UNIVERSITY OF NAIROBI

SCHOOL OF JOURNALISM AND MASS COMMUNICATION

MASTER OF ARTS IN COMMUNICATION STUDIES

ANALOGUE TO DIGITAL BROADCAST MIGRATION: COMMUNICATION AND LOCAL BROADCAST AUDIO-VISUAL CONTENT ECOSYSTEM.

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A RESEARCH PROJECT PRESENTED TO THE DEPARTMENT OF JOURNALISM AND MASS COMMUNICATION, UNIVERSITY OF NAIROBI, IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF ARTS IN COMMUNICATION STUDIES

12TH NOVEMBER 2022

DECLARATION

I hereby declare that this project is my original work and has not been presented for a degree, diploma or certificate in this or any other university.

Date: 21/11/2022 Signature: 

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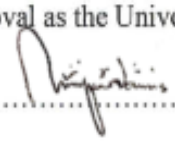
The project has been submitted for examination with my approval as the University supervisor.

Date: 21 November 2016 Signature: 

Dr. Addamms Songe Mututa

University of Nairobi

DEDICATION

I wish to dedicate this project to my entire family. Thank you for your patience and endurance during the long hours of absence during the study.

ACKNOWLEDGEMENTS

Thank you God Almighty for making it possible for me to begin and complete this research project. My sincere gratitude goes to Dr. Addams Mututa, my supervisor for the invaluable academic mentorship, and scholarly guidance throughout the formulation and writing of this project.

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ABSTRACT

This study sought to analyse three aspects of analogue to digital broadcast migration: communication, audiences, and local audio-visual broadcast content. The objectives of the study were to document the communication processes used in digital broadcast migration, explore how digital broadcast migration impacted audio-visual audiences and examine the influence of digital broadcasting on the local content ecosystem. The study used the "Technology Acceptance Model (TAM) and Diffusion of Innovation Theory" as the theoretical frameworks for the study. The study adopted a qualitative design comprised of 25 semi-structured interviews, and two informants' in-depth interviews were used to collect data. Through the use of an interview guide, data was gathered. The information was narratively presented and thematically analyzed to support the study's goals. On the first objective, the study established that the communication process and message were easy to understand by the audience ensuring their device was compliant with digital migration. On objective two, the study established digital migration increased the content and control by the viewer while providing a better quality of picture and sound. On the third objective, the study revealed the shifting of audio-visual content transmission from the broadcasting house to the Broadcast Signal Distributor inceased content consumption. Additionally, the study noted that analogue to digital migration led to the growth of new media and the use of multiple devices to access local audio-visual content. Consequently, the study makes several recommendations. First, it recommends that the government should ensure that the prices of devices such as set-top boxes and digital television should remain affordable so that Kenyans can afford them. Secondly, in light of all the recent technical developments, it is crucial to research the new patterns in the creation, distribution and receiving of local audio-visual television content.

CHAPTER ONE
INTRODUCTION

1.1 Overview

This chapter describes the background of the study; the statement of the problem; objectives; limitations; justification; and the significance of the study. Finally, the objectives and research questions of the study will be discussed.

1.2 Background

Since the 20th century, television audio-visual broadcast content has kept people and the world informed and entertained since visuals were combined with audio (Darvin, 2016). In the late 1920s and early 1930s, broadcast television stations began to appear in the United States of America. According to Lipton (2021), Charles Francis Jenkins, one of the pioneers of television, started the first mechanical television station, W2XR, in Long Island City, New York, in 1930.

From this airing, W2XR, television remained commercial-free until the 1940s. The following year, an advertisement for a wristwatch aired on the National Broadcasting Company (NBC) (Rukanda & Buckley, 2016). This expanded the circle of stakeholders in audio-visual broadcast content. Since then, there has been a significant improvement in both scale and technology within the television industry (Hagedoorn & Sauer, 2018).

The role of technology has had a new impact in the field of audio-visual signal transmission and reception. New technology, such as cell phones, computers, laptops, cameras, and satellites, has changed communication (Salgado, Nuño, & Prieto, 2018). This has made a significant contribution to terrestrial broadcasting around the world.

The International Telecommunication Union's (ITU) Regional Radio Communication Conference (RRC-06) was held in Geneva, Switzerland from May 15 to June 16, 2006 (Mukherjee, 2019). According to the conference, Africa, Europe, and the Middle East had until 2015 to transition to the digital platform. All of the participating nations decided to accept the shift from analog to digital following the 2006 ITU Conference in Geneva, Switzerland, which was attended by representatives from 104 nations from various regions of Africa, Europe, and the Middle East (Dekker, Engbersen, & Faber, 2016).

Governments around the world were tasked with migrating to digital platforms as agreed at the conference (Monzoncillo, 2018). The United States of America set the deadline for the digital move to June 2009, while South Africa planned to go digital at the end of 2012. In February 2012, the South African Department of Communication published the final Broadcasting Digital Migration Policy Amendment (Chimanga & Mumba, 2020). The set-top box equipment specifications were finalised by the end of May 2012, and the first batch of boxes became available for purchase in September 2012.

Tanzania was the first nation in mainland Sub-Saharan Africa to stop broadcasting analog television on December 31, 2012 (Berger, 2013). Tanzania's accomplishment is noteworthy: it was able to turn off its analogue signal in most locations more than two years ahead of the ITU-mandated deadline of June 17, 2015.

Kenya set her deadline for June 17, 2015. Countries that would not have moved would be switched off and would not be able to broadcast. Some countries were exempted from the switch off until June 17, 2020, to have more time to plan and execute the digital move (Wanyonyi, Wandia, & Ngare, 2016). To facilitate a seamless transition to digital broadcasting, Kenya's Ministry of Information and Communication set up a task group on digital migration from analog to digital broadcasting.

The Communications Authority of Kenya (CA) is the country's communications industry regulator. Its responsibilities include providing broadcasting station licences and regulating frequency spectrum management in the country. CA was tasked with bringing Kenya into compliance with the declarations of the 2006 ITU meeting, working with the Ministry of Information, Communications and Technology (ICT). A task force was formed to ensure stakeholders would not be affected by the move to the digital platform (Leurs & Smets, 2018). The stakeholders included Information and Communication Technology Consultants, the Media Owners Association, the "Media Council of Kenya, and the Association of Practitioners in Advertising" (Stork & Stork, 2008). This task force would also ensure that new technology that has come up would also be incorporated into the transmission and reception of the digital signal.

1.2.1 Audio-Visual Broadcast in Kenya

According to King'ara (2014), the Kenya Broadcasting Corporation (KBC) Act was passed by the Legislative Council (LEGCO) in Parliament on November 14, 1961,

creating KBC as a national television and radio broadcaster to inform, educate, and entertain the public.

KBC used a similar model to the British Broadcasting Corporation (BBC). The BBC model that was to be used was free from the control of money-making interests such as advertisers.

Limuru, 30 kilometres northwest of Nairobi, was the site of the first transmission station, which was built in 1962. Kenyan white settlers residing within a 24-kilometre radius of the transmitter received international audio-visual information and amusement via the television station (Kimanthi, 2016).

In June 1964, the government took control of KBC, renamed it Voice of Kenya (VOK), and made it a department of the Ministry of Information, Broadcasting, and Tourism, which was later renamed the Ministry of Information and Broadcasting (Witteborn, 2018).

In the 1970s, VOK aired programs from the Union of Radio and Television National Organizations of Africa (URTNA) and the United Nations Educational, Scientific, and Cultural Organization (UNESCO) on patriotism, education, cultural entertainment, and documentaries about current events on the African continent.

Due to financial restrictions and the necessity for the government to reduce spending on state-run firms, under the Broadcasting Corporation Act, Laws of Kenya, Cap 22, VOK was changed into a quasi-governmental organization, and in 1989 it was given the new name Kenya Broadcasting Corporation (KBC). According to Section 38 of the Act, KBC must currently operate as a commercial television station. Additionally, it is permitted to broadcast "programmes of national interest, whether via sound or television," according to Section 14 of the Act (Ochoi, 2017).

According to King'ara (2014), the West exerted pressure on African countries in the 1990s to open and liberalise media market to privatisation. Through private investors, Western governments also offered transmission services to African governments. As seen with MNET, these investors provided satellite broadcasting services.

In the 1990s, Kenya saw the launch of three commercial television stations. Among them were “Kenya Television Network (KTN)”, Citizen Television, and “Nation

Television (NTV)" (Njogu, 2016). KTN debuted in March 1990, followed by NTV and Citizen Television in 1999. The national broadcaster gave the audience a list of new stations that they thought had a lot more to offer.

There were 22 free-to-air television channels and four pay-TV stations by the end of 2014. There is currently a profusion of television channels as a result of using the digital platform rather than the analogue one. In Kenya, almost every significant community has at least one television station that broadcasts in their language. The regional distribution of digital signals has created this as a result of the expanded new growth of television stations that targeted certain regions of the country (Shayo, 2017).

1.2.2 The Digital switch in Kenya

The first digital signal, the Digital Video Broadcasting-Terrestrial (DVB-T), was successfully inaugurated in 2009 by then-President Mwai Kibaki to evaluate the quality of the digital broadcast. DVB-T2 was launched the following year, and infrastructure was put in place to accommodate digital broadcasting (Wanjau, Kitisha, Mwangi, & Ndung'u, 2016). This DVB-T2 signal can transmit video signals in various formats, including "Standard Definition (SD), High Definition (HD), and Ultra-High-Definition (UHD)." For the signal to reach Kenyans, digital televisions were needed to be able to get the signals (Kagabo, 2017). Then Cabinet Secretary in charge of ICT, Dr. Fred Matiang'i, gave licences to 79 retailers to import and sell the set-top boxes to Kenyans.

The Kenyan government anticipated some difficulties in overcoming the analogue-to-digital transition. Some of the anticipated challenges included Kenyans' lack of awareness, users' and broadcasters' inability to send and receive the digital signal, a lack of manpower to understand how the digital signal works, and poverty among Kenyans who were expected to purchase devices capable of receiving the digital signal, such as set-top boxes or digital televisions (Ugangu, 2018).

To allow the country to meet the deadline, the Communication Authority of Kenya (CA) reduced import duty on set-top boxes and vendor registration fees for set-top boxes by 80%, dropping from Ksh. 20,000 to 4,000. Set-top box importation and supply were completely liberalised. The tax on digital television sets was also reduced to make them more affordable for Kenyans (Muyonga, 2021). Before the deadline, three Kenyan mainstream media outlets went to court to protest their denial of a Broadcast Signal Distribution (BSD) licence, which would have allowed them to distribute the digital

signal. This occurred when the Communication Authority (CA) granted "Kenya Broadcasting Corporation" a distribution licence. "Pan Africa Network Group (PANG)", owned by Chinese, received a second distribution licence that was supposed to go to private media houses.

According to Civil Appeal 4 of 2014-Kenya Law (2014), the owners of "KTN, NTV, Citizen TV, and QTV", petitioned the court for an extension before the shift so that they could import their transmitters and set-top boxes, but the government refused, claiming that the migration deadline would remain. On February 14, 2015, the CA raided these stations' transmission facilities in Limuru, shutting down their respective signals.

1.3 Statement of the Problem

According to Writer (2015), 1.3 million Kenyan citizens were unable to watch television after the switch-off, indicating that a significant portion of the population was no longer on par with events in the country. The digital migration was further complicated by the opposition to the deadline of Analogue Switch off (ASO) by major media channels including KTN, Royal Media's Citizen and Nation Media Group's Nation TV. Such disagreements presented adverse effect on the consumers.

Nonetheless, after successful migration from analogue to digital, increased competition in the industry has been witnessed in Kenya leading to the rise in the faith-based, vernacular, and entertainment channels. Further, audients have had variety of channels to watch albeit with additional costs. According to *Scan Group* report 2020, after digitization, every television viewer has had unlimited channel choices given that the consumers have become dynamic with different content preferences. Digital migration has also come with a broader broadcasting space for both local and international content producers who have managed to create more content thus opening avenues for employment (Ochoi, 2017). Presently, the challenge is now on the locally digitized media to produce creative, affordable, and quality content that will attract the consumers.

Additionally, available literature indicate that even in developed countries, digital migration process does not occur smoothly even in the presence of huge spending on awareness campaigns (Grainge & Johnson, 2018; Hagedoorn & Sauer, 2018; Salgado et al., 2018). In Kenya, many consumers still lack paywall decorders such as GO TV, Star time among others and this has been attributed to monthly fee charged to access

their contents. Some other reasons cited include the disadvantaging consumers and cost of the Set Top Boxes (STBs).

There have been a few studies on analogue to digital migration in Kenya, how it was communicated to the audience, and how it affected local audio-visual broadcast content (Mwangi, 2012; Njogu, 2016; Ochoi, 2017). However, all these studies have not delved on analogue to digital broadcast migration in line with communication, audiences, and local audio-visual broadcast content. This is the research gap attended by this research.

1.4 Main Objective

The overall aim of the research was to gain insight into analogue to digital broadcast migration on communication, audiences, and local audio-visual broadcast content.

1.4.1 Specific Objectives

i. To document communication processes used in digital broadcast migration.
ii. Explore how digital broadcast migration has impacted audio-visual audiences.
iii. To examine the influence of digital broadcasting on the local content ecosystem.

1.5 Research Questions

i. How was the communication process done during digital broadcast migration?
ii. How did digital broadcast migration impact audio-visual audiences?
iii. What was the influence of digital broadcasting on the local content ecosystem?

1.6 Significance of the Study

This research will assist media scholars and broadcasting stations in determining how digital broadcasting has been influenced since the transition from analogue transmission. This research will therefore go on the ground and find out the communication processes used during the digital migration.

Furthermore, both academicians and scholars will find this study valuable as it will ensrich their studies in the same field. Basically, it will act as a point of references for several researchers and academicians in the digital communication field.

Again, policy makers in the communication sector will find the results and recommendations valuable as it will offer glimpse to the changes or improvement

needed to promote widespread digital migration in the country thereby increasing content consumptions.

1.7 Justification of the Study

The purpose of the current work was to learn about experience of analogue to digital migration communication processes and their impact on audio-visual audiences. The study aimed to produce new knowledge about how analogue to digital migration has influenced the local content ecosystem.

1.8 Scope and Limitation of the Study

The study investigated the analogue to digital broadcast migration on communication, audiences, and local audio-visual broadcast content. The varaibles used were the communication processes used in digital broadcast migration, how digital broadcast migration impacted audio-visual audiences, and the influence of digital broadcasting on the local content ecosystem. The population were the residents of Lang'ata constituency and the managers and producers of various media channels. Further, the ustructured interview guide was used to collect data.

Regarding limitations, some respondents were hesitant to take part in the study while others completely ignored any communication regarding the role of this research. The researcher did not coerce such participants but opted for those who were willing to take part in the study. during the primary data collection technique, participants may perceive the researcher as intrusive during interviewing.

1.9 Definition of Terms

"Analogue Switch-Off: The process of converting outdated analogue television broadcasting equipment to and replacing it with digital television.

"Analogue technology": Technology that represents information as fluctuations in physical material or electromagnetic waves." It is employed in phasing-out TV systems.

"Audio-Visual" is the combination of image and sound to pass a message to a receiver.

"Broadcaster" is an authorised organisation or person that packages radio or television content to be transmitted to the larger public.

“Broadcasting spectrum: The frequency range of electromagnetic waves allotted to broadcasting stations.

“Broadcasting station” is a television or radio station equipped to broadcast programmes.

“Content” is any text, pictures, music, designs or sound, or promotions, including video that is created by a broadcaster to inform or entertain the viewer.

“Digital Video Broadcasting-Terrestrial-2 (DVB-T2)”: The most popular digital terrestrial television (DTT) system worldwide that broadcasts in Standard Definition (SD), High Definition (HD), and Ultra-High Definition

“Digital migration” is the shift from the analogue way of transmission of content by media houses to the digital mode, before the content is received by their consumers as agreed at the “Regional Radio Conference of 2006 in Geneva, Switzerland (RRC-06)”.

“Digital technology”: Technology that expresses information as series of ones and zeroes. Utilized in modern TV systems.

Free-to-air (FTA) is a service broadcast with no charge and is open to be received by any broadcast receiver device.

“Local content” are television programmes that consist of concepts, plots or scenery that represent Kenyan contexts and socio-cultural ideology.

“Mainstream Media” refers to already well-known broadcasting outlets. Examples of these include Citizen Television, NTV, KTN, KBC, K24 and KTN News.

“Set-top boxes” is a device that allows a viewer to be able to watch a digital signal on an analogue television.

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CHAPTER TWO
LITERATURE REVIEW

2.0 Overview

A deadline of June 17, 2015, was set for signatories of the recommendations of the ITU Conference of 2006. Governments were tasked with communicating to their citizens the benefits of abandoning analogue transmission and ensuring that no one was left behind.

Secondly, what effect would Analogue Switch-Off (ASO) have on audio-visual audiences once governments had conducted ASO and transmitted using digital transmission? The audiences needed to be communicated to in a way that they would understand and take action to be able to receive content after digital migration (Andersson, 2019). The analogue to digital migration would also have an impact on the audience who watch audio-visual broadcast content once the analogue transmission was switched off. Lastly, what would be the influence of transmitting using the digital platform on the local content ecosystem of the different countries that have made the switch to digital migration?

2.1 Broadcasting Content Using Analogue Transmission

Analogue television used three major systems to broadcast its signals to the viewer. The signals used were the "National Television System Committee (NTSC)", which was used in "North, South, and Central America", and the "Systeme Electronique (pour) Couleur Avec Memoire (SECAM)", which was used in France and its former colonies, Russia, Poland, and Eastern European countries. The Phase Alternating Line (PAL) was the last analogue broadcast system used by Britain and its former colonies, Australia, and Western European countries (Farrell, *et al.*, 1992).

With these different broadcasting signals, the equipment made to create content, transmit and receive signals was not the same. Analogue tapes such as Beta cams from the United States would not be able to play on machines in Britain and vice versa. Almost 70% of all broadcast systems used by countries worldwide were video, with the remaining 30% being sound (de Las Heras-Pedrosa, Sánchez-Núñez, & Peláez, 2020).

When coloured television was first introduced in the 1950s and 1960s, the image was coloured using a combination of three colours. The colours were red, green, and blue (RGB) (Lundström, 2015).

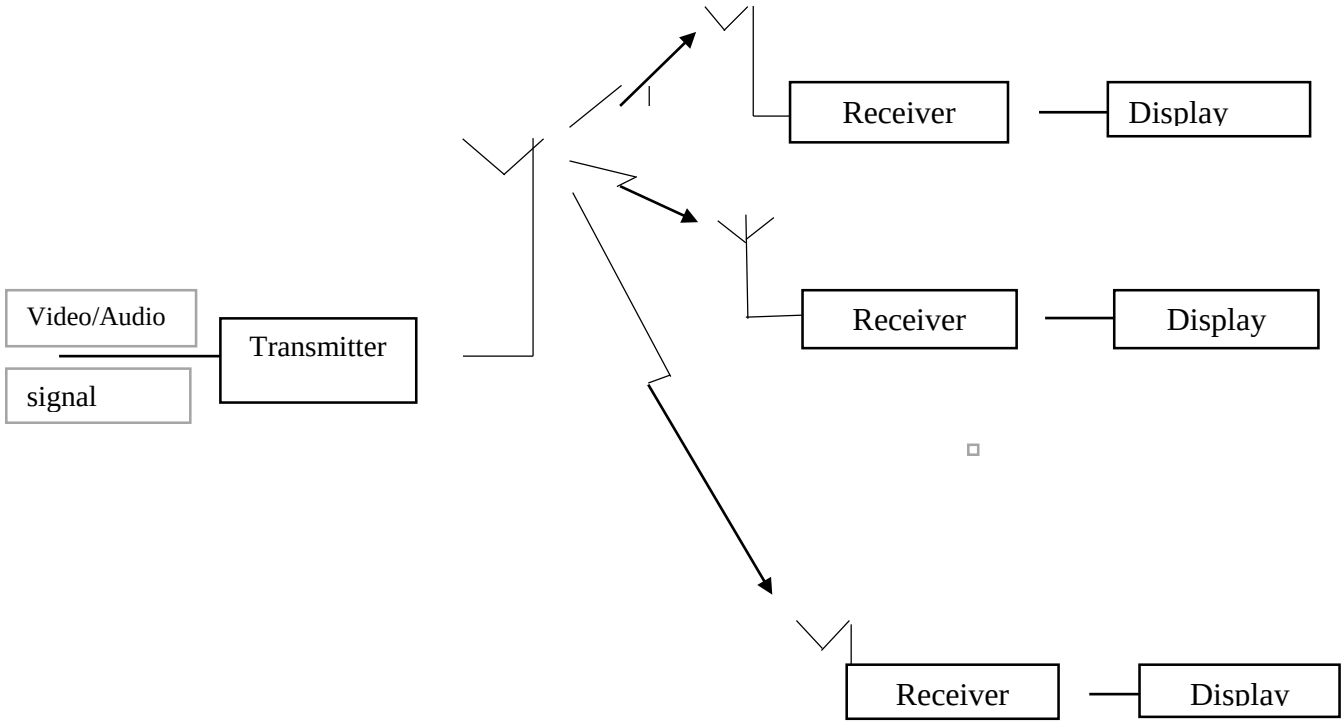


Figure 2.1: How analogue television signal is broadcasted and received (Lundström, 2015)

It was not until the end of the 1970s that homes could record the analogue signal transmitted by broadcasters. These enabled viewers to record programmes and watch them later. Some of the available systems were Philips VCR (Video Cassette Recording) and Betamax from Sony. Sony later produced the VHS (Video Home System), which was affordable to consumers. These systems were made for the three broadcast signals, which were PAL, NTSC, and SECAM (Lundström, 2015).

Towards the end of the 1990s, there was the introduction of cable television services around the world. By using cable, broadcasters were able to provide more audio-visual content to viewers. This competed with satellites that were considered expensive and took up a lot of space in the homes of consumers of broadcast audio-visual content. The three-channel broadcasting signal was still in use, and the equipment on the market prevented the reception and viewing of transmissions from other locations (Ayonghe, 2018)

2.2. The Communication Processes During Digital Migration

The International Telecommunication Union provided signatories with a framework that would guide member countries on how to communicate with their citizens about the analogue to digital broadcast migration (Bendahan & Akhiate, 2016). This framework was designed to ensure that audiences of analogue broadcasting stations received clear communication so that they were not caught off guard on the day of Analogue Switch Off (ASO).

The framework contained communications strategies and messages to be used as the deadline for ASO reached. Previous studies have emphasised the advantages of digital migration over analogue transmission and have not focused on the communication processes involved to make it a reality. According to the International Telecommunication Union (2018), the ITU framework on communication was quite successful in many of the signatories of the 2006 conference (Uchenna, Orekyeh, & Chinweze Ezeanwu, 2017).

The framework included end-consumers to industry communication, which included the scope of government-led communications, communication moments and topics, and the implementation guidelines (Bloomberg, 2018). The audience was the key factor for ASO success. The communication strategy included the communication messages and tools to be used to reach the target groups, as well as the implementation guides to ensure success.

2.2.1 The Communication Strategy

This strategy is intended to be utilised to enlighten the public through a series of steps aimed at increasing public knowledge and understanding of the analogue to digital transition. To raise awareness, the ASO transition approach was built on stages and spans (Calvo Salgado, Langa Nuño, & Prieto, 2020).

There has been an increase in the amount of literature on techniques to employ in communicating about the ASO in recent years. The Asia-Pacific area was one of the first to implement this technique. “Australia, Bangladesh, Brunei, Burma (Myanmar), and Cambodia are among them. Canada, China, Chile, Cook Islands, Fiji, French Polynesia, India, Indonesia, Japan, Kiribati, Laos, Malaysia, Maldives, Micronesia,

Mongolia, Nauru, Nepal, New Zealand, Nepal, North Korea, Pakistan", South Korea, Russia, United States, and Vietnam, to name a few (Darvin, 2016).

The numerous target groups in the ASO communication plan must be identified. Depending on the ASO organization's area of work, the target groups that can be listed are as follows: The viewers, which include a variety of sub-groups and cross-sections of manufacturers of digital receivers and/or digital television subscriptions, certification and labelling organisations to give trustworthy credentials, the local governments to notify citizens about the timetable, and the consumer associations, were among the industries involved (Bolvine, 2017).

The Public Service Broadcaster's television channel(s) are the most important communication medium (PSB). The best strategy to reach relevant viewers is to advertise on the affected television networks. Despite the importance of the Public Broadcaster's involvement, the broadcaster is unlikely to participate on its own (Heath Jr, 2017).

Viewers must have access to broad information about what will happen, when, and how to prepare on a national basis. National communication campaigns have used websites, national (printed) media ads, direct mail, calls, and contact centers (Helfat & Raubitschek, 2018).

According to the International Telecommunication Union (2018), the ASO communication strategy to be used consists of the guidelines argeting various population groups, utilizing a variety of communication tools, with the tools being differentiated by target group and stage/message, using a tiered model where the information or message supplied varies by stage (Sohrabi & Yu, 2017).

2.2.2 The Communication Model Used

The model provided to ITU member countries ensured that each country followed a process to guarantee that audiences were aware of what was about to happen (Hill, 2018). Creating awareness, understanding of the process, attitudes, intention to convert, conversion, and contentment with digital television were all part of this strategy (Benefits of digital broadcasting A report for the GSMA, 2014).

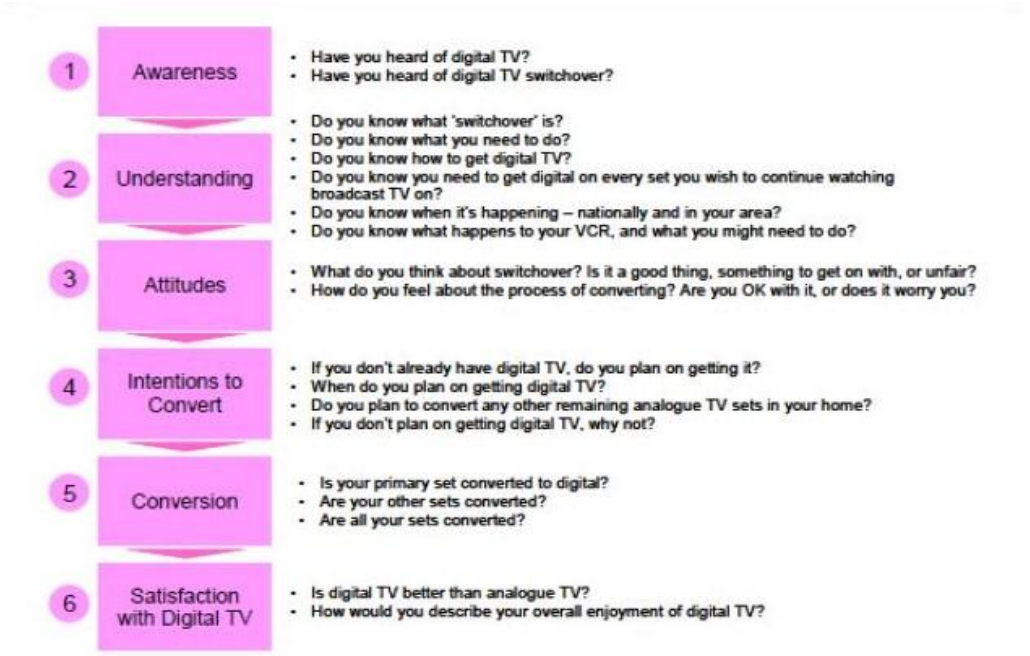


Figure 2.2: ASO communications model (BDT, 2011)

2.3 Communication Process Per Country

2.3.1 The Communication Process in Brazil

In Brazil, it was decided that the stakeholders, including third-party corporations entrusted with handling all or parts of the procedure, broadcasters, and others, would carry out certain activities (Fontana & Decad, 2018). This would entail, among other things, establishing a call centre to address concerns to help the public with the TV installation of filters for reception and TV converters for digital migration. There was also an online page with information on the redistribution and digitalisation of television stations (Hill, 2018).

Viewers would be informed of the analogue switch-off date and the digital channel number that will replace it 360 days before the switch-off date, with a countdown starting 60 days before that date, with the assistance of broadcasters and keeping in mind the guidelines set forth by the Ministry of Communication (Katz & Callorda, 2018).

Finally, two key categories of communication tactics were to be adopted to enhance consumer knowledge and action regarding the ASO (Kopalle, Kumar, & Subramaniam, 2020). The first is a mandatory minimum consumer education effort, followed by a massive media blitz. The first aims to inform the audience via analogue channels by incorporating specialised material into programming that both informs and motivates

users to switch to digital reception (Lapidoth, 2017). The second aims to involve the public in the process through a coordinated media campaign based on a communication plan that employs a variety of communication channels.

2.3.2 The Communication Process in the United States of America

Consumer awareness started in 2007, intending to reach all viewers who did not subscribe to a paid service and instead relied on over-the-air (terrestrial) broadcasts (International Telecommunication Union 2018). The Federal Communications Commission (FCC) worked with companies to open walk-in help centers and in-home installation services across the nation, and a team of 200 FCC employees traveled the nation to directly engage with consumers and form alliances with local governments and non-governmental organizations (Rossato, 2020).

Written materials with commonly asked questions, diagrams demonstrating how to install converter boxes, troubleshooting guides, antenna information (Leurs & Smets, 2018). A total of 29 languages have been translated into key publications.

To address the public, a toll-free call centre was established, and an interactive DTV website was developed to assist consumers in obtaining the most up-to-date information. The Federal Communications Commission spent over $130 million for consumer campaign (Linke & Prommer, 2021).

TV networks had to inform viewers about the switch to DTV, so they launched their outreach campaigns, which included on-air announcements, consumer publications, and public appearances. Approximately $1.2 billion was spent on these projects by broadcasters. The United States Congress established a DTV converter box subsidy programme (Lundstrom, 2012). Every American home was qualified for up to two $40 vouchers for the purchase of a digital-to-analogue converter box, regardless of their household income. A total of 35 million vouchers were used.

2.2.3. The Communication Process in Indonesia

In addition to following the ITU's communication principles and methodology, Indonesia incorporated a mascot into the communication process. SI ARTA TV Digital Indonesia was the mascot's moniker. This was supposed to be used to inform the audience about the ITU's guidelines (McCarthy, 2016). That is the country's communication strategy for the ASO.

Figure 2.3: Mascot used in the Indonesian communication process.

2.2.4. The Communication Process in Niger

The Republic of Niger is a large landlocked country in Sub-Saharan Africa that faces a variety of structural issues. The necessity for money is the most pressing issue in the transition to digital television (Mehdizadeh, Soroosh, Alipour-Banaei, & Farshidi, 2017). However, an examination of other sectors such as “telecommunications”, reveals that they are characterised by the faster development of mobile phones, a primary mode of messaging, covering 30% of the land and 50% of the population (Rogers & Shoemaker, 1971).

Niger's condition is comparable to that of most Sub-Saharan African countries (Matogoro, Mvungi, Justinian, Karandikar, & Singh, 2017). Due to a lack of funding, these countries are forced to devise strategies for completing the transition using various strategies.

The practice of using SMS for SIM registration has been introduced in Niger. Due to their immediate sending and receiving, deferred consultation, simplicity of deployment, and low cost, SMS messages were used to inform citizens about issues and procedures related to SIM registration (Krone, Dannenberg, & Nduru, 2016). The general public will be informed about the development, set-top box outlets, and, among other things, the procedure for confirming set-top box compliance.

2.2.5 The Communication Process in Tanzania

Tanzania began a planned phase-out of analogue transmission on December 31, 2012 (Matogoro et al., 2017). The phases would pass through Dar es Salaam, Arusha, Mwanza, and Tanga, which are the country's six regions. Moshi, Mbeya, and Dodoma are three cities in Tanzania.

Tanzania's communication strategy was governed by the framework provided by the ITU. Tanzania's Communications Regulatory Authority (TCRA) developed a strategy in 2010 that the government accepted.

To popularize the switch from analogue to digital terrestrial television transmission and the ASO procedure, TCRA created a communications strategy in 2010 that was approved by the government. This strategy made use of print, newspapers, TV, radio, web services, roadshows, talk shows, meetings/seminars, and print media (Isabirye & Muhereza, 2021).

In a poll to assess the effectiveness of the communication process, it was determined that “90 per cent of the 4,674 respondents were aware of the ASO, while 461” (ten per cent) were unaware. ASO was mentioned by all responders in Moshi. Tanga, on the other hand, had the lowest response rate at 77 per cent (General, 2013).

Out of 4,213 responders to the communication about analogue to digital migration, ASO TV was the best channel (91 per cent). Roadshows (9 per cent of cases) and websites were the least successful medium (6 per cent of cases) (Komba, Nawe, & Manda, 2017).

2.2.5 Communication Process About Analogue to Digital Migration in Kenya

The ASO for Kenya was completed in 2015 taking three more years against the expectation, although it was nonetheless completed by the 2015 deadline set in 2006. Setting a new date earlier gave the administration more leeway to make any required

changes while still fulfilling the 2015 target (Muchiri, Munji, Mutuku, & Wekesa, 2020).

Kenya eventually overcomes obstacles such as legal cases to develop a stronger broadcasting business. The government not only met the 2015 goal, but it also expanded the viewership by 20% thereby giving consumers more options and specialised content (Consumer Education & Outreach, 2013).

2.2.5.1 Communication Process and Stakeholders

To assist with the digital migration process, the government engaged the aid of a wide range of stakeholders, including representatives from the public sector, the private sector (such as broadcasters and cell providers), and other important business partners (Motsaathebe & Chiumbu, 2021). The two main governmental entities covered were the Ministry of Information, Communications, and Technology (MICT) and the ICT regulator, the Communication Authority (CA).

Other East African nations, such as Rwanda, Tanzania, and Uganda, have created and carried out digital TV migration plans using a multi-stakeholder group approach. This approach has been successful in bringing together the government, regulators, broadcasters, and equipment makers, as well as other key players in the transition to digital broadcasting.

2.2.5.2 Analogue Switch-Off Phases Implementation

The digital migration process in Kenya began on December 9, 2009. The ASO deadline was initially scheduled by June 2012, however it was repeatedly delayed. In November 2014, the government finally settled on a three-phase ASO approach. The first phase was set to begin on December 31, 2014, in Nairobi and its environs (Mulinya, 2018). The second phase was scheduled to begin on February 2, 2015, in 14 major cities. The final and third phase began on March 30, 2015, in Kenya's remaining distant analogue sites. The first phase was completed on time. Phase 2 was finished on February 14, 2015, 12 days late. Phase 3 was similarly delayed, although it was completed by the 17th of June 2015, as planned.

2.2.5.3 Consumer Awareness and Communication Process in Kenya

The work committee decided that a comprehensive consumer education campaign should be launched, covering all areas of concern, including migration and switch-off

dates. The proposal would need to incorporate all market participants into the broadcasting value chain in order to produce the anticipated advantages (Murunga & Diang'a, 2021). Additionally, they recommended that the government offer incentives to the sector to help it advertise and explain the services to customers as well as track and evaluate awareness, uptake, and usage of the new services and adjust the campaign as necessary.

CA also launched the "Digital Kenya" brand in June 2012, which is related to consumer awareness initiatives across various media platforms (Ndonye, Khaemba, & Bartoo, 2015). Social media usage and a dedicated website (http://www.digitalkenya.go.ke/) were included in the strategy. The first large-scale campaign, employing “print, radio/television media, and roadshows”, was launched under the "join the big digital migration" (Digital Migration Process in Kenya, 2017). The phrase "Tunatoka analogue, Tunaenda digital" ("We came from analogue, we're going digital") was later added (Communication Authority of Kenya, 2014).

2.2.5.4 Public Awareness Campaigns

Digital migration processes require public participation and awareness. In Kenya, the government, STB sellers, broadcasters, and the general public all had clearly defined roles to carry out effective teaching campaigns. STB and digital migration announcements, in particular, were made through “traditional newspapers, television broadcasters, and STB suppliers”, who were ordered to offer consumers extensive information about their goods (Consumer Education & Outreach, 2013).

Advertisements were shown during prime time to ensure that the message about Kenya's analogue to digital migration reached the greatest number of people. In an advertisement from the Communication Authority of Kenya (2014), an influencer, Smart Joker, explains how to find out if your television is digitally ready to receive the signal and how to connect a set-top box to your television. The commercial concludes by reminding the viewer of the day when the analogue signal will be turned off in their area.

Newspaper ads and billboards would also be placed throughout the country to inform individuals about the analogue to digital migration and the government of Kenya's deadline. Mobile phone companies would also send messages to their customers

explaining the analogue to digital transition and how to receive the digital signal. The CA paid for the use of social media to publicise the Kenya's digital migration. (Communication Authority of Kenya, 2014).

2.3 The Impact of Digital Broadcast Migration on Audio-Visual Audiences

According to Lundström (2015), broadcasters and the government were unable to share information and material using the three accessible broadcasting systems. To produce and transmit signals to different places, the equipment has to be upgraded. Converting a broadcast from NTSC to PAL, a signal used in US and United Kingdom, required buying of conversion hardware, which was costly and degraded the signal's quality (Andersson, 2019). This was because the broadcast frequencies were different. Another rationale was that the space used by analogue signals might be used to transport a large number of digital signals in a given area or region.

Furthermore, analogue terrestrial television requires a lot of bandwidth, which is a distinction between satellite and terrestrial television. In comparison to the satellite, which has a lesser bandwidth to suit the frequency, receiving analogue transmission demands a large amount of uncompressed signal (Bendahan & Akhiate, 2016). Because the digital signal is compressed, many channels can be delivered at the same bandwidth as a single analogue stream.

Consumption and dissemination of content have always been one-way, passive processes. What you see is precisely what you get. Some claim that this deluge of visual information is unusable and even disturbing (Ndung'u, 2019). Distracting and snipes and programming warnings, such as Internet pop-ups, that have entered programmes while they are being broadcast may be allowed or forbidden.

2.3.1 Benefits of Digital Broadcasting over Analogue Broadcast

When you broadcast digitally, you get better visual and audio quality. The goal of the International Telecommunications Union is to create a global broadcasting system that produces a clearer, brighter image and better sound with less interference. These are just a few of the advantages of digital transmission; as the technology becomes more widely used, more advantages will emerge (Iosifidis, 2006).

Secondly, according to Githinji (2014), every citizen in Kenya has unfettered access to information under the country's constitution. Because the public has evolved and has a

wide range of content preferences, every television viewer imagines an infinite number of channel options. Many channels can be transmitted simultaneously without generating interference because digital transmissions consume far less capacity. New free-to-air channels are needed for Kenya's diverse population, which includes youth, women, and farmers, according to Kenya's Digital Migration Policy. This is also envisioned in Kenya's ICT policy, which lists the advantages that ICT may bring to society members, particularly in terms of providing them with their preferred mode of communication.

Thirdly, audiences could only watch standard-definition television before digital transmission; now, the digital era allows viewers to watch high-definition television, which provides additional delight. High-Definition Television (HDTV) is a digital television format that offers superior picture and sound quality. The vertical and horizontal resolution of digital transmission is twofold that of an analogue signal (Iosifidis, 2006).

Additionally, set-top devices that convert digital signals feature electronic programme guides for digital television programming. The television station sends the guide to the BSD, who inputs it into their system while broadcasting. The audience can use the guide to learn more about the material on-air and when it will air. More advanced guides allow viewers to do things like set programme viewing reminders and search for shows by genre, among other things (Lipton, 2021).

Lastly, the content that is aired on the digital platform has the potential to include subtitles. The broadcast content is accessible to those with hearing impairments. People can also enjoy content from other parts of the world where people speak a different language thanks to the content aired on the digital platform. Languages can be switched between Arabic, Chinese, English, French, Russian, and Spanish by pressing a button (Ndung'u, 2019).

2.4 The influence of Digital Broadcasting on the Local Content Ecosystem

In the broadcast industry, digitisation provides opportunities to develop additional content, form businesses, and redirect and change the production value chain. It will be a chance for states to showcase their culture and individuality (Ngoasheng, Ngoepe, &

Marutha, 2021). Unique and universally relevant content in an appeal will survive in foreign markets in this circumstance.

According to Kagabo (2017), digital broadcasting simplified the packaging of television programmes such as news, shows, and advertisements. Journalists are given digital devices that enable them to operate more efficiently from the field to the editing room. In addition, editing software and internet access or social media networks aided in the speeding up of work and the simple exchange of information. When labour becomes easier, it has an effect on television shows in the sense that they are aired on time. When time is saved, more stories, shows, or advertisements can be produced.

Furthermore, Mulinya (2018) notes that Kenyan media has been battling the communications authorities to meet the requirement of transmitting more than 40% of local material. Local media, on the other hand, has always managed to produce less than 40% of local material and far more foreign content. Our media will have no choice but to produce more local material as a result of the digital changeover since international content will be accessible to everyone, eliminating the need for a link or intermediaries. You won't need a local television station to connect to Supersport to watch sports, for example. If you have a digital receiver or a decoder, you will be able to access it at any time, anywhere, and for as long as you like. This means that to survive, most televisions will focus on specific material and genres. Documentaries, children's content, youth content, movies, sports, and faith-based media for televangelism are all likely to have televisions.

Additionally, specialization comes with the risk of splintering society into distinct groups with disparate interests. Religion, age, area, language, tribal and ethnic affiliations, political interests, cultures, and class will be among the interests and demographics of the audience. People will no longer share a shared culture in this manner. People's interests will influence which civilizations and worlds are presented to them through technology. In Kenya, the audience will be segmented based on ethnicity, tribe, political connections, economic position, and geographic location. As with radio, there will be a proliferation of television broadcasting in several local languages, and the indicators are already there. With the availability of signals, anyone can purchase a television broadcasting licence. With less than five months until the deadline, the digital platform saw 3Stone TV and NjataTV (both broadcasting in Kikuyu), Lolwe TV (broadcasting in Dholuo), and other television channels enter the

terrestrial world. More are expected to be broadcast in local languages soon. The advertiser will follow this path as well, focusing their advertising efforts where their target audience is concentrated (Ndonye et al., 2015).

Likewise, convergence will very certainly accompany digitization. This may be seen in companies that deal with digital converters such as set-top boxes and televisions. Such devices will be diverse to get a competitive advantage in the market. Decoders, for example, are likely to be combined with other functionalities such as radios, video players, modems, Wi-Fi, and internet routers. As a result of this tendency, any organisation looking to achieve a competitive advantage in the market must consider convergence in their design. Convergence could also imply that telecommunications companies begin to provide broadcasting services. Media firms, on the other hand, are likely to expand their offerings to include things like voice services, internet services, and other things as consumer demand dictates. On the Zuku Satellite platform, there are over 100 channels, and on the top-end Fibre platform, there are over 120 channels (About Zuku – Zuku, 2019).

Finally, before digital migration, the content was kept on tapes, which deteriorated in quality from generation to generation. This meant that if the footage was filmed on tape, digitised in an editing machine, and then recorded on tape, the visual and sound quality would suffer.Because of the way data is saved and communicated digitally, which is in ones and zeros for sound and picture, the quality remains the same whether moving from the field to the editing suite, downloading or transmission (Fontana & Decad, 2018).

2.5 Theoretical Framework

The Diffusion of Innovation Theory and the Technology Acceptance Model, which will be used to support my study and show that my work is based on well-respected ideas, are described in this portion of the theoretical framework.

2.5.1 Diffusion of Innovation Theory

The Diffusion Theory aims to clarify the how, why, and rate at which new concepts and innovations spread among civilizations. A professor of communication studies named Everett Rogers popularized the idea in his 1962 book, The Diffusion of Innovations.

Beyond the two-step flow theory, diffusion research examines the elements that increase or decrease a new idea, item, or behavior being embraced by people of a particular culture. In a multi-step diffusion process, the opinion leader—in this case, the Kenyan government—has a significant influence on adopters' behavior, but there are also other intermediaries between the media and the audience's decision-making. A mediator known as a "change agent" might persuade an influential person to adopt or reject an idea (Infante, Rancer, & Womack, 1997).

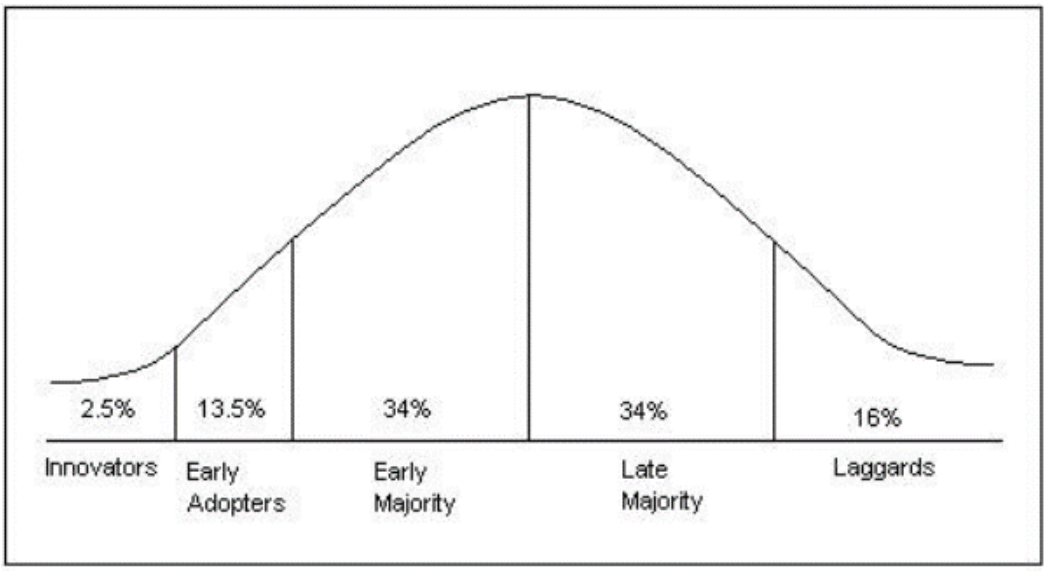
In a social system, not every individual adopts innovations at the same time. People tend to adopt in chronological sequence, and depending on how long it takes them to put a new idea into practice, they can be categorized as adopter groups (Camp, 2001). The acceptance of a new idea is sparked through human contact via social networks. If the first adopter of an innovation talks about it with two peers in a particular social system, and if these two go on to become adopters who then spread the innovation to two more peers, and so on, the resulting distribution follows a binomial expansion (Rogers, 1971).

In diffusion studies, this method of identifying adopters is presently the most widely utilised. According to Rogers (1971), early adopters are more deeply ingrained in the community's social structure than innovators. Early adopters in most social systems seem to have the highest degree of opinion leadership. They provide advice and details about a concept that other potential adopters might be interested in. Early adopters will be sought after by change agents to speed up the dissemination process. Early adopters frequently have the respect of their colleagues and have a history of effectively implementing new concepts covertly.

A social system's early majority members will be the ones to accept novel concepts just before the average member. Despite often interacting with their peers, they are not frequently seen in leadership positions. For the spreading process to work, early majority adopters are crucial. They serve as a bridge between very early and late adopters. They take more time to make decisions on innovation than innovators and early adopters do because they take more time to consider a new idea before fully embracing it.

The bulk of people who joined the social system later are skeptical and take new ideas more slowly than the average person. Both financial necessity and societal pressure may drive their adoption. They wait until the majority of their social structure has done so before embracing new concepts. Traditionalists or laggards are the last to embrace a novel concept.

The Laggards have alienated the other adopting groups due to their essentially nonexistent leadership opinions. Since the past fascinates them, all decisions must be considered in light of earlier generations. The majority of conservatives' interactions are with other conservatives. An innovation that is later adopted by a laggard may become obsolete due to innovations already being used by innovators. Laggards frequently have a negative attitude toward innovators, change agents, and novel concepts (Rogers, 1971).



2.5.2 Technology Acceptance Model (TAM)

The Technology Acceptance Model (TAM) was developed to forecast consumer and workplace adoption of information technology. In his doctoral thesis from 1985, Fred Davis originally put forth the Technology Acceptance Model (TAM). In the field of information systems, it is one of the most often utilized study models. The concept contends that customers' decisions about how and when to employ cutting-edge technology are influenced by a number of elements when it is provided to them. The theory is helpful in the field of study when examining how well-received new information systems and technologies are by users.

The Technology Acceptance Model (TAM) is built on the Theory of Reasoned Action (TRA) (TAM). This approach has been investigated in studies of individual acceptance behavior. TAM has also been extensively utilized to investigate individual technology adoption behavior in a variety of information systems.

The model contends that a range of factors affect users' decisions regarding how and when to employ new types of technology. (1) The perceived usefulness (PU) factor, which according to Fred Davis is "the potential user's subjective likelihood that using the particular application system will improve the performance of his or her job," and (2) the perceived ease of use (PEOU), which is "the extent to which the prospective user anticipates that using the targeted system will not require them to exert any effort" (Davis, 1985).

The most significant determinants of actual system use, according to TAM, are perceived usefulness and ease of use. These two elements are influenced by external factors. External forces are mirrored in cultural, political, and social impacts. Social variables include things like abilities, favorable circumstances, and language. The impact of using technology in political situations and during political crises is largely to blame for the political components.

The perceived utility and simplicity of use, according to TAM, are the most important predictors of actual system use. Skills, facilitating conditions, and language are all examples of social variables. The impact of applying technology in cases of politics, as well as political crises, is significantly responsible for the political elements.

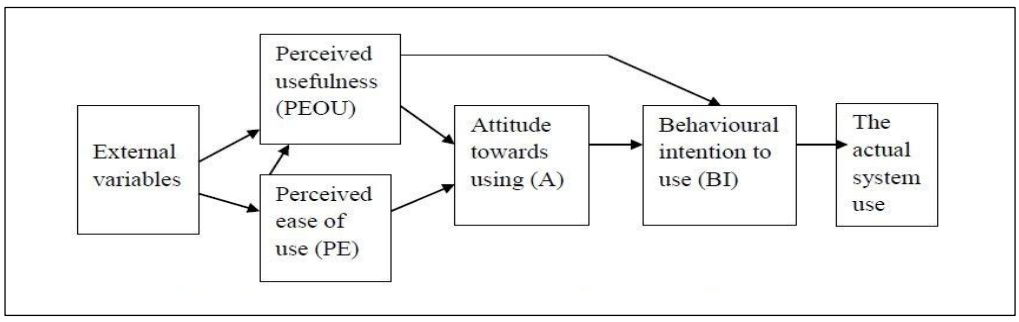


Figure 2.4: Technology Acceptance Model (Davis, 1985)

2.6 Conceptual Framework

According to Regoniel (2015), a conceptual framework is created when a researcher looks at the connections between a number of important variables. The conceptual framework, according to Liehr and Smith (1999), assists in the creation of a framework for presenting research questions based on the issue statement. The conceptual framework looks at independent and dependent factors. A variable that is altered and tested to determine its impact on a dependent variable is known as an independent variable. The variable being examined is the dependent variable in a scientific experiment. According to McGaghie et al (2001), "The dependent variable is dependent on the independent variable."

A conceptual framework is a framework that the researcher thinks best captures the organic development of the subject under inquiry (Camp, 2001). To advance and summarize the researcher's knowledge, it is related to his or her hypotheses, empirical study, and important theories (Peshkin, 1993).

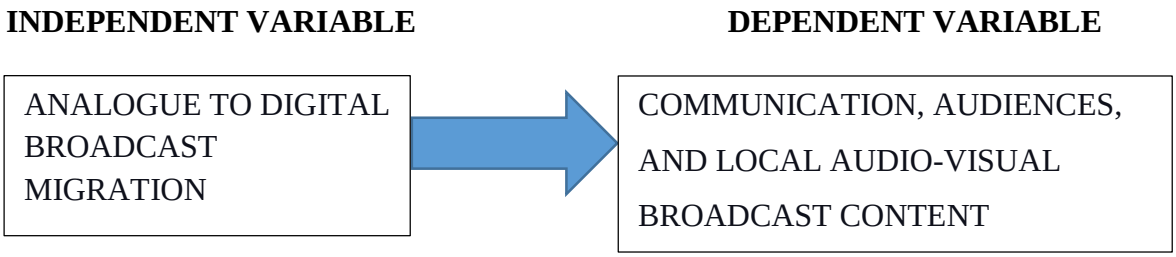


Figure 2.5: Conceptual Framework

This research explored communication, audiences, and local audio-visual broadcast content as dependent variables. The communication processes during digital migration, the impact of digital migration on audiences, and how digital migration influenced digital broadcasting on the local content ecosystem are all discussed.

The researcher interviewed participants from several age groups, including young adults, adults, and the elderly, all of whom are between the ages of 18 and 70. This helped determine how the analogue to digital migration impacted them and the audio-visual content they watched. An in-depth interview with the key informant was used to gather more data.

CHAPTER THREE
RESEARCH METHODOLOGY

3.1 Overview

The study design, research strategy, research methodology, data needs, types, and sources, population, sampling technique, and data collecting, procedures, data analysis, and data dependability were all covered in this chapter. Last but not least, this chapter will also cover ethical issues.

According to research carried out by Ndung'u (2019), the number of television stations has increased around the country due to digital migration and the opening of the broadcasting spectrum. The stuidy explained the analogue to digital broadcast migration on communication, audiences, and local audio-visual broadcast content.

3.2 Research Design

According to Creswell (2014), research may be classified as qualitative, quantitative, or mixed methods inquiry, with each category providing a distinct study direction. The research was conducted in a qualitative descriptive design.

Qualitative data was used to get information on the research problem, which explained the analogue to digital broadcast migration on communication, impact on audiences, and influence of digital broadcasting on the local content ecosystem. Qualitative data was collected through interviews. The methodology used in this study enabled the study to gather indepth information on all the research objectives. Based on the design used (qualitative research design), the participants ably answered all research questions as set out in the specific objectives hence this methodology suit well the study's intention.

3.3 Research Approach

The data for this study was collected using qualitative methods, which is a qualitative approach. The researcher used interviews with residents of Lang'ata Constituency to collect data on the communication processes used to communicate during analogue to digital migration. These interviews also provided a diverse range of viewpoints.

Furthermore, the researcher carried out an in-depth interview with managers in the production departments of a television broadcasting station on the impact of digital broadcast migration on audio-visual audiences and the local content ecosystem.

3.4 Research Methods

The study's researcher employed phenomenology. Phenomenology was employed by the researcher because it intended to capture the essence of a phenomenon by viewing it through the eyes of people who had experienced it firsthand. The goal of phenomenology is to explain this experience's significance in terms of both what was experienced and how it was experienced (Nartey, 2020). By using phenomology, the study was able to capture the interest of the participants and this enaled them to effectively respond to the quedtions under specific objectives.

3.5 Data Types

The study gathered primary data from the Lang'ata Constituency using interviews with residents. Lang'ata was chosen because the people who live there come from a variety of backgrounds. Additional qualitative data from primary sources was obtained from one manager each in the production department at Citizen Television and Inooro TV, local broadcasting television stations, as well as the Head of Broadcasting at Nation Media.

3.6 Population, Sampling Procedures, and Sample Size

3.6.1 Population

A research population, according to Kothari (2004), is the whole group from which data for research is to be gathered. The study focused on residents of Nairobi County, which has a population of approximately 4,397,073 people according to the 2019 KNBS census. There are approximately 2,192,452 males and 2,204,376 females in the population, with approximately 245 intersex residents.

Nairobi County has 11 constituencies and this research was narrowed down to Lang'ata Constituency in Nairobi County. The researcher considers income to be important because the study had to be conducted on people who owned a television or had access to local audio-visual broadcast content. This is a determinant for one to participate in the research that was carried out. Lang'ata Constituency has about 197,489 people ("Kenya National Bureau of Statistics, 2019").

WARDS	MALE	FEMALE	INTERSEX	TOTAL
TOTAL	96698	100774	17	197489

Table 3.1: The population of Lang'ata Constituency (Kenya National Bureau of Statistics, 2019)

3.6.2 Sampling Procedures

The study was conducted using non-probability sampling and the purposive method (Patton, 2002), with respondents selected based on their access to television or any other device in Lang'ata Constituency. In order to answer the research question clearly and meaningfully, the researcher must choose the sample they believe will be most helpful. This selection procedure can be guided by factors or characteristics of potential volunteers that influence the contribution they might make to the study. Lang'ata Constituency was picked because of the different blends in the population that are located in the five different wards in the constituency. These wards included South C, Mugumo-ini, Nyayo Highrise, Karen, and Nairobi West Ward.

3.6.3 Sample Size

According to Ni, Chen, and Liu (2010), sampling is a procedure of getting a section of the population that reflects total population. This is because gathering data from all of the groups affected by the research topic may be impossible. When the sub-groups accurately represent the applicable attributes of the full group, the research can draw valid conclusions about all of the groups based on a relatively small number of groups (Mugenda & Mugenda, 2003).

According to Kothari (2004), sample size is a term that a researcher uses to define the number of individuals that will be used to represent the population. This number is broken down into sub-groups which include age, location, and gender to ensure the sample represents the population (Mason, 2010).

The study used homogenous sampling, the researcher picked a group of cases with comparable backgrounds and experiences, making analysis easier and interviewing more convenient. This was combined with critical case sampling, which identifies examples that provided critical information with the greatest generalizability to other cases. If the researcher accurately defines a 'critical case,' the knowledge acquired can be applied to other situations (Boddy, 2016).

To determine whether or not the sample size is appropriate, the researcher applied the concept of "saturation," which is derived from grounded theory (Malterud et al., 2015;

Sandelowski, 1995). This rule states that a sample is the right size if it is sizable enough to address the study's objectives and research concerns. When no further data gathering results in the discovery of a new theoretical category that can be used to (Farrugia, 2019). Therefore, based on these researchers' assertions, it is prudent to say that the use the small sample size was acceptable given that the researcher realized a saturation point had been reached during data collection (Vasileiou et al., 2018; Coach, 2021).

3.7 Data Collection Methods

The study used unstructured interview guide to gather data from the respondents that included the public in Langata constituency and key informants from major media houses in the country. The study used interview guide because it aided in gathering in-depth qualitative data from the selected respondents. The advantage of unstructured interview guide is that, it can collect a lot of information from the respondents because their responses are not restricted and this gives them the advantage of providing more information to enrich the study outcome. Again, the third objective; to examine the influence of digital broadcasting on the local content ecosystem, only collected data from the Key informants from various media channels because it was believed that they were better placed to provide valid and reliable information than the public respondents. They are basically the creator of the contents to be consumed hence had the ability to provide more information on the influence of digital broadcasting on the local content ecosystem.

3.8 Validity and Reliability

The ability of a technique to precisely measure what it claims to measure is referred to as "validity." When research has a high level of validity, it signifies that the conclusions are based on actual characteristics, occurrences, and modifications (Drost, 2011). While consistency refers to how consistently a method examines something, dependability refers to how consistently a method judges anything (Earl-Babbie, 2013).

The transferability of the results was accomplished by presenting a "rich description" of the findings. No word was omitted by the researcher. Therefore, the rersearc went into extensive detail while explaining an event, setting, or condition to illustrate how easily the findings of your research can be applied to other people or situations.

3.9 Data Collection Procedures

The interview method of data collection comprises the presentation of oral-verbal stimuli and replies expressed as oral-verbal responses, according to Kothari (2004). However, in descriptive research, we frequently choose the structured interview technique since it is more cost-effective, provides a solid foundation for generalisation, and requires relatively little skill on the part of the interviewer. These interviews were be unstructured, with audio recordings being used during the interviews and later transcribed (Leavy, 2017).

Interviews with participants from Lang'ata Constituency residents were conducted. A total of five interviews were conducted per ward, for a total of 25 interviews for the five wards in the constituency. The interviewer also looked out for saturation after the 20 interviews. Upon realizing that no new information was forthcoming, the researcher stop the data collection exercises.

The researcher also employed an in-depth interview, which took place between the researcher and two participants. A manager in production at Citizen Television and Inooro TV, local broadcasting television stations, and Head of Broadcasting at Nation Media.

3.10 Data Analysis Methods

Data analysis, according to Creswell (2014), data analysis is the process of systematically condensing material into manageable data, structuring the data into patterns, themes, and interrelationships, and de-textualizing data by converting expanded texts into more controllable forms (Ni, Chen, & Liu, 2010).

The researcher used Interpretive Phenomenological Analysis (IPA) in this research. An IPA is a tool for understanding a subject's personal experiences, such as those of a person or a group of individuals, about a major events or expericnes (Coach, 2021).

Because it includes analysing people's first-hand experiences of something that happened to them, IPA was used in the data analysis. In this case, it was used to understand analogue to digital broadcast migration, the communication process, how it affected the audiences, and its impact on the local audio-visual broadcast content ecosystem.

3.11 Ethical Considerations

Mugenda and Mugenda (2003) says that before a researcher goes to collect data, the researcher should ensure that all ethical considerations are followed. Obtaining permission to conduct the study is one of these considerations. For this study, the researcher got a certificate for fieldwork after the supervisor approved the proposal.

The researcher properly briefed the participants about the purpose of the research, which was for academic purposes only. Prior to the commencement of the interviews, the researcher notified the potential participants. By doing so, the researcher allowed the unwilling participants to opt out of the study before it even starts. Further, the researcher upheld professionalism and confidentiality while carrying out the study.

After the research was done, the researcher defended the project and made corrections highlighted by the university defence panel under the guidance of the supervisor. The work was then submitted to be checked for plagiarism to ensure that it is free of plagiarism. Finally, the issuance of a certificate of corrections as highlighted by the project coordinator was provided which the researcher worked on.

CHAPTER FOUR
FINDINGS AND DISCUSSIONS

4.1 Overview

This chapter highlights results obtained from the field. This research focused on the analogue to digital broadcast migration in communication, audiences, and local audio-visual broadcast content. Accordingly, semi-structured interviews and an interview with a key informant were conducted to understand the communication process used in digital broadcast migration and explore the impact of digital migration on the audio-visual audience and the influence of digital broadcasting on the local content ecosystem. Interviews with the respondents yielded the responses. The responses fit into several recurrent themes, including the use of multiple mediums and channels, increase in audio-visual content, increase in cost, technological change, internet and data, and clear picture and sound.

4.2 Communication Process Done During Digital Broadcast Migration

The study investigated the communication processes used during digital migration.

4.2.1 Easy to Understand Message

The message shared was simple for the general public to understand the benefits of digital migration and how to avoid being left behind during the analogue to digital transition. Kiswahili and English were used to ensure that the message was understood by the audience. Respondents remember a step-by-step guide for connection to the set-top box was shared. Requirements for digital television were also shared with the members of the public. In agreement, a study by Wanjau et al. (2016) found that, most viewers had no difficulty in migrating to digital platform because the procedure was simple and easy and this resulted to high adoption of the digital processes. This was shared by Respondent 10 when he stated:

> I think the government was very clear because the message I got was that we needed to get a box to connect it to our television or buy a new television. I would not be able to watch the news or Inspecta Mwala on Citizen Television if I did not do this (R10.05.08.2022).

Another Respondent said:

> My son told me that we would require the box to receive the signal after connecting the aerial to watch various television programmes. Another option

> was to purchase a new television set that was capable of directly connecting to the aerial and allowing you to watch programmes (R8.05.08.2022).

4.2.2 Use of different Media Vehicles

The theme of the use of different media vehicles came out from the respondents. All of the respondents remember seeing or hearing the message through multiple media. When asked what was most memorable about the message, they said you had to buy a gadget or tv to enable you to watch television once the migration happened. The medium and channels used to convey the message about analogue to digital migration were seen on television, heard on radio, and found on the front pages of daily newspapers. One respondent added that messages on the radio and television were mostly heard during prime time. He states that they were placed before news on television and radio when Kenyans would be listening to or watching the events of the day. This was mostly in the morning when commuting to work or in the evening at seven and nine o'clock. In support, a study by Muchiri et al. (2020) found that, the application of various media channels to pass information to consumers of digital migration was widely embraced. As a result, a widespread migration to digital was witnessed in most parts of the country.

Respondent 1 said:

> I used to hear the announcement by CAK that we were switching from analogue to digital every time before I listened to the news or watched it on television. Regardless of the channel, the government was informing us of the migration (R1.03.08.2022).

The use of billboards, leaflets and roadshows was also brought out while collecting data. According to Njogu (2016), the digital migration was well coordinated and this was evidenced by use of all possible means and mode of communication to ensure all citizens were able to timely migrate to the new normal. Respondent 3 met a road show caravan by the CAK when travelling to Nakuru Town from Nairobi County.

> I ran into the caravan in my town. It was both entertaining and informative. Their caravan featured dancers and musicians who performed songs that I enjoyed. They explained the requirements for watching television while transitioning from analogue to digital. They demonstrated how to connect the

> set-top boxes to the televisions. Before they drove away, they gave us leaflets and caps (R3. 03.08.2022).

Additionally, one respondent stated that as the analogue switch-off approached, the number of announcements on television increased. This announcement in the media seemed to have a countdown toward the analogue switch-off. The results are corroborated by Muyonga (2021) who observed that, the analogue to digital migration was effectively advertised and this was made possible by the incessant information passages through media such as radio, TV, and social media handles.

He later noted that the announcements stated that the switch-off would occur per region rather than all at once.

> The number of announcements became excessive, particularly before television news. They had different times to beat the deadline. Because Nairobi was the first to switch off, I had more time to get a set-top box for my family in Kitui County. I had about three months to organise myself (R18.11.08.2022).

The Communication Authority of Kenya (CAK) decided to have 3 phases of the analogue switch-off (ASO) in different parts of the country. The first ASO would happen in Nairobi and its environs towards the end of 2014. The next was to happen at the beginning of February the following year, then the last would be done at the end of March 2015. This would give every Kenyan enough time to acquire the necessary equipment to receive the digital signal. The message was incorporated in the daily announcement that aired on radio and television. In congruence, Kimanthi (2016) revealed that, the utilization of several media channels enabled the consumers to make timely informed decisions in their quest to buy the required gadgets to migrate from analogue to the digital communication platforms.

One of the respondents said that,

> My parents and family live in Voi, and according to the message of the analogue to digital migration, their area would be the last place to be switched off. I decided to save up for a few months and buy them a smart television so they could watch their favourite shows. They were using the old televisions that had a big back (R14. 07.08.2022).

4.2.3 Use of an influencer

According to (“What Is an Influencer?”), A person who has the power to influence others' conduct due to the size of their audience or their persuasiveness is known as an influencer. A person's ability to influence others depends on the size of their audience (total reach) as well as their standing and reputation within a particular group of individuals.

Thirteen of the respondents remember the influencer, Smart Joker who was chosen for the analogue to digital migration campaign. The influencer was well-known as a comedian on "The Churchill Show", a local comedy show that aired on NTV. The show had a large fan base, and many Kenyans identified with his satire of everyday Kenyan life. Smart Joker would be used on a roadshow to educate Kenyans on how to ensure they received the digital signal. On billboards, he was the face of the campaign. In agreement, a study by Isabirye and Muhereza (2021) found that, use of media personalities or celebrities is one of the best strategies that can be embraced to ensure wider public coverage is attained. By using such media personalties, many audiences are likely to access timely information especially during this digital migration era.

Later, CAK collaborated with the influencer to create an advertisement informing Kenyans on how to avoid being left behind during the analogue-to-digital transition. The step-by-step guide was a one-minute explanation in Kiswahili of how to connect the television with the set-top box to receive the signal. In yet another study, Nartey (2020) found that, social media influencers have huge followers as such, seeking their services to advertise any communication products has an added advantage because it reaches the intended consumers on timely basis. This was brought out by Respondent 13 when he said:

> Given that the person was a well-known comedian, I initially assumed it was a joke. I recall him having an old television and glasses with no lenses on his head. He performed the catchy song "Tunatoka analogue, tunaenda digital." This made me laugh. When I realised what the message meant, I had to take action by beginning to save up for digital television on which I could watch television content (R13.06.08.2022).

Another respondent remembers the influencer on billboards that were strategically placed in different locations like the entrances of Nairobi West.

> I saw posters as well as information in the newspapers. At some point, I saw a billboard of Smart Joker when going to the CBD in town (R17.08.08.2022).

4.2.4 Priming by the media

Priming is the process by which the media focus on particular concerns while ignoring others, changing the criteria by which people assess such issues, individuals, or objects. The Communication Authority made certain that the media was invited to a briefing on what they had done regarding the analogue to digital migration. The results are supported by Linke and Prommer (2021) who found that, regular engagement with various key stakeholders scuh as Radio and TV stations promoted quicker and easier migration to digital channels in Australia.

Respondent 8 said:

> If I recall correctly, the messages were everywhere. I liked reading the newspaper in the morning, and on the front pages, the comedian was saying Tunatoka analogue, Tunaenda digital. While I was selling products in my business and listening to the radio, I noticed that there were many stories on the news about the digital migration on Inooro FM and Citizen Radio. When I saw a billboard being placed next to a petrol station here in Nairobi West, I knew I had to get what was needed. The messages could be found everywhere. They seemed to be following me (R8.05.08.2022).

4.2.5 Advertisement recall and recognition

The respondents interviewed remembered the analogue to digital migration advertisement that ran on television and radio. The words used were catchy and memorable to the listener and viewer. In yet another study, Grainge and Johnson (2018) found that, employment of simple, attractive and convincing messaging lured audiences into purchasing digital communication products in Europe. The same case was evidenced in this research as was brought out by Respondent 20 when he said:

> I recall a song we used to sing in primary school, Tunatoka analogue, tunaenda digital, sung by Smart Joker. It was both amusing and catchy. When we were playing, we used to sing it (R20.11.08.2022).

Respondent 17 remembered the song and the video and she stated:

> I can remember that song. That is where Smart Joker wore a television on his head and sang about the analogue to digital migration. He also talked about

> how to connect your television to the box to be able to receive the digital signal (R17.08.08.2022).

4.3 Digital Broadcast Migration Impact On Audio-Visual Audiences

The respondents were asked how digital migration affected them. In general, they mentioned resources, more channels and content, the inclusion of text, the use of technology, the ability to choose and control the content, and improved picture and sound quality, among other things.

4.3.1 Resources

All the respondents felt that their resources were affected during the analogue to digital migration. According to the respondents, they had to purchase devices that would allow them to access local audio-visual content. They had to buy set-top boxes or televisions that would receive the digital signal. Those seeking additional content would have to pay for it through paywall television channels. In yet another study, Muchiri et a. (2020) found that, during the digital migration era, some consumers resorted to purchasing free to air decorders while others resorted to purchasing payable decorders.

Respondent 12 brought this out clearly when she said he had to save up to buy a set-top box. She said that:

> I had to save to the last day to be able to get a set-top box to be able to watch television. I bought a new television last year to be able to watch television with a clearer signal without using that box. I took the old television with the box to the village, where I gave it to my brother so that he would stop going to the shopping centre to watch television (R12.06.08.2022).

Respondent 16 stated that he liked watching programm from Ramogi TV on his home television. When he is outside, he uses data to watch content from their YouTube channel on his phone. He likes the entertainment and information show that air on the station. When it comes to news, he has to watch Citizen TV news bulletins wherever he is. Data, which he purchases daily, allows him to access content on their channels, but it is expensive. However, in yet another study, Ochoi (2017) established that the cost incurred as a result of digital migration proved to be expensive for most rural folks and this hindered their access to complete information. He further argued that, some

viewers could not afford data bundles on daily basis while others could not buy free to air decorders thereby missing important national news.

However, the respondent brought it out clearly when he said:

> You cannot walk around without knowing what is happening in the country. From one, seven or nine o'clock you have to watch the news on Citizen Television. To watch the bulletin I have to purchase data. The other time I catch up with shows I have missed on Ramogi TV, all the data I use costs money but it's okay with me. At least I am not left in the dark (R16.08.08.2022).

Respondent 2 stated that he subscribes to channels to access local audio-visual content. These television channels provide content that is not available on free-to-air stations. Showmax was noted to be one of the providers of this service. However, a research by Chimanga and Mumba (2020) found that, free-to-air decorders hampered access to information from some media channels. The advantaged group were the middle class folks who could managed to purchase payable decorders to access public information. The resuslt resonates with the diffusion of innovation theory, which aims to explain how, why, and how quickly new ideas and technologies move across civilizations, was in agreement with this.

In support one of the respondents indicated that:

> Showmax is more expensive, but it offers content that my local television stations do not. This streaming service offers a large selection of widely praised TV shows. For a monthly fee of between 300 and 1000 shillings, you can watch programmes like Crime and Justice or Igiza (R2.03.08.2022).

Another respondent stated that her monthly budget appeared to have increased. She integrates all the services she utilises from her service provider, Safaricom. She receives internet access through the service provider, which she uses at home on her phone and television. She uses the internet service to access content from the internet on her phone and television. The results resonate with a study by Wanyonyi et al. (2016) who found that, the digital migration brought news at the doorsteps of viewers and this was witnessed by the increased consumption of data bundles by several subscribers who could easily watch news from their comfort zones such as public transports.

In agreement, another respondent indicated that,

> Safaricom provides me with Wi-Fi. My television is also connected to the internet via Wi-Fi, and I have the aerial from the roof directly connected to the television. I use my phone to watch content from YouTube and my television stations that broadcast online. This is an additional fee, but you must pay it in order to obtain more (R17.08.08.2022).

4.3.2 Inclusion of texts

Half of the respondents noted that since moving from analogue to digital migration, they noted the inclusion of texts in the programmes they were watching over the internet. The text for the content had been generated. Also, when watching digital television, there would be text indicating what programme was being watched and what would follow next. The findings corroborate with the works of Murunga and Diang'a (2021) who revealed that, by subscribig to any digital content, consumers are able to receive timely notifications about any ongoing program and this would allow them to switch to their favorite channels. All these were aided by the digital migration that was adopted in the country. Respondent 16 stated that using texts has allowed him to enjoy local audio-visual content while his daughter is sleeping. He stated that by turning on the texts on the programmes, he can read the texts that explain what is going on without disturbing his sleeping daughter.

He stated:

> Unlike my firstborn, who was born before we transitioned from analogue to digital, my lastborn daughter enjoys silence. When I want to watch TV, I turn down the volume when she is asleep or sleepy and activate the text generator on the smart television. It generates texts automatically, and I can read what's going on at the bottom of the screen (R16.08.08.2022).

Respondent 17 noted that the inclusion of text in the analogue to digital migration would enable people who did not understand a language to simply switch on the text for the content. This would generate text in a language that they could understand. She also added that the text in the content would help people with hearing impairment. Respondent 8 stated that:

> Before, when you watched something that was in a language that you did not understand, there was nothing you could do. However, thanks to analogue to

> digital migration, you can turn on texts in a language you understand. Deaf people can also enjoy all of the content that is aired. Sign language interpreters are only seen on the news for people who are deaf or hard of hearing. They can now access text messages and enjoy the content just like the rest of us (R8.05.08.2022).

4.3.3 Technological Change

The respondents believe that to access local audio-visual content, one had to invest in some form of technology. The type of technology includes a set-top box, digital television, or a dongle device. A study by Helfat and Raubitschek (2018) revealed that, by purchasing technologies such as decorders, digital TVs among others, the consumers were able to view their preferred channels and this enabled widespread of information to the public. This is consistent with the Technology Acceptance Model (TAM), which holds that those who embrace the usage of new technology gain access to additional broadcasting choices and material. It also resonates with the diffusion of innovation theory, which aims to explain how, why, and how quickly new ideas and technologies move across civilizations.

Nevertheles, there was a lot of confusion about the difference between a digital TV, a smart television, and an Android television. The words of Respondent 23 summarized the difference when he stated:

> Digital televisions do not require the internet to function but are enabled to receive signals sent by broadcasters using the new spectrum. A Smart TV is a television that connects to the internet and allows you to access services such as streaming, web browsing, and even gaming. Different Smart TVs operate with different operating systems such as WebOS, TizenOS, or even Android OS. Therefore, the Smart TVs that run on Android OS are the ones that are called Android TVs. The TizenOs operate using the Linux system and are mostly used on Samsung devices but for now, let’s not get into that (R23.14.08.2022).

Some respondents decided to combine technology by getting devices that connected to their television sets with a device that would give them more content. In agrement, a study by Kopalle et al. (2020) revealed that, by buying digital decorders, TV consumers would easily connneect their decorders to their analgue TVs and this accorded them the

opportunity to watch news of their choices. This was brought out by Respondent 3 who said:

> An Android box has many applications and functions similarly to a phone in that you simply plug it into the TV and have a wide range of options to choose from. Let's say different applications to choose from, movies and series, and also stations in Kenya while having more choices. These applications include Netflix, Amazon, and Citizen TV, among others, where you can watch content that is on them (R3.03.08.2022).

Respondent 23 added:

> I use a Smart TV, an Amazon Fire TV Stick, and a DSTV HD decoder to receive signals from various broadcasting companies. I enjoy watching various programmes from around the world, not just Kenya (R23.14.08.2022).

4.3.4 More Content and Control

All respondents agreed that the amount of content has increased significantly since the analogue to digital transition. This content is broadcast on new television stations licenced to operate in various parts of the country. Furthermore, the viewer of the content has been given control over it, allowing him or her to watch it all at once, pause, rewind, or start over. One respondent stated that before digital migration if you missed an episode of a show or the news of the day, you would not be able to access it. But now, if you are watching a show or the news, you can pause it, go do something else away from your device, then return and press play, and the content will resume where you left it. This was not possible in the days of analogue transmission. In agreement, the works by Lapidoth (2017) observed that, the digital migration brought several advantages that the analogue era did not have. For example, access to more information was increased twofold. Further, the consumers could easily choose their preferred channels unlimted number of times as long as one has paid for the content to be watched.

In addition, the viewer has the power to stream or download an entire season of a programme and watch it all at once. In a rejoinder, Thyagarajan (2018) says that, since the implementation of digital migration, consumers have the advantage of live streaming contents of their choice at their own convinient time and place. This was brought out by Respondent 2 who said:

> I paid for Showmax because of their content. I watched the first season of Crime and Justice, a Kenyan detective show. I watch an episode when I have time, pause when I am busy, and resume when I have time. It's as if I never left my device (R2.03.08.2022).

In addition, respondent 8 was happy that religious content had increased. She said:

> I've even noticed that my church's PCEA has a station. This is just one of many Christian stations licenced by the government, and I doubt I would have had so many options without the migration (R8.05.08.2022).

As a result of analogue to digital migration, Respondent 12 noted the number of television stations had increased. She stated:

> There are now more television stations than ever before. I've noticed an increase in the number of television stations broadcasting in local languages. I had no idea there could be so many free television stations (R12.06.08.2022).

4.3.5 Better picture and sound

Consequently, all the respondents noted an improvement in the quality of the picture and sound. In yet another study, Dekker et al. (2016) revealed that analogue era had poor signal quality and low coverage was also witnessed. Therefore, the coming in of digital migration opened room for quality pictures and sound and this attracted many viewers. In agreement, the diffusion of innovation theory explain how, why, and how quickly new ideas and technologies that aid quality transmissions move across civilizations due to clear signals. Respondent 8 gave a good account of how the picture and sound have improved when she stated:

> I began watching television when the shows were in black and white. I first saw colour television in the late 1980s or early 1990s. I can now say that the picture and sound quality have greatly improved since we went digital. What I've noticed with the television and mobile phones is that I can enlarge the image by pressing the "plus" button on the remote. I can now say that I don't strain my eyes when watching the news or Mother-in-law on Citizen Television. This was previously not possible (R8.05.08.2022).

Another respondent noted that the sound in the programmes is so clear that you can hear the background noise in the programme you are watching. Respondent 23 said:

> I would say that the picture and sound are very clear, I know that I can change the quality of the picture to a high definition which fills the screen, unlike before when the image looked like it was only in the middle of the television. The sound is also in stereo, unlike before when it was only in mono. The number of channels used when playing back sound is two when stereo is used. Here you can hear small details in the audio, while in mono all the sound is in one channel. Think of when you are wearing earphones and only one side is working you can say that is mono and it is not as clear when both of them are working (R23.14.08.2022).

Further, Respondent 2 added that the picture and sound are in sync compared to when broadcasting stations used the analogue system to broadcast content. In agreement, Dekker et al. (2016) found that, the digital migration opened room for quality pictures and sound and this attracted many viewers. He observed:

> Something I noticed before digital migration was that the news presenter's voice would be heard, then a second or two later the accompanying video would appear, or vice versa. The mouth would move, and then the sound would be heard. Another thing I've noticed since we went digital is that the grainy videos are no longer present (R2.03.08.2022).

Finally, Respondent 12 added that in case there is a weak signal or a loss, the television set does not make noise as before. She said:

> I can say that the picture and sound are much clear. I have not seen the picture having that raining effect, that used to happen a lot before. When the signal is not there, the television screen is black or has that circle saying that it is looking for the television station you were watching (R12.06.08.2022).

4.4 Influence of Digital Broadcasting on the Local Content Ecosystem

Most Kenyans followed the instructions provided by the government and were able to watch local audio-visual content once the deadline was reached for the analogue switch-off (ASO). Broadcasters ensured that their viewers would receive their broadcasts. A lot changed because the country was moving from analogue to digital thus influencing the local content ecosystem.

The key informants generally mentioned cost, use of multiple devices, job creation, and the power that has been given to the viewer of local audio-visual broadcast local content. Of equal importance, there was an increase in content and power to the audience, improvement of file sharing, better picture and sound, incorporation of text in content, and lastly, new avenues to increase revenue for the organization. The results concur with another study by Leurs and Smets (2018) who established that, local ecosystem has increased twofold as a result of digital broadcasting. This increase has been attributed to quality contents that boasts of clear pictorials and sound. According to the diffusion of innovation theory, new technology contributes to accessing local audio-visual television content. This is through using set-top boxes, digital television, mobile phones and computers. can only be achieved if it is widely embraced for use. A sequence of individual decisions was made to start utilising the new technology, which leads to diffusion itself.

4.4.1 Transmission is done by BSDs not the Broadcaster

With the distribution of the broadcasters' signals in Kenya being handled by the three BSDs, the cost for the broadcasting houses was reduced. Before, the broadcasters were solely responsible for the distribution of their signals around the country. This meant that they had to employ additional staff to ensure the signal and the transmission equipment were always up and running. With the analogue to digital migration, the signal is sent to the signal distributors who are in charge of distributing the signal in the country. In congruence, a research by Andersson (2019) found that, cost of transmission was reduced and this meant most digital broadcasters made more profits due to decreased staffing.

To supprt this, a respodent indicated that,

> People were moving from the use of spectrum, which was analogue, where everybody had to buy a frequency and then incur the frequency cost. They also had to build their towers. So, what the government was doing was to build a signal distribution system complete with a multiplexer, which then allowed us to have a lower cost for people who were coming into the business (R27.01.09.2022).

Analogue to digital migration enabled content creators to target different parts of the country when broadcasting. BSDs charged different prices for different parts of the

country, allowing television stations to broadcast in languages spoken in those areas. In support of this finding, Mehdizadeh et al. (2017) revealed that, most parts of the rural Turkey received fair vieiwing rates as opposed to city customer segments. Again, consumers were able to choose cheaper monthly contents that matched with their income.

> It allowed more people to join the industry. In Kenya, carrying your signal costs about 1.6 million shillings per month. That is before you hire anyone, build a studio, or create any content. It is cheaper to pay per region in Kenya. But the cost is still much less than it was before (R27.01.09.2022).

To send the signal to the BSD, broadcasters use satellites or fibre. This was a cost that was not there before the analogue to digital migration because the broadcaster was responsible for the transmission of their signal to their viewers. In another divergent opinion, Andersson (2019) posits that the introduction of digital news coverage meant that, TV and radio channels had to incurr extra costs, especially on transmissions. This was brought out when Respondent 26 said:

> To transmit this signal, you need a transmitter or stable internet connection if you cannot afford those big satellite dishes. This transmitter, or using the internet, sends the signal to a receiver which is located at the Broadcast Signal Distributor (BSD). That is where the cost goes up, you must have a dedicated line that will be used to send the signal to the BSD here you will need fibre, which is paid monthly (R26.05.09.2022).

4.4.2 More Content and Channels

As a result of moving from analogue to digital broadcasting, the government reduced the cost of licences and production equipment in the country. This led to an increase in the number of television stations in the country. In agreement, a research by Sohrabi and Yu (2017) revealed that, decreased licensing fee led to increased registration of many TV and radio channels as such, the consumers were able to view variety of contents based on their preferrences.

This was brought out clearly by Respondent 27 when she stated that:

> The digital migration led to the mushrooming of very many channels because it was now easier to obtain a licence, so you didn't need a frequency, but the cost of transmission remained prohibitively high (R27.01.09.2022).

Respondent 26 added:

> You can now watch whatever you want on television, whether it's culture, farming, music, news, religion, or wildlife. I am sure if you go through the channels, you will get what you want. They are even a channel where someone has done a voice-over on international movies to give it a Kenyan feel. I think he is called DJ Afro; he even adds sound effects to the Kiswahili voiceover. The migration has allowed the viewer to watch what he or she wants because there is so much being broadcast (R26.05.09.2022).

4.4.3 Access to Local Audio-Visual Content using Multiple Devices

The access to local audio-visual content has changed since the analogue to digital migration. The use of different types of devices to receive the content has enabled individuals to access it from any location. Viewers use televisions, phones, tablets, and computers to watch content from different broadcasting houses in Kenya.

Content that is broadcasted is created to fill the different screen sizes which range from televisions to small screens of telephones. The picture fits well on different devices without the loss of quality or shrinking of the picture on the device being used. Before digital migration, most viewers accessed the content through television and the quality of the image could not be changed if one was accessing the content through different a device. In another study, Rossato (2020) argue that, as a result of digital migration, smart phones, i-phones and other gadgets could be used to watch movies, news, and even sports as per the pleasure of the viewers.

> Kenyans can watch us from anywhere in the world using devices such as phones, laptops, and tablets. You can watch us by logging on to our YouTube channel, website, our video-on-demand platform. We are a free-to-air broadcasting house, but if you are using other devices besides television, you will have to use an internet connection. For a video on demand, you pay ten shillings a day, and you can watch content from our station, but you must have data or internet on your device (R26.05.09.2022).

Respondent 27 added:

> I have my website, ntvkenya.co.ke. I have Twitter, YouTube, Facebook, TikTok, and WhatsApp. I am present on all social media platforms. When we produce a television programme in a long format, we promote the content on

social media and make it available on our website. In response to audiences, they can access our body of work wherever, whenever and at whatever time. They don't have to be tethered to a television. If they can't watch my live stream, they can use their phones as a portable TV (R27.01.09.2022).

4.4.4 Inclusion of Programme Description and Guide

Before digital migration, if a viewer found something on-air and had not started watching it from the beginning, he would have had no idea of what the programme was about. The viewer had to wait for a programme line-up to get information on the programmes of the day. When analogue to digital migration happened the local audio-visual content had the Teletext incorporated into the content. In another study, Monzoncillo (2018) found that, many digital content consumers are now able to access previous news or movies they missed. They simply visit the Youtube or websites and all information is availed.

A viewer can now get information about a programme simply by pressing a button, and the information is displayed. Respondent 26 stated:

> All content that goes on air has to have a short synopsis. This tells the viewer what the programme is about. Additional information like the parental guidance for the programme is included, what time the programme starts and ends, and finally, what programmes will be aired during the day. This information is inserted by the BSD and it has helped the viewers plan which programmes they want to watch and the specific time they can watch them (R26.05.09.2022).

4.4.5 Job Creation

Analogue to digital migration has brought about job creation in the local audio-visual content ecosystem. The increased number of broadcasting houses and the reduced cost of production equipment have enabled independent content creators to produce content that is of broadcasting standards. There has been the creation of positions such as camera crews, sound engineers, directors of photography, producers, and directors who have produced local content that has been enjoyed by Kenyans. In support of this finding, a research work by Ayonghe (2018) established that, increased employment opportunities have been created and this is shown by the influx of online content

creators who could easily share their contents online or with big media houses to generate income. Respondent 26 said:

> Apart from our local productions such as Tahidi High and Inspekta Mwala, we commission content from independent producers. Shows like Maria which recently ended, had viewers asking for more. Another is Pete, which is based in Mombasa. This enables production crews to create content that employs the production crew, which can range between 20 and 30 people. These are new jobs, and our in-house team can continue to work on local content such as Inspekta Mwala. We sit down with the producer and director and give them our station production guidelines to ensure the content is done correctly. We wouldn't like commissioned content to look different from our productions (R26.05.09.2022).

Respondent 27 added:

> Because more often than not, we want to focus on what we produce ourselves, but if we find someone with content we can co-produce, we can do it. However, we must be very clear about the costs you will bear and the costs we will bear. Who holds the rights? Is this your programme? How long do we co-own the rights? It comes with a whole ecosystem of its own. We have our technical standards, which we ensure are followed in the creation of the content. It has the level of sound expected, the colour of the picture, and the length of the content. The content should also be in line with our vision and mission as Nation Media Group. You should also note that when we are purchasing this content, we are also creating jobs (R27.01.09.2022).

4.4.6 Better Picture and Sound Quality

When migrating from analogue to digital broadcasting, one of the messages that the government kept sending out to people who watched local audio-visual broadcast content was a clearer picture and better sound. This was because the digital signal would be able to accommodate transmitting using both the SD and HD picture qualities. With the aid of the set-top box or a digitally enabled television set, the viewer would be able to receive the signal as clearly as it was sent. This is because the signal was previously split into two parts, video and sound. According to Ngoasheng et al. (2021), digital migration has enhanced signal quality as such sound and picture had immensely

improved which is an indication of increased quality in the content that is displayed on the screens.

Consequently, when the signal was received at home using a receiver and had travelled a long distance, the sound and picture quality would be compromised. However, by sending the signal from broadcasting houses to the broadcast signal distributors to receivers at home, differences in using the digital signal are obscured to the viewer. This was brought out clearly by Respondent 26 who stated that:

> Before, we would produce and shoot videos with 720 or 1080 pixels picture quality, which is considered SD and HD. To complement the clear picture, we recorded our sound using two channels and mixed them during editing to give clarity to voices and ambient sound. When we put the final production to tape and transmitted it, the sound and the picture would lose their quality. During analogue transmission, the quality of the picture that was received by most viewers at home was 480 pixels. The further you were away from the transmission site of the broadcasting house, the worse the signal would get. In some areas, the signal would deteriorate to 360 pixels. The weather also had an impact on the image and sound quality. During analogue broadcasting, when it began to rain, we knew the picture and sound quality would deteriorate even further (R26.05.09.2022).

Respondent 27 added:

> You had to upgrade your equipment. This was more because of audience needs A person goes on YouTube and sees a 1080p video. Then he comes and watches your channel, which is 480p. They will most likely notice that your content is of poor quality. So, what has changed is the result of what I refer to as technological disruptions. Because cameras have changed, editing has changed, the speed at which things are done has changed, graphic design has changed, and all of your audiences are exposed to this through new media. If you don't give them this, it doesn't matter if your signal is good or if you have good content; if they look at my screen and what they see is a blurred or low-resolution image, they won't watch (R27.01.09.2022).

4.4.7 Move from Appointment Viewing to Video On Demand

Since the move from analogue to digital migration, the viewer has the power to access previously aired content or even pause it and resume watching it later. This is possible when a viewer accesses the content through YouTube or the station's website. The viewer can access previously aired programmes, or if the programme is currently airing, the viewer can pause it, do something else, and resume from where he left off. In case the viewer would like to watch what is on air, they can click the "live" button, which will take them to what is being broadcast. This, compared to before, was not possible. The viewer had to wait for a repeat of the programme at a later date or even miss an episode or two. In concurrence, a research by Bendahan and Akhiate (2016) established that, after the digital migration, consumers around the globe have the opportunity to watch missed contents online without worries unlike the previous analogie era. This was brought out by Respondent 26 when he said:

> Since we switched from analogue to digital, viewers can rewind the content if they are watching it on our YouTube page or website. The viewer can also access a whole episode that he or she has missed by simply clicking a button. If the viewer cannot wait for the next episode, we offer them the programme through our video-on-demand service, Viusasa. They can watch or download two or three episodes of the show before they are aired on television. They only pay ten shillings a day to access this service (R26.05.09.2022).

Respondent 27 added:

> Audiences' consumption habits have shifted from appointment viewing, where we would tell them that the bulletin would be coming at seven o'clock and they would sit in front of a TV at that time, to Video on Demand. As a result, they wished to watch their content when and how they wished. If they wanted to watch your bulletin, which was at seven o'clock and they missed it, they expected it to be available at 7:30 p.m. If your show aired at ten o'clock and they missed it, they wanted it to be available the next day so they could find it (R27.01.09.2022).

4.4.8 Recording, Sharing and Storage

While producing local audio-visual broadcasts, the content material is recorded on memory cards instead of tapes, which were used before digital migration. This ensures

that the content when being copied to editing machines and downloaded of edited content, the generation losing quality, cannot be recognised easily.

When tapes were being used, the quality would be reduced if they were stored on tapes for a long time or copied from tape to editing suite more than once. Now that the recording is done digitally, it is hard for it to lose quality compared to when it was done by tape. Also, content is saved by storing it on hard drives or the cloud, where you can access it by logging in and downloading the material. In support of the findings, a research by Hill (2018) found out that, the present digital migration has increased the quality of the viusual content and this is occassioned by the fact that information can be shared on a more secured gadgets such as, memory cards that can be edited as per the consumers' desire and taste. Respondent 26 stated:

> Before we moved to digital migration, the station used to operate with tapes. These tapes would be used in the field and brought to the editing suites for programmes editing. With digital migration, we have been using memory cards, which reporters or producers connect to their computers and edit the content. Once the content has gone on air, we have bought enough cloud space where all the material is stored as a backup. We also store the material on hard disks. If you would like to access this material, you log in using your details and the material downloads to your computer. Content from independent producers is shared through sharing sites such as Wetransfer, which deletes the content after a week. This ensures that the content does not stay online and be accessed by outsiders or anyone with malicious intent (R26.05.09.2022).

4.4.9 Growth of New Media

New media is a term referring specifically to the possibilities brought about by computers and telecommunication, encompassing the internet and all of its manifest applications. New media includes the mobile phone and is characterised by technological convergence and, contrastingly in terms of its reach, divergence. New media are interactive; they are two-way or multiple-way, whereas traditional media have tended to be one-way means of information and entertainment. We are no longer solely reliant on the news and commentary provided by the press, radio, or television. In yet another study, Komba et al. (2017) found that, use of smart phones, I-pads, I-phones have increased twofold as a result of digital migration and this has equally

reduced interests on watching TVs at home because all news contents can be accessed through hand related gadgets.

One of the respondents opined that,

> When the broadcasting houses were switched off in 2015, viewers went online to YouTube to continue getting entertainment and information from the stations that were switched off. New media came with social media platforms, which included YouTube and all that. I think digital migration at that point played some part. I can apportion very little percentage to digital migration, and I will tell you why. It is because of the fight between the government and the media houses (R27.01.09.2022).

4.4.10 Competition for audience

The analogue to digital migration opened up the market where entrepreneurs invested in television stations to inform and entertain different viewers. This led to an increase in competition between the different broadcasters nationally or regionally. To affirm this result, a study by Calvo et. al. (2020) found that, as result of digital migration, TV and radio competition has greatly increased. This has been occassioned by the scramble for the consumers who have resorted to using their hand gadgets to access media contents. This was brought out by Respondent 26 when he said:

> Before, the competition for the audience was between the four television stations in Kenya. But when the migration happened, the number of competitors increased (R26.05.09.2022).

Responded 27 added:

> Because of the proliferation of channels, you are not only looking at your main competitors; there are many more competitors in the broadcasting of content. This allowed me to be sharper on the edges because there was more competition. It also allowed the audience to benefit from choice (R27.01.09.2022).

This study sought to analyse three aspects of analogue to digital broadcast migration: communication, audiences, and local audio-visual broadcast content. It endeavoured at documenting the communication processes used in digital broadcast migration; explore how digital broadcast migration impacted audio-visual audiences and examine the influence of digital broadcasting on the local content ecosystem.

The study found that the communication process was easy to understand and that there was the use of different communication channels. It was also found that there was an additional cost because of the equipment investment by the viewer to access local audio-visual broadcast content. In uniformity, a study by Hagedoorn and Sauer (2018) found that, the adoption of digital migration meant that, broadcasters had to purchase new equipment including new technologies and this negatively affected their budget plans. Accordingly, there was an increase in audio-visual content compared to analogue transmission. The digital to analogue migration has created more jobs and led to technological change in the production, transmission, and receiving of the local audio-visual content ecosystem. In support, Salgado et al.(2018) observed that, more employment opportunities came up because of increased content creation by social media influencers. Further, the increased production and transmissions meant that, more personnel were required to enhance timely relay of information from media houses to their consumers.

CHAPTER FIVE
CONCLUSIONS

5.1 Overview

The study's conclusions and recommendations for further research are presented in this chapter. This was based on the research findings that were discussed in the chapter prior. The study produced several conclusions that directly advance our understanding of the analogue to digital broadcast migration. Recommendations have been made for further study for broadcasters of audio-visual broadcast content, the government, and other stakeholders as for further research.

The study explored the analogue to digital broadcast migration: communication, audiences, and local audio-visual broadcast content. The tasks included documenting the communication processes used in digital broadcast migration; exploring how digital broadcast migration impacted audio-visual audiences and examining the influence of digital broadcasting on the local content ecosystem.

5.2 Conclusions

5.2.1 The Communication Processes Used In Digital Broadcast Migration

The study concludes that, the communication process was simple and required less time to educate the viewer about the analogue to digital migration happening. The use of various media channels allowed the Kenyan government to educate viewers and the benefits of the analogue to digital migration. Billboards, television and radio advertisements, roadshows, and newspaper advertisements were used to convey the message about analogue to digital migration to Kenyans. In summary, the study concludes that the communication process and message were easy to understand by the audience ensuring their device was compliant with digital migration.

5.2.2 Explore How Digital Broadcast Migration Has Impacted Audio-Visual Audiences

The study concludes that, the resources of audience were affected during the analogue to digital migration because they had to purchase devices or data that would allow them to access local audio-visual content. Further, more contents and control had increased significantly since the analogue to digital transition and better sound and picture was also evidenced as reported by majority of the respondents. Essentially, the study concludes that, digital migration increased the

content and control by the viewer while providing a better quality of picture and sound.

5.2.3 The Influence of Digital Broadcasting On the Local Content Ecosystem

The study concludes that, the audiences now have a variety of contents and every television viewer can access many number of channels. Again, electronic programme guides gave additional information on the content being broadcast and this increased their viewership. It also conclude that, more sophisticated guides are used by media houses and this has given viewers choices like, among others, establishing watch reminders and searching for programmes by genre. Moreover, phones, tablets, and computers to watch contents from different broadcasting houses in Kenya has also increased. The study also concludes that job creation has increased especially on positions such as camera crews, sound engineers, directors of photography, producers, and directors of local contents. Again access to missed contents through YouTube or websites was also found to have increased. It also concludes that, recording, sharing and storage was made possible by use of recorded on memory cards instead of tapes that enables ease of editing. In summary, it conlude that the shifting of audio-visual content transmission from the broadcasting house to the Broadcast Signal Distributor inceased content consumptions.

5.3 Recommendations

The study noted an increase in broadcasting channels since the digital migration. Thus the researcher recommends that future research should be done on the type of audio-visual content licenced broadcasters transmit in different regions in the country. This will enable new entrants into the broadcasting industry to know the number of their competitors per region they want to broadcast.

Given that the study found that the respondents spent their money on digital television and set-top boxes, according to the researcher, the government should make sure that digital television and set-top box prices stay reasonable so that many people can access information, under the Kenyan Constitution.

Additionally, more research should be done about the analogue to digital broadcast migration on communication, audiences, and local audio-visual broadcast content. The research carried out represents Lang'ata Constituency, but it does not mean it represents

the whole of Nairobi County or the entire country. Hence, further research can be done in other countries and regions in Kenya.

The study recommends that research to assess the clarity of the messages used by the government that were understood by the public during digital migration be conducted. One of the elements that is fundamentally changing the environment of local audio-visual television content generation and transmission is technology. In light of all the recent technical developments, it is crucial to do research on the new patterns in the creation distribution and of local audio-visual television content.

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APPENDICES

Appendix I: Interview Guide for participants

PART A: General Information

Item	**Response**
Name of participant	
Gender	
Occupation	
Date	

2. Age bracket

Age Group (Years)	**Below 20**	**21-30**	**31-40**	**41-50**	**51-60**	**Over 60**
Please tick						

3. What is your highest level of education

Level	None	Primary	Secondary	Cert/Dip/Tertiary	University (Undergraduate, Graduate, Doctorate)
Please tick					

PART B: Communication process during analogue to digital migration

1. What do you remember about the analogue to digital migration?
2. To what extent did you understand what analogue to digital migration was about?
3. What are your reflections on the approaches to analogue to digital migration?
4. In which ways was the communication process of the digital migration process suitable/unsuitable; effective /ineffective?
5. What aspects of the communication process of analogue to digital migration did you like or dislike?
6. Reflecting on what we have discussed, do you think the government was clear in communicating about analogue to digital migration?
7. What other thoughts do you have about messaging, public engagement, reception of the messages, ambiguities, and information flow?

PART C: Impact of digital migration on audio-visual audience

1. What devices do you use to access local audio-visual broadcast content?
2. How do you access the audio-visual content on your device(s)?
3. How would you compare the quality of audio-visual content now and before digital migration?
4. Thinking back to analogue transmission, what would you say is different in digital transmission?
5. How has digital migration affected or influenced your audio-visual consumption experiences and habits?
6. What exactly is the motivation for the scenario above?
7. Do you think the government did the right thing by migrating from analogue to digital transmission? What are your reasons for this?
8. Perhaps you could comment on the impact of the whole digital migration issue in general terms, or even cite specific examples of its residual impact on Kenya's digital community.
9. Reflecting on what we have discussed, is there anything else you would like to add?

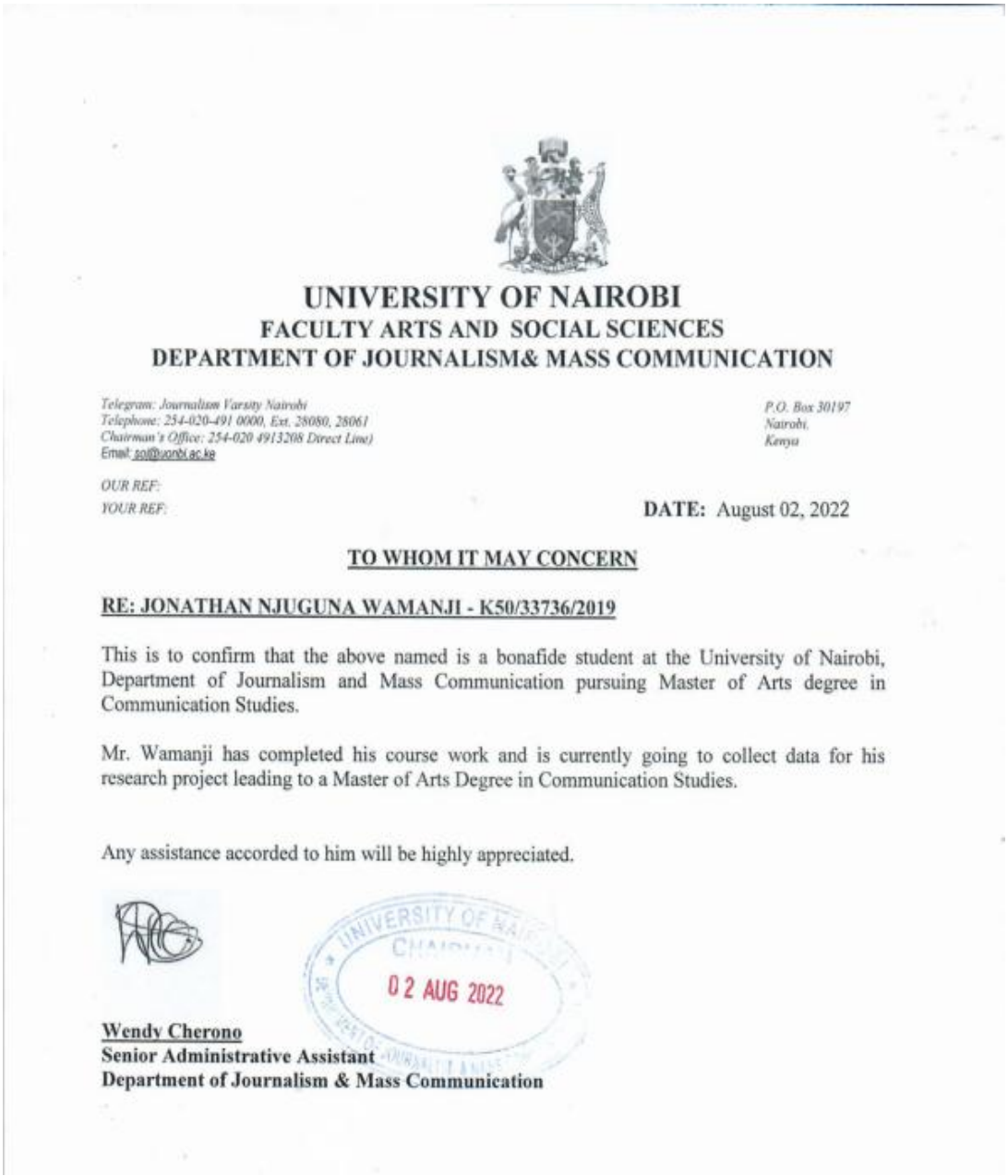
Thank you for your time and cooperation

Appendix II: Key Informant Interview Guide

1. Briefly highlight your career journey up to your current position and how it relates to Kenya's digital ecosystem.
2. What is your personal view on the government's decision to move to the digital platform and its process of engagement with stakeholders?
3. What would you say has changed in the production and transmission of content since moving to digital transmission?
4. How does your audience access your audio-visual broadcast content?
5. How has digital migration benefitted you as a broadcasting station?
6. As an industry professional in the digital ecosystem, briefly discuss the successes and failures of the digital migration, perhaps with comments about any audience data you may have.
7. Reflecting on what we have discussed, is there anything else you would like to add?

Thank you for your time and cooperation

Appendix III: Introduction Letter



UNIVERSITY OF NAIROBI
FACULTY ARTS AND SOCIAL SCIENCES
DEPARTMENT OF JOURNALISM& MASS COMMUNICATION

Telegram: Journalism Varsity Nairobi
Telephone: 254-020-491 0000, Ext. 28080, 28061
Chairman's Office: 254-020 4913208 Direct Line)
Email: soj@uonbi.ac.ke

P.O. Box 30197
Nairobi,
Kenya

OUR REF:
YOUR REF:

DATE: August 02, 2022

TO WHOM IT MAY CONCERN

RE: JONATHAN NJUGUNA WAMANJI - K50/33736/2019

This is to confirm that the above named is a bonafide student at the University of Nairobi, Department of Journalism and Mass Communication pursuing Master of Arts degree in Communication Studies.

Mr. Wamanji has completed his course work and is currently going to collect data for his research project leading to a Master of Arts Degree in Communication Studies.

Any assistance accorded to him will be highly appreciated.

UNIVERSITY OF NAIROBI
CHAIRMAN
02 AUG 2022

Wendy Cherono
Senior Administrative Assistant
Department of Journalism & Mass Communication

Appendix IV: Key Informants Details

Respondent Serial Number	Sex	Age	Education Level	Marital Status	Ward
1	Female	30	Graduate	Married	South C
2	Male	33	Graduate	Married	South C
3	Male	41	Graduate	Single	South C
4	Female	31	Graduate	Single	South C
5	Female	36	Diploma	Single	South C
6	Female	52	TVET Certificate	Married	Nairobi West
7	Male	35	High School Certificate	Single	Nairobi West
8	Female	70	TVET Diploma	Married	Nairobi West
9	Female	48	TVET Diploma	Married	Nairobi West
10	Male	35	Graduate	Married	Nairobi West
11	Male	33	TVET Diploma	Married	Mugumoini
12	Female	58	High School Certificate	Married	Mugumoini
13	Male	37	TVET Diploma	Married	Mugumoini
14	Male	30	TVET Diploma	Single	Mugumoini
15	Female	44	High School Certificate	Married	Mugumoini
16	Male	29	TVET Diploma	Married	Nyayo Highrise
17	Female	28	Graduate	Single	Nyayo Highrise
18	Male	30	TVET Diploma	Single	Nyayo Highrise

19	Male	34	Graduate	Married	Nyayo Highrise
20	Male	19	Graduate	Single	Nyayo Highrise
21	Female	48	Graduate	Single	Karen
22	Male	45	TVET Diploma	Married	Karen
23	Male	41	Graduate	Married	Karen
24	Female	51	Graduate	Married	Karen
25	Male	38	TVET Diploma		Karen
26	Male	45	Graduate	Citizen Television	Team leader Production Department
27	Female	46	Graduate	Nation Media Group	Executive Director Transformation

Appendix V: Budget Estimation

	Specific activities to be undertaken by the researcher	Cost (Kshs)
Consolidation of Literature	Travel expenses and library search.	5000.00
	Type setting, photocopying, scanning and printing of proposal material.	5000.00
	Proof reading and document editing	7000.00
Main field data collection	Production of research Instruments	3000.00
	Meals	4500.00
	Airtime for communication by phone	2000.00
Compiling of the research project	Production of the project with a relevant number of copies.	14000.00
Research project binding	3 copies @ Kshs 2000 per copy	6000.00
Other expenses	Contingencies	4500.00
Total		**51000.00**

Appendix VI: Research Permit NACOSTI

REPUBLIC OF KENYA

NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Ref No: **473795**

Date of Issue: **22/October/2022**

RESEARCH LICENSE

This is to Certify that Mr.. Jonathan Njuguna Wamanji of University of Nairobi, has been licensed to conduct research as per the provision of the Science, Technology and Innovation Act, 2013 (Rev.2014) in Nairobi on the topic: ANALOGUE TO DIGITAL BROADCAST MIGRATION: COMMUNICATION, AUDIENCES, AND LOCAL AUDIO-VISUAL BROADCAST CONTENT. for the period ending : 22/October/2023.

License No: **NACOSTI/P/22/20836**

473795

Applicant Identification Number

Director General
NATIONAL COMMISSION FOR SCIENCE,TECHNOLOGY & INNOVATION

Verification QR Code

NOTE: This is a computer generated License. To verify the authenticity of this document, Scan the QR Code using QR scanner application.

See overleaf for conditions

THE SCIENCE, TECHNOLOGY AND INNOVATION ACT, 2013 (Rev. 2014)

Legal Notice No. 108: The Science, Technology and Innovation (Research Licensing) Regulations, 2014

The National Commission for Science, Technology and Innovation, hereafter referred to as the Commission, was the established under the Science, Technology and Innovation Act 2013 (Revised 2014) herein after referred to as the Act. The objective of the Commission shall be to regulate and assure quality in the science, technology and innovation sector and advise the Government in matters related thereto.

CONDITIONS OF THE RESEARCH LICENSE

1. The License is granted subject to provisions of the Constitution of Kenya, the Science, Technology and Innovation Act, and other relevant laws, policies and regulations. Accordingly, the licensee shall adhere to such procedures, standards, code of ethics and guidelines as may be prescribed by regulations made under the Act, or prescribed by provisions of International treaties of which Kenya is a signatory to
2. The research and its related activities as well as outcomes shall be beneficial to the country and shall not in any way;
    i. Endanger national security
    ii. Adversely affect the lives of Kenyans
    iii. Be in contravention of Kenya's international obligations including Biological Weapons Convention (BWC), Comprehensive Nuclear-Test-Ban Treaty Organization (CTBTO), Chemical, Biological, Radiological and Nuclear (CBRN).
    iv. Result in exploitation of intellectual property rights of communities in Kenya
    v. Adversely affect the environment
    vi. Adversely affect the rights of communities
    vii. Endanger public safety and national cohesion
    viii. Plagiarize someone else's work
3. The License is valid for the proposed research, location and specified period.
4. The license any rights thereunder are non-transferable
5. The Commission reserves the right to cancel the research at any time during the research period if in the opinion of the Commission the research is not implemented in conformity with the provisions of the Act or any other written law.
6. The Licensee shall inform the relevant County Director of Education, County Commissioner and County Governor before commencement of the research.
7. Excavation, filming, movement, and collection of specimens are subject to further necessary clearance from relevant Government Agencies.
8. The License does not give authority to transfer research materials.
9. The Commission may monitor and evaluate the licensed research project for the purpose of assessing and evaluating compliance with the conditions of the License.
10. The Licensee shall submit one hard copy, and upload a soft copy of their final report (thesis) onto a platform designated by the Commission within one year of completion of the research.
11. The Commission reserves the right to modify the conditions of the License including cancellation without prior notice.
12. Research, findings and information regarding research systems shall be stored or disseminated, utilized or applied in such a manner as may be prescribed by the Commission from time to time.
13. The Licensee shall disclose to the Commission, the relevant Institutional Scientific and Ethical Review Committee, and the relevant national agencies any inventions and discoveries that are of National strategic importance.
14. The Commission shall have powers to acquire from any person the right in, or to, any scientific innovation, invention or patent of strategic importance to the country.
15. Relevant Institutional Scientific and Ethical Review Committee shall monitor and evaluate the research periodically, and make a report of its findings to the Commission for necessary action.

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