecting the respondents from a population of 3000 people comprising both staff and students of FRCN Training and Manpower Development School, Ikeja, Lagos. Questionnaire was main data collection instrument used in the study.

Data gathered from the field work was presented using statistical instruments like frequency distribution tables and bar charts.

On the basis of the data gathered, the researcher made some far-reaching observations and recommendations especially in the area of low public sensitization. For instance, one of the recommendations of is that the Nigerian public should be adequately sensitized, informed, educated and mobilized towards the application of digital technology implications on both the people and nation's development.

In this chapter, the researcher shall conclude the work as well as make recommendations on ways out of whatever challenges observed in the course of this research work.

A. CONCLUSION

Fittingly, we have been able to look into several issues of great importance as far as the application of digital technology in the Nigerian broadcast industry is concerned. A critical look at this work shows that a lot is needed to be done if Nigeria will achieve the digital switch over by 2012.

One thing to note is that Nigeria is so much gifted with human and material resources which if harnessed would lift or hasten the place of development in our nation as well as going a long way in addressing the problem of lopsided information flow across the globe. Information and communication is power which is very central to life and the survival of the human race as well as sustain contemporary society. If we must achieve this, this research opens to us a wider or broader view to understand that a lot is still needed to be put in place as long as the issues of the application of digital technology in the Nigeria broadcast industry is raised. Even though the researcher used a professional group with good understanding of what the digital technology is all about, the results therefore, may not be used to qualify the Nigerian populace might not have heard anything about the concept of digital technology. So, this fact is worth noting since the topic of our discussion is all about the disposition of broadcast experts on the issue of digital technology application in the Nigerian broadcast industry.

B Recommendations

Taking cognizance of the results of this research, the researcher therefore makes the following recommendations:

This study recommends that the Nigerian public should be adequately sensitized, informed, educated and mobilized towards the application of digital technology implications on both the people and nation's development.

Enlightenment campaigns should be embarked on by the government to ensure that the digital switchover does not take the people unawares. The import is that appreciation of this new media technology will become more pronounced if the consumers of media products are adequately informed and educated on the benefits and relevance of such technology.

The cost implication of acquiring these technologies is relatively very high and therefore need to be subsidized if the consumers of broadcast contents in Nigeria shall be able to measure or match the required price for the acquisition of the technology. The import is that, with these new digital technologies, the analogue radio and television will likely become outdated and out of use. Users, in other words, need to change the already existing ones they have or possibly buy a set-top box to be able to enjoy the new innovation.

Adequate training is therefore recommended for broadcasters, technicians and engineers working in the various broadcasting houses on the pros and cons of the new digital technology. The most important thing here is that most of these people aforementioned have just a blink knowledge and understanding of what the digital technology is. This is because, investigations made by the researchers show that the majority of them do misconstrue digitization for pod casting, webcasting, narrow casting, digital automation, even some thought it is a form or part and parcel of cable and satellite broadcasting. This is why the researcher has deemed fit for this training to be conducted in this area. Digitization of the broadcast sector will affect our programming format and therefore, practitioners in that area are supposed to be well groomed to be able to face the challenges it will pose in the course of plying their day to day activities.

We further recommend that producers of broadcasting contents should invest on broadcasting hard ware such as purchasing of the new digital equipment as in camera, editing machine etc. The government should also step up to ensure that the digitization of the broadcast industry in Nigeria is made a reality. The implication is that government has great role to play in the realization of this dream. Government can come in to subsidize the cost of procuring the equipment, and in the training of manpower to man this new digital technology.

Digital broadcasting, nevertheless, throws up a number of issues that we believe should not be overlooked as we must be considering models for national broadcast management that will suit Nigeria. For instance, digitization will impact on audience behaviour, encourage more restlessness and recourse to the remote controller to "surf" channels. Another issue that may arise from digitization as we observed in the course of this study is that there would be more channels than contents. This in turn, would lead to an increase in content recycling. So, to avoid this situation, the NBC and other regulatory agencies should be strengthened and active in the discharge of their duty by the government. Concerning broadcast management models in Nigeria, it should be noted that rapid advances in technologies, which result in frequent replacement of broadcast systems, call for a constant review to ascertain if current broadcast management models are still relevant in the broadcast markets and also meet the shifting needs and expectations of communities, states and the nation at large.

It should be noted as well that the application of digital technology demands comprehensive planning, adequate funding, improved know-how, infrastructural development and aggressive content production. Therefore, Nigeria should

anticipate and tackle these challenges if she is to transit to digital broadcasting by or before the ITU deadline of 2015.

The application of this digital technology in Nigeria will be evident, if the government and broadcasters ensure that only quality digital ready broadcast equipment are imported into the country. However, where there are restrictions or high tariffs, governments should grant immediate relief, to make the digitization application process less cumbersome and pain free for operators in the industry (Radio house, 2010, p. 1415).

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