

COMPREHENSIVE TELEVISION DIGITIZATION DELAY: DECELERATING SUSTAINABLE DEVELOPMENT IN NIGERIA

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ABSTRACT: The study investigated why digitization of television stations has consistently failed in Nigeria; and its implications on sustainable development. The study anchored on the Diffusion of Innovation and Technological determinism theories adopted survey and focus group discussion research designs. A sample size of 315 was drawn using the Taro Yamane method for survey, while a sample size of 35 was drawn for the focus group discussion through the snowballing sampling technique. Findings showed that digitization will positively affect the broadcast value chain of the media stations but the failure to digitize has negatively affected the sustainable development 9th goal which targets the promotion of infrastructural development, industrialization and innovation in Nigeria. It was recommended among others that the Government should provide sufficient financial resources; and stakeholders comply with the Presidential Advisory Committee directives on Digital Switch Over.

Keywords: TV Digitization, Broadcast Value Chain, Delay, Deceleration, Sustainable Development.

INTRODUCTION

When the timeline for the implementation of the Millennium Development Goals (MDGs) ended in 2015, the United Nations in collaboration with the Heads of States and Governments of the 193 Member Nations launched the Sustainable Development Goals (SDGs) as a new development agenda (<https://cafod.org.uk>). This agenda, also known as Agenda 2030, was structured into 17 Goals, of which the 9th goal targets the promotion of infrastructural development, industrialization and innovation. Infrastructure provides the basic physical facilities essential to business and society; industrialization drives economic growth and job creation, thereby reducing income inequality; and innovation expands the technological capabilities of industrial sectors and leads to the development of new skills (www.undp.org).

Digitization happens to be one aspect that was intended by the Federal Government to accelerate the SDG number 9 in Nigeria, as it has to do with infrastructural development, industrialization and technological innovation. Digitization - the process in which analogue broadcasting is converted to and replaced by digital broadcasting has brought about rapid innovation and changes in the broadcasting industry (Jayson, 2014; Omale, Ekhaerafo and Essien, 2016). It fast tracks the production of quality programmes that are expected to meet the challenges of viewer satisfaction and need fulfilment, transmission and evaluations of product. Digital broadcasting boasts of tremendous advantages such as improved signal quality, versatility, efficiency and interaction with other electronic media. This has made it

superior to the analogue format. The delay in digitizing our broadcast industry is a huge loss as above advantages are missed.

Digitization or the switchover to digital transmission was a necessity for Nigeria as a signatory to the International Broadcast Union Agreement tagged: “Geneva 2006” which mandated all countries to switchover by Wednesday, June 17, 2015, to avoid signal interference from other countries (Kawu, 2018). To demonstrate its commitment to achieving this tall order, Nigeria set an initial target of 2012 for the broadcast stations in the country to be digitized. However, this target was not met due to various challenges such as lack of adequate funding, technical issues, lack of awareness, unprepared workforce, etc (Idachaba, 2018). But countries like Ghana and Tanzania hit the road and are far ahead of Nigeria (Umeayo & Abu, 2017).

After several attempts at digitization, the pilot phase of the Federal Government’s digital transmission project that kick started the digitization process in Nigeria was launched in April 30, 2016 with partial migration in the city of Jos, the Plateau State Capital. This was followed with the phased roll out in Abuja, Oshogbo, Kaduna, Ilorin, Enugu and Lagos. As at first quarter of 2021 these cities were the only areas of Nigeria covered. This is about 6 percent of the states in Nigeria. At the launch of the pilot scheme in Jos, Lai Mohammed, the Minister of Information, had assured Nigerians that the Federal Government would not relent in its effort to ensure that Nigeria meets the June 20, 2017 deadline for a complete Digital Switchover (DSO).

However, it failed to do so, making it the third time Nigeria failed to meet the deadline for digital migration. Once again, Nigeria has shifted its migration goal post to 2022. The National Broadcasting Commission (NBC) of Nigeria, through its Director-General, Balarabe Shehu Ialah, has said it has concluded plans to migrate Kano terrestrial broadcasting to digital transmission before the end of October, 2021 and that with Kano coming on stream in October, Nigeria will complete full migration before the end of 2022 (www.thisdaylive.com).

Regrettably, the plan by the Federal Government to complete the country’s digital switchover (DSO) by December 7, 2022, might not be realized following the failure of the government to keep to the timelines set. While Lagos officially transitioned from analogue to digital broadcasting on April 29, 2021 and hoped to complete the process by October 2021, nothing has been heard or done about the next three transiting states. According to the timetable, after Lagos, Kano was expected to have come up on June 3, to be followed by Rivers on July 7 and Yobe, July 15, 2021.

Consequently, the other transition dates for year 2021, including Gombe (Aug. 8); Imo (Aug. 24); Akwa Ibom (August 31); Oyo (Sept. 9); Jigawa (Sept. 23); Ebonyi (Oct. 10); Katsina (Oct. 12); Anambra (Nov. 4) and Delta (Nov. 11) (Adepetun, 2021), could not materialize as expected. Other states are pencilled down for completion on or by December 2022.

Greater populace of Nigerians eagerly awaits the complete digitization of broadcast stations as those in advanced countries who have tested it affirmed the experience is a great delight. But it is a thing of concern that the process is rather too slow. It becomes expedient to take a critical look at the effect of digitization delay on broadcasting industry in Nigeria since digitization – a technological advancement in broadcasting - is an aspect of sustainable development.

Statement of the Problem

It is pertinent to know that digitization can engender superior on-air performance and reception of signals of broadcast stations in Nigeria, and corresponding financial benefits, to justify the initial investments. The unpreparedness of media stakeholders in Nigeria poses a huge threat to the digitization process. The consistent failure of Nigeria to migrate from analogue to digital broadcasting has deprived people of Nigeria the benefits associated with digital broadcasting. It has negatively affected the sustainable development 9th goal which targets the promotion of infrastructural development, industrialization and innovation in Nigeria.

Objectives of the Study

The study sought to:

1. Investigate why comprehensive digitization of TV stations has consistently failed in Nigeria.
2. Ascertain the level of preparedness of TV stations in Nigeria for digitization.
3. Find out the implications of digitization on broadcast value chain of TV stations in Nigeria.
4. Determine the extent of the government's efforts in the comprehensive digitization of TV stations in Nigeria.
5. To find out the implications of comprehensive digitization of TV stations' failure in Nigeria on sustainable development.

Research Questions

1. Why has comprehensive digitization of TV stations consistently failed in Nigeria?
2. What is the level of preparedness of TV stations for digitization?
3. What are the possible implications of digitization on broadcast value chain?
4. What is the extent of government's effort in the digitization of TV stations in Nigeria?
5. What are the implications of comprehensive digitization of TV stations failure in Nigeria on sustainable development?

A Brief Insight into Concept of Digitization

Digitization refers to the action or process of digitizing; the conversion of analogue data (especially in use of images, video, and text) into digital form (Ananny & Kreiss, 2011). Digitization as Rodman (2006) puts it, is the conversion of analogue information in any form (text, photograph, voice, etc.) to digital form with suitable electronic 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. Digitization according to Okorie (2008) is also defined as a process through which information, whether relayed through sound, text, voice or image is converted into a digital binary language for computer use. This makes possible the conversion of information from different sources through one channel, and reduces the risk of distortion. Okhakhu (2015) in Omale *et al.* (2016) defined digitization as "the cutting edge technology that enables broadcast industry to do away with obsolete method of transmission. He explained that, digitization of broadcasting is all about making broadcast transmission to be digital compliant. Omale *et al.* (2016) assert that to be

digital compliant in this case “television” means that the quality of image of broadcast transmission be improved upon”.

Digitization – particularly with respect to television broadcasting – could equally be viewed as an enhanced viewers experience facilitated by a number of tools such as the electronic program guide (EPG), the subtitling, additional language options and interactive services such as weather and sports. All these indicate that digitization is regarded as a revolution in mass media in general and radio and television broadcast in particular. Okhakhu (2015) in Omale *et al.* (2016), goes on to assert that digitization of television essentially has to do with pictures not sound because radio has gone digital long ago. He further stated that, digitization is more of pictures now, which is the image that is being worked on at this point in time to enhance television viewing experience. Citing an instance, Omale *et al.* (2016), opined that the old TV sets that are currently being used, fall under analogue set because the quality of the image in the new digital platform is no longer compatible with the system that powers analogue. Therefore, there is need to switch over to the new digital technology. That is why we have new TVs in the market now ranging from Plasma, LEDs, LCDs among others. The new TV sets have inbuilt system that enables them to receive such digital signals.

Kombol (2008) asserts that through digitization, the capacities of communication channels are greatly expanded; there is more scope for consumer choice and more possibilities for interactive system. Furthermore, digitization considerably improves the quality of voice and video transmission and economic efficiency is enhanced because conversion to digital forms of storage, editing and retrieval also saves time and labour. For high quality video, for example, images can be digitally compressed and then transmitted over satellites at 56,000 bits per second as a computer file. This digital data can be stored on a disc system until it is played back at the original speed. Since digital compression and storage systems are lightweight, the new technology can be especially useful in newsgathering. Digitization of video signals reduces their size; therefore, more information can be carried over phone wires and stored (Baran, 2010).

Describing the emergence of Digitization, Severin & Tankard(2011) stated thus:

The advent of Digitization is perhaps the biggest game changer in communication since the invention of broadcasting, both via television and radio. Software and hardware technology advancements have changed the way the world connects at a blistering pace. Communication is now not only facilitated by the Internet but also multimedia advances such as CD-ROMs, flash storage, high definition broadcasting and more. The speed at which technology changes has proven challenging for researchers to keep up with and conduct the studies necessary to successfully develop theories applied specifically to digital communication.

To avoid being left behind in an increasingly digital world, the stakeholders in broadcasting business should adhere to the resolutions of the International Telecommunication Union (ITU) on digitizing the broadcast media operations that: 1) Digitization of broadcasting is a necessity, imperative and has the potentials to revolutionize the media and communication in the continent with business opportunities, redefinition of national values and place the continent on the map of the digitally compliant world. 2) African countries must strive towards meeting the ITU deadline of June 17, 2015, for broadcasting to transit from analogue

to digital else the risk of paying the painful penalty of being isolated from the world's broadcasting community would be great.

Technological Innovation and Sustainable Development

One of the recurring themes of the 2018 High-level Political Forum on Sustainable Development (HLPF) was the impact of technological change on sustainable development. The benefits of digital technology for the sustainable development goals (SDGs) is relatively well-integrated into the 2030 Agenda, not only through Goal 9 (industry, innovation, and infrastructure), but also through the Technology Facilitation Mechanism and its Science Technology and Innovation (STI) Forum. There is a well-established understanding that digital technology can help drive progress for all goals (Guterres, 2018).

The above assertion points to the fact that digital technology which digitization is all about is one aspect of strategic responses to sustainable development. Highlighting further on the importance of technological innovation on sustainable development, De Croo, (2017) asserts, "whether we are talking about the 17 sustainable development goals (SDGs) or the climate goals, the only way we can achieve these is by opting for radical technological innovation. For Alexandre Barbosa, Head of Cetic.br, "Information and communication technologies have become an essential enabler for achieving the SDGs and at the same time they are a powerful means to measure their progress." Chandrika Bahadur, Director of the SDG Academy, expresses: "Technology has enormous potential to help achieve all of the Sustainable Development Goals – the critical question is how policy makers, practitioners, professionals, and people ... can use technology effectively and ethically for public good." Technology might help minimize inequality by providing access to basic services, such as e-health or online education. It can be used by governments to better connect to their citizens through e-government tools, and to improve stakeholder engagement and information management. Increased spectrum or broadband can be a key enabler to boost connectivity and prevent 'digital isolation' (Maria Theofili, Ambassador and Permanent Representative of Greece).

Prospects of Digital Broadcasting in Nigeria

Digital broadcasting has huge prospects for any country that engages in it. Highlighting on one of the prospects, Benton Foundation (2018) asserts that:

Over the next 10 to 15 years, DTV will usher in a sweeping transformation of broadcast television...its programming and services, its revenue sources, its ownership structures, and its outside partnerships. Although many existing programming genres and styles will surely continue, innovations in video programming and information services will arise fuelled in no small part by the anticipated convergence of personal computer and television technologies. In addition, broadcast television may develop new services in alliance with other telecommunications media -- a scenario made possible by digital code, which is increasingly becoming the common language for all electronic media.

Another prospect according to Benton Foundation (2018) is the ability to provide new kinds of video and data services, such as subscription television programming, computer software

distribution, data transmissions, teletext, interactive services, and audio signals, among others. According to Kawu (2017) Nollywood will have a safe and profitable distribution channel direct to 20m+ homes through the STB with no piracy risk. This will generate about \$250m pa of extra income for Nollywood. The broadcasting industry and digital economy will grow by 450 billion Naira or \$1 billion per annum through increases in advertising, Nollywood income and value added services. It will offer uncountable opportunities for jobs in the broadcast industry and other ancillary industries (Kawu, 2017). Collaborating this, Lai Mohammed, Nigeria's Minister of Information and Culture, said the switch over will grow the advertising revenue of broadcasting organizations by \$400 million per annum and create a 100 billion per annum free TV distribution network for Nollywood; and that the overall figure for the entire creative and digital sector runs into several billions of dollars per annum if properly tapped. According to Adepetun (2017), Global System for Mobile Telecommunication Association (GSMA) research indicated that through the release of digital dividend spectrum, Nigeria stands to increase its yearly regional GDP by \$82 billion by 2025, while in the process earning \$ 18 billion in incremental tax revenues and creates 27 million jobs. When fully completed, the Minister of Information and Culture, Lai Mohammed cited by Ikemitang (2016) said that digitization will revolutionize the economy of Nigeria; and not just changing the face of broadcasting, it will be a spinner that in its wake will create more wealth, jobs and create more avenues for talented youths to achieve their potential. The reality though is that the motivation apparently is that as broadcasters engage new platforms, the market opportunities are increasing, providing new revenue streams," he said. There is also a prospect for the government according Lai Mohammed who stated: "Apart from giving you quality pictures and more platforms, it is going to create more jobs. With digitization, you are going to have distributors in every local government of the country. It also allows for better interaction between government and the governed because aside from advertisements on the channels paid for, with digitization you can get government messages on its policies and programmes on any channel you tune into" (Ikemitang, 2016).

Digitization would propel many young talented youths to engage in content production, thereby creating employment. Also with the manufacturers of set-top boxes beginning production in the country more employment prospect are in the horizon. Adding credence to this, Edward Amana, the Chairman of the DigiTeam, while speaking at the launch said, "A total of 30 million Set-Top-Boxes (STBs) are required for the whole country. 4 out of the 13 companies have already established their factories in Calabar and Port Harcourt and will soon commence production. Each of the companies would employ not less than 2,000 Nigerians and the set-top-boxes manufactured in Nigeria would be exported to other West African countries.

Lending his voice, Godfrey Oluabunwa, the Chairman of the STBs Manufacturing Association of Nigeria, stated that not less than 10 factories are being set up for the production of STBs which will create more than 10,000 direct jobs. He said the Bank of Industry was also supporting his group by providing loans for the setting up of factories for STBs production. He said the DSO would create employment opportunities in the production sector as more television stations would be licensed and encouraged to come on board by the NBC (Ijikanmi, 2016). President Buhari, represented by his Vice, at a conference commented on the prospects of digitization, said:

I am confident that DSO would liberalize access to digital broadcasting and increase the versatility of media information, interactive programming, two-

way data exchanges, mobile reception of video, internet and multimedia data will open up. The opportunities that this will provide are only limited by the imagination. Advertising, formal education, sales and marketing are obvious low hanging fruits.

Oxford Business Group (2017) commenting on the prospects stated “in addition to freeing up a considerable amount of valuable spectrum for use in other industries – notably telecommunications and information and communications technology the transition can lead to rapid growth in the television industry itself. Based on recent forecasts by Digital TV Research (DTVR), a UK-based research firm, Nigeria is set to be one of Africa’s largest television markets in the foreseeable future.”

Theoretical Framework

The study was anchored on the Everret Rogers’ Diffusion of Innovation theory and Marshal McLuhan’s Technological determinism theory. Diffusion of Innovations is a widely used theoretical framework in the area of technology diffusion and adoption (Sahin, 2006) and it seeks to explain how innovations are taken up in a population. Diffusion of innovations theory is the most appropriate for investigating the adoption of technology (Medlin, 2001). This theory holds that for a new idea or innovation to diffuse, there must be awareness stage, interest stage, evaluation stage, trial and adoption stage. Digitization of broadcast media is one that involves technological innovations. Digitization is a technological innovation and aids sustainable development.

Technological determinism theory states that communication technologies shape how we as individuals in society think, feel, act and how society operates as we move from one technological advancement to the other. This theory postulates that changes in communication modes largely determine the course of history. It asserts that the technology obtainable in a society brings about development of the values and social system. In other words, broadcast media stations cannot perform beyond the technological innovations that are available to them. As the technological innovations are expected to change the broadcasting terrain in the positive direction, there should be a face lift on the technological competence of broadcast staff for them to adequately harness the potential of digital migration thereby paving way for development in the broadcast media industry. Williams (1990) went further to say that the central belief of this theory lays in the inevitable power of technologies to cause widespread social change. New communication technologies are discovered, by an essentially internal process of research and development which then sets the conditions for social change and progress.

METHODOLOGY

The survey and the focus group discussion methods were adopted for this study. The survey method was chosen because it would make provision for the expression of individual differences in opinions. The Focus group discussion method was also chosen because it would allow the researcher collect preliminary information about the topic, it is flexible in question design and follow-up and its responses are often more complete and less inhibited than responses from individual interviews. The population of Study consists of 1,480 people. 430 people of the population were drawn from staff of five Federal-owned TV stations in Southeast Nigeria namely: NTA Owerri (74), NTA Aba (94), NTA Enugu (126), NTA Awka

(70), and NTA Abakaliki (63). The rest 1050 people were drawn from staff of five State-owned TV stations in Southeast Nigeria namely: IBC Owerri (256), BCA Umuahia (248), ESBS Enugu (196), ABS Awka (180), and EBS Abakaliki (170). A sample size of 315 was selected using the Taro Yamane formula. Seven discussants were chosen from each of the five Southeast States of Nigeria totalling thirty-five people that were involved in the Focus group discussion. The Stratified sampling technique was used to get adequate representation of the subsample of the population. Through this technique, Federal Government-owned TV Stations strata had 91 people while State Government-owned TV Stations strata had 224 people. For the Focus Group Discussion, the Snowballing sample technique was adopted to get the discussants. Questionnaire and focus group discussion guide were used as the instruments of data collection.

PRESENTATION OF DATA / DISCUSSION OF FINDINGS

1. Reasons why Digitization has Consistently Failed in Nigeria.

The first objective of this study was to investigate why comprehensive digitization of TV stations has consistently failed in Nigeria. The responses revealed that challenges hindering digital migration include among others: lack of adequate funding; lack of adequate manpower; lack of awareness; technical challenges; poor power supply; and lack of political will. In their estimation, two greatest challenges confronting digital migration in Nigeria are lack of adequate funding and lack of awareness, while technical challenges follow. This finding was supported by the findings of Ihechu and Uche (2012) who said that digitization has such challenges as deadline, technical and financial challenges, manpower, power supply, and knowledge gap. In support, was also finding of Williams (2013) who said that NTA Enugu broadcasting station was not fully digitized, who identified constraints which militated against the media house such as lack of funds to run the broadcast station properly; Balarabe (2013) who stated that low level of ICT penetration has adversely affected digitization; and Agbo and Chukwuma (2017) who stated that Nigeria's inability to fully comply with the ITU demand of digital migration was as a result of a number of factors such as unawareness, scarcity of qualified manpower, poverty, inadequate power supply, and inadequate digital equipment. Muvaka (2015) supported them when he indicated that the subsidization of set-top boxes as well as the sensitization of a number of media consumers has yet to take full effect.

The various Focus Group Discussion (FGD) participants apart from the obvious challenges agreed that the transition to digital broadcasting by TV stations will require technical upgrading to support digital broadcasts. This comes with enormous challenge such as that of acquiring digital compliant studio equipment and digitized transmitters. Another challenge pointed out by the FGD participants was the inability of TV stations to acquire modern equipment that are compliant with MPEG – 4 video format and DVB – T2 standard. Currently, most studios are complete analogue studio that cannot be upgraded to the DVB T2 and MPEG-4 standards adopted by Nigeria for the digitization process. The cost of digital equipment currently is high because they are recent introductions in the market. It has been difficult and expensive on broadcast stations to purchase this equipment. Their purchase and acquisition are inevitable for digitization to take effect. The video processors like vision mixer, synchronizing equipment, all need to be changed to match with the digital requirement of the bandwidth. This finding is supported by the findings of Nyekwere (2009) who said the problems of lack of technical know-how and cost of acquiring these equipment remain the

barriers to their effectiveness. FGD participants believed that the non-compliance with the Presidential Advisory Committee (PAC) White Paper on Digital Switch Over (DSO) by stakeholders has been a major challenge stalling the progress of DSO. Corruption was also identified by them as a challenge. Money was made available in 2015 when Spectrum lease was done. But the Economic and Financial Crimes Commission (EFCC) seized the money because the money generated from the spectrum lease was not remitted into government account. It was not until 2016 that it was now used to kick start the pilot phase at Jos and Abuja. They also identified controversy concerning the condition of facilities deployed by the Integrated Television Services (ITS), an offshoot of NTA and one of the licensed Signal distributors. This led an Ad-hoc Committee of the National Assembly in 2017 to investigate the process of DSO in Nigeria. ITS was accused of deploying obsolete equipment. There was also legal issue. The second national signal distributor, Pinnacle Communications Limited, was in dispute with the NBC at a time. 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. These slowed down greatly the pace at which the digitization process was moving. There is also the challenge of weak signals from set-top boxes in areas already deployed due to topography of the area. This is now being taken care of with miniature transmitters called Gap Fillers especially in the hilly sides. This has even made it difficult for the complete coverage of the areas the signal distributors have rolled out.

On the possible ways of meeting these challenges, some solutions were proffered. They include releasing of enough funds and being committed to actualizing the digitization project; creation of awareness; meeting with government and convincing them on the need to be fully digitized along other stations; Government supporting the broadcast stations; provision of digitized equipment; and staff training and re-training. Respondents from the FGD were unanimous in suggesting the need for some financial assistance or cheaper fund source to be extended to private and state owned TV stations, to convert existing equipment and to operate digital terrestrial system. Local producers of content may have to be supported to be able to generate programmes if the broadcasters are to fill regulatory quotas for local content on the new platforms. This finding is supported by the recommendations of Okon and Ihejirika (2014), Williams (2013), Balarabe (2013), Obot and Inwang (2017), Obisi and Remi (2016).

2. The Level of Awareness and Preparedness of the TV Stations in Southeast Nigeria

Table 1: Showing responses to adoption of digital technology by the TV stations

Table 1.				
Response	F	X	FX	%
Strongly agreed	27	5	135	8.94
Agreed	78	4	312	25.83
Undecided	60	3	180	19.87
Disagreed	137	2	274	45.36
Strongly disagreed	-	1	-	-
Total	302		901	100

Table 2: Responses to the level of preparedness of TV stations for the transition

Table 2.				
Response	F	X	FX	%
Very high level	-	5	-	-
High level	90	4	360	29.80
Undecided	45	3	135	14.90
Low level	150	2	300	49.67
Very low level	17	1	17	5.63
Total	302		812	100

The second objective of this study was to investigate the level of preparedness of TV stations in Southeast Nigeria for digitization. As a prelude to digitization, there has to be adoption and use of digital equipment and machines such as digital cameras, digital video and audio recorders, computers, internet among others in the broadcast stations.

Findings showed that the majority of broadcast stations are yet to adopt digital technology in their operations. Their broadcast equipment installed are not fully digitized, analogue transmitters and equipment are still in vogue. Answers to this research question pointed to the fact that the level of preparedness on the digitization process is rather low. This finding is supported by the findings of Obot and Inwang (2013) who said that communication practitioners in Uyo are not fully ready for the digital broadcasting transition due to some challenges including lack of adequate orientation and training as well as the funds to purchase needed equipment.

However, communication educators in Uyo are aware of the digitization process in the broadcast industry as courses relating to digitization are being taught in the tertiary institutions. Focus Group participants posited that it takes more than just getting the broadcast stations prepared to achieve full digitization but agreed that the level of preparedness of the broadcast media is a huge factor. Other stakeholders should equally be prepared. Such stakeholders as: The Government, whose role is setting the Digital Switch Over (DSO) strategy for Nigeria and ensuring its success; The Digital Team (DIGITEAM) that oversee DSO strategy implementation, ensuring that the DSO programme is delivered on time, on budget and with minimal disruption; National Broadcasting Commission (NBC), whose role is to direct and manage all aspects of DSO delivery; Set-top box manufacturers, who are charged with the provision of all consumer equipment required to receive digital TV, producing required quantities of STBs to the agreed specification; The Signal distributors, who ensure that quality DTT signals reach the agreed proportion of the population at the agreed time and conversion of an agreed number of transmitters from analogue to digital as agreed with the NBC within agreed timescales; The Broadcasters whose role is to ensure that quality TV channels are provided for digital distribution; and the Middle ware providers, who provides DTT and DSAT technical platform management including all technology and services required to deliver DSO.

This finding is supported by the findings of Ndonye *et al.* (2015) who stated that the public, the government and the media were not prepared for the process due to lack of information regarding its significance, its origin and its impact in the terrestrial space. Also with regard to preparedness, findings reveal that though the majority said adequate measures have not been put in place to equip the staff with the necessary knowledge and skills for the transition, but those that agreed pointed out that some of these measures included seminars, training sessions, workshops and discussions during departmental meetings. It was however revealed that these measures were rarely organized. This is supported by Williams (2013), who said that adequate training of staff was one of the challenges faced by stations in their preparation for digital transition, even though staff members had a positive attitude towards the adoption of the technology in the broadcast industry. He explained that this robs them off adequate knowledge of what a full digitization process entails.

Based on the findings of this current study, training measures have not been consistent enough to adequately inform and equip the staff with the necessary skills and knowledge for the upcoming transition. In the Technological Determinism theory, McLuhan explains that

when new systems of technology are developed the culture of the society is immediately changed to reflect the changes needed to use the new technology. Consequently, digital broadcasting will change how broadcast practitioners will organize themselves and operate based on what the new technology demands, as they move from the analogue technology to digital transmission. This calls for proper training.

As regards awareness, the FGD buttressed above responses where it was observed that there was a low level of awareness campaign of digital migration. The Focus group participants agreed that there has not been enough sensitization for both the staff of the broadcast stations and the public on the requirements and procedure of the digitization process. This should be a cause for concern for the government because of the centrality of awareness to the diffusion process. Drawing from Rogers (2003) five stages of Diffusion of Innovation theory, awareness is the first stage that defines the diffusion rate of an innovation. Without the creation of awareness around digital migration, TV consumers will remain oblivious of the new technology and consequently will not show any interest in seeking information relating to new product.

3. The Implications of Digitization on Broadcast Value Chain.

The third objective of this study was to investigate the possible implications of digitization on broadcast value chain of TV stations in Southeast Nigeria. The responses revealed that with digital broadcasting, there will be higher audio and video quality; more employment opportunity; wider scope and expansion for the nation's broadband and internet penetration; improved broadcasting functionality; and a platform of interactivity features for consumers. Responses from questions asked pointed to one direction that digitization affects all segments in the broadcast value; it positively affects the operations of the TV stations; and would contribute significantly to the TV stations' delivery of quality programmes that would satisfy viewers. Another implication was that digitization will disrupt the market already being enjoyed by TV stations.

It was found that digitization would significantly affect the broadcast value chain of TV stations in Southeast Nigeria, and that there is a significant relationship between the digitization of broadcast media and viewer satisfaction in Southeast Nigeria. This finding is supported by the findings of William (2013) who said that digitization has a very high impact on broadcasting as it helps to improve accessibility, sharp picture quality, good and efficient programming and so on. Also Obisi and Remi (2016) supported this. They further stated that digital process can only be operational and effectively impact positivity in the media industry if the level and quality of labour involved are improved. FGD revealed what people will gain after the transition. These include: Increase in the number of quality programmes as a result of the speed at which these machines work; clarity in pictures as a result of the use of digital video cameras; palatable programmes as a result of digital editing; and programmes with sound effects now incorporated in it, that depict real life experiences, access to multiple channel (about 30) sitting on the set-top boxes, free of charge, unlike now we have to fiddle with our remote control and antenna looking for one channel or the other, which may not necessarily be clear. Digitization would affect the production value chain. FGD participants asserted that the digital era would be content driven. That is to say that it is the broadcast station that gives the most compelling content that would remain competitive. There will be a lot of pressure on those producing contents. It would be unlike before when you force down the throat of viewers any type of programme you produce. With digitization, you have to

produce what viewers want. This will arouse a lot of activities in the creative industry because of the huge content these multiple channels would require. Content is king, and Content is key.

4. The Extent of Nigeria Government's Efforts in the Digitization of TV Stations

The fourth objective of this study was to evaluate the extent of government's efforts in the digitization of TV stations in Nigeria. Responses revealed that the Federal Government has not put in place adequate structures to achieve full digitization of broadcast media in Nigeria. This finding is contrary to the findings of Olley (2009) who stated that many broadcasting stations in Nigeria are presently equipped with new media facilities which are capable of placing them in the same pedestal as their counterparts in Africa and other developing countries of the world. In other words government has put in place adequate structures for digitization. The FGD revealed that nothing much is on ground as a pointer that Nigeria will achieve full digitization in the near future. Set-top boxes are not readily available for the about 26 million households that would need it. They argued that the roll out depends on the infrastructural availability in the states. Findings from field survey revealed that the worst hit are the state-owned TV stations. But Is'haq Modibbo Kawu, then as the Director General National Broadcasting Commission (NBC) had argued that the Federal Government through the NBC has shown commitment to the target of a national roll-out for the whole country to transit from analogue to digital broadcasting. To achieve this it has done the following: 1) A total of thirteen local Set-top box manufacturers have been authorized by the Commission to manufacture and provide Set-top boxes for the Digital Switch Over in Nigeria and that some of the Set-top boxes we are using in Ilorin were actually assembled or produced in Nigeria. 2) In a bid to ensure that the signals of various channel owners were compressed into multiplexes and well packaged before transmission to consumers, and to protect the boxes from hacking and piracy the Commission has engaged the middleware operator Inview Nigeria Limited, another indigenous company, Cable Channels Nigeria Limited (CCNL), is managing the marketing and aggregation of the channels on behalf of the content owners and the signal distributors. 3) Licensed Signal Distributors. Despite this position as put forward by Is'haq Modibbo Kawu, the FGD participants still had a contrary view. There is no designed sensitization programme to adequately inform all stakeholders, and no consumer awareness programme to enlighten the public. This finding is supported by the findings of Balarabe (2013) who concluded that despite the effort of Nigeria to put in place the National ICT Policy that spells out a roadmap towards meeting the ITU standards, a lot of work needs to be done especially in ensuring full digital television broadcasting.

5. The Implications of Comprehensive Digitization Failure in Nigeria on Sustainable Development

The fifth objective of this study was to find out the implications of comprehensive digitization of TV stations' failure in Nigeria on sustainable development. Responses through FGD revealed that Nigeria will be faced with TV signal interference especially from our neighbouring countries like Chad, Benin Republic, and Cameroun. Fortunately these countries have not transited. If they do migrate before us we have that obligation to immediately resolve any harmful interference to our TV signals. There is also the possibility of Nigeria abrogating its right to international broadcasting protection, that is, our analogue signal will not be protected if any country transits and its signal interferes with our analogue system. This finding was supported by Omale *et al.* (2016) who asserted that implication of

digitization of broadcast media failure in Nigeria on sustainable development is that Nigeria may lose ITU's protection against signal interference and may be sanctioned by the ITU. Loss of revenue from sale of freed spectrum and that Nigeria will become a dump site of obsolete analogue broadcast equipment.

It is generally agreed that there are huge prospects from the comprehensive digitization of broadcast media. This finding on prospects is supported by Benton Foundation (2018) two assertions that over the next 10 to 15 years, DTV will usher in a sweeping transformation of broadcast television...its programming and services, its revenue sources, its ownership structures, and its outside partnerships. The other prospect of digitization according to Benton Foundation (2018) is the ability to provide new kinds of video and data services, such as subscription television programming, computer software distribution, data transmissions, teletext, interactive services, and audio signals, among others. In support of the prospects of digitization was Kawu (2017) who asserted that digitization would make the Nigerian film industry - Nollywood have a safe and profitable distribution channel direct to 20m+ homes through the STB with no piracy risk and this would generate about \$250m per annum of extra income for Nollywood; that the broadcasting industry and digital economy would grow by 450 billion Naira or \$1 billion per annum through increases in advertising and it would offer uncountable opportunities for jobs in the broadcast industry and other ancillary industries. Adepetun (2017), citing the Global System for Mobile Telecommunication Association (GSMA) research indicated that through the release of digital dividend spectrum, Nigeria stands to increase its yearly regional GDP by \$82 billion by 2025, while in the process earning \$ 18 billion in incremental tax revenues and creates 27 million jobs. Others benefits include digitization revolutionizing the economy of Nigeria; and not just changing the face of broadcasting (Ikemitang, 2016); apart from giving quality pictures and more platforms, it is going to create more jobs (Mohammed, 2016); with digitization you can get government messages on its policies and programmes on any channel you tune into" (Ikemitang, 2016); in addition to freeing up a considerable amount of valuable spectrum for use in other industries – notably telecommunications and information and communications technology, the transition can lead to rapid growth in the television industry itself (Oxford Business Group, 2017).

These prospects are what Nigeria is losing due to the delay in comprehensive digitization. The failure to digitize is impacting negatively on Nigeria's sustainable development.

Conclusion

Digitization of broadcast media, especially TV, is a very delicate and multi-sector technological development that helps drive sustainable development. It must be managed carefully. There are cost implications, socio-economic issues and even political as we may have noted in the Nigerian Digital Switch Over process. In view of the findings of this study, we conclude that because the digitization process has been muddied up in the murky waters of politics and have been subjected to uncertainties (Idachaba, 2018).The removal of the former acting Director-General (DG) of the National Broadcasting Commission (NBC), Armstrong Idachaba, by President Muhammadu Buhari, on June 11, 2021 was a major factor that is slowing the process. Idachaba was appointed acting DG of the commission, replacing Modibbo Kawu, who was suspended in February 2020. Idachaba was replaced by Balarabe Shehu Ilesah.

Besides, it was also gathered that the about N9 billion owed to service providers including ITS, Call centre operators, and other individuals have not been paid. It was also learned that Pinnacle, which was supposed to put a second transmitter in Ikorodu to ensure full coverage of Lagos, was yet to install because the equipment has not been cleared at the port due to lack of funds.

Nigeria has consistently failed to achieve full digital migration; this has decelerated sustainable development in Nigeria. Based on what is on ground, we therefore conclude that the level of preparedness of TV stations in Southeast Nigeria is low. TV stations and broadcast practitioners in Southeast Nigeria are not ready for the digital broadcasting transition; Digitization will indeed impact positively on the broadcast value chain (content production, transmission and reception) of the broadcast stations; however, the inability to digitize has hampered the 9th goal of the Sustainable Development Goals. The effort of government is appreciated but not adequate.

Recommendations

We recommend that:

- 1) There should be strict compliance with the Presidential Advisory Committee directives on digitization. The white Paper on DSO should be revisited by Ministry of Communication to ensure compliance by every player in the digitization process.
- 2) There must be political will on the part of the government and continuity in governance.
- 3) The stakeholders should establish well-designed sensitization campaigns to educate Nigerians on digital migration, its gains and what an average TV consumer is expected to do in order to enjoy qualitative TV broadcast when broadcast stations are fully digitized in Nigeria.
- 4) Modern digital devices should be installed in the TV stations and relevant training and educational programs in the use and management of digital technology be conceived and used as strategies to build the capacity of media personnel in the country. This will enable the presence of a skilled manpower to operate the digital equipment.
- 5) The Federal government should make sufficient resources available for digitization, provide content on the platform, support communication and marketing activities, and assist viewers with the acquisition of Set-top boxes (STB) especially the low-income households.

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