

**A DESCRIPTIVE STUDY OF CHALLENGES MITIGATING AGAINST SUCCESSFUL
SWITCHING FROM ANALOGUE TO DIGITAL TRANSMISSION IN TELEVISION
STATIONS IN GHANA**

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Abstract

This study investigates the challenges faced by television stations in Ghana towards migrating from analogue to digital transmission. To answer the research objectives, a descriptive survey was adapted to uncover the challenges faced by television stations towards meeting the tentative deadline for analogue transmission in Ghana by September 2017. The result revealed that the prominent challenges hindering successful switching from analogue to digital transmission are high cost of implementation, limited digital transmission training and awareness and poor or inadequate telecommunication infrastructure. The study recommends that the government should increase funding to the television stations to meet the deadline set by International Telecommunication Union (ITU) slated for June 17, 2020. Training and awareness should be conducted for television stations staff and the public to enlighten them of the benefits associated with digital transmission.

1.0 Introduction

In 2010, the Government of Ghana through the Minister of Information set up a national digital broadcasting migration technical committee comprising of 24-members to formulate policy and recommendation for successful transition from analogue to digital transmission in line with Geneva 2006 agreement of International Telecommunication Union (ITU).

The digital transmission will bring about more efficient use of radio frequency spectrum and enhance better pictures, more channels and sound quality. This migration is in line with global standards and it will position Ghanaian television stations to compete on a global platform. The initial deadline for digital switch set by ITU was June 17, 2015. Due to some constraints, the country and some other developing countries were unable to meet the deadline in which caused for a deadline shift till June 17, 2020 by ITU. Though Ghana is considering extending the national deadline till September 2017 due to the failure to meet national deadline of March 2016 which was initially set by the government under the Ministry of communications.

The argument in support of digital transmission according to Sarpong, Frimpong and Akom (2016) was that it will free up spectrum for wireless communication and mobile television so that the free spectrum can be utilized for other social and economic benefit. The freed-up spectrum can also be referred to as digital dividends. Sarpong et al. (2016) highlighted several benefits of digital broadcasting which includes: increase in coverage area, consumer benefits, lower barrier of entry, enhanced competition and efficient use of spectrum.

According to Owusu (2011), the major challenges facing adoption of technology innovation is management incompetence. Due to inability of Ghana to meet the deadline set on two different occasions, there is a need to look at the possible challenges hindering the successful switching from analogue to digital transmission. Therefore, this paper focuses on uncovering the challenges faced by television stations in Ghana towards switching from analogue to digital transmission.

2.0 Literature Review

The rate of adoption of technological innovations is growing every day from all size of organizations from developed to developing countries. Agboh (2015) investigated the drivers and challenges of technology innovation adoption by SMEs in Accra. The first and second most important drivers of technology innovation adoption according to Agboh (2015) was customer service and responsiveness and ability to compete (competitive advantage) which corresponds to Laudon, K. and Laudon, J. (2014) six strategic business objectives that makes firm invest in ICT; operational excellence, new products, services and business models, customer and supplier intimacy, improved decision making, competitive advantage and survival. The study revealed that high cost of implementation is the major challenges facing technology innovation adoption by SMEs and was consistent with Eze, Awa, Okoye, Emecheta and Anazodo (2013). According to Alkalbani, Rezgui, Vorakulpipat and Wilson (2013), cost was identified as the major barrier to technology adoption and implementation. It was further revealed that cultural barrier was one of limitation facing technology adoption in construction firms in Oman and most of them lack ICT strategy.

Cudanov and Jasko (2012) studied the dominant management orientation (management orientation towards result and management orientation towards people) and their significant difference with

technology adoption. The general objective of the study was to discover if technology adoption will have different level if dominant management orientation is towards result to towards people. The study also seeks for find if the result will change when leaders are excluded from technology adoption. The findings revealed that there was statistically significant difference between management orientation towards result and management orientation towards people in technology adoption whereas; there was no statistically significant difference if the technology leaders were excluded. Though, empirical studies show that management orientation by result was better in technology adoption. The result didn't negate the importance of management orientation by people but only portray that for better adoption of technology, management orientation by result was better. Transformational leaders are known to be motivators. They inspire and influence subordinates and can be seen of more of management orientation by people. Waziri, Ali and Aliagha (2015) stated that transformational leadership style had positive and direct influence on technology adoption.

Haller and Siedschlag (2011) in their quest to analyse the intra-inter firm diffusion in Irish Manufacturing firms used theory of new technology diffusion and test for rank and epidemic effects using econometrics model. The study revealed that bigger firms, skills and export intensive firms located in capital cities are successful in technology adoption and use and there exist positive spill overs from firm that also adopted technology in the same sector. Similar studies done by Hidalgo and López (2009) revealed that transport and logistics services had interrelation with other economic sectors and advancement in the sector will have a spill-over impact on other sectors.

3.0 Methodology

The study employs a survey research design. The population of the study comprised of all employees of television stations in Ghana while the sample frame was limited to staff of television station in Accra due to high concentration of television station in the capital city. Out of a total of one hundred and sixty (160) questionnaires administered to staffs of television stations in Accra, only one hundred and thirty-one (131) were properly filled and returned. The one hundred and thirty-one (131) returned questionnaire was used as the sample size of the study.

A pilot study with twenty-nine (29) respondents was conducted before administering the questionnaire to retest the adapted instruments and test its reliability. All items were loaded on a 5-point Likert scale, anchored by Strongly Disagree (1) at one end to Strongly Agree (5) at the other end. The result revealed that the scales are reliable as the Cronbach alpha coefficient ranges was 0.55. Although the commonly acceptable reliability threshold value is $\geq .70$ but Hilton, Brownlow, McMurray and Cozens (2004) stated that values not less than 0.50 is also acceptable. The table below shows the Cronbach alpha coefficients for all the scales.

Table 1
Reliability Analysis for Pilot Study

Variable	Cronbach Alpha
Challenges of Analogue to Digital Transmission	0.55

Sources: Authors' Computation (2017)

Table 2
Summary of Research Instruments

Variable	Source	No of questions
Challenges of Analogue to Digital Transmission	Agboh (2015)	10

Sources: Authors' Computation (2017)

Statistical Package for the Social Science (SPSS) version 21.0 was used for descriptive analysis of demographic variables, reliability analysis, as well as the mean and standard deviation of the variable. Cronbach's Alpha technique was used to determine the internal consistency of the study. The Cronbach's Alpha values was 0.71, which exceeds the threshold value is $\geq .70$. The coefficient is summarized below.

Table 3

Reliability Analysis

Variable	No of questions	Cronbach Alpha
Challenges of Analogue to Digital Transmission	10	0.71

Sources: Authors' Computation (2017).

4.0 Data Analysis and Interpretation

This section presents the properties of the data used for this study. This section comprises of the frequency and percentage of the demographic data as well as the mean and standard deviation of the variable.

Table 4**Demographic characteristics of respondents N= (131)**

Demographics	Frequency	(%)
Gender		
Male	81	61.8
Female	50	38.2
Age		
Under 18 years	0	0
18-35 years	76	58.0
36-60 years	55	42.0
Above 60 years	0	0
Education		
High School or Lower	4	3.1
Diploma	8	6.1
HND	21	16.0
Bachelor Degree	55	42.0
Master Degree	34	26.0

Professional	8	6.1
Ph.D	1	0.8
Department		
Production	19	14.5
Technical	42	32.1
Broadcasting	21	16.0
ICT	27	20.6
Engineering	22	16.8

Source: Survey Data, March 2017

Table 4 above revealed the descriptive characteristics of respondents. It showed that regarding the gender of respondents, the male dominates with (61.8%) while the female was (38.2%). The age of respondents revealed that 76 respondents were within the age of 18-35 years (58.0%), 55 were within the age of 36-60 years (42%) while none were below 18 years and above 60 years. Regarding the education background of respondents, 55 had bachelor degrees (42.0%), 34 had Master's degree (26%), 21 had HND (16%), 8 had diploma and professional certificate each, 4 had high school/ lower certificate and 1 had Ph.D. Furthermore, in terms of departments of respective respondents, it revealed that 42 respondents worked in the technical department, 27 worked in the ICT department, 22 worked in engineering department, 21 worked in broadcasting department and 19 worked in the production department.

Table 5

Challenges of Analogue to Digital Transmission

Items	N	Minimum	Maximum	Mean	SD
CADT1	131	1.00	5.00	2.95	1.17
CADT2	131	1.00	5.00	3.00	1.03
CADT3	131	1.00	5.00	3.79	1.07

CADT4	131	1.00	5.00	2.67	1.12
CADT5	131	1.00	5.00	2.60	1.10
CADT6	131	1.00	5.00	2.76	1.14
CADT7	131	1.00	5.00	2.56	1.12
CADT8	131	1.00	5.00	3.36	1.20
CADT9	131	1.00	5.00	3.60	1.19
Valid N (listwise)	131				

Note: CADT = Challenges of Analogue to Digital Transmission

Source: Survey Data, March 2017

Table 5 above showed differences in mean scores relating to challenges faced in switching from analogue to digital transmission. It revealed that high cost of implementation (CADT3) is a major challenge faced in analogue to digital transmission (M= 3.79, SD= 1.07) and it was followed closely by limited digital transmission training and awareness (CATD9) with (M= 3.60, SD= 1.19).

There are several challenges facing technological innovations in Africa. According to result of the research findings, it showed that high cost of implementation as the major challenge facing analogue to digital transmission. The finding was consistent with the previous studies of (Agboh, 2015; Eze et al., 2013; Arikpo, Osofisan & Usoro, 2009). According to Eze et al., (2013), high cost of ICT implementation has forced many organizations to ignore the effective use of ICT solutions which had led to diversion of resources to other areas that promise great and faster returns. Another pertinent problem facing successful switching from analogue to digital transmission according to this study was limited digital transmission training and awareness. The third major challenges facing analogue to digital transmission was poor and inadequate

telecommunication infrastructure. According to Agboh (2015), the challenges of many developing countries relating to ICT development are frequent power outages, poor communications infrastructure, outdated equipment and state-owned monopolies which often result in ridiculous charges and limited coverage, most especially in rural areas.

5. CONCLUSION AND RECOMMENDATION

Technological innovations were not exempted from challenges. The reason why most good technology innovations failed was due to one obstacle either during planning, implementation or post-implementation. This study revealed that the major challenge faced in the processing of switching from analogue to digital transmission was high cost of implementation. Though, limited digital transmission training and awareness also serves as impediment to analogue to digital transmission.

These results present important grounds for policy makers, government agencies and managers in implementing policies and strategies to achieve analogue to digital switch set by International Telecommunication Union (ITU) by June 17, 2020. This study thus presents the following recommendations.

1. Government should increase funding to television stations to meet the national deadline slated for September 2017 and global deadline slated for June 2020.

2. Government agencies and management of television stations should facilitate training and awareness for staff and members of the public to sensitize them on the benefits and challenges associated with analogue to digital switch.
3. The management of the television stations should be trained on participative and consultative managerial styles to bring out the best from the staff.
4. More funding should be made available to television stations to meet infrastructure inadequacies and training of technical staff.

REFERENCES

- Agboh, D. K. (2015). Drivers and challenges of ICT adoption by SMEs in Accra metropolis, Ghana. *Journal of Technology Research*, 6(1), 1-16.
- Alkalbani, S., Rezgui, Y., Vorakulpipat, C., & Wilson, I. E. (2013). ICT adoption and diffusion in the construction industry of a developing economy: The case of the sultanate of Oman. *Architectural Engineering and Design Management*, 9(1), 62-75, doi: 10.1080/17452007.2012.718861
- Arikpo, I., Osofisan, A. & Usoro, A. (2009). Bridging the digital divide: the Nigerian journey so far". *International Journal of Technology*, 1(1), 181-204.

- Čudanov, M., & Jaško, O. (2012) Adoption of information and communication technologies and dominant management orientation in organisations. *Behaviour & Information Technology*, 31(5), 509-523, doi: 10.1080/0144929X.2010.499520
- Eze, S. C., Awa, H. O., Okoye, J. C., Emecheta, B. C. & Anazodo, R. O. (2013). Determinant factors of information communication technology (ICT) adoption by government-owned universities in Nigeria: A qualitative approach. *Journal of Enterprise Information Management*, 26(4), 427-443. <http://dx.doi.org/10.1108/JEIM-05-2013-0024>
- Haller, S. A., & Siedschlag, I. (2011) Determinants of ICT adoption: Evidence from firm- level data. *Applied Economics*, 43(26), 3775-3788, doi: 10.1080/00036841003724411
- Hidalgo, A., & López, V. (2009) Drivers and impacts of ICT adoption on transport and logistics services, *Asian Journal of Technology Innovation*, 17(2), 27-47, doi: 10.1080/19761597.2009.9668672
- Hinton, P. R., Brownlow, C., McMurray, I., & Cozens, B. (2004). *SPSS explained*. Routledge, London.
- Laudon, K. C., & Laudon, J. P. (2014). *Management information system: Managing digital firm*, 13th edition, ISBN: 978-0-13-305069-1. Pearson Education.
- Owusu, A. D. (2011). *The impact of ICT on human resource development in Ghana; The case of rural enterprises project – Ghana* (Unpublished master's thesis). Kwame Nkrumah University of Science and Technology, Kumasi.
- Sarpong, K. N., Frimpong, B. A., & Akom, K. (2016). Ghana's readiness to pull the plug on analogue transmission in 2016. *International Journal of Science and Research (IJSR)*, 5(5), 1469-1477.

Waziri, A. Y., Ali, K. N., & Aliagha, G. U. (2015). The Influence of transformational leadership style on ICT adoption in the Nigerian construction industry. *Asian Social Science*, 11(18), 123-133.