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CHALLENGES OF DIGITAL BROADCASTING IN NIGERIA

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ABSTRACT
The current trend in broadcasting, both in Nigeria and throughout the world, is digitization. The deadline for all broadcasting stations worldwide to switch over to digital in 2015 was established by the International Telecommunication Union, or ITU. Nigeria set a deadline of 2012 for the country's broadcast stations to go digital, however up to this point, the nation has not been able to fully transit to digital broadcasting. Using the secondary research approach, the information for this study was acquired from journals, papers, books, and websites. In this paper, the researcher examined the transformation process in Nigeria. Additionally, the difficulties of digital transmission in Nigeria were looked at ranging from technological, financial, labor, knowledge gap, and other difficulties. As a result, suggestions were made to address the problems. In order to hasten this transformation process, it was stated in this paper that additional funding should be directed towards the nation's broadcasting industry.
Keywords:digitization, broadcasting, challenges, digital, transition.

INTRODUCTION
In the twenty-first century, there has been a subtle global shift from analog to digital media broadcasting. During the Regional Radiocommunications Conference, or RRC '06, held in Geneva, Switzerland, the International Telecommunication Union, or ITU, set a deadline for the complete conversion of all broadcast channels from analog to digital in Europe, Africa, the Middle East, and the Islamic Republic of Iran on June 16, 2006. The body mandated that all Ultra High Frequency (UHF) channels go digital by June 17, 2015. Additionally, it set the deadline for digitizing all Very High Frequency (VHF) channels at 2020, (Aihe 2008). Furthermore, the ITU agreement allowed for an additional five years to 2020 for many African countries including Nigeria. With the June 2015 deadline, Nigeria set a deadline, June 17, 2012, for the transition from analogue to digital broadcasting. According to Ocholi, (2009), the date was three years earlier than the ITU's

deadline which was June 17, 2015. Nigeria's deadline was shifted to December 2012. Little progress was made, but the total switchover from analogue to digital had to be moved again to the middle of 2022 by the National Broadcasting Commission (NBC), on March 7, 2021.

It is crucial to remember that the ITU's resolution stated that the deadline only applied to the digitilization of TV broadcasting; radio broadcasting's date had not yet been established. To bridge the digital gap and provide access to the unconnected in underserved and isolated regions, the digital switchovers will advance existing technologies. (Kabir Garba, 2012; Akingbulu, 2012).According to the ITU agreement, the transition from analogue to digital broadcasting is based on the expansion of digital TV transmission coverage, the assurance of bandwidth availability for wireless broadband services, the enhancement of sound and image quality, particularly HDTV, the availability of more channels, and the provision of unrestricted access to digital radio transmission.

The advantages of digital broadcasting overweigh that of analogue broadcasting. Some of the advantages include high visual and sound quality, data broadcasting capability becomes two-way in the sense that the audience can get news, and other programmes while watching a football match. Another advantage of digital broadcasting is that thanks to high-frequency utilization, the number of channels increases more than in analogue broadcasting. Armstrong (2018) makes the claim that switching from analogue equipment, which is becoming outdated and difficult to maintain, to digital broadcasting presents new prospects for changing broadcast technology.

It has been highlighted that the National Broadcasting Commission (NBC), a component of the Nigerian Ministry of Information and Communication, has not been able to easily transition from analog to digital broadcasting despite some of the advantages of digital broadcasting. As of March 11, 2021, just six of the federation's states had completed the initial shift to digital broadcasting. The states and the switchover dates are Jos (April 30, 2016), Abuja (December 22, 2016), Ilorin (December 20, 2017), Kaduna (December 22, 2017), Enugu (February 12, 2018), and Osogbo (February 23, 2018).
Now the question remains, why are Nigerians not complying with the demands of this new technology? It becomes clear from a detailed assessment of the present events that neither the broadcasters nor the audience have the essential understanding required to complete the mission. The observation that the majority of modern television and radio sets are not digitally compliant lends credence to this assertion. Therefore, it suggests that sets that don't comply with digital standards need to be updated. But the consumer will also have the option of purchasing a Set-Top Box, a type of digital to analogue converter. After the digitization process, all analogue production and transmission equipment will also be rendered obsolete.

Regardless of the aforementioned statement, Nigeria's broadcasting sector must transition to digital like other nations. Nigeria must not fall behind since doing so would equal to turning the country into a landfill for outdated analog technology (Ihechu and Uche, 2012). Based on the preceding premise, Ocholi (2009) asserts that every radio and television station in the country must transit in the country.

Currently, there are 193 countries in the world, and according to the International Telecommunication Union's Status of the transition to Digital Terrestrial Television, 77 countries in the world have completed the transition process, in percentage, it is 39.9%, while 61 countries out of the 193 countries in the world are still in the transition process of which Nigeria is part. This amounts to 31.6% of the countries in the world. There is no information on the transition process of 38 countries in the world, while 17 countries have not started. In percentage, it is 19.7% and 8.8% respectively.

OBJECTIVES

This work aims to achieve the following objectives;

1. This study aims to pinpoint the challenges preventing Nigeria from making the full switch from analogue to digital broadcasting.
2. It also aims to provide recommendations for resolving the problems that have been found.

CONCEPTUAL FRAMEWORK

The Concept Of Digitization

In order to process, store, and transmit the information through digital circuits, devices, and networks, analog information must be converted into digital information by the use of the appropriate electrical devices, such as a scanner or specific computer chips. Analog information can be in any format, including text, graphics, audio, and so on. The "digital switchover" process is the process of launching digital terrestrial television and shutting down the analog terrestrial television platform (EBU, 2012). Digital television refers to the transmission of television signals using a digital network as opposed to analogue technology. Armstrong (2018) describes digital television as a TV transmission technology that can deliver images with a resolution of 720 to 1080 horizontal lines, in contrast to the 480 lines of the analogue television system. Digital television offers up to six channels to be multiplexed within a single bandwidth, interference-free audio, and visual quality comparable to a CD.

It is important to remember that Nigeria started the transition from analog to digital broadcasting on time for the deadline set by the International Telecommunication Union for all countries. As of this article, only 77 countries have completed the change. The nations involved in the switchover from analog to digital broadcasting are listed below:

COUNTRY	YEAR OF LAUNCH	STATUS
Afghanistan	2013	Ongoing
Albania		Ongoing
Algeria	2010	Completed
Andorra	2006	Completed
Antigua And Barbuda		No Information
Argentine Republic	2010	No Information
Armenia	2015	Ongoing
Australia	2001	Completed
Austria	2006	Completed
Azerbaijan		Completed
Bahamas	2016	Ongoing
Bahrain	2015	Ongoing
Bangledesh		Not Started
Barbados		No Information
Belarus	2005	Completed
Belgium	2002	Completed
Belize		Not Started
Benin	2016	Ongoing
Bhutan	2018	Ongoing
Bolivia	2011	Ongoing
Bosnia And Herzegovina	2009	Ongoing
Botswana		Ongoing
Brazil	2007	Ongoing
Brunei Daussalam		No Information
Bulgaria	2013	Completed
Burkina Faso	2016	Ongoing
Burundi	2018	Not Started
Cabo Verde	2015	Ongoing
Cambodia		Ongoing
Cameroon	2015	Ongoing
Canada		Completed
Central African Republic		Not Started
Chad	2014	Ongoing

Chile	2010	No Information
Colombia	2012	Completed
Comoros		Not Started
Congo (Dem.Rep.Of The	2015	Ongoing
Congo (Republic Of The)	2015	Ongoing
Costa Rica	2014	Ongoing
Cote D Ivoire	2018	Completed
Croatia	2009	Completed
Cuba	2013	No Information
Cyprus	2010	Completed
Czech Republic	2005	Ongoing
Democratic People's Republic Of Korea		Not Started
Demark	2006	Not Started
Djibouti	2017	No Information
Dominica		Ongoing
Dominican Rep		No Information
Ecuador		Ongoing
Egypt	2015	Not Started
El Salvador		Completed
Equatorial Guinea		Completed
Eritrea		No Information
Estonia	2006	Ongoing
Eswatini	2015	Completed
Ethiopia	2015	Completed
Fiji	2015	Completed
Finland	2001	Completed
France	2005	Completed
Gabon		Completed
Gambia	2015	Ongoing
Georgia	2015	Completed
Germany	2002	No Information
Ghana	2010	Ongoing
Greece	2008	Ongoing
Grenada		Completed

Guatemala	2013	No Information
Guinea	2015	Not Started
Guinea-Bissau	2015	Ongoing
Guyana		Completed
Haiti		Completed
Honduras	2017	Ongoing
Hungary	2008	Ongoing
Iceland	2010	Ongoing
India		Not Started
Indonesia	2012	Completed
Iran	2009	Completed
Iraq		Completed
Ireland	2011	Not Started
Israel	2008	Completed
Italy	2008	Ongoing
Jamaica	2018	Ongoing
Japan	2003	Completed
Jordan	2018	No Information
Kazakhstan	2012	Completed
Kenya	2009	No Information
Kiribati		Completed
Korea	2001	No Information
Kuwait		Completed
Kyrgyz Republic		Not Started
Lao People's Democratic Republic		Completed
Latvia	2009	Completed
Lebanon		Not Started
Lesotho	2015	No Information
Liberia		Completed
Libya		Completed
Liechtenstein		Ongoing
Lithuania	2006	Completed
Luxembourg	2006	Completed
Madagascar	2015	No Information
Malawi	2011	Ongoing
Malaysia	2017	Completed
Maldives		Completed

Mali	2016	Not Started
Malta	2005	Completed
Marshall Islands	2010	Completed
Mauritania	2016	No Information
Mauritius	2005	Ongoing
Mexico	2004	Completed
Micronesia		Completed
Moldova		Completed
Monaco		Completed
Mogolia	2005	Ongoing
Montenegro	2014	Ongoing
Morocco	2007	Ongoing
Mozambique	2015	No Information
Myanmar	2013	No Information
Namibia		Completed
Nauru		Ongoing
Nepal		Completed
Netherlands	2003	Not Started
Netherlands Antilles		Ongoing
New Zealand	2008	Ongoing
Nicaragua		No Information
Niger	2016	Completed
Nigeria	2015	Completed
Niue		Ongoing
North Macedonia	2008	No Information
Norway	2007	No Information
Oman	2018	Ongoing
Pakistan		Ongoing
Palau		Ongoing
Panama		No Information
Papua New Guinea	2014	No Information
Paraguay		Ongoing
Peru		Completed
Philippines	2017	Completed
Poland	2009	Completed

Portugal	2009	Ongoing
Qatar	2014	Ongoing
Romania	2015	Completed
Russian Federation	2010	No Information
Rwanda	2012	No Information
Saint Kitts And Nevis		No Information
Saint Lucia		Ongoing
Saint Vincent And The Grenadines		Completed
Samoa	2014	Ongoing
San Marino		Completed
Sao Tome And Principe	2016	Ongoing
Saudi Arabia	2006	Completed
Senegal	2014	Ongoing
Serbia	2012	Ongoing
Seychelles	2011	Completed
Sierra Leone	2014	Completed
Singapore (Republic Of)	2013	Completed
Singapore (Republic Of)	2014	Completed
Slovak Republic	2009	No Information
Slovenia	2006	Completed
Solomon Islands		Ongoing
Somalia		Ongoing

South Africa	2015	Completed
South Sudan	2017	No Information
Spain	2000	Completed
Sri Lanka		Completed
Sudan		Completed
Suriname	2014	Completed
Sweden	1999	No Information
Switzerland	2001	No Information
Syrian Arab Republic		Completed
Tajikistan		No Information
Tanzania	2009	Ongoing

Timor-Leste		No Information
Togolese Republic	2012	Not Started
Tong		Ongoing
Trinidad And Tobago		Not Started
Tunisia	2010	Ongoing
Turkey		Not Started
Turkmenistan		No Information
Tuvalu		No Information
Uganda	2015	Completed
United Arab Emirates	2014	Completed
United Kingdom Of Great Britain And Northern Ireland	1998	Completed
United States Of America		Completed
Uruguay		No Information
Uzbekistan	2008	Ongoing
Vanuatu		No Information
Vatican	2013	Completed
Venezuela	20113	Ongoing
Viet Name	2010	Ongoing
Yemen		No Information
Zambia	2013	Completed
Zimbabwe	2015	Ongoing

Different countries went through different experiences to be able to transit to digital broadcasting. For instance, the widespread implementation of digitization in India has begun to promote transparency and usher in a new era for broadcasting in that region. The largest benefit of digitization, which is transparency in the broadcasting industry, is that it will spur cleaner and more creative firms, raise investments, and most importantly, give customers a variety of a-la-carte channels. Similar to how a cashless policy was introduced in specific regions or states, Nigeria is expected to conduct the digitalization process in phases (Armstrong, 2018).

According to the Visalat Baseline Study from 2016, the UK's transition to digital television was the biggest change to broadcasting in a generation. It gave millions of viewers more options and paved the path for new services that will solidify its position as a leader in the broadcasting and creative industries on a global scale. In the UK, the transition began in 2008, but just 0.3% of households had made the move by year's end. By the end of 2010,

7.1 million homes, or 27%, had made the changeover to digital broadcasting, and by the end of 2012, the switchover had been fully accomplished and nearly all 26.7 million homes had made the switch (Armstrong, 2018).

The African continent is not excluded either, since a few nations have started to experience digital broadcasting. Countries like Namibia reached national coverage of about 67 per cent (Dreyer, 2014) in September 2014. Namibia was the first country in Africa to switch over to digital broadcasting. After Namibia, countries like Algeria, Mauritius and Zambia made a partial switch-over in the same year, which in the following year, Ghana, Morocco and Kenya switches over in 2015. Rwanda and Gabon joined the train in 2016. Although Nigeria was a signatory to the ITU agreement signed in June 2006, which set June 17, 2015, as a deadline for the complete switch from analogue broadcasting to digital broadcasting, Nigeria failed to meet up with the deadline.

Eight years after, let us take a look at Nigeria's progress.

Digital Broadcasting: The Nigerian Experience

The National Broadcasting Commission oversees broadcasting in the Federal Republic of Nigeria. By Decree 38 of 1992, the commission was created on August 24, 1992. The National Broadcasting Commission Laws of the Federation 2004, CAP N11, replace Act 55 of 1999, which later changed it and became a law of the National Assembly. The commission is in charge of managing and regulating the Nigerian broadcasting industry in addition to its other responsibilities. The commission routinely gathers data, examines trends compatible with the industry's dynamism, and provides the government with applicable advise using scientific research methods in its function as a federal government counselor.Additionally, the commission is in charge of accepting, processing, and evaluating applications for the establishment, ownership, or operation of radio and television stations, including stations that are both privately owned and operated and those that are under the control of the federal, state, or local governments. This covers requests for cable television services, direct satellite transmissions, and any other form of broadcasting.

Escor, Ogri, and Henshaw, (2019) noted that although the National Broadcasting Commission and other government stakeholders claimed to have officially rolled out digital Bbroadcastingn Nigeria as of June 17, 2017, it is obvious that just a little has been achieved in terms of implementation and coverage across the 36 states. The transition journey to digital broadcasting started in 2007 when NBC set up an in-house committee to work out the roadmap toward the switch-over plan.

The committee highlighted the government, regulators, broadcasters, signal carriers, and consumers as the main participants in the implementation of the switch to digital broadcasting. The Presidential Advisory Committee (PAC) on Transition from Analogue to Digital Broadcasting by the Federal Government of Nigeria was another recommendation made by the committee. Nigeria's then-president Umaru Musa Yar-Adua gave his approval in December 2007 for the NBC to start the digitization program there and set June 17, 2012 as the first goal date for the country to switch over to digital transmission (NBC, 2012, p. 3).

The Presidential Advisory Committee on Transition from Analogue to Digital Broadcasting officially launched on October 13, 2008, with the mission of advising the government on the best regulatory framework for digital broadcasting, analyzing how

digitization will affect consumers, and suggesting potential government intervention, among other things. On June 20, 2009, the Presidential Advisory Committee delivered an executive report to the federal government (NBC, 2012; Moses, 2017). Among the main recommendations of the Advisory Committee, according to NBC, are the adoption of a new policy and regulatory framework in the broadcasting industry, the division of broadcasting services into Broadcast Content Provision and Broadcasting Signal Distribution, and restructuring of the licensing framework in the broadcasting industry.
The Federal Government considered and approved the report; and on March 4, 2012, the Federal Executive Council also considered and adopted the draft white paper on the transition from analogue to digital broadcasting on the Ultra High-Frequency platform.The white paper was drawn from the Presidential Advisory Committee recommendations (Ukwele, 2016); and an implementation committee for the transition called the DigiTeam Nigeria was inaugurated on December 20, 2012. The committee was saddled with the responsibility of collaborating with NBC to implement the transition from Analogue to Digital broadcasting on the UHF platform. The DigiTeam Nigeria and NBC worked out detailed plans and modalities concerning publicity, content creation, technical specifications of Set-top-boxes and receivers, among others. DigiTeam Nigeria Committee, in conjunction with NBC, came up with a policy decision to split the broadcast services into broadcast content generators and signal distributors. While the creation of broadcast content will be the responsibility of the broadcasters and/or TV stations, the distribution or transmission of signals to viewers' homes will be the responsibility of the signal distributor or carrier.

Jos was chosen for the pilot Digital Terrestrial Transmission (DTT) rollout, which was billed for flag-off on June 30, 2014. This target could not be met as STB manufacturers were unable to set up local companies to commence operation. The Federal Government then approved the thirteen Set-Top-Boxesmanufacturers to import a limited number of Set-Top-Boxesto implement the pilot flag off in Jos, Plateau state. To enhance a successful flag-off, the Government also approved the free distribution of the Set-Top-Boxes to Jos residents. Finally, the Jos DTT flag-off came to pass on April 30, 2016, with an initial offer of 15 channels on the Platform of ITS Limited. The second digital switch-on in Abuja was launched on December 22, 2016, on the Pinnacle Communications Limited platform with an initial offer of 30 channels (Moses, 2017, p. 22).The next phase of digital rollout in the country took place in five states namely, Kwara, Kaduna, Enugu, Osun and Delta. On March 11, 2021, the federal government, via NBC, announced the implementation of the digital switchover in four more states. This was the most recent development in the changeover process. Lagos, Rivers, Kano, and Gombe are the states that will take part in this second phase. In the announcement, it was also mentioned that an additional 10 states would have switched over to the second phase by the end of the first quarter of 2022. Progress was made at the end of 2021 when certain states successfully made the changeover to digital broadcasting.

CHALLENGES OF DIGITAL BROADCASTING IN NIGERIA

Considering the slow progress made by Nigeria, it is obvious some challenges are slowing down the complete switch over to digital broadcasting in Nigeria.

1. Technical and Financial challenges

Before new trends can take over in any society, there is a need for old things to be discarded. Likewise, the transition from analogue to digital broadcasting necessitates a large investment in tools and technology. There must be funding available to purchase this. This proves that technical issues and financial issues are intertwined. This is in the sense that the technical issues affect the broadcaster that has to ensure that the equipment is upgraded to be able to broadcast digitally and financially, the broadcast has to get funds to upgrade the equipment. This in turn affects the audience as one they have to upgrade their receiver(that is; television sets and radio) so they can receive the message being broadcasted. Not forgetting that they have to pay for receiving these media messages through different means. Less than 15% of the stations signed off by the deadline of June 12, 2009, in the USA, where the technological and infrastructural barrier was most evident (Mishkind, 2009, cited in Ihechu and Uche, 2012).The media audience that does not have a digital complaint set will be at a loss as they will not be able to connect to the broadcast stations. And, given the low economic standing of the majority of Nigerians, meeting the deadline will be a huge challenge for the entire audience. For example, as of 1st July 2022, the lowest price of a High Definition Television (HDTV) set on Nigeria's largest online mall, Konga is N32,500(Thirty-Two Thousand, Five Hundred Naira) and the highest is about N30,000,000(Thiry Million Naira). The minimum wage of an average Nigerian is N30,000(Thirty Thousand Naira). This is not enough to buy the lowest set of HDTVs. This shows that financial and technical constraint is a big challenge to switching over to digital broadcasting.

2. Erratic Power Supply

Erratic Power supply is a major challenge in Nigeria. It affects every sector of the country. Ineffectively, the nation has spent huge sums of money to restore the electricity supply. People now depend on generators to supply them with power so they can carry out their businesses and daily activities. Although, now people have resorted to making sure solar energy provides power. In the long run, because people need fuel or diesel to power their generators, or solar panels that are quite expensive to convert the energy from the sun to power, it increases the cost of production. And this, in turn, increases the cost of service which is paid by the consumers. Consequently, the expense of living increases. It would be appropriate to mention that the process of digitalization is significantly hampered by the unstable power supply and constant reliance on generators. It would result in expensive production and presentation costs for programs (Ihechu and Uche, 2012).

3. Manpower

For the switch over from analogue to digital broadcasting to be complete, there have to be better, complex and fragile equipment that will replace the analogue equipment. And there is a requirement for personnel to match the complexity and fragility of the incoming equipment. Trained personnel have to be available to handle the equipment. According to Ihechu& Uche (2012), one of the difficulties in the transition process is the need to retrain individuals to fit into the digital process.Because this training needs to be done by a specialist who would understand the complexity of the equipment. In a situation where

thepersonnel are not able to meet up with the standard of handling these equipment, they will be thrown out to thelabour market, and then the burden of unemployment that has plagued the country will eventually increase as a result of that.

4. Knowledge Gap

The term "knowledge gap" describes a disparity between the poor and the developed world's ability to access, recognize, and foster creativity. This is a significant issue that has to be resolved. The public, government authorities, and everyone else have relatively little knowledge of digital broadcasting. Nigeria had a 38% illiteracy rate as of 2022. Despite the high literacy rate, about 50% of the literate still know little to nothing about this revolution. Even government representatives lack a thorough understanding of this transformation process. All of these widen the gap between those who understand the process and those who do not.

RECOMMENDATIONS

1. The government should allocate funds that will aid the successful transition to digital broadcasting in all states of the federation. If possible, funds should be specially allocated to this course in the annual budget of the country. And in doing this, it will serve as a subsidy to the purchase of relevant equipment by the broadcast stations and the audience.
2. The onus of ensuring that there is regular power supply lies in the hand of the government. The government is encouraged to do everything within its power to give the citizens good power supply. Doing this will help reduce the emission of gas into the air, as the realiance on fuel and disel with reduce. The government or private individuals can also provide solar panels for people, especially for those that cannot afford it.
3. Specialists should be brought in to train people on how to use the digitalized equipment. After the first set of trainees have graduated, they can now become teachers. And the cycle should be maintained so we don't have to look for specialists again to begin all over.
4. For the knowledge gap to be filled, the National Broadcasting Commission and other stakeholders need to aggressively embark on public sensitization and enlightenment campaigns across the states that have not switched over to digital broadcasting, so as to sensitizr them on what to do and how to enjoy this innovation. The audience also needs awareness campaigns to reduce the complexity of information regarding digitization.

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