An analysis of South Africa's readiness for analogue to digital terrestrial television migration

ABSTRACT

The 2006 International Telecommunication Union (ITU) Radio World Conference treaty concluded that all countries should migrate from analogue to digital terrestrial television by June 2015, starting with region one countries, comprising Africa, Europe, the Middle East and the Republic of Iran (Agona & Otim, 2012). South Africa, as part of region one, developed a migration policy, Digital Terrestrial Television (DTT) regulations, and initiated a process of migrating from Analogue Terrestrial Television (ATT) to Digital Terrestrial Television (DTT) to meet the deadline. South Africa, however, missed the June 2015 deadline due to a number of challenges, including a lack of infrastructure readiness, South African citizens' unawareness and government politics, and the deadline has since been extended by ITU to July, 2020 (African Telecommunications Union, 2018).

The purpose of this research was to explore the technology adoption model (TAM) to address challenges associated with digital terrestrial television migration, and analyse the readiness of South Africa to migrate. A quantitative research was conducted in order to determine the relationship between dependent and independent variables. Digital television offers many benefits for broadcasters, network operators, spectrum regulators, and consumers. In most countries, the transition was slower than expected, even though most European countries managed to migrate. The digital migration is not an easy transition and analogue switch-off can also be much more difficult. Studies have shown that analogue switch off (ASO) needs to be carefully planned and well budgeted for, and it also needs a good publicity campaign which must involve all relevant stakeholders, such as broadcasters, viewers, manufacturers, network operators, manufacturers and retailers. Even though studies conducted previously identified obstacles of digital migration to include; a) lack of awareness b) lack of information, c) influence of politics and d) influence of corruption.

1. INTRODUCTION

Digital terrestrial television migration is a process by which analogue television (TV) signals are distributed digitally to address the efficient use of frequency spectrum, a clearer picture and good sound quality, amongst other things (Agona & Otim, 2012). The 2006 International Telecommunication Union (ITU) Radio World Conference Treaty concluded that all countries should migrate from analogue to digital terrestrial television by June 2015, starting with Region one countries, comprising Africa, Europe, the Middle East and the Republic of Iran (Agona & Otim, 2012). South Africa, as part of Region one, developed a migration policy, Digital Terrestrial Television (DTT) regulations, and initiated a process of migrating from analogue terrestrial television (ATT) to DTT to meet the deadline. However, South Africa missed the June 2015 deadline due to several challenges, including:

- Lack of infrastructure readiness;
- Corruption;
- South African citizens' DTT unawareness, and
- Government politics.

The deadline for analogue switch-off (ASO) has since been extended by ITU to July, 2020 (African Telecommunications Union, 2018). However, some of the region one countries have

already migrated from analogue to digital terrestrial television. In the history of terrestrial television broadcasting, the DTT migration is a significant technological change since the inception of television in South Africa in the early 1970's.

Whereas most people may think that digital television means just a new digital form of signal representation, not necessarily affecting the information content of what one has always been called TV, the truth is that digital television becomes multiple-channel data broadcasting (Mbatha & Lesame, 2014). Digital television offers a wider variety of possibilities and opportunities to enhance the viewing experience for the intended market. The digital terrestrial television technology benefits include:

- Frequency spectrum efficiency;
- Clear picture;
- Good quality sound;
- Additional channels;
- Business growth opportunities, and
- Operations efficiency opportunities.

South Africa's TV households were estimated to be over 14 million in 2018, with an estimate of 6.2 million TV households only consuming digital TV via Pay-Tv of Multichoice and OVHD, which is growing rapidly (*SABC Presentation on the ICASA Discussion Document : Inquiry into Subscription Television Broadcasting Services*, 2018). That leaves roughly another 7.8 million TV households using analogue free to air terrestrial signal, which consists of SABC1, SABC 2, SABC, ETV and, in some metropolitan areas, community TV stations. It is these 7.8 million homes that need to be enticed to migrate from analogue to digital terrestrial television.

For the first time in the history of television in South Africa, the country plans to provide 100% geographical and population television coverage (ICASA, 2015). SENTECH LTD is a South African state-owned signal distributor that was awarded the project to roll out infrastructure solutions for the digital terrestrial television. SENTECH LTD has since completed the deployment of a digital terrestrial television DVB-T2 standard infrastructure, which means the country is DTT ready.

2. PROBLEM STATEMENT

The developments in digital transmission in South Africa are very slow, and closely intertwined with politics, as government, under the Department of Communications, is the custodian of the DTT migration (Berger & Masala, 2012).

Research has proven that, among other challenges, both broadcasters and consumers do not have the basic knowledge required to achieve the set deadline (Mbatha & Lesame, 2014). This research is based on the fact that most television sets in South Africa are not digitally compatible. This means that these television sets would have to be replaced with digitally compatible television sets, or by purchasing an analogue-to-digital converter, called a set-top box (STB) decoder (Paschal & Uwaoma, 2012).

Set-top boxes are therefore important for the DTT migration in South Africa, as they are configuration prerequisites (Armstrong & Collins, 2015). As noted above, it has been estimated that 7.8 million TV households will need DTT STBs to receive and decode digital terrestrial television. If a viewer does not have a STB, the viewer will no longer be able to watch television transmitted through terrestrial platform once the dual illumination period is over.

The other challenge with the migration of DTT is that much of the South African population is very poor. The employment rate in South Africa for people between 16 and 64 years of age was reported to be roughly 27 percent in 2019 (StatsSA, 2019), leaving about 73 percent of the population unemployed. It is therefore important to note STB affordability as one of the challenges of DTT migration. To mitigate the STB affordability challenge faced by South Africans, the South African government has committed to subsidize up to 66% of the DTT STB price, (Suid-Afrika, 2014). The commercialization of the digital terrestrial television is dependent on the approval of the set-up box by the government. Due to the delay in STB approval by the South African government, digital terrestrial television network is mostly not yet commercialized (Gillwald et al., 2012), leaving the South African government supporting two terrestrial television networks.

The failure to address digital terrestrial television through the technology adoption model in South Africa has led to a huge financial loss for the South African government, and ultimately, its citizens, as billions of Rands have been allocated for the project rollout. To upgrade the infrastructure, from DVB to DVB-2T standard one billion Rand was allocated by the government in 2007 (Armstrong & Collins, 2015). The DTT migration project is one of the biggest and most expensive public infrastructure rollout projects ever undertaken in South Africa.

It is believed that the DTT rollout cost the country over R8,5 billion in 2015, and was projected to cost the country an additional R929 million in 2018 (Gedye, 2015). The projected figures are expected to continue to rise throughout the dual illumination process until analogue terrestrial television is completely switched off.

SENTECH LTD was allocated a budget of R1.94 billion for DTT infrastructure rollout, and a further 330 million was allocated for dual illumination (Gedye, 2015). Dual illumination is the process of supporting two transmission networks, namely ATV and DTT, while complete ASO process is underway. The other budget was allocated to other stakeholders for various projects such as, a set-up box subsidy and capacity building scheme, the Department of Communications DTT awareness campaigns, and the public broadcaster was also allocated budget for various DTT related projects (Gedye, 2015).

South Africa faces the risk of exposure from signal interference as the analogue television frequency bands will no longer be protected after the deadline of the analogue switch-off (ICASA, 2015). Bands V and IV, which are used for the analogue signal distribution, will no longer be protected from interference, which will then pose a serious threat to all stakeholders (Demanding Urgency Descritionary, n.d.). For the South African government to stop supporting both the analogue and digital terrestrial television networks, the country needs to migrate from analogue to digital terrestrial television.

3. MAIN OBJECTIVES OF THE STUDY

The research aim is to investigate challenges associated with adopting new technology adoption model in South Africa to mitigate the risks associated with delay of analogue switch-off (ASO).

Secondary objectives of the study

- To investigate the impact that lack of awareness has on the new technology adoption model in South Africa;
- To investigate the impact lack of information for consumers to adopt the new technology has on the new technology adoption model in South Africa;
- To investigate the impact corruption has on the new technology adoption model in South Africa, and
- What impact political influence has on the new technology adoption model in South Africa?

4. RESEARCH QUESTIONS

The study seeks to address the following research questions:

- What impact does lack of awareness have on new technology adoption model in South Africa?

- What impact does lack of information for consumers to adopt the new technology have on the new technology adoption model in South Africa?
- What impact does corruption have on the new technology adoption model in South Africa?
- What impact does political influence have on the new technology adoption model in South Africa have on DTT migration?

5. Literature review

What is digital terrestrial migration?

Digital terrestrial television migration is defined as the technological evolution of television broadcasting from the analogue signal distribution to the digital television signal distribution, resulting in higher quality pictures, more channels and much more frequency spectrum available for use by other users (Lawal & Chatwin, 2013). In the history of terrestrial television broadcasting, the DTT migration is a quantum technological change since the inception of television in SA in the early 70's. The DTT technology is spectrum efficient, provides business growth opportunities, and operations efficiency opportunities (Agona & Otim, 2012).

GLOBAL COUNTRIES DIGITAL TERRESTRIAL TELEVISION MIGRATION PERSPECTIVE

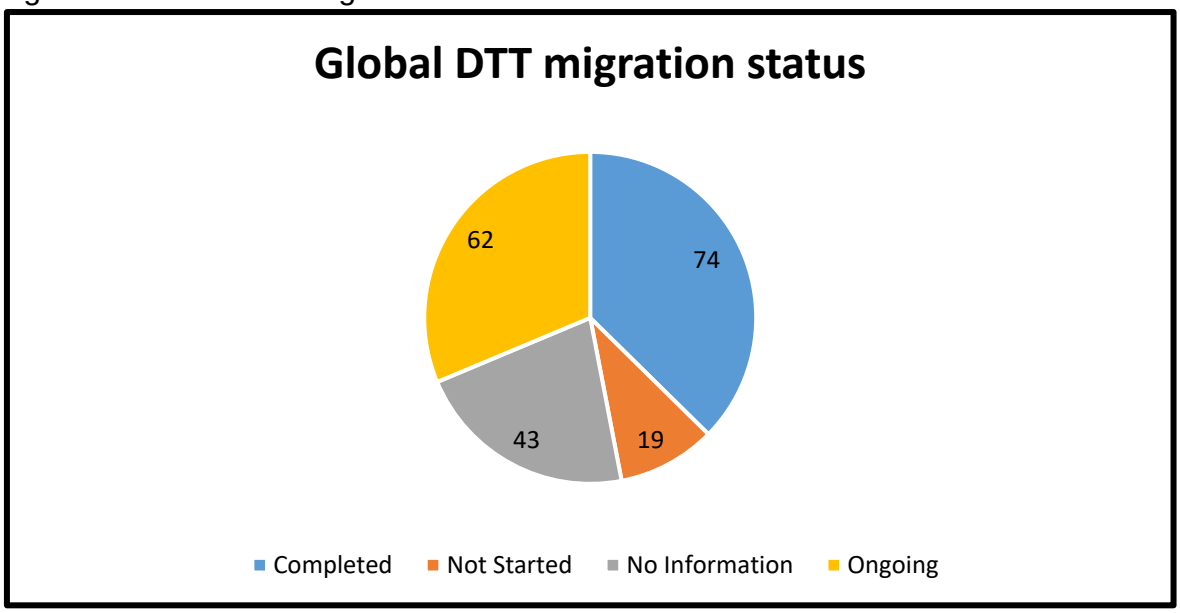
An overview of digital terrestrial television migration in Europe

The world has gone digital, robotics and artificial intelligence are taking over, resulting in an effective and efficient way of doing things. It must be pointed out that radio and television signals in South Africa, specifically are currently broadcasted in analogue format, (Mbatha, 2012). Some global countries have started migrating from analogue terrestrial television to digital terrestrial television. According to Mbatha & Lesame (2014), digital terrestrial television is an advanced broadcasting technology that has enhanced television viewers' experience.

The European Commission proposed the beginning of 2012 as the deadline for analogue switch-off throughout the European Union. Europe is comprised of 28 EU countries, with a population of about 508.2 million (European Union, 2019). About 23 of the 28 EU member states achieved ASO by the set deadline, 3 EU countries comprising of Bulgaria, Hungary, and Poland, completed ASO in 2013, Greece in 2014 and Romania is ongoing. This indicates that 96% of the 28 EU countries have successfully migrated from analogue terrestrial television to digital terrestrial television (*Status of the transition to Digital Terrestrial Television Countries_aspx*, n.d.). Although analogue switch-off (ASO) has been achieved by

almost all EU countries, most African countries seem to be struggling. Even though European countries have completed the migration, they adopted different systems such as DVB and DVB-2T and should have a developed and approved policy framework in place. Figure 1 below illustrates the updated status of global digital terrestrial television migration, (*Status of the transition to Digital Terrestrial Television Countries_aspx*, n.d.). About 74 countries have completed the migration, 62 countries are ongoing, 43 countries are with no information available and only 19 countries have not started the digital terrestrial television migration globally.

Figure 1: Global DTT migration status



Source: (*Status of the transition to Digital Terrestrial Television Countries_aspx*, n.d.).

The transition between analogue to digital terrestrial television is currently a global initiative that has not been financially, or politically proven (Mcgonagle, 2010). Key suppliers, such as suppliers, site owners, network operators, and STB manufacturers contribute by providing a good platform for key stakeholder's interests in order to achieve the transition.

Other parties, such as content providers, advertisers, spectrum owners, Pay-Tv operators international and regional bodies do not have a direct influence but are more of external stakeholders. For a successful migration of analogue terrestrial television to digital terrestrial television, it is important that all stakeholders, both internal and external, play their roles.

Globally, terrestrial broadcasting is still the dominant primary platform for the delivery of public services. The terrestrial broadcasting platform in European countries serves the public service broadcasters, the commercial broadcaster, as well as other players (Position & Geneva,

2010). In France, Greece, Italy, Spain, Portugal and the UK, the majority of households receive television exclusively through the terrestrial signal broadcasting.

AFRICAN COUNTRIES DIGITAL MIGRATION PERSPECTIVE

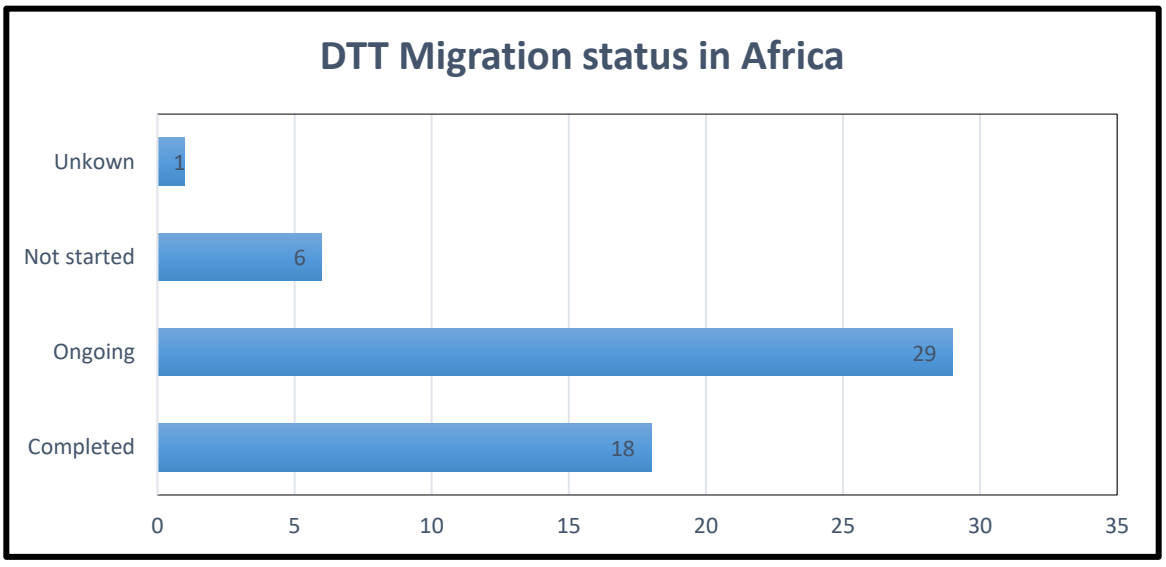
An overview of digital terrestrial television migration in Africa

The 2006 Regional radio communication conference of the ITU resolved that all countries of Europe, Africa, the Middle East and the Islamic Republic of Iran should migrate from analogue terrestrial television to digital terrestrial television by 2015 (*Digital-Migration-Policy.pdf*, n.d.). In some African countries, ASO has started, even though in most countries, progress is very slow.

A status of ASO in Africa

Out of the 54 African countries, Figure 2 below, shows digital terrestrial television migration status for all the countries. According to (*Status of the transition to Digital Terrestrial Television Countries_aspx*, n.d.) the Ethiopian status is unknown, six 6 countries, namely Mauritania, the Central African Republic, Eretria, Burundi, Comoros, and Libya have not yet started with ASO. Only 33 percent of African countries have completed ASO, and 54 percent are ongoing. This indicates that most African countries are struggling with digital terrestrial television migration.

Figure 2: DTT migration status in Africa



Source: “Status of the transition to Digital Terrestrial Television Countries_aspx,” n.d.

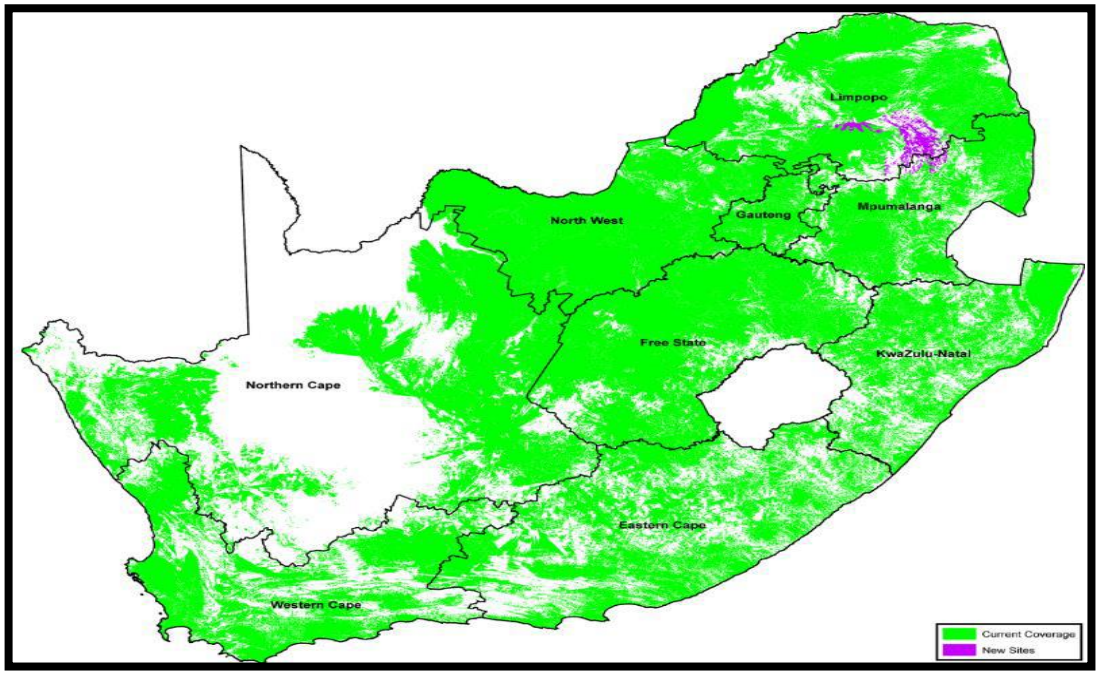
2.6 SOUTH AFRICAN DIGITAL MIGRATION PERSPECTIVE

2.6.1 An overview of digital terrestrial television migration in South Africa

According to Gillwald et al., (2012), digital migration in South Africa was originally planned for completion in November 2011 but has been delayed due to a number of reasons, including the development of relevant policies, corruption, lack of awareness and approval of set up boxes. To align with the 2006 International Telecommunications Union (ITU) Treaty, and the global Digital Terrestrial Television (DTT) migration process, digital network was deployed throughout the country, (*Corporate plan 2018/21*, 2018). This process enabled South Africa to commence with ASO in alignment with the approved ASO plan. Concerning the current status of digital migration in South Africa, it has taken a lengthy number of years from 2007 to present for the process of digital migration to be implemented, and yet analogue has not yet been completely switched off.

According to the recent research conducted by Mbatha (2012) to identify obstacles to in the adoption of digital television in South Africa, he argued that South Africans are bound to have challenges resulting from their income levels. Mbatha (2012) states that research established and proved that one of the biggest challenges that South Africans could face concerning digital terrestrial television migration, is the lack of funds to buy STBs. Figure 3 indicates DTT coverage map of South Africa.

Figure 3: DTT coverage map of South Africa



Source: (*Corporate plan 2018/21*, 2018)

Rationale for South Africa's digital migration

According to the Geneva 1989 (GE 89) agreement, South African analogue terrestrial television broadcasting services are offered in VHF and UHF (174-230 MHz and 470-862 MHz) frequency bands. Geneva 1989 (GE89) protects licensed broadcasters internationally against any interference from other users of the frequency spectrum. These frequency bands will no longer be protected post analogue switch-off (ASO). According to Paschal and Uwaoma (2012), analogue transmission equipment in South Africa is obsolete and due for replacement, it is therefore recommended to fast track the digital terrestrial television migration.

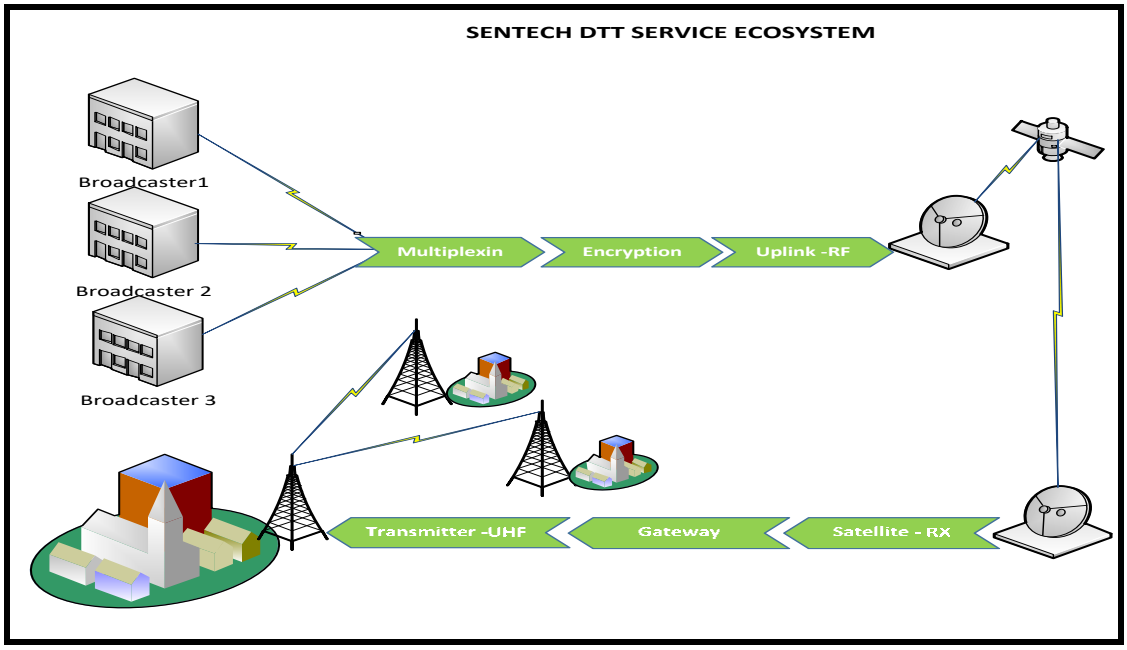
Obstacles in implementation of digital terrestrial television migration in South Africa

Technology adoption/acceptance model

There is now a global increase in digital migration due to industry evolution, government initiatives and private efforts, (Ejiaku, 2014). The technology acceptance/ adoption model framework introduced by Davis in 1989 will be explored for this research. Davis believes that there are two elements of the technology acceptance model, perceived usefulness and perceived ease of use (Fayad & Paper, 2015). According to Fayad & Paper (2015), perceived usefulness is defined as the degree to which people believe that the use of the new technology would enhance their way of doing things. Fayad & Paper (2015) also state that perceived ease of use is defined as the degree to which people believe that the new technology would be easy to use. For people to accept and adopt new technology, they need to know the value the technology will bring for them, and it must also be free of effort. Digital technology plays a vital role in leveraging productivity and efficiency, therefore the intention to adopt new technology needs to be evaluated before implementation, (Ejiaku, 2014).

Digital terrestrial television ecosystem in South Africa

Figure 4: DTT service ecosystem



Source: (*Corporate plan 2018/21*, 2018)

The Figure 4, above, is a basic illustration of how a digital signal from different broadcasters gets to viewer's receivers. The signal, through different types of linking platforms such as fiber link, Telkom line, etc., is distributed from each broadcaster's studios. The signal gets to a head-end system where it is multiplexed, encrypted and uplinked to the satellite. The signal is then downlinked and received via satellite receivers at the transmitter site. The signal is then decoded and transmitted terrestrially. This is the signal the viewers can receive using an antenna and Set up box. It is important to also to note that most new television sets have a built-in set- up box, which will then eliminate the use of an external Set up box. Digital terrestrial television uses an integrated operations system model that maximizes network support and management capabilities, to exploit business competitive advantage.

Below are some of the key elements of the digital terrestrial television operating model in South Africa:

- Improve network automation and redundancy to reduce human intervention;
- Improving systems and human capabilities to reduce restorations time;
- Strategic placement and levelling of human resource utilizations;
- Centralizing network management to reduce personnel standby hours;
- Strategically position Network Operation centres/response capabilities to improve restoration times;
- Improve assets security and third- party service management capability, and
- Standardize network solutions to reduce spares inventory.

6. Research methodology

Research methodology is a pattern, structure, values, and framework of the study. Research methodology summarizes how the research will be conducted. It is where assumptions about the nature of reliability and knowledge are found, and where values for a topic are put together logically, and in a structured manner (Chilisa & Kawulich, 2015). The vital keys of any research work is the collection and analysis of the data. These must be appropriate to test hypotheses or answer the research questions. The research paradigm that was selected for the purpose of this study was a quantitative research. This was due to fact that this study was conducted to prove predetermined hypotheses related to the transition from analogue terrestrial television to digital terrestrial television. The sampling method used was simple random sampling, which is mostly used when population is big.The use of this chosen sampling method was based on the importance of ensuring accurate, unbiased and fair input. A sampling of between 60 and 150 respondents was expected, from which 62 responses were received.

7. Data analysis

Data analysis, results and discussions were drawn. It was highlighted that out of the four independent variables, namely: lack of awareness, lack of information, influence of corruption and influence of politics, only two have a significant importance on digital migration. This was proved by using correlation and multiple regression analysis. The two variables that had a significant importance are the following: lack of information and the influence of corruption, while the other variables, namely: lack of awareness and influence of politics, showed no significant importance on digital migration.

8. Results and discussion

There were four independent variables that were identified in research methodology namely: lack of awareness, lack of information, influence of politics and influence of corruption. In terms of lack of awareness, the majority of respondents indicated that they are aware of the digital migration, even though 70 percent of respondents indicated that they were not ready for the migration. The main contributor for hesitation to migrate was highlighted by 50 percent of respondents to be lack of information.

The data was collected from 62 respondents consisting of 50 percent males and 50 percent females. It was collected from different stakeholders of which Government employees contributed 37 percent, followed by broadcasters at 31 percent. Ninety-five percent of respondents were permanently employees. Middle and senior management employees

contributed 65 percent of the respondents. Most respondents indicated that they heard about digital migration form SABC radio and television.

The lack of information variable was also tested, and respondents felt that the information about the switch off deadline postponement, and the set-up box manufacturing and pricing, was not enough. Respondents also indicated that they were not aware of the new DTT migration date.

Seventy-one percent of respondents indicated that they think DTT migration is influenced by politics and therefore, the DTT migration deadline postponements were not feasible to them. They indicated that politics influenced set up box standard approval, set up box manufacturing and set up box prices. The majority of respondents also indicated that they think DTT migration is influenced by corruption, and therefore corruption has an influence on set up box standard approval, set up box manufacturing and set up box pricing.

Correlation results were also presented, and they indicated that there is moderate to strong correlation between DTT migration (dependent variable) and the four (4) independent variables namely: lack of awareness, lack of information, influence of politics and influence of corruption. The Cronbach alpha and multiple regression analysis were also presented. The following chapter will conclude the study, draw up conclusions, and make recommendations.

Tested hypotheses

In this session, the formulated hypotheses for digital migration is tested. This is done by using multiple linear regression analysis. A null hypothesis that is symbolised by $H_{0,}$ and an alternative hypothesis that is symbolised by $H_{1,}$ is compiled for each variable, and is either rejected, or accepted, based on the linear regression p-values.

Hypothesis one

The first hypothesis states that lack of awareness (Awareness) for South African consumers influences DTT migration. Thus, null and alternative hypothesis are stated as below:

H_0, lack of DTT awareness for South African consumers **does not** affect DTT migration.

H_1, lack of DTT awareness for South African consumers **does** affect DTT migration.

According to the statistical analysis, Awareness has a p-value of 0.064 ($p>0.05$), which means that the variable is not statistically significant in influencing digital migration. The evidence fails

to reject the null hypothesis. Therefore, lack of DTT awareness for South Africa consumers has no influence on DTT migration on this study.

Hypothesis two

The second hypothesis states that lack of information (Information) for consumers to adopt new technology influences DTT migration. Thus, null and alternative hypothesis are stated as below:

H_0, lack of information for consumers to adopt new technology **does not** affect DTT migration

H_1, lack of information for consumers to adopt new technology **does** affect DTT migration

According to the statistical analysis, Information has a p-value of 0.003 ($p<0.05$), which means that the variable is statistically significant in influencing digital migration. The null hypothesis is rejected, and the alternative hypothesis is accepted. Therefore, lack of information has a significant influence on DTT migration on this study.

Hypothesis three

The third hypothesis tested states that corruption (Corruption) influences DTT migration. Thus, null and alternative hypothesis are stated as below:

H_0, Corruption **does not** have influence on DTT migration

H1, Corruption **does** have an influence on DTT migration

The statistical analysis report of this study indicates that corruption has a p-value of 0.002 ($p<0.05$), which means that the variable is statistically significant in influencing DTT migration. The null hypothesis is therefore rejected, and the alternative hypothesis is accepted. Therefore, corruption has a significant influence on DTT migration.

Hypothesis four

The fourth hypothesis tested states that lack of government commitment (Politics) influence DTT migration. Thus, null and alternative hypothesis are stated as below:

H_0, lack of government commitment **does not** affect DTT migration

H1, lack of government commitment **does** affect DTT migration

Statistical evidence indicates that politics has a p-value of 0.09 ($p>0.05$), which means that the variable is not statistically significant in influencing digital migration. The evidence fails to reject the null hypothesis and therefore supports the null, which states that politics has no influence on DTT migration on this study.

9. RESEARCH FINDINGS BASED ON RESEARCH QUESTIONS

What impact does lack of awareness have on new technology adoption model in South Africa?

The empirical findings indicated that lack awareness on new technology adoption in South Africa has no significant impact on DTT migration. This was proved by the use of correlation analysis, as well as the linear regression analysis. Even though most respondents indicated that they were aware of digital terrestrial migration in South Africa, the results indicated that most people were using Pay-TV more than the terrestrial platform. This is alluding to the fact that digital migration in South Africa has been delayed for such a long time, and most people have moved to Pay-Tv due to uncertainties around the digital migration.

Literature review revealed that most African countries are struggling with digital migration, and one of the contributing factors is digital migration awareness. For the purpose of this research, lack of awareness was tested to identify whether it does, or does not, affect digital migration in South Africa. The results indicated that this variable does not have a significant importance on digital migration. Overall, lack of awareness is regarded, as it has no impact on new technology adoption model in South Africa.

What impact does lack of information for consumers to adopt the new technology have on the new technology adoption model in South Africa?

Lack of information has a significant importance on DTT migration. This was tested by the use of correlation and linear regression analysis. Digital terrestrial television migration requires configuration changes on the viewer side, and it is for this reason that information is important. Viewers are expected to set up a set-up box, or purchase a television set with a built in set up box. More than half of respondents indicated that they have not heard about any workshops designed to educate people, while 50 percent of respondents highlighted lack of information as the main contributor for their hesitation to migrate from analogue terrestrial television to digital terrestrial television. Furthermore, literature review also revealed lack of information as a main contributor on DTT migration delays. In principle, lack of information has a negative

impact on DTT migration, as the majority of respondents indicated that they were not ready for the change in broadcasting.

What impact does corruption have on the new technology adoption model in South Africa?

The impact of corruption on the new technology adoption in South Africa was tested using correlation and regression analysis. Both these results indicated that this variable has a significant importance on DTT migration. DTT migration is one of the biggest projects that South Africa has undertaken. It is therefore critical to acquire the citizen's perspective. The digital migration in South Africa was planned to be completed by 2015, but, due to a number of challenges, including the set-up box standards, set up box manufacturing, amongst other things, this migration is still ongoing. The South African government is still supporting two terrestrial television networks which is costing the country money.

The project has been postponed numerous times, and the general feeling of respondents is that these postponements are not feasible. The influence of corruption on DTT migration is, however, not special in South Africa, as literature also indicated that corruption has an influence on the migration.

What impact does political influence have on the new technology adoption model in South Africa have on DTT migration?

Even though other countries have highlighted the influence of politics as an issue for DTT migration, this was proved not to be the case for South Africa. The tests were conducted to test this hypothesis through correlation and regression analysis. It was, however, proven that the influence of politics has no significant importance on DTT migration. A study conducted by Mbatha and Lesame (2014), examined the potential challenges to the adoption of digital television, and identified obstacles to include poverty, lack of skilled manpower, lack of government commitment and corruption. It is therefore believed that government focus has shifted before the time of the previous research, and now.

10. RECOMMENDATIONS

Digital migration awareness

Most African countries are struggling with the migration of television broadcasting from analogue terrestrial television to digital terrestrial television. This is caused mainly by lack of information and lack of awareness. Most people have heard about digital terrestrial television,

but they are not equipped for the migration. To sensitise viewers, as major stakeholders of digital migration, will play an important role. It is important that the South African Government should get a buy in from all relevant stakeholders as soon as possible. Broadcasters, including the national signal broadcaster (SABC), community broadcaster, commercial broadcasters, Sentech LTD and government should coordinate in establishing vigorous DTT awareness campaigns to educate viewers. These will encourage buy in from viewers and, as a result, drive dual illumination costs down, saving the county money.

These campaigns can be communicated via the available platforms in the form of radio and television advertisements. The idea is to capture the attention of the viewers and inform them of the technological transition. It is recommended that all stakeholders should work together to communicate this transition.

Digital migration policies

This study found that even though digital migration progress has been made, more effort is required on drafting digital migration policies and regulatory framework (Oze et al., 2017). The committee to draft and approve these policies must include all relevant stakeholders. Digital migration policy needs to be clear and needs to be communicated to all relevant stakeholders regularly. Amendments on these policies need to follow a structured change management process. The objectives of the migration, and benefits thereof, must be clearly stipulated.

Technology adoption model implementation

Africa seems to be resistant to technological change as it is behind other counties with digital migration. Most respondents indicated that they have heard about the educational workshops, but have not attended them, resulting in most people saying that they are not ready for the broadcasting change. It was estimated at the end of 2009 that more than 730 channels were broadcasted over DTT network in the EU countries (Position & Geneva, 2010). There is therefore an urgent need to educate all stakeholder on the benefits of digital migration for South Africa to benefit from DTT migration. South Africa is believed to be underprepared and not taking advantage of fourth industrial revolution opportunities (Michalos et al., 2014). It is important to equip South Africans to function and embrace the new digital world. Technology, in the fourth industrial revolution, is expected to evolve at a very fast pace, therefore making quick adaptation a requirement. For South Africa to survive in the fourth industrial resolution era, which is believed to be full of volatility, uncertainty, complexity and ambiguity, technology adoption model is key, and its adaptation thereof.

ACCEPTANCE OR REJECTION OF THE HYPOTHESES

In chapter one (1), four hypotheses were formulated. Based on the findings of the study, this section reveals whether these hypotheses are accepted or rejected.

Hypothesis 1 (H1)

H1: There is a positive relationship between digital migration and lack of awareness (Awareness) for South African consumers.

The results revealed that lack of awareness for South African consumers is not significantly related to digital migration. The hypothesis can, therefore, not be accepted.

Hypothesis 2 (H2)

H2: There is a positive relationship between digital migration and lack of communication for consumers to adopt new technology.

The results revelealed that lack of communication for consumers to adopt new technology is positively and significantly related to digital migration. The hypothesis can, therefore, be accepted.

Hypothesis 3 (H3)

H3: There is a relationship between digital migration and corruption.

The results revealed that corruption is not significantly related to digital migration. The hypothesis can, therefore, not be accepted.

Hypothesis 4 (H4)

H4: There is a positive relationship between digital migration and lack of government commitment.

The results revelealed that lack of government commitment (politics) is positively and significantly related to digital migration. The hypothesis can, therefore, be accepted.

10. LIMITATIONS OF THE STUDY

Limitations of the study are defined as potential weaknesses of the study that are, most of the time, out of the researchers control (Simon, 2011). The known limitations should be clearly stipulated so as not affect the outcome of the study. This study should be interpreted with the following limitations considered:

- Sample size – the response rate of n= 62 could have influenced the outcome of the study results, as well as limiting the generalisation of the findings to the study.
- Geographical aspect – the study only focused on digital migration in South Africa and not beyond South African boarders. Literature was used to make comparisons between other countries and South Africa.
- Coverage area - The study focused mainly on three provinces Western Cape, eastern Cape and Gauteng province, which might generally not be a national perspective, but a provisional perspective.
- Questionnaire development – questionnaire was developed based on face validity.
- Measuring instrument – validity of measuring instrument could not be tested as the sample was too small. It is therefore recommended that another test could be done with a reduced sample on each individual variable. Moreover, validity of the measuring instrument was not proven specifically for this study, but rather the principle of instrument validity was applied, and it was assumed that the instrument validity from literature was valid.
- Data analysis – Only completed surveys were considered during data analysis, and incomplete surveys were discarded. Furthermore, factor analysis was not done for the purpose of this study and could also be done in the future.

11. SUGGESTIONS FOR FUTURE

South Africa needs to fast-track the implementation of digital migration to prevent incurring financial losses due to supporting two terrestrial television networks. Even though studies conducted previously identified obstacles of digital migration to include; a) lack of awareness b) lack of information, c) influence of politics and d) influence of corruption. Lack of information and influence of corruption seem to have strong correlation with DTT migration, so these are areas that need additional attention.

It is evident that the African continent is struggling with meeting the digital migration deadline and is progressing very slowly. It is therefore advisable for the African continent to do a thorough analysis of how other countries managed to migrate successfully.

Studies also show that most challenges associated with digital migration are common throughout the world. It would, therefore, be logical for South Africa to take the best practices from developed countries that have successfully migrated and are broadcasting in digital.

Lastly, in order to ensure that set-up box prices are affordable for South African consumers, these boxes must be 100% manufactured in South Africa. This will drive costs down and ensure good, total quality assurance. It will also mean that the required skills are developed and maintained locally to position South Africa better for future technology developments. Successful digital television migration would be a great milestone for South Africa.

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