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## Drop Analogue, and Digitize: The Practical Challenges in Kenya's Digital Migration Programme

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### **Abstract:**

*The Regional Radio Broadcasting (RRC) conference held in Geneva in 2006 culminated in a treaty calling on all nations, Kenya included, shifting to digital terrestrial television (DTT) broadcasting by June 17, 2015. This paper provides a situational analysis of the practical implications of the digital transition in Kenya. To migrate to digital broadcasting, Kenya (government, broadcast companies, and media consumers) had to purchase equipment compatible with the digital platform, a move that proved costly to the majority of Kenyans given the high costs of purchase, installation, and maintenance of digital equipment. The research established that Kenya was not ready for the migration from analogue to digital broadcasting. The review found out that most of the local media houses as well as the majority of Kenyans were not ready to embark on the transition from analogue to digital broadcasting. These results would enable major players in the broadcasting sector to understand the course and implications of digital migration. The research also presents a better foundation upon which other scholars in the field of communication can build their studies and delve into different aspects of the topic at hand.*

**Keywords:** Analogue broadcasting, digital broadcasting, digital migration, media freedom, set-top boxes

### **1. Introduction**

The availability of broadcasting services coupled with the provision of information to citizens is a critical requirement of every country. The Constitution of Kenya 2010 has been considered an essential development to spearhead the freedom of the media and free flow of information. At Article 34, the Constitution of Kenya, the freedom of the media as a right and fundamental freedom, is enshrined.

Television is a popular source of information, a medium of education and entertainment as well as an effective means of promoting democracy, accountability and transparency in public and private institutions (Musa, 2014). The analogue and digital technologies comprise the two forms of television broadcasting (Nyabuga et al., 2013). The former has been in existence since the onset of television broadcasting in the world. However, due to rapid changes in information and communication technologies, it has been faced out by the former whose myriad features makes it more superior (Agona & Otim, 2011).

Kruger & Guerrero (2002) hold that the most significant difference between analogue and digital signal transmissions is brought about by the quantity of bandwidth necessary for the reception of the respective frequencies. Terrestrial TV sets require smaller bandwidth to enable it accommodate the frequency compared to satellite TV sets. Digital signal is compressed thus creating more room for the broadcasting of more channels in the same bandwidth that is equal to the bandwidth in a single analogue signal. For this reason, the world has embarked on a shift from analogue to digital broadcasting.

The International Telecommunication Union (ITU) is a United Nations' wing mandated to regulate matters concerning information and communication technology (Digital Migration Working Group Report, 2012). It coordinates the use of radio transmission and assigns satellite orbits around the world, besides developing standards and regulations that give direction to the development of the telecommunications infrastructure. Kenya comprise a number of member states in Africa (and others European, Middle East as well as the Republic of Iran states) that entered into a binding resolution on June 16, 2006 at ITU conference in Geneva to shift from analogue to digital broadcasting (Githinji, 2014). The Regional Radio Broadcasting (RRC) conference entered a treaty that called for all nations to shift to digital terrestrial television (DTT) broadcasting by June 17, 2015. Therefore, as a member state, the government of Kenya was bound to resort to the migration from analogue to digital migration.

Generally, the digitalization process bore a host of tangible implications. For instance, there has been a fundamental row among various stakeholders in the broadcasting industry that led to a revision of the set deadline to a phased switch off that started in Nairobi in December 2012. It was on this note that the researchers set to conduct a qualitative study to investigate the practical challenges that

were involved in migration from analogue to digital broadcasting in Kenya. The research examined the size and nature of challenges faced in the course of the transition from analogue to digital broadcasting. Also, the research explored the policy-led approach taken by the regulator, and the government to realize a shift to digital broadcasting and the timelines for implementing the migration. Furthermore, the research reviewed the activities before, during and after the digital terrestrial broadcasting was launched and marketed to consumers, and the costs for the government, consumers and channel providers in Kenya.

### *1.1. Methodology*

The study covered the general Kenyan boundaries concerning the shift from analogue to digital migration in the country - the Communication Authority of Kenya (CAK), broadcast media houses, and the typical media consumers. This study utilized the qualitative approach to research, and case study method to unravel the practical challenges faced during the migration from analogue broadcasting to digital broadcasting in Kenya. To generate data, a content analysis of purposively selected (homogenous sampling) secondary source material was conducted. The data generated from the inquiry was subjected to thematic analysis. Diffusion of innovations theory informed the analysis.

## **2. Results**

### *2.1. World Digital Migration Status*

Many countries especially in Europe have successfully completed the migration from analogue to digital broadcasting. For instance, Germany, Switzerland, Netherlands and Norway completed the process in November 2008, January 2008, December 2006, and December 2009 respectively (Salifu, 2012). In Africa, a number of countries also rolled out the initiative to shift from analogue broadcasting to digital broadcasting. They include South Africa, Ghana, Uganda, Tanzania, among others. Migration from analogue broadcasting to digital broadcasting is a resolution that was made at RRC conference through a binding treaty that called for all nations to migrate from analogue to digital terrestrial television (DTT) broadcasting by June 17, 2015 (Githinji, 2014). The conference was held under the auspices of ITU, a UN agency tasked with the coordination of the use of radio transmission, allocation of satellite orbits around the world, and formulation of standards and regulations that give direction to the development of the telecommunications infrastructure. The agency is based in Geneva, Switzerland with a membership of 193 countries, and over 700 sector members and associates (Ochieng, 2015).

### *2.2. Kenya's Digital Road map*

Kenya is part of the ITU member states in Africa and other nations from different continents that entered the treaty to shift from analogue to digital broadcasting on June 16, 2006. The treaty called for all member states to transit to digital television broadcasting by June 17, 2015. Kenya commenced its digital migration in December 2009 with a 3-year simulcast period and set to switch off analogue transmission by June 2012.

Consequently, the migration process saw the broadcasting landscape in Kenya undergo tremendous changes that have resulted in significant practical challenges to the government, models of media house operations as well as the ordinary media consumers. To honor the binding obligation, the government of Kenya embarked on the journey to change the landscape of broadcasting to digital system (Sihanya, 2012). First, an advisory taskforce and a subsequent committee (DTC) were put in place to oversee the migration process. The Digital Video Broadcasting – Terrestrial (DVB-T) signal was launched in late 2009 and was envisaged to be completed in 2012.

The government of Kenya, through the Ministry of Information, Communication, and Technology, and the Communication Commission of Kenya, established a digital migration taskforce to spearhead the digital shift in the country. The taskforce suggested the formation of the DTC with the mandate to initiate and implement digital migration in the country (Report of the Task Force on Digital Migration in Kenya, 2009). DTC adopted an integrated approach to handle the initiative. In particular, it brought together stakeholders as an appropriate strategy to handling the migration programme.

The stakeholders included representatives from the then Ministry of Information and Communications, Communications Commission of Kenya (CCK), Kenya Broadcasting Corporation (KBC), National Communication Secretariat (NCS), Association of Practitioners in Advertising, Media Council of Kenya, and Media Owners Association (MOA), among other relevant stakeholders (Report of the Task Force on Digital Migration in Kenya, 2009). The project was incorporated into the master economic plan, the Vision 2030 Programme and aligned to the economic pillar.

### *2.3. Practical Challenges Involved in Digital Migration in Kenya*

The process of migrating from analogue broadcasting to digital broadcasting is relatively comprehensive. Also, it calls for substantial amount of capital in its planning as well as implementation (Report of the Task Force on Digital Migration in Kenya, 2009). It results in certain implications that impact the government, broadcast channel providers and the local media consumers (Ochieng, 2015).

#### 2.3.1. Government

The government of Kenya initially set 2012 as its deadline for digital migration despite the ITU's deadline of 2015. It is over three years down the line since the digital migration was launched in the country, yet Kenya has not fully transited to digital broadcasting (Mbugua, 2015). The migration brought about several implications to the government. For instance, to embark on the process, it set aside a sum of Ksh 200 million (US\$2.2 million) for the acquisition and installation of the digital infrastructure to oversee the

transition from analogue to digital broadcasting (Agwata, 2015). Definitely, this is a labour and capital intensive venture that called for reasonable amount of resources all of which have to be provided by the government.

Furthermore, to effect digital migration the government, through the Digital Kenya Secretariat, had to scale up the citizens' understanding of the digitalization process. In particular, the spearheading agency, Digital Kenya rolled out a public awareness campaign programme via the print media (newspaper advertisements) in January 2011 in an attempt to shade more light on the meaning and technical issues of digital broadcasting. Also, the initiative sought to enlighten the public about the equipment necessary to watch digital television. The programme was set to run until the country attained full digital migration. Definitely, this was an extra cost to the government since large sums of money had to be injected into the programme. Musa (2014) and Otinga (2014) agree on the point that many citizens were unaware of the provisions of digital platform and other details.

### 2.3.2. Media Stations

Just like other key industry players, broadcast houses also tasted the dark side of digital migration. The digital broadcasting landscape was also faced with unfair distribution or allocation of spectrum. Some broadcast companies have immensely benefited from this process at the expense of others, which had not been allocated frequencies. CCK awarded Signet the digital signal broadcasting subsidy. This state of affair attracted sharp criticism from MOA, which perceived it as breach of procurement laws during the allocation of digital frequency.

MOA further argued that Signet had been accorded preferential treatment to pay-TV media houses purchasing frequencies on the digital platform. This was detrimental to other key media players given the fact that they had been kept waiting for considerable amount of time (Sihanya, 2012). On the same note, Ochieng (2015) argues that the move distorted the media market because it compromised the success of private competition due to unfair signal distribution. Local media houses had availed their signals for testing during the simulcast period. MOA advanced questions against the circumstances under which the government, through CCK contracted Smart TV to air their digital content without adhering to the set procedures (Mbugua, 2015). On several occasions, MOA blamed the government for its direction to award Smart TV the outright obligation to air their content without their permission or knowledge. Peter Oriare, Rosemary Okello, and Wilson Ugangu (2014), through a report titled *The Media We Want*, reported that the problem of slow transition lies with the CCK and the Ministry of Information, which maintain records of anonymous media owners in Kenya. They further bring to the foreground the fact that that the government has awarded many broadcast licenses to individuals as well as organisations whose true identity is kept a secret.

Besides that, the shift from analogue to digital broadcasting raised the level of competition for digital spectrum (frequencies) among television broadcasting companies. Besides the introduction of pay-TV, more and more television stations and channels have come up and are expected to increase as the country embraces the full spectrum of digital broadcasting. For instance, South Africa's DSTV opened the door for new entrants such as Smart TV, Star TV into Kenya's media market. Dr. Bitange Ndemo, the former CCK chair, approximated that there would be over 600 television broadcast channels in the country by the end of 2012. Nonetheless, some 30 percent of the frequencies which had been allocated to some companies were still not in use (Mayiga, 2014). Also, the stiff competition brought on by the digital migration has forced media houses to seek new opportunities to source their funding (Saeed, Hong & Rafique, 2011).

Digital broadcasting presents significant challenges to broadcast companies with regard to generation of revenues. For instance, the overall revenue spent in advertising by media houses rose to KSh49.2 billion in 2010 (Ochieng, 2015b). Also, advertising money is set to be spread across the numerous broadcast outlets that have and continue to open up in Kenya (Ochieng, 2015b). The number of broadcast outlets is envisaged to increase with full transition to digital broadcasting.

However, Monyenye (2015) is optimistic of the digital system in Kenya. He says that hope lies in the digital platform where entrepreneurs will not require a lot of capital to set up a station. Individual programme developers will have the chance to provide single programmes to TV stations. Also, broadcast companies will be relieved from the cost of distribution as this will be assumed by signal distributors.

### 2.3.3. Consumers

Occupying the end of the television broadcast chain, viewers were subject to a number of problems. First, the government recommended the purchase of DVB-T2 set-top boxes –as a prerequisite to access the digital airwaves, and outlawed the import and sale of DVB-T set-top boxes (Mbugua, 2015). This arose out of the enhanced features of the former which was compatible with the digital broadcasting infrastructure to be rolled-out. This shift bore significant implications for consumers who had already imported the DVB-T set-top boxes for between KSh3, 000 and 6,000 (Agwata, 2015). A study conducted by Tabu (2009) to establish consumer attitude towards the shift from analogue to digital broadcasting in eight constituencies in Nairobi County found out that participants had knowledge of the move from analogue to digital television broadcasting platform. The study also revealed that the respondents favoured attributes that come with digital

Another study conducted by Mwangi (2012) to investigate the human aspects that influenced the adoption of digital television broadcasting concluded that the most significant factors that stood to motivate the purchase of set-top boxes included the high resolution and the sound quality of the technology. However, the findings of the study revealed that the respondents attributed affordability and implementation of the digital technology as the most significant setbacks to the uptake of the digital platform. Mwangi (2012) found out that consumers anticipated high cost of initial purchase and installation of the set-top boxes as the major challenges to be faced in the adoption of digital television broadcasting. Further, Mwangi (2012) indicates that majority of the participants revealed that Nairobi residents could not acquire DTV willingly once the move from analogue to digital migration was

effected. Furthermore, the results of the research indicated that all households that possessed analogue TV sets would be compelled to acquire the set-top boxes to enable them receive digital signals (Mwangi, 2012).

The fact that a good number of Kenyans live below the poverty line, and can hardly afford digital broadcasting equipment, has and continued to be a major obstacle to realize digital migration (Tabu, 2014; Nyabuga, et al., 2013). This situation was compounded by media houses and TV channels that seemed not yet ready or reluctant to effect the migration that they stood against attempts to switch off the analogue signals (Agwata, 2015).

Agwata (2015) holds that despite setting aside money to foresee the digital migration majority of Kenyan citizens were not in a position to purchase the necessary equipment for digital broadcasting within the stipulated time for the analogue switch-off. Mbugua (2015) seconds this observation by saying that despite government's provision to subsidize digital reception equipment through a tax relief by lowering the rate of value added tax (VAT) imposed on imported set-top boxes, the analogue switch-off rendered a great deal of Kenyans with black screens. The reception equipment still remains inaccessible and unaffordable to many Kenyans, particularly in rural communities as well as urban poor dwellers who live on less than US\$1 a day. To compound this challenge, local retailers took advantage of citizens' ignorance of the state stipulated retail price for the set-top boxes to mine extra money from poor citizens (Otinga, 2014). Agwata (2015) adds that set-off boxes vendors ceased the retailing of digital broadcast equipment and made a kill out of the whole process.

Moreover, there existed a lack of provisions by the government to avail other tangible incentives or subsidies on digital equipment or purchase digital decoders which were retailing between Kenya shillings 2,500 and 3,000 for the poor and marginalized families in the country. Besides that, integrated TV sets retail at higher prices making them far much above the reach of ordinary citizens. These issues made Agwata (2015) pause a series of questions – "was digital migration a plot to render the tax overburdened citizen pen-less? Whose interest is the digital migration meant to serve? Why are local broadcast stations sidelined from the planning and implementation of the distribution of digital migration frequency?"

Agona & Otim (2011) views the process of digital migration to digital broadcasting as a logical consequence of the rapid technological evolution of information and communication technologies (ICT) that has several advantages to broadcast companies as well as consumers. Nevertheless, besides abiding by the RRC resolution to embrace digital broadcasting, the government of Kenya was particularly concerned with the development of its telecommunication infrastructure to cope with the rapid change in the ITC industries as well as others face. On top of that, the digital transition would further brand Kenya's ICT sector, thus scaling up its competitive advantage among other players and increase the level of domestic and foreign investment in the sector.

### 3. Discussion

Digital migration is not a phenomenon that is being imposed on people's way of life; rather it is an innovation being adopted worldwide. The primary objective of digital migration is to advance the quality of life of citizens not only in Kenya but also those in other parts of the world, besides bridging of the digital divide. Digital divide is the gap between individuals who can effectively access information and digital content, and those who have a strained access or do not have the access at all. Filling this gap propagates a redress of the acquisition of uneven skills in society and the appropriate application of technology thus resulting in enhanced standards of living and increased knowledge.

The benefits of digital broadcasting stretch to the consumers, broadcasters as well as service providers. The transition from analogue transmission to digital broadcast system implies that limited radio frequency will be used in transfer of television signals. The digital system enhances the transmission and delivery of government information, creation of public awareness, creation of new employment opportunities and skills, promotes new investment opportunities, among other vast pros.

On top of that, the amount of information the digital system broadcast, the digitalization of TV, create room for the integration with other networks of communication. In a technical context, the television services can be offered by alternative network systems including internet protocol adapted by high-speed network. The presentation of numerous differentials is quite technical that the traditional terrestrial signal transmission lack the capacity to propose; viewers have vast options to choose the desired content, high flexibility, besides a place and time of content use via the machine the user decides for example a portable terminal, a television or even a computer.

With reference to the theoretical framework of the research, *Diffusion of Innovations Theory*, these characteristics of the innovation (digital broadcast) had a significant impact on the uptake of the innovation by Kenyans. In particular, the high relative advantage, testability, less complexity to learn and few potential adversaries makes the digital system more preferable to the analogue one. However, its incompatibility with the then existing system compromised its uptake because consumers had to completely abandon the traditional analogue system and purchase and install the appropriate equipment to enable them receive digital signals. In fact, this was the root cause of all the empirical challenges that faced by all the stakeholders in the digitalization process. The digital transition process was never perceived as something simple for the government of Kenya just like other African states to undertake. Therefore, it was up to the individual state to overcome the challenges and prove to other ITU affiliate members that it was ready to embark on the migration.

Digitalization has the potential to offer new openness coupled with diversity to the broadcast sector by developing multiple new channels, specifically through downsizing of the amount of frequencies necessary for one station's broadcast. Contrary to the LDCs, the process is relatively costly and highly politicized. The nature of political interplay within the process is a potential threat to freedom of information and democracy in the country, and in circumstances where the applicant of frequency is in the opposition side to the current government.

#### 4. Conclusion

It is important to note that transition from analogue to digital migration was a process that had to take place, whether a country was prepared or not. By the time Kenya was initiating the programme; several states in Europe had already completed their migration while some in Africa such as South Africa had already embraced the innovation and made impressive progress.

Kenya embarked on the digitalization programme due to the binding treaty with the ITU that resolved that all affiliate states to shift to digital broadcasting by 17 June 2015. In Kenya, the implementing agency sought to set particular deadlines in the country to catalyze the uptake of the set-top boxes as well as to motivate local vendors to boost their stock. However, as much as digital broadcasting is necessary and critical at the global and national level, it brings forth practical challenges. The forerunners of the race in implementing the process from analogue to digital migration encountered several practical challenges.

With regard to the digitalization process in Kenya, the practical challenges included whether the public would afford to purchase and maintain the set-top boxes, how and who will run the signal carriers, whether the set deadline was realistic, how public will get aware about the process and the challenges they would face thereafter. The outright bottlenecks included the cost of new equipment that could accommodate the advanced encoding algorithms for digital data within the air interface. The government, broadcast companies and media consumers had to acquire these equipments to access the digital signals. This venture was expensive for all these parties.

Kenya was not ready for the migration from analogue to digital broadcasting. Most of the local media houses as well as the majority of Kenyans were not ready to embark on the transition from analogue to digital broadcasting. The standoff between the government (through the regulatory bodies) and broadcast companies explains the claim that Kenya was not adequately prepared for the uptake of this innovation. To compound the situation, there was a profound public outcry that concerned the analogue switch-off. In fact, a good number of local viewers were left in broadcast 'blackout' when the analogue system was shut down for the first time.

Nonetheless, the nationwide shift from analogue broadcasting to digital broadcasting is an initiative that bears profound influence on many individuals and business enterprises both in a positive and negative way. Digitalization has the potential to offer new openness coupled with diversity to the broadcast sector by developing multiple new channels, specifically through downsizing of the amount of frequencies necessary for one station's broadcast. Contrary to the LDCs, the process is relatively costly and highly politicized. The nature of political interplay within the process is a potential threat to freedom of information and democracy in the country, and in circumstances where the applicant of frequency is in the opposition side to the current government.

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