

IBADAN TELEVISION STATIONS' READINESS FOR DIGITAL TRANSITION

Obasanjo Joseph OYEDELE

Department of Mass Communication

Bowen University Iwo

Osun State

Nigeria

obasanjo.joseph@gmail.com; obasanjojoseph@yahoo.com

Abstract

The National Broadcasting Commission's (NBC) deadline for broadcast stations in Nigeria to switch from analogue to digital broadcasting has spurred the Ministries of Information and Communications, other regulating agencies and the broadcasting industry to be working round the clock to actualize the objective. This development has come after many failed deadlines for achieving the global mandate set by the International Telecommunication Union (ITU), and the June 17, 2017 deadline of the regional Economic Commission of West African States (ECOWAS). This study assessed the readiness of selected television stations for this digital transmission. 108 staff of the African Independent Television (AIT), Nigerian Television Authority (NTA) Ibadan Network Centre, MITV, Broadcasting Television of Oyo State (BCOS), Galaxy Television and New Frontiers Television, in Ibadan filled questionnaire copies on staff training, content production, and provision of equipment for digital broadcasting. Findings show that though the stations face some challenges on these critical areas, they are already taking some bold steps in delivering the promised digital broadcasting experience. All regulators and staff and management of television stations need to set achievable timelines capable of bringing this dream to reality in many of the remaining stations lagging behind.

Introduction and Objectives of the Study

At the Regional Radio Communication Conference held in Geneva, Switzerland in June 2006, 116 countries from Africa and Europe resolved to follow a new digital broadcasting plan called "GE06" (Chiyamwaka, 2013). This switch from analogue to digital broadcasting has been deemed necessary because of the strength of digital technology in turning sound, text, voice and image to digital or binary computer language, with improved application of computer telecommunication technologies, audiovisuals, and electronic gadgets. High level of production, increased employment opportunities, internet expansion and improved interactive platforms are other promises of the digital revolution. The International Telecommunication Union (ITU) had mandated all broadcasting throughout the world to completely switch to digital broadcasting by

2015. In a bid to meet this deadline, the National Broadcasting Commission (NBC) in Nigeria set a deadline of 17 June 2012 (three years before the mandatory date) for all broadcast stations and organisations in the country to switch from analog to digital broadband or risked revocation of their licenses. This national deadline was not met because the concerned broadcast stations were apparently not ready in all ramifications. Unfortunately, after a series of postponements, Nigeria and some other countries in Africa with the Economic Commission of West African States (ECOWAS) did set another deadline of June 17, 2017 to fulfill the mandate given by ITU (International Telecommunication Union, 2016; Olagoke, 2016). In fact, Gbam (2017) identifies lack of expertise, power (electricity) supply, low-level of technology penetration, cost of new media technologies and absence of clear-cut policies as challenges facing the digitization process in Nigeria. Generally, for the developing countries, also Ndongye, Kahemba and Bartoo (2015) listed limited infrastructure, market potential, content distribution, and strategies for successful migration are the challenges of the switch to digital broadcasting, not to mention unpreparedness of media houses, media regulators and governments. In a study conducted by Starks (2010) on broadcasting and television digitization in China, broadcasting and television digitization are predicated on public service and content supervision. In another study on switching-off of analogue television and the attendant delay in the USA, Wang (2005) reports that though there were initial difficulties associated with the transition, it was successful in the USA.

The situation is somehow different in Nigeria where only four television stations, based on the declaration of the present Minister of Information, Culture and Tourism, Alhaji Lai Mohammed, have gone digital. He said: “Prior to our going digital, we have only four national channels which are AIT, Channels TV, STV and of course NTA. These are channels you can tune into and without paying any fee, you can watch what is going on; but with digitization we are going to have 30 channels that would be national and free” (Odumu, Mazhinyi and Nnegha, 2017). On this issue of meeting the deadline of June 17, 2017 set by the Economic Community of West African States (ECOWAS) for switching from analogue transmission to digital transmission, this study assesses the readiness of television stations for digital transmission by probing whether select television stations in Ibadan possess transmittable and attention-catching contents in digital formats in preparation for the commencement and sustainable running of digital broadcasting; whether the current acquisition of digital compliant production and transmission equipment of the television stations are adequate and efficient enough to commence and sustain digital transmission come June 17, 2017 ECOWAS deadline; and the extent to which the quest to commence digitization by June 17, 2017 has influenced the training of production and transmission staff in digitization programming?

Literature Review

Digitization and Broadcasting

As a concept, digitization of broadcasting is always explained using the term ‘switch-off’. It is seen as putting an end to terrestrial broadcasting using the analog system, a movement to digital

broadcasting involving satellite and DSL (digital subscriber lines), cable, and terrestrial. It is a mechanism in operation in the media sector, in which messages in forms of sound, text, voice or image are processed, converted and synchronized into 'digital binary language for computer use'. It also covers such gadgets as 'computer, telecommunication, audio and visual and consumer electrical and electronic gadgets'. There are three types of digital television, terrestrial DTV, cable DTV and satellite DTV (Odumu, Mazhinyi and Nnegha, 2017:2).

In the observation of Adamu (2009), digitization is not new but a modulation or evolution of technology. Citing desktops, laptops and mobile phones as examples of digitization, Adamu (2009) identifies a switch from terrestrial broadcasting to digital broadcasting as what Nigeria needs. In that case, the audiences will move from watching UHF and VHF (which are free), the broadband wireless technology on which digital broadcasting is leveraged brings instantaneous production, storage and dissemination or distribution, good quality, digital signals and many pay-as-you-watch channels. Adegbola (2001:10b) says this on digital broadcasting: "In a broadcasting environment, such data, representing audio and video signals can be borne on traditional wireless media via terrestrial transmitters, satellite broadcast transponders or cable distribution networks for dissemination. This is digital broadcasting".

Apart from the fact that the analogue era in broadcasting was slow and clumsy, it was also limited in reach, the picture resolution was poor and there was no opportunity to use the Internet. Technological development as a global phenomenon has been redefining mass communication and shaping broadcasting (Baran, 2004). Advances in science and technology has brought increased speed, a bigger transmission reach, bigger dispersion and improved flexibility in broadcasting (McQuail, 2007).

The history of broadcasting in Nigeria is traced to the Radio Distribution Services (RDS), which is also called empire, wired broadcasting from London, as the British Broadcasting Corporation's (BBC) programmes were packaged and relayed directly to Nigeria as a colony. Relying on the expertise and available technological development then, other broadcasting stations, such as the regional television stations that started in Ibadan (Western Nigerian Television) and was followed by the Eastern region in 1960, and the Northern region and the Federal broadcasting that capped it in 1962. The year 1966 recorded the establishment of the Nigeria Broadcasting Corporation with stations at the provinces, regions and the federal capital (Udejah, 2004).

In Nigeria, Adamu (2009) has reported that interactivity and the freedom to choose from many available digital services when they want are the gains of digital broadcasting. During the inauguration of the Presidential Advisory Committee on digitization by the then President Umaru Yar'Adua after the official endorsement of digital broadcasting, the then Minister of Information and Communications, Mr. John Ogar Odey enthused that increased audio and video quality, efficiency of the spectrum and quality content production and dissemination would be the gains of digitization (Dunu and Ukwueze, 2009). It is disheartening that some Nigerian broadcasting

stations are still struggling with the digital transition with procurement of transmission equipment, re-training of people to handle cameras, and improvement in training of presenters and producers and technicians listed among the challenges broadcast stations face. As a matter of fact, stakeholders in the digitization movement have “urged government to drive the process through policy by providing the necessary and enabling infrastructure, as well as set up a digitization implementation task force and provide it with adequate funds to midwife the transition... for a successful migration, broadcasters will need to overcome the challenges of digital compliant studio equipment, content provision, new coverage, planning, training for its personnel and public awareness” (Mojaye, Salawu and Oyewo, 2007, NBC News, 2008:8a, 8b). The Nigerian Television Authority was financially empowered for equipment and facility upgrade towards digital transmission in 2009, the Voice of Nigeria (VON) and the African Independent Television (AIT) also started the adoption of digital transmission, not mentioning some state-owned and private media stations that have followed the Federal Radio Corporation of Nigeria to embrace digital broadcasting (Jijiwa, 2006; NBC NEWS, 2008).

Theoretical Framework

Castells’ Networking Society and Marshall McLuhan’s Technological Determinism

Castell’s *The Information Age* and subsequent works on network popularized his philosophy and theory of the network society. “These networks, which could not exist on such a large scale without the medium provided by new information technologies, are the emerging organizational form of our world, and have played a fundamental role in ensuring the restructuring process...” (Castells, 1989:32). Central to the concept, explanation and existence of network are the nodes which are the decentralized but connected units and patterns, the structures through which information is shared. Networks are crucial and useful in every technologically-inclined society because they are flexible, scalable and surviving. “Flexibility: they can reconfigure according to changing environments... They go around blocking points of communication channels to find new connections. Scalability: they can expand or shrink in size with little disruption. Survivability: because they have no center, and can operate in a wide range of configurations, they can resist attacks to their nodes and codes, because the codes of the network are contained in multiple nodes that can reproduce the instructions and find new ways to perform” (Castell, 2000a, 2004a: 5-6, 2009:23; Stalder, 2006). In the understanding of Craven and Wellman (1973) and van Dijk (1999), the digitalization, informatization and mediatization of every society produces increased complexity and interactivity leveraged on networks.

The proposition that technological inventions shape the cultural change in the society could be traced to the Canadian scholar, Marshal McLuhan, who worked extensively and popularized technological determinism as a theory. The introduction of digital technology or the digital revolution is responsible for the change in the broadcast industry as the barriers of time and space are removed, more broadcast contents are created and shared and communication is simpler and

easier (Griffins, 2000; McQuail, 2005). To McLuhan in his technological determinism, the human society is now a “global village” through the application of technology in communication. One of McLuhan’s most cited quotations is provided by Baran (2009:314):

The media permit us to experience the world with a scope and depth otherwise impossible. Media, then, are extension of our bodies. Just as clothes are an extension of our skin, permitting us to wander farther from our warm caves into the cold world; just as the automobile is an extension of our feet, enabling us to travel farther we could ever walk; television extends our vision and hearing, and computers extend our central nervous system. With television we can see and hear around the world, beyond the galaxy, into the future, and into the past. Computers take basic inputs and, in parallel structuring, create complex patterns of understanding and interaction.

Marshall holds that communication technology is central to every society; technology midwives change across media industries and each technology favours specific communication forms, contents and applications. Furthermore, a series or sequence of invention and usage of technology in turn influence social change while new media displaces old pivots of power. To McLuhan then, cultural, social and economic changes in the society are precipitated by widespread influx of changes in technological applications in human endeavours. Technology therefore shapes (determines) the course of development in the society (McQuail, 2005).

The two theories are significant to this study since they emphasize the central place that technology occupies in broadcasting and the society at large. Since the strengths of technology rub on social, economic and cultural development, technology becomes an indispensable phenomenon in both broadcasting and the society. Therefore, it is important to investigate if the target population in this study would toe the line of the proponents of the two theories by seeing digitization of broadcasting as a phenomenon that precipitates positive changes and development in both their stations and the society at large.

Methodology

The purpose of this work was to assess the state of preparedness of the selected TV stations against the June 17, 2017 (which was not met) ECOWAS digital broadcasting switch-on a deadline by probing into the availability of digital compliant contents, digital compliant equipment and training of staffs on digitization and its processes in six television stations in Ibadan, Oyo State, Nigeria. The production and engineering staff of the African Independent Television (AIT), Nigerian Television Authority (NTA) Ibadan Network Centre, MITV, Broadcasting Television of Oyo State (BCOS), Galaxy Television and New Frontiers Television, all in Ibadan, Oyo State, South West Nigeria, were the studied population. After Lagos and Kano, Ibadan is the third largest metropolitan in Nigeria and it is the capital of the state (Ayinde and Usman, 2017). There are 11 local governments in the city and more than twenty radio and more than eight television stations

in the city. The sample size for this study was one hundred and eight (108) respondents and survey was adopted as the appropriate research method because the researcher was interested in the self-reported awareness, opinions, knowledge, and behaviours of the journalists. The production staff included managers, producers, production and transmission, directors, editors, presenters, lighting operators, set designers and cameramen, while the engineering counterpart included the managers and transmission and production engineers. The purposive and quota sampling techniques were used in drawing the sample from the total population and the research instrument was questionnaire. The questionnaire had four (4) sections on the research questions and six (6) demographic items. Out of 108 copies of the questionnaire distributed, 85 (78.7%) were returned while 23 (21.3%) copies were not returned. Standard deviation, mean difference, one-sample statistics and Pearson correlation were employed for data analysis.

Results and Discussion

Table 1: Analysis of Questionnaire Administration

EMPLOYER	FREQUENCY	PERCENTAGE
Private	32	38%
Government	41	48%
Self employed	8	9%
Invalid	1	1%
Others	3	4%
Total	85	100%

Source: Author's Fieldwork 2017

Data in **Table 1** show that most of the journalists were from the private (38%) and government (48%) television stations. The self-employed (9%) were independent broadcasters met at the stations during questionnaire administration.

Research Question 1: Do the selected television stations possess transmittable and attention catching contents in digital formats in preparation for the commencement and sustainable running of digital broadcasting?

Table 2: Content Availability for Digital Broadcasting

Statements	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Proposed digital transition has propelled new contents creation	1.782	3	.173	18.250	-14.34	50.84
Still use contents in analogue broadcasting to transit to digital broadcasting	1.625	5	.165	11.167	-6.50	28.83
Repackaging analogue contents to suit digital broadcasting and competitiveness	2.211	4	.092	14.000	-3.58	31.58
Informative, educative and entertaining content is key to survival in the digital era	1.464	4	.217	13.800	-12.37	39.97
Management supports us to produce contents towards digital era competitiveness	1.640	4	.176	14.000	-9.71	37.71
Availability of new contents than old contents before the digital switch deadline	1.951	4	.123	14.000	-5.92	33.92

Source: Author's Fieldwork 2017

Data in the above Table 2 have shown that the selected television stations do not possess transmittable and attention catching contents in digital formats in preparation for the commencement and sustainable running of digital broadcasting. None of the tested items under the content availability for digital broadcasting met the level of significance criteria ($P < .05$) adopted. Considering the mean difference, the data establish that proposed digital transition has propelled new contents creation, the station are repackaging analogue contents to suit digital broadcasting and competitiveness and new contents are available than old contents before the digital switch deadline. The data has also revealed that managements support staff in the production of contents towards digital era competitiveness. Such issues as absence of clear-cut policies, lack of expertise, low-level of technology penetration, cost of new media technologies and poor electricity supply listed by Gbam (2017) as challenges facing the digitization process in Nigeria could explain the situation faced by these broadcasting stations. In the observation of Ndonye, Kahemba and Bartoo (2015), limited infrastructure, market potential, content distribution and strategies for successful migration could account for the reliance on analogue broadcasting. However, **Table 2** also shows that those analogue contents were being modified/repackaged for

the stations to cut a competitive edge. It is clear that the gains of digital revolution identified by Chiyamwaka (2013), such internet expansion and improved interactive platforms, more program-contents, improved contents that suit the needs of the audiences and high level of production, have been seen by the broadcast stations. The kind of unpreparedness on the part of media houses, media regulators and governments noted by Ndonye, Kahemba and Bartoo (2015) has found no solid bearing with the position of the respondents here. This is because management was found to be supportive and the stations had more new contents to displace the old contents. The Nigerian case is not abnormal, even in the United States of America, Wang (2005) noted that broadcasting stations also encountered some challenges at the initial stage of the transition process. Though the country has not met the deadline for the transition to digital broadcasting (as at December, 2017), respondents provided a clue to the fact that the process was on and sailing well. Based on the findings of this study, Castells’ and McLuhan’s positions on networking society and technological determinism respectively have been supported. The stations; staff and management have all seen the need for and the dividends of technologically-inclined stations because of scalability, flexibility and survival. They have also seen that change, predicated on technological revolution, could not be resisted by stations in Nigeria. The “global village” that technology has produced has been adopted by the media industry, because of the expectation of positive changes and development in both stations and the society in general (McQuail, 2005; Griffins, 2000; Baran, 2009; Castell, 2000a, 2004a, 2009; Stalder, 2006).

Research Question 2: Is the current acquisition of digital compliant production and transmission equipment of the selected television stations adequate and efficient enough to commence and sustain digital transmission come June 17, 2017 ECOWAS deadline?

Table 3: Adequacy and Efficiency of Equipment for Digital Transmission

Statements	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
The need to digitize has made procurement of production and transmission equipment possible	1.780	5	.135	11.167	-4.96	27.29
Available production and transmission equipment are adequate enough to enable us to transit without a hitch	4.889	4	.008	14.000	6.05	21.95
An overhauling of our analogue production and transmission	2.412	5	.061	11.167	-.7.3	23.07

equipment was done to give way for the digital ones						
Management is favourably disposed to the procurement of needed digital equipment	1.575	5	.176	11.167	-7.06	29.40
Our current production and transmission equipment consist of a combination of both analogue and digital equipment	1.873	5	.120	11.167	-4.16	26.50
We now produce and transmit on one hundred percent digital equipment's only	4.523	5	.006	11.167	4.82	17.51

Source: Author’s Fieldwork 2017

According to the data in the above Table 3, the current acquisition of digital compliant production and transmission equipment of the selected television stations are not adequate and efficient enough to commence and sustain digital transmission come June 17, 2017 ECOWAS deadline. From the data, it could be deduced that the tested items are not significant at 2-tailed level of significance. However, the current available production and transmission equipment are adequate enough to enable the stations to transit without a hitch whatsoever when the mean difference (14.000) is considered. The need to transit from analogue to digital broadcasting always makes acquisition of new transmission mandatory; and the resolve to go digital had led to the purchase of new production and transmission equipment. This submission possibly negates the inclusion of lack of infrastructures on the list of problems identified by Ndonye, Kahemba and Bartoo (2015), because the respondents noted that their stations were buying new production and transmission equipment. This same issue of procurement of transmission equipment was mentioned by Mojaye, Salawu and Oyewo (2007) and NBC News (2008) as one of the requirements for a successful digital transmission. It is important to note that the respondents agreed in **Table 3** above that management were also ready for the purchase of digital equipment, though the stations were still combining both analogue and digital equipment. The study has agreed with the position of Wang (2005) that the transition process in the USA also came with some problems, making the Nigerian scenario unexceptional. The giant step taken in the provision of equipment, facility upgrade and production of new contents for the Nigerian Television Authority (NTA), the Voice of Nigeria and the African Independent Television (AIT) made these stations good models for others to follow (Jijiwa, 2006; NBC News, 2008).

Research Question 3: To what extent has the quest to commence digitization by June 17, 2017 influenced the training of the selected television stations’ production and transmission staff in digitization programming?

Table 4: Influence of Digitization Aspiration on Staff Training

Statements	T	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
There have been increase in the number of training we have received as a result of the incoming digital transition	2.564	5	.050	11.167	-.03	22.36
More of our production and transmission staff have been trained on the digitization process	1.920	5	.113	11.167	-3.78	26.12
With the current level of training of our production and transmission staff, a smooth digital transition is guaranteed	2.277	5	.072	11.500	-1.49	24.49
More training on digitization process is still needed for our production and transmissions staff to ensure a hitch free transition	1.545	4	.197	14.000	-11.16	39.16
Management have been reasonably supportive in our quest to get adequate digitization training	1.818	3	.167	18.250	-13.69	50.19

Source: Author's Fieldwork 2017

Based on the data contained in the above Table 4, the quest to commence digitization by June 17, 2017 did not influenced the training of the selected television stations' production and transmission staff in digitization programming. The four tested variables did not meet the adopted level of significance ($P < .05$). However, there have been increases in the number of training received by the staff as a result of the incoming digital transition ($t=2.564$, $df=5$, $P < .050$). Considering the mean difference, the data indicate that managements of the select stations are supporting staff in their quest to get adequate digitization training. The staff also believed more training on digitalization process is needed for them to have hitched free production and transmission of contents.

Information provided in **Table 4** shows that the staff responded to the questions on staff training for smooth transition to digital broadcasting and maintenance of competitive edge in the digital television market. **Table 4** shows that there was an increase in the number of staff training for digitization, even more production and transmission staff had been trained as a result of this, giving them an assurance that the digitization process would succeed. However, **Table 4** also shows that most of them observed that for a hitch-free transition, more training would be needed for the production and transmission staff; and based on the information in **Table 4**, management had been

reasonably supportive in ensuring this. Dunu and Ukwueze (2009) reported the observation of the then Minister of Information and Communications, Mr. John Ogar Odey, who mentioned audio and video quality, quality content production and dissemination, and efficiency of the spectrum as the gains accruing from digitization. However, without the recruitment of quality staff and their training and re-training highlighted by Mojaye, Salawu and Oyewo (2007) and NBC News (2008), these gains cannot be quickly realized. That should further explain the submission by the scholars that the right policy implementation, digital compliant studio equipment, and the commitment of the digitization transition task force would be needed.

Table 5: One-Sample Statistics

	N	Mean	Std. Deviation	Std. Error Mean
Content Availability for Digital Broadcasting	4	122.7500	99.09717	49.54859
Adequacy and Efficiency of Equipment for Digital Transmission	5	99.6000	64.30241	28.75691
Influence of Digitization Aspiration on Staff Training	4	102.7500	64.79390	32.39695

Table 5 above contains aggregated data for the core variables of the study. The data revealed that contents are available for digital broadcasting (M=122.7500, SD=99.09717), digitization aspiration is influencing staff training (M=102.7500, SD=64.79390) than availability and effectiveness of equipment for digital transmission (M=99.6000, SD=64.30241).

Relationship among influence of Digitization Aspiration on Staff Training, Content Availability for Digital Broadcasting and Adequacy and Efficiency of Equipment for Digital Transmission

Table 6: Correlations

	IDAST	CADB	AEEDT
Pearson Correlation	1	.950*	.947
IDAST Sig. (2-tailed)		.050	.053
N	4	4	4
Pearson Correlation	.950*	1	.948
CADB Sig. (2-tailed)	.050		.052
N	4	4	4
Pearson Correlation	.947	.948	1
AEEDT Sig. (2-tailed)	.053	.052	
N	4	4	5

*. Correlation is significant at the 0.05 level (2-tailed).

Data in Table 6 indicate that influence of digitization aspiration on staff training is significantly associated with content availability for digital broadcasting ($r=.950$, $P<.050$).

Conclusion and Recommendations

There is no doubt that the regulators of the broadcasting industry and management and staff of broadcast stations are eternally committed to the mandate of successfully transiting from analogue to digital broadcasting. Though there are challenges as noted in literature on meeting set deadlines, training and re-training of staff, procurement of quality equipment, content creation and staff recruitment, responses from broadcasters in some television stations in Ibadan have shown that the stations and the regulators are more than half-way on the road to delivering the mandate of digital television broadcasting.

References

- Adamu, L. S (2009). The role of convergence journalism in news production. Paper presented at the school of media and communication, *Pan-African University*; Lagos Conference on Journalism and New Media Technologies, New practices and Renewal of Media Training in Africa. 23rd-27th August edition
- Adegbola, T. (2001). Trends in broadcasting engineering. *Journal of National Broadcasting Commission, Abuja*. Directorate of NBC research. March edition. Vol. 2, No 10.
- Ayinde, O. and Usman, A. 2017. An Assessment of Awareness Level and Sources of Information on HIV/AIDS among Market Women in Ibadan, Oyo State, Nigeria. *Journal of AIDS and HIV Research*, 9(9): 179-186
- Baran, S.J. (2004). *Introduction to Mass Communication, Media Literacy and Culture*, (3rd ed). New York: McGraw Hill Higher Education.
- Baran, S.J. (2009). *Introduction to Mass Communication: Media Literacy and Culture*. (5th ed.). New York: McGraw-Hill Companies.
- Castells, M. (1989). *The Informational City. Information Technology, Economic Restructuring, and the Urban-Regional Process*. Oxford: Blackwell.
- Castells, M. (2000a). *Materials for an exploratory theory of the network society*. *British Journal of Sociology*, 51(1): 5-24.
- Castells, M. (2004a) Informationalism, networks, and the network society: a theoretical blueprint. In: Castells M (ed) *The Network Society: a cross-cultural perspective*. Northampton, MA: Edward Elgar, pp. 3-7 & 36-45.
- Castells, M. (2009). *Communication Power*. New York: Oxford University Press.

- Chiyamwaka, B (2013). *How Digital Broadcast Will Change Operations In Media Services*. www.mediacouncilmw.org/pdf/publications/digital-broadcast.pdf [Accessed 8 April, 2017]
- Craven, P. and Wellman, B. (1973). The Network City. *Sociological Inquiry* 43: 57-88.
- Dunu, I. and Ukwueze, C. (2009). Student awareness and knowledge of digitalization of broadcasting in Nigeria. Implications for Journalism Curriculum. A paper presented at *Pan-African University Conference, Lagos*. August edition. The Directorate of Engineering and Technology.
- Gbam, B.N. (2017). The Challenges and Prospects of the New Media in Public Service Broadcasting in Nigeria. *European Centre for Research Training and Development*, Vol. 5(3): 1-7.
- Griffin, E. M. (2000). *A First Look at Communication Theories*. New York: McGraw-Hill.
- International Telecommunication Union (2016). "Analogue to digital switchover for the broadcasting sector" https://www.itu.int/ITU-D/tech/events/.../Broadcasting.../Nigeria_AD_Switchover.pdf [Accessed 1 May, 2017]
- Jijiwa, A. (2006). Digital broadcasting and advertising: The Challenges. A paper presented at the Advertising Practitioners Council of Nigeria's Public Forum, Lagos, July 4, 2006.
- McQuail, D. (2007). *Mass Communication Theory*, (5th ed.). Los Angeles: Sage Publications.
- McQuail, D. (2005). *McQuail's Mass Communication Theory*. (5th ed.). London: Sage.
- Mojaye, E.M.V, Salawu, A. and Oyewo, O.O. (2007). Ebenezer Soola Conference on Communication Proceedings. Ibadan.
- NBC News (2008). Digitisation: Possibilities and Challenges. *Journal of the National Broadcasting Commission*. Directorate of NBC research. March edition. Vol. 2, No 10.
- Ndonye, M.M., Khaemba, J., and Bartoo, P. (2015). Digital Migration and the Battle of Terrestrial Titans in Kenya: Issues and Prospects. *International Research Journal of Engineering and Technology*, Vol. 2(3): 2-8
- Odumu, W.O., Mazhinyi, T. and Nnegha, I. (2017). Digital Switchover in Nigeria: A Robust Engineering Model for Rapid Transformation (Prospects, Benefits and Challenges). *IDOSR Journal of Scientific Research*, 2(2): 1-16.
- Olagoke, O.I. (2015). Digital Broadcasting and Its Impact on Nigeria. *International Journal of Modern Sciences and Engineering Technology*, Vol. 2(3): 79-83
- Stalder, F. (2006) *Manuel Castells and the Theory of the Network Society*. Cambridge: Polity Press.
- Starks, M. (2010), „China's digital switchover: international context“, *International Journal of Digital Television* 1: 1, pp. 89–93, doi: 10.1386/jdtv.1.1.89/7.
- Udejah, R. (2004). *Broadcasting and Politics in Nigeria 1963-2003*. Enugu: Snaap Press Ltd.
- Van Dijk, J. (1999). *The Network Society: Social aspects of new media*. London: Thousand Oaks,

New Delhi: Sage.

Wang, L. (2005). *The current development, policy and guide and future tendency of the digital TV*.
Speech on China's Digital TV at Industry Summit.