Digital Switchover in Nigeria: An Unending Journey?

In the beginning of the twenty-first century, there was the call for an improvement in broadcasting and the need to totally switch over from analogue to digital broadcasting hence the International Telecommunication Union (ITU), the international body in charge of telecommunication and broadcasting, gave a directive to all countries to implement this. Given the 17th June, 2015 deadline by the International Telecommunication Union for all countries to switch from analogue to digital technology, it was imperative that Nigerians keys into the directive. Since then Nigeria has made several unsuccessful attempts in completely transiting from analogue to digital broadcasting. The study examines the difference between analogue and digital broadcasting, the meaning of switch over, types of digital broadcasting, digital broadcasting in Nigeria and the various unsuccessful attempts of Nigeria at switching over from analogue to digital broadcasting, the problems militating against the switch-over, advantages that can accrue from the switch over and recommendations on how to achieve a successful switch over. The study is based on the Diffusion of Innovation Theory, which seeks to explain how, why and at what rate new ideas and technology spread through cultures, in explaining the concept of digital switch over.

Introduction

Background to the Study

In the beginning of the twenty-first century, there was the call for an improvement in broadcasting and the need to totally switch over from analogue to digital broadcasting hence the International Telecommunication Union (ITU), the international body in charge of telecommunication and broadcasting, gave a directive to all countries to implement this. The International Telecommunication Union (ITU set 17th June, 2015 as the deadline for all broadcast stations all over the world, especially television, to switch over from analogue to digital broadcasting. The question first worth asking is what is the difference between analogue and digital broadcasting?

Analogue broadcasting, according to https://www.nbc.gov.ng, (2008), is the transmission ‘‘that involves the broadcasting of encoded analogue audio and analogue video signal, one in which the information to be transmitted, the brightness, the colours of the points in the image and the sound waves of the audio signals are represented by continuous variation of some aspects of the signal”. Analogue, especially in television may be wireless or can require copper wire used by cable converters. Digitization, according to Idachaba, (2018), “is the process of conversion of analogue information in any form: text, photograph, voice, etc, to digital form with suitable electric devices, such as a scanner or specialized computer chips, so that the information can be

processed, stored and transmitted through digital circuits, equipment, and networks". Digital switch over is described "as the process of launching the Digital Terrestrial Television (DTT) platform and switching off Analogue Terrestrial Television (DTT) platform (Idachaba, 2018).

According to Adeniyi (2009), the International Telecommunication Union's position on migration was informed by the development in telecommunication technologies which enable a more efficient use of radio frequency spectrum and improved quality pictures and audio. Previously everyone relied on audio spectrum for TV transmission but this had inherent restrictions. Adjacent analogue transmission were found to be subject to interference, forcing, the regulatory bodies to leave spaces between channels and only allocate a small percentage of available spectrum for transmission to ensure high quality transmission and reception in the areas served.

As at 2009, ten countries have switched over to digital broadcasting. The first country to make a wholesale switch to digital over-the-air terrestrial broadcasting was Luxemborug in 2006 followed by the following countries: Netherland (2006), Finland, Sweden and Swizerland (2007), Belgium and Germany (2008), United States of America, Canada, Norway and Denmark (2009). After 2009, many other countries have switched over to digital television.

Given the 17th June, 2015 deadline by the International Telecommunication Union for all countries to switch from analogue to digital technology, it was imperative that Nigerians keys into the directive. Since then Nigeria has made several unsuccessful attempt in completely transiting from analogue to digital broadcasting,

This study is out to look at the various unsuccessful attempts of Nigeria to switch over from analogue to digital broadcasting, the problems militating against the switch-over, advantages that can accrue from the switch over and recommendations on how to achieve a successful switch over.

Literature Review

McQuail (2005) defines digitization as the process of or by which all media texts can be reduced to a binary code and can share the same process of production, distribution and storage. It is a method of storing, converting and sending data in the form of binary digits, which is easy to compute. Kombol (2008) defines digitization as ''an advanced form of information transfer in which messages are converted into a series of 1s and 0s (binary digits) and sent over a channel to a receiver''.

Digitization is therefore the transformation of all kinds of information, such as text, sounds and pictures into a uniform system based on the digits one and zero. This information can be combined together in an infinite number of ways. Through this, different forms of media have been made more compatible because they are reduced to digital equivalent bits of information. Thus,

digitization in practical term can "only ever be an approximation of the signal it represents" (Asemah, 2011).

Types of Digital Broadcasting

Kombol (2008), states that "Digital television usually has three elements in its service". He identifies these three elements as "the physical path, the assembly and the return path. The physical is responsible for the signal reaching the television screen and the assembly path has to do with the presentation of the programme to viewers. Finally the return path is concerned with the ability of viewers to channel feedback in various forms back to the broadcaster. Kombol (2008) goes further that in the United Kingdom, digital television is transmitted in four different ways. They are:

1. Satellite: This provides one digital transmission service and has the capacity for hundreds of channels. It is possible for satellites to provide a two way path but more than not only a one way service is provided. The transmission standard used by satellite is referred to as "open TV".
2. Digital terrestrial Television: This type of television broadcast is a land based transmitter network. Signals that are broadcast through this form are received by an antenna. There are no return paths in the service hence it is a one way affair. The transmission standard used in this type of network is referred to as "MHEG-5". Digital Terrestrial Television (DTT) stands for the all-digital terrestrial broadcast services for sound and television (Aginam, 2017).
3. Cable: Cable has the capacity to transmit more than two hundred channels. Also cable service can provide fast internet access and standard telephone connection. The versatile nature of cables makes it possible for the returning path to be used by viewers. The transmission standard used by cable is referred to as liberate.
4. Telephone Connection (DSL): In most advanced countries, telephones are made to convey the television signals. This is by increasing the band width of telephone services and viewers are made to choose television programmes which are transmitted to their phone.

Digital Broadcasting in Nigeria

''Digital Broadcasting has become increasingly an unavoidable alternative to the analogue system'' (https://www.nbc.gov.ng, 2008). Thus Nigeria's quest to switch to digital broadcasting took root in December 2007 when Late President Umaru Musa Yar-Adua approved that the Nigerian Broadcasting Commission should set in motion and pilot Nigeria's digitization programme towards a target date of June 17, 2012. According to https://www.nbc.gov.ng, 2008, "The Nigerian Broadcasting Commission recognizes digitization, the conversion of the broadcast and communication system from analogue to

digital as an important global movement driven by the International Communication Union, that will revolutionise broadcasting as we know it''.

According to (https://www.nbc.gov.ng), in June, 2008, the commission hosted a stakeholders' meeting chaired by the then Honourable Minister of Information and Communication, Professor Dora Akunyili and in October 2008, the National Broadcasting Commission, constituted a Presidential Advisory Committee made up of experts from a wide range of human endeavour, especially business and economics. This committee was to create a road map for the take-off of digital broadcasting in Nigeria.

By December, 2009, the committee submitted its report to the Minister of Information and Communication detailing the best approach the government can take in realising the migration. It also recommended among other things the adoption of a new broadcast model based on two classes of digital broadcast licenses. They are: content license that legally empowers broadcasters to provide content and signal distribution license that provides broadcast companies with the authority to create the transmission platform for other broadcasters. It also recommended the implementation of certain digital standard such as DVB- 7 and MPEG 4 (terrestrials digital television), DBV – (satellite), DVB-H(mobile TV) and IBDC system for FM digital.

With the committee's report, the Nigerian Broadcasting Commission set the target of 17th June 2012 as the change date but this was not successful. Again the Nigeria Broadcasting Commission gave another deadline of 17th June, 2015 in line with the international directive that every country should fully migrate from analog to digital broadcasting by that date.

In a report in the Vanguard newspaper, at a Digital Dialogue Conference held in Johannesburg, South Africa, majority of the participants were of the opinion that the possibility of African nations meeting the 2015 deadline for migration to digital broadcasting was slim. But Emeka Mba, the Director General of National Broadcasting Commission, holds a contrary view. He states that "I think we are ready. There are channels already blazing the trail in Nigeria already that people access both locally and internationally on mobile devices and so on"

It is no longer news that Nigeria failed to meet up with digital TV transmission deadline of June 17, 2015. At the international symposium on digital switchover held at the ITV Headquarters in Geneva on June 17, 2015, the gathering was told of the failure of the country to meet up with the 2015 date and the possibility of the switchover taking place by June 17, 2016 (https://t.guardian.ng, June 22, 2015). Also on that day, the Nigeria Broadcasting Commission issued a statement through Mallam Awwalu Saliu, the Head of Public Affairs that "Today, June 17, 2015 is the deadline for the *Region One* of the International Telecommunication Union, ITV, to complete the implementation of their transition programme from analogue to digital terrestrial television. Nigeria belongs to this region'' He adds that "At the moment, Nigeria has reached about 20% penetration of the 26 Million TV households (TVHN) in the country".

Also, after failing in her desire to switch over by June 17, 2016, the National Broadcasting Commission announced a new switch over date of 17th of June, 2017. Talking of the June 17th 2017 expected Switchover date, the Director-General of the National Broadcasting Commission says that "June 17, 2017 is a BENCHMARK DATE for digital switchover in our country. Our mission remains constant to switch off analogue completely when we achieve up to 95 percent access to free Digital Television content across our country" (https://www.nbc.gov.ng).

The June 17, 2017 date also failed. In a press conference, on the 17th of June, 2017, The Director-General of the National Broadcasting Commission gave reasons for Nigeria's inability to fully switch over to digital broadcasting. He said that the process was "dogged by a host of controversies. First, the second the National Signal Distributor, Pinnacle Communication Limited has been in dispute with the NBC. They were in court, because of a host of grievances arising from the way that the contract with them had been handled by the NBC…After several meetings, we reached an agreement, and Pinnacle Communications accepted to drop their litigation against the NBC" (https://www.nbc.gov.ng).

The Director General also informed that the commission has successfully launched the switch over for Abuja in addition to the earlier pilot launch in Jos in April, 2016 through the help of Pinnacle Communication. He explains that:

> The company mobilized very significant financial and other logistical resources, which helped us to achieve a successful launch in the FCT …offering in the process thirty local, regional and national channels to viewers in Abuja. (https://www.nbc.gov.ng).

One of the problems the commission also faced, according to the Director General, is that our Set-Top. Box manufacturers had committed resources to the importation of 850,000 STBs from China, but because EFCC had seized funds from the NBC, under the *ancient* regime at the NBC, we could not meet our commitment, which totaled the sum of 526 million naira (https://www.nbc.gov.ng). The DG also hinted that the next phase of the Digital Switchover in Nigeria is "a plan to launch in one state from each of the six geo-political zones of Nigeria… Kaduna in the North West; Gombe in the North East; Kwara in the North Central; Osun in the South West; Delta in the South-South and Enugu in the South East (https://www.nbc.gov.ng).

In October, 2019, there was a report that the Nigeria Broadcasting Commission planned to begin analogue switch off by 2020. According to the report, "The National Broadcasting Commission says plans are underway to begin analogue switch off in six locations starting with Abuja as from next year: Speaking at the 72nd General Assembly of Broadcasting Organisations of Nigeria in Lagos, the Director General, NBC, Mallam Modibo Kawu….said other regions that would be switched off are: Kaduna, Enugu, Ilorin, Osogbo"(https://punchng,com, October, 28, 2019).

In a latest report credited to the Director. General of the Nigeria Broadcasting Corporation, Modibbo Kawu, the switch over might not come

into fruition until 2021. "The Guardian learnt that 2021 date is a 25-month period during which the NBC hopes to complete the switchover. The commission will begin with densely populated areas, including Lagos, Kano and Port Harcourt as test grounds". Quoting the DG, "What we have decided to do is to consider taking digital broadcasting to all those major population centres. In the past, we started with regional rollout, we chose a state by geo-political zone. But with a little mapping process, we now have all the major population centres. Indeed, over the next 15 to 25 months, the possibilities are that we are going to the rolling out in these major centres" (https://t.guardian.ng, May 27, 2019) Kawu further said that the NBC has been discussing with a South Korean company on the acquisition of Set Top Boxes (STB) or decoders. According to him, the company has accepted to come and put facilities in place to produce one million STBs in Nigeria so that "we can have boxes that will service the roll out in different locations…In the past, the Original Equipment Manufacturers (OEM) in China insisted they are paid before production." (https://t.guardian.ng, May 27, 2019).

Currently, most television stations in Nigeria broadcast analogue signals, though in recent years a steadily growing number of predominantly foreign-owned satellite firms have made the transition to digital broadcasting such as Multichoice, a South African firm that owns and operates the Digitals Satellite Television (DSTV) pay service, NTA Star tv, a joint venture between the state-controlled Nigerian Television Authority (NTA) and Startimes, a Chinese firm, also broadcast digitally. A number of the country's other broadcasters have invested in switching to a digital signal, though the majority continue to operate analogue stations as well (https://oxfordbusinessgroup.com).

But the question of when exactly the country's digitization process, which officially began in 2007, will be finalized is yet to get a definite answer.

Theoretical Framework

The study is going to use an already established theory for the theoretical framework. The theory is the **Diffusion of Innovation Theory.**

Diffusion of Innovation Theory

Diffusion of Innovation is a theory that seeks to explain how, why and at what rate new ideas and technology spread through cultures. According to the theory, "innovation should be widely adopted in order to attain development and sustainability" (www.communicationtheory.org). It is described''as the process of spread of a given idea or practice over time, via specifiable channels, through a social structure such as the neighbourhood, a factory or a tribe''. The concept of diffusion was first studied by the late 19th century by German and Austrian anthropologists such as Friedrich Ratzel and Leo Frobenius. Everett Rogers, a professor of Communication Studies popularized the theory in his book, *Diffusion of Innovations,* in 1962.

Everett posits that diffusion is the process in which an innovation is communicated through certain channels over time among members of a social

system. He expresses that there are four main elements that influence the spread of new ideas: the innovation, communication, channels, time and social system. The innovation relies much on human capital. The innovation must be widely adopted in order to self-sustain. Within the rate of adoption, there is a point at which an innovation reaches critical mass. The categories of adopters are innovators, early adopters, early majority, late majority and laggards. Rogers also adds that very important to this theory is process. Individuals experience five stages of accepting a new innovation: knowledge, persuasion, decision, implementation and confirmation. If the innovation is adopted, it spreads through various communication channels.

Diffusion of innovation Theory originated in communication to explain how over time, an idea or product gains momentum and diffuses (or spreads) through a specific population or social system. The end result of this diffusion is that people, as part of a social system, adopt a new idea, behavior or product" (https://sphweb.bumc.bu.edu).

Challenges Expected from Digital Switch over in Nigeria

Despite the developments in broadcasting in Nigeria, broadcasters face a lot of challenges like financial strangulation that may make digitization difficult. It is a common knowledge that broadcasting is a very capital intensive venture. All equipment from the digital tape, to television and radio transmitters are bound to be imported but the access to fund is scarce and limited. Thus financial difficulties will greatly affect public broadcasting in Nigeria when digital broadcasting finally takes effect. Each of Nigeria's estimated 44m television- viewing homes will be required to install a set-top box (STB) to enable them to receive a digital signal. At an estimated cost of around N5100 per STB, the total cost to the country was estimated at N691bn (5414.6m) in 2013. (https://oxfordbusinessgroup.com).

One of the characteristics of public broadcasting in Nigeria is the national content. This is an area that will be affected by digital broadcasting as there will be an increased influx and control of broadcast content, particularly direct to home service by foreign interests. This may portend very destabilizing long term consequence for the nation. Our peculiar socio-cultural, socio-economic and ethno-cultural diversity demands that the nation guards and protect her collective heritage as a nation. This will be affected by digital broadcasting. A renowned broadcasting entrepreneur, Dr. Raymond Dokpesi, who is the chairman of Daar Communications, expresses his fear on the issues of the influx of foreign content as a result of digital broadcasting thus:

> I know the radio and television moulds the child and helps build individuals. Television in particular, may be the simple most influential tool, not only in shaping public opinion but also in sculpting mindsets. It is potentially dangerous to leave such potent tools such as radio and television at the whim and behest of foreigners (Dokpesi, 2009).

Another problem to be faced is that digital broadcasting will involve the use of cables and satellite to access televisions and radio, the rural dwellers will be greatly affected as they might not have access to information, education and entertainment because they have to pay to access these. This fear is expressed in a report by (Osuagwu, *et al*, 2012) that, ‘‘There is the fear that the public who access television services free on air will have to spend a little more when digitization is completed for everyone will now have to purchase a set-box (STB-decoder) before television signals can be received’’.

One other area that needs to be addressed is the issue of training of staff in broadcasting houses on how to handle the digital equipment to be acquired. Without adequate training of staff, moving to the digital era in Nigeria will continue to meet with some difficulties. As computers are mainly expected to perform some of the jobs before now perform by human beings, there is bound to be job cut which might greatly affect the economy. This issue also has to be properly addressed.

One of the challenges also expected from digital switch over in Nigeria is the lack of enough awareness on the part of the viewers on what digital switch over entails. This might create a problem. As for now, there seems to be lack of enough sensitization of end users of the broadcast media by the relevant agencies. For example, according to Ms. Beth Thorem, UK Digital Communication Director, the United Kingdom spent seven years in educating the people on what they need to expect from digital broadcasting before switching over. According to Igyor (2009), “One of the reasons for the slow diffusion of digital technology in some countries has been the lack of knowledge about the technology”. Emma Niboro, a former Managing Director of News Agency of Nigeria (NAN) expresses his fears on the lack of enough sensitization of Nigerians on the impending digital switch over. He “urged the NBC to oblige the agency on information about digitalization stating that most people did not know what it meant” (PM News).

There are also environmental issues to contend with. The introduction of digital broadcasting will create the problem of large number of analogue receivers to be discarded during digital television transition. The discarded television sets, if not properly disposed of might lead to pollution. This is because such sets are sources of toxic metals such as lead, barium, cadmium, chromium etc. For example, in the United States of America, an estimated 99 million unused analog receivers already discarded posed serious problems before they were disposed.

One of the challenges Nigeria broadcast stations will also have to contend with is lower revenue which might lead to loss of profit. This is because an increase in the number of competing channels would bring about a reduction in the size of the average audience for each programme broadcast. As average audience declines, the programming cost per audience increases and without a corresponding increase in advertising revenues, the average profit of television channels will be reduced.

Digital Television reception can also be affected by severe weather conditions such as storms and high winds. This can lead to fluctuations in the

broadcast signal or total loss of signals. Emeka Mba, a former Director-General of the Nigerian Broadcasting Commission sums the whole issue up by acknowledging that "digitization requires a lot of technicalities and challenges" (PM News).

Expected Advantages of Digital Broadcasting in Nigeria

One of the advantages to be derived from digital broadcasting, especially in television, is enhanced picture and audio quality. Rodman (2006) says digital broadcasting ''promises television pictures that are clear and crisp as a Cineplex feature''. Digital television supports many different picture formats defined by the broadcast television system, which are a combination of size, aspect and ratio (width to height ratio). With digital television broadcasting, the range of formats can be broadly divided into two categories: High Definition Television (HDTV) and Standard Definition Television (SDTV). These formats have improved definition (rendering of fine details) according to how many individual elements are provided to construct the picture. This definition is expressed in the number of horizontal lines and picture elements (pixels) in each line that are used for different formats.

One other expected advantage of digital broadcasting is more spectrum efficiency as a huge spectrum will be available for television and radio broadcasting. Ocholi (2009) argues that ''technology has opened a world of possibilities for broadcasting as a huge spectrum will be available''. As a result, more frequencies or wave lengths will be available for broadcast stations in the country. This will also increase the number of television channels available to the population as a minimum of four programmes and four channels can be transmitting simultaneously from a station, using the same bandwidth originally used for a single programme or channel in analogue transmission. This is called "multiplexing or multicasting". Digital links with the use of data compression generally have more efficient bandwidth usage than analogue links. According to Emeka Mba, the Director-General of the National Broadcasting Commission:

> The overall benefit of digital TV broadcast is that it frees up a lot more spectrum that can be used for broadband penetration and other telecommunication needs. It also ensures higher quality of TV signals. Most importantly, it enables a lot more players to come into the production end of television. Imagine, if the eight megahertz, which we use for standard analogue broadcast today is taken to digital, it means that the space that one station uses now can be used by over 20 TV stations… it gives more space for a lot of players to come into the industry (Iyanda, 2014).

In addition to freeing up a considerable amount of valuable spectrum for use in other industries – notably telecommunication, information and communication technology, the transition can lead to rapid growth in the television industry in itself. Based on recent forecast, Nigeria is set to be one of

Africa's largest television markets in the foreseeable future as "Both digital terrestrial (DTT) such as the government's NTA Star TV Station-and direct to home (DHT) such as the government's NTA Star IV Station-and direct to home (DTH) pay-TV services such as DSTV are expected to see considerable growth in coming years" (https://oxfordnusinessgroup.com)

Another advantage also expected from Digital Broadcasting is that it is environment friendly. According to Amaefule (2013), "Digital television reduces greenhouse-gas emission due to a massive-almost tenfold – reduction in the power consumption of broadcasting transmitters''. It also has the advantage of generating less noise or ghosting.

Another advantage expected from digital broadcasting is the consistency of data flow over long distances as it is resistant to signal interference. One of the problems of analogue broadcasting is that it is prone to multipath interference and the need to constantly retune the radio because of problems with the signal. This is one problem expected to be solved by digital broadcasting.

Another advantage that is expected from digital switch over is data casting. This means the television will have the ability to transmit data in addition to pictures and sound. Thus members of the public can make use of interactive web links for e-mail, online ordering, instructional materials, stock market price, etc. This is because digital television sets would perform like computers and telephone handsets by providing access to the internet and storing data.

Digital switchover is bound to have a decisive impact on the economy as it will make Nigeria the largest digital television market in Africa. This will also improve music, film and drama production. This will also create a lot of employment. It will also give ordinary Nigerians, almost at no cost, the type of television broadcasting experience presently employed by the rich who can pay for it. Idowu (2018) says that "until recently, its policy response has been uneven and frequently, a mixture of inertia and sudden bursts of change. Under Buhari, the switchover policy appears to have enjoyed more charity and stable patronage".

One of the areas in which digital broadcasting will be advantageous to the Nigerian society is in the area of advertisement. While describing this advantage, (Ekeh,2014), supports that "The migration of television from the traditional television set to the mobile device will portend a whole new world of opportunity to advertisers wishing to reach customers and prospects and to the entire advertising industry itself"

Osuagwu and Akinboade (2012) sums these expected advantages up as "expanded service, high quality video and audio, greater variety and faster rates of data transmission, consistency of data flows over long distance, more spectrum efficiency, meaning more channels".

Suggestions on how to make Digital Switch over Effective in Nigeria

Since the digital migration programme has moved forward in fits and starts as Nigeria has missed several deadlines in its complete transition from analogue to digital television, the following suggestions can aid the smooth switch over from analogue to digital broadcasting in Nigeria:

One of the banes to effective switch over in Nigeria has been due to lack of political will, inadequate funding and corruption. The government should develop the political will to make the switchover a success. It is disheartening that since 2006 when the switchover plan started Nigeria had different people in government: President Olusegun Obasanjo, President Shehu Musa Yar' Adua, President Goodluck Jonathan and the Present government of President Muhammed Buhari which is already into its fifth year-but the political will to roll out the switchover has been lacking. The present government should make switch over a reality and its name will be. A firm bench mark and regulation is critical. Without this, there is doubt and no clarity of purpose. We need this for every investor and broadcaster to plan ahead.

The country should revert to the Pre-2015 plan whereby government was reportedly working with local firms to manufacture 20m STB and sell at a subsidized rate to Nigerians. "According to the Federal Ministry of Communication, the former government (President Goodluck Jonathan's) announced plans to manufacture STB in Nigeria and sell them to citizens at subsidized rates" (https://oxfordbusinessgroup.com). This will go a long way in easing the problem of Set –Up Boxes.

The government also needs to improve the electricity problem of the country as this has been having a negative effect on digital switchover in Nigeria. Right from the manufacture of set-up-boxes and other technical installations for the switchover, poor electricity has a way of affecting these. Also television viewers might also miss many of the programmes on terrestrial television due to lack of electricity.

There is the need for continuous training of technicians and agents who will be versed in how to set up Set-top-boxes and activate them, how to re-tune a television and troubleshooting any problem.

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