REGULATION OF ICT-BASED BROADCASTING IN THE DIGITAL AGE: A CASE OF ZAMBIA

By

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DECLARATION

I **Elvis Besa**, the undersigned hereby declare that this dissertation represents my own work and has never been submitted for any other qualification at this or any other University or Institution. All sources that I have used or quoted have been acknowledged by complete references.

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APPROVAL

This dissertation of Elvis Besa is approved as fulfilling the partial requirements for the award of the Degree of Master of Engineering in ICT Policy, Regulation and Management by the University of Zambia (UNZA).

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ABSTRACT

Zambia has experienced significant change in the broadcasting sector due to technological advancements while the regulatory framework that was framed in analogue age has remained unchanged. Therefore, ICT-based broadcasting remain largely unregulated. This study focuses on how to regulate ICT-based or digital broadcasting in the digital age in Zambia and investigate the regulations in broadcasting. This dissertation reviewed the research objectives through an extensive study of relevant literature on broadcasting and regulation, and the implementation of empirical research by Survey with the sample size of 120 selected purposively from a population of 300, coupled with data collection and analysis of empirical data. Evolutionary Model was used as a theoretical framework because the study involve interactions of evolving technologies, services, policies, regulatory frameworks, markets and institutional systems in a digital ecosystem that requisite a more vast and robust theoretical framework to appropriately interrogate the study.

The findings shows that Digital Terrestrial Television (DTTV) has the highest penetration rates at 76.34%, followed by satellite TV at 23.60%; digital subscription broadcasting market in Zambia has been monopolised at 53%; and that the existing broadcasting regulatory framework is rated as average at 50.8%. The findings also reveals that among the various types of regulation, Content type is highly preferred 84.2% followed by functionality at 58.3%. Further, as regards features of regulatory models, the findings shows that Structure, Infrastructure, Access and Distribution aspects are generally mildly regulated. Meanwhile, the Conduct aspect of regulatory models is lowly regulated on one hand and Content is generally highly regulated on the other hand.

Further, the research revealed that existing broadcasting regulations are enshrined in analogue broadcasting; the separation of the broadcasting regulator (IBA) and telecommunications regulator (ZICTA) has created inefficiencies in the regulation of ICT-based broadcasting in a converged environment because of disparate regulations applied to inter-connected elements of the digital ecosystem; the process of drafting the laws to enactment often take a long time thereby negatively affecting effectiveness of the regulatory framework in the sight of fast-paced technological advancements, convergence and dynamic markets.

Key words: Broadcasting, Content, Convergence, Functionality, Framework, Model, Regulation, Technology.

DEDICATION

To my wife, thank you for your understanding, support and encouragements; to my son, you give me reasons to believe and work hard; to my family for your belief in me. I am eternally grateful to God for all of you.

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ACRONYMS

AI	Artificial Intelligence
AM	Amplitude Modulation
AR	Augmented Reality
ATSC	Advanced Television System Committee
AVOD	Audio Video on Demand
BBC	British Broadcasting Corporation
BPL	Broadband over Power Lines
BSC	Broadcasting Standards Commission
BT	British Telecommunication
CAZ	Communications Authority of Zambia
CATV	Cable Television
CEC	Copperbelt Energy Cooperation
CPU	Central Processing Unit
CRT	Cathode Ray Tube
CSA	Conseil Superieur de l'Audiovisuel
CSP	Content Service Providers
DAB	Digital Audio Broadcasting
DMB	Digital Multimedia Broadcasting
DRM	Digital Radio Mondiale
DSL	Digital Subscriber Line
DTH	Direct To Home
DTMB	Digital Television Multicast Broadcasting
DoJ	Department of Justice
DTT	Digital Terrestrial Television
DTV	Digital Television
DVB	Digital Video Broadcasting
DVB-T	Digital Video Broadcasting Terrestrial
ECT	Electronic and Communications Transactions
ECHR	European Convention on Human Rights
FCC	Federal Communications Commission
FM	Frequency Modulation
FTC	Federal Trade Commission

FTTH	Fibre-to-the Home
FTTx	Fibre to the x
GSMA	Global System Mobile Communications Association
HDTV	High Definition Television
IBOC	In-band on-channel
ICTs	Information and Communication Technologies
IT	Information Technology
ITC	Independent Television Commission
iDTV	Integrated Digital Television
ISDB - TSB	Integrated Services Digital Broadcasting - Terrestrial Sound Broadcasting
ISDB	Integrated Services Digital Broadcasting
IPTV	Internet Protocol Television
ITU	International Telecommunication Union
ITU-R	International Telecommunication Union Radio
IBA	Independent Broadcasting Authority
LNB	Low-Noise Block
OFCOM	Office of Communications
OFTEL	Office of Telecommunications
OECD	Organisation for Economic Cooperation and Development
OTT	Over the Top
MIBS	Ministry of Information and Broadcasting Services
MPEG4	Motion Pictures Expert Group Video Compression Standard 4
MR	Mixed Reality
NERA	National Economic Research Associates
NTSC	National Television Standards Committee
PAL	Phase Alternating Line
PLC	Power Line Communications
PSTN	Public Switched Telephone Network
RAM	Random Access Memory
RF	Radio Frequency
RRC-06	Regional Radio Communication Conference of 2006
SECAM	Sequential Colour with Memory
SMAG	Spectrum Management Advisory Group

SMS	Subscriber Management Service
SOP	Standard Operating Procedures
STBs	Set Top Boxes
TVIP	Television over Internet Protocol
UHF	Ultra High Frequency
USA	United States of America
UK	United Kingdom
VHF	Very High Frequency
VOD	Video in Demand
VoIP	Voice over Internet Protocol
VCR	Video Cassette Player
VR	Virtual Reality
WHO	World Health Organisation
WiMAX	Worldwide Interoperability for Microwave Access
ZAMCOM	Zambia Institute of Mass Communication
ZICTA	Zambia Information and Communications Technology Authority
ZM	Zambia
ZNBC	Zambia National Broadcasting Corporation

CHAPTER 1

INTRODUCTION

1.1 Background to the Study

Broadcasting is a service by radio waves in which the transmissions are intended for direct reception by the general public and encompasses audio, video or other types of transmissions (Zambia Digital Migration Policy, 2014). Skretvedt & Sterling (1987) states that radio broadcasting is a concept that started early 20th century. Wireless communication became a theoretical proposition in 1864 when Scottish mathematician and physicist James Clerk Maxwell predicted the existence of invisible electromagnetic waves (The Gale Encyclopaedia of Communication and Information 2002).

In the 1890s, four inventors simultaneously worked on wireless transmission and detection. However, Guglielmo Marconi began wireless experiments in 1894 and created a wireless system that was capable of sending and detecting a signal (The Gale Encyclopaedia of Communication and Information 2002). Guglielmo Marconi is often credited as the inventor of radio (Coe 1996).

The television is still one of the most important medium worldwide for disseminating information and providing entertainment. It has overtime become one of the greatest gifts of electronics (Nwulu, et al. 2010). The first flickering shadows of television were already in the ether before radio was well established. In 1923, Vladimir K. Zworykin, an employee of Westinghouse, patented the icono-scope television picture tube. Four years later, Philo Farnsworth improved the system and patented the dissector tube. While others had experimented with ways to broadcast an image, these two independent inventors (Vladimir K. Zworykin and Philo Farnsworth) share credit for the birth of all-electronic television transmission. (The Gale Encyclopaedia of Communication and Information, 2002)

There are two types of broadcasting, which are Radio and Television. Further, broadcasting is of two modes i.e. analogue and digital. Analogue Broadcasting is the process of using analogue signals for broadcasting over radio frequency bands, whereas Digital Broadcasting is the process of using digital signals for broadcasting over radio frequency bands (Beonair Network, 2017).

Analogue radio consists of two main types: Amplitude Modulation (AM) and Frequency Modulation (FM), (Beonair Network, 2017). Further, four standards for digital radio systems exist worldwide: IBOC (In-Band On-Channel), DAB (Digital Audio Broadcasting), ISDB-TSB (Integrated Services Digital Broadcasting-Terrestrial Sound Broadcasting), and DRM (Digital Radio Mondiale). All these standards are different from each other in several respects (Beonair Network, 2017)

Revolvy, LLC (2017) highlights the three main analogue television systems in use around the world as being NTSC (National Television Standards Committee), PAL (Phase Alternating Line), and SECAM (Sequential Colour with Memory). However, these analogue systems are being phased out due to migration to digital broadcasting. Now in digital television (DTV), there are four main systems in use around the world: ATSC (Advanced Television Systems Committee), DVB (Digital Video Broadcasting), ISDB (Integrated Services Digital Broadcasting) and DTMB (Digital Terrestrial Multimedia Broadcast) (Tecnicontrol 2017, 'Who own Copyright?').

The broadcasting industry has undergone substantial structural change over the last two decades. Until the early 1980s, the industry was relatively homogeneous. Broadcasters transmitted their services over the air waves (terrestrial transmission) and scarcity of spectrum and analogue technology restricted the number of channels. The industry was often defined by its "point to multi-point" format. A broadcaster transmitted its programmes which could be received at the same time by all citizens who had a radio or television set (OECD 2004).

Radio and television broadcasting were subject from the beginning to high levels of restriction, sometimes involving public control approaching a condition of censorship. The general concept of social responsibility and public interest lies at the core of the broadcasting model of regulation (McQuail, 2017).

Harvey (cited in Ihechu & Okugo 2013) states that Regulation involves intervention by the state in areas of economic, social or cultural life according to whatever governance norms are characteristic of that nation state. Regulations may be issued by presidential decree, by religious prescription or by legislative action within a system of governance. However, McQuail (2017) argues that the growth and development of broadcasting has usually been met with controversies in the face of regulation. Further, McQuail (2010)

states that “regulation by its very nature sets limits to freedom…. At the very least, this means that there have to be clear and convincing reasons for regulation, and although we can give general justifications for regulation that help to reconcile it with principles of freedom and governance, we cannot escape from this underlying tension”.

A distinctive feature of media regulation is the fact that each successive medium has tended to attract its own distinctive model of regulation, appropriate to the technology and form of organisation and the particular functions and applications involved (McQuail, 2017). Three main regulatory models have been identified, applicable to the press, telecommunications (especially telegraphy and telephony) and broadcasting, respectively (Pool, 1983). Although the distinctions involved are becoming increasingly hazy because of deregulation and convergence, it is still useful to base our discussion on this pattern (McQuail, 2017). In this context, a `model' is a framework of inter-related regulation that is based on some legitimating principles and can be referred to for settling disputes, implementing policy and responding to change. The advancement in technology and Convergence has given birth to a number of digital broadcast systems culminating into Information Communications Technology (ICT) based broadcasting services.

Traditionally, there are some rationale that inspired the regulation of broadcasting. The sinking of the Titanic ship, with the tragic loss of hundreds of lives, forced congressional action intent on providing compliance for America with its international treaty obligations in wireless communication (Messere 2011). The Radio Act of 1912 was the first attempt to apply some comprehensive legislative oversight to the radio industry in America; by instituting a requirement that each station operator be licensed and that the government prescribe regulations to minimize interference (Messere 2011).

There are however, a number of rationales that necessitated the need for broadcasting regulation. One of them is the Scarcity Rationale that is premised on the idea that AM and FM radio, and VHF and UHF TV are provided by the use of radio spectrum; governed by the idea that the traditional broadcasters should be regulated by the government because radio spectrum was scarce (Berresford 2005).

Thierer (2010) postulates that the propensity for regulation of broadcasting can be supported by addressing regulatory concerns such as “scarcity-based” rationale for

regulating broadcast uniquely being eroded by the rise of media abundance; increasing media/technological convergence and cross-platform competition with respect to challenges posed, and effectiveness of, broadcast-specific regulation; the "pervasiveness" rationale for broadcast regulation been rendered moot by new marketplace/technological realities; the regulator's broadcast indecency process being arbitrary and overly susceptible to special interest influence; parents being empowered to make household content determinations for themselves; and reaching the limits of the "it's-for-the-children" rationale for broadcast regulation, especially since parents have been empowered and children are increasingly flocking to alternative media sources beyond over-the-air broadcasting. Further, Thierer (2010) postulates that, if any one of these concerns could be answered in the affirmative, it would call into question the continued sensibility of asymmetrical regulation of the broadcast industry.

At the basic level of broadcasting, regulation involves the issuance of permission, that is, the granting of broadcasting licence to organizations. Broadcasting regulation is dependent on the cultural, social, political and economic systems, and also contributes to the shaping of these systems, thereby affecting the economic and management structures of broadcasting (Harvey 1999, cited in Ihechu & Okugo 2013). Regulations are usually administered directly by government. It could also be administered through statutory agencies (Ihechu, 2013). However, Mendel and Salomon (2011) argues that a sound regulatory framework involves both the setting of strong policy objectives and rules through the law, and the establishment of an independent regulatory authority which will administer the law and apply the rules.

This study will focus on the regulation of television ICT based (digital) broadcasting in the digital age, in the context of Zambia. The rationale to focus on television broadcasting is premised on the fact that of the two broadcasting types (i.e. radio and television), only television has substantially undergone digital transition thus far. Radio broadcasting is still generally analogue (Digital Migration Policy, 2015).

Zambia was first introduced to digital broadcasting via satellite by MultiChoice in 1995 (MultiChoice Africa (2017), "who owns copyright"). However, other forms of digital broadcasting were recently introduced e.g. Cable TV, Digital Terrestrial TV, Video-on-Demand (VOD), Web TV and Internet Protocol TV (IPTV), (Musakanya, 2017).

Having had mainly analogue terrestrial television broadcasting since the inception of broadcasting in Zambia, the existing regulations are largely based on analogue broadcasting (Zambia Digital Migration Policy 2014).

In an effort to regulate the broadcasting sector, Parliament of the republic of Zambia passed the Independent Broadcasting Authority (IBA) Act No. 17 of 2002 and the Amendment Act No. 26 of 2010, which provides for the registration of broadcasting stations and regulation of their content. Meanwhile, the Zambia Information and Communications Technology Authority (ZICTA) which is an autonomous statutory body established by the repealed Telecommunications Act Chapter 469 of 1994 under the name Communications Authority of Zambia (CAZ) but was renamed as ZICTA by the Information and Communications Technology (ICT) Act No 15 of 2009. The ICT Act mandates ZICTA to regulate all electronic communication products and services. The broadcasting licenses are issued under the IBA Act while the frequency licenses are issued by ZICTA under the ICT Act No. 15 of 2009. Therefore, the current broadcasting licensing mechanism is a two stage process involving the two regulators (Zambia Digital Migration Policy 2014).

Broadcasting in Zambia is governed by four Acts i.e. Zambia National Broadcasting Corporation (ZNBC) Act of 1987 and its Amendment of 2010, IBA Acts No. 17 of 2002 and the Amendment Act No. 26 of 2010, ICT Act of 2009 and the Electronic, Communications and Transactions (ECT) Act of 2009 and the Information and Communications Technology Act of 2009. The ZNBC Act provides for public broadcasting enactment and operation (ZNBC Act 2010). The IBA is responsible for regulating the broadcasting industry in Zambia (IBA Act, 2010). The ECT Act of 2009 was enacted to develop a safe, secure and effective environment for the consumer, business sector and the government to conduct and use electronic communications; encourage investment and innovations in the electronic communications industry; facilitate the creation of secure communication systems and networks among others (ECT Act, 2009). Finally, the ICT Act of 2009 provide for the regulation of information and communication technology; facilitate access to information and communication technologies; protect the rights and interests of service providers and consumers, among others (ICT Act, 2009).

There are numerous forms of technological convergence that are taking place arising from the advancement in ICTs (NERA Economic Consulting 2016). As a result, many countries are restructuring their policies and regulation frameworks to create a single regulatory framework dealing with convergence of ICTs (Zambia Digital Migration Policy 2014).

The IBA (Amendment) Act of 2010 defines broadcasting as any form of uni-directional electronic communication intended for reception by (a) the public (b) sections of the public; or (c) subscribers to any broadcasting service, whether conveyed by any means of radio frequency spectrum or any electronic communications network or any combination thereof. This definition of broadcasting is restrictive due to the use of the term "uni-directional". The implication here is that any form of broadcasting that is not uni-directional or is bi-direction automatically falls out of scope of regulation going by the IBA Act. Further, the IBA Act has not provided for the definition of IPTV or VOD nor accounted for their regulation. The International Telecommunications Union (ITU) recognises and provides for other forms of broadcasting such as IPTV. IPTV refers to broadcasting services such as Television; Video; Audio; Graphics; delivered over IP based networks managed to provide the required level of Quality of Service/Quality of Experience, security, interactivity and reliability (ITU 2009). The definition by ITU provides for ICT based broadcasting services provided by Over the Top Operators or those delivered via Internet Protocol. In addition, the definition of broadcasting by the IBA Act also highlights some lacuna in addressing the regulation of ICT based broadcasting as some are bi-directional in nature. This also demonstrates why Over the Top (OTT) operators such as Netflix and other providers of VOD or IPTV are not regulated in Zambia.

1.2 Statement of the Problem

Zambia has seen technological transitions in the broadcasting sector from analogue to digital broadcasting and the adoption of emerging ICT-based broadcasting such as IPTV and VOD provided by OTTs. The emergence of OTT services in competition with traditional communications and content services has led to discriminatory regulation of similar services and competing companies on one hand. On the other hand, the legacy ex ante regulatory regimes traditionally governing communications markets are no longer effective in the face of rapid innovation—and in many cases, are no longer necessary, given

the emergence of dynamic competition and changing markets (NERA Economic Consulting 2016).

The problem is that Zambia has gone digital but the broadcasting policies, Acts and legal frameworks which have their origins in analogue broadcasting have not been updated to provide for the implications of digital broadcasting growth, convergence and consequently dynamic markets.

CEC liquid Telecoms in their attempt to launch a VOD Service in Zambia in 2015 wrote a letter to IBA inquiring if there is in form of regulation for VOD service citing the IBA Act on its definition of broadcasting (as being uni-directional) and the scope of broadcasting regulation (personal communication, 24th June 2015). Ms. Josephine Mapoma, Director General of IBA in her email response of 15th July, 2015 indicated that "under the provisions of the IBA Act (2010), broadcasting is defined as any form of uni directional electromagnetic communication intended for reception by a) the public; b) sections of the public; or c) subscribers of any broadcasting service, whether conveyed by means of radio frequency spectrum or any electronic communications network or any combination thereof. Therefore the Internet Protocol (IP) based broadcasting services such as Video on Demand services and other IP-based content provision services that are bi-directional as opposed to uni-directional as per definition in the IBA (amendment) Act No. 26 of 2010 are not of broadcasting nature and thus falls out of the scope of regulation. This lacuna still remain a challenge in the Zambian broadcasting Act to date.

The reviews of broadcasting regulation in the digital ecosystem should lead to changes that allow the sector to adapt to changing markets, failure to which markets can become distorted in ways that harm competition, slow innovation and ultimately deprive consumers of the benefits of technological progress (NERA Economic Consulting 2016). For instance, IP-based subscription content service providers or OTT content service broadcasters are not regulated under the current regulatory framework, meanwhile they are operating within the same market where other regulated content service providers are providing the same or similar service.

The main aim of broadcast regulation in the digital ecosystem is to address market deficiencies, including inefficiencies associated with monopoly, externalities and public goods, content, and information irregularities (NERA Economic Consulting 2016).

In view of the above reasons, this study will endeavour to investigate the regulation of ICT-based television broadcasting in Zambia.

1.3 Objectives of the Study

The aim of this study is to determine the feasibility of regulating ICT-based broadcasting in a converged digital ecosystem.

The following are the objectives of this study:

i. Explore the modes of broadcasting
ii. Analyse the regulations in broadcasting
iii. Investigate possible regulatory frameworks for regulation of ICT-based (digital) broadcasting

1.4 Research Questions

Can indeed ICT-based broadcasting be effectively regulated in the digital age in Zambia?

This study will therefore address the following research questions:

i. Investigate the types of broadcasting
ii. Examine broadcasting systems
iii. Explore the broadcasting regulatory frameworks
iv. Investigate digital broadcasting regulation in a converged digital ecosystem
v. Determine the model(s) of broadcasting regulation best suited to regulate ICT based broadcasting

1.5 Significance of the study

Zambia is grappling with how to effectively regulate ICT-based broadcasting in the digital ecosystem. The research into how to regulate ICT-based broadcasting will investigate and highlight the probable framework for regulation of ICT based broadcasting.

The convergence of the telecommunications, broadcasting and IT sectors is reshaping the communications market; in particular the convergence of fixed, mobile, terrestrial and satellite communications, and communication and positioning/location systems. From the point of view of communications infrastructure and related services, convergence makes the traditional separation of regulatory functions between these sectors increasingly inappropriate and calls for a coherent regulatory regime (Toscano 2004). Convergence implies fusion of content, service, infrastructure, and end-user equipment (Baldwin et al.1996); and has far-reaching technological, economic, and regulatory implications (Winseck 1998). Therefore, there is need to interrogate these implications on the Zambian broadcasting sector in order to better understand the challenges and the possible solution(s). Further, the country has two separate regulators, one for broadcasting (i.e. IBA) and the other for information and communications technologies (i.e. ZICTA). It is thus cardinal to establish whether this current institutional setting for regulators is efficient in the light of convergence and changing markets.

The problem statement in section 1.2 above has highlighted that the existing broadcast regulations are generally prescriptive and ex ante in nature. Therefore, the study will evaluate the legal and regulatory framework of broadcasting in Zambia with respect to ICT-Based Broadcasting to review its impact on the overall broadcasting sector.

The research work will further help enlighten the regulators and scholars on ICT-based broadcasting regulation in the digital ecosystem, and serve as an addition to other literature that may exist in this field.

1.6 Scope of the study

The research will investigate how digital broadcasting in Zambia would effectively be regulated by addressing factors that have made the existing regulatory framework ineffective in the context of technological advancement, convergence and dynamic markets.

This research will limit its scope to ICT based/digital television broadcasting regulation. The research will therefore focus on television (TV) broadcasters (Content Service Providers and Subscription Management Service providers) based or headquartered in

Lusaka to represent a national sample. This is because about 96% of the television broadcasters are based or headquartered in Lusaka.

1.7 Organisation of the Dissertation

Chapter 1: Introduction

This chapter has introduced the study by providing background information on broadcasting and regulation in general, and then particularly in Zambia, including an illustration of the developments and challenges in the broadcasting sector, and the need to understand how broadcasting regulatory frameworks are being challenged due to technological advancements, convergence and changing markets. The research focus and significance were discussed and justified, the research problem and the research objectives identified.

Chapter 2: Literature Review

This chapter discusses the relevant literature reviewed in the study with respect to history and technological developments in the sector, and the regulation of digital broadcasting at global level and in Zambia. The chapter gives an overview of the genesis of broadcasting and developments over time, gives an insight into broadcasting regulation and its rationale, investigates how advancement in technology and convergence have affected the broadcasting sector and subsequently regulatory frameworks. The chapter also evaluates the regulatory developments in the digital era, and interrogates the types of regulations and regulatory models to illuminate how these are applied in the regulation of ICT-based broadcasting. In addition, this chapter extensively explores and focuses the research objectives as appropriate, contextualised the research problem's perspective based on the evolutionary model, and thoroughly examined the research questions.

Chapter 3: Methodology

This chapter outlines how the research was designed, how data was collected, processed, analysed and interpreted in an attempt to understand the regulation of ICT based broadcasting. The chapter looks at the research methods, sampling techniques, framework for data analysis, study population and ethics considered during the study.

Chapter 4: Research Findings

This chapter discusses the results of the survey with respect to ICT-based broadcasting, the regulations in broadcasting, how ICT-based broadcasting is regulated; the findings on modes of broadcasting, access and utilisation; the status of broadcasting regulation and how the content, market, technology, functionality and prescriptive types of broadcasting regulations are applied; the application of the types of broadcasting regulation. Broadcasting regulation is justified; advancement in technology and convergence are found to be intrusive to the existing regulatory framework, and research objectives are met.

Chapter 5: Discussion

This chapter discusses the research as a whole by making reference to the objectives on the study, the reviewed literature and the findings; the study determined the different types of ICT based broadcasting and types of regulations applied in regulating broadcasting. The chapter also discusses the findings of the study and with respect to the reviewed literature and findings from the empirical survey.

Chapter 6: Conclusion and Recommendations

Based on the reviewed literature, findings and discussion of the study, this chapter concludes the study. It highlights why different jurisdictions apply the standard types of broadcasting regulations depending on their respective governance and institutional settings, and regulatory objectives. The chapter further highlights the impact of digitisation and convergence on regulatory and governance structures; and how this is creating a paradigm shift in regulatory approaches.

The study also makes recommendations based on the regulatory gaps in the law, findings of the study, and deficiencies and inefficiencies in institutional settings.

1.8 Theoretical Framework

The research problem presented is one that is dynamic and is known to be disruptive to the existing markets, regulatory and governance structures in broadcasting and ICTs; and the impact has been felt worldwide. The study will employ Evolutionary Theoretical Framework. Evolutionary models view innovation as a path-dependent process. Evolutionary studies of technological change have combined fundamentals from biology, equilibrium thermodynamics, organizational theory and heterodox approaches in economics. The evolutionary model emphasizes that outcomes are determined by the evolutionary process; it points out that the process is as important as the results from research and development. Saviotti (1996), outlines the following key concepts in an evolutionary approach to innovation:

(i) Generation of variety: innovations are seen as equivalent to mutations.
(ii) Selection process: the outcome is the survival of some products, technologies, and firms to the environment.
(iii) Reproduction and inheritance: firms are producing organizations and there is inheritance in the continuity of business activities.
(iv) Fitness and adaptation: propensity of an economic unit to be successful in a certain environment.
(v) Population perspective: variances in the population should be analysed.
(vi) Elementary interactions: competition and collaboration among economic units.
(vii) External environment: socioeconomic and natural environment

Evolution Model can be used in an ‘as if’ manner, that is, the principles of ‘variation’, ‘selection’, and ‘preservation’ (and the meanings ascribed to them through conceptualization) are analogically transferable to the technological innovation research area. The proposition is supported through reference to theoretical and empirical research, highlighting the similarity with respect to the generative mechanisms, structures and contingent conditions underpinning both ‘evolution’ and ‘technological innovation’ (Myers 2006).

The context of regulation being interrogated in this study involve interactions of evolving technologies, services, policies, regulatory frameworks, markets, people and other systems in a digital ecosystem. The vastness and dynamism of the subject matter would requisite a more vast and robust theoretical framework to appropriately interrogate the study. The Evolutionary Theoretical Framework has be chosen as a best suited framework for this study based on the proposition that explaining most, if not all processes that incorporate human experience and activity, requires strong links to aspects of evolutionary theory.

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CHAPTER 2

LITERATURE REVIEW

2.1 History of Broadcasting

Broadcasting is a service by radio waves in which the transmissions are intended for direct reception by the general public and encompasses audio, video or other types of transmissions (Zambia Digital Migration Policy 2014).

There is no single person that can be credited with inventing radio. Radio's "inventors" almost all refined an idea put forth by someone else. Wireless communication became a theoretical proposition in 1864 when Scottish mathematician and physicist James Clerk Maxwell predicted the existence of invisible electromagnetic waves. More than twenty years later, German physicist Heinrich Hertz conducted experiments in 1887 to prove that Maxwell's theories were correct. The fundamental unit of electromagnetic wave frequency, the hertz (Hz), is named for him, though Hertz never promoted wireless communications (The Gale Encyclopaedia of Communication and Information 2002).

In the 1890s, four inventors simultaneously worked on wireless transmission and detection. French physicist Edouard Branly invented a signal detector called a "coherer" that consisted of a glass tube filled with metal filings that reacted when a signal was detected. English physicist Oliver Lodge worked on the principle of resonance tuning, which allowed the transmitter and receiver to operate on the same frequency. Russian Alexander Popoff developed a better coherer and a vertical-receiving antenna. The fourth and best-known inventor-innovator was the twenty-year-old Italian Guglielmo Marconi, who began wireless experiments in 1894. Within two years, Marconi created a wireless system that was capable of sending and detecting a signal. When the Italian government showed no interest in wireless communication, Marconi's family contacts enabled him to meet investors in England. He founded British Marconi in 1897 and began marketing radio as a telegraph that required no wires to send Morse code dots and dashes. British Marconi and the U.S. subsidiary, American Marconi, dominated wireless communication for ship-to-shore and transatlantic communications until after World War I (The Gale Encyclopaedia of Communication and Information 2002). Guglielmo Marconi is often credited as the inventor of radio (Lewis Coe, 1996).

Television remains one of the most important medium worldwide for disseminating information and providing entertainment. It has overtime become one of the greatest gifts of electronics (Nnamdi I. Nwulu, et al. 2010). The first flickering shadows of television were already in the ether before radio was well established. In 1923, Vladimir K. Zworykin, an employee of Westinghouse, patented the icono-scope television picture tube. Four years later, Philo Farnsworth improved the system and patented the dissector tube. While others had experimented with ways to broadcast an image, these two independent inventors share credit for the birth of all-electronic television transmission. (The Gale Encyclopaedia of Communication and Information 2002)

2.2 Radio Broadcasting

2.2.1 Analogue Radio

Analogue Broadcasting is the process of using analogue signals for broadcasting over radio frequency bands (Beonair Network, 2017). Analog radio consists of two main types: AM (amplitude modulation) and FM (frequency modulation). Analog radio station frequently feeds only one transmitter and referred to as an AM station or an FM station. However, it is quite possible for a station to feed both transmitters in a similar area, or to feed more than one transmitter covering different areas. AM radio uses the long-wave band in some nations. This long-wave band comes with frequencies that are fairly lower than the FM band, and having slightly different transmission features, better for broadcasting over long distances. Both AM and FM are in use to broadcast audio signals to home, car, and moveable receivers. (Beonair Network 2017, "Who owns copyright").

2.2.2 Digital Radio

Digital radio is the system of broadcasting using digital electronic signals that carry sound and information about what is being broadcast (Cambridge English Dictionary 2018). Four main standards for digital radio systems exist worldwide: IBOC (In-Band On-Channel), DAB (Digital Audio Broadcasting), ISDB-TSB (Integrated Services Digital Broadcasting-Terrestrial Sound Broadcasting), and DRM (Digital Radio Mondiale). All are different from each other in several respects and the Beonair website clearly explains them (Miami, Ohio, Illinois and Colorado Media Schools 2017, 'Who owns copyright'). These are as

outlined in ***sub-section 2.3*** below. The section also highlights two other variants of digital broadcasting in radio.

2.3 Digital Radio Broadcasting Systems

2.3.1 In-Band On-Channel (IBOC)

A company named iBiquity Digital Corporation, with a trademarked name of HD Radio, developed IBOC and still continues to manage it. Introduced for a regular use in 2003, it's now in frequent use in the U.S. The majority of U.S. HD radio stations are using FM band, and most of those are offering one or more multicast services. IBOC stations broadcast two versions of its primary content: analog and digital. So they're serving both legacy and new receivers using the same broadcast channel (Miami, Ohio, Illinois and Colorado Media Schools 2017, 'Who owns copyright', para. 2).

2.3.2 Digital Audio Broadcasting (DAB)

Digital audio broadcasting (DAB), also known as digital radio and high-definition radio, is audio broadcasting in which analog audio is converted into a digital signal and transmitted on an assigned channel in the AM or (more usually) FM frequency range (Techtarget 2018, 'Who owns copyright?', para. 1).

Also known as Eureka 147 in the U.S. and as Digital Radio in the U.K., DAB comes with a number of advantages similar to IBOC. However, DAB is fundamentally different in its design. Unlike IBOC, DAB cannot share a channel with an analog transmit. Therefore, it needs a new, dedicated band. Each DAB broadcast also needs much more band as it consists of multi-program services (typically 6 to 10, depending on quality and the amount of data it carries). This makes it unusable by a typical local radio station. It is generally implemented with the cooperation of several broadcasters, or by a third-party aggregator that acts as service operators for broadcasters. DAB has been improved into two versions known as DAB+ and DAB-IP. These developments increase the range of DAB signal. Today, almost 40 countries worldwide have DAB services on air (mostly in Europe), and others are thinking about the adoption of it or one of its variants (Miami, Ohio, Illinois and Colorado Media Schools 2017, 'Who owns copyright', para. 3).

2.3.3 Integrated Services Digital Broadcasting-Terrestrial Sound Broadcasting (ISDB-TSB)

ISDB-TSB was developed specifically for Japan in 2003 as a digital radio system used for multi-program services. It is currently using transmission frequencies in the VHF band. A unique feature of ISDB-TSB is that the digital radio channels are intermingled with ISDB digital TV channels in the similar broadcast (Miami, Ohio, Illinois and Colorado Media Schools 2017, 'Who owns copyright', para. 4).

2.3.4 Digital Radio Mondiale (DRM)

DRM is a system developed primarily as a direct substitute for AM international broadcasting in the short-wave band. DRM uses the similar channel plan as the analog services, and, with some limitations and changes to the analog service, a DRM broadcast can share the same channel with an analog station, existing channel allocations in DRM is a single audio channel system when used with. An enhanced version is DRM +, introduced in 2007 for the VHF band. This improvement presents two-channel and surround-sound capability (Miami, Ohio, Illinois and Colorado Media Schools 2017, 'Who owns copyright', para. 5).

2.3.5 Sirius XM

Sirius XM is the combination of two similar but competing satellite radio services: XM Satellite Radio and Sirius Satellite Radio. XM and Sirius, which still operate separately at the retail level, are subscription services. They broadcast more than 150 digital audio channels intended for reception by car, portable, and fixed receivers (Miami, Ohio, Illinois and Colorado Media Schools 2017, 'Who owns copyright', para. 6).

2.3.6 Internet Radio

Many radio stations are now using online streaming audio services to provide a simulated broadcast of their over-the-air signals to web listeners. A broadcaster may also offer additional online audio streams that are re-purposed, time-shifted, or completely different from their on-air services. Because no scarcity of bandwidth or obligation for licensing of online services exists, broadcasters may offer as many services as they wish. Unlike over-the-air broadcasting, web distribution is delivered to end-users by the third-party

telecommunication providers on a nationwide or worldwide basis (Miami, Ohio, Illinois and Colorado Media Schools 2017, ‘Who owns copyright’, para. 7).

2.4 Television Broadcasting

2.4.1 Analogue Television

There are various standards of broadcasting systems. The three main analogue television systems in use around the world until the 2010s as being NTSC (National Television Standards Committee), PAL (Phase Alternating Line), and SECAM (Sequential Colour with Memory), (Revolvy, LLC 2017). Different countries and continents adopted different encoding systems. Therefore, each country chose an encoding system based on their local political, technical, and economic disposition (Paradiso-Design 2017, ‘who owns copyright?’, para. 1).

2.4.2 Analogue Terrestrial TV

Terrestrial television are modes of television broadcasting which do not involve satellite transmission or via underground cables. Terrestrial television broadcasting dates back to the very beginnings of television as a medium itself and there was virtually no other method of television delivery until the 1950s with the beginnings of cable television, or community antenna television (CATV). The first non-terrestrial method of delivering television signals that in no way depended on a signal originating from a traditional terrestrial source began with the use of communications satellites during the 1960s and 1970s of the twentieth century (Tecnicontrol 2018, ‘who owns copyright’)

Analogue TV encodes the image and sound information and transmits them as an analogue signal in which the message transmitted by the broadcasting signal is composed of amplitude and/or frequency variations and modulated into a VHF or UHF carrier. The analogue television picture is "drawn" several times on the screen (25 in PAL system) as a whole each time, as in a motion picture film, regardless of the content of the image (Tecnicontrol 2018, ‘who owns copyright’).

All but one analogue television system began as black-and-white systems. Each country, faced with local political, technical, and economic issues, adopted a colour television system which was grafted onto an existing monochrome system, using gaps in the video

spectrum to allow colour transmission information to fit in the existing channels allotted. The grafting of the colour transmission standards onto existing monochrome systems permitted existing monochrome television receivers predating the changeover to colour television to continue to be operated as monochrome television. Because of this compatibility requirement, colour standards added a second signal to the basic monochrome signal, which carries the colour information. The colour information is called chrominance with the symbol C, while the black and white information is called the luminance with the symbol Y. Monochrome television receivers only display the luminance, while colour receivers process both signals. All countries used one of three colour systems: NTSC, PAL, or SECAM. Analog television signal standards are designed to be displayed on a cathode ray tube (CRT), and so the physics of these devices necessarily controls the format of the video signal. (Revolvy LLC 2017, 'who owns copyright').

2.4.3 Digital Television

Digital television broadcasting is the use of the digital technology in the transmission and reception of broadcasting services (Broadcasting Authority of Zimbabwe 2018, 'who owns copyright', para. 3). The report by the International Telecommunications Union for Radiocommunication (2017), says "the major commercial advantage of digital broadcasting is the ability to offer a greater range and diversity of services and applications".

Programming broadcast is the transmission of television stations' programming (sometimes called channels) that is often directed to a specific audience. Below are several types of digital TV broadcast systems (Tecnicontrol 2017, 'who owns copyright'):

a) Digital Satellite TV

b) Digital Cable TV

c) New technologies:

   i. Digital terrestrial TV (DTTV)

   ii. High Definition Television (HDTV)

   iii. Video-on-demand

iv. Web TV

v. IPTV

Sections 2.4.4 to 2.5 investigates the above digital TV broadcast systems.

2.4.4 Digital Satellite TV

Satellite television is television signals delivered by means of communications satellites and received by satellite dishes and set-top boxes. In many areas of the world it provides a wide range of channels and services, often to areas that are not serviced by terrestrial or cable providers. Satellite television, like other communications relayed by satellite, starts with a transmitting antenna located at an uplink facility which have very large uplink satellite dishes, as much as 9 to 12 meters (30 to 40 feet) in diameter. This results in more accurate aiming and increased signal strength at the satellite (Tecnicontrol 2017, 'who owns copyright').

The uplink dish is pointed toward a specific satellite and the uplinked signals are transmitted within a specific frequency range, so as to be received by one of the transponders tuned to that frequency range aboard that satellite, which 'retransmits' the signals back to Earth but at a different frequency band, a process known as "translation", used to avoid interference with the uplink signal, typically in the C-band (4–8 GHz) or Ku-band (12–18 GHz) or both. The downlinked satellite signal, quite weak after traveling the great distance, is collected by a parabolic receiving dish, which reflects the weak signal to the dish's focal point where is a "downconverter" device called LNB (low-noise block) that is essentially a waveguide that gathers the signals, amplifies the relatively weak signals, filters the block of frequencies in which the satellite TV signals are transmitted, and converts it to a lower frequency range in the L-band range. The satellite receiver demodulates and converts the signals to the desired form (outputs for television, audio, data, etc.) and sometimes, the receiver includes the capability to unscramble or decrypt; (Tecnicontrol 2017, 'who owns copyright').

2.4.5 Digital Cable TV

Cable Television or Community Antenna Television (CATV) is a system for distribution of audio-visual content for television, FM radio and other services to consumers through

fixed coaxial cables, avoiding the traditional system of radio broadcasting antennas (broadcast television) and have widespread use, mainly through the pay-tv services. Technically, the cable TV involves the distribution of a number of television channels received and processed in a central location (known as head-end) to subscribers within a community through a network of optical fibre and/or coaxial cables and broadband amplifiers (Tecnicontrol 2017, 'who owns copyright').

The use of different frequencies allows many channels to be distributed through the same cable, without separate wires for each, and the tuner of the TV or Radio selects the desired channel from among all transmitted. A cable television system begins at the head end, where the program is received (and sometimes originated), amplified, and then transmitted over a coaxial cable network. The coaxial cable has a bandwidth capable of carrying a hundred television channels with six megahertz of bandwidth each. Most of the TV tuners are able to directly receive the cable channels, which are usually transmitted in the RF (radio frequency) band, however, many programs are encrypted and subject to a tariff itself and in such cases, a converter is installed between the cable and the receiver (Tecnicontrol 2017, 'who owns copyright').

2.5 New Technologies

2.5.1 Digital Terrestrial TV

Digital Terrestrial Television (DTTV or DTT) is an implementation of digital television technology to provide a greater number of channels and/or better quality of picture and sound using aerial broadcasts to a conventional antenna (or aerial) instead of a satellite dish or cable connection. The technology used in Europe and Africa is DVB-T that is immune to multipath distortion. DTTV is transmitted on radio frequencies through the airwaves that are similar to standard analogue television, with the primary difference being the use of multiplex transmitters to allow reception of multiple channels on a single frequency range such as a UHF or VHF channel (Tecnicontrol 2017, 'who owns copyright').

The amount of data that can be transmitted (and therefore the number of channels) is directly affected by the modulation method of the channel. DTTV is received via a digital

set-top box, or integrated receiving device, that decodes the signal received via a standard aerial antenna. (Tecnicontrol 2017, ‘who owns copyright’).

2.5.2 HDTV

The high-definition television, also known as HDTV (High Definition Television) is a television system with a resolution significantly higher than in the traditional formats (NTSC, SECAM, PAL). The HDTV is transmitted digitally and therefore its implementation generally coincides with the introduction of digital television (DTV), technology that was launched during the 1990s. Although several patterns of high-definition television have been proposed or implemented, the current HDTV standards are defined by ITU-R BT.709 as 1080i (interlaced), 1080p (progressive) or 720p using the 16:9 screen format (Tecnicontrol 2017, ‘who owns copyright’).

The term "high definition" can refer to the specification of the resolution itself or, more generally, the media capable of such a definition as the video media support or the television set. HDTV yields a better-quality image than standard television does, because it has a greater number of line resolution. The visual information is some 2 to 5 times sharper because the gaps between the scan lines are narrower or invisible to the naked eye (Tecnicontrol 2017, ‘who owns copyright’).

2.5.3 Video-On-Demand

Video on demand is a system that allows users to select and watch video content of their choice on their TVs or computers. Video on demand is one of the dynamic features offered by Internet Protocol TV (Techopedia 2018, ‘Who owns copyright?’). Video-on-Demand (VoD) or Audio-Video-on-Demand (AVoD) systems allow users to select and watch/listen to video or audio content on demand. VoD systems either stream content through a set-top-box, allowing viewing in real time, or download it to a device such as a computer, digital video recorder, personal video recorder or portable media player for viewing at any time (Tecnicontrol 2017, ‘who owns copyright’).

Download and streaming video-on-demand systems provide the user with a large subset of VCR functionality including pause, fast forward, fast rewind, slow forward, slow rewind, jump to previous/future frame etc., these functions are called trick modes. For disk-based streaming systems which store and stream programs from hard disk drive, trick modes

require additional processing and storage on the part of the server, because separate files for fast forward and rewind must be stored. Memory-based VoD streaming systems have the advantage of being able to perform trick modes directly from RAM, which requires no additional storage or CPU cycles on the part of the processor (Tecnicontrol 2017, ‘who owns copyright’).

2.5.4 Web TV

Web TV, TVIP, or TV on the Internet is the transmission of a programming grid through the Internet. It can be known "normal" TV channels or channels specifically designed for the Internet. Web TV, in a simplified form, is nothing more than the provision of video and audio over the Internet; and the way to assist the transmission varies from the monitor of a computer through the use of an iPod or a mobile phone to the TV set if one have the decoder (Tecnicontrol 2017, ‘who owns copyright’).

2.5.5 IPTV (TV over Internet Protocol)

The introduction of Television over Internet Protocol technology, commonly known as IPTV, made a revolution on the distribution networks for TV signals, allowing eliminate many of the problems associated with a distribution network based on coaxial cables, in particular those related with the degradation of signal, interference, signal levels, and capacity of the transmission of the channel’s band (Tecnicontrol 2017, ‘who owns copyright’).

IPTV is defined as multimedia services such as television, video, audio, text, graphics or data delivered over IP based networks managed to provide the required quality of service, security, interactivity and experience (ITU 2018). IPTV should not be confused with internet video which are unmanaged services that are offered by the streaming of video through the public internet (for example, YouTube where users can upload and view other user’s videos). Similarly Internet television or broadcasting is streamed through the public internet, usually on a peer-to-peer network. By comparison, IPTV is offered over an IP-based platform and on a managed network, and can be received via a television with a set-top box or via a computer. As such, while internet video and Web TV is seen to be available in a public sphere, IPTV is only available on a secure closed system with managed quality of service (Independent Communications of South Africa, 2010).

IP (Internet Protocol) has made possible the combination of several interfaces in a multi-service unit and the broadcast and distribution of diverse and varied services on the same network, which previously required differentiated infrastructure, including: TV signals, telephone service and broadband Internet access, setting a platform we know today as Triple Play. Studies show that the churn rate (voluntary abandonment of service) of the offer triple play subscribers is substantially lower than that observed when the voice, data and TV are sold on a non-convergent way (Tecnicontrol 2017, 'who owns copyright').

2.6 Broadcasting in Zambia

2.6.1 History of Television Broadcasting in Zambia

The introduction of television broadcasting services in Zambia started in 1961 on the Copperbelt Province targeted at the mining expatriates only. Later in 1965, it was extended to Lusaka and coverage has been expanding ever since to about 80% of country's population in 2012 (Zambia Digital Migration Policy, 2014, p. 2).

Analogue television broadcasting services in Zambia are offered in bands III (174-230MHz), IV (470-582MHz) and V(614-854MHz) in accordance with the ITU Geneva 1989 (GE-89) and Stockholm 1969 (ST-69) broadcasting plans (Digital Migration Policy 2014).

Until the early 1990s when the broadcasting sector was liberalized, broadcasting services were a sole monopoly of the Government. However, since the liberalization policy was put in place, there has been tremendous growth and development in the country's broadcasting sub-sector (Zambia Digital Migration Policy, 2014, p. 3).

2.6.2 Current Developments in the Zambian Broadcasting Industry

The broadcasting landscape in Zambia has seen tremendous changes in the past few years. These changes include the dawn of Digital Migration, Video on Demand and Internet Protocol Television (IPTV).

Digital migration arose from the Regional Radio Communication Conference of 2006 (RRC06) and the subsequent Geneva 2006 Agreement (GE06) of the International

Telecommunication Union (ITU) , recommendations which resolved that all countries including Zambia which is a signatory to the agreement must migrate from analogue to digital broadcasting services by 17th June, 2015 (Zambia Digital Migration Policy, 2014). Therefore, in 2014, the Ministry of Information and Broadcasting Services (MIBS) drafted the Digital Migration Policy to set the guidelines of migrating Zambia's broadcasting sector from analogue to digital terrestrial broadcasting. The Digital Migration Policy (2014) states that digital technologies are facilitating increased convergence between the traditionally separate businesses of broadcasting, telecommunications and the Internet.

The importance of digital migration is that whereas in analogue terrestrial television one frequency carries one program channel, Digital Terrestrial Television (DTT) uses one frequency to carry multiple program channels thereby allowing for transmission of many television programs using fewer frequencies and at a lower cost (Zambia Digital Migration Policy, 2014, p3).

Digital broadcasting enables efficient utilisation of the scarce frequency spectrum far more than analogue technologies and therefore the first benefit of digital migration is the freeing up of valuable radio frequency spectrum that is currently used for analogue television transmission. The freed up spectrum would be used for other services (especially for mobile internet services in telecommunications) under a phenomena called digital dividend (Zambia Digital Migration Policy, 2014).

Digital Migration Policy (2014) directs that digital migration is being implemented by the Zambia Information and communication Technologies (ZICTA) in conjunction with Zambia National Broadcasting Corporation (ZNBC).

The digital migration implementation exercise was broken down in three phases, two of which have since been executed. Phase one involved the implementation of the digital terrestrial (DT) network along the line of rail. The line of rail is the region consisting of Copperbelt, Central, Lusaka and Southern Provinces. Phase two was about the implementation of the DT network in provincial centres of the provinces that are not along the line of rail. Finally, phase three would involve the roll out of the network in remote rural sites of the country.

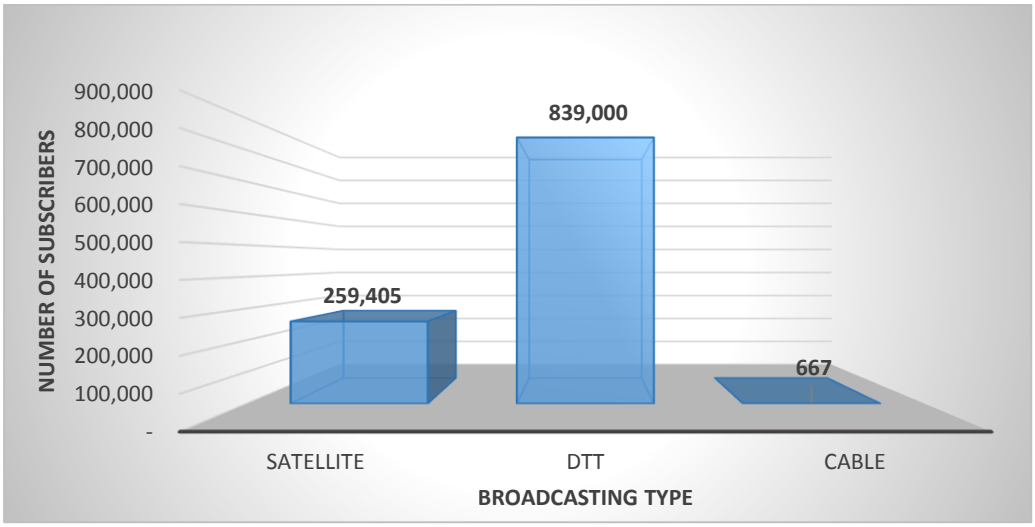
According to ZNBC main news (2017), the completion of phase one necessitated the setting of the analogue switch off date along the line of rail by the then Minister of Information and Broadcasting Services, Honourable Kampamba Mulenga, to 1st October, 2017.

Statistics from the broadcasting regulator i.e. Independent Broadcasting Authority (IBA) shows that there are 108 radio stations, 35 television stations and 6 subscriber management service providers in Zambia (Independent Broadcasting Authority 2017, 'Who owns copyright?'). Fourteen of the television stations are on the DTT platform, some are satellite based while some are still on analogue platform. On the other hand CEC's IPID and NETFLIX are providing VOD. Econet Media Limited is a new provider in Zambia providing DTTV on Kwese TV as well as Satellite broadcasting service on Econet media Subscriber Management Service (SMS). Further, Netflix launched their VOD services in Zambia on 6th January, 2016 (Lusakatimes 2016, 'who own copyright' para. 1).

In view of the posed changes in the regulatory framework arising from digital migration, the IBA alongside MIBS held consultative meetings with stakeholders to educate and sensitise them on DTT and its implications on the legal and regulatory framework in the digital television broadcast era (Independent Broadcasting Authority 2014). One of the new changes in the new licensing and regulatory framework was the introduction of signal distributors. In addition, television station would cease to be signal carriers but that they would become Content Service Providers (CSP) since their signal would then be carried by signal distributors on the DTT platform (Digital Migration Policy, 2014).

The Digital Migration Policy further proposed that there would be a public signal carrier/distributor and a private one. ZNBC went into a joint venture with Star Times of China and formed a consortium called Topstar Communication Limited to be the public signal distributor (Topstar Communications, 'who owns copyright', 2017). Start Times is Africa's leading digital TV operator. Therefore, Topstar Communications Limited is the only legally established public signal distributor in the republic of Zambia. Currently, there are 18 Zambian Content Providers carried by Topstar on their Digital Terrestrial Network Platform.

The figure below gives an overview of the subscription broadcasting services subscriber base per broadcasting type as at month end of March, 2018.



[Source: Independent Broadcasting Authority, 2018]

Figure 2.1 Number of Subscribers per Broadcasting Type

Figure 2.1 illustrates the types of television broadcasting and the number of people accessing services per broadcasting type. The figure shows that digital broadcasting services were mostly accessed via Digital Terrestrial Television (DTT) broadcasting at 76.34% representing 839,000 people out of the total 1,099,072. The second most accessed digital broadcasting was satellite television at the rate of 23.60% representing 259,405 people. The least accessed mode of digital broadcasting was via cable with 667 people at the rate of 0.06%.

It must be understood that Netflix and Ipid (a CEC Liquid Telecoms Company) are offering Video on Demand Broadcasting service in Zambia. However, the current regulatory framework do not provide for the regulation of VOD/IPTV; therefore information of the number of subscribers was not collected from them. Further, efforts were made requesting Netflix to take part in the study and also provide information on the number of subscribers on their platform in Zambia but they declined.

See Appendix II for information on access rates to digital broadcasting services

There is no Digital Audio Broadcasting (DAB) in Zambia at the moment. However, plans for DAB are underway (personal communication, Ms Josephine Mapoma).

2.7 Broadcasting Regulation

2.7.1 Historical Overview

Contrast to the press, radio and television broadcasting were subject from the beginning to high levels of restriction, sometimes involving public control approaching a condition of censorship. The general concept of social responsibility and public interest lies at the core of the broadcasting model, although there are several variants as well as weaker (as in the USA) or stronger forms (as in Europe). The broadcasting model covers two main types of system. One is the public service variant, the other consists of privately owned and financed systems (McQuail 2010).

Regulation by its very nature sets limits to freedom. Thus there have to be clear and convincing reasons for regulation. McQuail (2010) cited the following as general reasons for media regulation:

i) The management of what is arguably the key economic resource in the emerging `information society', with a very high dependence on all forms of communication.
ii) The protection of public order and support for instruments of government and justice.
iii) The protection of individual and sectional rights and interests that might be harmed by unrestricted use of public means of communication.
iv) The promotion of the efficiency and development of the communication system, by way of technical standardization, innovation, connectivity and universal provision.
v) The promotion of access, freedom to communicate, diversity and universal provision as well as securing communicative and cultural ends chosen by the people for themselves.
vi) Maintaining conditions for effective operation of free markets in media services, especially competition and access, protection of consumers, stimulating innovation and expansion.

In the context of promotion of local content production in Africa, regulation of broadcasting content is usually met with minimal if any opposition. “Without local

programmes in local languages, broadcasting fails to reflect the communities and cultural identities of the population. Only with regulation can local languages survive. Without regulation in Africa, there would be no local programming industry and no local music industry, only Western imports" **(**Broadcasting Policy and Practice in Africa, 2003).

There are other reasons that have been cited as to why governments regulate broadcasting. Broadcasting can have adverse external effects. Nyman-Metcalf et al (2003) recognised that broadcasting can fan hostile attitudes and violence. For instance in Rwanda, it is widely argued that radio broadcasting played a part in the genocide of 1994. Although in the USA the press is covered by the First Amendment which guarantees freedom of speech, while US broadcasters now argue that regulation infringes their freedom of speech, most countries control what may be broadcast. Regulation can prevent the broadcast of provocative or insulting material **(**Broadcasting Policy and Practice in Africa, 2003).

Left to themselves, broadcasting markets suffer 'market failure' linked to 'externalities'. This economic term 'externalities' means that one person's decision to purchase affects another person's although the market alone cannot take account of this link between individual decisions (Graham and Davies, 1997 p.17). And it is because of these externalities that without regulation, the broadcasting market will end up providing less choice for consumers than if it were regulated. The problem is that the consumers of broadcasts do not know what they are consuming until they have consumed it. Left to themselves they will not try new things. 'This is not because consumers are stupid', but because it is only in retrospect that the benefits of such investment become apparent (Graham & Davies, 1997 p. 20). Further, Graham and Davies (1997) argues that if no one will try anything new, the end result of all those individual decisions is that the market coalesces on a narrow set of topics or formats, thereby reducing choice for everyone. Such an outcome is termed 'market failure' by the economists, and is the economic reason behind regulation of content.

Katrin Nyman-Metcalf et al (2003) indicates that Commercialisation exacerbates the trend towards uniformity because advertisers want larger audiences, and commercial broadcasters look to their audience share in order to sell advertising. The economic incentive is to look to the tried and tested and to the lowest common denominator. Katrin Nyman-Metcalf et al (2003) urges that if broadcasting is to do more than pump out low cost

and lowest common denominator programmes, it requires regulation of content.

According to the Broadcasting Policy and Practice in Africa (2003), "regulation :- imposes rules to stand in for the market; consists of mechanisms to put into effect government policy; is part of the domestic political process of each country; defines the 'public interest' balancing the interests of commercial lobbies and citizens; can keep markets separate (for instance telecommunications from broadcasting), thereby preventing concentration of the ownership of information and creates both winners and losers according to its overall goals". The Broadcasting Policy and Practice in Africa (2003) also argues that regulation can advantage citizens/consumers or advertisers/large corporations or politicians/elites or local owners/foreign investment or local content/foreign imports or programmers/operators, or majority language/local languages within the broadcasting sector.

As outlined in this section so far, it can be understood that broadcasting regulation call for government direction. Katrin Nyman-Metcalf et al (2003) established that it is the government's role to determine overall broadcasting policy and the structure of the domestic market. That policy is then given effect through legislation. It is within this framework setting out the goals of policy and the structure of the broadcasting market that the regulator will work. **(**Broadcasting Policy and Practice in Africa, 2003).

2.7.2 Structural and Behavioural Regulations

The regulatory framework itself needs division into two aspects, which include structural regulation and behavioural regulation. Structural regulation determines who may broadcast, how many broadcasters, where they broadcast and at what power, with what technology and in which portion of the spectrum, together with their financing. Behavioural regulation sets out the main principles by which they are expected to work such as the ethics, content, context and conduct **(**Broadcasting Policy and Practice in Africa 2003).

The economics of information and incentives to concentration in both commercially funded and state broadcasters have favoured vertical integration. In a vertically integrated system, broadcasters create the programmes, package them into channels and then transmit them. Such a system leaves little room for local programming. In the USA, the Federal Communications Commission has controlled this vertical integration by insisting that 30

minutes of the four-hour prime time slot should be devoted to local or other than network programming. In Britain in the 1980s, to end such vertical integration and reduce its power over the market, the state-owned broadcaster, the BBC, was forced to sell off its transmission network and to take 25% of its programmes from independent producers. In a small market, it may not be economically viable to allow other than vertical integration, but such integration means there is an even greater need for regulation of the broadcast content **(**Broadcasting Policy and Practice in Africa p.42, 2003).

It is possible then for the broadcasting market structure to include broadcasters and programme makers financed from a number of sources for instance, in Pay TV: payments made for individual sports events or films; Satellite TV and digital radio, cable TV or that distributed by microwave systems financed by subscription and/or advertisement; Commercial off-air broadcasters financed by advertising; State owned broadcasting financed by subsidy, licence fee and/or advertising; Local/community radio financed by charitable donations/subsidy or advertising; and Independent production companies creating local content **(**Broadcasting Policy and Practice in Africa p.43, 2003).

The Broadcasting Policy and Practice in Africa (2003) further argues that it is not the method of financing that determines the extent of broadcasting regulation any more than it is the technology that is used. Simply because digital broadcasting has come to Africa does not mean that its use should be regulated differently from the old technologies. Technologies may change but the goals of broadcasting policy remain the same. However, this concept that "the goals of broadcasting policy remains the same" even in the sight of drastic change in the broadcasting landscape fuelled by technological advancement, convergence and dynamic markets, can be challenged as other experts and scholars have guided in sub-sections 2.7.3 to 2.7.5.

2.7.3 Convergence

"The traditional broadcasting and telecommunication industries have coevolved with the developing Internet, but technological development is making this current sectorial distinction difficult to maintain. Content and service provision have already been taking place across the traditional sectorial boundaries for some time. Different services can be carried on different distribution networks and the end users' access equipment are not

designed for a dedicated service. This process of fusion of content, service, infrastructure, and end-user equipment is denoted as convergence (Baldwin et al.1996) or re-convergence (Winseck 1998) in the literature and has far-reaching technological, economic, and regulatory implications (Mansell 1993; Collins et al. 1995 & 1996; Murrani et al. 1996; Mansell & Silverstone 1996; Mellody 1997; and Tadayoni & Skouby 1999). The regulatory aspects of convergence have also been studied in specific cases in the literature" (cited in Tadayoni & Kristensen, 1999).

For decades, each type of electronic communications represented a technological and economic universe unto itself. Voice communications were available exclusively over wires provided by local telephone companies. Video programming was transmitted exclusively over the electromagnetic spectrum by local broadcasters. Generally, policymakers developed elaborate regulatory regimes based both on the technological and economic characteristics of the transmission medium on the one hand and the nature of the communications being transmitted on the other (Yoo, 2002, pp. 285-290).

Yoo (2009) highlights that since each type of communication (as was technologically feasible world-wide decades ago) was available exclusively through a single mode of transmission, it was initially unproblematic that U.S. law made the transmission technology the key determinant of the regulatory regime to be imposed. Over time, different transmission technologies developed the capability to transmit different types of communications. McQuail (2010) points out thus "at this point, the problems that convergence poses for regimes that make the mode of transmission the primary determinant of the scope of regulatory obligations should be apparent. Moreover, the fact that each type of communication was available over multiple media meant that regulators could no longer treat each medium as posing separate and independent regulatory issues. Instead, policymakers had to take into account potential interactions among different technologies".

It is important to note that there is a fundamental difference in the objectives of broadcasting versus telecommunications regulation. Convergence requires a re-evaluation of the fundamental basis of regulation if one considers the convergence across broadcasting and telecommunications. A converged framework will have to reconcile the different aspects of both these sub-sectors (The World Bank 2007).

The main different aspects of both broadcasting and telecommunication sector are as below:

Table 2.1 Differing Philosophies in Regulating Telecommunication and Broadcasting

Telecommunication Policy Basics	Broadcasting Policy Basics
Universal service/access	Universal availability
Control over interference	Impact on public/society/morality
Strong competition is common	Competition is typically less
Regulation is comparatively less severe	Regulation is comparatively more severe
Control over carriage is primarily sought	Control over content is typically sought

[Source: Policy Division, Global Information and Communication Technologies department, The World Bank (2007)]

The convergence of the telecommunications, broadcasting and IT sectors is reshaping the communications market; in particular the convergence of fixed, mobile, terrestrial and satellite communications, and communication and positioning/location systems. From the point of view of communications infrastructure and related services, convergence makes the traditional separation of regulatory functions between these sectors increasingly inappropriate and calls for a coherent regulatory regime (Toscano, 2004).

Convergence is made possible by technological changes such as the move from analogue to digital, improvements in network speeds, improvements in compression techniques and storage capacity, and a growing range of wireless applications. Commercial success and market forces determine the direction which convergence takes and influence the environment within which policies must operate. However, in turn, policy and regulatory frameworks play an important role in influencing the extent to which market forces are given sufficient leeway to come into play and the direction convergence takes. Realisation of the full potential of these technologies for economic growth and social improvement may require that changes in policy and regulatory frameworks take place (OECD 2004).

For decades, legislators, regulators and courts around the globe have been reforming outdated laws, rules and institutions to accommodate convergence. Despite these efforts,

the pace of harmonisation has failed to match the speed of change. As broadband networks (initially fixed, but now, increasingly, mobile) have become more ubiquitous and their capacity has increased, there has been a dramatic growth in the flow of digital information over communications infrastructures. Both content and computing have also moved into 'the cloud'. So-called over the top (OTT) services—software-defined digital applications that perform services and deliver content to end users over IP-enabled communications networks—are now competing directly with more traditional content and communications products. This shift is rapidly upending traditional market structures all over the globe, and putting unprecedented pressure on policymakers to react (Eisenach & Soria, 2016).

Nonetheless, the Green Paper on Convergence of Broadcasting, Information Technology and Telecommunications (1998) sets out three options for regulation:

i. Option 1 is to build on current structures.

ii. Option 2 is to develop a separate regulatory model for new activities to co-exist with telecommunications and broadcasting.

iii. Option 3 is progressively to introduce a new regulatory model to cover the whole range of existing and new services.

The response to the paper directs that the first two options would to a large extent reinforce the status quo and possibly lead to an unwelcome expansion of existing regulatory frameworks which in themselves are increasingly anachronistic and anomalous.

The European Commission (1998) postulated that the strategy of both the industries and those who regulate should be to remove detailed or constrictive regulation and present a set of principles by which to judge and shape the new information industry; to prevent abuse inimical to social decency (obscenity, defamation, violence) and to anticipate and stop the abuse of dominant positions.

Convergence is allowing different network infrastructures to provide a plethora of services as shown in the table below.

Table 2.2 Developing viable Business Models with Convergence

Infrastructure	Voice	Data	Video
Fiber Optic	VoIP	FTTx	IPTV, Standard and High Definition TV, VOD
Cable	VoIP	Cable modem	Standard and High Definition TV, VOD
Mobile	2G, 3G and 4G	2.5 G, 3G and 4G	DVB and other terrestrial mobile TV
Copper line	PSTN	DSL	IPTV, VOD
Fixed Wireless	Some (VoIP)	3G, WiMAX	DVB and other terrestrial mobile TV

[Source: ICTRegulation Toolkit 2018]

2.7.4 Implications of Convergence for Regulatory Structure

One of the most striking implications of the convergence of voice and video is the need to vest regulatory authority over both types of communications in a single agency. This does not represent a significant obstacle in jurisdictions where a single agency governs both broadcasting and telephony. It poses a bigger challenge in countries where broadcasting and telephony have traditionally been overseen by separate agencies (Yoo 2009).

Convergence opens technologies that were once regarded as natural monopolies to intermodal competition, thus many commentators have suggested that it also implies an increasingly narrow role for sector-specific regulation and a greater role for conventional antitrust (Geradin & Kerf, 2003).

2.7.5 Implications of Convergence for Broadcasting-Style Content Regulation

The convergence of broadcasting and telephony also has important implications for the content restrictions associated with broadcast-style regulation. These regulations are premised on the importance of broadcasting in general (and television in particular) as a source of news and information as well as the fact that the potential for interference placed a natural limit on the number of people who can speak at any one time. This relative scarcity of broadcast serves as the main justification for requiring broadcasters to devote these limited resources to conveying preferred speech (such as political broadcasting and

children's television) and for restricting them from conveying dis-preferred speech (such as indecency and advertisements about gambling) (Yoo, 2003, pp. 260-266).

The advent of the Internet as an important medium of communications has undermined television's claim as most individuals' primary source of news and information. At the same time, because data networks are not subject to interference, there is no natural limitation on the number of people who can speak that could justify compelling speakers to represent the views of others or from conveying speech that the government deems to be of low value (Reno v. ACLU, 1997). Although the U.S. Supreme Court recognized that bottleneck control over a limited physical resource might serve as a basis for more limited regulatory intervention (Turner Broadcasting System, Inc. v. FCC, 1994), the rise of intermodal competition has made it unlikely that any court would find that exception to be applicable (Yoo, in press-b, 2003).

2.7.6 Implications of Convergence for Structural Regulation

Convergence is also requiring regulators to rethink their media ownership restrictions. For instance, now that the same type of communications are available through multiple transmission technologies, the FCC can no longer calculate media concentration simply by focusing on the number of available outlets for any particular communications technology. Instead, it must integrate all of the various technologies into a single metric that gives appropriate weight to each (Prometheus Radio Project v. FCC, 2004). The growing availability of the same types of mass media content via different transmission media has increased intermodal competition to the point where structural regulation of video and other related technologies has become increasingly difficult to justify as well (Yoo, 2002).

2.7.7 Regulatory Effects of Digital Broadcasting and Convergence

NERA Economic Consulting (2016) highlights that despite digital convergence in broadcasting being beneficial to consumers, its impact on regulation has posed a challenge because broadcasting markets become complex, regulatory uncertainty increases, and the rapid pace of change makes broadcasting regulation become quickly obsolete. Further, the growing innovation and rapid entry by new competitors in digital ecosystem markets increase the costs and likelihood of regulatory distortions by, for example, deterring entry

or skewing the path of technological progress. In addition, failure by broadcasting regulatory policies and institutions to adapt to dynamic markets can distort markets in ways that slow innovation, harm competition and ultimately deprive consumers of the benefits of technological progress (NERA Economic Consulting, 2016).

The report by NERA Economic Consulting (2016) postulates that in the modern day, outdated regulatory policies are creating harm in at least two specific ways. Firstly, *Discriminatory regulation*. As technological and market convergence has accelerated in pace, broadened in scope and deepened in impact, market distortion is also increasing because of disparities in the way different sectors are regulated. In particular, legacy regulation of communications services and service providers is far more intrusive and prescriptive than regulation of other elements of the digital ecosystem. Regulatory discrimination can harm competition and reduce consumer welfare. Secondly, *Static regulation of dynamic markets.* In general, prescriptive, ex ante regulatory are no longer effective in the face of rapid innovation. In many cases, as competition increases, the need for such regulation has disappeared altogether. The persistence of such outdated rules not only harms competition and slows innovation, but also fails to achieve regulatory objectives.

NERA Economic Consulting (2016) in their GSMA Report on *New Regulatory Framework for the Digital Ecosystem* postulates that policymakers should apply three specific principles for creating a new regulatory framework: Firstly, regulation should be functionality-based rather than based on structure or technology. That is, regulation should be designed to achieve its objective in the most efficient way (i.e., to be 'cost effective'), without regard to technologies, industry structures, or legacy regulatory regimes. Regulatory policies and institutions designed around obsolete definitions of products and markets need to be replaced with more holistic approaches and should be implemented by institutions with both the jurisdiction and expertise to consider all the alternatives; Secondly, because digital ecosystem markets are dynamic and complex, regulation also needs to be flexible. It needs to accommodate rapidly changing markets and technologies and create enough regulatory confidence for companies to take risks. In general, performance-based approaches are superior to prescriptive, ex ante rules. Thirdly, the profound and sweeping changes in the digital ecosystem imply that regulatory polices need to be rethought from the ground up. Regulatory reform discussions should follow a bottom-

up approach that takes entirely new approaches into consideration - and is willing, where appropriate, to jettison old ones.

A new regulatory framework based on these principles will be inherently market- and technology neutral, because it will apply to all elements of the digital ecosystem. It will also be cost-effective, because it will achieve regulatory goals and objectives at the lowest possible cost. Finally, it will be flexible because it will allow markets and technologies to evolve while preserving and enhancing regulators' ability to achieve their functional objectives. Most importantly, the new regulatory framework proposed here is designed to ensure that consumers can continue to enjoy the benefits of technological progress and be protected by well-designed regulation (NERA Economic Consulting, 2016).

NERA Economic Consulting (2016) argues that the emergence of OTT services in competition with traditional communications and content services has led to discriminatory regulation of similar services and competing companies, on the one hand. On the other hand, the legacy ex ante regulatory regimes traditionally governing communications markets are no longer effective in the face of rapid innovation—and in many cases, are no longer necessary, given the emergence of dynamic competition (Jeffrey, E. and Bruno 2016). Limpitlaw (2014) indicates that Convergence of media content and technologies has outstripped existing policy framework, and that there is no clear single policy direction for regulating for convergence (Justine Limpitlaw, 2014).

2.8 Different Approaches in Implementing ICT Regulation in Convergence

There are three approaches taken by countries to address convergence: (i) a legislative approach; (ii) a regulatory approach; and (iii) a self-regulation approach. Although the first two are most commonly used among policy-makers, the self-regulation approach is gaining increasing popularity. Each of the approaches presents advantages and disadvantages, but no one approach results in an optimal solution (NERA 2018).

2.8.1 Legislative Approach

The legislative approach consists of developing legislation that responds to convergence, either in the immediate term or in anticipation of convergence trends. Legislative solutions define new laws or create new regulatory frameworks to respond to convergence and guide

future policy direction. This can be done by developing and implementing a reform of the entire legal framework for telecommunications or by amendments to existing laws (NERA 2018).

An advantage of the legislative approach is that it allows the introduction of a new framework to deal with convergence, without constraints imposed by other regulations or by the existing telecommunications law that may contain categories in which converged services do not fit. A new law or an amendment of an existing law aimed at addressing convergence through a technology-neutral approach with a simplified service category can eliminate contradictions and inconsistencies in regulatory classifications. This ultimately makes the regulator more efficient and effective (NERA 2018).

2.8.2 Regulatory Approach

Under the regulatory approach, countries do not develop new legislation to address convergence. Instead, they modify existing regulations or institute new regulations to address new technologies. For example, in the United States, the Federal Communications Commission (FCC) introduced regulatory modifications to allow new technologies, such as power line communications (PLC), also referred to as broadband over power lines (BPL). The regulatory approach can be a practical way of addressing convergence provided that existing regulations can be modified or new ones introduced relatively quickly. However, the regulatory approach must be carefully managed to minimize inconsistencies between new and existing rules (NERA 2018).

2.8.3 Self-Regulation Approach

The self-regulation process consists of developing and designing convergence policy through an ad hoc or existing consultative body. This body is normally composed of several government agencies, industry representatives, and other interested parties. The role and functions of these consultative bodies varies, but they generally issue recommendations to the government addressing the need for changes in convergence legislation and/or regulation. To the extent that industry representatives are involved, self-regulation and industry guidelines may be an outcome of this approach. These consultative bodies may address specific issues of convergence or may undertake a more comprehensive analysis assessing the consequences of the legislative and regulatory environments. A consultative

body is a valuable tool that provides a way to constantly review and monitor the effects of convergence and provide first-hand contact with industry and other parties that deal with convergence directly.

2.9 Convergence – Country Examples

Convergence between broadcasting and telecommunications, which is rapidly transforming the current regulatory and market environment has been taking place for some time. What seems to be a real significant barrier to facilitating such convergence rests on regulatory conflict between the two sectors. For instance, digital multimedia broadcasting, a culmination of telecommunications and broadcasting convergence, had been delayed introducing its service in the market in Korea due to regulatory setback and political conflict. In the UK, a new consistent and flexible regulatory framework has been established to facilitate convergence (Shi 2006).

Eustace C. Nkandu (personal communication, 15 October 2017) stated that if there has been a preference for converged regulator over separate regulators for broadcasting and telecommunication, it has been observed that countries with a converged regulator tend to focus more on telecommunications than broadcasting.

2.9.1 Convergence trends in Korea

Shi (2006) observed that although South Korea has made progress in digital convergence, there are some important challenges that must have been addressed. Issues like determining technology standard, frequency allocation, and licensing can be relatively simple ones. The more troubling issue may be the conflict between Ministry of Information and Communication and Broadcasting sector (broadcasters and regulatory board). The tension between the two agencies becomes heightening as more new convergence services emerge and as they take an initiative and control over convergence (Shi 2006).

The vertically integrated media market is the first factor adversely affecting convergence in Korea. Many of the large media company owners are entertainment companies and have vertical integration (i.e. own operations and businesses) across various industries and verticals, such as distribution networks, content production, programming, etc. That means while this is good for their operation, the diversity of opinions and issues would be less

well covered. The Korea broadcasting (and telecommunications market to some extent) structures are aligned with a vertical array with limited horizontal market integration. As a result of vertical integration, television companies control the process of the production and distribution of the industry (Shi 2006).

This vertically-integrated media tends to exercise considerable influence at the service and content level and creates incentives for abusive access decisions as regards competitors' access to media markets (Korea Press Foundation 2004, cited in Shi 2006). National broadcasters integrate media industries vertically which renders broadcasters monopoly power over one level of the chain of production to harm competition in another level that otherwise would have been competitive. Therefore, the vertically integrated broadcasting markets lessen the necessity of the distribution industry and thus prevent the growth of the distribution industry (Shi 2006).

The second barrier to convergence is the absence of consolidated regulatory authority. There are four different regulatory entities in communications – the Telecommunication Commission, the Ministry of Information and Communication, the Broadcasting Commission, and the Ministry of Culture and Tourism – are competing with each other to take the initiative in convergence. The potential uncertain new convergence services straddle more than one regulatory regime. Not only are there multiple regulatory bodies, but also conflicting regulations and licensing authorities (Shi 2006).

The third factor is a confusing regulatory framework. Related to the multiple regulatory bodies, the absence of a consistent framework on new media adds complexity to the Korean media market. Because of the absence of a clear concept of convergence in relevant policy and regulation, the convergence service in Korea has faced overlapping regulation in one case and non-regulation in another case (Shi 2006).

2.9.2 United Kingdom's Regulatory Approach to Convergence

Regulation in the United Kingdom (UK), mainly through the Office of Communications (OFCOM), shows a contrast to the Korean case. The UK has had a stronger focus on ''core competition objectives'' and ''a relative increase in the utilisation of economic-based tools in competition law assessment'' (Official Journal of the European Communities 2002, cited in Shi, 2006). The primary goal of European Competition law is to increase economic

welfare (European Commission, 2003). Attention has been paid to other objectives such as market integration or the protection of the environment. In the UK and EU in general, as Lowe (2004), Director General for the European Commission, states "[. . .] the emphasis of regulation has shifted away from protection of some broadly defined public interest and from public utility management towards opening up markets, ensuing free and fair competition between producers and promoting the interests of consumers"; (cited in Shin 2006).

A series of reform has been accelerated by the 2003 Communications Act that introduced a new regulatory framework for British television and radio, and a new Office of Communications, Ofcom, to replace the five bodies which then regulated broadcasting and telecommunications. Ofcom replaced entities such as the Broadcasting Standards Commission (BSC), Independent Television Commission (ITC), Office of Telecommunications (Oftel), Spectrum Management Advisory Group (SMAG). Ofcom now acts as the regulator of various broadcast and media industries in the UK, including television, radio, and both wired and wireless telecommunication services. With the Act, new services proliferate and the delivery of radio, television and other content via the internet and mobile phones are increasing. In addition, the focus of the Communications Act has been placed on interoperability and access-related aspects in the regulation of gateways in convergent service (cited in Shin 2006).

As Ofcom was created in response to the rapid convergence between telecommunications and broadcasting, Ofcom defines public interest in the context of convergence. Ofcom ''investigates matters of public interest when the merger of newspapers or broadcast media companies'' (The Communications Act 2003, Sections 375). The Communications Act 2003 (see Prosser, 2003) contains a ''plurality test'' under which the minister may refer certain media mergers to the Ofcom for advice on public interest considerations of whether or not to refer the merger to the competition authorities on the grounds that it may be against the public interest, to negotiate undertakings in place of a reference, or to clear the merger. Under the Act, Ofcom seeks public interest only in the broadcasting and newspaper sectors; the public interest test assesses the need for a sufficient plurality of persons controlling the media enterprises in the UK or locally; the need for the availability of broadcasting of high quality calculated to appeal to a wide variety of tastes and interests; and the need for broadcasters to have a genuine commitment to the standard set out in the

Communication Act, including due impartiality of news and taste and decency. In newspaper mergers, the relevant issues are accurate presentation of news, the need for free expression of opinion and the need for a sufficient plurality of views. These trends are consistent with Ofcom's principle, ''the role of Ofcom is to safeguard the long- and short-term public interest through effective competition and in this context it must take due account of the interests of all stakeholders including consumers.'' (Association of Communication Services Providers, 2003, cited in Shin 2006).

The UK's approach can be seen as a move towards a more horizontal approach for the convergence services. A moving from the sectoral regulation means a response to the challenges posed by the convergence phenomenon. The Communication Act enables Ofcom to deal neutrally with ''all types of networks and services (cited in Shin 2006).

2.9.3 The United States of America's Regulatory Approach to Convergence

The main regulator in the United States of America (USA) in the 'information delivery' market is the Federal Communications Commission (FCC). The FCC is in itself not a 'converged' regulator, as it shares its competences at the federal level with the Department of Justice (DoJ) and the Federal Trade Commission (FTC), dealing with competition and consumer protection policy; and at the state and local level with the state public utility commissions (PUCs). Also with respect to convergence, there is no grand strategy but more of a 'muddling through' approach. The US system depends to a great extent on court rulings, and an active civil society involvement. However, where the FCC intervened, its decisions had a major impact on Multi sectorial approach convergence and market developments. The intervention to ensure local market competition lead to a nationwide telecommunication duopoly; deregulation of broadband access supported cable operators, as telecommunication networks remained regulated; and the dilution of media ownership rules have boosted the online presence of major broadcasters (RAND 2008).

The reactive nature of the US approach provides for a very predictable, robust regulatory environment in which new entrants can challenge existing practice. This has allowed breakthrough rulings and keeps the FCC at the forefront of setting policies dealing with the effects of convergence. However this comes at a high legal cost and allows incumbents to delay or stop new players from entering. The US is one of a few countries with strong inter-

modal broadband competition between Digital Subscriber Lines (DSL) and cable modem, and with a significant Fibre-to-the Home (FTTH) development. However, the FCC has been less effective to ensure competition over the networks, which is also reflected in the fierce debate over net neutrality. All in all the US market and its regulators provide a lot of interesting cases as it is here where the innovation is highest and regulatory challenges come to the fore. The US is also an interesting market to observe as it has pioneered with new policy instruments like self-regulation and sophisticated spectrum auctions. A major difference between the US and many other countries is the comparatively low level of content regulation in the US, making it easier to accommodate convergence of content distribution.

2.10 Models of Media Regulation

2.10.1 Background

There are three main regulatory models, applicable to the press, telecommunications (especially telegraphy and telephony) and broadcasting, respectively (Pool, 1983). Although the distinctions involved are becoming increasingly hazy because of deregulation and convergence, it is still useful to base our discussion on this pattern. In this context, a `model' means a framework of inter-related regulation that is based on some legitimating principles and can be referred to for settling disputes, implementing policy and responding to change. It is worth noting that the first `mass medium' - the printed book - is not covered by any model of regulation, since it is the only medium fully protected by historic rights to press freedom (although also subject to the general law on certain matters). The main features of the three models are Structure, Infrastructure, Distribution, Access, Conduct and Content (McQuail 2010).

2.10.2 Models of Media Regulation: Broadcasting

Radio and television broadcasting were subject from the beginning to high levels of restriction, sometimes involving public control approaching a condition of censorship (McQuail 2010, ‘Who Owns copyright’). The general concept of social responsibility and public interest lies at the core of the broadcasting model, although there are several variants as well as weaker (as in the USA) or stronger forms (as in Europe). The main difference is

between systems that are within public ownership and control and those that operate commercially, but subject to licensing conditions and public scrutiny (Denis McQuail 2010).

The main reasons for the high regulation of broadcasting can be expressed in terms of the following main aims (Hoffmann-Riem, 1996; and Feintuck, 1999):

i) To ensure universal availability to the general population of the country of broadcast services.
ii) To allocate frequencies and broadcasting concessions in an equitable and orderly manner and supervise conformity to the rules laid down.
iii) To ensure a wide range of services and access opportunities according to the needs of society - meaning diversity in social, political, cultural and local/regional terms.
iv) To promote high quality of content provided as far as possible according to locally decided values and standards, with particular reference to information, education, advertising, culture, taste and decency.
v) To look after the basic interests of the state in matters of security and good order, as locally interpreted.

The broadcasting model covers two main types of system. One is the public service variant, the other consists of privately owned and financed systems. The distinction is not always absolute, since some commercial broadcasters may also have public service duties as a licensing condition. Public service broadcasting is expected to serve the needs of significant social institutions (for instance, in relation to politics, education, and the justice system). It is also directly or indirectly expected to serve or to respect the main party political groups. In some countries, the political interest is served by imposing political neutrality (as in Britain) or `fairness' (as in the United States), while in others political party influence is more or less openly and proportionately allowed (as in Italy, France and Germany), (Denis McQuail 2010).

Commercial broadcasting systems, in contrast, are free to choose their own objectives, in the sense of whichever consumer audience or advertising market they want to serve. They are primarily accountable to owners, investors and clients. Regulation in this case is essentially restrictive and proscriptive and is designed to establish the ground rules and set limits within which the systems operate. These ground rules mainly concern the following

matters: permitted amount and content of advertising; control of other means of finance (e.g. sponsorship); content potentially harmful to the young or causing offence to some value or group (e.g. in matters of racism, or religious blasphemy); procedures for complaints and rights of reply. Further, commercial broadcasting systems often have to meet certain minimum standards as a condition of receiving a license or operating concession (Denis McQuail 2010).

The forms of regulation are diverse, but there is a certain standard pattern. Generally, we find a media or broadcasting law governing the structure of the system as a whole. Such laws state broadly the goals of the system and who or what bodies are eligible to operate as broadcasters and under what conditions. For instance, some countries forbid or limit foreign ownership and, as indicated earlier, many have rules forbidding cross-ownership between press and broadcasting (especially where they operate in the same marketplace). In some European countries political or religious organizations are not allowed to own and operate broadcasting stations. The context of regulation for each type of model applies to the structure, infrastructure, distribution, access, conduct and content parameters. Within each parameter lies both more formal and less formal regulations as follows (Denis McQuail 2010) as outlined in parts i) to vi):

(i) Structure - The more formal rules are entail provisions of media laws, Channel operating conditions, Cross-ownership rules, Rules about owners (religion, politics, nationality, and suitability). The less formal rules are - Political party policy and Industry pressure.

(ii) Infrastructure - The more formal rules are Technical standards and Transmitter/satellite/cable ownership rules. The less formal rules are International agreements and Industry standards.

(iii) Distribution - The more formal rules are - Universal coverage requirements, Receiver license regulations, Hours of broadcasting. The less formal rules are - Regional and local variations.

(iv) Access – The more formal rules are Political party airtime, Minority access, and Government access. The less formal rules are Fairness, neutrality and balance rules, and Local community service.

(v) Conduct – The more formal rules are Copyright and performance dues and, Rules and mechanisms of accountability. The less formal rules are Rules for advertising and performance.

(vi) Content – The more formal rules are Laws concerning pornography, violence, racism, etc., and Content quotas (type and origin). The less formal rules are Producer codes for sex, violence, etc.

Finance, control and accountability to government and society are also covered by such regulation. More detailed terms and conditions may also be set down in license and franchise agreements, which have to be periodically renewed and can be revoked. Broadcasting and cable laws often contain content-related regulations, for instance requiring a balance between different kinds of content (especially information and entertainment) or requiring a certain amount of home production or transmission in the national language (Denis McQuail 2010).

Laws of this kind are the province of parliaments and governments and there will often be a Ministry or other Department of government which has the responsibility for their formulation - for example, the Ministry of Culture (in Sweden), the Department for Culture, Media and Sport (in Britain), or the Ministry of Communications (in France). However, there is usually another layer of administrative machinery between government and the actual broadcasting organizations which can serve as a two-way link and, in certain cases, help to preserve the independence of broadcasting from direct government interference. This link is increasingly formed by powerful regulatory agencies which have an oversight over different media. In Britain, for instance, we find (again) the Office of Communications (Ofcom), in France the Conseil Superieur de l'Audiovisuel (CSA), in Sweden the Broadcasting Commission, in Holland the Commissariat for the Media, in the USA the Federal Communication Commission (FCC), and so on (d'Haenens and Saeys, 2001).

Further, McQuail 2010 guides that there are often additional advisory or supervisory bodies that play a part in the regulatory framework with varying aims and degrees of competence. Most public broadcasting organisations will have their own Boards of control which are separate from day to day management and are the equivalent of the Boards of commercial companies which run private broadcasting systems. These bodies decide on overall policy and have final responsibility. There may also be a few additional bodies (both statutory and

voluntary) that represent the interests of viewers and listeners, whether as consumers or citizens and keep up pressure for enforcement of rules and for expressing complaints.

In Europe, transnational television has been institutionalised within a loose framework provided by the Television Directive of the European Union. This sets out the general conditions and rules for cross-border television transmissions between countries of the Union. In practice, this is mainly a lowest common denominator of rules that does not have much practical effect, apart from enabling cross-border transmission. However, it does support basic standards of fairness and objectivity and there are rules limiting advertising time and types as well as for protecting children and young people from extremes of undesirable content. Some preference is also given to "European" content and independent production (Denis McQuail 2010).

2.10.3 Regulation of the Newspaper Press

The basic model for the press in western democracies is one of freedom from any government regulation and control that would involve advance licensing, censorship, limits to freedom of publication or punishment after the event. Press freedom is very close, but not identical, to freedom of speech and expression. It applies specifically to expression that is made public and intended for unlimited dissemination. It is often enshrined as a principle in national constitutions and in international charters, such as the UN Treaty (Article 19) and the European Convention on Human Rights (ECHR, article 10). Press freedom in these documents is often made conditional on respect for the rights of others and other laws (Denis McQuail 2010).

The idea of press freedom as expressed earlier is so important and central that freedom itself may be viewed as the main goal (or desirable end state) of any public policy for the press in a free and democratic society. There are, however, other goals of press policy such as: maintaining diversity; protecting the public from abuses of press power; ensuring high standards of news and promoting the essential contribution that the press makes to the democratic process. Regulations towards these aims are difficult to apply because of the risk of undermining press independence. Almost any measure designed to secure freedom of the press or to improve its performance can also be viewed as an intervention which reduces press freedom. This is the central paradox of regulation of the newspaper press. One solution is to think in terms of alternative concepts of freedom (Denis McQuail 2010).

First of all, we can make a key distinction between negative (laissez-faire) and positive (pro-active) concepts of press freedom. In brief, the negative concept rules out any government actions in relation to the press, leaving it to the free market and maintaining the pure principle of freedom to the maximum extent, whatever the consequences. The positive concept of press freedom is more concerned with the practical realisation of the goals noted above and with limiting the harm done by unrestrained market forces. According to Picard (1985, p.49) "Positive press freedom is intended to promote the free flow of diverse ideas and public debate by removing and guarding against barriers to that flow". The essence is to ensure (through regulation if required) the necessary conditions for freedom of expression (Denis McQuail 2010).

On the basis of this analysis we can say that there are two main types of regulation of the newspaper press, one is essentially negative and reactive, designed to counter threats to press independence and diversity, the other is positive and enabling. In the former case, threats, when they do not come from government itself are likely to stem from natural processes of market concentration or from the efforts of powerful economic or political forces to stop the press from speaking out. Where these efforts take a criminal form (such as threats of violence), the general law can be applied for protection. The second (more positive) type of regulation involves giving some kind of economic support to some or all newspapers (Denis McQuail 2010).

On regulation of Newspaper Press, McQuail 2010 emphasises that the context of regulation for this model as it applies to the structure, infrastructure, distribution, access, conduct and content parameters can be summarised thus ‘‘Newspaper Press has usually been lowly regulated in structure, distribution and conduct. On the other hand, Newspaper press has usually been unregulated in the infrastructure, access and content’’ (Denis McQuail 2010).

2.10.4 Regulation of Telecommunications and Cable

The third main model of regulation actually predates broadcasting and is usually called the `common carrier' model because it originates in communication services, such as the mail, telephone, and telegraph, which are purely for distribution and intended to be open to all as universal message transport services. They are `point to point' media, not for open distribution. This model has been gradually extended to encompass a range of new electronic services available via telephone and cable networks (especially the internet).

These new services (such as information supplies or chat lines, for example) are called `value-added' services because they offer the network user content benefits, for which extra has to be paid, and they are not universally provided (Denis McQuail 2010).

It is observed that the regulation of telecommunications is very uneven, with elaborate control of structure and infrastructure but almost no rules for content. Current developments are, however, extending the scope of regulation, as the nature of the services provided by telecommunication systems expands and as the systems are `liberalized'. Cable systems are also more regulated than old `common carriers'. Traditionally, telecommunications in many countries was operated as a state monopoly, usually by the national postal service (e.g. Deutsche Bundespost in Germany, or the Royal Mail in Britain), but the privatization of telecommunications has now largely replaced state monopolies with companies operating in the market, although often with some state participation (Hills, 2002). In the United States, telecommunications was effectively a private monopoly (the Bell system) until the break-up (divestiture) of the system in the early 1980s, creating six regional companies (McQuail 2010).

Policy for telecommunication was traditionally in the hands of government and detailed regulation was largely carried out by the industry itself according to an `administrative' or technical logic. It was originally not considered a matter for political debate in the public arena, but only for experts and administrators. Much the same still applies under conditions of private ownership, although the privatization of telecommunications has meant effectively a privatization of much relevant policy with the WTO as a major instrument of this (Winseck, 2002). Even so, the availability of telephones and the quality and cost of service has become a much more important and salient matter of public welfare than in the past. The telephone is a tool for private communication as well as for business and government and has become almost a necessity of everyday life, especially with the rapid diffusion of mobile phones. The range of services available to consumers from the telephone has also widened greatly, encompassing the so-called `value-added' services mentioned above. Telephony is now much more than a simple message carrier and current developments of internet protocols are rapidly blurring the line between telephony and many other online services as well as between the two `media' (telephone and internet) themselves (Denis McQuail 2010).

The main contemporary issues for the regulation of telecommunications and cable are as follows (Denis McQuail 2010):

(i) The supervision of monopoly operators and securing competition between operators, in the interests of efficiency, development, and consumer protection (in pricing and other matters).

(ii) The question of what services telecommunications and cable should be permitted to operate, and on what terms, especially in competition with press, broadcasting and film/video industries.

(iii) For cable systems, the question of `must-carry' rules for channels such as national television.

(iv) The possible limitations on content carried (such as child pornography) and how to apply them (for instance, relating to sex chat lines and similar services).

(v) Maintaining universal service obligations and cross-subsidization from more profitable to less profitable operations in the interests of equity.

(vi) Questions of the privacy of transmitted data and the protection of users from undesired uses of telephones.

(vii) Access for providers and consumers to services such as e-mail and internet.

(viii) With respect to the internet, there are increasing provisions being made to support e-commerce by dealing with issues of confidentiality, security and the `electronic signature'

(ix) There are also issues about general confidentiality in the wake of government and law-enforcement efforts to combat cyber-crime and terrorism.

(x) Securing the interconnectedness of the various networks under conditions of competition, including equitable access to basic networks. Non-interference of services has also to be secured.

(xi) Achieving international agreements on protocols for many of these issues.

The main *forms* of regulation of telecommunications are likely to consist of: a basic telecommunications law relating to the structure of ownership and control; a supervisory role for some arm of government, with particular reference to technical aspects (for instance, the FCC in the United States, or Ofcom in the UK); a set of conditions attached to operating licenses and concessions, with some form of official public regulator to look after the public interest and; a body (or more than one) which integrates national

telecommunication systems into supranational administrative-technical patterns (McQuail 2010).

On regulation of Telecommunications and Cable, McQuail 2010 argues that the context of regulation for this model as it applies to the structure, infrastructure, distribution, access, conduct and content parameters can be summarised thus "Telecommunications and Cable has usually been mildly regulated in structure, highly regulated in infrastructure, lowly regulated in distribution, access and conduct. On the other hand, Telecommunications and Cable has usually been unregulated in content".

2.10.5 Use of the Internet for Broadcasting versus Regulation

The internet is the main new medium of our time and it has a very anomalous position in respect of the three regulatory models outlined above. Aside from its being distinctive as an electronic, computer based, medium, with a powerful interactive capacity, it is also multi-functional. It is much used as a means of private communication by e-mail, as a means of transferring documents, as an interactive service facility for banking, shopping, etc., as a source of information for consultation by individuals and also as the equivalent of a means of mass distribution of news, advertising and entertainment. In short, it does everything that the press, broadcasting, telephone and library system already do. Despite this, however, for regulatory purposes it is treated primarily under the common carrier model and is subject to no particular regulatory regime of its own. It does not have guarantees of freedom like the press nor content regulations like broadcasting (Denis McQuail 2010).

There are several explanations for this situation. One stems from its lack of central organization. It is not owned by anyone, but is a coming together of many users of the same basic technology and infrastructure. As such it is difficult to make it accountable or even to encourage self-regulation. It is also an international medium and its operation does not fall under any single jurisdiction or sovereignty, except in respect of its users and the various service providers. It has a voluntary and loose form of international management for certain matters essential to its operation. In practical terms it would be very difficult to regulate without diminishing its character. The very novelty of the internet accounts for some part of the lack of regulation. Despite these points it is not impossible to regulate (Lessig, 1999) and many of the uses made of the medium are subject to existing general

laws relating to communication and publication. The more the medium is commercialized and formally organized, the more likelihood there is of regulation appearing, although much will have to be of an international character (Denis McQuail 2010).

On regulation of the Internet, McQuail 2010 deduced that the context of regulation for this model as it applies to the structure, infrastructure, distribution, access, conduct and content parameters can be summarised thus "the Internet has generally been lowly regulated in structure, highly regulated in infrastructure, and unregulated in distribution, access, conduct and content (Denis McQuail 2010)".

2.10.6 Convergence of regulatory models

The three "models" still co-exist and they are still useful for describing and making sense of the different patterns of media regulation which are found side by side. However, as noted already, the logic, legitimacy and practicality of maintaining the different regimes is increasingly open to question. The main challenge comes from the technological "convergence" between modes of communication which makes the regulatory separation between print, broadcasting and telecommunication more and more artificial and arbitrary. The same means of distribution, especially cable, satellites and telecommunications, can be used to deliver all three kinds of services (print, broadcasting, voice and data exchange). The single most potent cause of convergence is the rapid spread of digitization of all forms of content - the translation of everything into computer readable digital code (Denis McQuail 2010).

The monopolistic arrangements which used, especially, to keep radio and television and telecommunications apart are being demolished or undermined. It is also more difficult to justify restricting one medium (e.g. broadcasting) when another medium (e.g. the internet via cable telephone network) can do the same thing quite freely (for instance deliver forms of information and entertainment that are restricted in broadcasting). Also, cable systems have already led to a new `hybrid' model of regulation, combining common carrier with watered-down broadcasting regulation, but without the full freedom of the press. There has long been a tension in the arrangement which allows newspapers to publish what they want within the normal law, while broadcast journalists are under much greater restraint, especially the obligation to be impartial. In many countries, cable is also much less

restricted than broadcasting, partly because it is much less indiscriminate in its destination (Denis McQuail 2010).

At the moment the other main driving force for convergence, after technology, is that of market forces. Despite these combined pressures, however, convergence of regulation has not yet occurred in any striking form. One reason for the delay is that the different media are still largely perceived and (predominantly) used differently by their audiences. Secondly, authorities are reluctant to give away the power of regulation, especially when many of the issues for regulation outlined earlier are still very salient in public opinion (Denis McQuail 2010).

2.11 Broadcasting Regulations in Zambia

2.11.1 Background

The need for broadcasting regulation dates as far back as February 1987 when the Parliament of the republic of Zambia established the Zambia National Broadcasting Corporation (ZNBC) through Chapter 154 of the laws of Zambia. The ZNBC Act was enacted to provide for the establishment of the Zambia National Broadcasting Corporation; to define the functions and powers of the corporation; to provide generally for the control and regulation of broadcasting and diffusion services; and to provide for matters connected with or incidental to the foregoing (ZNBC Act 1987). During that era, broadcasting was the preserve of the state, and the broadcasting regulation enacted in the ZNBC Act of 1987 implied that of public broadcasting.

In the early to mid -1990s the government liberalised the airwaves which saw the birth of a number of private broadcasting stations, among them being Multichoice Zambia, Radio Phoenix, Radio Christian Voice, Radio Icengelo etc. During this transition from government monopoly of broadcasting to liberalisation of the airwaves, the Ministry of Information and Broadcasting Services was the custodian of licensing and regulation of private broadcasting. In addition, the ministry also encouraged self-regulation by broadcasters. The growth of the media attributed to liberalisation of the airwaves prompted the government to institute an independent regulator of broadcasting in Zambia. Therefore, the government passed the Independent Broadcasting Authority (IBA) Act of 2002. The

IBA Act of 2002 was enacted to establish the Independent Broadcasting Authority and to define its functions; to provide for the control and regulation of broadcasting and diffusion services; and to provide for matters connected with or incidental to the foregoing. However, the IBA was not operationalised immediately and in the passage of time coupled with further changes in the broadcasting industry, in 2010 the government saw the need to amend the IBA Act of 2002. Therefore, the IBA Act of 2002 was amended giving birth to the IBA Amendment Act of 2010. The amendment of the IBA Act of 2002 were the long title, Sections 2, 3, 5, 7, 10, 49; and Part IV was repealed and replaced; and section 8 was repealed. Further, in 2010 the ZNBC Act of 1987 was also Amended and provided for the repeal and replacement of some sections. For instance Sections 2 and 4 were amended; Section 4A was repealed; and Part IV was repealed and replaced.

Since liberalisation of the airwaves, there has been drastic increase in the number of broadcasters both radio and television (Zambia Digital Migration Policy, 2014, p. 2). Currently, there are 111 radio stations, 38 television stations and 7 Subscriber Management Service (SMS) providers (Independent Broadcasting Authority 2018, 'Who owns copyright?') as shown in table 2.3 below.

Table 2.3 Digital Television Subscriber Base

TYPE	NUMBER	PERCENT (%)
Radio	111	71.2
Television	38	24.4
Subscription Management Service	7	4.5
Total	156	100

[Source: Independent Broadcasting Authority 2018]

The private broadcasters have setup their own infrastructure and sites alongside the infrastructure owned by ZNBC to host their transmission systems (Zambia Digital Migration Policy, 2014, p. 2).

2.11.2 Regulation

To regulate the sector, Parliament passed the Independent Broadcasting Authority (IBA) Act No. 17 of 2002, which was amended through the IBA (Amendment) Act No. 26 of 2010 which provides for the registration of broadcasting stations and regulation of their content (Independent Broadcasting Authority 2018, 'Who owns copyright?').

The broadcasting licenses are issued under the IBA Act while the frequency licenses are issued by the Zambia Information and Communication Technology Authority (ZICTA) under the Information and Communication Technologies (ICT) Act No. 15 of 2009 (Zambia Digital Migration Policy, 2014). Therefore, the current broadcasting licensing mechanism is a two stage process involving the two regulators. The licenses to prospective broadcasters specify the type of broadcasting service (TV and/or radio) and the permitted coverage areas (Zambia Digital Migration Policy, 2014, p. 2). ZICTA also licenses the signal distributor. IBA comes in to licence the signal distributor in an event where the signal distributor also provides content services.

The laws that govern Broadcasting regulation in Zambia are the IBA Act of 2002, IBA amendment Act of 2010, Electronic Communications and Transactions Act of 2009 and the Information and Communications Technology Act of 2009 and it's Amendment of 2010. There are however regulations and guidelines that form part of the regulatory framework such as the Standard Operating Procedure (SOP) for Broadcasting, Complaints Procedure and the Licensing Framework (Independent Broadcasting Authority 2018, 'Who owns copyright?').

The IBA Act of 2002 (Part II) thus states "…the functions of the Authority shall be to regulate the broadcasting industry in Zambia". Having established the legal basis for broadcast regulation in Zambia, it will be pertinent to note that the IBA was established to perform the following functions, as was summarized by the IBA Act of 2002 (Part II):

a) to promote a pluralistic and diverse broadcasting industry in Zambia
b) to establish guidelines—
    (i) for the development of broadcasting in Zambia through a public process which shall determine the needs of citizens and social groups in regard to broadcasting;

(ii) for the issuing of licences, giving due regard to the need to discourage monopolies in the industry in Accordance with the Competition and Fair Trading Act;

(iii) on the required levels of local content and other Issues that are relevant for a pluralistic and diverse broadcasting industry;

c) to safeguard the rational and efficient use of the frequencies allocated to broadcasters by developing a frequency plan for broadcasting, which shall be a public document, in compliance with international conventions;

d) to grant, renew, suspend and cancel licences and frequencies for broadcasting in an open and transparent manner;

e) to enforce the compliance of broadcasting with the conditions of the licences issued under this Act;

f) to issue to any or all broadcasters, advisory opinions relating to broadcasting standards and ethical conduct in broadcasting;

g) to oblige broadcasters to develop codes of practice and monitor compliance with those codes;

h) to develop program standards relating to broadcasting in Zambia and to monitor and enforce compliance with those standards;

i) to receive, investigate and decide on complaints concerning Broadcasting services including public broadcasting services;

j) to develop regulations in regard to advertising, sponsorship, Local content, and media diversity and ownership;

k) to perform such other functions as may be conferred on it by this or any other Act; and

l) to do all such other acts and things as are connected with or incidental to the functions of the Authority under this Act".

Given the functions of the Authority as outlined in the IBA Act, the Act greatly endeavours to address broadcasting regulation in the broader sense. Regulatory powers to do with markets (e.g. monopoly control), content, media ownership, information monopoly, monotony and media concentration, consumer protection, compliance, licensing and efficient utilisation of the spectrum are boldly conferred onto IBA. Further, parts j, k and

l of the IBA Act (Part II) empowers the IBA to respond to change in the broadcasting industry.

In an attempt to effectively execute its functions, the IBA has put in place some regulations and guidelines such as Standard Operating Procedures for Broadcasting, Licensing Framework, Fee Structure and the Complaints Procedure. In essence, regulation approaches by IBA include licensing, content monitoring, sanctioning defaulters, intervening and arbitrating in conflicts and other control measures in the broadcasting sector as mandated via the IBA Act.

However, none of these regulations/guidelines has attempted to address the changes and subsequently challenges in the broadcasting sector brought about by technological advancement, convergence and changing markets.

"Broadcasting is any form of uni-directional electromagnetic communication intended for reception by

a) the public
b) sections of the public; or
c) subscribers of any broadcasting service, whether conveyed by means of radio frequency spectrum or any electronic communications network or any combination thereof " (IBA Act 2010).

This definition of broadcasting is wanting in the face of technological developments such as IPTV. This is so because VOD and IPTV are bi-directional, thereby making the definition of broadcasting by the IBA Act obsolete. Therefore, VOD, IPTV and any form of broadcasting that is bi-directional falls out of regulation by implication. The IBA Act of 2010 Section 22 on issuance of broadcasting license thus directs "The Board may issue a broadcasting license subject to the provisions of this Act and to such conditions as the board may determine:

Provided that –

a) a political party or organisation or legal entity formed by a political party or organisation does not qualify to provide a broadcasting service; and

b) a person who is not a citizen of Zambia does not qualify to provide a broadcasting service"

Further the IBA Amendment Act of 2010 qualifies part b) above by directing that "In this section 'citizen of Zambia', in relation to a body corporate, means a company in which not less than 25 percent of the company's shares are held by Zambians". This promotes participation of ownership of broadcasting by Zambians. Therefore, the IBA Act takes care of ownership of broadcasting service providers as regards politics and nationality.

In addition, the IBA Act of 2010 Section 22 (5) states "Without prejudice to the generality of subsection (I), the conditions of a broadcasting licence may-

a) specify the site or sites at which any broadcasting station to be operated under the authority of the broadcasting licence are to be located, and regulate the manner of their installation;
b) specify the kind of broadcasting authorised by the broadcasting licence and regulate the type and standard of broadcasting station apparatus to be used in any such broadcasting station;"

The above parts a) and b) clearly shows that the IBA Act provides for technical compliance broadcasting infrastructure and equipment. This activity is performed in conjunction with ZICTA as prescribed in the ECT and ICT Act 2009.

On licensing, the IBA Act of 2010 prescribes that broadcasting licence may be issued by the Board for the following services:

a) a commercial broadcasting service to provide
b) a community or religious broadcasting service to provide-
c) subscription broadcasting service to provide a broadcasting service that draws revenue from subscription, advertising and sponsorship.

Section 24 of the IBA Amendment Act of 2010 gives further broadcasting guidelines for each licence category stated above. Additionally, the Broadcasting Standard Operating Procedures (SOP) extensively sets out the principles, meanings and guidelines on content as well as practices to be followed by licensees (Independent Broadcasting Authority, Broadcasting Standard Operating Procedures p. 4).

The ICT Act 2009 mandates ZICTA to provide for universal access. The ICT Act of 2009 Part III Section 70 and subsections 1 and 2 thus states: “

1. There is hereby established the universal service and access fund which shall be used for the financing of universal access and service.
2. The Authority shall determine a system to promote the widespread availability and usage of electronic communication services in un-served or under-served areas and communities”.

Given the convergence of telecommunications and broadcasting, it can be appreciated that universal provision is a progressive proposition.

2.12 Emerging Trends

With the advent of virtual reality (VR), augmented reality (AR), mixed reality, artificial intelligence (AI), and voice-controlled devices; consumers today are being offered new and engaging ways to get the most from their entertainment experiences. Technologies such as VR, AR, and voice capabilities, are (to varying levels) becoming interactive parts of viewers’ daily lives. Other technologies, like AI, can help to improve the viewing experience from behind the scenes. (Thebroadcastbridge 2017. ‘Who owns Copyright’).

2.12.1 Augmented Reality

Augmented reality (AR) is the integration of digital information with the user’s environment in real time. Unlike virtual reality, which creates a totally artificial environment, augmented reality uses the existing environment and overlays new information on top of its configurations (The Reality Technologies, 2017 ‘Who owns Copyright’).

2.12.2 Virtual Reality

Virtual reality (VR) allows users to experience a world that doesn’t actually exist. The virtual world is created by devices that allows users to experience and interact with a 3D world that isn’t real, by wearing a special headset or smart glasses and some form of input tracking. The display is typically split between the eyes, creating a stereoscopic 3D effect with stereo sound, and together with the technology and the input tracking, creates an immersive, believable experience, allowing users to explore the virtual world being

generated by the device configurations (The Reality Technologies, 2017 ‘Who owns Copyright’).

2.12.3 Mixed Reality

Mixed Reality (MR), also known as Hybrid Reality, aims to combine the best aspects of both virtual reality and augmented reality. It also refers to the entire spectrum of situations that span the continuum between virtual reality and actual reality. In this case, mixed reality can include augmented reality, augmented virtuality, and other mixed configurations (The Reality Technologies, 2017 ‘Who owns Copyright’).

2.12.4 Adoption of AR in broadcast

Augmented reality and virtual sets are being adopted faster than ever especially at the local news level. Stations are asking for AR and understanding it as the first step towards more ambitious VR studio production such as hybrid studios and set extensions. Broadcast is increasingly adopting AR for enhanced storytelling, allowing for better interaction between presenters and graphics objects and even remote locations (NewscastStudio 2017, ‘Who owns Copyright’).

2.1 Related Works

The impact of advancement in technology which has led to digitalisation and convergence in broadcasting and telecommunications has been felt worldwide. Policy makers are grappling with the regulation of digital broadcasting in a converged ecosystem. However, various jurisdictions have endeavoured to come up with way of regulating digital broadcasting in the convergence era. Table 2.4 below shows related works reviewed on regulation of ICT-based broadcasting in other jurisdictions.

Table 2.4: Related Works on Regulation of Digital Broadcasting

	RESEARCH TITLE	RESEARCH PROBLEM/GAP	FINDINGS
1.	The Convergence of Broadcasting and Telephony: Legal and Regulatory Implications *Author: Christopher S. Yoo (2009)*	For decades, each type of electronic communications represented a technological and economic universe unto itself. Voice communications were available exclusively over wires provided by local telephone companies. Video programming was transmitted exclusively over the electromagnetic spectrum by local broadcasters. U.S. policymakers developed elaborate regulatory regimes based both on the technological and economic characteristics of the transmission medium on the one hand and the nature of the communications being transmitted on the other. Because each type of communications was available exclusively through a single mode of transmission, it was initially unproblematic that U.S. law made the transmission technology the key determinant of the regulatory regime to be imposed. Over time, different transmission technologies developed the capability to transmit different types of communications. For example, FM radio broadcasters began to use the subcarrier bands usually employed to provide stereophonic sound to provide services unrelated to broadcasting, including some forms of person-to-person communications. Television broadcasters similarly began	- Since voice and video are becoming available through every transmission technology, policymakers can no longer define the scope of regulatory obligations in terms of the mode of transmission - Jurisdictions that employ separate agencies to regulate broadcasting and telephony must reform their institutional structures to bring both with the ambit of a single regulatory agency. - The emergence of intermodal competition would place pressure on both telephone-style regulation, which protects against monopoly pricing and vertical exclusion, as well as broadcast-style regulation, which focuses on content and ownership structure. - It would force regulators to rethink social policies such as universal service and public broadcasting. At the same time, it is possible that convergence will be incomplete and that end users will maintain more than one network connection, which would reduce the danger of anticompetitive activity and allow policymakers to stop short of

		employing the space between television frames (known as the vertical blanking interval) to transmit a wide variety of data, computer software, and paging services. Even though these services represented person-to-person communications, the fact that the regulatory regime turned largely by the means of transmission meant that these services nonetheless would have been subject to broadcast-style content restrictions had the FCC not specifically exempted these services from those requirements (Huber et al., 1999). According to the FCC law, the mode of transmission was used at the primary determinant of the scope of regulatory obligations. Meanwhile, each type of communications was available over multiple media meant that regulators could no longer treat each medium as posing separate and independent regulatory issues due to convergence. Further, policymakers had to take into account potential interactions among different technologies.	forcing every connection to be everything to everyone. - The increase in traffic volumes associated with the advent of Internet video may require the deployment of multicast protocols, content delivery networks, and more aggressive traffic management, all of which potentially implicate the debate over network neutrality that was taking place in the U.S. - FCC must rethink its media ownership restrictions. This is because the same type of communications are available through multiple transmission technologies. The FCC can no longer calculate media concentration simply by focusing on the number of available outlets for any particular communications technology
2.	Convergence of telecommunications, media and information technology, and implications for regulation	Convergence between broadcasting and telecommunications, which is rapidly transforming the current regulatory and market environment, has been taking place. What seems to be a real significant barrier to facilitating such convergence rests on regulatory conflict between the two sectors. For instance, digital multimedia broadcasting, a culmination of telecommunications and broadcasting convergence, had been	- The regulation in the UK has been focused on how to change the notion of public interest in the convergence era, whereas the agenda in Korea seems to be how to apply a legacy of public interest to convergence services. - The laws of public interest in Korea have been drawn from a legacy regime, which makes

	Author: Dong-Hee Shin (2006)	delayed introducing its service in the market in Korea due to regulatory setback and political conflict. In the UK, a new consistent and flexible regulatory framework has been established to facilitate convergence. This study compares the two countries' cases of how they prepare for convergence, what are the regulatory frameworks, and what conflicting issues there are in the convergence. From the comparison, this study discusses the effective regulatory framework in the emerging convergence era. Korea and the UK are worthwhile comparing since both have a public broadcasting system at their core and both have dealt with convergence differently. The most striking aspect is how the two countries see public interest differently. By and large, the agenda in the UK has been focused on how to change the notion of public interest in convergence era, whereas the agenda in Korea seems how to apply a legacy public interest to convergence services. The laws of public interest in Korea have been drawn from a legacy regime, which makes application in a convergence era increasingly difficult. Public interest has been evolving to become a practical concept in the UK, whereas public interest in Korea tends to exist as if there are empty echoes without action plans capable of being implemented. There is compelling need for conceptual clarification in understanding the meaning of public interest in the convergence environment.	applying in a convergence era increasingly difficult. There is a compelling need for conceptual clarification in understanding the meaning of public interest in the convergence environment. - The UK took a major step towards combining competition law and a regulatory framework guided by the horizontal layers principle. Horizontal layers principle gives the UK a more particular and concrete meaning to the ambiguous statutory command of competition and public interest. The layer principle also allows the UK to fill statutory gaps between competition and public interest by narrowing legal text and by broadening market definition. - Another differing aspect between the UK and Korea is in approaches to achieve social and economic justice. The UK is trying to achieve effective competition in the market having assumption that plurality of service providers would remedy technical bottleneck problems. Korea, on the other hand, is attempting to maintain diversity of opinion through limited number of providers. That is, the UK's approach can be said to achieve social justice thorough broad economic justice, whereas Korea separate social and economic justice.

			- As to market, the UK market structure is evolving horizontal structure, integrating the media market and breaking into horizontal components (content, transport, packaging of services, software, and terminal equipment). The Korean market structure encourages consolidation and vertical integration (Mueller, 1999). As the Korean broadcasters own a vertically-integrated process of production, distribution, and broadcast, they would not open their walled garden to telecommunications and internet industries, bitter rivals. The provision of public interest has been politically and artificially used to protect vertically integrated market by the broadcasters and their regulators. - Applying the public interest requirements to Digital Multimedia Broadcasting (DMB) carriers can be analogous to requiring public interest obligation to the private economic sector, which pursues commercial interests. In the telecommunications areas, competition is seen as an end in itself (Meyer et al., 1982). The broadcasting regulators' provision that limits market entry to DMB directly contrasts with the telecommunications industry sector, which tries to achieve public interest through effective competition. Consumers are better served in a competitive market; private industries can contribute to the public interest by making their

			businesses flourish. In the convergence era, ‘‘Let markets and technologies develop’’ is a widely accepted maxim. The regulators’ role should remain as facilitators for markets, to help them naturally meet public interest.
3.	Pitfalls and Obstacles of Media Policymaking in an Age Of Digital Convergence: The Flemish Signal Integrity Case *Author: Hilde Van Den Bulck and Karen Donders (2014)*	This study problem is premised on the discourse regarding the challenges posed to media policymaking and its main protagonists by media convergence, broadly defined contextually as the growing connectivity and interaction between media activities and the erosion of once-distinct boundaries between media entities at the levels of production, organization, content, distribution, and consumption. It does so by analysing the case of the signal integrity policy debate and legislation in Flanders, the first regulation in an EU Member State to legally organize broadcaster-distributor relationships. Flanders, the Northern and Dutch speaking part of Belgium and a small region of 6.5 million inhabitants, is in charge of media policy and legislation, and has a tradition of combining a neoliberal competitive approach with an interventionist media policy in broadcasting, resulting from a continued belief in the importance of a Flemish media culture and creative industry (Van den Bulck, Hilde & Karen Donders 2014). As elsewhere, convergence has been a topical issue in Flemish media policy and industry debates for over two decades, but it has gained new momentum as the digital convergence of broadcasting and other distribution sectors has shaken up traditional social functions and business models.	Due to challenges at reaching an agreement with the distributors, the broadcasters urged the Flemish Parliament to take legal action to protect their signal integrity, inspiring Members of Parliament of all three coalition parties (Christian-Democrats, Socialists, and Flemish Nationalists) of the Peeters I government to submit a legislative proposal. The proposal stipulated that service providers must distribute linear broadcasting programs without alterations, interruptions, etc. Every functionality deviating from that general principle requires the prior consent of broadcasters. The “no regulation” coalition understood that competitors in the market shared views on policy and on the goals to be achieved. This coalition underlined the inevitability of progressive technological convergence (technological determinism), presented constant innovation as an economic necessity, and referred to consumers and their behavior as proof hereof and as an important argument in favor of a neoliberal “no regulation” argument (technological democracy). They claimed

		This has increased pressure on policymakers to react "appropriately," requiring them to disentangle the growing complexity of technological convergence and the ever more intricate web of relationships between old and new policy actors who fight battles and forge coalitions across traditional boundaries. The story of the signal integrity case started in August 2010, when the main Flemish broadcasters – the public broadcaster VRT, the Flemish owned commercial VMMa (now Medialaan), and the Flemish/Finnish owned SBS Belgium, which together represent an 80% audience share in the Flemish television market – joined forces and sent an open letter to the dominant cable operator Telenet, which holds an 80% share in the multi-channel television distribution market. The result of a political effort to make Flanders a leader in technological innovation, Telenet could count on continued and strong political support from various Flemish political parties, even after it became a subsidiary of Liberty Global. While VRT and SBS Belgium had a contract with the distributor (until March 2014), no agreement was reached with VTM, which nevertheless allowed distribution of its channels by Telenet. The latter provoked broadcasters by offering for free a range of additional consumer services that allow time shifting, ad-skipping, and program recording, while maintaining an unyielding attitude in negotiations. The Belgian telecommunications incumbent Belgacom, provides similar services, but created less friction with broadcasters because it holds only a 15% share in the market for digital	that the proposed legislation would hamper (but not stop) the inevitable technological and economic progress and goes against consumer interests because it would result in higher prices. The coalition was externally strong as both providers had strong ties with political stakeholders – Belgacom as a former state monopolist and Telenet from its inception by politicians as an engine for Flemish innovation. However, the coalition turned out to lack internal strength, which resulted in Belgacom at some point changing sides and supporting the broadcasters' claim. As a consequence, throughout the policy process, the coalition lost external strength and thus negotiation power. In Parliament, the CEOs of SBS Belgium and VMMa objected to others (distributors) controlling their revenue streams and taking advantage of their gatekeeper positions without financial compensation, thus undermining broadcasters' business models and hampering their potential for innovation. As owner of the signal, broadcasters want autonomy over decisions about the economic exploitation beyond free-to-air delivery of content. Both the content and economic aspects of the signal integrity claim were refuted by the two main service

		television distribution and is considered to be a more flexible player (Evens, Tom and Donders 2013). Analysis of the open letter from the broadcasters and subsequent discussions in the Flemish Parliament reveals that broadcasters claim to be the owners of their signals and that this signal integrity claim in fact consists of two arguments: "content integrity" and "economic integrity." Content integrity refers to the demand of the broadcasters that providers, in the distribution of services, must not harm the integrity of their signal's content. This point was most forcibly made by the public broadcaster, who claimed that digital convergence allows third parties (i.e. commercial service providers) to intervene in broadcasters' content without permission – an unacceptable infringement on the ongoing creative process that is a television channel. Moreover, providers can potentially interfere with broadcasters' compliance with legal obligations per content regulation, regarding minors or commercial communication in the case of commercial broadcasters, and the public service remit in the case of public broadcasters. In Parliament, VRT's CEO made reference to smart TV player Panasonic overlaying news bulletins of German public broadcasters ARD and ZDF with commercial banners, and to the website TV Catchup that pre-rolls commercial communication while streaming BBC programs – a violation of public broadcasting regulation in the United Kingdom that the BBC cannot control. While the EU Court of Justice has condemned TV Catchup for streaming TV	providers, Telenet and Belgacom. They claimed to respect the principle with regards to content, despite evidence to the contrary. Economically, they argued that additional consumer services are controlled by consumers and that distributors cannot be held accountable for changing television consumption behavior. Unable to come to an agreement with the distributors, the broadcasters urged the Flemish Parliament to take legal action to protect their signal integrity, inspiring Members of Parliament of all three coalition parties (Christian-Democrats, Socialists, and Flemish Nationalists) of the Peeters I government to submit a legislative proposal. The proposal stipulated that service providers must distribute linear broadcasting programs without alterations, interruptions, etc. Every functionality deviating from that general principle requires the prior consent of broadcasters.46 On June 11, 2013, after a lengthy and heated policy process (discussed below), the Media Commission of the Flemish Parliament reached consensus on a legislative proposal that was subsequently voted in the same Commission on June 25 and in the Flemish Parliament on July 10, with all members of Parliament voting in favour.

		channels without broadcasters' consent, it has not mentioned the overlay practices. Economically, the signal integrity argument refers primarily to the financial well-being of broadcasters, especially the commercial players that were the main advocates of this point. They see their business model threatened by new digital services, especially those allowing ad-skipping, which means bypassing the advertisers who finance the content, and, in turn, do not want to pay for audiences that skip their messages.	On June 11, 2013, after a lengthy and heated policy process the Media Commission of the Flemish Parliament reached consensus on a legislative proposal that was subsequently voted in the same Commission on June 25 and in the Flemish Parliament on July 10, with all members of Parliament voting in favor. The amended Flemish media decree states that distribution companies have to transmit a television broadcast signal without interruptions or alterations (Article 180, Sec.1) and that functionalities that contravene this require prior consent from the concerned broadcasters (Article 180, Sec. 2). In the absence of prior consent, the Flemish Media Regulator must arrange a three-month reconciliation procedure after which it provides non-binding advice. Services that breach content integrity, i.e. go against the editorial independence, autonomy, and responsibility of broadcasters, can be refused outright by broadcasters (Article 180, sec. 3). In return, any remuneration that broadcasters receive for allowing functionalities must be invested in the production of Flemish content (Article 180, sec. 2).

2.2 Chapter Summary

This chapter discussed the relevant literature reviewed in the study with respect to historical and technological developments in the broadcasting sector, and the regulatory dispositions of digital broadcasting at global level and in Zambia. Further, the chapter gave insight into broadcasting regulation and its rationale, investigated how advancement in technology and convergence have affected broadcasting regulatory frameworks.

A critical issue for regulation of ICTs is that for decades, each type of electronic communications represented a technological and economic universe unto itself. Voice communications were available exclusively over wires provided by local telephone companies. Video programming was transmitted exclusively over the electromagnetic spectrum by local broadcasters. Consequently, policymakers developed elaborate regulatory regimes based both on the technological and economic characteristics of the transmission medium on the one hand and the nature of the communications being transmitted on the other.

Over time, different transmission technologies developed the capability to transmit different types of communications and with digitisation came convergence. The convergence of the telecommunications, broadcasting and IT sectors is reshaping the communications market. Despite digital convergence in broadcasting being beneficial to consumers, its impact on regulation has posed a challenge because broadcasting markets have become complex, regulatory uncertainty has increased, and the rapid pace of change makes broadcasting regulation become quickly obsolete. In the context of communications infrastructure and related services, convergence makes the traditional separation of regulatory functions between telecommunications and broadcasting sectors increasingly inappropriate and calls for a coherent regulatory regime.

One of the most striking implications of the convergence of voice and video is the need to vest regulatory authority over both types of communications in a single agency. This does not represent a significant obstacle in jurisdictions where a single agency governs both broadcasting and telephony. It however poses a bigger challenge in countries where broadcasting and telecommunication have traditionally been overseen by separate agencies.

CHAPTER 3

METHODOLOGY

3.1 Research strategy

This research study has a number of objectives set within the context of ICT-Based Broadcasting and regulation:

i. Explore the modes of broadcasting

ii. Analyse the regulations in broadcasting

iii. Investigate possible regulatory frameworks for regulation of ICT-based (digital) broadcasting

More valuable aspects to this research work relates to Objectives 2 and 3. Even if digital convergence in broadcasting is beneficial to consumers, its impact on regulation has posed a challenge because broadcasting markets have become complex, regulatory uncertainty has increased, and the rapid pace of change makes broadcasting regulation become quickly obsolete. As technological and market convergence has accelerated in pace, broadened in scope and deepened in impact, market distortion is also increasing because of disparities in the way different sectors are regulated, particularly the legacy regulation of communications services and service providers is far more intrusive and prescriptive than regulation of other elements of the digital ecosystem (NERA Economic Consulting 2016).

Technological advancements has outpaced the rate of development of regulation for digital broadcasting. The slow development for regulation of digital broadcasting regulation in practice was acknowledged by The Organisation for Economic Co-operation and Development (2016) when it stated that "technological development has usually surpassed pace of development of regulation, …….and that the trend is likely to continue because regulatory implication of technological advancement is usually understood in retrospect". The opportunity, therefore, to gain a variety of stakeholder views ought to contribute significantly not only to the study of digital broadcasting regulation in general, but to a richer understanding of regulatory challenges in the converged digital ecosystem.

Chapter 2 (‘Review of Related Literature’) identified a gap in existing research in that there was ample evidence on the need for regulators and governments to develop regulations that would be functional in the age of digital broadcasting regulation. The reviewed literature also showed that different jurisdictions practice different approaches to digital broadcasting regulation as in the case of Korea, US and UK. For instance, in the case of the US, the FCC which is not a ‘converged’ regulator itself, shares its competences at the federal level with the Department of Justice and the Federal Trade Commission; and at the state and local level with the state public utility commissions (PUCs). Also with respect to convergence, the FCC has no grand strategy but more of a ‘muddling through’ approach that depends to a great extent on court rulings, and an active civil society involvement. However, when the FCC intervenes, its decisions usually has a major impact on convergence and market developments (RAND 2008). On the contrary, digital broadcasting regulation in the UK through OFCOM (converged regulator), has a stronger focus on ‘‘core competition objectives’’ and ‘‘a relative increase in the utilisation of economic-based tools in competition law assessment’’. Attention has been paid to objectives such as market integration or the protection of the environment. The emphasis of regulation is on opening up markets, ensuing free and fair competition between producers and promoting the interests of consumers”; (cited in Shin 2006).

There is however no ‘one-shoe-fit-all’ kind of regulatory approach for regulation of ICT-based broadcasting. Most regulators have admitted to continually learning and fostering more effective ways of regulation in a converged environment depending on their institutional, governance and market settings. Therefore, developing practical understanding of regulation of digital broadcasting ought to be based on empirical evidence.

An important contribution of this research work will be the study and analysis of empirical data on how ICT-based broadcasting can be regulated in the digital age and the lessons to be learned. Objectives 1 and 2 were initially addressed in the previous section in the form of a *review of literature*; Objective 3 takes this research one step further through the collection and analysis of empirical data obtained from stakeholders in the broadcasting sector such as content service providers, regulators, subscriber management service providers and media advocacy institutions. Further, some regulatory aspects of objective 2 will also be supplemented through empirical data collection and analysis.

Importantly, although a focus of the empirical work will be to gather data on factors affecting digital broadcasting regulation, data will also be collected on stakeholder views on perceived drivers and systems within a converged digital ecosystem, thus providing the opportunity to explore why ICT-based broadcasting regulation is topical issue among regulators of ICTs and broadcasting; and how digital broadcasting could be regulated. By comparing the Literature Review findings with the empirical data, – the researcher will gain a fuller understanding of the issues surrounding the development of digital broadcasting regulatory frameworks, so be better placed to contribute useful knowledge to the subject matter.

The research strategy that will be used to implement the empirical research is a Survey Research. Priscilla A. Glasow (2005) describes Survey research thus:

"… used to answer questions that have been raised, to solve problems that have been posed or observed, to assess needs and set goals, to determine whether or not specific objectives have been met, to establish baselines against which future comparisons can be made, to analyse trends across time, and generally, to describe what exists, in what amount, and in what context." (Isaac & Michael, 1997, p. 136).

According to the definition by Glasow (2005), a survey research is concerned with needs assessment, go setting, objective evaluation, baseline establishment for future comparison and trends analysis. For this reason, this approach is best suited to this study because of the need for the assessment of the critical elements of the digital ecosystem and features of the regulatory models which are the basis for evaluation of the effectiveness of the broadcasting regulatory framework. Further, it will give insight into the trends in broadcasting, the various models of broadcasting regulation existing in the digital ecosystem. Figure 3.1 below shows the research design process. Essentially, this research is primarily quantitative in nature, nominally qualitative, where the latter relates to studying 'things in their natural settings, attempting to make sense of, or interpret, phenomena in terms of the meanings people bring to them'(Denzin and Lincoln 1994), whereas the former tends to be used in the natural sciences (such as physics) to study natural phenomena, using methods such as laboratory experiments and mathematical modelling, although quantitative research can often employ survey techniques within social settings and be used in conjunction with qualitative methods (Myers 1997).

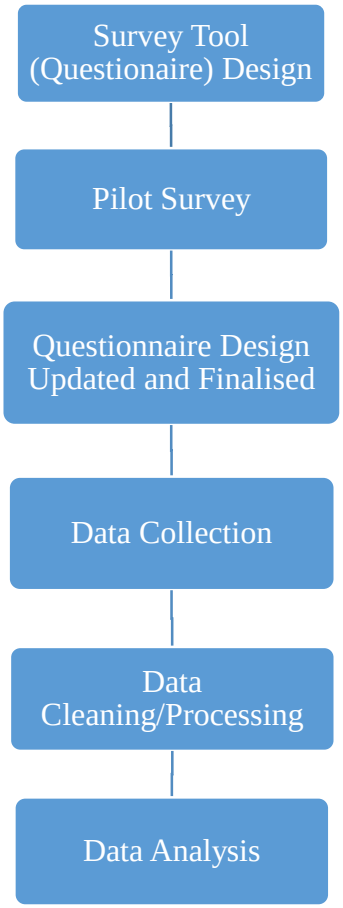


Figure 3.1 Research Design

This study is concerned with exploration of the models of broadcasting regulation and investigating the regulation of ICT-based broadcasting. Now, the digital ecosystem has become so vast, complex and highly dynamic owing to technological advancements and convergence. The review of literature showed that the existing broadcasting regulations are obsolete and the emergency of Over the Top Operators (OTT) in the broadcasting sector has further rendered the existing regulatory framework impractical, and greatly challenging the mandate of regulators (IBA and ZICTA).

Since is no existing data on digital broadcasting regulation in Zambia, there is therefore need to collect empirical data. Further, it will be imperative to process and analyse the collected data in order to evaluate and reveal probable ways of providing for regulation of ICT-based broadcasting.

3.2 Data collection

This study is a quantitative survey study. The survey tool (i.e. questionnaire) was designed to provide by utilising the findings of the review of literature, coupled with research objectives and research questions. The survey instrument (i.e. questionnaire) was designed in a highly structured manner. In the first section, the questions are designed to capture information on access to digital broadcasting, while the questions in the second section captured issues of broadcasting regulation, and finally the third section's questions captured information on the regulatory models and associated contexts of regulation. The design was intentionally so to help focus the research subject's mind and add context to the questions in each section.

The study employed a non-probability type of sampling technique called, purposive sampling. The sampling technique is better suited because understanding broadcasting regulation requires specialised knowledge. The main objective of a purposive sample is to produce a sample that can be logically assumed to be representative of the population, by applying expert knowledge of the population to select in a non-random manner a sample of elements that represents a cross-section of the population (Encyclopaedia of Survey Research Methods, 2018). This is central to the study because of the coherent relationships among the sample research subjects being the regulator, the regulated, media advocacy institutions, learning institutions and other stakeholders who are knowledgeable on matters of broadcasting and regulation. Therefore, the population to sample from is logically from such variety of professionals in order to maximise the quality of data collected.

To ensure that relevant data was collected to profoundly interrogate the study, data was collected from the regulators (IBA & ZICTA), broadcasting/media service providers, academic institutions offering media related courses, media advocacy institutions, selected internet service providers and specific professionals in the media/broadcasting and telecommunication industry. The data was obtained primarily through the vehicle of self-administered questionnaires; and nominally interviews where necessary for quantitative questions. Further, the objectives central to the study required the examination of the types of regulations in broadcasting and investigation of how digital broadcasting is regulated. Due to the specialised nature of broadcasting regulation, its technicalities, diversity, dynamism and importance in virtually all aspects of governance, it was imperative to

sample from among the entities/persons directly involved in the broadcasting industry. In addition, the combined approach of quantitative and qualitative methods is employed to deepen the understanding of issues encountered in the Reviewed Literature by providing a detailed analysis and evaluation of how digital broadcasting is or should be regulated. Nonetheless, the primary focus of this research strategy is the gathering of quantitative data.

To validate a questionnaire, a pilot test of the study in Lusaka, Zambia was carried out. The data collected was input into the SPSS for preliminary reliability test, the results of which helped in the final questionnaire design. Participants were given adequate time to participate in the survey and the data gathering process lasted four months. In total, the researcher received 120 filled-out questionnaires as per calculated sample size in the *Sampling Techniques subsection*, all of which were suitable for the analyses.

3.2.1 Sampling Techniques

The study employed a non-probability type of sampling technique called purposive sampling.

The sample size was calculated using the standard statistical values for parameters used in the equation below. Distribution has a standard value of 50%, confidence level of 95%, the confidence level score at 1.96 and Margin of Error at 6.95%. The estimated population size is 300.

$$\text{Sample Size} = \frac{\text{(Distribution of 50\%)}}{\text{(Margin of Error\% / Confidence Level Score)}^2}$$

Equation 1: Equation for Calculating Sample Size

The sample size was calculated using the sample size calculator at http://fluidsurveys.com/university/survey-sample-size-calculator/

Therefore, the calculated sample size is 120.

3.2.2 Ethical considerations

The study employed utmost confidentiality and objectivity, and ensured that participation in the study was voluntary and informed consent was obtained prior to the interviews.

i) Confidentiality: Numbers were used to identify questionnaires as opposed to names. Further, all information from the respondents were treated as confidential and solely used for this study.
ii) Voluntary participation: The study was on voluntary basis and no participant was forced, coerced or manipulated into taking part in the study.
iii) Objectivity: The study was free from personal prejudices that could undermine the research findings.

3.3 Data analysis

The study used the Statistical Package for the Social Sciences (SPSS) and Microsoft Excel to analyse the data. The data was captured, processed and analysed using SPSS version 19. In addition, Microsoft Excel 2013 version was also used for data analysis and tabulation especially the graphical representations. The survey data analysis utilised frequencies, cross tabulation, bar charts and pie charts.

3.4 Chapter Summary

This chapter discussed ways in which the study was conducted. It outlines how data was collected, processed, analysed and interpreted in an attempt to understand the regulation of ICT based broadcasting in Zambia. To effectively address the research questions and that there is no existing data pertinent to the study, empirical technique of data collection was employed. The chapter also outlined research methods, sampling techniques, framework for data analysis, study population, ethical considerations and limitations of the study.

CHAPTER 4

RESEARCH FINDINGS: DESCRIPTION AND ANALYSIS

4.1 Introduction

This chapter reveals the results of the survey described in *Chapter 3 Research Methods* with respect to the exploration of the types of regulations in broadcasting and the investigation of how ICT-based broadcasting is regulated. The study administered 120 questionnaires in Lusaka to represent the national sample size.

It must be understood that this study was implemented in the context of technological developments, convergence, broadcasting regulatory frameworks and regulatory models investigation. In order to effectively respond to the research questions, the study interrogated a number of variables such as access to digital broadcasting services, affordability, choice and monopoly. Other aspects investigated included broadcasting regulation in Zambia as regards: infrastructure, distribution, access, conduct and content.

The study also examined whether the regulation of broadcasting services should be technologically neutral. The study also rated the existing regulatory framework in Zambia.

Further, the study examined whether digital broadcasting services such as Digital Terrestrial Television, Satellite, IPTV, VoD, Web TV and Digital Cable TV should be regulated based on based content, market, platform, functionality regulation, prescriptive regulation or otherwise.

In addition, the study examined the regulation of broadcasting in Zambia as regards structure in terms of channel operating conditions, cross-ownership rules, media laws and rules about the owner.

Another important aspect of the Study was to investigate whether the existing broadcasting regulatory framework is sufficient. Further, the Study evaluated broadcasting regulation in Zambia in terms of universal coverage requirements, Receiver licence requirements and hours of broadcasting. Additionally, it must be appreciated that broadcasting regulation is a very diverse and sensitive topic (as it borders on matters on governance) and that the above is not an attempt to develop new broadcasting regulations but to merely provide

some dynamic framework in which digital broadcasting regulatory challenges can be addressed in a broader sense by putting into consideration factors such as technology, content, structure, markets, functionality and existing regulations.

4.2 Modes, Access and Utilisation of Digital Broadcasting

4.2.1 Affordability of Digital Broadcasting Services

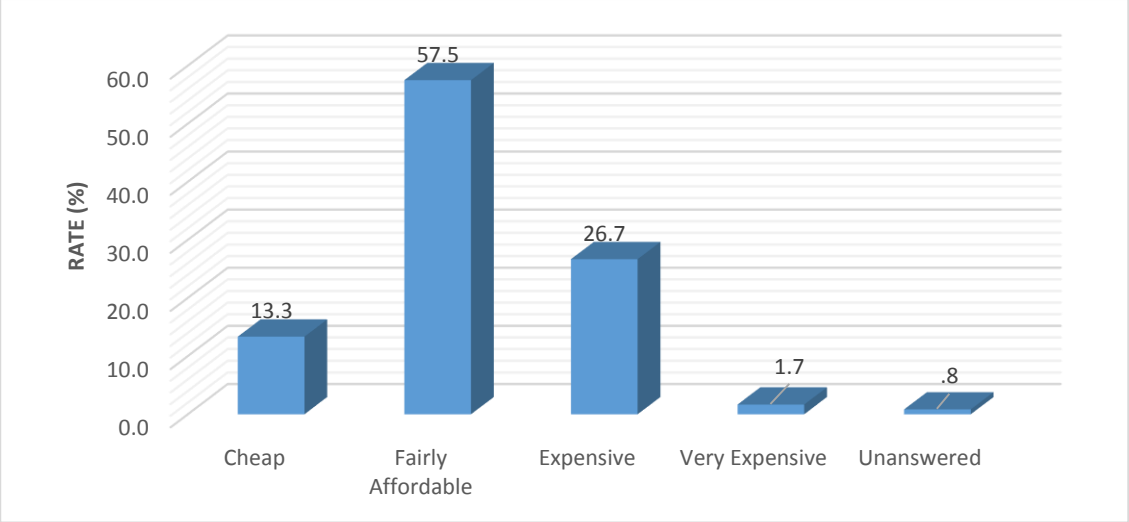


Figure 4.1 Affordability of Digital Broadcasting Services

Figure 4.1 above illustrates the how affordable the subscription fees are for digital broadcasting. The figure shows that subscription fees for digital broadcasting services were mostly rated to be fairly affordable at 57.5%. Meanwhile 26.5% of the respondents indicated that digital broadcasting services subscription fees were expensive, 13.3% indicated that they were cheap and only 1.7% indicated they were very expensive. The non-response rate was quite minimal at 0.8%. The variance in responses especially for the options cheap, fairly affordable to expensive can be attributed to the fact that subscription fees for digital broadcasting services vary for various reasons. For instance, each mechanism of distribution stated in figure 4.1 (i.e. Cable, DTT and Satellite) has packages referred to as bouquets packaged with different number of channels with a bouquet with fewer channels costing less and the one with more/premium channels costing more. Further, DTT broadcasting has the cheapest pricing for bouquets than satellite and cable. Furthermore, the cost for decoders and antenna for DTT are cheaper to purchase and install

than for Satellite and Cable. This actually explains why DTT has the most number of subscribers as shown in figure 4.1.

See Appendix II on extent of choice for digital broadcasting services.

4.2.2 Whether Digital Broadcasting Services in Zambia have been Monopolised

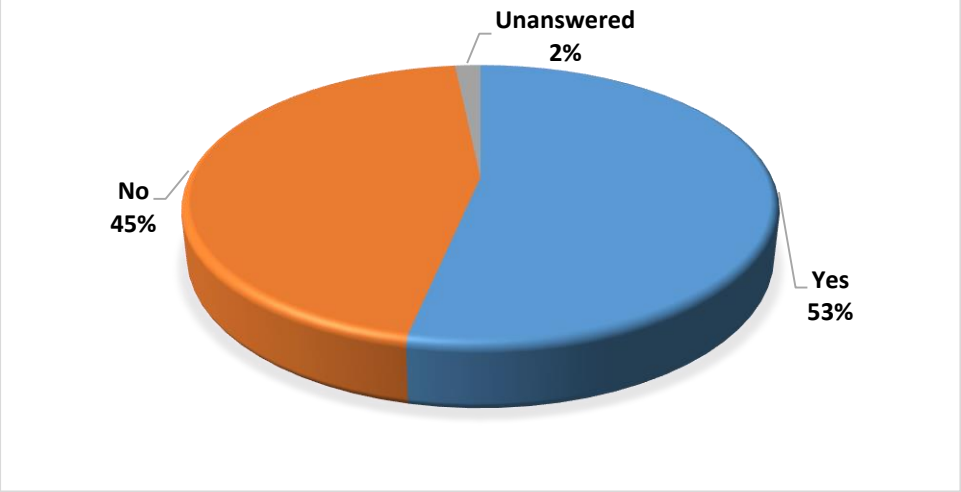


Figure 4.2 Whether Digital Broadcasting Services have been Monopolised

The study also envisioned to probe the effectiveness of the broadcasting regulations in the market in terms of monopoly as depicted in figure 4.2 above. 53% of the respondents were of the view that digital broadcasting services have been monopolized against 45% who responded to the contrary. There are seven companies currently offering subscriber management services in digital broadcasting in Zambia namely kwese, Muvi, Multichoice, GoTV, City Cable Channnels, Strong Technologies and Topstar Communications. Therefore, this bias towards monopoly at 53% is an indication that the broadcasting regulatory framework has not adequately addressed the market. The non-response rate was at 2%.

4.3 Broadcasting Regulation

This section looked at the established types of digital broadcasting regulations. These types of broadcasting regulation investigated were Content, Market, Functionality, Platform/technology and Prescriptive. The study further looked at how these types of regulations are applied in the regulation of the various modes of digital television broadcasting. The modes of digital television broadcasting investigated were DTT, Satellite TV, VOD, IPTV and Web TV.

4.3.1 Whether Digital Broadcasting Should be Regulated Based on Content, Market, Functionality, Technology or Prescriptive Type of Broadcasting Regulation.

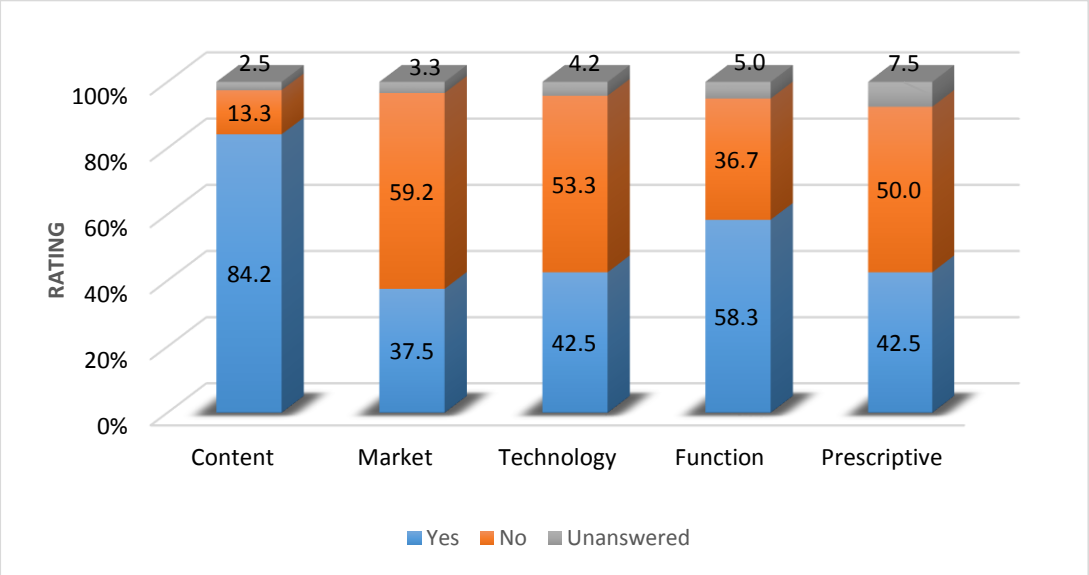


Figure 4.3 Types of Regulations applied for Regulating Digital Broadcasting

The figure 4.3 above illustrates whether digital broadcasting should be regulated based on content, Market, Functionality, Technology or Prescriptive Type of Broadcasting Regulation and highlights the results of the study in this regard. The figure shows that 84.2% of the respondents were of the view that digital broadcasting should be regulated based on content, and only a relatively small number of research subjects responded otherwise denoting 13.3%, while the non-response rate is 2.5%. This wide gap between those in favour and those against is a clear indication that the content type of broadcasting regulation still remains key even in the digital age.

On market type of broadcasting regulation, the figure shows that 37.5% were not in favour, 59.2% were in favour and 3.3% were non-responses. Therefore, the results indicate that market type of broadcasting regulation is not favoured in the regulation of digital broadcasting.

The figure illustrates that platform/technology type of broadcasting regulation is not preferred for regulation basis with 42.5% of the respondents in favour against 53.3% not in favour, and a 4.2% non-response rate.

The figure shows that 58.3% of the respondents were in favour of broadcast regulation by functionality, 36.7% were in favour and a non-response rate of 5%. The 5% non-response can be attributed to either lack of understanding on role of functionality type of regulation in digital broadcasting or indecision on the subject matter. Therefore, functionality type of broadcasting regulation should be used for regulation of digital broadcasting.

Prescription type of broadcasting regulation is not favoured with 42.5% in favour against 50% not in favour. The non-response rate at 7.5% for Prescriptive type of broadcasting regulation was the highest relative to the other types of broadcasting regulations.

4.3.2 Responses on whether Broadcasting should be regulated, self-regulated or regulated the same way

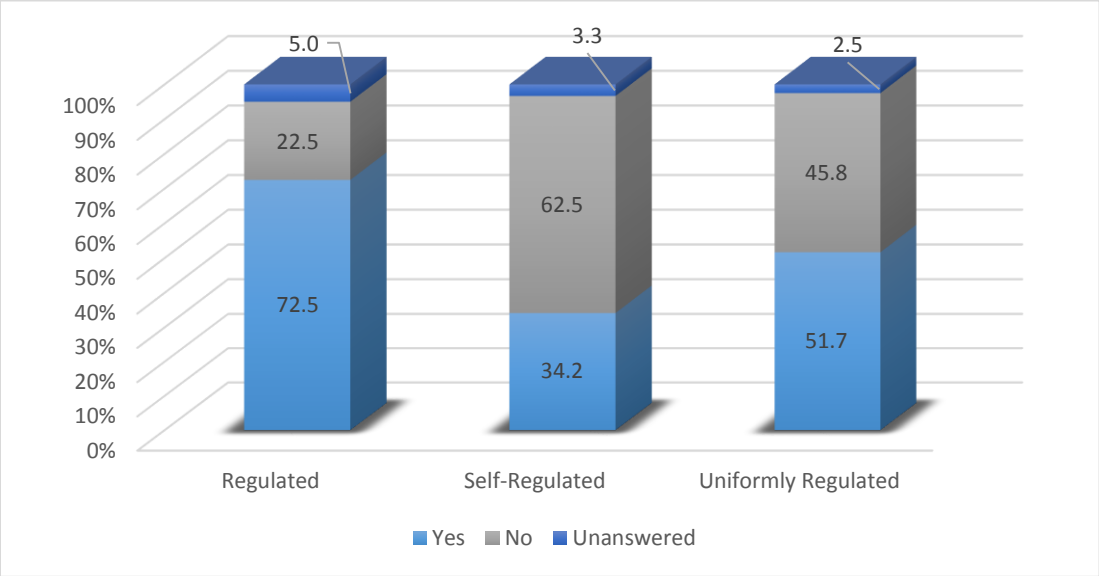


Figure 4.4 Responses on whether broadcasting should be regulated, self-regulated or regulated the same way.

The study endeavoured to establish whether digital broadcasting should be regulated (i.e. by the government), or self-regulated or regulated uniformly regardless of the platform or technology used to deliver the broadcasting service as illustrated in figure 4.4 above. The figure shows that as regards regulation of digital broadcasting in the digital age, 72.5% of the respondents were in favour, while 22.5% were not in favour and 5.0% were non-responses. The overwhelming response of 72.5% in favour of regulating digital broadcasting against 22.5% that were not in favour is a clear indication that it is still necessary to regulate broadcasting despite the drastic changes in the broadcasting landscape shaped by technological advancements, convergence and changing markets.

As regards whether self-regulation was the way to go in the sight of digital broadcasting, figure 4.4 illustrated that 62.5% were not in favour of self-regulation, while 34.2% were in favour, and 3.3% were non-respnses. This indicates that self-regulation of digital broadcasting is not favoured.

Further, on the evaluation regarding the need to regulate broadcasting by applying the regulations uniformly to each one of the types of digital broadcasting, figure 4.4 illustrates that 51.7% of the respondents were in favour of uniform regulation, while 45.8% were not

in favour, and 2.5% of the respondents were non-responses. The fact that more than 50% of the responses were in favour of uniform regulation is an indication that in the dispensation of digital broadcasting, there is need to uniformly regulate digital broadcasting independent of the platform or technology used to deliver broadcasting content.

More information on the findings of the study in terms of whether broadcasting should be regulated at all in the digital age is as illustrated in Figure 4.4:5 in Appendix II. Furthermore, information on whether different broadcasters must be regulated uniformly is also found in Appendix IV.

4.3.3 Reasons for Using Content, Market, Technology, Functionality or Prescriptive Types of Regulation to Regulate Digital Broadcasting

The finding shows the following cited for regulation based on Content, Market, Technology, Functionality or Prescriptive Types of Regulation:

i) Broadcasters can churn harmful content hence the need for regulation
ii) Need for regulation to create a level playing field and discourage monopoly
iii) A holistic regulatory approach would be more ideal to take into account all prevailing circumstances in the digital ecosystem
iv) All the regulations complement each other and you cannot have one without the other
v) To protect consumers from being abused via high pricing or poor service quality
vi) Market define types of viewers based on content, technology, functionality and prescriptive regulatory systems

The above cited reasons are fundamental for the rationale towards broadcasting regulation. The reasons have highlighted concerns of the market, consumers, holistic regulation and technology which are very key to regulation. It is important to note that the market, consumers and technology drive innovation.

4.3.4 Rating of the existing Broadcasting Regulatory Framework

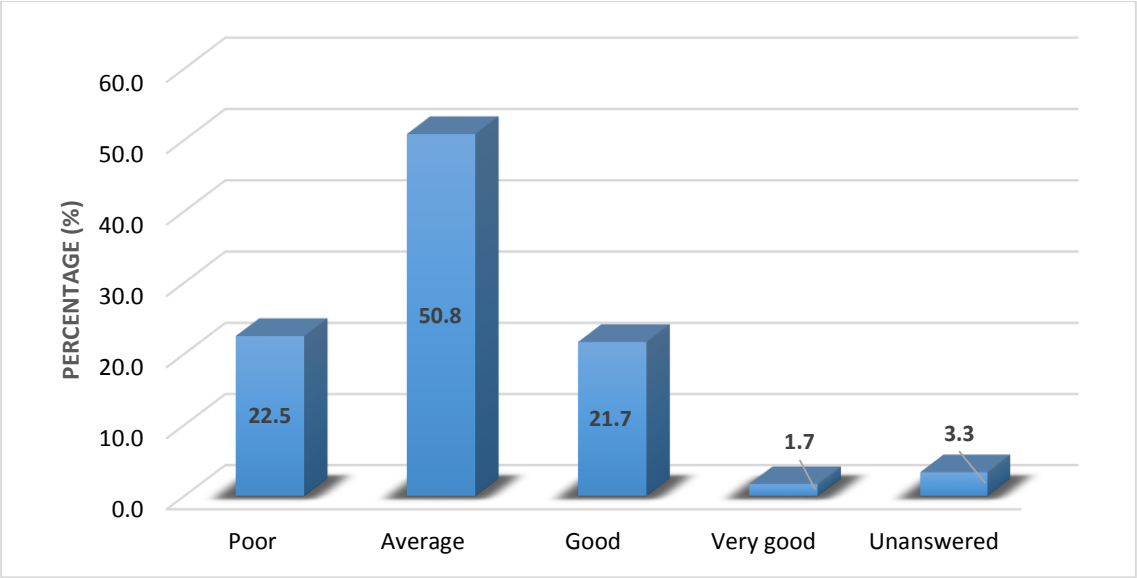


Figure 4.5 Rating of the existing Broadcasting Regulatory Framework in Zambia

Figure 4.5 above illustrates that the current Broadcasting Regulatory Framework in Zambia is rated as average with 50.8% of the responses. Meanwhile 21.7% of the responses rated the framework as good, 22.5% of the respondents rated the framework as poor, 1.7% rated it as being very good and 3.3% non-responses. The results as illustrated in the figure shows a consistent bias towards average rating of 50.8% which is decisive. Meanwhile a rating of good at 21.7% for the framework which is 0.8% lower than the poor rating of 22.5% is an indication that the existing framework is firmly average. The literature review showed that the existing regulatory framework is sufficient as far as analogue broadcasting regulation is concerned. However, the literature reviewed that regulatory framework had not been updated enough to adequately address the regulatory challenges associated with ICT based broadcasting. Such regulatory gaps as highlighted in reviewed literature include regulation of Over the Top (OTT) Content service providers such as regulation of Video on Demand (VOD) and Internet Protocol Television.

4.3.5 Digital Broadcasting Regulation by Mode of Broadcasting

a) **Digital Terrestrial Broadcasting as regards Content, Market, Technology, Functionality and Prescriptive Regulations**

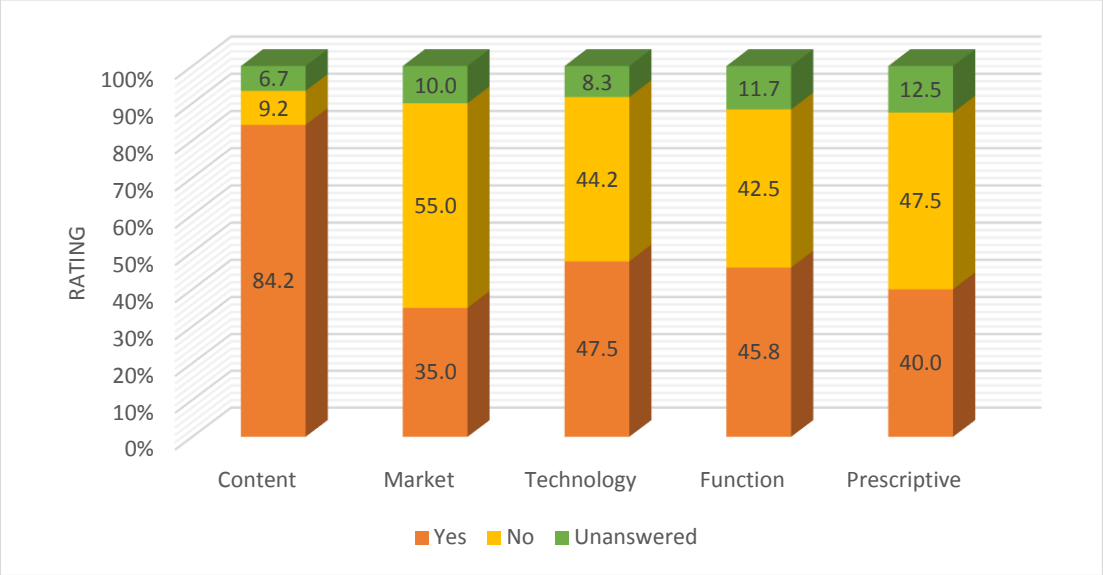


Figure 4.6 Digital Terrestrial Broadcasting Regulation

The figure 4.6 above illustrates the proposed regulation of Digital Terrestrial Television (DTT) broadcasting with respect to content, market, technology, functionality and prescriptive regulations. The results as in figure 4.3:4 shows that DTT broadcasting regulation by content is observed to be highly preferred with 84.2% of positive responses, while 9.2% were not in favour and 6.7% were non responses. DTT broadcasting regulation by market type of broadcasting regulation was observed to be lowly preferred with 35% in favour against 55% of the responses not in favour, and 10% non-responses. The results also shows that technology type of content regulation was observed to be applicable to DTT broadcasting with 47.5% of the responses in favour against 44.2% of the responses not in favour, while the non-response rate was at 8.3%. Figure 4.6 additionally illustrates that the regulation of DTT broadcasting by functionality type of regulations was observed to be favoured at 45.8%, while 42.5% of the responses were not in favour and 11.7% were non-responses. Further, prescriptive type of broadcasting regulation to DTT is observed to be lowly favoured at 40.0%, with 47.5% of the responses not in favour and 12.5% non-response rate.

Overall, the results show that DTT regulation by content is highly preferred. Technology and functionality type of broadcasting regulations are also favoured.

b) Satellite Broadcasting as regards Content, Market, Technology, Functionality and Prescriptive Regulations

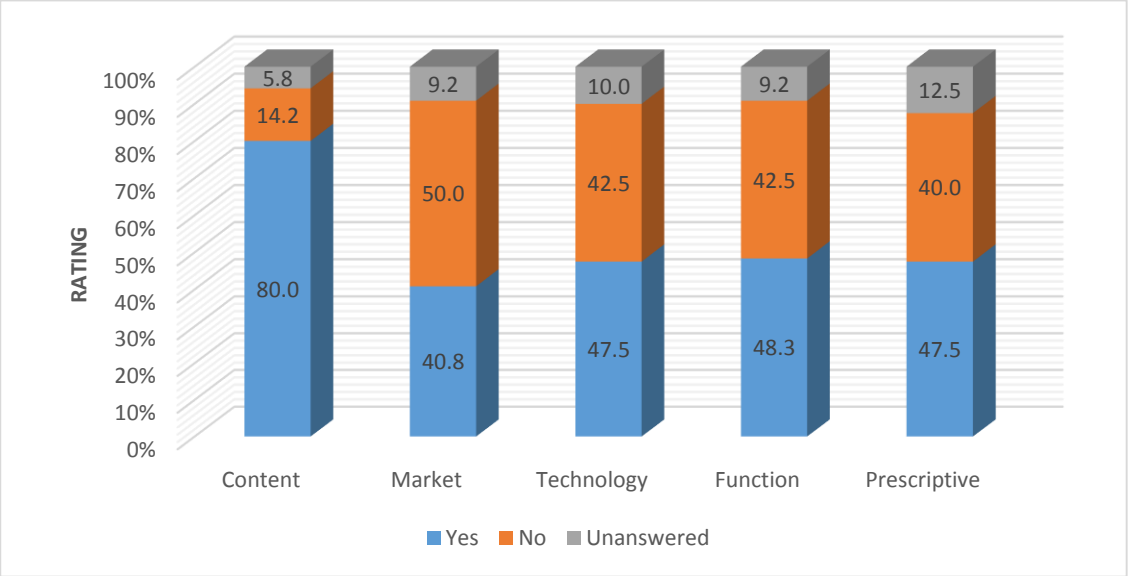


Figure 4.7 Satellite Broadcasting Regulation

The figure 4.7 above illustrates the proposed regulation of Satellite broadcasting as regards content, market, technology, functionality and prescriptive regulations. The figure shows that satellite broadcasting regulation by content is observed to be highly favoured with 80% of positive responses, while 14.2% of the responses were not in favour and 5.8% non-response rate. Market type of broadcasting regulation is known to be lowly favoured with at 40.8% against 50% of the responses not in favour, and 9.2% non-responses. The results also shows that as regards technology type of regulation to satellite broadcasting, 47.5% of the responses were in favour; with 42.5% of responses not in favour, while the non-response rate was at 10%. Figure 4.3.5 additionally shows that the regulation of satellite broadcasting by functionality type of regulations had the 48.5% of the responses in favour against 42.5% not in favour and a non-response rate of 9.2%. Further, figure 4.7 shows that as regards the rating of prescriptive type of broadcasting regulation to satellite broadcasting

47.5% of the responses were in favour, while 40% were not in favour and 12.5% non-response rate.

c) Internet Protocol Television (IPTV) Broadcasting as regards Content, Market, Technology, Functionality and Prescriptive Regulations

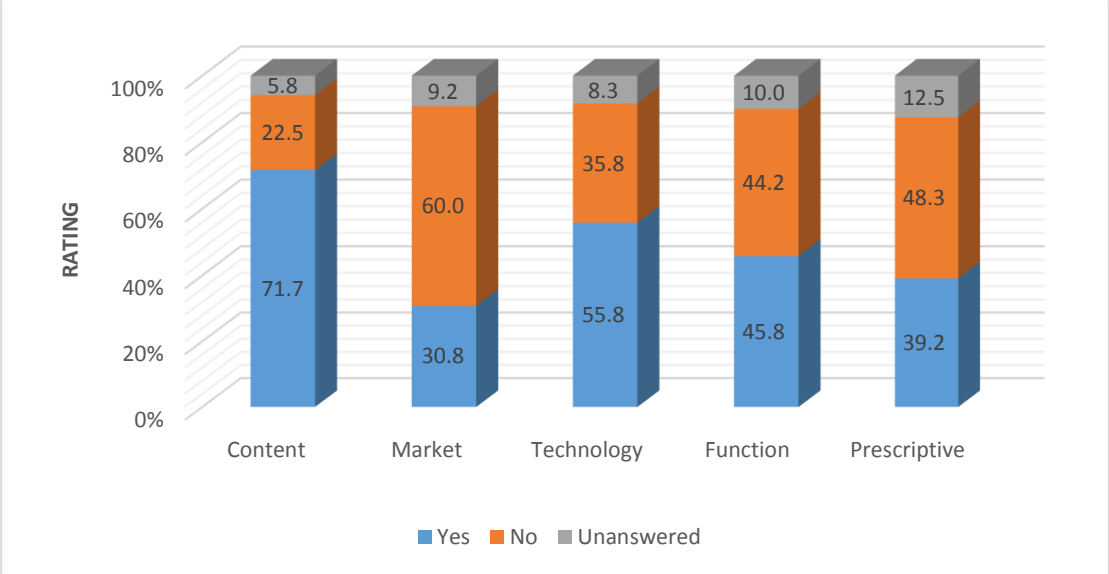


Figure 4.8 Regulation of Internet Protocol Television

The figure 4.8 above illustrates the proposed regulation of Internet Protocol Television (IPTV) broadcasting with respect to content, market, technology, functionality and prescriptive regulations. The results shows that IPTV broadcasting with respect to content type of regulation, 71.7% of responses were in favour, while 22.5% were not in favour and 5.8% were non responses. Market type of broadcasting regulation is understood to be less preferred with 30.8% of responses in favour against 60% of the responses not in favour, and 9.2% non-responses. The results also shows that technology type of broadcasting regulation was observed to be preferred with 55.8% of the responses in favour against 35.8% of the responses not in favour, while the non-response rate was at 8.3%. Figure 4.8 additionally shows that the regulation of IPTV broadcasting by functionality type of regulations was observed to be favoured at 45.8%, while 44.2% of the responses were not in favour and 10% were non-responses. Further, the figure shows that prescriptive type of broadcasting regulation was observed to be unfavourable mode of IPTV broadcasting

regulation being favoured at only 39.2%, against 48.3% of the responses not in favour and 12.5% non-response rate.

d) Video on Demand (VoD) Broadcasting as regards Content, Market, Technology, Functionality and Prescriptive Regulations

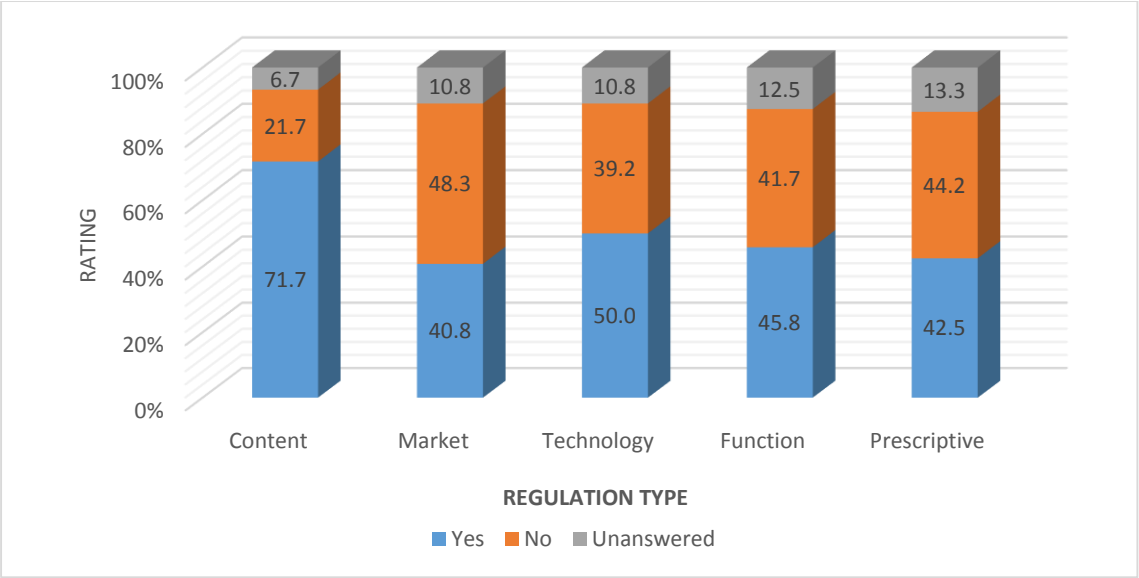


Figure 4.9 Regulation of Video on Demand

The figure 4.9 above illustrates the proposed regulation of Video on Demand (VOD) broadcasting with respect to content, market, technology, functionality and prescriptive regulations. The results shows that as regards VOD broadcasting with respect to content type of regulation, 71.7% of responses were in favour, while 21.7% were not in favour and 6.7% were non responses. Market type of broadcasting regulation was understood to be less preferred with 40.8% of responses in favour against 48.3% of the responses not in favour, and 10.8% non-responses. The results also shows that technology type of broadcasting regulation was observed to be mildly preferred with 50% of the responses in favour against 39.2% of the responses not in favour, while the non-response rate was at 10.8%. Figure 4.9 additionally shows that the regulation of VOD broadcasting by functionality type of regulations was also observed to be mildly at 45.8% against 41.7% not in favour and 12.5% non-responses. Further, the figure shows that prescriptive type of broadcasting regulation was observed to be unfavourable mode of VOD broadcasting

regulation at 42.5% in favour, against 44.2% of the responses not in favour, and 9.8% non-response rate. Interestingly, the non-response rates for Market and Technology types of regulation were the same at 10.8%. This is attributed to non-decision and limited knowledge by some respondents on the subject matter.

Further, information on regulation of Web Television broadcasting is found on Appendix III.

4.4 Broadcasting Regulatory Models

This section investigates the models of regulation based on their application to the press, telecommunications and broadcasting. The main features of the three models are Structure, Infrastructure, Distribution, Access, Conduct and Content. The section evaluates how these fundamental features of the models are regulated. The section therefore focuses on the ratings of the features of the regulatory models to illuminate the extent of their perceived regulation in Zambia.

4.4.1 Broadcasting Regulation on Structure as regards

a) Media Laws

b) Cross Ownership Rules

c) Channel Operating Conditions and

d) Rules about the Owner (Religion, politics, nationality, suitability)

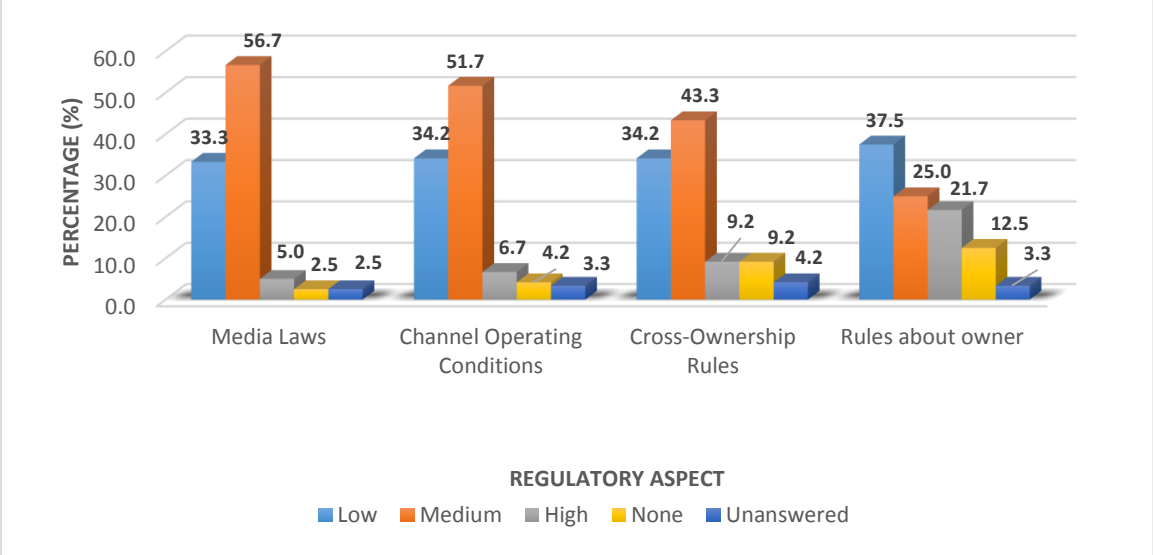


Figure 4.10 Broadcasting Regulation on Structure

Figure 4.10 above illustrates the perceived regulation of broadcasting based on structure. The structure aspects that were investigated are media laws, cross ownership rules, channel operating conditions, and rules about the owner. The figure shows that media laws and channel operating conditions are mainly mildly regulated at 56.7% and 51.7% respectively. The low regulation rating of 33.3% for media laws and 34.2% for channel operating conditions shows that there is a moderate bias towards low regulation. Cross ownership rules rating is rated to be mildly regulated at 43.3%, against a low regulation rating at 34.2% which is the same as for Channel Operating Conditions. As regards rules about the owner, the figure shows that this aspect is overall lowly regulated at 37.5% with a relatively fair bias towards high regulation at 21.7%. Interestingly, the rating of 21.7% for high regulation on *Rules about the owner* is the highest of the aspects investigated on structure. This aspect also had the highest non-response rate.

4.4.2 Broadcasting Regulation on Infrastructure as regards:

a) Technical Standards

b) Infrastructure ownership

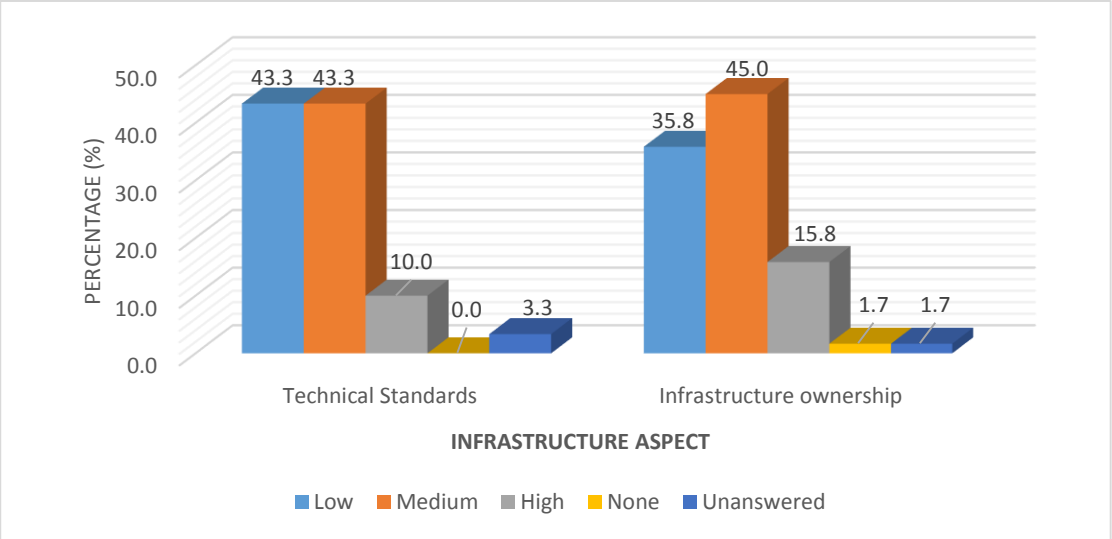


Figure 4.11 Broadcasting Regulation on Infrastructure

Figure 4.11 above illustrates the perceived broadcasting regulation based on infrastructure in terms of technical standards and infrastructure ownership aspects. The figure shows that *technical standards* aspect is rated the equally for low and medium regulation at 43.3%, with a rating for high regulation at 10%. *Infrastructure ownership* is rated as mildly regulated at 45%, against 35.8% for low regulation. In addition, *infrastructure ownership* was rated at 15.8% for high regulation while that of *technical standards* was 10%. Further, *technical standards* recorded 100% response rate while that for infrastructure ownership was 1.7%.

4.4.3 Broadcasting Regulation as regards Distribution in terms of:

a) Universal Coverage Requirements
b) Receiver Licence Requirements
c) Hours of Broadcasting

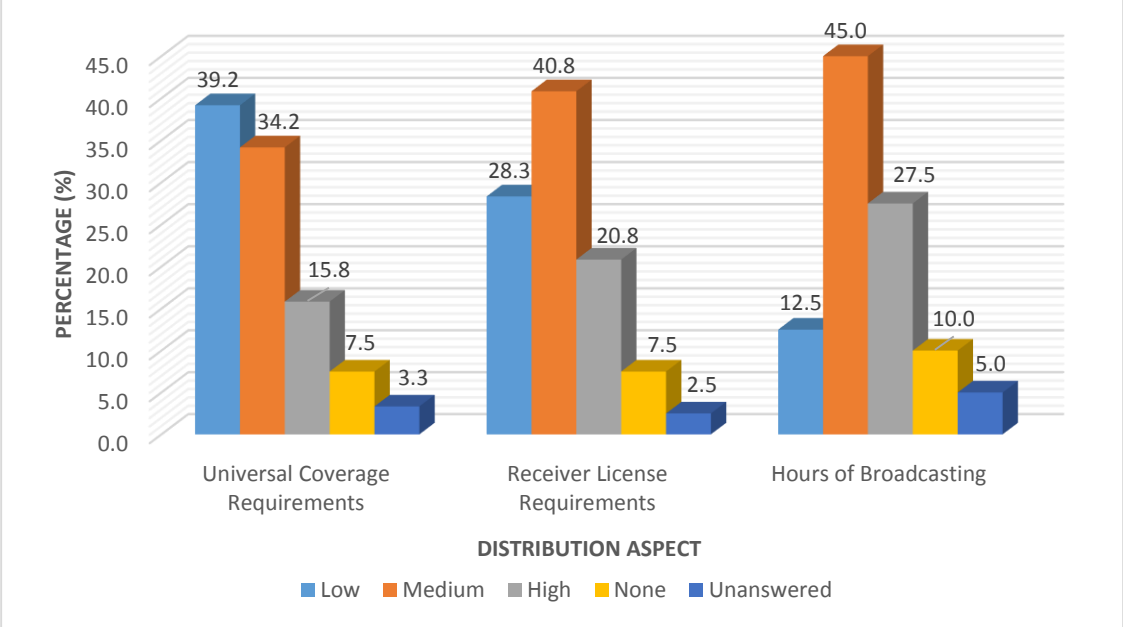


Figure 4.12 Broadcasting Regulation as regards Distribution

Figure 4.12 above illustrates the perceived regulation of broadcasting based on distribution. The distribution aspects of regulation that were investigated are universal coverage requirements, receiver licence requirements and hours of broadcasting. The figure shows *Universal Coverage Requirement*s are lowly regulated at 39.2% with a significant propensity for medium regulation at 34.2%. In addition, the figure shows that *Receiver Licence Requirements* and *Hours of broadcasting* aspects have 40.8% and 45% for mild regulation, 28.3% and 12.5% for low regulation, 20.8% and 27.5% for mild regulation, respectively. Universal Coverage Requirements has a least tendency towards high regulation at 15.8% relative to those exhibited by *Receiver Licence Requirements* and *Hours of broadcasting* aspects which are rated at 20.8% and 27.5% respectively.

4.4.4 Broadcasting Regulation as regards Access

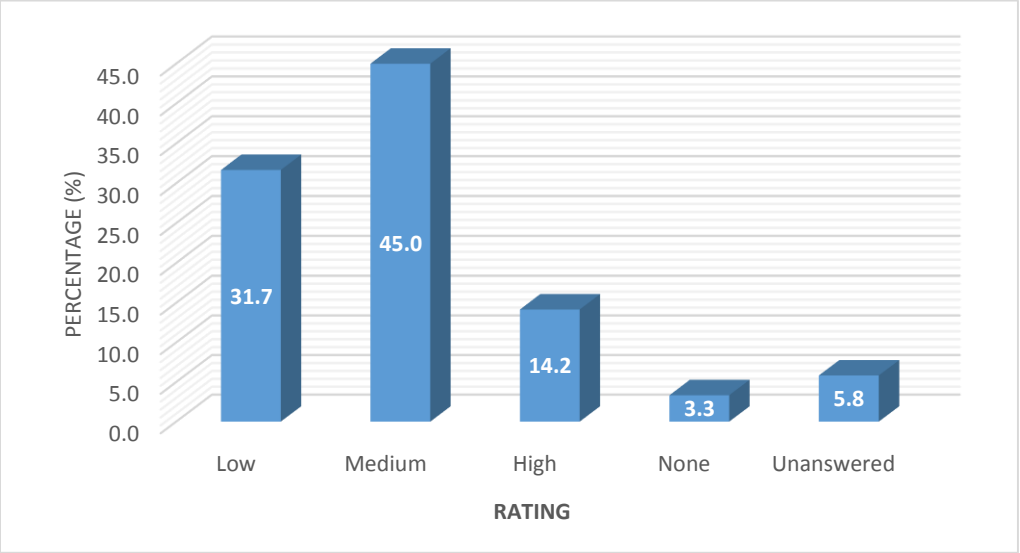


Figure 4.13 Broadcasting Regulation as regards Access

Figure 4.13 above illustrates the perceived regulation of broadcasting in terms of Access. The investigation of this aspect of broadcasting regulation shows that it is mildly regulated at 45%. In addition, the figure shows that the access feature of broadcasting regulation has some propensity towards low regulation at 31.7%. Further, the figure shows that the rating for highly regulating access is only at 14.2%. The trend towards none regulation of access was low at 3.3%. The non-response rate was 5.8%.

4.4.5 Broadcasting Regulation on Conduct in terms of:

a) Copyright and Performance Dues

b) Rules and Mechanisms of Accountability

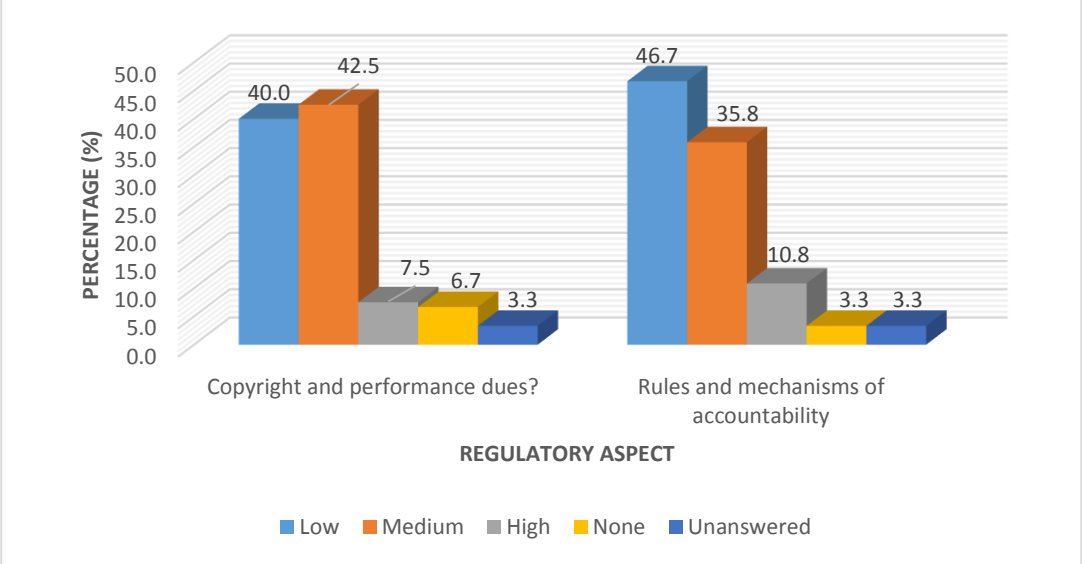


Figure 4.14 Broadcasting Regulation as regards Conduct

Figure 4.14 above illustrates the perceived regulation of the conduct aspect of the regulatory model in terms of: Copyright and Performance dues; and Rules and Mechanisms of Accountability. The figure shows that *copyright and performance dues* is rated to be mildly regulated at 42.5% rating. There is also a noticeable propensity for low regulation rated at 40% which is only 2.5% lower than the rating for mild regulation. On *rules and mechanisms of accountability*, the figure shows an interesting result with 46.7% of the responses in favour of low regulation and 35.8% in favour of mild regulation. The *rules and mechanisms of accountability* rating for high regulation is 10.8% versus 7.5% for *copyright and performance dues*. The rest of the ratings for both aspects of the conduct feature of regulatory model were relatively very low and thus of minimal consideration for analysis.

4.4.6 Broadcasting Regulation on Content as regards:

a) Laws concerning pornography, violence, tribalism and racism
b) Content quotas (type and origin)

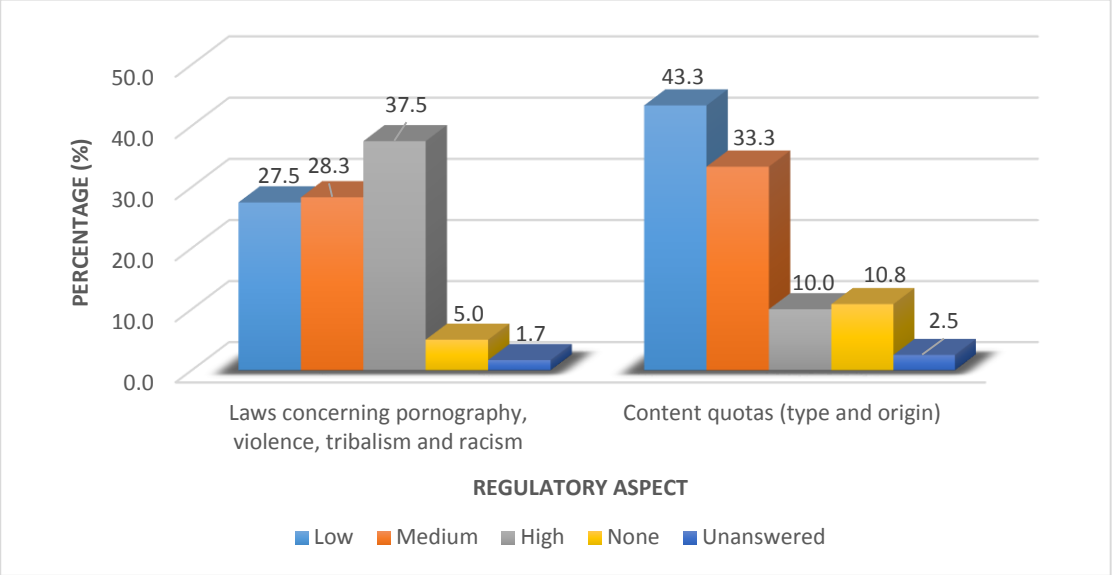


Figure 4.15 Broadcasting Regulation as regards Content

Figure 4.15 above illustrates the perceived regulation of the content aspect of the regulatory model in terms of: *Laws concerning pornography, violence, tribalism and racism*; and *Content quotas (type and origin).* The figure shows that *Laws concerning pornography, violence, tribalism and racism* are considered to be highly regulated at 37.5% rating, with relatively significant consideration for medium and low regulation rated at 28.3% and 27.5% respectively. On *content quotas*, the figure shows that this aspect is lowly regulated. In addition, the figure shows low rating on *content quotas* at 43.3%, with a mild rating at 33.3%. Therefore, content quotas are general lowly regulated. The non-response rate for content quotas is about twice as much at it is for *Laws concerning pornography, violence, tribalism and racism*. The high rating for content quotas is relatively low at 10%. The overall low rating content quotas is a clear demonstration why the regulation on local versus foreign content are still quite flexible with local content requirement set at a minimum of 35% as prescribed by the Zambia digital migration policy (2014).

4.5 Limitations and potential problems

Despite the many successes scored during the research, some challenges were encountered. Firstly, some content service providers were not willing to provide some information especially the qualitative ones. This was attributed to mistrust with what the collected information could be used for. Secondly, Broadcasters/Content Service Providers providing Over the Top (OTT) services such as NETFLIX declined to participate in the survey. Thirdly, some respondents could to respond to some questions mostly due to limited knowledge on the subject matter. Fourthly, the results of the pilot survey showed that most eligible respondents had limited knowledge on cable TV. Therefore, this aspect of digital broadcasting could not be investigated in the study.

4.6 Chapter Summary

This chapter revealed the findings of the study with respect to exploration of the types of regulations in broadcasting and the investigation of how ICT-based broadcasting is regulated. The study administered 120 questionnaires in Lusaka to represent the national sample size.

The study examined whether the regulation of broadcasting services should be technologically neutral. Further, the study examined whether digital broadcasting services should be regulated in the age of convergence. Furthermore, the study reviewed whether the basis of regulation in the digital age should be content, market, platform, functionality regulation, prescriptive regulation or otherwise. In addition, the study examined the regulation of broadcasting in Zambia as regards structure, infrastructure, distribution, access, conduct and content.

This chapter further discussed the results of the survey with respect to ICT-based broadcasting, the regulations in broadcasting, how ICT-based broadcasting is regulated. Furthermore, the findings of the chapter highlighted how advancement in technology and convergence have skewed the scope of existing regulatory frameworks. Another important aspect the study investigated was the sufficiency of the existing broadcasting regulatory framework.

CHAPTER 5

DISCUSSION OF FINDINGS

The research aimed to investigate the regulation of ICT based broadcasting in Zambia.

The need for broadcasting regulation dates as far back as February 1987 when the Parliament of the Republic of Zambia established the Zambia National Broadcasting Corporation (ZNBC) through Chapter 154 of the laws of Zambia. The ZNBC Act (1987) was established to provide for the establishment of the Zambia National Broadcasting Corporation; to define the functions and powers of the corporation; to provide generally for the control and regulation of broadcasting and diffusion services; and to provide for matters connected with or incidental to the foregoing. During that era, broadcasting was the preserve of the state, and ZNBC was practically the broadcaster and regulator of public broadcasting.

In the early to mid-1990s the government of the Republic of Zambia liberalised the airwaves which saw tremendous growth and development in the broadcasting sector. For instance, within the first few years, a number of private broadcasting stations were established such as Radio Phoenix, Radio Christian Voice, Radio Icengelo, Trinity Broadcasting Network TV, as well as the birth of the first ever digital satellite TV by Multichoice Zambia Limited, etc. During this transition from government monopoly of broadcasting to liberalisation of the airwaves, the Ministry of Information and Broadcasting Services was the custodian of licensing and regulation of private broadcasting. In addition, the ministry also encouraged self-regulation by broadcasters. The growth of the media and the challenges that come with the growth prompted the government to legislate the Independent Broadcasting Authority (IBA) Act of 2002. The IBA Act of 2002 was enacted to establish the Independent Broadcasting Authority and to define its functions; to provide for the control and regulation of broadcasting and diffusion services; and to provide for matters connected with or incidental to the foregoing. However, the IBA was not operationalised immediately and consequently the elapsing of time coupled with changes in the broadcasting industry prompted the government in 2010 to amend the IBA Act of 2002. Therefore, the IBA Act of 2002 was amended giving birth to the IBA Amendment Act of 2010. Further, in 2010 the ZNBC Act of 1987 was also

Amended and provided for the repeal and replacement of some sections. Since then, the broadcasting sector has seen tremendous growth and development.

After the enactment of the IBA Act of 2010, the IBA became operationalised in July 2013. One of the dynamic and powerful provisions of the IBA Act (2010) is that it empowers the regulator to develop regulations whenever it determines so, in an endeavour to effectively regulate the broadcasting sector. Therefore, IBA has developed a number of regulations and guidelines such as the Standard Operating Procedures for Broadcasting, Licensing Guidelines and Complaints Procedure. However, new laws developed by the IBA must first be sent to the Ministry of Information and Broadcasting Services (MIBS), and then to the Ministry of Justice and finally to Parliament before they are enacted. Now this is a lengthy process and usually takes a long time before drafted laws are enacted by parliament. This has so far proven ineffective owing to fast paced technological advancements, convergence and dynamic broadcasting markets.

Zambia has separate regulators; i.e. IBA regulates broadcasting while ZICTA regulates information and communication technology. Therefore, broadcasting licenses are issued under the IBA Act while frequency licenses are issued by ZICTA under the ICT Act No. 15 of 2009 (Zambia Digital Migration Policy, 2014). This two stage broadcasting licensing mechanism involving the two regulators is no longer effective due to convergence. Baldwin et al (1996) argues that convergence not only applies to technology but also involves fusion of content, service, infrastructure, and end-user equipment. Other scholars also argue that convergence has far-reaching technological, economic, and regulatory implications (Mansell 1993; Collins et al. 1995 & 1996; Murrani et al. 1996), as explored in the '*Literature Review*'. Further (Toscano, 2004) argues that "The convergence of the telecommunications, broadcasting and IT sectors is reshaping the communications market; in particular the convergence of fixed, mobile, terrestrial and satellite communications, and communication and positioning/location systems. From the point of view of communications infrastructure and related services, convergence makes the traditional separation of regulatory functions between these sectors increasingly inappropriate and calls for a coherent regulatory regime".

The IBA, ZNBC, ICT and the ECT Acts have not been revised yet to address changes brought about by convergence. The ICT and ECT Acts have been amended but the

amendments have only addressed lacunas that ZICTA deemed necessary in line with access and consumer protection; nonetheless, the implications of convergence have not been addressed. The amendments of the IBA Act are underway. Therefore digital broadcasting by terrestrial, satellite and cable is still being regulated using the old regulatory framework. However, IPTV, VOD and other forms of ICT-based broadcasting are not yet regulated.

The findings of the study revealed that Market type of broadcasting regulation is not preferred in the regulation of digital broadcasting. Nonetheless, market plays a vital role in a converged digital broadcasting ecosystem. Market is essentially an environment in which broadcasting products and services are explored and their prospects for growth or otherwise shaped. For instance, the report prepared by NERA Economic Consulting (2018) indicates that "markets are generally the most effective way to foster innovation, enhance prosperity, and promote consumer welfare. In situations when market conduct is harming consumer welfare and regulatory intervention would create a net benefit, then regulations should be designed to achieve the greatest possible benefit at the lowest possible cost. However, markets do not always deliver optimal outcomes at every moment in time; and there are also cases of sustained monopoly power, externalities, public goods, and asymmetric information. Under such circumstances, government intervention has the potential to increase overall welfare". The report by NERA Economic Consulting (2018) further indicates that "Information technology markets are characterised by dynamic competition, meaning that companies largely compete through innovation, rather than price. This competition leads to rapid changes in markets and technologies. Therefore, regulation must be flexible enough to accommodate these changes while creating the regulatory certainty and predictability that companies need to take risks. We refer to this kind of regulation as dynamic regulation".

The findings of the study further reviewed that Functionality type broadcasting regulation is recommended in the regulation of digital broadcasting. This is attributed to the fact that broadcasting regulatory frameworks in the digital ecosystem are being understood to be functional and cost effective. "A direct corollary of the cost-effectiveness principle is that regulatory policy should be functionality-based, rather than structure- or technology-based. By this we mean that regulatory policy should be designed to achieve the desired objective (e.g., protecting privacy, promoting universal adoption, providing incentive for investment and innovation) in the most efficient way, regardless of the technology, industry structure,

or legacy regulatory regime" (NERA Economic Consulting, 2018). In this study legacy regulation refer to prescriptive type of broadcasting regulation which the findings of the study did not recommend.

E. C. Nkandu (personal communication, 15 October 2017) argued that even if there has been a preference for converged regulator over separate regulators for broadcasting and telecommunication attributed to convergence, it has been observed that countries with a converged regulator tend to focus more on telecommunications than broadcasting.

There are difference approaches that have been identified for the regulation of ICT in the converged environment which are: legislation, regulatory, and self-regulation approaches. However, it has been observed that no one approach is perfect as NERA (2018) indicated in the ICTRegulation Tool Kit thus "each of the approaches presents advantages and disadvantages, but no one approach results in an optimal solution". Using a hybrid approach that maximises on the advantages of each of the approaches may achieve optimal positive results of the regulatory framework. However, the hybrid approach must not be cast in stone but must rather be dynamic and responsive to changes in the digital ecosystem. This is because the effects of convergence on the regulatory frameworks are not completely known and the dynamisms resulting from it are quite intrusive and to some extent unpredictable.

It has also been observed that different countries have adopted different approaches in their regulatory frameworks as observed in the *reviewed literature* for UK, US and South Korea's country examples in their attempt to effectively respond to convergence. It has further been observed that the focus of the new regulatory framework is in response to observed threats to the existing regulatory frameworks. This is so because there has been no universal approach to ICT regulation and each country has adopted a variant of either type of the regulatory framework based on their social, political and economic settings.

Regulatory challenges arising from convergence have been observed to involve different regulators and ministries. The ministries usually involved are ministry of information, communications, broadcasting, and culture; depending on the structural setup of the ministries in respective countries. For statutory agencies, the disparity is between the regulator for broadcasting and the one for telecommunications in the case of none

converged regulators. This is because such regulators are governed by laws that conflict with each other on certain aspects of convergence. Nonetheless, countries that have converged regulators are managing to functionally resolve regulatory challenges as they arise since most if not all aspects are taken care of under one regulatory framework. This explains why many countries have merged the regulators for broadcasting and telecommunications. In the age of convergence, it has been observed that a converged regulator provides for efficient and functional way of regulating the sector with minimal regulatory and market overhead costs. In the country context of a converged regulator, it is also relatively easy to evaluate the effectiveness of the regulatory framework. However, some scholars argue that a converged regulator would mean monopoly of regulation for such a vast and diverse sector which may invoke the challenges that naturally comes with a monopoly. Some scholars also argue that separate regulators are able to offer checks and balances to each other which may ensure a robust and efficient regulatory environment. All in all, regulating for convergence so far seem to advantage a converged regulator over non-converged regulators.

The study established that there are two types of broadcasting, one being radio broadcasting and the other one being television broadcasting. In addition, the findings reviewed that the two forms of broadcasting are a) analogue; and b) digital. On this aspect, the focus of the study was on digital or ICT-based television broadcasting. Therefore, the study determined the different types of ICT based television broadcasting as Digital Terrestrial Television (DTTV), Satellite TV, Digital Cable TV, Video on Demand (VOD), Internet Protocol TV (IPTV) and Web Television. The Zambian broadcasting landscape is dominated by DTTV and satellite TV; nonetheless Cable TV, IPTV and VOD are still in their infancy stage but growing. DTTV is the most affordable type of digital broadcasting and thus has the highest penetration rate. Even though IPTV and VOD have a huge potential for growth, they are being challenged by high cost of internet access, average internet penetration rates and slow internet speeds.

The investigations of the study reviewed that there are different types of regulations applied in regulating the broadcasting sector. These are Content, Market, Functionality, Platform/technology and Prescriptive regulations. Different broadcasting regulatory frameworks constitute one or more of these types of broadcasting regulations. For instance, the study reviewed that the Zambian regulatory framework is mainly a mix of Content,

market and prescriptive broadcasting regulations. The study also reveals there are three approaches to implementing regulation of broadcasting and ICTs for convergence which are legislative, regulatory, and self-regulation approach. The later has been gaining popularity because it is the most dynamic and relatively more efficient at achieving regulatory objectives. However, the development of the regulatory framework in Zambia is based on the regulatory approach. Nonetheless, all the approaches have their own merits and demerits.

The study also reviewed that the main aspect of broadcasting that is highly contentious and universal to all regulatory frameworks is content regulation. Therefore, content type of broadcasting regulation is usually the most extensive in all regulatory frameworks. However, all approaches are viewed through the lens of social, cultural, political, and economic settings that characterise respective countries.

In order to extensively investigate how ICT-based broadcasting is regulated, the study investigated the regulatory models applicable to the press, broadcasting, telecommunications and the internet (i.e. the digital ecosystem) to fully understand the dynamics involved. This approach was taken to account for perceived convergence of the press, telecommunication and broadcasting. The study reviewed that the advancement in technology, convergence and dynamic markets greatly challenges the broadcasting regulatory framework resulting in discriminatory regulation of similar services as in the case of linear traditional broadcasters' vis-à-vis OTT content service providers, for instance. Further, the findings shows that the three regulatory models have converged which has greatly challenged their traditional organisation as much as it has the existing regulatory frameworks.

The study further reviewed that to develop an effective broadcasting regulatory framework, there is need to interrogate all features of the regulatory models such as infrastructure, distribution, access, structure, conduct and content. In addition, the study reviewed that it would also be imperative to strategically evaluate all the types of broadcasting regulations which are content, market, technology, functionality and prescriptive regulations. The findings of the study reviewed that as regards the features of the regulatory models, content characteristics are highly regulated, while the rest of the features are mildly to lowly regulated. Meanwhile, the existing broadcasting regulatory framework the types of the

regulations in varying magnitude. Content and prescriptive regulations are the most explicitly applied types. The IBA Act of 2010 provide for regulation of the market by ensuring a non-monopolised broadcasting industry. However, the findings of the study revealed that subscription broadcasting is monopolised in Zambia. This finding is further supported by the data collected by IBA (for March, 2018) from SMS Content Service providers. The data showed that Multichoice Zambia which owns GoTV and DSTV has the highest number of subscribers.

CHAPTER 6

CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

Technological advancement in broadcasting has rendered most existing regulatory frameworks obsolete; in particular digitisation and convergence has significantly invoked a paradigm shift in the way regulatory frameworks ought to be framed and applied. Many regulators worldwide are still grappling with effective ways of regulating broadcasting in a converged digital ecosystem. Even regulators that have responded to this paradigm shift in broadcasting are still learning in an attempt to understand more effective and progressive ways of ICT-based broadcasting regulation. Jurisdictions that have had one regulator for broadcasting and telecommunications have been able to respond with fewer difficulties than those with separate regulators. This is attributed to significant changes that have to be made at institutional setting level in jurisdictions where there are separate regulators for broadcasting and telecommunications.

All jurisdictions reviewed acknowledge that advancement in technology and convergence have shown to be disruptive to markets, existing legal and regulatory frameworks, and governance structures. This awareness lead to regulatory adjustments in the case of the US, and a total overhaul of the regulatory landscape in the UK; with a more modest approach in Korea which lead to significant changes resulting in the establishment of a converged regulator.

As per findings of the study, different jurisdictions are known to apply the various types of broadcasting regulations in different combinations and proportions. For instance, in the context of digital broadcasting and convergence, the FCC of USA which is not a converged regulator has no definite strategy but rather broadly employs an open to "muddling through" approach which is done in conjunction with other partner federal government institutions with the courts playing a key role. The FCC's approach is fundamentally reactive, resolving conflicts as they arise between consumers, incumbents and new players. However, the FCC's broadcasting model is largely focused on content and market.

The Ofcom, a converged regulator, which was formed to deal with the new realities of integrated information delivery markets applies its regulation with a strong inclination towards liberalised markets and deregulation. Content regulations are still a priority with OFCOM.

It is important to note that there is no ideal or standard way of responding to broadcasting regulation in a digital ecosystem, but the approaches reviewed in literature and the findings of the study are quite revealing. The findings acknowledge that convergence and technological advancement are fundamental trends that are disrupting existing markets, regulatory and governance structures. This impact has been felt world over invoking a paradigm shift in regulatory approaches as in the case of the US, UK and South Korea.

Further, the results of the study reveals that a holistic approach must be utilised to interrogate the features of the regulatory models applicable to the digital ecosystem and all the type of regulations and governance structures while accounting for relevant social, political and economic systems within which regulations operate. This would ensure that regulatory challenges are effectively and coherently addressed.

6.2 Recommendations

Regulation of ICT based broadcasting in the digital age is a topical issue word wide. The findings of this research has highlighted a number of challenges and gaps in the regulatory framework. The study thus recommends that institutional settings between IBA and ZICTA be reviewed for harmonisation, obsolesce, duplicity, deficiency and inefficiency to allow for effective regulation of broadcasting in a converged digital ecosystem. Further, the study recommends the review and update of the existing regulatory framework for broadcasting regulation and telecommunications to respond to digitalisation and convergence.

The study further recommends a one stage process in the licensing of content services and SMS providers for efficiency and reduce service cost. The current licensing process is a two stage process involving the two regulators with the first process done by IBA where licensing is done for content service provision and the second by ZICTA where licensing is done for frequency allocation or electronic service licensing.

6.3 Future Works

The advent of virtual reality (VR), augmented reality (AR), mixed reality (MR), artificial intelligence (AI), and voice-controlled devices are offering consumers new and engaging ways to get the most from their entertainment experiences. Technologies such as VR, AR, AI and voice capabilities, are (to varying levels) becoming integral parts of ICT-based broadcasting and gradually creating a paradigm shift in broadcasting. However, little is known on how these new trends in broadcasting technologies will shape the broadcasting sector and the respective regulatory frameworks. Given the extensibility and nature of the digital ecosystem and the growing interactions among broadcasting, telecommunication and the internet coupled with convergence of not only the technologies, content and services but also regulations, the findings of this research might not be exhaustive enough. Thus, there is need for further research that will add to the body of knowledge and compliment the findings manifested of this research.

6.4 Chapter Summary

This chapter discussed revealing aspects of the reviewed literature and findings of the study as it concludes and recommends. The chapter also highlights developing trends in digital broadcasting that may potentially affect broadcasting regulatory frameworks and thus warrant further research.

The chapter further highlights that there is no standardised way of regulating for digitalisation and convergence in the digital ecosystem. Consequently, different countries have adopted different approaches in response to convergence. Some countries have a converged regulator while others still have disparate regulators for broadcasting and telecommunications. However, content, market and public interest are mainly driving forces for redress in regulatory frameworks.

Responding to ICT-based broadcasting in the converged ecosystem encompasses changes in institutional settings and regulatory frameworks in a coherent manner.

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APPENDICES

APPENDIX I: SURVEY TOOL

Title of the Study: Regulation of ICT-Based Broadcasting in the Digital Age: A Case of Zambia

Name of Candidate: Elvis Besa

Informed Consent to Participate in a Study

Dear Respondent,

You are being requested to kindly be part of the study on the *Regulation of ICT-Based Broadcasting in the Digital Age: A Case of Zambia*.

You were purposively selected as a possible participant 0because of your knowledge and expertise in the fields of media/broadcasting practice, media training/media advocacy, media regulation or ICT related.

Please read this form and ask any questions that you may have before agreeing to be part of the study. This study is in partial fulfilment for the award of a *Masters of Engineering (MEng) in ICT Policy, Regulation and Management degree*. If you agree to be in this study, you will be required to provide your responses frankly.

Be assured that the information provided will be treated strictly in confidence and shall be used purely for academic purposes but where necessary, due attribution shall be accorded. Further, you have the right to ask questions about this research study before, during or after the research.

In addition, you have the right to withdraw at any time without giving reasons and you will not be penalized for withdrawing nor will you be questioned on why you have withdrawn.

Thank you very much for accepting to take part in this study.

Name of Researcher:

Date:

ID: ☐

QUESTIONNAIRE: ☐ OF ☐

2018 REGULATION OF INFORMATION AND COMMUNICATIONS TECHNOLOGY – BASED BROADCASTING IN THE DIGITAL AGE SURVEY

QUESTIONNAIRE

DETAILS	CODE
1. LOCATION:	☐☐
2. DISTRICT NAME:	☐☐☐☐

INSTRUCTIONS:

1) For Section 0, tick the correct answer in the box e.g. [✓]

2) For sections 1 to 3, write the appropriate number for your answer in the box e.g. in the question below, the respondent answered "yes", and they wrote "1" in the box for yes

Is the current season winter?	**1. Yes** **2. No**	☐

SECTION 0: PERSONAL INFORMATION

QUESTION NUMBER	PERSONAL INFORMATION	
Q-01	What is your gender	**1.** Male [ ] **2.** Female [ ]
Q-02	Are you a parent?	**1.** Yes [ ] **2.** No [ ]
Q-03	Do you have dependents?	**1.** Yes [ ] **2.** No [ ]
Q-04	What is your current age group?	**1.** Youth (35 years and below) [ ] **2.** Middle Age (between 35 and 55 years) [ ] **3.** Senior Citizen (55 years and above) [ ]
Q-05	What is your highest level of education?	**1.** Secondary School [ ] **2.** College [ ] **3.** University [ ] **4.** Other (specify) [ ] …….

SECTION 1: ACCESS AND UTILISATION OF DIGITAL BROADCASTING SERVICES

The following broadcasting services are classified as digital broadcasting:

a) Digital Terrestrial Television (DTT)
b) Satellite Television
c) Video on Demand (VoD)
d) Internet Protocol Television (IPTV)
e) Digital Cable Television
f) Web TV

QUESTION NUMBER	DIGITAL BROADCASTING SERVICES – ACCESS AND UTILISATION		OPTION
Q-1.	Do you have access to any digital broadcasting service?	**1.** Yes **2.** No	☐
Q-2.	Which digital broadcasting service(s) does your company provide? **{Skip this question if it does not apply to your company}**	**1.** Digital Terrestrial Television (DTT) **2.** Satellite Television **3.** Video on Demand (VOD) **4.** Web TV **5.** Internet Protocol Television (IPTV) **6.** Digital Cable Television **7.** Other (specify)……... ……	☐
Q-3.	Where is your company domiciled? **{Skip this question if it does not apply to your company}**	**1.** Zambia **2.** Outside Zambia	☐
Q-4.	How affordable is the digital broadcasting service you access?	**1.** Cheap **2.** Fairly Affordable **3.** Expensive **4.** Very Expensive	☐
Q-5.	How do you rate the quality of digital broadcasting service you access?	**1.** Poor **2.** Fair **3.** Good **4.** Very Good **5.** Excellent	☐
Q-6.	How do you rate customer support service?	**1.** Poor **2.** Fair **3.** Good **4.** Very Good **5.** Excellent	☐

QUESTION NUMBER	DIGITAL BROADCASTING SERVICES – ACCESS AND UTILISATION		OPTION
Q-7.	Do you think the subscription fees for digital broadcasting services are competitive?	**1.** Yes **2.** No	☐
Q-8.	Do you think there is a wider choice of providers offering digital broadcasting services?	**1.** Yes **2.** No	☐
Q-9.	Do you think digital broadcasting services in Zambia have been monopolized?	**1.** Yes **2.** No	☐

SECTION 2: BROADCASTING REGULATION

It is known that broadcasting can be regulated based on:-

(i) Platform/technology for service delivery such as satellite, DTT, Internet etc.
(ii) Content – that is the character of broadcasting content.
(iii) Prescriptive regulations – that is regulation based on previously known and established mechanisms in broadcasting.
(iv) Functionality – that is regulation designed to achieve its objective in the most efficient way (i.e., to be 'cost effective'), without regard to technologies, industry structures, or legacy regulatory regimes.
(v) Market – that is regulation must be based on the market audience of the type of recipient consumers of the broadcasting service

QUESTION NUMBER	DIGITAL BROADCASTING REGULATION			OPTION
Q-10.	On what basis should broadcasting players be regulated? **{This is a multiple response question.**	**1.** Content	**1.** Yes **2.** No	☐
		2. Market	**1.** Yes **2.** No	☐

QUESTION NUMBER	DIGITAL BROADCASTING REGULATION			OPTION
	Please answer "yes" or "no" for each question or specify where necessary}	**3.** Technology/Platform	**1.** Yes **2.** No	☐
		4. Functionality	**1.** Yes **2.** No	☐
		5. Prescriptive	**1.** Yes **2.** No	☐
		6. Other (specify)……		☐
Q-11.	Give a reason(s) for your answer in Question **Q-10** above?			
Q-12.	Should broadcasters be self-regulated?	**1.** Yes **2.** No **{Go to Q-14}**		☐
Q-13.	If your answer to question **Q-12** above is **yes**, please explain why?			
Q-14.	Should the broadcasting industry be regulated?	**1.** Yes **2.** No **{ Go to Q-16}**		☐
Q-15.	If your answer to question **Q-14** above is **yes**, please explain why?			
Q-16.	Should all broadcasting players be regulated the same way?	**1.** Yes **2.** No **{ Go to Q-18}**		☐

QUESTION NUMBER	DIGITAL BROADCASTING REGULATION				OPTION
Q-17.	If your answer to question Q-16 above is **yes**, please explain why?				
Q-18.	How do you rate the existing broadcasting regulatory framework in Zambia?	**1.** Poor **2.** Average **3.** Good **4.** Very good **5.** Excellent			☐
Q-19.	On what basis do you think the following modes of broadcasting should be regulated? **{This is a multiple response question. Please answer "yes" or "no" for each question or specify where necessary}**	Digital Terrestrial	Content	1. Yes 2. No	☐
			Market	1. Yes 2. No	☐
			Technology	1. Yes 2. No	☐
			Function	1. Yes 2. No	☐
			Prescriptive	1. Yes 2. No	☐
			Other (specify) ……		
		Satellite	Content	1. Yes 2. No	☐
			Market	1. Yes 2. No	☐
			Technology	1. Yes 2. No	☐
			Function	1. Yes 2. No	☐
			Prescriptive	1. Yes 2. No	☐
			Other (specify) ……		
		IPTV	Content	1. Yes 2. No	☐
			Market	1. Yes	☐

QUESTION NUMBER	DIGITAL BROADCASTING REGULATION				OPTION
				2. No	
			Technology	1. Yes 2. No	☐
			Function	1. Yes 2. No	☐
			Prescriptive	1. Yes 2. No	☐
			Other (specify) ……		
		VOD	Content	1. Yes 2. No	☐ ☐
			Market	1. Yes 2. No	☐ ☐
			Technology	1. Yes 2. No	☐
			Function	1. Yes 2. No	☐
			Prescriptive	1. Yes 2. No	☐
			Other (specify) ……..		
		Web TV	Content	1. Yes 2. No	☐
			Market	1. Yes 2. No	☐
			Technology	1. Yes 2. No	☐
			Function	1. Yes 2. No	☐

QUESTION NUMBER	DIGITAL BROADCASTING REGULATION				OPTION
			Prescriptive	1. Yes 2. No	☐
			Other (specify) ……		
		Digital Cable	Content	1. Yes 2. No	☐
			Market	1. Yes 2. No	☐
			Technology	1. Yes 2. No	☐
			Function	1. Yes 2. No	☐
			Prescriptive	1. Yes 2. No	☐
			Other (specify) ……		

SECTION 3: BROADCASTING REGULATORY MODEL

A distinctive feature of media regulation is the fact that each successive medium has tended to attract its own distinctive model of regulation, appropriate to the technology and form of organisation and the particular functions and applications. Three main regulatory models have been identified, applicable to the press, telecommunications (especially telegraphy and telephony) and broadcasting, respectively (Pool, 1983). Although the distinctions involved are becoming increasingly hazy because of deregulation and convergence, it is still useful to base our discussion on this pattern. In this context, a `model' means a framework of inter-related regulation that is based on some legitimating principles and can be referred to for settling disputes, implementing policy and responding to change. The main features of the three models are Structure, Infrastructure, Distribution, Access, Conduct and Content.

QUESTION NUMBER)	DIGITAL BROADCASTING REGULATORY MODEL			OPTION
Q-20.	How do you rate broadcasting regulation in Zambia as regards structure in terms of…?	**A.** Media laws	1. Low 2. Medium 3. High 4. None	☐
		Channel operating conditions	1. Low 2. Medium 3. High 4. None	☐
		B. Cross-ownership rules	1. Low 2. Medium 3. High 4. None	☐
		C. Rules about owner (Religion, politics, nationality, suitability)	1. Low 2. Medium 3. High 4. None	☐
Q-21.	How do you rate broadcasting regulation in Zambia as regards infrastructure in terms of…?	**A.** Technical standards	1. Low 2. Medium 3. High 4. None	☐
		B. Infrastructure ownership (e.g. Transmitter, cable, satellite etc.)	1. Low 2. Medium 3. High 4. None	☐

QUESTION NUMBER)	DIGITAL BROADCASTING REGULATORY MODEL			OPTION
Q-22.	How do you rate broadcasting regulation in Zambia as regards distribution in terms of…?	**A.** Universal coverage requirements	**1.** Low **2.** Medium **3.** High **4.** None	☐
		B. Receiver licence requirements	**1.** Low **2.** Medium **3.** High **4.** None	☐
		C. Hours of Broadcasting	**1.** Low **2.** Medium **3.** High **4.** None	☐
Q-23.	How do you rate broadcasting regulation in Zambia as regards access?	**1.** Low **2.** Medium **3.** High **4.** None		☐
Q-24.	How do you rate broadcasting regulation in Zambia on conduct in terms of…?	**A.** Copyright and performance dues	**1.** Low **2.** Medium **3.** High **4.** None	☐
		B. Rules and mechanisms of accountability	**1.** Low **2.** Medium **3.** High **4.** None	☐
Q-25.	How do you rate broadcasting regulation in Zambia on content in terms of…?	**A.** Laws concerning pornography, violence, tribalism and racism	**1.** Low **2.** Medium **3.** High **4.** None	☐
		B. Content quotas (type and origin)	**1.** Low **2.** Medium **3.** High **4.** None	☐

END OF THE INTERVIEW

THANK YOU FOR YOUR TIME

APPENDIX II: ACCESSIBILITY AND CHOICE OF DIGITAL BROADCASTING SERVICES

Accessibility to Digital Broadcasting Services

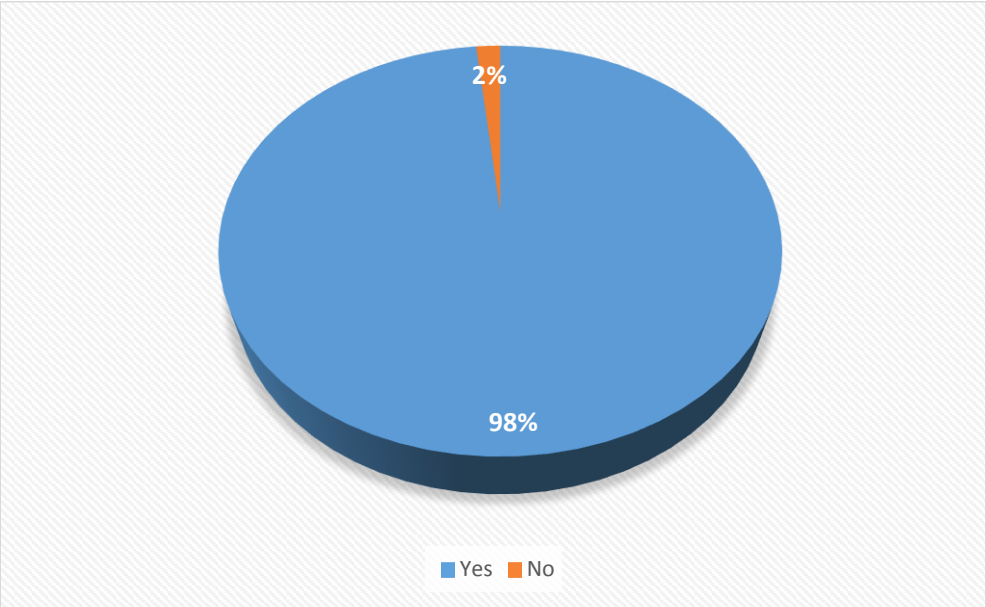

Figure 6.1 Accessibility to Digital Broadcasting Services

Figure 6.1 above illustrates extent of access to digital broadcasting services. The figure shows that of the total sample, only 2% did not have access to digital broadcasting services while 96% had. Therefore, the access levels were very high at 98%. This gives confident in terms of broader understanding of issues concerning digital broadcasting by the research subjects. Supplement

Extent of choice of Digital Broadcasting Services

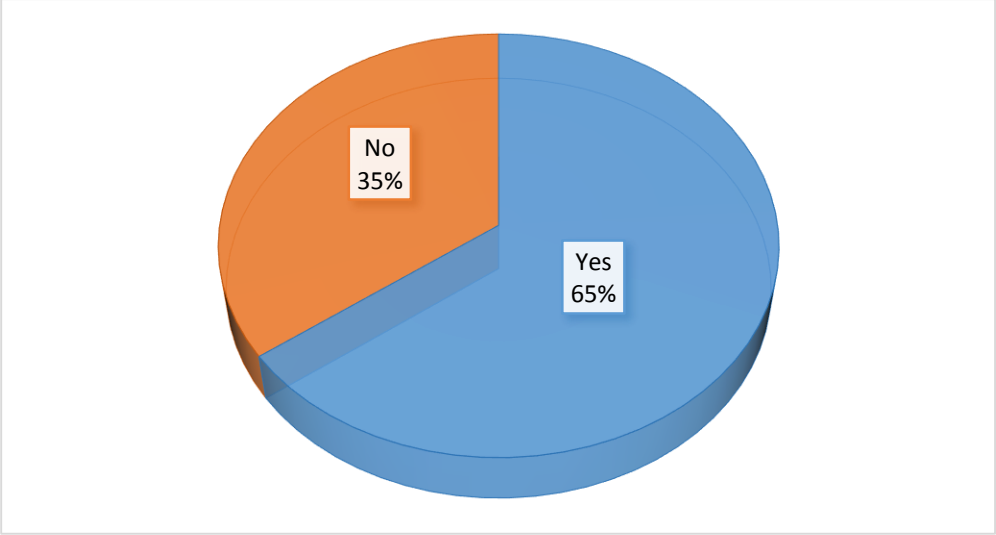

Figure 6.2 Extent of choice of Digital Broadcasting Services

The figure 6.2 above illustrates whether people have variety of options of companies offering digital broadcasting services. The figure shows that 61% of the respondents answered that they had choice while 39% responded that they did not have a variety of options to choose from for companies offering digital broadcasting services. Therefore, it can be concluded that there is variety of service providers for digital broadcasting services.

APPENDIX III: REGULATION OF WEB TELEVISION BROADCASTING

Web TV Broadcasting as regards Content, Market, Technology, Functionality and Prescriptive Regulations

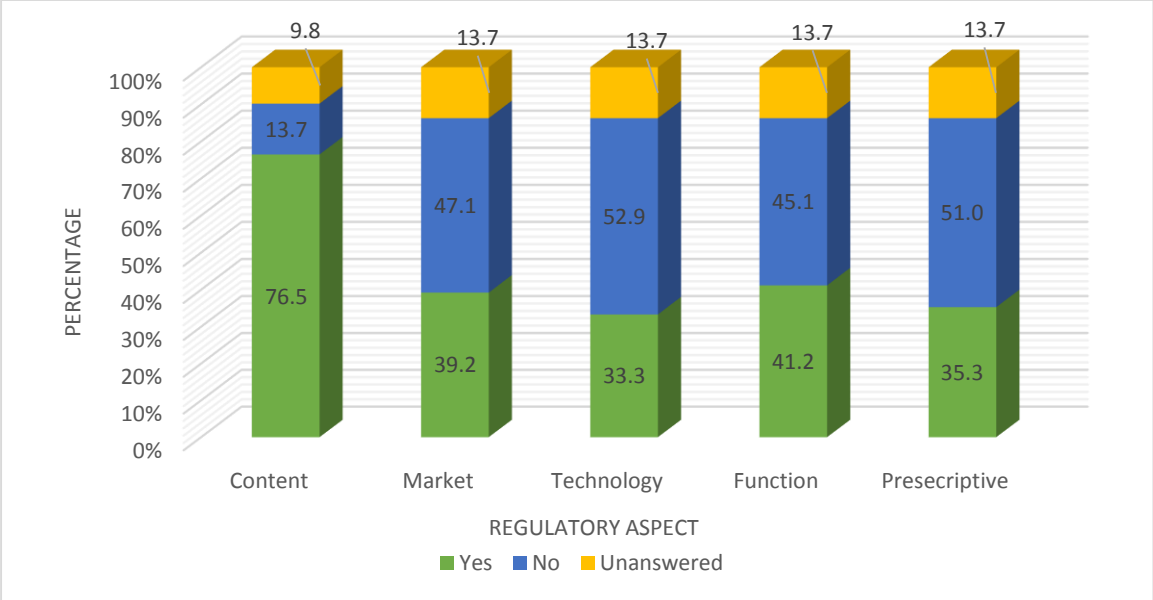

Figure 6.3 Regulation of Web Television

The figure 6.3 above illustrates the proposed regulation of Web Television broadcasting with respect to content, market, technology, functionality and prescriptive regulations. The results shows that as regards Web TV broadcasting with respect to content type of regulation, 76.5% of responses were in favour, while 13.7% were not in favour and 5.9% were non responses. Market type of broadcasting regulation was understood to be less preferred with 39.2% of responses in favour against 47.1% of the responses not in favour, and 13.7% non-responses. The results also shows that technology type of broadcasting regulation was observed to be less preferred with 33.3% of the responses in favour against 52.9% of the responses not in favour, while the non-response rate was at 13.7%. Additionally the figure shows that the regulation of Web TV broadcasting by functionality type of regulations was observed to have relative preference of 41.2% of the responses in favour against 45.1% not in favour, and 13.7% non-responses. Further, the figure below shows that prescriptive type of broadcasting regulation was observed to be unfavourable mode of Web TV broadcasting regulation being relative less favoured at 35.3%, against

51% of the responses not in favour and 13.7% non-response rate. Interestingly, the non-response rates for Market, Technology, Functionality and Prescriptive type of regulation were the same at 13.7%. This is attributed to non-decision and limited information by similar respondents on the subject matter.

APPENDIX IV: WHETHER BROADCASTING SHOULD BE REGULATED

Whether broadcasters should be self-regulated?

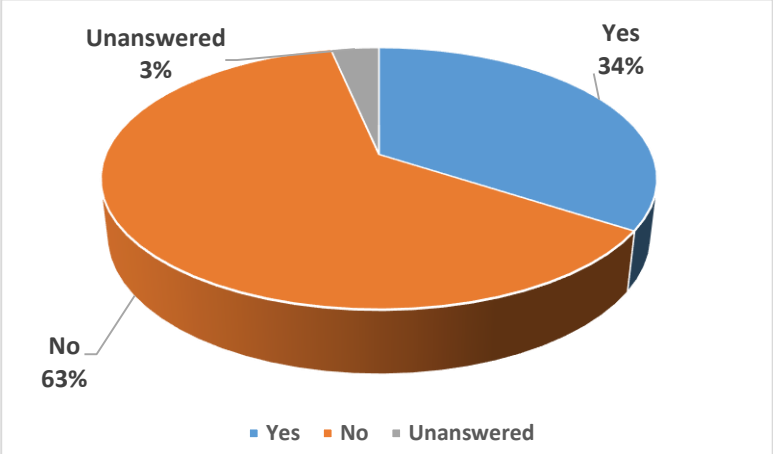

Figure 6.4 Self-Regulation of Broadcasters

Figure 6.4 above shows that 63% of the respondents were against self-regulation while 34% of the respondents are in favour of self-regulation and 3% where non-responses. Therefore, even in the digital age, broadcasting regulation is favoured.

Whether the broadcasting industry should be regulated?

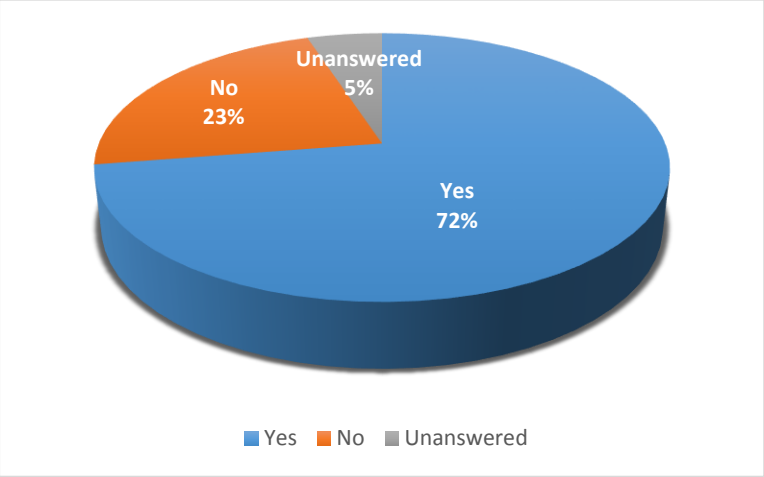

Figure 6.5 Need for Regulation of Broadcasters

Figure 6.5 above shows that 72% of the respondents were in favour of regulation of the broadcasting industry while 23% of the respondents are against, and 5% were non-responses. Therefore, the findings deduce that there is still need for broadcasting regulation in the digital age.

Whether all broadcasting players be regulated the same way?

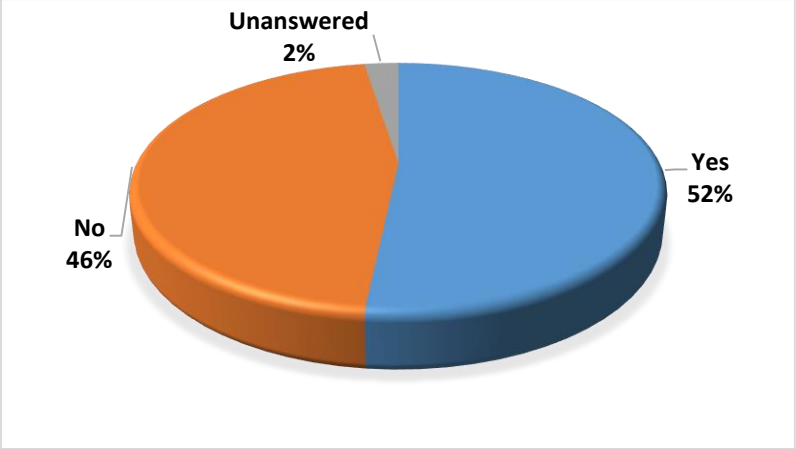

Figure 6.6 Regulation of Different Broadcasting Players

Figure 6.6 above shows that 52% of the respondents were in favour of uniform regulation of the broadcasters 46% of the respondents are against, and 2% were non-responses. Therefore, despite the different broadcasting technologies used by broadcasting players, the findings show that there is need for uniform regulation of broadcasting.