

## **An Assessment of Consumer Awareness and Coverage of Digital Television Services in Uganda**

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**ABSTRACT:** *The study set out to examine the relationship between consumer awareness and coverage of digital TV services in Uganda. The study utilised a correlational cross-sectional survey design to collect the data. Semi-structured survey tools and interview guides were used to collect data from a sample of TV owners. Data was analyzed using the narrative, descriptive, Pearson correlation and regression analyses. The study established that consumer awareness some modest but limited contribution to Coverage of Digital TV Services. It is recommended that there is revision of the current policy objective 4 a) so that it can cater for new media like social media to promote consumer awareness. The means of disseminating consumer awareness need to be diversified. Government should compel all content providers to create space in their programming for consumer awareness.*

**KEY WORDS:** digital migration, consumer awareness, coverage of digital TV services, Uganda.

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### **INTRODUCTION**

The paper examines how digital migration particularly consumer awareness impacts coverage of digital TV services in Uganda considering how access to information is a basic right that is included in the Uganda National Development Plan as it is viewed as an important cog in the wheel economic development and social transformation (Freiderici, Wahome & Graham, 2018). Consumer awareness of digital migration involves initiating nation-wide communication campaigns to raise public awareness of the digital migration process among TV consumers. The process must be guided by clarity and simplicity to ensure widespread understanding of the stages of the digital migration process by TV consumers. The awareness campaigns should be conducted via free and accessible media, (Ahmad & Ribarsky, 2018). In this study consumer awareness was operationalized as understanding of the equipment needed and digital literacy. On the other hand coverage of digital TV services was operationalized in terms of number of sites in the country; radius of coverage of each

site; active number of pay TV subscribers; availability of STBs and type of digital content being broadcasted.

The Government of Uganda set about putting in place digital infrastructure, investing in sensitization of citizens on the expected benefits of digital migration and trying to attract investors in the sector to increase on the number of content providers, (Bukht & Heeks, 2018). Unfortunately, digital migration has not progressed according to plan and falls short as is reflected in a number of aspects highlighted in many reports from Auditor General and Internal Auditor MoICT. Consumers have not provided with the expected protection by UCC during the transition. In 2012 the Government of Uganda made a clear attempt to increase coverage of digital TV services through operationalization of digital migration involving moving from analogue to digital broadcasting. This process focused on raising consumer awareness among other strategies. Digital broadcasting was expected to ensure improved picture and sound quality, quality and quantity of signals and spectrum efficiency. However, the MoICT annual reports (2017, 2018), Internal Auditors Annual Report (2017) and Auditor General's Annual Reports (2017, 2018) point to a slowdown in improvement in access to digital services. This is further compounded with the information that only Phase I and II of the migration process was completed. The process, however, did not progress as smoothly as expected since only eighteen (18) out of one hundred and thirty-five (135) districts have reached completion by 2017. This, in effect, means that only 13.3 % of the country receives complete digital TV services. In addition, seventeen (17) remote sites have antennas whose configuration and alignment only allow coverage of a radius of twenty (20) to forty (40) km depending on terrain and weather conditions. This results in a situation where 86.3% of Uganda remains in "partial darkness" or is not effectively receiving digital TV services. Much as there could be many responsible factors, consumer awareness may be playing a major role. Therefore the objective of the study was to establish the relationship between consumer awareness and coverage of digital TV services in Uganda. The null hypothesis tested in line with this objective was that consumer awareness is not significantly related to coverage of digital TV services in Uganda.

## **LITERATURE REVIEW**

### **Digital migration policy in Uganda**

The Digital Migration Policy sets the boundaries governing the migration from analogue to digital broadcasting in Uganda. As part of NDP II and III digital migration is important in many processes in the development plan (MOICT, 2012). The migration policy intended to inform consumers on the segmentation of the digital process and how the migration would impact their lives in lasting ways (Ministerial Policy Statement- Ministry of ICT & National Guidance, 2021/22). The digital migration policy planned to inform consumers about equitable access to superior broadcasting services to consumers today and in years to come (Ministerial Policy Statement- Ministry of ICT & National Guidance, 2021/22). The migration policy distinctly aimed to inform consumers about efficient use of Radio spectrum. Digital migration aimed at freeing up the radio frequency spectrum by using advanced compression and multiplexing technologies afforded by a digital platform. Consumers need to be aware of the additional opportunities that would emerge such as mobile telephony, wireless broadband and e-services (MOICT, 2012).

The policy additionally aimed to inform consumers about unfair practices during the transition and beyond. In order to operationalize this policy objective Government aimed to prioritize consumer

awareness and skills development to assist in access and utilisation of digital broadcasting systems as well as guarding against consumer exploitation through unfair market practices. The authorities aimed at ensuring accessibility of affordable digital receivers and set-top boxes through fiscal policy measures during the transition period. Government in collaboration with UNBS aimed at defining minimum Standards and specifications for the set-top boxes to be used in Uganda (Ministerial Policy Statement- Ministry of ICT & National Guidance, 2019/20).

Government through the digital migration policy aimed at ensuring consumer awareness about environmental protection during the transition and beyond through collaboration with NEMA by devising suitable measures to be taken to ensure safe disposal of disused analogue transmission and reception equipment. Further, the policy informs consumers that to avoid duplication of services try as much as feasible to make use of existing analogue infrastructure for digital transmission as well as encourage the use of the National Data Transmission Backbone Infrastructure for broadcasting during the transition period and beyond (MOICT, 2012).

The digital migration policy aimed at making sure consumers are aware of local content development by developing human resource skills necessary for the digital transition and the foreseeable future. The migration policy further planned to establish a body entrusted with the responsibility of informing consumers about diverse content development by providing financial and other support to the local content development industry (Ministerial Policy Statement- Ministry of ICT & National Guidance, 2019/20).

## **THEORETICAL REVIEW**

This study is grounded on the Information society theory. Much of the pioneering work was done by Fritz Machlup in 1962. The insightful, intense and focused analysis plus critique of Information Society Theory has been moved from the periphery and moved very much to the centre by scholars of Information and communication technology (Webster, 2015). The Information Society Theory raises questions which are unavoidable for anyone who wishes to understand the relationship between the structures and processes of social communication such as digital migration and social structure and processes that are made possible by coverage of digital TV services. The theory helps expound the role played by information and information technology in society (Ponzanesi & Leurs, 2014). The Information Society Theory took centre stage to throw light on the shift from analogue into digital technologies also known as digital migration and helps explain dispersion of information through coverage of digital TV services (Calhoun, 2014).

In recent years, World powers are grappling to bend the evolution of the information society preferably in their direction. US-companies such as Microsoft and Oracle Corporation have down the years succeeded in creating huge markets for new services and technologies such as digital TV technologies (Mansell & Steinmuller, 2000). There is real fear that Europe and other regions, could in the long run, be kicked out by being leveraged out by the strategy employed by US-companies (Van Audenhove, Burgelman, Nulens & Cammaerts, 2014).

Much as the Information Society Theory explains many aspects of how digital migration and other ICT advancements have shaped society, a number of questions remain that this study hopes to address. For example, how much advance in terms of ICT advancement like migration should happen

for Uganda to qualify for information society status? Is this advancement in ICT is required in order to identify an information society qualitative, quantitative or both? Will coverage of digital TV services happen when all Ugandans own a digital television? Currently scholars like Dertouzos (1997); Negroponte (1995); Kranich (2004); who champion the notion that technology such as digital migration is central to Information Society Theory are not able to furnish us with anything approaching the answers we seek. The study hopes to bridge these gaps. Theoretical knowledge may not be a new way to try to explain research problems, but it is arguable that its significance has accelerated in recent times and therefore we base this study on the Information society theory.

## **Conceptual Review**

### **Consumer awareness**

Consumer awareness encompasses commencing communication promotions across the country to promote awareness of the digital migration amongst TV consumers in Uganda. The consumer awareness campaign if it is to succeed must be steered in a clear and easily understood manner to guarantee countrywide comprehension of the phases involved in digital migration process by TV consumers in Uganda. The process additionally must encompass transparency to guarantee that there is conspicuousness and dialogue about all the events which will engender assurance from all stakeholders most especially the TV consumers. The process must make use of a multiplicity of methods to inform with the aim of guaranteeing accessibility for all TV consumers irrespective of their levels of their academic background or age bracket, (Ahmad & Ribarsky, 2018).

### **Consumer awareness and coverage of Digital TV services**

Worldwide, there were concerted and deliberate steps taken to ensure consumer awareness of digital migration by formulating communication strategies, (Einstein, 2015). Through a number of initiatives that included organizing marketing strategies and massive advertising campaign on different media platforms, setting up call centers and websites to inform the public, (Alexander & Cunningham, 2014). The study noted that while Einstein (2015) and Alexander & Cunningham (2014) discussed steps taken, communication strategies and initiatives, the relative importance of the said factors with specific context was not provided. That study used stakeholder involvement, communication to the public and information availability as predictor variables. This limited the examination outlook creating several conceptual and contextual gaps. These gaps have remained largely unfilled to date.

The United States of America ensured consumer awareness at various levels. The federal government outreach to consumers began in 2007 and targeted all TV viewers using terrestrial signals and did not subscribe to a Pay-TV. Special efforts were made to reach and help senior citizens, low income consumers and those with disabilities. The Federal Communication Commission worked with businesses to provide in-home installation services and walk-in help centers throughout the United States, (Galperin, 2014). Written publications that included frequently asked questions, explanatory charts describing how to install converter boxes, trouble-shooting guides, antenna information, and mapping tools were made available in English and Spanish, (FCC, 2016). The study employed both the correlational and cross-sectional study design and opted to do without the case study element. In the area of coverage of digital TV services in United States of America the study by Galperin (2014) omits to give details beyond the broad categorization of consumers. This is a temporal and methodological gap this study plugged.

Sieber (2016) in his research findings argues strongly the case of consumer awareness boosting coverage of digital TV services. This study indicated how the Bulgarian government invested large sums in running awareness campaigns in the period previously preceding digital migration. However, the study findings point out the fact that consumer awareness on its own cannot boost coverage of digital TV services. The study used documentary review as the principle data sources and was grounded in the communications theory. This created a methodological gap that needs addressing. Furthermore, the study was done in the former Eastern Europe which has a different economic setting from the East African setting that Uganda is located in. Kruger and Guerrero (2017) conducted a study of how the awareness campaign in the Netherlands was used to boost coverage of digital TV services. The Dutch government provided most of the funding. However, the exact numbers are absent in the report. This created a knowledge gap. The fact that the report was based in the Low Countries in Europe may have few lessons for a similar study to be done in Uganda. This created a geographical and contextual gap. The gaps were addressed in the thesis as presented in findings and recommendations of the report.

Oiarzabal and Alonso (2016) study findings revealed how consumer awareness can result in substantial increment in coverage of digital TV services when well crafted. The report acknowledges the astronomical costs a successful campaign attracts. The report was based purely on a series of interviews and no quantitative angle involved. This creates a methodological gap that needs filling in order to update the published literature. The theory was grounded in the technological acceptance model which only explains digital migration but not coverage of digital TV services. This created a theoretical gap that needed to be bridged to update the latest published literature. Madianou and Miller (2018), study findings are only in partial agreement by study findings by Oiarzabal and Alonso (2016) in that they base all the prediction of coverage of digital TV services on consumer awareness. They identify this factor as the most important predictor. However, the study does not explain any other determinant of coverage of digital TV services. This created a knowledge gap. The study also pegged their consumer awareness promotion strategy on the audio vision industry and ignored all other modes. This created a conceptual gap as clearly more determinants are involved in boosting coverage of digital TV services. The study was based outside East Africa creating both geographical and contextual gaps. The cited gaps are addressed later in the thesis in form of practical policy suggestions and recommendations.

Nazareno (2012) carried out a study that established that consumer awareness through the production and distribution of nationally produced television programmes, films and other audiovisual content. This, in his considered view, can result in better and faster coverage of digital TV services in a more cost effective manner. In his view, this can be put in effect by having the correct regulation regime embedded in the legislative framework. The study focused on the UK, France and Brazil. The study used a three-step method of analysis. This created a methodological gap as such a wide study required adoption of a structural equation model and logistical regression methods. The study fails to avail a viable regulatory framework that may work outside the three countries of the UK, France and Brazil. This created a contextual and knowledge gap that needs addressing. Each of the three countries used different consumer awareness strategies and the study fails to suggest a triangulation of the three approaches of consumer awareness. This created a conceptual gap that needs to be filled. In addition, the report took place more than a decade ago and the information requires updating. This created a temporal gap that needs to be filled. The gaps cited in the preceding paragraph were addressed in the research findings and as recommendations.

Seabright & Weeds (2015) conducted a study that assessed how consumer awareness mediated between aspects of digital migration and coverage of digital TV services. The study established a positive mediation between the predictor variable (digital migration) and outcome variable (coverage of digital TV services). This created a conceptual and methodological gap that the present study hopes to address by considering using consumer awareness as one of the key predictor variables. The scrutiny employed a number of data gathering techniques including participant observation. This created a further methodological gap as this method may not suited to Uganda's case where digital migration is not yet complete even after more than 10 years. An alternative data collection method will have to be adopted. Puppis, D'Haenens and Saeys (2017), on the other hand, established a positive correlation between consumer awareness and coverage of digital TV services and used consumer awareness as a principle predictor variable and disagreed that it qualifies as a mediating variable. This created a conceptual gap. However, the study employed a rapid assessment data collection methodology. This created a methodological gap as the current study used a questionnaire and interview guide to collect data as they were considered more efficient techniques of gathering data. The study was based outside sub-Saharan Africa creating a contextual gap. The gaps in the published literature in the preceding paragraph were addressed in the recommendation section in form of policy change suggestions and recommendations.

Waisbord (2015) conducted a study that investigated how consumer awareness in South America leads to better coverage of digital TV services. The awareness campaign was somewhat hampered by intermittent funding of the campaigns and this was invariably impacted the pace of coverage of digital TV services. However, the study does not disaggregate the components of consumer awareness to inform future studies. This created a conceptual gap the current study hoped to address. The study employed a correlational analysis that the study felt would be better addressed by a cross-sectional study design. This created methodological gap that needs attention. The study also used secondary data to compile the findings. Secondary data is not always regarded as the most reliable. This created a further methodological gap. The study was grounded in the agency theory that the study feels has a limited explanatory powers regarding consumer awareness and coverage of digital TV services. This created a theoretical gap. Singh and Raja (2017) conducted a study that assessed how consumer awareness contributed to coverage of digital TV services in the Indian subcontinent. The findings slightly differed from earlier studies by Nazareno (2012) and Waisbord (2015) that show that while coverage in different countries within the Indian sub-continent was not uniform, the time difference was very small unlike the case of the UK, France and Brazil as earlier discussed by Nazareno (2012) that had uniform growth of coverage in the UK and France but at a slower pace in Brazil. This creates a conceptual and methodological gap that needs to be filled. The study used a comparative study design which created a further methodological gap. The gaps identifies in the study were addressed and reported in the recommendations section.

In Botswana information infrastructures were still under development by time for ASO. In order to appliance digital migration, the involvement of stakeholders in each district was necessary to get consumers awareness to reach an acceptable threshold before the completion of digital migration in the stipulated period, (Bekker 2012). With integrated approach, confusion caused by wrong information was averted in the country, Once the viewers were informed and raised their level of awareness as consumers, they were be able to enjoy viewing television programmes by the new service of DTTB without confusion, (Armstrong & Collins, 2011). Studies by Bekker (2012) and

Ngcaba (2012) affirm that an integrated approach was used by the Botswana authorities to avert the dangers of confusion caused by wrong information. Yet, it remains unclear through what mechanisms within the integrated approach succeeded the most. The study put to use the dissemination of information, statutory regulation of the changes and availability of information as independent variables. However, some of those variables seem correlated to a degree which brings into question the value of the findings. This study identified the specific elements within the integrated approach and in the process bridged the conceptual and methodological gap.

In the East African region, Tanzania was the first to “go digital”. Many critics and skeptics felt that the migration process was hurriedly done and in fact took place prematurely. A number of NGOs and broadcasters in the country requested for the resumption of analogue terrestrial television to give “ordinary wanaichi” more time to purchase set-top-boxes, (Skinner, 2018). A survey conducted by a leading Tanzanian newspaper in December 2012, estimated that 50% of Tanzanian TV owners could not access digital TV services because they did not have set-top-boxes. The blame was pushed to the Tanzanian consumers who alleged to have received insufficient information about the new digital technology and about the financial assistance in cases when they could not afford set-top-boxes, (UNCTD, 2017). In recognizing the possible deficit in consumer awareness, the Tanzanian government agreed to put on hold the second phase of migration from analogue to digital television broadcasting to assess impact of the first phase on the public, (Obonyo, 2016). The study used a cross-sectional research design exclusively. The study could have benefited from a multi-faceted approach. Furthermore, study findings by UNCTAD (2017) relied on a study conducted by an independent body and the survey findings did not indicate whether the consumer awareness deficit was more evident in rural or urban setting. These inconsistencies in the findings created a temporal, conceptual and methodological gap that this study addressed.

At the time of Analogue Switch Off few Ugandan TV viewers had more than a passing knowledge of digital migration and many never took the deadline seriously. As a result, many were hit hard when Analogue Switch Off took effect, (Oluka, 2011). A number of researcher findings blamed the UCC’s ineffective communication and sensitization work plan and expressed little surprise that consumer awareness was far below the expected threshold by the time ASO materialized, (Imaka, 2011). UCC was blamed for being out of touch with facts on the ground by insisting on using websites, newspapers, and fliers to raise consumer awareness due to the fact that these messages are in English and few people outside major urban centers had access to the internet. People in remote areas of Uganda were subsequently left out of the digital TV coverage. Such information gaps have also given Pay-TV firms an unprecedented business opportunity to take advantage of the Ugandan public, (Obonyo, 2016).

The study gap of this study objective is premised under the question why the consumer awareness strategies were not able to enhance the access digital TV services in Uganda. Studies by Oluka (2011) and Imaka (2011) utilised perceived ease of operating digital television, variety of television channels, consultation with stakeholders, purchase of personal computers with access to digital signals plus availability of relevant information as independent variables and conclusively demonstrated that collectively using websites, newspapers, and fliers to raise consumer awareness is ineffective. However, research on the impact of individual media remains undone. This creates a significant conceptual and methodological gap in the literature, and in this thesis, this study highlighted these gaps and provided appropriate recommendations.

### **Summary of Literature**

From the above review it can be seen that few studies have been conducted on consumer awareness and coverage of digital TV services. The majority of the reviewed published literature examined some aspects of consumer awareness but not in the variable's entirety. A number of gaps were identified as few studies in the literature reviewed indicate that consumer awareness affects coverage of digital TV services. Temporal gaps were identified where a number of studies were several years out of date and the study hopes to close that gap. Conceptual gaps were noted in the published literature with most studies not including all the sub variables in consumer awareness. Most of the theories that anchored previous studies were unsuited to the study besides the Information Society Theory creating a theoretical gap. Methodological gaps were noted in a number of studies with some studies adopting research designs not entirely suited to the subject matter; other study findings were based on secondary data and others were based purely on literature review as a basis for drawing up conclusions. Contextual gaps were identified as many of the previous studies were centered in developed countries, outside Africa and little material on Uganda.

### **METHODOLOGY**

#### **Research Design**

The study utilized a correlational cross-sectional survey design. A correlational design was selected so as to test the relationship between the independent variable (Consumer Awareness) and the dependent variable (Coverage of Digital TV Services). The study was cross-sectional because it was conducted across participants at a point in time and picked only some representative sample elements of the cross section population. It did not compel the researcher to make follow up on the participants. It was utilised on account of its rapid turnaround in data collection as Amin (2005) advises.

A survey design enabled the collection of data from a large number of respondents. It was a preferable method of choice because the researcher intended to generalize from the sample used extracted from the whole target population in Uganda (Cooper & Schindler, 2003). Surveys are particularly invaluable when it comes to rapid informational analysis and were comparatively easy to administer and manage (Kothari, 2004). Generally, data was collected using a cross sectional design because respondents were selected from different regions (Cooper & Schindler, 2003). The above quantitative designs were used in order to describe the current conditions and investigate the relationship, including cause and effect relationships (Amin, 2005). The study in addition employed both quantitative and qualitative approaches of data collection and analysis. The qualitative approaches helped in collection of data using views, comments and judgment of selected respondents on the various themes the study brought up. In addition the quantitative approaches were employed because it was based on testing theories which consist of variables to be measured with numbers and analysed with informational procedures to determine whether the predictive generalisation of the theories held true (Cooper & Schindler, 2003).

#### **Study area and population**

The study was in coverage of digital TV services in Uganda. For this study revolving around consumer awareness and coverage of digital TV services, the targeted populations were households that own television sets. According to Uganda National Household Survey 2016/17 Commissioned



by the national bureau of information, about 3,770,000 television sets are owned by Ugandan households. The population of the study was 3,770,000 television owners.

### Study sample

The total population of television owners is 3,770,000. This is too big a population to be involved in the research. For that matter a minimum sample size was determined. In advanced research like the current one, it is recommended (Saunders, Lewis & Thornhill, 2012, Sekaran & Bougie, 2010) that the minimum sample be calculated specifically for the study. So the "estimate" was 95% accurate. This corresponded to a z score of 1.96. The minimum margin of error was therefore 5%. In this study, the z score was used to estimate the proportions of accuracy and minimum margin of error as far as responses were concerned.

It was presumed that at least 60% of the selected respondents will answer fully the items on the questionnaire and suggested that 40% may not be able to. Using the formula popularized by de Vaus, 1991, Saunders, Lewis & Thornhill, 2012). The minimum sample size was computed using confidence level of 95% as follows.

Sample size was determined in two steps:

1. Calculated the sample size for infinite population.
2. Adjusted the sample size to the required population.

$$S = Z_2 * P * (1-P) / M_2$$

S = Sample size for infinite population

Z = Z score

P = population proportion (assumed to be 60% = 0.6)

M = margin of error

Z score was determined based on confidence level.

Confidence level: The probability that the value of the parameter falls within a specified range of values

Confidence Level	Z- Value
90%	1.645
95%	1.960
99%	2.576

The study took 95% confidence level then Z score as 1.96.

Margin of error was a small amount that is allowed for in case of miscalculation or change of circumstances. Generally we took margin of error as 5%

$$M = 0.05$$

$$Z\text{- Score} = 1.96$$

$$P = 0.6$$

$$M = 0.05$$

$$S = (Z\text{-Score})^2 * P * (1-P) / (\text{Margin of error})^2$$

$$S = (1.96)^2 * 0.6 * (1 - 0.6) / (0.05)^2$$

$$S = 3.8416 * 0.24 / 0.0025$$

$$S = 368.7936$$

So, sample size for infinite population is 368.7936.

Now, we adjusted the sample size to the required population. In this instance, the study adjusted the sample size to 369 television owners in Uganda. The study put to use the following formula for adjusted sample size as recommended by Saunders et al (2009);

$$\text{Adjusted sample size} = (S) / 1 + [(S - 1) / \text{Population}]$$

$$\text{Adjusted S} = 368.7936 / 1 + [(368.7936 - 1) / 3,770,000]$$

$$\text{Adjusted S} = 368.7936 / 1.000102$$

$$\text{Adjusted S} = 368.756 \text{ approximately } 369$$

The sample size therefore for 3,770,000 is 369

So the desired sample size used to complete the main research instrument, that is, the questionnaire was 369.

To compute the proportionate sample per category of the population by region, the study used the regions categorized in the Uganda National Household Survey 2016/2017. The study employed the proportionate allocation sampling by Kothari (2004) based on a target population of 369 using the formula below:

$$n_i = \frac{n * n_i}{N}$$

$n_i$  = Sample Size of each category within the study area

$n$  = Desired Sample size computed above

$n_j$  = Number of population in each category

$N$  = Total number of respondents in the study area

$$\text{Kampala} = \frac{1,654,047}{3,770,000} * 369 = 161.8948 \text{ approx. (162)}$$

$$\text{Busoga} = \frac{465,789}{3,770,000} * 369 = 45.59049 \text{ approx. (46)}$$

$$\text{Bukedi} = \frac{116,178}{3,770,000} * 369 = 11.37127 \text{ approx. (11)}$$

$$\text{Elgon} = \frac{119,963}{3,770,000} * 369 = 11.77356 \text{ approx. (12)}$$

$$\text{Teso} = \frac{117,147}{3,770,000} * 369 = 11.74174 \text{ approx. (12)}$$

$$\text{Karamoja} = \frac{87,146}{3,770,000} * 369 = 8.529675 \text{ approx. (9)}$$

$$\text{Lango} = \frac{104,783}{3,770,000} * 369 = 10.25595 \text{ approx. (10)}$$

$$\text{Acholi} = \frac{107,265}{3,770,000} * 369 = 10.49888 \text{ approx. (10)}$$

$$\text{West Nile} = \frac{102,584}{3,770,000} * 369 = 10.04072 \text{ approx. (10)}$$

$$\text{Bunyoro} = \frac{100,348}{3,770,000} * 369 = 9.82186 \text{ approx. (10)}$$

$$\text{Tooro} = \frac{209,473}{3,770,000} * 369 = 20.50279 \text{ approx. (20)}$$

$$\text{Ankole} = \frac{396,199}{3,770,000} * 369 = 38.77916 \text{ approx. (39)}$$

$$\text{Kigezi} = \frac{189,078}{3,770,000} * 369 = 18.50657 \text{ approx. (18)}$$

### Sampling Design for Heads of Households

Simple random sampling design was used in this investigation to select samples of heads of households. The systematic sampling will then be applied to select respondents from the various strata. This design is chosen for this study because it gives each element in the population an equal chance of being included in the sample.

**Table 3.1: Sample Size of Respondents and Sampling Techniques**

Category of Population(By Region)	Population Size	Sample Size	Sampling Technique
Kampala	1,654,047	162	Simple random sampling
Busoga	465,789	46	Simple random sampling
Bukedi	116,178	11	Simple random sampling
Elgon	119,963	12	Simple random sampling
Teso	117,147	12	Simple random sampling
Karamoja	87,146	9	Simple random sampling
Lango	104,783	10	Simple random sampling
Acholi	107,265	10	Simple random sampling
West Nile	102,584	10	Simple random sampling
Bunyoro	100,348	10	Simple random sampling
Tooro	209,473	20	Simple random sampling
Ankole	396,199	39	Simple random sampling
Kigezi	189,078	18	Simple random sampling
<b>Total</b>	<b>3,770,000</b>	<b>369</b>	

Source: Uganda National Household Survey 2016/17

### Sampling Procedure for Heads of Households

Probability based sampling employed the simple random sampling technique. The researcher opts for the use of simple random sampling techniques for purposes of having all categories in television

owners involved in the study. The names of the 369 heads of households will be listed and assigned numbers from 1 to 369 and each number will be written on a different piece of paper, folded and put in a box. The box will then be shaken carefully and a piece of paper picked randomly without replacement. The procedure was repeated until the entire listed household heads (369 in number) were got. The names of household heads randomly picked from the box will listed as respondents to be given questionnaires.

### **Sampling Design for Key informants through Focused Group Discussions**

Census and purposive sampling design was used in this research to select samples of key informants. For purposive sampling, carefully chosen respondents from various regions will be chosen. This design is chosen for this study because key informants possess rich knowledge on the subject matter and have been identified beforehand.

**Table 3.2: Sample Size of Respondents and Sampling Techniques**

<b>Category of Population</b>	<b>Population Size</b>	<b>Sample Size</b>	<b>Sampling Technique</b>
CEO SIGNET (U)	1	1	Census sampling
CEO UBC	1	1	Census sampling
CEO Multichoice Uganda	1	1	Census sampling
CEO Startimes Uganda Ltd	1	1	Census sampling
Retired Broadcasting Engineers from each region	13	5	Purposive sampling
Retired Broadcasting journalists from each region	13	5	Purposive sampling
Retired Broadcasting station managers from each region	13	5	Purposive sampling
Selected Members of the UBC Board	10	3	Purposive sampling
Selected Commissioners ICT Ministry	8	3	Purposive sampling
<b>Total</b>	<b>61</b>	<b>25</b>	

*Source: Primary data 2021*

### **Sampling Procedure for Key informants**

Non Probability based sampling employed census and purposive sampling techniques. The researcher opts for the use of census and purposive sampling techniques for purposes of having all qualified and experienced key informants to be interviewed.

## **DATA COLLECTION**

### **Questionnaires**

Self-administered and self-designed questionnaires were administered to 369 respondents for the express purpose of getting primary data. Questionnaires were a tool of choice as they made it possible to ask specific questions that focused on the subject matter with no danger of being diverted outside the area of study. Previous studies found questionnaires quite popular because the respondents were usually able to fill them in at their own convenience and further still this tool was appropriate for a sample of this size. Questionnaires in addition provided the respondents with privacy to freely

express their feelings on the subject matter because basically, respondents were not required to append their names on the tools.

### **Interview guide**

The study used a semi-structured interview guide to conduct interviews with the following stakeholders in the broadcast industry: CEO SIGNET (U), CEO UBC, CEO Multichoice Uganda, and CEO Startimes Uganda Ltd. In addition, retired broadcasting engineers, journalists, station managers, select members of the UBC Board and Commissioners ICT Ministry were interviewed. Interviews as a tool were chosen because they made it easy to fully understand an interviewee's points of view or unique perspectives, or learn more about their answers as compared to questionnaires. According to Mugenda & Mugenda (2003), interviews are good in that unlike questionnaires, they provide more detailed information.

### **Documentary review check list.**

The researcher developed a list of secondary sources of information that were reviewed. Several documents reviewed about the study included Ministry of ICT minutes of meetings, journals on digital migration and coverage of digital TV services, digital migration text books, dissertations on digital migration, abstracts, coverage of digital TV services consultants' reports and other related digital migration and coverage of digital TV services documents. Burns (2016) asserted that primary data alone cannot provide a comprehensive construct of the study problem, as it should be supplemented by secondary sources of data.

### **Data processing and Analysis**

After collection, data was compiled, sorted, reviewed, edited and coded. The editing was meant to remove any corrupted or erroneous data provided by the different respondents and the coding helped in quickening the process of data input.

## **DATA ANALYSIS AND PRESENTATION**

### **Quantitative Data Analysis**

Collected quantitative data was coded, entered into IBM SPSS© 26 program and analyzed, based on the research objectives. IBM SPSS© 26 program was used to generate demographic and descriptive characteristics of the sample to be studied. In addition, Pearson's correlation coefficient analysis and linear regression to establish the relationship between variables and the regression analysis was done to establish the variations that the independent variable (Consumer Awareness) accounted for in the dependent variable (coverage of digital TV services).

### **Qualitative Data Analysis**

All the qualitative data that was collected through interviews and scrutiny of documents were categorized, organized and analyzed along the themes of the major variables. This was done to triangulate and marry the findings obtained through quantitative analysis.

### **Ethical Considerations**

Ethics is the basis for conducting effective and significant studies and as such ethical concerns will be addressed by the study. The following ethical issues were prioritised as suggested by Saunders, Lewis & Thornhill (2012): Guarantees and honesty were key; whereby the purpose of the study and

anything to be gained from it was clearly explained to respondents; confidentiality which requires that confidentiality and anonymity will be unreservedly and profusely guaranteed; identity of respondents as well as information obtained during the study was kept confidential unless otherwise agreed upon with the respondents; informed consent whereby all aspects and intentions of the study were clearly explained to the respondents to protect their welfare and dignity; and protection of respondents from any physical or mental harm arising out of the study. As suggested by Ghauri & Grönhaug (2005), respondents were not exposed to risks greater than, or additional to those encountered in their ordinary lives.

## FINDINGS AND DISCUSSION

The study's findings are organized and presented according to the study objective and hypothesis tested. Descriptive analysis, correlation and regression results are presented.

### Descriptive analysis

Both consumer awareness and coverage of digital TV services were described. Respondents rated themselves on the different measures of the variables in question on a 5 point Likert Scale (1 = strongly disagree; 2 = disagree; 3 = not sure; 4 = Agree and 5 = strongly agree). Results were categorized according to their means, standard deviations and t-values. For the means to be significant, the t-values should be equal to or greater than the conventional significance levels of 10%, 5% and 1%. Table 4.1, shows the summary descriptive statistics of both consumer awareness and coverage of digital TV services.

**Table 4.1 Summary Descriptive statistics of consumer awareness and Coverage of Digital TV services.**

	Aspect/Variable	Mean	Standard deviation	t-value
1	Consumer Awareness	3.14	1.285	2.45
2.	Coverage of digital TV services			
(i)	Number of sites in the country	3.72	1.084	3.45
(ii)	Radius of coverage of each site	3.53	1.091	3.24
(iii)	Active number of pay TV subscribers	3.38	1.096	3.55
(iv)	Availability of STBs	3.48	1.193	2.92
(v)	Type of digital content being broadcast	3.59	1.193	3.13
	Overall average on coverage of digital TV services	3.36	1.131	3.26

Consumer awareness was operationalized as understanding of the equipment needed and digital literacy. Coverage of digital TV services was operationalized as: number of sites in the country; radius of coverage of each site; active number of pay TV subscribers; availability of STBs and types of digital content being broadcasted.

According to summary results in table 4.1, respondents rated themselves high on a scale of 5 on all aspects of consumer awareness according to the overall mean (mean = 3.14; std = 1.285 and t-value = 2.45). Further, results in Table 4.1 indicate that overall, respondents also rated themselves high on all aspects of coverage of digital TV services as shown by the overall mean (mean 3.63; std = 1.131;

t-value = 3.26). All the overall means of both consumer awareness and coverage of digital TV services were significant at 1% or 0.01.

### Testing of the hypothesis

The study sought to test the following hypothesis; Ho<sub>2</sub>; that, Consumer awareness is not significantly related to coverage of digital TV services in Uganda.

### Correlation results

In conformity with the research design utilized in this study, an effort was made to establish whether there was an associative relationship between consumer awareness and coverage of digital TV services in Uganda.

A bivariate analysis was conducted using Pearson's correlation methods. The correlation coefficients are between (-1) and (+1). Positive correlation means both the independent and dependent variables move in the same direction, while negative correlation, the two variables move in opposite directions. The strengths of the correlation were interpreted on the following basis: 1.00 means perfect relationships; 0.90 – 0.99 very high; 0.70 – 0.89 high; 0.50 – 0.69 moderate; 0.30 – 0.49, low; 0.01 – 0.29 very low and 0.00 translates to a non-existent relationship. Correlation results are presented in Table 4.2.

**Table 4.2: Correlation between Consumer Awareness and Coverage of Digital TV services in Uganda**

		Consumer Awareness	Coverage of Digital TV Services
Consumer Awareness	Pearson Correlation	1	.662**
	Sig. (2-tailed)		.000
	N	307	307
Coverage of Digital TV Services	Pearson Correlation	.662**	1
	Sig. (2-tailed)	.000	
	N	307	307

\*\* Correlation is significant at the 0.01 level (2-tailed)

Correlation results in Table 4.2, indicate that there is a moderate positive associative relationship between consumer awareness and coverage of digital TV services in Uganda. ( $r=0.573$ , Sig 0.000) at 0.01 or 1% level of significance. If the relationship is predictive, it means that, consumer awareness is improved; coverage of digital TV services also improves. However, there was need to run simple regression analysis to confirm whether the relationship was predictive or not as illustrated below;

**Simple linear regression results of consumer awareness and coverage of digital TV Services in Uganda**

The null hypothesis stating, “Consumer awareness is not significantly related to coverage of digital TV services in Uganda” was also subjected to a simple linear regression test.

**Table 4.3: Model summary****Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.662 <sup>a</sup>	.439	.437	.46237

a. Predictors: (Constant), Consumer Awareness

**Source: Primary Data 2021**

Table 4.3 depicts the model summary that summarises the value of R, R Square, Adjusted R Square and Std. Error of the Estimate is the standard deviation of the error term, and is the square root of the Mean Square Residual. R value represents the correlation between the two variables stands at 0.662. The Adjusted R square value of 0.437 accounts for the variations noted in coverage of digital TV services in Uganda by 43.7% (at 100% test level). The remaining variations (56.3%) in coverage of digital TV services in Uganda are accounted for by other factors other than consumer awareness.

**Table 4.4: Analysis of variance**

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	50.985	1	50.985	238.489	.000 <sup>a</sup>
	Residual	65.204	305	.214		
	Total	116.189	306			

a. Predictors: (Constant), Consumer Awareness

b. Dependent Variable: Coverage of Digital TV Service

**Source: Primary Data 2021**

Table 4.4, consists of the sum of squares, degrees of freedom, mean square, the F statistic and the significance value; reveals that all factors of consumer awareness considered in this study are collectively explanatory variables of coverage of digital TV services ( $f=238.489$ , Sig. = 0.000). The contribution of 43.7% of consumer awareness to variations in coverage of digital TV services is also supported by the regression value of 50.985 compared to the residual value of 65.204, meaning that their other factors that are more related to coverage of digital TV services in Uganda.

Further, table 4.4 above contains the sum of squares, degrees of freedom, mean square, the f information and its level of significance. The sum of squares in information gauges the originality of data points as one travels away from the mean value. A total of sum of squares stands at 116.189 indicates that the data does not vary greatly from the mean value. A moderate residual sum of squares of 65.204 (given that regression sum of squares stands at a moderate 50.985) suggests the model fits the data well. Degrees of freedom (df) which are values that have the freedom to vary in the data sample stand at (1,305) suggest a significant result. The Regression Mean Squared value that measures how close a fitted line is to data points stands at 50.985 is moderate in size. The p-value



associated with this F value is very small (0.0000) which is typically ( $P < .05$ ) which signifies that the R Square value is significantly different from zero.

The p-value associated with this F value is very small (0.0000) which is typically ( $P < .05$ ) which signifies that the R Square value is significantly different from zero. The null hypothesis was rejected to the effect that consumer awareness is not significantly related to coverage of digital TV services in Uganda.

## **DISCUSSION OF FINDINGS**

This segment delivers a detailed discussion showing a connection between the findings and the literature that was reviewed, the Digital Migration Policy for Television Broadcasting in Uganda as well as the Information Society Theory which underpinned the study.

Consumer awareness in this study was analyzed along the following lines: steering of consumer awareness, comprehension of consumer awareness, awareness of equipment needed, and methods used to promote consumer awareness and stakeholders used in the awareness campaigns.

Study results generally agree that consumer awareness was steered in a clear and easily understood manner to guarantee countrywide comprehension of the phases involved in digital migration shown by a mean of 3.05. The study findings are supported by a number of publications. Examples include Kapoor, Mittal and Dhiman (2016), who argue that challenges and likely impact of digital migration in India were averted with a conscious and concerted consumer awareness campaign. Aarreniemi-Jokipielto (2016) proposed a number of ideas on how best to cost effectively reap dividends from a well-orchestrated consumer awareness campaign. Boateng et al (2017), while discussing digital enterprises in Africa, opined that the process generally rolls out better when consumers are made aware of the full benefits of digital migration. The consumer awareness is a key policy initiative underlined under digital migration policy for television broadcasting in Uganda. The study finding can be logically illustrated by key aspects of the Information Society Theory that include communication dynamics that are imperative for successful consumer awareness promotions.

The study established with a mean of 3.12 that consumer awareness encompasses transparency to guarantee that there is dialogue about all the events which will engender assurance from all TV consumers. This is largely in agreement with published literature. For instance study findings by Bajon and Villaret (2014) who assert that for successful technological transition to High-Definition TV, a consumer awareness campaign would determine its rate of success or failure. Siwei (2013) revealed the broadcasting and television digitization strategy in China used the consumer awareness campaign as the backbone of the entire process. Bourgault (2015), whose study centered on digital migration process in the sub Saharan sections of Africa, named out the lagging nations for failing to launch a media campaign to raise digital awareness. Under the Digital Migration Policy for Television Broadcasting in Uganda, government entities particularly those in the education sector regard digitization as a cornerstone in many implementation phases. This is particularly relevant in the COVID-19 pandemic era where remote learning was a matter of necessity. This finding is embedded in the Information Society Theory that emphasizes the role of awareness as a function of effective communication.

The study established with a mean of 3.29 that some consumers are aware of the digital migration equipment needed. This finding is in line with Friederici, Wahome and Graham (2018) whose study established that Digital Entrepreneurship in Africa has not progressed as expected due to limited consumer awareness. Gathara (2015) argued that one of the constraints besides litigation is limited consumer awareness which has constrained digital migration. However, quite a few consumers especially in Nairobi, Kisumu and Embakasi were aware of the digital migration equipment needed. Tsebee (2014), while discussing challenges and prospects for developing in view of Nigerian digital broadcast migration, established that the relative success in some states is down to some consumer awareness of the equipment needed. Under the Digital Migration Policy for Television Broadcasting in Uganda, government was solely responsible for raising awareness of the process of digital migration process generally and educating consumers on the operation and functionality of relevant equipment. This finding is backed by the Information Society Theory which lauds evolutions in specific sectors like ICT. This sector encapsulates the entire concept of digital technologies of which consumer awareness of equipment needed to operationalize it is part and parcel.

The findings of the study of a mean of 3.01 are in partial agreement that consumer awareness campaigns make use of a multiplicity of methods to guarantee accessibility for all TV consumers. This conclusion is partly similar to that arrived at by Richer et al. (2019), who argue that for the digital migration process to progress at the expected pace, a multipronged approach to raise consumer awareness is advisable. Ahmad and Ribarsky (2018), who, when discussing how to design a framework for measuring the digital economy, put forward consumer awareness as a key predictor of the entire digitization process. Crinon et al. (2019) conducted a study on data broadcasting and interactive television and pegged success of the process on consumer involvement and awareness. Under the Digital Migration Policy for Television Broadcasting in Uganda, the Ministry of ICT budgeted for and retooled some personnel specifically to enable a multiple affront to address the emerging challenges of digital migration. This finding is supported by the Information Society Theory that the said theory is seen to be universal in character and there requires a multifaceted approach to bring out its best and most telling attributes. This helps to explain the identified multiplicity of methods to guarantee accessibility for all TV consumers. The methods identifies include but are not limited to free-to-air television, internet streaming and pay-Tv.

Study findings shown by a mean of 2.70 fairly disagreed that government involved all stakeholders in each district in consumer awareness to reach an acceptable threshold before the completion of digital migration in the stipulated period. This finding is not completely in line with Kapoor, Mittal and Dhiman (2016) who while studying Digital Switchover in India; identified and examined key stakeholders, challenges and likely impact of the digitization process. Ndemo and Weiss (2017) conducted a study that considered digital migration in Kenya. They recommended targeted interventions that were more cost beneficial given that the involve identification and bringing on board all stakeholders in each province. In this way the community who made up the consumers would own the process, thus, leading to successful implementation. Under the Digital Migration Policy for Television Broadcasting in Uganda, the authorities specifically underscore the fact that given the limited timeframe it is crucial to involve all stakeholders for expeditious digital migration to raise the consumer awareness. While building on the Information Society Theory, Van Audenhove (2003) pointed out that the central idea is that new possibilities in information processing, storage and transmission lead to the spread and use of ICT-applications in almost all corners of the economy

and society. All this was only feasible with involvement of all stakeholders in the consumer awareness campaigns.

Study findings indicated by a mean score of 2.93 established that several respondents disagreed with the notion that the integrated approach was used by authorities to avert the dangers of confusion caused by wrong information. This conclusion was dissimilar to that arrived at by Preston (2011) whose study addressed the reshaping of communications; specifically technology, information and social change. He asserted that proper shaping of communication leads to clarity. Sussan and Acs (2017), while presenting findings on the digital entrepreneurial ecosystem pegged its sustained success in perpetuity on proper and clearly coordinated communication using integrated approaches. Berger (2010) discussing findings on challenges and prospective of Digital Migration for African Media, pointed out the variety of benefits accruing from adopting an integrated approach to raising consumer awareness. Under the Digital Migration Policy for Television Broadcasting in Uganda, the government made a commitment to undertake an integrated approach to consumer awareness. Unfortunately the implementation did not match the expectations and that explains the dismal findings of the study. An audit targeting this specific aspect needs to be conducted. This finding is contrary to the Information Society Theory that supports idea that the rise and effects of ICTs using integrated approaches form the foundation on which the information society theory is based.

Study findings shown by a mean score of 3.01 were not conclusive that consumer awareness is always made in local languages. This position is not in complete tandem to many scholars on this subject. Xing, Hanhui and Chong (2009) while examining China's transition to digital TV with a theoretical and empirical perspective; specifically the Telecommunications Policy pointed out the faster progress that was attained once Mandarin and Cantonese were used in rural China to raise consumer awareness. Tilson, Lyytinen and Sørensen (2015) credited the rapid progress realised in central European nations down to the use of many languages to raise consumer awareness particularly in Metropolitan areas. Ndavula and Lidubwi (2016), in their study findings, blame slow awareness of consumers in Western Kenya on the insistence on employment of English language to raise consumer awareness yet most Kenyans in that part of the country are more comfortable using Kiswahili. Under the Digital Migration Policy for Television Broadcasting in Uganda, the government undertook to disseminate the key messages in as many languages as possible. However, due to financial constraints, not all languages could be integrated in the program. This explains the considerable uneasiness the question solicited from the respondents. The implementation of the said policy needs to be revisited. While extending the information society theory, Manuel Castells, describes the current transformation of society as an evolution from an industrial to a networked society. According to Castells we are entering a new information technology paradigm. This in African means effective dissemination of information which implies using commonly used media and languages to raise consumer awareness.

Study findings indicated by a mean score of 3.61 ably established that consumers are fully aware that their digital TV also allows them to receive digital radio content. This conclusion is aligned to study findings by Gong (2016) who while discussing cutting edge technologies that are better executed by availability of more bandwidth and spectrum include digital radio content availability. Einstein (2015) underscored the vast benefits that digital migration come with which include but are not limited to tremendous increased digital radio content. Under the Digital Migration Policy for Television Broadcasting in Uganda, the government was charged with availing expanded spectrum

that would naturally accommodate digital radio content for local audiences. Connection between this finding and the Information Society Theory is that currently ICTs is perceived as all pervasive; which now is in tandem with increased spectrum that can now house much more digital radio content.

Study findings shown by a mean score of 2.88 demonstrated that television owners are not fully aware that their digital TV allows them to stream data packets from internet sites. This finding was not in line with a number of publications. For instance, Harji, Woods and Alavi (2010), while offering study findings on viewing subtitled videos on vocabulary learning, underlined how the internet and its multifaceted functionality is incumbent on the streaming of data packets that are dedicated and secured by necessary encryption. Hsu et al. (2013), while studying growth of digital technologies, pointed out the need of simultaneous growth of the internet backbone in the country as digital television depends on transmission of data packets through established data points. Under the Digital Migration Policy for Television Broadcasting in Uganda, there was a deliberate plan to extend the internet backbone and expand the bandwidth countrywide so that streaming of data packets would be possible. Unfortunately, much of the work regarding internet proliferation, especially upcountry, remains incomplete. Connection between this finding and the Information Society Theory is the theory's ability to enable us to understand the relationship between the structures and processes of social communication and social structure and processes. Streaming of data packets is possible if properly deployed.

The study findings indicated by a mean score of 3.59 the fact that consumers are fully aware that their digital TV set is fully transferable to other geographical areas. This finding is supported by a number of scholars who recommend flexibility in development of emerging technologies. Luftman, Lyytinen and Ben Zvi (2015) while conducting a study revolving around information technology (IT) and business alignment and its influence on company performance, concluded that flexibility and transferability were crucial to the degree of success. Raven et al. (2014), while discussing study findings regarding economic analysis of the TV advertising market strongly, recommended the digital products could be fully transferable to other geographical areas both nationally and internationally to expand into newer markets. Under the Digital Migration Policy for Television Broadcasting in Uganda, the ICT Ministry recommended that all TVs imported into the country should be fully digitized and compatible with existing broadcasting technologies in Uganda. Connection between this finding about transferability and the Information Society Theory is that most conceptualizations of the information society are based on an analysis of recent evolutions in the information industry. It also reflects their impact on society and its flexibility as well as transferability as a mix of technological, economic and political evolutions. These have fundamentally changed the information industry. At the technological level, the digitalization of content and networks has resulted in the growing convergence between the different sectors of informatics, telecommunications and media; the different sub-sectors of the information industry.

The study was able to establish the fact that consumers are fully aware that their old analogue TV can be reconfigured to receive digital TV and need not be discarded. This was evidenced by a mean score of 3.25. This finding is fully supported by a number of scholars' publications. Shapiro and Varian (2015), who underscored the importance of continuity by having analogue TV, reconfigured to receive digital TV with the help of STB technologies among others. Wangalwa (2015) generally concurred as he discussed ASO and general digital migration process in Kenya called for the smooth transfer from analogue to digital through importation of STBs as buying new sets would prove over and above what most Kenyans can afford. Under the Digital Migration Policy for Television

Broadcasting in Uganda, the government recognised the fact that mass replacement of TV sets would not be cost effective in the short run and planned to subsidize the importation of STBs. Unfortunately, the policy implemented process hit some snags and as a result, many STBs that have been imported remain in shop shelves as the price remains high and consumers are largely unaware of their availability and use. Link between this finding and the Information Society Theory is that although the information industry has for a long time played an important role in Western economy, culture and politics, the recent evolutions, like the switch-from-analogue-to-digital technologies, are seen as the underlying drivers of the evolution towards an information society.

The study, with a mean score of 3.22, established that consumers are fully aware that their digital TVs allow them to get other services in addition to television such as wireless services. This finding is in tandem with a number of authors. Xing, Hanhui, and Chong (2009) conducted a theoretical and empirical study on China's transition to digital TV. They stressed the fact that expansion of the spectrum that came with digital migration availed broadcasters the opportunity provide a wide variety of services which include but are not limited to wireless services. Crinon et al. (2019), while conducting a study on Data Broadcasting and Interactive Television, pointed out the extra value that come with digital TV are a wide variety of services that require internet connectivity or other digital broadcasting technologies that include wireless services. Considering the Digital Migration Policy for Television Broadcasting in Uganda, the government, through the Ministry of ICT, requires all broadcasters to ensure the extra spectrum they now possess to be fully operational offering their clientele a full menu of services including wireless services. Linking this finding to the Information Society Theory, the theory provides the framework that explains the informatics, electronics, and telecommunications and media industries. These are seen as the new growth sectors of Western economies and eventually the whole world.

## **CONCLUSIONS AND RECOMMENDATIONS**

The study focused on assessing the influence of consumer awareness on coverage of digital TV services in Uganda. The study concludes that consumer awareness though under consideration by Ministry Of Information and Communications Technology (ICT), has had some positive effect on coverage of digital TV services in Uganda. This result is partially in support of the digital migration policy for TV broadcasting in Uganda Policy objective 4 a) that aimed at Prioritizing consumer awareness through education and skills development to assist in access and utilisation of digital broadcasting systems as well as guarding against consumer exploitation through unfair market practices. It is recommended that there is revision of the current policy objective 4 a) so that it can cater for new media like social media to promote consumer awareness. This can be done by updating the computer equipment to help them support social media platforms. This is because most Ugandans are below the age of 30 and can be easily accessed using social media and the internet. It is further recommended that the means of disseminating consumer awareness be diversified. This is necessary as increased coverage of digital TV services is only possible with enhanced consumer awareness. Finally, government should compel all content providers to create space in their programming for consumer awareness. This can be done through official communication to the said entities.

This is because content providers have a long reach and reach millions of Ugandans on a daily basis.

Although this study adds to our appreciation of consumer awareness that explaining coverage of digital TV services in Uganda it has some limitations and therefore findings should not all be generalized. These limitations among others include the following;

There were a number of predictors incorporated in the model. Both consumer awareness and coverage of digital TV services could have been measured by many other predictors in addition to the ones utilised by the study. The study was basically cross-sectional that examined the relationship between consumer awareness and coverage of digital TV services at one point in time. This limits the generalizability of the findings. Further, the questions in the survey tool were closed-ended; hence the probability important details may not have been captured much as information from interviews was incorporated.

In view of the above limitations, the study opens up areas for further research. more predictors should be added in the model based on literature and be tested empirically to increase our understanding of coverage of digital TV services in Uganda. Secondly, future studies should explore an alternative analysis plan to better elucidate the relationship between consumer awareness and coverage of digital TV services in Uganda.

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