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# Framework for government ICT disruptive innovation projects: a case study of digital TV migration in Kenya

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# **Framework for Government ICT Disruptive Innovation Projects: A Case Study of Digital TV Migration in Kenya**

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**Ignatius Kimanthi**

Research dissertation submitted to Strathmore Business School in partial fulfilment of the requirements for Masters of Business Administration

**Strathmore Business School**

**Strathmore University**

**Nairobi, Kenya**

**April 2016**

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Ignatius Kimanathi

April 2016

## Approval

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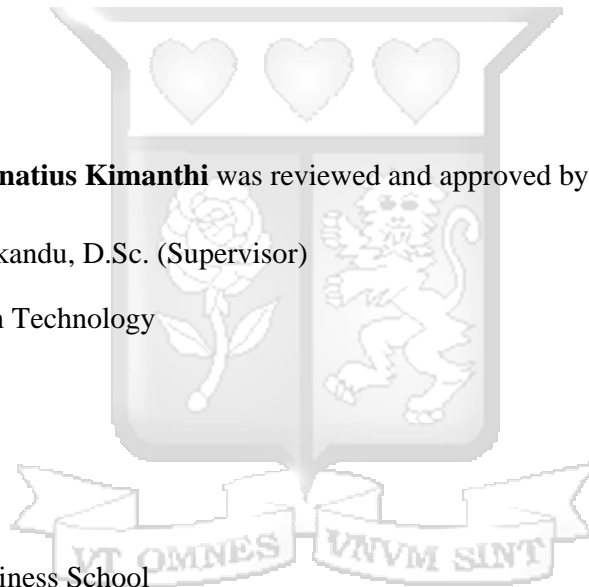
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## **Abstract**

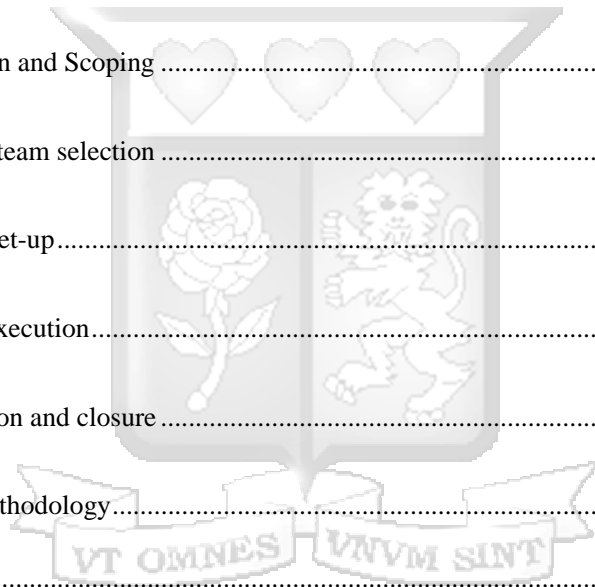
Disruptive innovation has become popular with the high competition in the market place and market space. Disruptive innovations provide new ways to deliver value and have the potential to reshape business processes or an entire industry. Due to its wide adoption in business processes, technology has been at the center of disruptive innovations. The television industry in Kenya has undergone such a disruption owing to the International Telecommunications Unions declaration for migration of television broadcasting from analogue to digital. This was one of the several disruptive innovation ICT projects that the government of Kenya has undertaken. More ICT disruptive innovations are expected in future as the Kenyan government plans to achieve the vision 2030 strategic plan partly through ICT. This dissertation proposes a framework for steering disruptive innovation ICT projects and uses the case of digital television migration in Kenya to validate the proposed framework. The foothold of this research is on the existing knowledge in management of e-government projects, managing change and achieving project goals with stakeholders' contribution. The validation of the proposed framework is based on the premise that the quantitative enquiry collects quality data that is sufficient to be used for evaluative purposes. The key contribution will be to provide an all-round approach to steering disruptive innovation projects successfully by the Government.

Key words: Disruptive innovation, Digital television migration, broadcasting, Government projects and project success.

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## Abbreviations/ Acronyms

<b>ASO</b>	-	Analogue switch - off
<b>CAK</b>	-	Communications Authority of Kenya
<b>COFEK</b>	-	Consumer Federation of Kenya
<b>DTC</b>	-	Digital Television Committee
<b>DTTB</b>	-	Digital terrestrial television broadcasting
<b>DVB</b>	-	Digital Video Broadcasting
<b>FTA</b>	-	Free-to-Air
<b>FTTH</b>	-	Fiber to the house
<b>GDP</b>	-	Gross Domestic Product
<b>HPT</b>	-	High Performance Team
<b>ITU</b>	-	International Telecommunications Union
<b>KFC</b>	-	Kenya Film Commission
<b>KRA</b>	-	Kenya Revenue Authority
<b>MOA</b>	-	Media Owners Association
<b>NCS</b>	-	National Communication Secretariat
<b>PANG</b>	-	Pan-Africa Network Group
<b>PSB</b>	-	Public service broadcasting
<b>SADC</b>	-	Southern African Development community
<b>STB</b>	-	Set top box

# Chapter 1: Introduction

## 1.1 Background

International Telecommunications Union's (ITU) Regional Radio-communication Conference in 2006 (RRC-06) set a deadline for the transition from analogue to digital broadcasting in Europe, Africa, Middle East and the Islamic Republic of Iran to 17th June 2015 (ITU, 2006). The main objectives of this transition are to introduce efficiency in frequency use in TV broadcasting, offer possibilities for innovations and use of digital TV features and to pave way for 4G mobile services from the saved frequency bandwidth. The transition is consistent with the United Nations (UN) goal of utilizing the full potential of information and communication technologies to achieve the internationally recognized development goals. The transition end was intended to coincide with the targets set for the Millennium Development Goals.

In Kenya, digital TV migration is considered a flagship project in relation to its development blueprint - the Vision 2030. The Economic Pillar of Vision 2030 aims at achieving an average Gross Domestic Product (GDP) growth rate of 10% per annum over the next 25 years. Information and Communications Technology (ICT) is one of the key drivers for the economic pillar (Kenya Vision 2030, 2007). Digital TV migration will support the economic pillar through job creation in the area of content development, distribution of digital receiving equipment as well as rollout and maintenance of the digital signal distribution infrastructure.

Digital migration will also generate foreign exchange and attract direct foreign investment in form of content service provider and infrastructure providers. The frequencies that will be saved as a result of transitioning to digital broadcasting, otherwise known as digital dividend, shall be used to roll out broadband and mobile services (Digital Kenya, 2012). In support of the correlation between ICT and economic growth, a World Bank publication alludes that a 10% increase in broadband connections would lead to a positive economic growth by 1.3% in developing countries (Khalil, Dongier & Zhen-Wei, 2009).

## 1.2 Problem definition

In March 2007, the Government of Kenya started the Digital Migration journey leading to the formation of Digital Television Committee (DTC) in 2008. The provision of Digital Terrestrial Television Broadcasting (DTTB) kicked off on 9th December 2009 and by November 2012 a larger part of the country been covered with the digital signal (Digital Kenya, 2012). Despite the huge success in digital signal coverage, Analogue switch-off (ASO) had not taken place as of December 2014. More than 5 ASO deadlines in Nairobi region were missed since June 2012 (MoICT, 2014). According to a survey conducted by Consumers Federation of Kenya, majority of Kenyans rate the DTC performance in handling the digital TV migration process at below 50% (COFEK, 2013). In Africa, Mauritius and Tanzania have succeeded in ASO, with Rwanda also making good progress (Schumann, 2013). In Europe, ASO has been smooth, with UK, the biggest TV Market in Europe, completing its in 2012 (Digital UK, 2013; Suarez, 2007).

Digital migration, which comprises of provision of DTTB and subsequent ASO, has been described as a disruptive technology that introduces changes in existing order (Galperin, 2004). Unlike e-Government projects which are for the use and benefit of Government departments (Gordon, 2002), digital migrations have been conducted by the Governments for adoption and use by the media industry and TV viewers. Published research in ICT project success factors has mainly focused on corporates. Studies related to Governments have focused on e-Government projects and those projects that deliver products for its own use (Gichoya, 2005; Goldfinch, 2007; Sarantis, Smithson, Charalabidis & Askounis, 2010; Qassim, 2010; Abdelsalam, Reddick & El Kadi, 2012; Ibrahim, 2012). Information and Communications Technology (ICT) is one of the key drivers for the economic pillar of the Kenya's development blueprint - the Vision 2030 (Kenya Vision 2030, 2007).

Past ICT projects by the Kenya Government have failed. The digital villages project dubbed as 'Pasha' aimed at providing digital services in the rural areas was a failure (Akoth, Wanyoike and Mokaya, 2014).

According to the Ministry of information, communications and technology's strategic Plan 2013-2017, the government intends to make Kenya globally competitive through investments in expansion, development and modernization of roads, rail, ports, ICT and telecommunications, congruent with the enablers and Macro pillar of vision 2030 (MoICT, 2013). Some of these initiatives under this premise will be disruptive innovations. From the past trend, these initiatives will fail and so hinder the realization of the development goals. There is, therefore, a need for a framework for guiding Government ICT disruptive innovation projects into successful implementation.

### **1.3 Research Objectives**

- i. To review the execution of digital terrestrial television migration in Kenya.
- ii. To examine frameworks for understanding and measuring success in Government ICT projects.
- iii. To propose a framework for understanding success and failure factors in Government disruptive ICT projects in Kenya.
- iv. To validate the success/failure framework using the digital migration case in Kenya.

### **1.4 Research Questions**

- i. How was the execution of Digital terrestrial migration in Kenya?
- ii. What are the frameworks leading to a comprehensive understanding of ICT project success, especially in Government?
- iii. What framework could describe the success and failure factors in ICT disruptive projects in Government?
- iv. How valid is the success/failure framework for disruptive innovations?

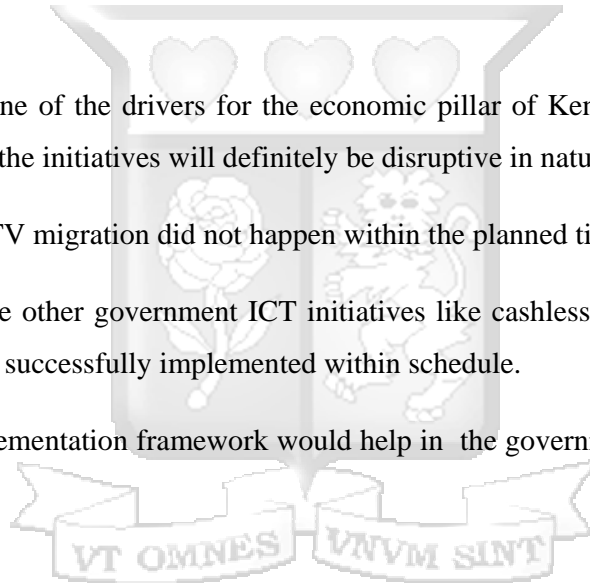
## **1.5 Scope of the study**

The research will suggest a framework for implementation of disruptive ICT projects and validate it using the digital migration project in Kenya. The validation will be limited to DTC and its activities regarding the digital migration from its formation in 2008 to December 2014. The main limitation will be the evaluation of net benefits of digital TV migration in Kenya since they take a while before realization.

## **1.6 Significance of the study**

The findings of this research will be relevant to current and future committees tasked with implementation of flagship ICT projects in Kenya. This study is motivated by the recognition that:

- i. ICT is one of the drivers for the economic pillar of Kenya's Vision 2030 and some of the initiatives will definitely be disruptive in nature.
- ii. Digital TV migration did not happen within the planned time and schedule.
- iii. There are other government ICT initiatives like cashless fare system that have not been successfully implemented within schedule.
- iv. An implementation framework would help in the governing ICT projects in the country.



## Chapter 2: Literature Review

### 2.1 Introduction

Television digitization has been coined to indicate the transition from analogue to digital transmission of television content. Three different broadcast delivery platforms for television signal are traditionally distinguished as terrestrial, cable and satellite. Digitization encompasses the migration from old television medium to the digital equivalents for each of the platforms: digital terrestrial television (DTT/DVB-T), digital cable (DVB-C) and digital satellite (DVB-S) (Pagani, 2003).

Digital cable and digital satellite platforms present financial limitations and have been adopted largely by commercial broadcasters who offer pay-TV services. On the other hand, the terrestrial platform has been adopted by Public service broadcasters due to its extensive adoption and penetration (Verdegem, Hauttekeete & De Marez, 2008). Public service broadcasters (PSB) have a strong regard to the principle of universal access - being accessible to every citizen under the same conditions. Under this principle, no individual may be impeded by financial or geographical obstacles to TV viewership. Unlike the commercial broadcasters, they have a strong sense of responsibility towards the public and the government (Verdegem, Hauttekeete & De Marez, 2008). They generate income through adverts and government support.

The migration to DTT is in accordance to the resolutions of International Telecommunications Union's (ITU) Regional Radio-communication Conference in 2006 (RRC-06)(ITU, 2006). Despite the agreed deadline of 17th June 2015, both local and regional organizations have set their own deadlines for the member countries. The European Union proposed beginning of 2012 as the deadline for analogue switch off for its members. The Association of Regulators for Information and Communications in Eastern and Southern Africa (ARICEA) set a digital switch-on date December 2012 and analog switch off date of June 2014 for COMESA member States (ARICEA,

2011). Countries went further to set their own ASO dates; digital Kenya set an ASO date of 30 June 2012 (Digital Kenya, 2012). Due to the drive by the regulators, digital migration has been viewed as not being demand-led and non-responsive to the consumer market-place, but mainly supply-side driven (Verdegem, Hautekeete & De Marez, 2008)

According to ITU (2006), the main objectives of this transition are to: (i) introduce efficiency in frequency use in TV broadcasting, (ii) offer possibilities for innovations and use of digital TV features and (iii) to pave way for 4G mobile services from the saved frequency bandwidth. The transition is consistent with the United Nations (UN) goal of utilizing the full potential of information and communication technologies to achieve the internationally recognized development goals. The benefits of terrestrial digital broadcast over the analogue system are, among others: expanded services, higher quality video and audio, greater variety and faster rates of data transmission, consistency of data flows over long distances and more spectrum efficiency which facilitates more channels (ITU, 2006).

## **2.2 Digital Broadcasting Migration Stakeholders**

According to Qassim (2010), one of the reasons for ICT project failure is conflict among the stakeholders. The people whose work lives are affected directly or indirectly by a transition are called stakeholders. The relative acceptance of or resistance to the transition by these people must be acknowledged by all innovations and institutional/industry change drivers. The stakeholders must also understand how the change will impact their work and the change drivers must find ways of managing their reactions to that transition (Goenner, Karki, Merrill, Storey, & Sullivan, 2011). There is, therefore, the need for projects to identify and manage stakeholders effectively.

The Roadmap for Digital Broadcasting Migration Implementation published by the Association of Regulators for Information and Communications in Eastern and Southern Africa (ARICEA) under the auspices of ITU gives recommendations to the COMESA countries on their digital migrations. The roadmap borrows a lot from

Southern African Development community (SADC), East African Community (EAC) and West African Telecommunications Regulators Assembly (WATRA) migration roadmaps. It identifies six key stake holders and their critical roles. The stakeholders are: the government, the regulator, the broadcaster and signal distributors, the equipment manufacturers, the consumers and consumer organizations and the regional bodies like ARICEA, EAC, SADC, etc. (ARICEA, 2011).

The governments are seen as having a leading role in developing policies and strategies for successful digital migration and ensuring that consumers have the necessary support in order to benefit from digital broadcasting. The main contribution is through provision of institutional, policy, legislative and regulatory framework to enable smooth execution of migration process within the set time. Fiscal and other incentives by the government could support signal distributors, the consumers and the broadcasters (ITU, 2006). According to Digital Kenya (2012), the main roles of the regulator are to coordinate spectrum management with neighboring countries (since waves do not know the boundaries), allocate broadcasting spectrum to broadcaster, institute measures for safe disposal of disused analogue systems to minimize environmental impact and drive consumer awareness.

Broadcasters as stakeholders have the role of developing digital content, adapting the studios and production equipment to digital content and building human capacity to handle the new technology. Signal distributors on the other hand have the role of transmitting the digital content from broadcasters to the designated areas and providing this service in a fair, reasonable, equitable and non-discriminatory manner (ARICEA, 2011). The equipment manufacturers have the role of providing products that adhere to the approved standards and supporting research and development in the areas relating to digital migration. The consumers have the role of adopting the digital technology by acquiring necessary equipment to receive digital terrestrial transmission. Consumer associations' main role is to guard against consumer exploitation through unfair market practices (Digital Kenya, 2012). As a regional organization, ARICEA has a major role in creating the platform for regional coordination and knowledge sharing, policy harmonization, capacity building and the implementation of the roadmap for digital migration (ARICEA, 2011).

This roadmap by ARICEA ignores two key stakeholders who are relevant to the Kenyan context; the existing digital broadcasters and the consumer equipment (STB) vendors (Digital Kenya, 2012). In Kenya the two main existing digital broadcasters are Wananchi group under the brand name Zuku and Multichoice Africa under the brand DSTV. They both provide pay-tv services. Zuku broadcasts its digital content via Satellite network as well as via its fiber-to-the-house (FTTH) network. DSTV relies entirely on satellite system for digital transmission. These stakeholders are significant because digital migration will introduce pay-tv services over the DTTB platform. As opposed to existing digital broadcasters who have invested colossal amounts of money in building their own transmission networks, the broadcasters using DTTB will enter the market cheaply with payment of monthly fees to the signal distributors who own the transmission network (Picard & Chon, 2004).

On the consumer equipment vendors, price sensitivity of most consumers in Kenya drive suppliers towards counterfeits and sub-standard goods. Like many other Africa countries, Kenya has been known to be a dumping ground for cheap products (Whitby, 2010). It is highly unlikely that equipment manufacturers will play a significant role in Kenya's digital migration, but rather their distribution partners and other independent vendors. According to CCK (2013), all the vendors of the STBs must get their type approval before they can sell to consumer but this requirement may not lock out counterfeits. If a great amount of counterfeits is detected in the market, consequently the customer's confidence in adopting digital migration is negatively impacted.

### **2.3 Television Broadcasting Sector in Kenya**

According to Kenya's 2009 population & housing Census results, 28% of Kenyan households own a TV-set to make the total number of TV sets 2,456,594 (Kenya National Bureau of Statistics, 2009). 2013 estimates by the same organization give a larger figure of about 4,000,000 TV Sets. TV viewership in Kenya is high with 59% of Kenyans being exposed to television viewership on a daily basis according to Kenya Film Commission (KFC, 2012). There were fifteen Free-to-Air (FTA) TV channels on-air in Kenya in March 2012 according to a research conducted by Deloitte. The number of FTA channels on air is currently higher to around 25 following the licensing of new

broadcasters to bring the total number of TV broadcast licenses to 108. Advertising spend on TV in Kenya has grown exponentially over the years from Ksh 3.2 billion in 1999 to Ksh 49.2B in 2009 (IPSOS Synovate, 2010). The government has spent more than US\$400 million in the DTTB migration and ASO efforts, of which US\$300 million was spent in building infrastructure for DTT while the signal distributors had spent over \$100 million on the importation of set up boxes (Digital Kenya, 2012).

## **2.4 Digital Television Migration Journey in Kenya**

The Digital Television Committee (DTC) formed by the government in 2009 drew its members from the Ministry of Information, Communications and Technology (MoICT), Communications Commission of Kenya (CCK) - recently transformed to Communications Authority of Kenya (CAK), Kenya Broadcasting Corporation (KBC), National Communication Secretariat (NCS) and representatives from the Media Owners Association (MOA) and was chaired by the Permanent Secretary for Information and Communications. The DTC developed a roadmap for the digital migration in close reference to ITU recommendations. The roadmap mainly involves provision of digital terrestrial television broadcasting (DTTB) through appointed signal distributors, transition of media content into digital format by broadcasters and subsequent Analogue switch-off (ASO). The appointed signal distributors are Signet, a subsidiary Kenya Broadcasting Corporation (KBC) licensed in 2009, and Pan-Africa Network Group (PANG) which is privately owned and licensed in 2011 (Digital Kenya, 2012). Three media houses – Nation media, Royal Media Services and Standard group – came together in 2014 to form African Digital Network (ADN) and through protracted court battles were issued with the third signal distribution license. The three TV broadcasters in the ADN consortium are all incumbents and collectively command nearly 70% of TV viewership in Kenya (CAK, 2015).

According to CCK (2013), the provision of digital terrestrial television broadcasting (DTTB) as the first main step in the roadmap kicked off on 9th December 2009 and has been quite successful. The digital Broadcasting status report of November 2012 showed that a larger part of the country was covered; Nairobi, Mombasa, Nakuru, Kisumu, Nyeri, Meru, Eldoret, Malindi, Webuye and Kisii. At the same time several

existing broadcasters as well as newly licensed ones were already sending their free-to-air (FTA) content via the digital platform. In contrast to the FTA, both Go-TV and Startimes were providing pay-TV via the Digital terrestrial platform.

Strides were made on the digitization of the viewer's equipment. The Government waived import duty on set top boxes with an aim of making them affordable. However, it was not possible for the National Treasury to waive VAT and the Railway Levy that are currently imposed on the set top boxes (DigitalKenya, 2013). As at the end of December 2013, the total number of type approved digital equipment was over 50 FTA STB models, 3 Pay TV STBs and 4 Integrated Digital TVs. From the Kenya Revenue Authority (KRA) returns received from set top box vendors by end of January 2014, over 1,500,000 FTA and Pay TV set top boxes had been sold by vendors (MoICT, 2015).

The DTC launched consumer awareness campaign for digital migration on 23rd October 2013 with an aim to achieve the desired result of successful analog switch off in the first phase of Nairobi and environs. The planned campaign activities were: Television commercials on ten TV stations, Radio Advertisements on six radio stations, Press Adverts in six leading newspapers, two open days on digital migration, mobile clinics around Nairobi for 14 days ahead of the switch off, and public relations activities in the media (MoICT, 2015).

In the Roadmap the DTC adopted phased simulcast approach to ASO whereby the terrestrial digital broadcasting would co-exist with the analog predecessor for three years before the analog signal is finally shut down completely, and this would be phased according to regions. The initial own target date for ASO in Nairobi and its environs was 30 June 2012. This deadline passed without much activity and the date was moved to 31 December 2012. Again this deadline was missed and according to the CCK director general, the main reasons were that the country (Kenya) was moving into an election and secondly, the digital set top boxes were still very expensive. The next confirmed target date for Analogue Switch-off in Nairobi was 13 December 2013. Nairobi would be the first to be switched off followed by Mombasa, Malindi, Nyeri, Meru, Kisumu, Webuye, Kisii, Nakuru and Eldoret from March 30, 2014

(DigitalKenya, 2013). The set precedence of missed deadline persisted when in October the government through the Information Cabinet Secretary announced the change of date for switch-off to 17<sup>th</sup> June 2014 (Daily Nation 2013, October 30). As of 31st December 2014, the ASO had not happened.

## **2.5 Frameworks for Success in Government ICT Projects**

### **2.5.1 Defining Success**

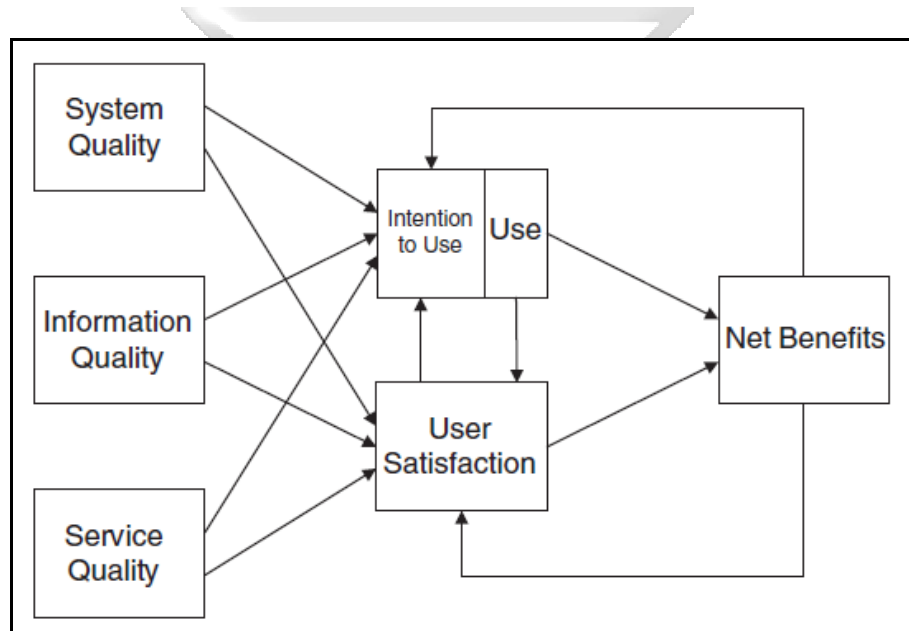
It is difficult to define the concept of project success. Research on project success generally falls into one of the two categories: either they deal with project success criteria (or dimensions) or they examine critical success factors. Project success criteria refers to a group of principles that judge project success, and critical success factors refer more specifically to conditions, events, and circumstances that contribute to project results (Ika, 2009). According to Thomas and Fernandez (2008), a manager should know the criteria by which success is measured in order to lead an ICT project towards high levels of success. Fulfilling these criteria should be the project management's prime concern. For a long time the triple constraints of a project management (time, cost, specification) were accepted as standard success criteria.

Determining whether an ICT project was a success or a failure is far more complicated, and the different stakeholders might perceive project success differently (Ingram, 2000). User satisfaction is a prime criterion for the end users while project team members focus on short term operational criteria – on time, within budget, and to specification implementation. The management focus is mainly on the long-term gains - financial or commercial success – followed by operational criteria (Thomas & Fernandez, 2008).

Project success consists of the two main dimensions: project management (or process) success and product success (Baste, Joosten & Mellis, 2011). Project management success can be measured in terms of adherence to planning, that is, the degree to which the defined project objectives are fulfilled (Ika, 2009). From this, project management success represents an internal and rather short term perspective of a project. On the other hand, product success represents a more external perspective that includes long

term criteria like the customer perspective and the product as the project's outcome (Baste, Joosten & Mellis, 2011). The triple constraints of time, cost, and quality and other process criteria are objective. The product success criteria pertains subjective perceptions evaluated by the satisfaction of different stakeholder groups with regard to the project and its outcomes (Ika, 2009).

The DeLone & McLean Information Systems Success Model (abbreviated as DM IS success model), originally formulated in 1992 and later revised in 2003 has been validated extensively and used widely in the ICT industry as a framework for conceptualising and operationalising IS success. It adopts aspects of both process and causal models (Petter, 2008). The model is depicted in the Figure 2-1.



**Figure 2-1: Updated DM IS Success model (Petter et al., 2008)**

The D&M IS success taxonomy and its six success categories are based on a process model of information systems. At the same time, the six dimensions are interrelated, resulting in a success model which indicates that causality flows in the same direction as the information process flows. The categories are further extended into the dimensions as per Table 2-1.

**Table 2-1: D &M IS Model dimensions**

<b>Systems quality</b>	<b>Information quality</b>	<b>Service quality</b>	<b>Use</b>	<b>User satisfaction</b>	<b>Net benefits</b>
Adaptability	Completeness	Assurance	Nature of use	Repeat purchases	Cost savings
Availability	Ease of understanding	Empathy	Usage patterns	Repeat visits	Expanded markets
Reliability	Personalization	Responsiveness	Extend of use	User surveys	Incremental additional sales
Response time	Relevance		Intensity of use		Reduced search costs
Usability	Security				Time saving

There is a distinctive difference between success criteria and success factors (Cooke-Davies, 2002). Success criteria are indicators that can be used to evaluate the degree of project success. In contrast, success factors are conditions or parameters that contribute to the favorable outcome of projects.

### **2.5.2 Factors for Success/Failure in Government Projects**

According to Goldfinch (2007), success rates of information systems projects in the private sector is much higher as compared to the public sector, especially in developing countries. The main reason is the many factors beyond the control of the project, most notably lack of bureaucratic inertia necessary for complete change from pre-existing systems. Other common barriers for government ICT projects are poor infrastructure, lack of finances, poor data systems and capability, lack of skilled personnel, and ineffective leadership styles (Gichoya, 2005).

There are six unique differences between public and private sectors which impact project success or failure (Sarantis, Smithson, Charalabidis, & Askounis, 2010). For one, the public sector organizations normally work on the vaguely defined goals compared to the private sector. Secondly, the project dimensions have much more complex interactions than most private sector initiatives. Thirdly, the project planning

horizon in the public sector takes longer than that of the private sector due to budget restrictions and electoral processes. Fourthly, the legal and regulatory issues are much more pronounced in the public sector. Fifthly, in the public sector decision making is of political nature which makes project management much more difficult. Lastly, the public sector is not keenly focused on profit-making, resulting to lack of urgency in certain implementations (Abdelsalam, Reddick & El Kadi, 2012).

The factors for ICT project success are the drivers and enablers whose presence or absence determines the success of the project (Riley, 2000). The drivers are the factors that reinforce the successful implementation of government ICT projects. The drivers can be listed as vision and strategy, government support, external pressure and donor support, rising consumer expectations, technological change, modernization, and globalization (Gichoya, 2004). On the other hand, enablers are the positive active social elements that aid in overcoming the potential barriers. Examples of ICT project enablers are effective project coordination, change management and good practice (Gichoya, 2004).

Goldfinch (2007) in his study of ICT project failure in public sector comes up with three types of failures: (a) Project failure - the project does not meet the agreed specification like the functional requirements, budget, or completion date (b) System failure - the system does not function properly, for instance the performance is below the expected level, or the system does deliver the expected benefits, (c) User failure - the system is not used in the face of user resistance because of such things as lack of training, ability of staff, and the complexity of the new system. Ibrahim's (2012) study on the failure factors in Government ICT project combined the ITPOSMO (Information, Technology, Processes, Objectives, Staffing and Skills, Management Systems and Structures, Other Resources) factor model proposed by Heeks in 1999 and other recent surveys to come up with six dimension failure factors. The factors are summarized in the Table 2-2 and Table 2-3.

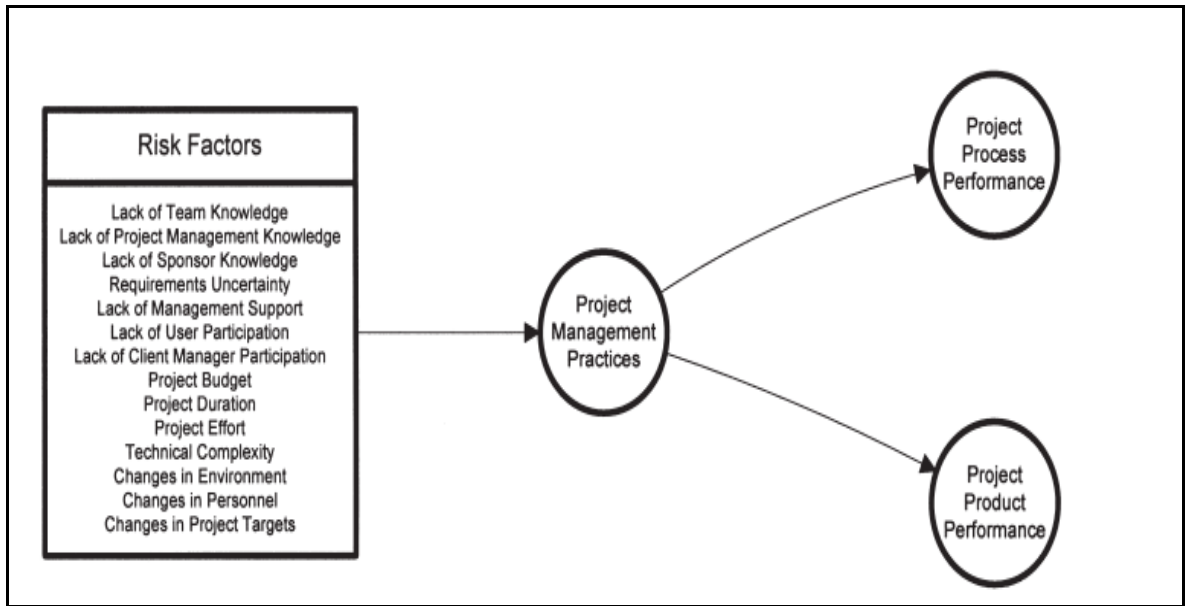
**Table 2-2: Project management, Top management and Technology failure (adopted Ibrahim, 2012).**

Failure Factors Dimensions	Classified Symptoms from the Field into Failure Types		
	Project Failure	Systems Failure	User Failure
<b>Project Management Factors</b>			
a. Lack of user /stakeholder involvement.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Mismanaging of project risk.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Inadequate estimation of work.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Breaching of contract.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Lack of project plan.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Lack of skills and knowledge in project management	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Inadequate ICT background for Project Managers	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>Top Management Factors</b>			
a. Incompetent in making decision on selecting ICT projects.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<b>Technology Factors</b>			
a. The design and technology used not in line with the current technology.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Low quality of the end products.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Low or no compatibility between new system and the existing systems.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Insufficient required hardware to interact with the systems.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Table 2-3: Organizational, Complexity and Process failure factors (adopted from Ibrahim, 2012)**

Failure Factors Dimensions	Classified Symptoms from the Field into Failure Types		
	Project Failure	Systems Failure	User Failure
Organizational Factors			
a. Inadequate cost estimation.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Reduction of Project Cost.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Lack of ICT manpower in several public agencies.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Full of bureaucracy (especially for decision making).	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Process of project payment not smooth.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Resistant to adapt to the new systems (not enough time to interact with the systems).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Complexity / Size Factors			
a. Project too big and complicated (ambitious).	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
b. Unrealistic expectations from the project champion.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Process Factors			
a. No feasibility study conducted.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. No project selection process carried out.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. No BPR process conducted.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. No standard methodology in place.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. End user is involved in user acceptance process.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. User requirement not met.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. No systematic and appropriate project evaluation process.	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
h. Ineffective communication among the vendor and user during requirement gathering.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Some researchers have used the terms ‘failure factors’ and ‘risk factors’ interchangeably. Success or failure of project process or project product is simply termed as performance (Qassim, 2010). The project management body of knowledge (PMBOK) suggests an approach where management practices are adjusted, based on the risk exposure, with higher-risk projects receiving additional attention. These management actions help to mediate the effects of risks and influence project performance (Gemino, Reich & Sauer, 2007). The model advances the list of risk factors to include project management interventions, and is summarized in the Figure 2-2.



**Figure 2-2: A Traditional Model of Risk Factors and Performance (Gemino et al., 2007)**

Gemino, Reich & Sauer (2007), in a research to help Information technology and business executives create realistic expectations for Information technology projects and improve the performance of project management, point out some weaknesses with this traditional model. The weaknesses are that the model does not consider: (a) the temporal nature of risks— that some risks may exist ahead of others, (b) the influence of earlier (a priori) risks on later (emergent) risks, (c) the differential impact of project management practices on different risk categories, and (d) the direct effects between emergent risks and performance.

## 2.6 Disruptive ICT Projects

### 2.6.1 Understanding Disruptive Innovations

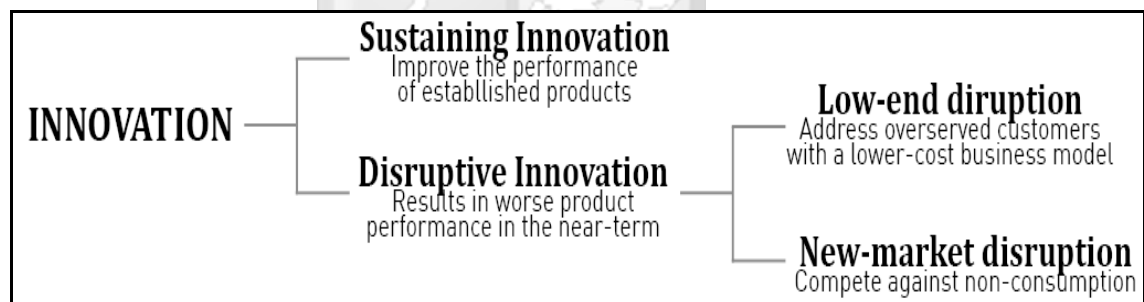
By definition, disruptive technologies provide new ways to deliver value and have the potential to reshape business processes or an entire industry. They effectively allow the rewriting of the rule book and define new ways of value creation and value exchange (Evans, 2003). A close definition by Danneels (2004) states that a disruptive technology is a technology that changes the bases of competition by changing the performance metrics along which firms compete. It renders the established technologies obsolete and therefore destroys the value of the investments that incumbents have made in those technologies.

The key theory of disruptive technology was forged by Harvard Business School Professor Clayton Christensen in his 1997 work labelled '*The Innovator's Dilemma - When New Technologies Cause Great Firms to Fail*'. The original theory has been challenged and developed by other authors (Danneels, 2004; Christensen, 2004; Govindarajan, 2006; Markides, 2006; Tellis, 2006) to bring the current meaning and understanding of the theory (Reagan, 2014). In the book, '*The Innovator's Solution. Creating and Sustaining Successful Growth*' by Christensen and Raynor (2003), the term disruptive technology is replaced by disruptive innovation, so as to broaden the theory's applicability. In this theory, the term disruption refers to the destructive impact of an innovation on established business models, market positions and consumer preferences that is the result of incumbents' inability to recognize and respond to the threat / opportunity on time (Reagan, 2014).

According to Christensen (2013), most new technologies foster improved product performance. These are called sustaining technologies. These are also known as evolutionary, continuous, incremental or 'nuts and bolts' technologies (Yu & Hang, 2010). Some sustaining technologies can be discontinuous or radical in character, while others are of an incremental nature. All the sustaining technologies improve the performance of established products, along the dimensions of performance that mainstream customers in major markets have historically valued. Most technological

advances in a given industry are sustaining in character. The sustaining technologies, whether radical or incremental, rarely precipitate the failure of leading firms.

On the other hand, there are also disruptive technologies. These are innovations that result in worse product performance, at least in the near-term. These technologies are also referred to as revolutionary, breakthrough, emergent or step-function technologies (Yu & Hang, 2010). It is the disruptive technology that precipitates the leading firms' failure by bringing to a market a very different value proposition than had been available previously (Christensen (2013). Generally, disruptive technologies underperform established products in mainstream markets, but they have other features that a few fringe customers value. Products based on disruptive technologies are typically cheaper, simpler, smaller, and, frequently, more convenient to use. There are two types of disruptive innovation: new-market and low-end. New-market disruptive innovations create new markets by bringing new features to non-consumers, while low-end disruptive innovations do not create new markets but offer more convenience or lower prices to customers at the low end of an existing market (Christensen, Anthony & Roth, 2004). The two types of disruptive innovation encroach on the mainstream market from below (Reagan, 2013). This is illustrated in figure 2-3.



**Figure 2-3: Classification of innovations (Christensen and Raynor, 2003)**

Critics of disruptive innovation theory (Carr, 2005; Govindarajan and Kopalle, 2006) have coined a third type dubbed high-end disruptive innovation or top-down disruptive innovation; the expensive and technologically superior innovation that encroach on the mainstream from above and disrupt the market. Whereas sustaining innovations constitute improvements along the established innovation trajectory within an industry,

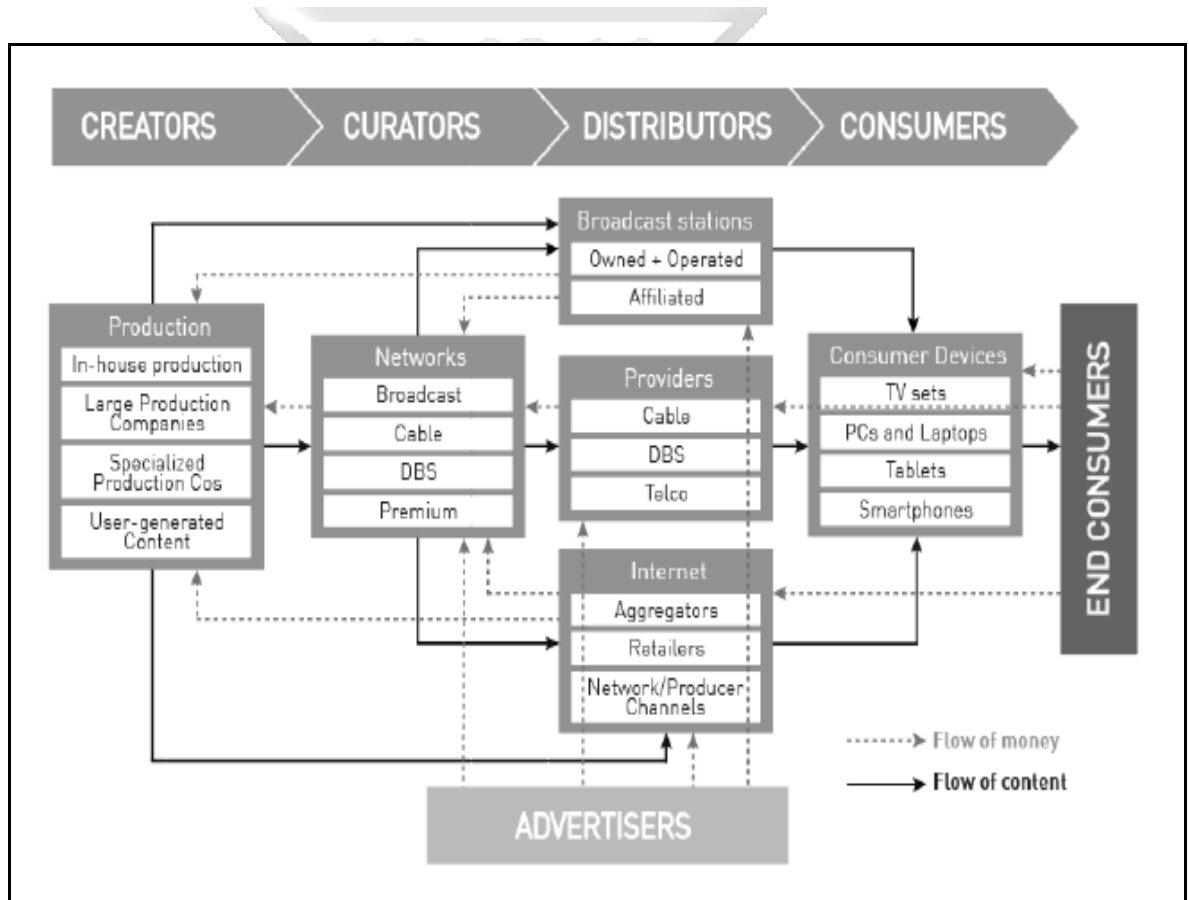
disruptive innovations offer vastly superior solutions to secondary or new needs that are not adequately met by existing products (Reagan, 2013). Christensen (1997) found that new firms that followed a disruptive innovation strategy had a much greater chance of dramatically improving their market position than those who followed a sustaining innovation strategy.

## **2.6.2 Digital Television as a Disruptive Innovation**

Galperin (2004) posits that digital TV broadcasting brings uncertainty as a disruptive technology that introduces changes in existing order. To receive the digital signal, a TV owner has two options; acquiring a digitizer called Set-top box (STB) that enables viewing with the analogue TV sets, or acquiring a new TV set with inbuilt capability to receive digital signal. In some cases where free-to-air channels are bundled with premium subscription channel, the viewer will make extra significant expenditures for hardware and service to receive the channels. This has the effect of causing disruption in the market (Picard & Chon, 2004). With DTTB, broadcasters no longer build and maintain their own transmission infrastructure but instead they will lease the broadcast signal from a common carrier company – a broadcast signal distributor. This means that existing business models in analogue TV broadcasting that were based on the then production-packaging- distribution business model are altered by digitization to focus on the production-packaging business model for digital TV broadcasting since distribution is left to the entities that have broadcasting signal distribution licenses (Ochieng, 2015). The other impact to broadcasters is the change of content to high quality video and voice (Digital Kenya, 2012).

The digitalization adds more capacity of transmission to terrestrial TV and this has the potential of attracting new entrants. This elimination of spectrum scarcity and infrastructural barriers to entry of new players would lead to audience fragmentation (Menezes & de Quadros, 2009). The fragmentation of the audience happens without significantly increasing consumption. This is because it does not affect the number of households with television and the average amount of viewing time. This in effect reduces the average size of the audience for each channel and also the desirability of each channel's advertisers (Picard & Chon, 2004). Fragmentation of audience splits the

advertising income and puts pressure on the broadcaster's revenue. This could undermine the essential pillar of the free-to-air television business model with the business seeking more sources of revenue (Menezes & de Quadros, 2009). The abundance of channels provided by the digitalization of TV would therefore aggravate the devaluation of transmission activities in the TV value chain, thus inducing a process of value shift where part of the profitability of transmission goes to other value chain activities, especially to the production of content (Todreas, 1999). As a result of all the different technologies and business models in the ecosystem, the TV value chain has become complex and dynamic. This can be simplified by segmenting it into four distinct areas: consumers, distributors, curators and creators as illustrated in the Figure 2-4 (Wessel, 2012).



**Figure 2-4: The TV industry Value Chain (Wessel, 2012)**

### 2.6.3 Change Management

Leavitt's diamond model developed in 1965 has gained considerable use in the area of information systems research. This is because the model is a system theory that can guide managers to think about how different parts of the organization are affected, when changes in another part occur. For this reason the model can be used to diagnose an organizational problem and to locate responses to organizational changes (Kræmmergaard, Lyng, Schou, & Dalby, 2008).

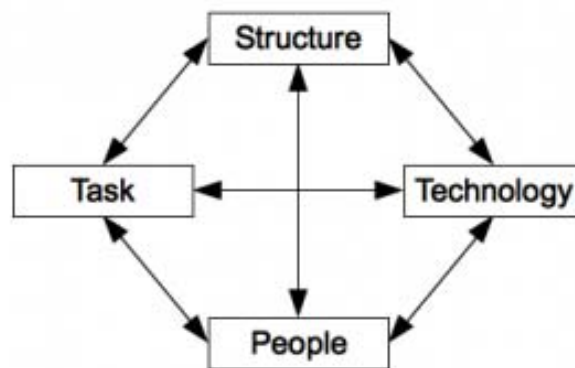
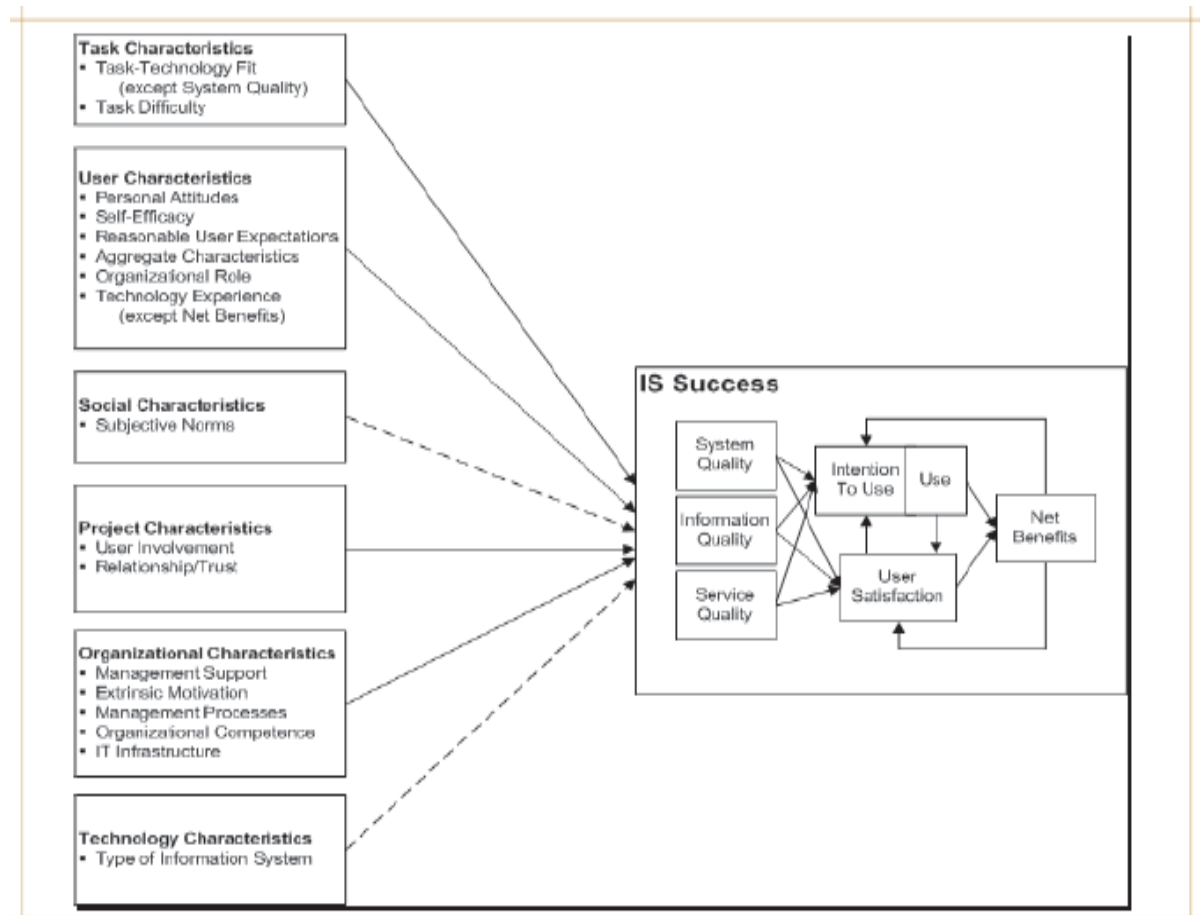


Figure 2-5: Leavitt's diamond model

Based on Leavitt's work, William DeLone revised and extended the DM IS model to include 'antecedents' of IS success. The antecedents are the prerequisites to success and include: (a) task characteristics, (b) user characteristics, (c) social characteristics, (d) project characteristics, (e) organizational characteristics and (f) technology characteristics (DeLone, 2009). The revised model is summarized in Figure 2-5.

To address sustaining or disruptive innovations, an organization needs new capabilities in form of new processes and values. Processes and values are not as flexible and adaptable as resources despite the propositions of change-management and reengineering programs. Therefore, some of the possible ways to achieve new processes and values is through (a) creation of an independent organization from the existing organization and develop within it the new processes and values required to

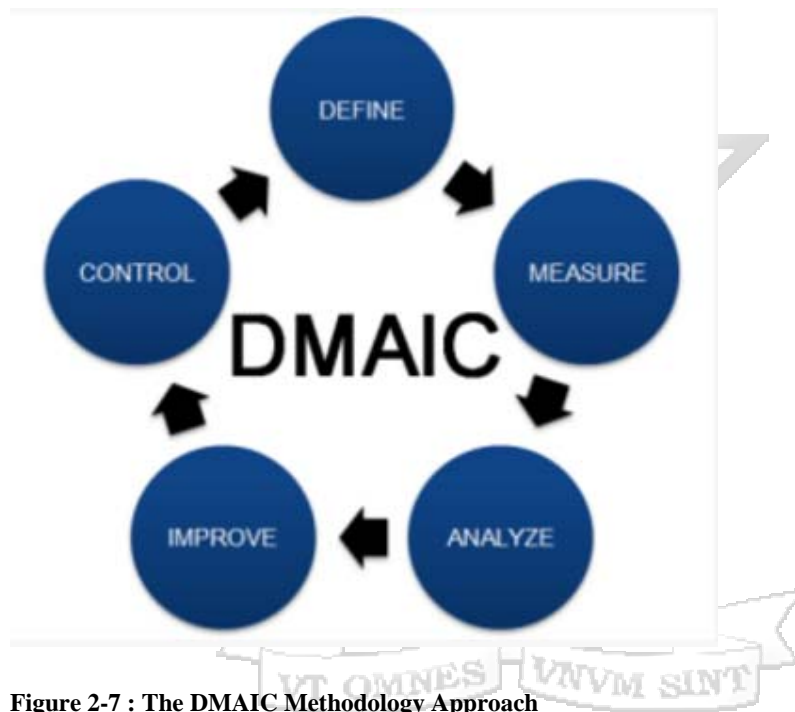
solve the new problem or (b) acquiring a different organization whose processes and values closely match the requirements of the new task (Christensen & Overdorf, 2000).



**Figure 2-6: Extended DM IS Success model**

A pivotal part of change management is getting ownership and investment for the change. This should be worked out from the vision and declared values to answer the question: “What’s in it for me?” Help people understand the logic behind the project, the value being added, and “why the status quo is no longer attainable.” All innovation and institutional change must acknowledge the relative acceptance of or resistance to the transition by the people whose work lives it affects. When a new tool or process is put in place, those affected not only have to learn a new skill; they must also understand how the change will impact their work. This forms the stakeholder management.

Improvements and gains brought about by change must be locked-in and made to stick (Kotter & Cohen, 2012). This ensures there is continuous improvement. Six-sigma has gained popularity in the industry as a continuous improvement methodology for processes and quality. Besides quality, Six Sigma is about bettering the organization's performance by improving customer value and efficiency. The methodology has the acronym DMAIC, indicating the guidelines used to **Define**, **Measure**, **Analyze**, **Improve**, and **Control** business performance (Pyzdek & Keller, 2014). The concept is depicted in figure 2 -7.



**Figure 2-7 : The DMAIC Methodology Approach**

The contribution of ICT projects towards vision 2030 would be enhanced by application of the DMAIC model since subsequent project implementations benefit from good practices attained in the previous projects.

#### **2.6.4 Leading Change**

One of the factors for project and system failure in ICT projects is the top management's incompetence (Ibrahim, 2012). Among other barriers to Government ICT projects are ineffective leadership styles. Social elements, known as enablers, that

aid in overcoming the potential barriers include effective project coordination, change management and good practice (Gichoya, 2004). To achieve high standards of performance, organisations should employ the concept of high performing teams, abbreviated as HPT (Katzenbach & Smith, 1993).

According to Bolman and Deal (2011), one aspect of change management involves putting people in the right roles and relationships. They refer this to as structural frame, which accommodates both collective goals and individual differences. The main assumptions of the structural frame are (a) Organizations exist to achieve established goals and objectives (b) Organizations increase efficiency and enhance performance through specialization and appropriate division of labor (c) Suitable forms of coordination and control ensure that diverse efforts of individuals and units mesh and (d) Organizations work best when rationality prevails over personal agendas and extraneous pressures. The Structure has a direct impact on the team performance and therefore a clear and appropriate structure is very important to leading change.

Katzenbach and Smith's research on team performance (1993) define a team as '*a small number of people with complementary skills, who are committed to a common purpose, set of performance goals and approach for which they hold themselves mutually accountable*'. If little attention is paid to what ensures success, the team members end up frustrated and wind up in endless meetings without any knowledge of why they are a team and what they are expected to do. Even highly skilled people zealously pursuing a shared mission often fail if group structure constantly generates inequity, confusion and frustration (Dumaine, 1994). The solution to the problem is focused, cohesive structure of the management team – high performing team (Katzenbach & Smith, 1993). There are six distinguishing characteristics of high performing teams (Bolman & Deal, 2011):

First, high - performing teams shape purpose and objectives in accordance to a demand or an opportunity placed in their path by higher management. The top management clarifies the team's charter, rationale, and challenge while giving the team a clear authority and autonomy to release collective energy and creativity. Secondly, high - performing teams translate common purpose into specific, measurable performance

goals. Without established specific and relevant performance goals, team members become confused, disorganized, and revert to mediocre performance. By contrast, when purpose and goals are built on one another and are combined with team commitment, they become a powerful driver of performance.

Thirdly, high - performing teams are of manageable size. Katzenbach and Smith (1993) suggest an optimal size between two and twenty - five people. A bigger team size introduces more structural complexities, and therefore teams should aim for the smallest size that can get the job done. Fourthly, high - performing teams develop the right mix of expertise. There is a critical link between specialization and expertise and effective teams seek out the full range of necessary technical fluency which benefits the team in problem solving, decision making, and interpersonal skills. This keeps the team focused on task and free of draining personal disputes.

Fifthly, high - performing teams develop a common commitment to working relationships/structure. This involves agreement on who will do particular jobs, how schedules will be set up and adhered to, what skills need to be developed, how continuing membership in the team is to be earned, and how the group will make and modify decisions. The team devotes time to establish who is best suited for a particular task as well as how individual roles come together. Responsibilities and accountabilities are assigned to an individual or a group for a given task. The framework for assigning tasks follows the acronym CAIRO: C for consults; A for approval; I for informed; R for responsibility; and O for out of the loop, or not informed.

Lastly, members of high - performing teams hold themselves collectively accountable. Besides the task structure following the CAIRO framework, effective teams find ways to hold themselves collectively accountable for the team's performance.

### **2.6.5 Stakeholder Analysis**

Lack of user /stakeholder involvement in the project is a major cause of project failure (Ibrahim, 2012). According to Goenner, Karki, Merrill, Storey, & Sullivan (2011), it is

imperative to conduct a thorough stakeholder analysis at the start of the implementation of an interruptive innovation. The main goal of the exercise is to identify the key people affected by the innovation and can influence the implementation process. An effective analysis identifies these stakeholders and also helps the implementation team to know each stakeholders influence upon and interest in the innovation. It leads to (1) an understanding of stakeholder priorities, needs and concerns and (2) a determination of the needed change regarding the cost-benefit analysis concerning the stakeholders.

A useful business tool for stakeholder analysis is the Power, Legitimacy and Urgency model developed by on Mitchell, Agle and Wood (1997-99). This model classifies stakeholders based on their salience in the organization. The salience of a stakeholder is based upon three factors: power, legitimacy and urgency. In regard to the model, power is defined as the extent to which a party has or can gain access to coercive, utilitarian or normative means to impose their will. Legitimacy is defined as 'a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions'. Urgency is defined as 'the degree to which stakeholder claims call for immediate attention'.

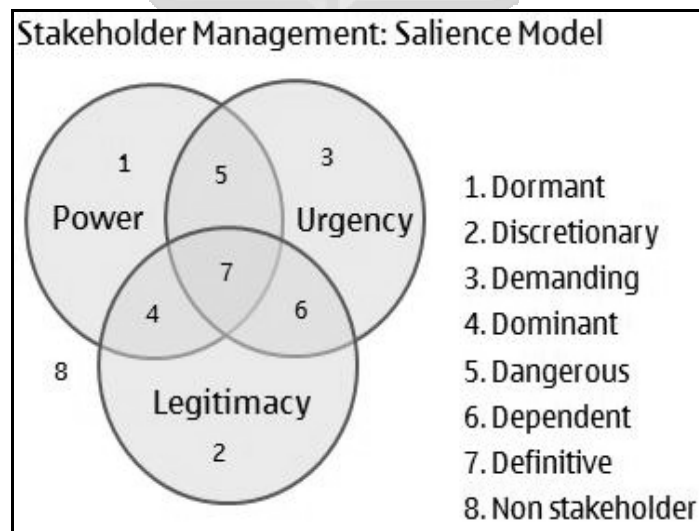


Figure 2-8: Power, Legitimacy and Urgency model (Laplume et al., 2008)

The idea of this model is to distinguish more salient or prominent stakeholders, give them priority and actively communicate with them. The model identifies 8 different stakeholder groups: dormant, latent, demanding, dominant, dangerous, dependent, and definitive and non-stakeholders. The stakeholders should be managed differently according to their needs. A stakeholder management strategy helps to keep all stakeholders satisfied by fulfilling their expectations and requirements. It avoids scope creep, and mitigates risks associated with stakeholders. Additionally the plan ensures that stakeholders accord full cooperation with minimal obstruction (Aapaoja & Haapasalo, 2014). The stakeholder influencing strategies are listed in table 2-4.

**Table 2-4: Stakeholder influencing strategy (Adopted from Aapaoja & Haapasalo, 2014)**

<b>Stakeholder</b>	<b>Influencing strategy</b>
Dormant stakeholders	Keep them informed
Discretionary (Latent) stakeholders	Minimum effort, involve them only when really necessary
Demanding stakeholders	Give good information
Dominant stakeholders	Keep them informed.
Dangerous stakeholders	Keep them satisfied
Dependent stakeholders	Give them good information
Definite stakeholders	Give them good information
Non-stakeholders	No investment of time and effort

The digital TV migration was delayed partly by stakeholder conflict leading to protracted court battles (MoICT, 2015). Proper stakeholder management safeguards the project execution from stakeholder interferences and leads to higher project success.

## **2.7 Conceptual Framework**

Projects are initiated with certain objects so as to solve identified problems or to effect identified improvements. It is the desire of the leadership to see the projects succeed, according to the literature review done in this research. Existing research on project success can be broadly categorized into (a) examination of success criteria and (b) examination of success/failure factors. Success criteria focusses on the success of project implementation process, which encompasses adherence to the project plan, as well as the success of the product – system quality, information quality and service

quality which all aid adoption and usage leading to net benefits to users (Thomas & Fernandez, 2008; Baste, Joosten & Mellis, 2011; Ika, 2009; Petter, 2008). Success/failure factors are the drivers and enablers whose presence or absence determines the success of a project. Failure factors are also referred to as risk factors by some authors, while the project outcome – success or failure of project process of product – is referred to as project performance.

The proposed framework focusses on both process and product success as the end game of a project. The framework takes the form of a flow diagram because projects involve a sequence of events or activities. Since the research is on Government projects, the process begins with the relevant government arm defining the objects of the project and selecting the project team that guides the execution from start to finish. There are six stages in the approach suggested by this framework as outlined in the following sections.

### **2.7.1 Ambition**

The Government comes up with a project that will contribute to a strategic/development goal or ambition. The aspiration is handed down to the relevant government arm or ministry

### **2.7.2 Definition and Scoping**

The relevant government arm or ministry refines the ambition into specific objects and scope. At this stage the following failure factors are addressed, as discussed in section 2.5.2. The factors are (a) project too big and complicated (b) unrealistic expectations from the project Sponsor and (c) vaguely defined goals. Additionally, the project definition and scoping guides the selection of project steering team in the next stage.

### **2.7.3 Steering team selection**

Depending on the nature of task at hand and its complexity, a high performance team (HPT) is selected to steer the project to successful end. The selection is guided by the six characteristics of HPT, as discussed in section 2.6.4. Selection of a good team eliminates project management and top management failure factors such as lack of

skills and incompetent in making decisions. The team diversity characteristic of HPT makes it possible for the steering team to succeed in divergent areas like change and stakeholder management. Additionally, the selection process should be guarded against two main failure factors in government projects – political decision-making and fettering bureaucracy.

#### **2.7.4 Project Set-up**

This area deals with refining the project objectives and scope, structuring the HPT, defining the success criteria, settling on the project management methodology and establishing the required alliances. The organization and task assignment should follow the CAIRO framework discussed in section 2.6.4.

#### **2.7.5 Project execution**

In this stage the steering team guides the project from initiation to conclusion. Project execution entails three main areas:

- i. Project management methodology.** This area of execution aims at achieving the process success through within budget, on schedule and in scope implementation of system quality, information quality and service quality of the ICT project. The selected project management methodology is applied in managing various knowledge areas such as quality management, human resource management, time management, communications management, cost management, risk management, procurement management and integration management. Project management is mainly internally focused.
- ii. Stakeholder management.** Lack of stakeholder involvement and proper management may lead to project failure. Disruptive innovation projects under focus in this research cause value shift within the value chain, stakeholders need to be managed well so as to achieve adoption of the project product and net benefits. The model proposed for stakeholder analysis is the Power, Legitimacy and Urgency model as discussed in section 2.6.5. The inherent advantages of HPT promote proper application of the analysis model.

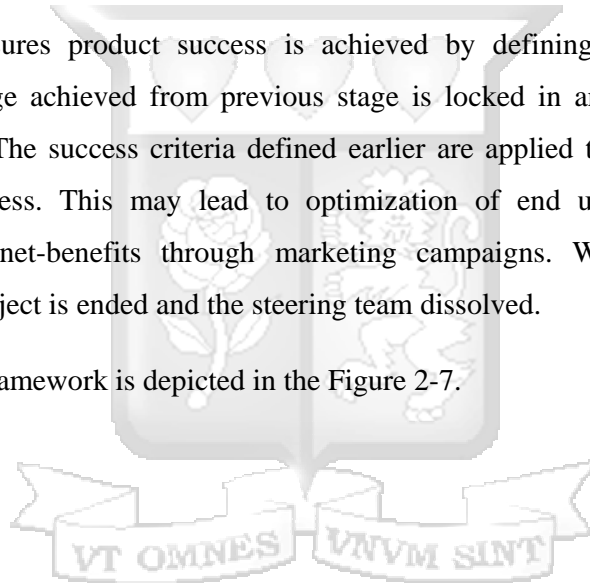
Stakeholder management runs right from initiation to the conclusion of the disruptive project and it is externally focused.

- iii. **Change management.** Disruptive innovations bring about changes in the tasks, the people, the technology and the structure in the affected industry. These changes need to be addressed through build-up of new capabilities in form of new processes and values. Change management should lead to the use of the project product and eventually the realization of net benefits. This is achieved by addressing the two questions (a) “What’s in it for me?” and (b) “Why is the status quo no longer attainable?”

### 2.7.6 Conclusion and closure

This stage ensures product success is achieved by defining a new normal. The (positive) change achieved from previous stage is locked in and the disruptions are smoothed out. The success criteria defined earlier are applied to evaluate the project gains and success. This may lead to optimization of end user adoption and the accompanying net-benefits through marketing campaigns. When the outcome is satisfactory, project is ended and the steering team dissolved.

The proposed framework is depicted in the Figure 2-7.



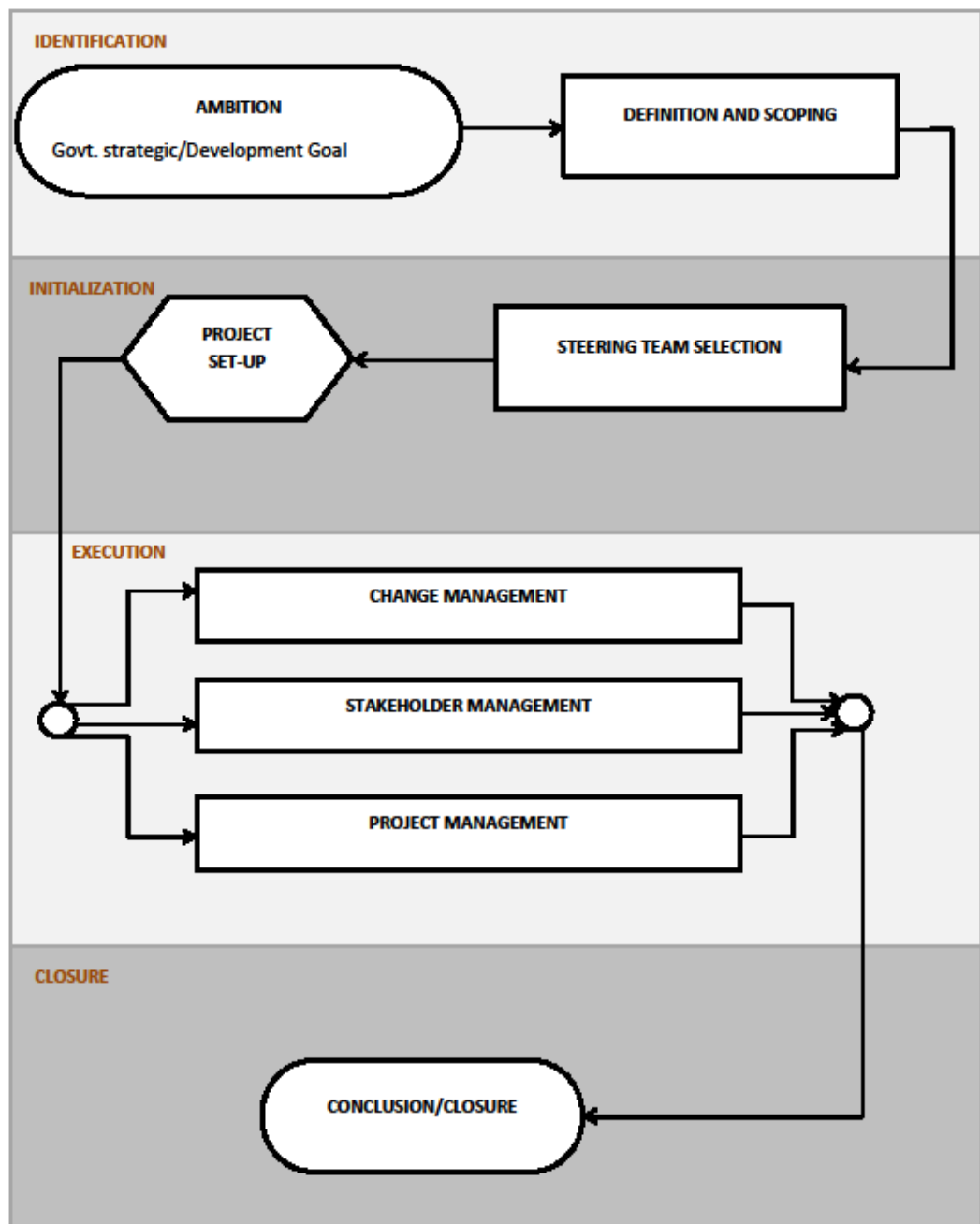


Figure 2-9: ICT Disruptive innovation project framework

## Chapter 3: Research Methodology

### 3.1 Introduction

Research differs widely in the nature of study as well as the approach to the study. One common thing with all the studies is data collection. In a communication study, data is collected through questioning of relevant subjects as opposed to an observation where the researcher inspects the state or activities of the subject without eliciting responses from them. Data can be collected through questionnaires, interviews or observation. The kind of data that was collected was informed by the research questions that the study sought to answer. The methodology adopted in this study is discussed in the subsequent sections.

### 3.2 Research Design

A research design is the overall plan for obtaining answers to questions under study (De Vours, 2001). The function of research design is to ensure that the evidence obtained answers the research questions unambiguously (De Vours, 2001). It is concerned with turning research questions into real projects. This is because it entails the various aspects which should be thought about and kept in mind when carrying out the research (Colin, 2011). Put in simple terms, research design is a logical structure of the inquiry.

This research adopted exploratory design. Exploratory research has been found to be a valuable means to ask questions and discover what is happening and gain insights about a topic of interest (Saunders et al., 2012). Past researchers on government ICT projects have focused on internal projects. Little has been studied on external industry disruption by certain government ICT projects. The research questions sought to explore more on the topic of disruptive innovation and that made exploratory design more appropriate. Exploration often begins with a literature search in an attempt to answer the research questions (Sue & Ritter, 2012). The literature review in chapter 2 brought together disruptive innovation concepts and government ICT projects to suggest a framework for driving disruptive innovation ICT projects in government. The

review therefore answered the first three questions in this study. The remaining question on validation of the proposed framework needed a communicative study of the subjects in regard to the digital TV migration in Kenya. The choice of digital TV migration in Kenya as the bases of the study made the research a case study.

*A case study is defined as ‘an empirical inquiry that investigates a contemporary phenomenon within a real-life context especially when the boundaries between phenomenon and context are not clearly evident’ (Yin, 2003, p.13).*

The study was carried out within a real-life context of digital TV migration in Kenya. The data was collected through questioning of relevant subjects by use of a questionnaire. Data collection was guided by the framework of ICT disruptive innovation project management identified in chapter 2. The main areas of validation were (i) Success criteria – project definition and scoping, (ii) Steering team selection and project set-up - High performance team, (iii) Project steering – triple constrain of time, scope and cost (iv) Stakeholder management (v) Change management and (vi) Project closure - Success evaluation. It was not clear how these variables played to influence the outcomes of digital TV migration in Kenya. That fact made exploratory approach very suitable. The study was carried out once in a time duration of around 3 months making it a cross-sectional study. The design and treatment of the variables and the environment in the course of the study was ex post facto in that they were not manipulated or controlled at any time like in an experiment setting.

### **3.3 Population and Sampling**

Cooper and Schindler (2011) define population as the total collection of elements about which some inferences are made. It refers to the set of people, objects or events from which the sample is selected and to which the study results will generalize. For this research, the targeted population encompassed all the stakeholders in Kenya’s Digital migration effort namely, the government, the regulator, the broadcasters and signal distributors, the equipment vendors, the consumers and consumer organizations.

The study approached sampling with the definition given by Cooper and Schindler (2011) as the selection of some of the elements in a population so that we may draw

conclusions about the entire population. According to Carter and Little (2007), exploratory research samples purposively; the samples are selected to serve an investigative purpose rather than to be statistically representative of a population. In addition, researchers in qualitative study use words and meanings in smaller samples to build theories (Rana & Chad, 2006). Since this research was exploratory case study focusing on the implementation of disruptive ICT projects in government, a few stakeholders were relevant. Non-probability purposive sampling was employed to get respondents from the digital TV committee members, ADN, COFEK, CAK, signet and PANG. Despite the population of consumers being large, not all consumers were focused on or discerning of the disruption of the digital migration. The same case applies to the government and the regulator as stakeholders; it is mainly the DTC members who could have meaningful contribution to the questions being discussed. The focus of data collection was narrow yet deep. Only information rich sources were chosen from the mixture of stakeholders for their unique characteristics and experiences, consistent with the research question asked. Likely respondents were drawn from positions like committee chairpersons, Public relations and communication officers, Technical officers, Strategy officers and executives. Snow-balling was employed at the initial stage to identify the most suited respondents. Enough flexibility was provided on the number of respondents for sake of exhausting study of the research objects. In own estimation however this number would not exceed 20 respondents. A signal to what was enough number of respondents was when the information from the respondent began to fall short of new insights, and became deficient of useful inputs.

### **3.4 Data Collection**

There are five most common forms of data collection methods which include: observation, questionnaire, experiment, case study, and content analysis (Martin & Guerin, 2006). For this study, data was collected mainly through questionnaires targeted at resourceful respondents from within the identified stakeholders. Questionnaires are a written form of questions that can be mailed, e-mailed, or distributed to a group of people, employees or users. They can be either structured or semi-structured (Martin & Guerin, 2006). The questionnaire had both close-ended and semi-close-ended questions. The questions were structured as dichotomous and well as

Likert-type. The data collected was primarily quantitative. The questionnaire was administered through a web tool to optimize the data collection turnaround time and scale geographical barriers. From this approach, research assistants were not necessary for data collection.

### **3.5 Data Analysis and presentation**

As it is the approach in case study, data from these multiple sources are converged in the analysis process rather than handled individually to add strength to the findings as the various elements of data are braided together to promote a greater understanding of the case (Baxter & Jack, 2008). Data from the questionnaire was analyzed quantitatively using the Microsoft excel program. Frequency distribution and other descriptive statistics were presented in tables and graphs. The main basis for analysis followed the framework components below:

- High performance Team (HPT) attributes' application and relevance to steering of disruptive innovation projects.
- Perception of, approach to, and management of change within the project.
- The stakeholder significance and management in disruptive projects based on Power, Legitimacy and Urgency model.
- Success/failure factors and success criteria in disruptive projects.

The analysis output was fed the next step of interpretation. The interpretation brought meaning and significance to the analysis.

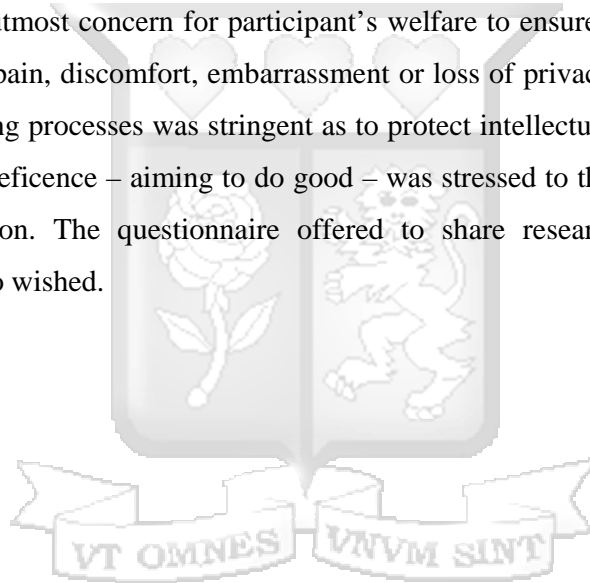
### **3.6 Research Quality**

It was an ultimate goal in the study to maintain high quality standards. The questions were keenly framed to bring out the right perception to the respondent on the spirit of enquiry. Short definitions and descriptions were provided where necessary to inform the respondent on the interpretation being pursued. To resolve non-response errors, the questionnaire was broken into seven parts and total length made reasonably short. Additionally, the configuration of user interaction was carefully crafted to make responding hustle-free and also to create visual stimuli. While it was possible to make

responding to all questions mandatory on the system, the likely undesirable retaliatory trashing of the whole questionnaire by respondents was respected. This came up during the piloting of the questionnaire. Internal validity was enhanced through the sample selection of the respondents who had deep knowledge of DTV migration and the themes under investigation. The open ended questions in the questionnaire aimed at exploring new insights enhanced the external validity as to make the findings widely applicable. Reliability in the findings was brought about by the sample chosen since the respondents were of similar job level. Additionally, reliability was further enhanced by using a standard tool for data collection, common for all respondents.

### **3.7 Ethical Considerations**

The study had utmost concern for participant's welfare to ensure that none suffers any physical harm, pain, discomfort, embarrassment or loss of privacy. The data collection and data handling processes was stringent as to protect intellectual property rights. The principle of beneficence – aiming to do good – was stressed to the participant ahead of their participation. The questionnaire offered to share research findings with the participants who wished.



## **Chapter 4: Research Findings**

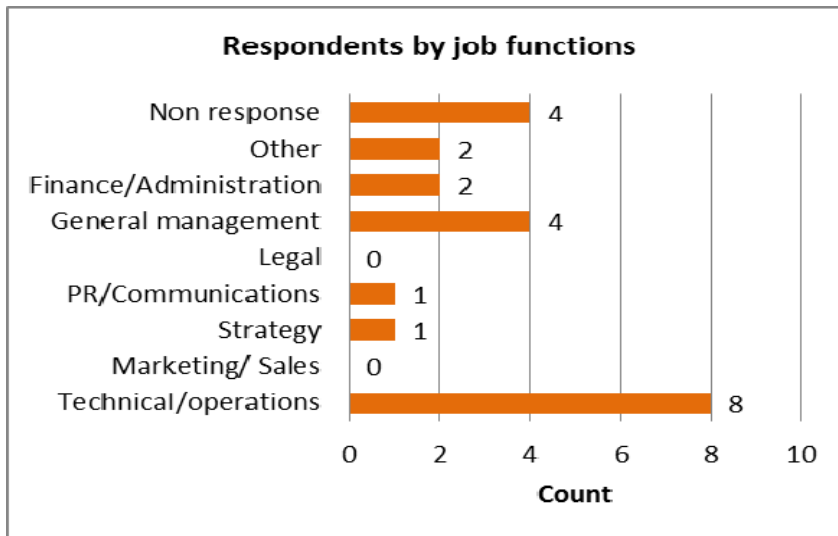
### **4.1 Introduction**

This chapter presents the analysis of the data and findings of the study as described in Chapter 3. The data was collected using a questionnaire. The main purpose of the analysis, congruent with the research objectives, is to validate the success/failure framework for disruptive innovations using the case of Digital TV migration in Kenya. The respondent profile was initially validated and the data was edited and tabulated in a Microsoft Excel sheet. These actions were critical in identification of anomalies in the data. Possible erroneous entries were identified and handled as appropriate. The tabulation was an important precursor to data analysis.

### **4.2 Respondents and Organization profile**

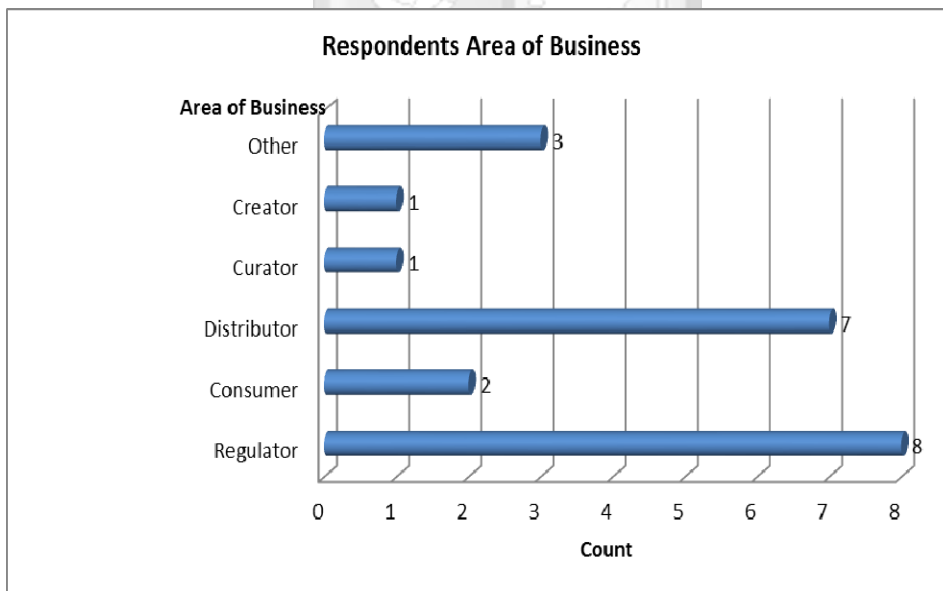
The study targeted a sample size of 20 digital migration stakeholders. A total of 28 questionnaires were sent out and 25 responses were received. After data clean-up and elimination of incomplete responses, 22 questionnaire responses were processed.

The responds were drawn from various job functions, with 8 out of the 22 being from Operations/Technical departments of their respective organizations. The second highest category was the general managers with 4 respondents. This having been an optional question, four respondents did not indicate their Job roles. The distribution is captured in figure 4-1.



**Figure 4-1: Number of respondents per Job function**

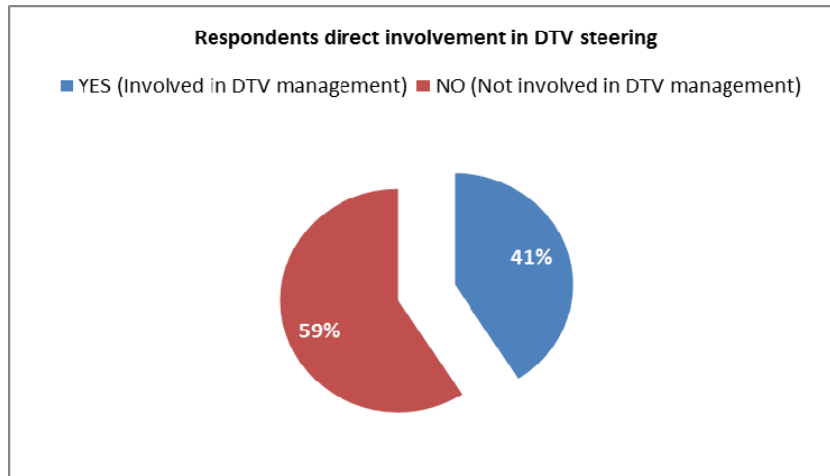
Fifteen of respondents, forming about 68% of sample size, were from the regulator and the distributors when viewed from the primary area of businesses within the digital TV value chain. The full distribution is presented in figure 4-2.



**Figure 4-2: Number of respondents per Business Area**

The questionnaire sought to establish the number of responds who were directly involved in DTV migration project with the question: ‘*Were you directly involved in*

the management of digital migration?’ Up to 59% of the respondents had direct involvement while the rest were keenly interested and affected parties. This is depicted in figure 4-3.

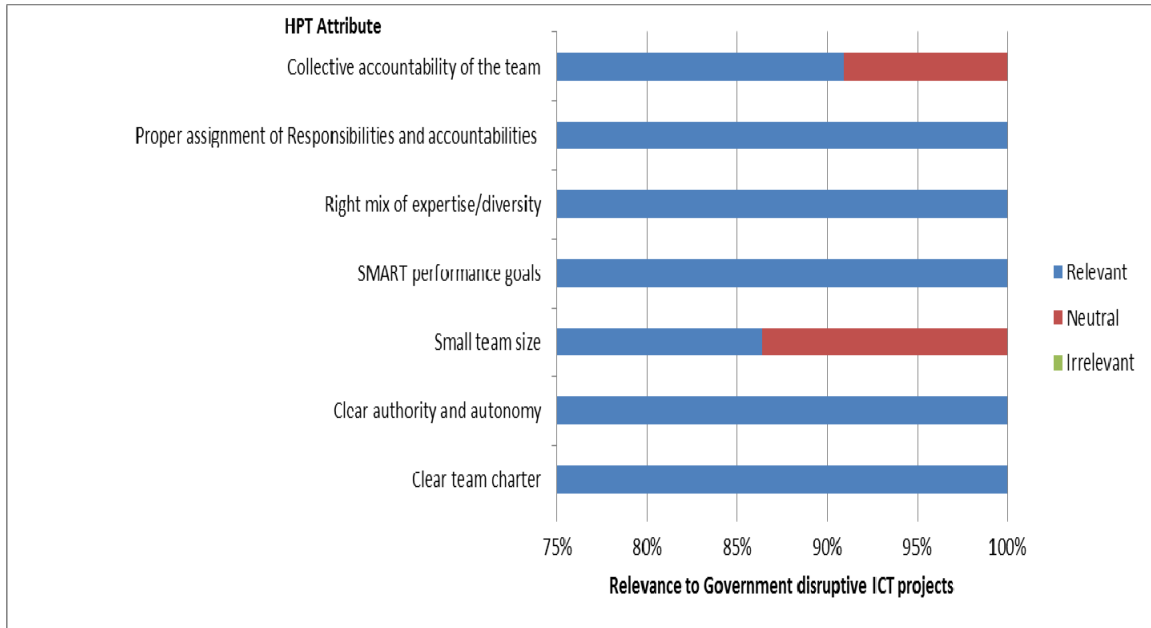


**Figure 4-3: Percentage of respondents directly involved/not involved in DTV project**

From the mix in job functions of the respondents to the difference in their areas of business and involvement in the DTV migration, the research quality concerns on both internal and external reliability and validity of the study were satisfactorily addressed.

### **4.3 Steering team selection and project set-up**

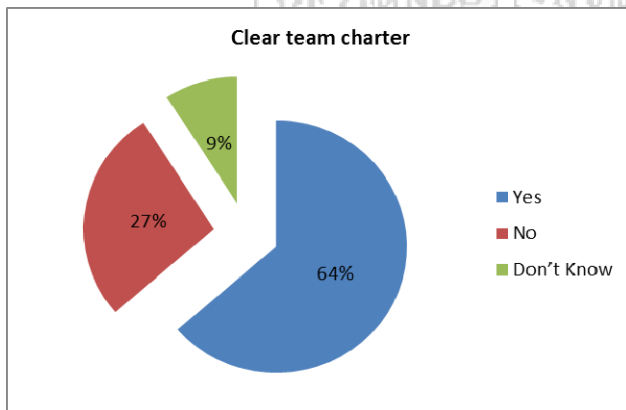
The part of the questionnaire on steering team selection for a disruptive innovation project sought to establish the relevance and applicability of *high performance team (HPT)* attributes. The respondents were to base their answers on their experience in or knowledge of the digital TV migration. Asked about the relevance of various HPT attributes to Government disruptive innovation ICT project steering team, the respondents agreed totally for 5 out of the 7 attributes. The remaining 2 attributes were strongly supported. This result is shown in figure 4-4.



**Figure 4-4: HPT attributes versus their relevance in disruptive ICT projects**

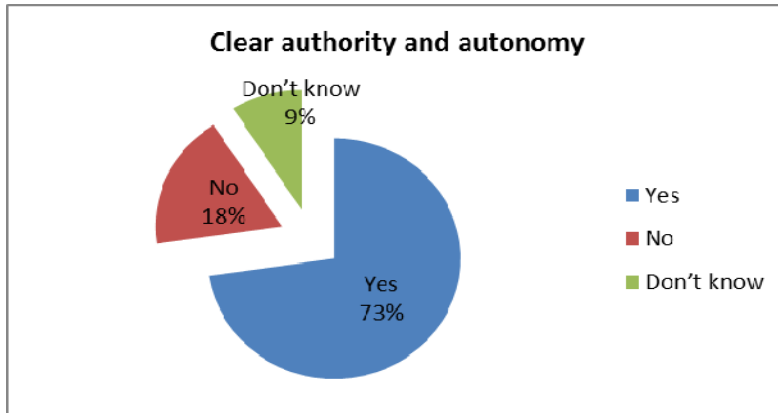
An investigation on how much of HTP attributes were at play in the Kenyan DTV migration steering team was done through the questionnaire. The result indicated a fairly good application of attributes such as team charter, clear authority and autonomy and SMART goals. The result is depicted in figures 4-5 and 4 -6.

*Did the digital TV migration project team have a clear team charter and rationale from the Government?*



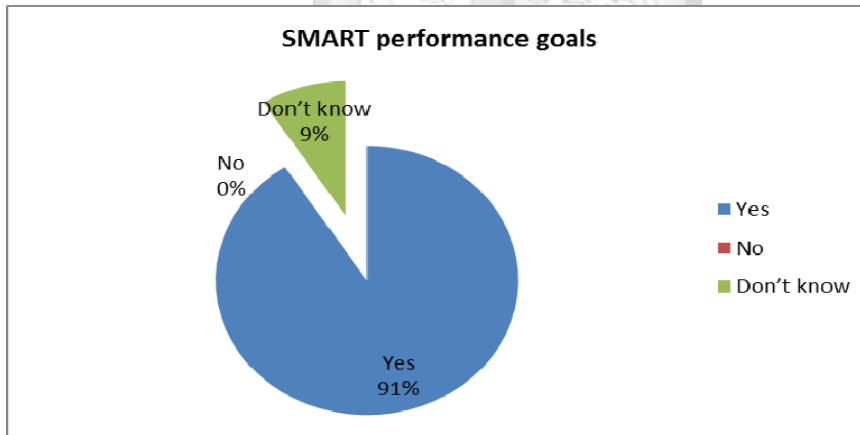
**Figure 4-5: Team charter in DTV migration**

*Was the project steering team given clear authority and autonomy to execute the task within its scope?*



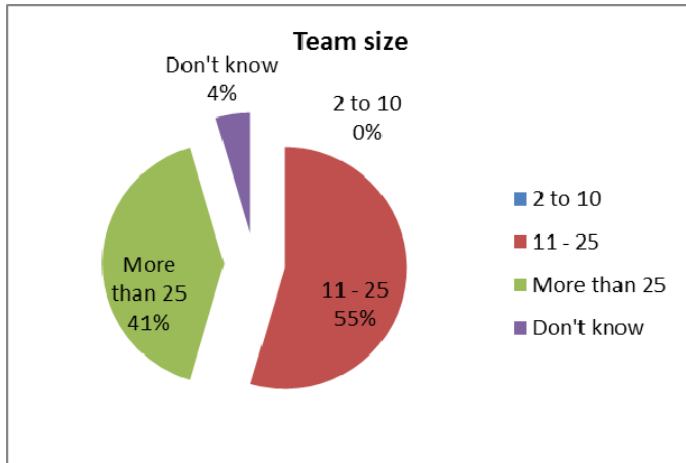
**Figure 4-6: Clear authority and autonomy in DTV migration**

*Was the digital TV migration effort broken down into specific, measurable performance goals?*



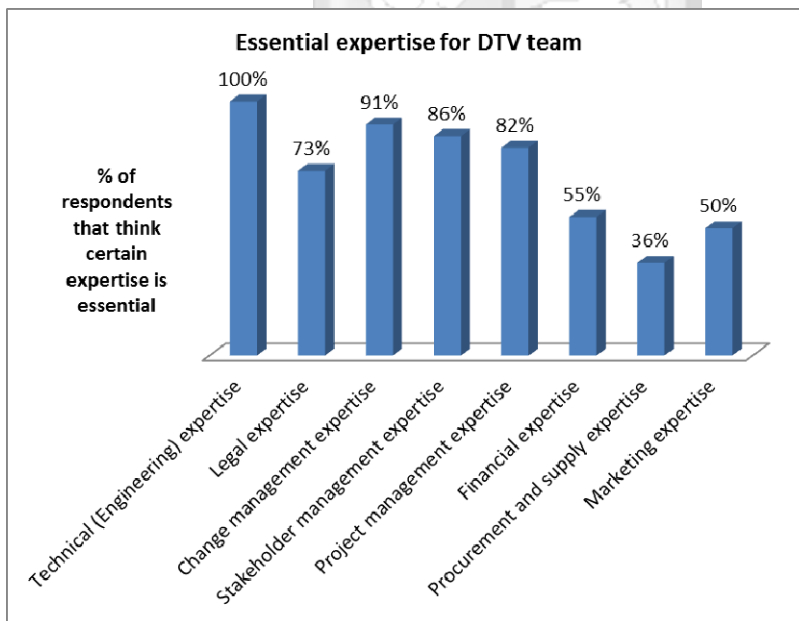
**Figure 4-7: SMART goals in Kenya DTV migration**

The results for the team size did not give a clear cut figure. 55% indicated that the team was composed of 11 to 25 persons. The 41% indicated the size was over 25 individuals. The message from these results could be that team was big, in the region of 20s, or the definite size was not known to most participants. Figure 4-8 shows the results.



**Figure 4-8: Team size in DTV migration in Kenya**

Quite a diverse expertise was voted by the respondents as being essential in the Digital TV migration effort. Top among these were the Technical expertise and Change management expertise. Procurement and supply expertise was not seen as being essential, receiving a vote of only 36% of the respondents.



**Figure 4-9: Essential expertise in DTV migration**

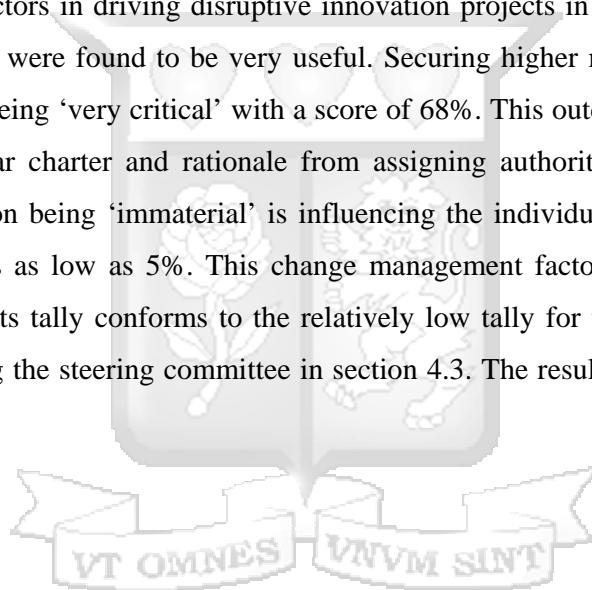
Despite the view that diverse expertise was required in DTV migration, none of the respondents felt that the actual team was very diverse and 41% were of the opinion that it was not diverse.

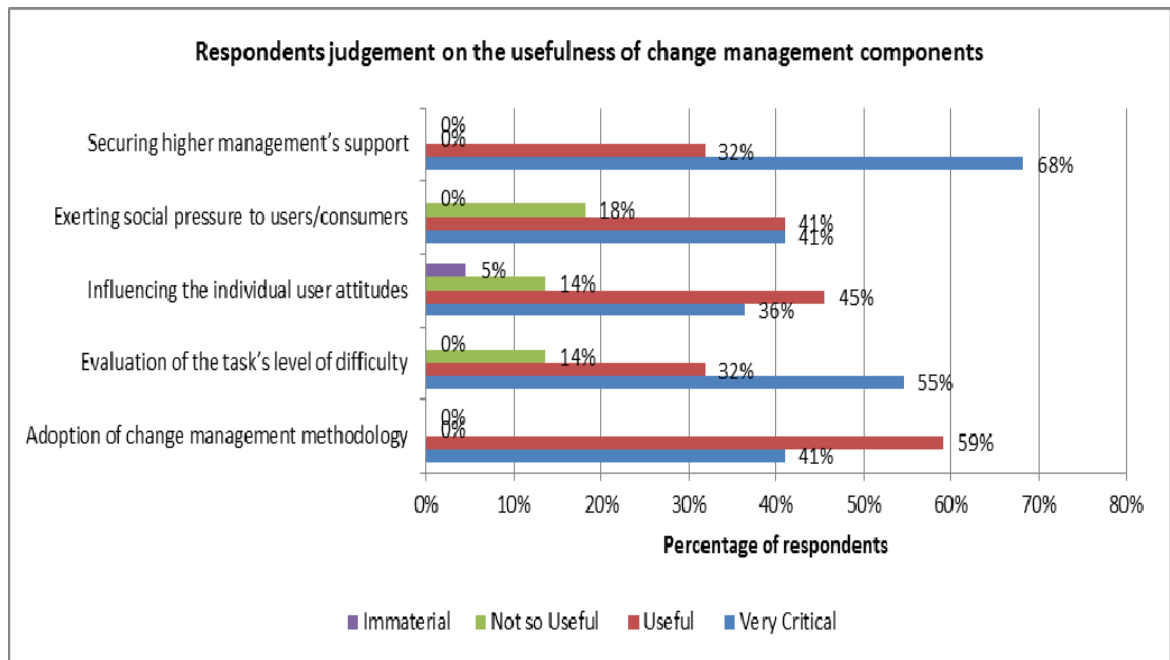
**Table 4-1: Respondents view of DTV migration team diversity**

How diverse?	Very Diverse	Diverse	Not Diverse
Frequency	0	13	9
Percentage	0%	59%	41%

#### 4.4 Change management

This part of the questionnaire sought to evaluate the resourcefulness of change management factors in driving disruptive innovation projects in Government. Most of the components were found to be very useful. Securing higher management’s support was judged as being ‘very critical’ with a score of 68%. This outcome ties in with HPT attribute of clear charter and rationale from assigning authority. The only factor to receive a vote on being ‘immaterial’ is influencing the individual user attitudes, even though this was as low as 5%. This change management factor is closely related to marketing and its tally conforms to the relatively low tally for the need of marketing expertise among the steering committee in section 4.3. The results are shown in figure 4-10.





**Figure 4-10: Usefulness of various components in the Change management**

It was agreeable to most respondents, 86%, that the Digital TV migration in Kenya was a disruptive innovation in the TV industry. The result is shown in table 4-2. Some of the reasons for recognizing digital TV migration as a disruptive technology are: change in the mode of viewers' access to TV channels, introduction of new players, and creation of new value chain in the TV industry. The respondents with divergent views did not recognize any groundbreaking innovation or transformation in the digital TV migration. This result reconfirms the digital TV migration as an appropriate case for validation of the proposed framework for disruptive innovation projects.

*Would you recognize digital TV migration as disruptive innovation? Please comment on your answer.*

**Table 4-2: Responses on whether digital migration was a disruptive innovation**

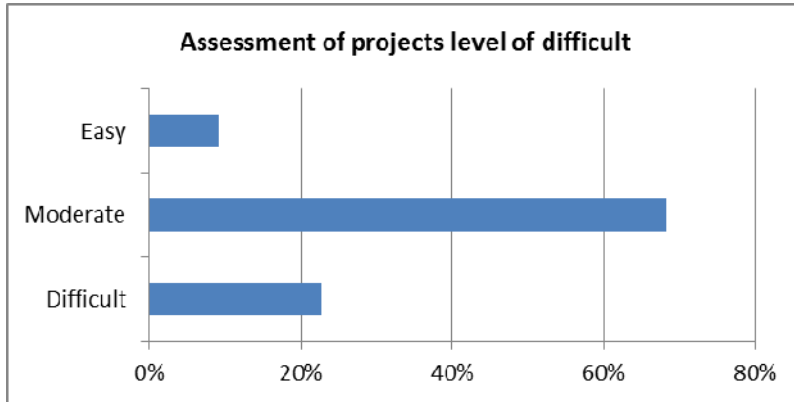
Response	Frequency	Percentage
Yes	19	86%
No	2	9%
No Sure	1	5%

To assess the level of change management application in government projects using the case of digital TV migration, the respondents were questioned on use of change methodologies, assessment of tasks level of difficult, higher management's level of support and actions for influencing user adoption of project product. The outcome for adoption of change methodology was mixed, with half of the respondents being unaware. This is shown in table 4-3. A fairly small percentage of 45% was affirmative to use of a methodology to manage the change.

**Table 4-3: Use of change methodology in DTV migration**

Response	Frequency	Percentage
Yes	10	45%
No	1	5%
Not aware	11	50%

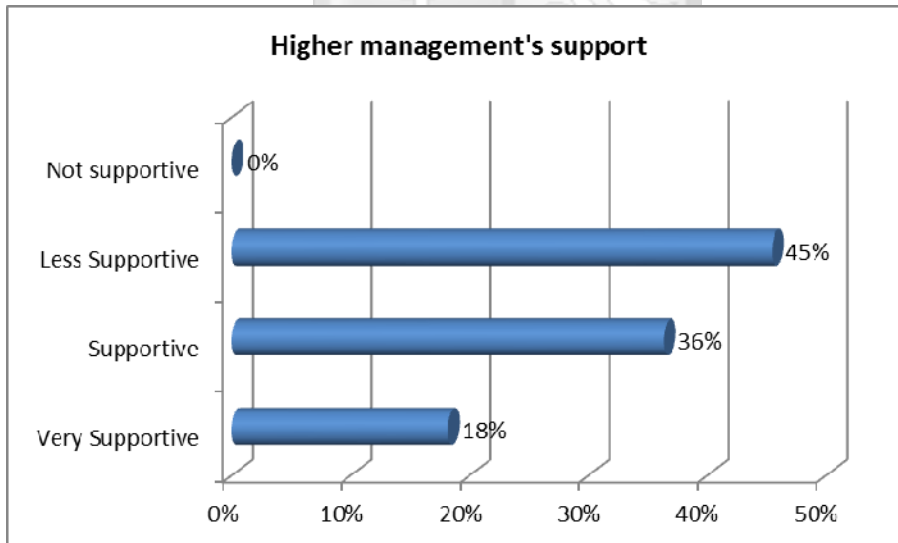
The level of difficulty of the DTV migration was assessed as moderate with a vote of 68%. Only 9% saw the migration project as easy. The result is shown in figure 4-11.



**Figure 4-11: DTV level of Difficulty**

The influence of users/viewers attitudes towards adoption of Digital broadcasting was mainly via TV and Radio commercials, talk shows, print media and online website. While 91% of respondents were affirmative about these actions, the rest had the opinion that enough customer education was not done and that led to late adoption.

On higher managements support, 45% of the respondents felt that the support accorded was minimal, 36% saw the higher management as supportive and 18% as very supportive. The result is shown in Figure 4-12.



**Figure 4-12: Higher management's (Government/the executive) support for DTV**

The data for this part of the enquiry - change management - indicates a strong support for use of change management methodology to manage the change factors. On the other hand, the data indicates limited application of change management in driving digital TV migration in Kenya.

#### 4.5 Stakeholder management

The respondents were asked to rate the importance of stakeholder management in disruptive innovation projects as well as the digital TV migration project in Kenya. For disruptive innovation projects, stakeholder management was rated as being very important by 86% of the respondents and as being important by the rest. In the case of digital TV migration in Kenya, similar percentage of 86% rated Stakeholder management as very important, 9% as important and 6 % as less important. The result is shown side by side in figure 4-13 below. This result confirms the importance of stakeholder management in ensuring project success. The result also depicts the respondents' identification of digital TV migration as a disruptive innovation project.

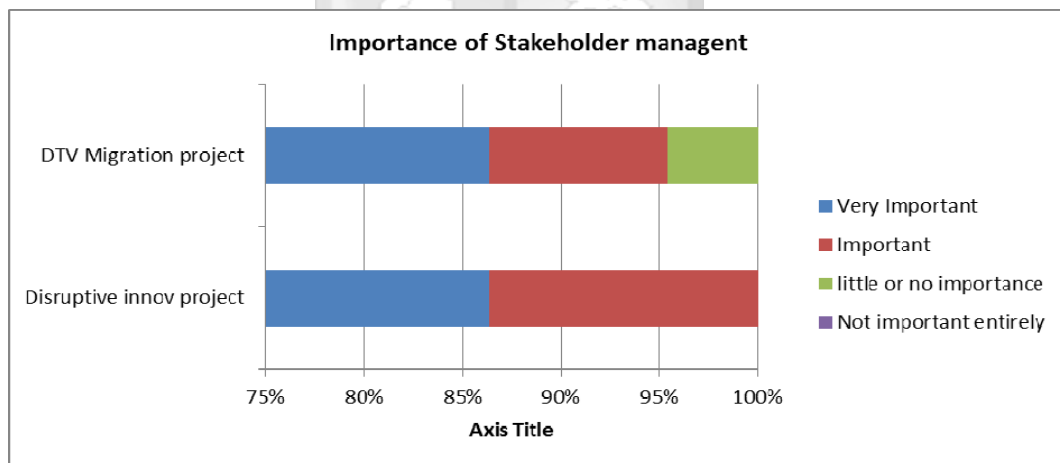


Figure 4-13: Importance of Stakeholder management

The relevance and applicability of the Power, Legitimacy and Urgency model for stakeholder analysis and management was checked for the case of DTV migration in Kenya. For the stakeholder analysis part, respondents classified the stakeholders according to their power, legitimacy and Urgency. The results are shown in two forms, figure 4-14 groups the data according to salient traits and figure 4-15 according to

stakeholders. The data would classify the stakeholders as dormant, latent, demanding, dominant, dangerous, dependent or definitive depending on their features.

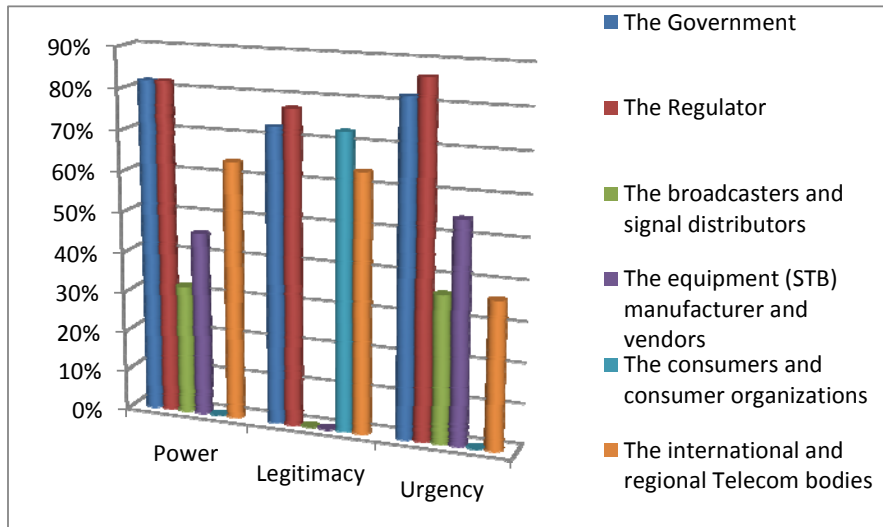


Figure 4-14: Power, legitimacy and urgency of DTV migration stakeholders

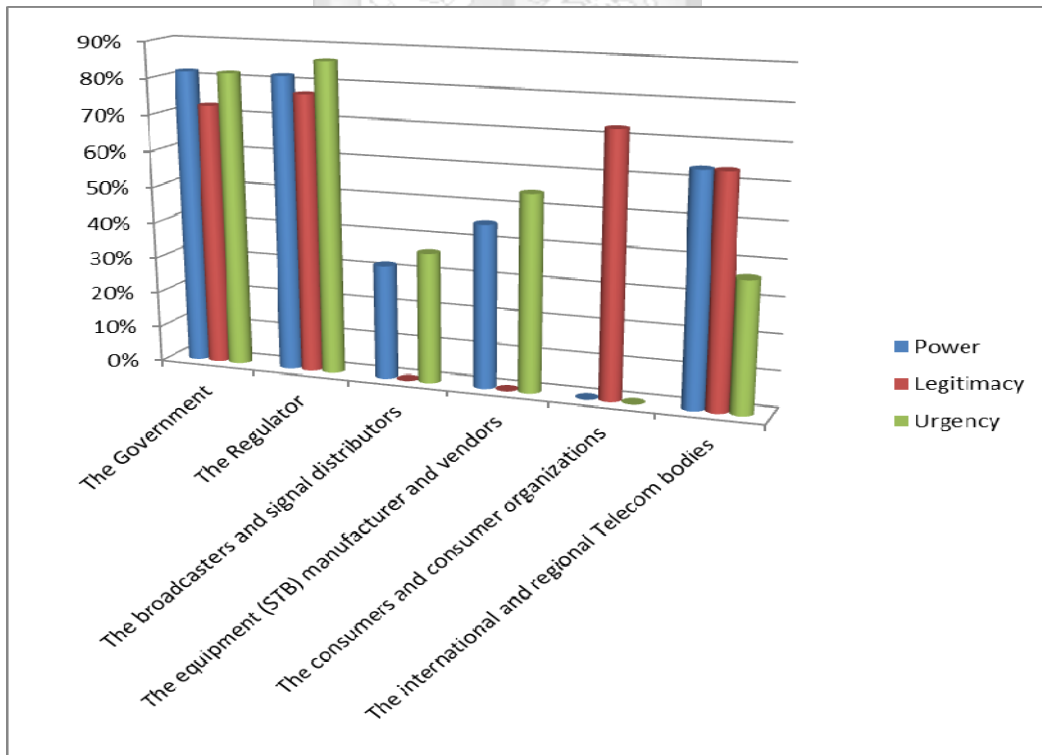
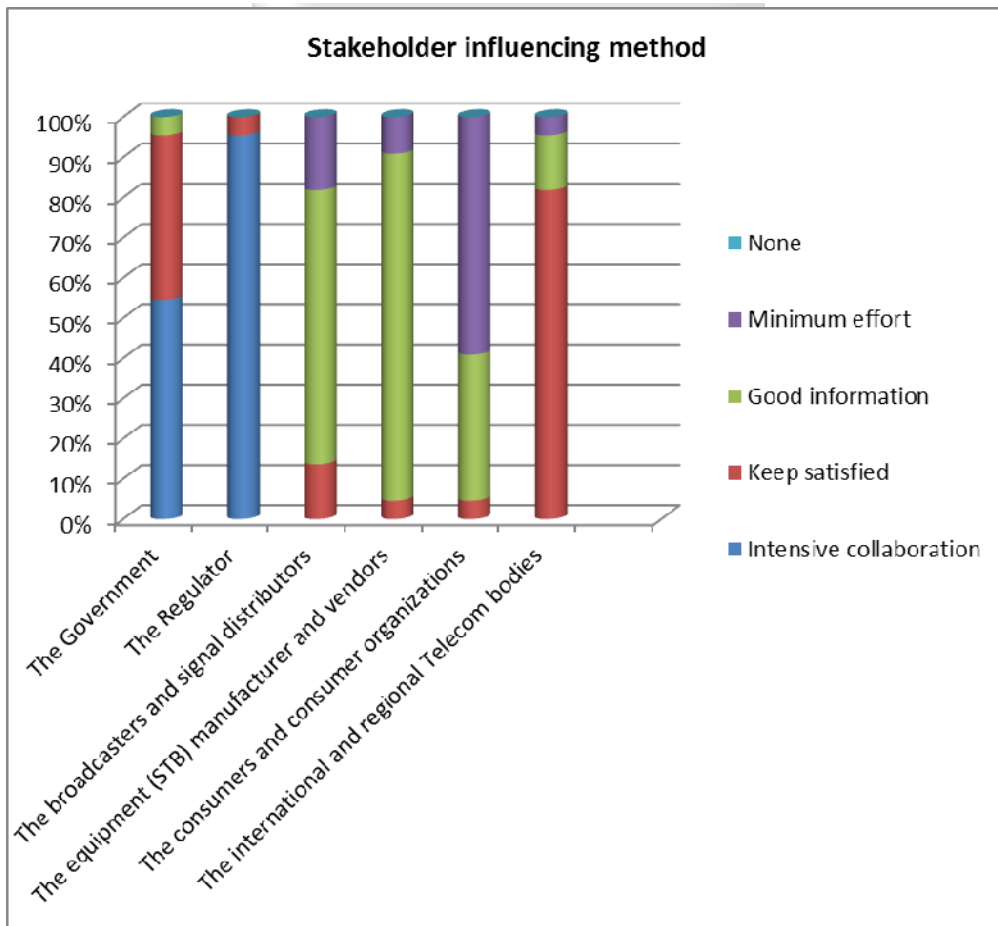


Figure 4-15: DTV migration stakeholder salient features

From the results, the government and the regulator are the core or definitive stakeholders. The broadcasters and signal distributors are dangerous stakeholders and the same for the equipment manufacturers and vendors, with manufacturers and vendors being stronger than broadcasters and signal distributors. The consumers and consumer organizations are discretionary stakeholders. Lastly the Telecommunication bodies are core stakeholders, just like the regulator and the government, only that they are weaker.

Each class of stakeholders requires different influencing method or management. The participants were asked in the questionnaire to match stakeholders with what would be appropriate influencing methods. The results are shown in Figure 4-16.



**Figure 4-16: Stakeholder influencing method**

The data for stakeholder categorization and the influencing methods is combined in table 4-4.

**Table 4-4: Stakeholder type and influencing methods**

Stakeholder	Type	Influence
The Government	Definitive	Intensive Collaboration
The Regulator	Definitive	Intensive Collaboration
The broadcasters and signal distributors	Dangerous	Good information
The equipment (STB) manufacturer and vendors	Dangerous	Good information
The consumers and consumer organizations	Discretionary	Minimum effort
The international and regional Telecom bodies	Definitive	Keep satisfied

These results correlate with the theory in table 2-4 of chapter 2.

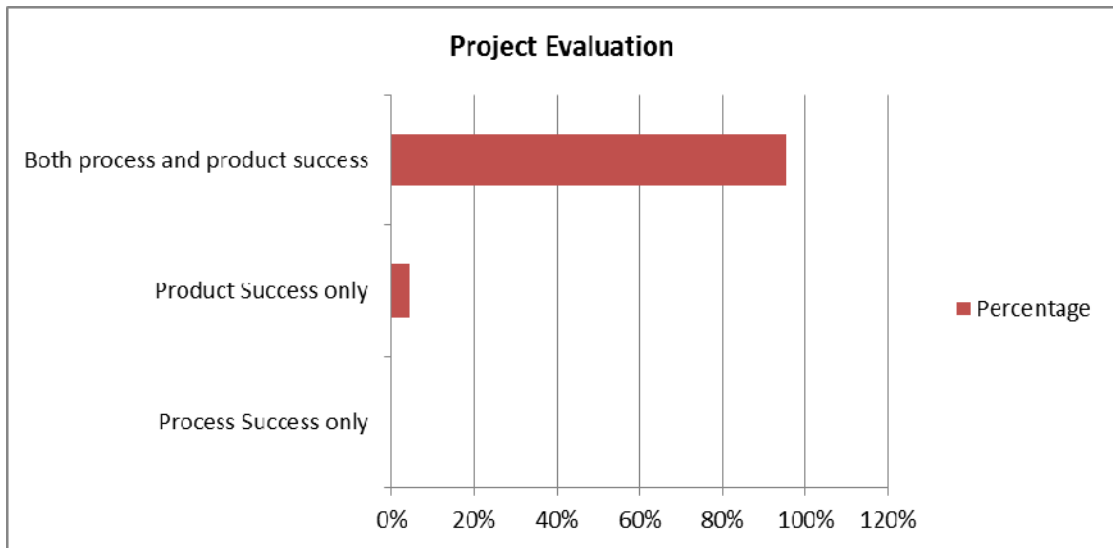
#### 4.6 Project Success/Failure factors and success criteria

Project success has many definitions. The participants' broadness of definition of project success was tested through the question: *Which statement(s) fit your definition of project success (choose all that apply)?* The result is shown in table 4-5, the respondents are agreeable to many facets of project success definition.

**Table 4-5: Definition of project success**

Success definition	Frequency	Percentage
Fulfilling the on time, within budget, and to specification implementation (triple constraints) of the project	22	100%
Satisfaction of major stakeholders with the project	21	95%
The quality (system, information, service) of the project product	21	95%
Adoption and use of the project product by the intended end users	20	91%
Achievement of the net benefits intended for the project	18	82%

Further to the definition, project success can be evaluated in the project process or project product. Participants were asked to give an opinion where the emphasis should be placed. 91% of the respondent said it should be on both process and product. None of the respondents saw the evaluation of project based on the process success only as being important. The outcome is shown in figure 4-17.



**Figure 4-17: Project Success evaluation for Disruptive innovations**

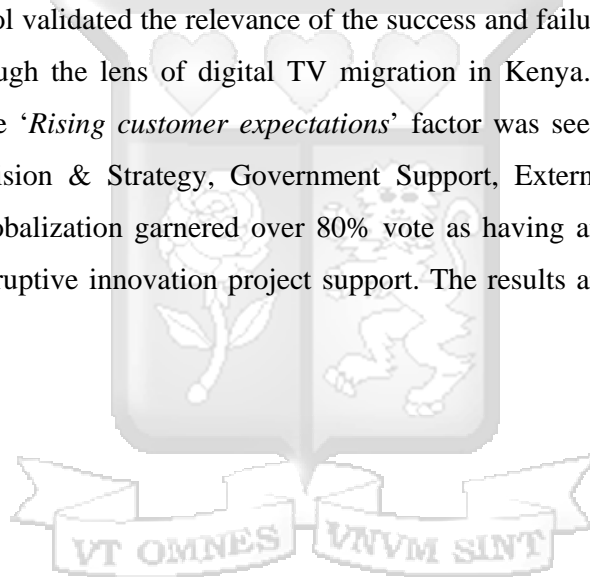
The criterion as per the results should focus on a wide of parameters in defining success an also the focus should spread to both process and product success.

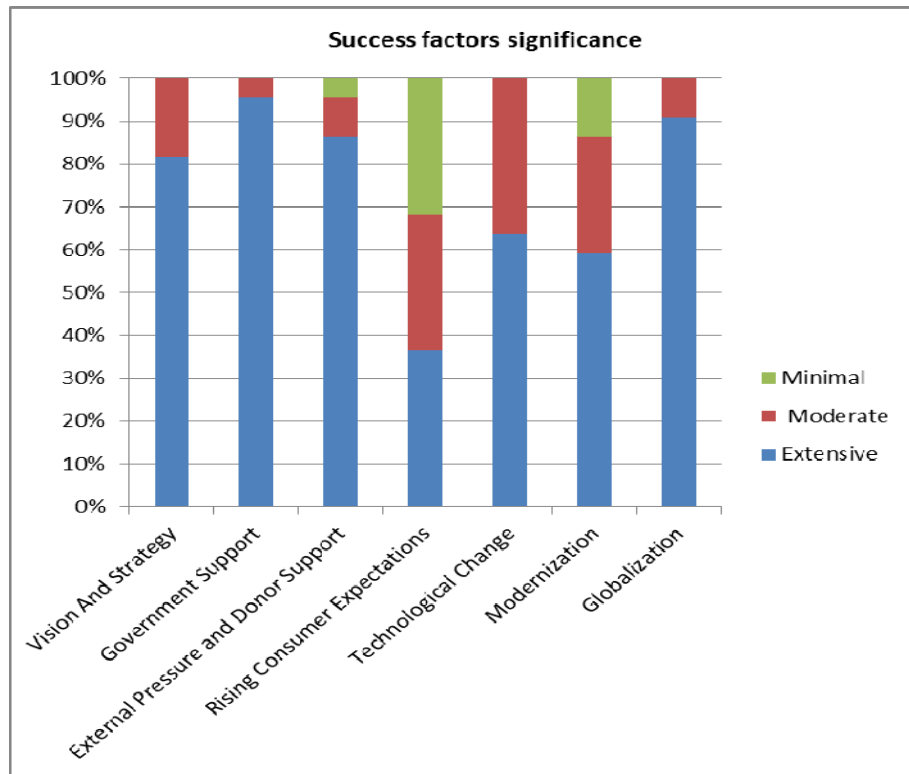
To get an indication as to whether a success criterion was applied in the evaluation of DTV migration, the participants were asked to name the criteria used. The responses were very varied; an indication of a possible lack of agreed criterion. Some of the responses have been sampled below:

- i. *Successful conversion of terrestrial analog Free-to-Air television viewers to terrestrial digital television by buying Set-Top-Boxes or IP integrated TV sets. By August this year only 2.2 million of 4.5 million TV Households had acquired Set Top Boxes.*
- ii. *On time completion and maximum adoption by customers.*

- iii. *Management of time, scope and cost and finally achieve quality product that the Customer utilizes optimally.*
- iv. *Not aware, my take is achievement of project objectives*
- v. *Not sure of the criterion, but a good one is to make the process effective and the results tangible*
- vi. *The end game is a happy customer/user with universal access to information and available frequencies. That should be the success of the project.*

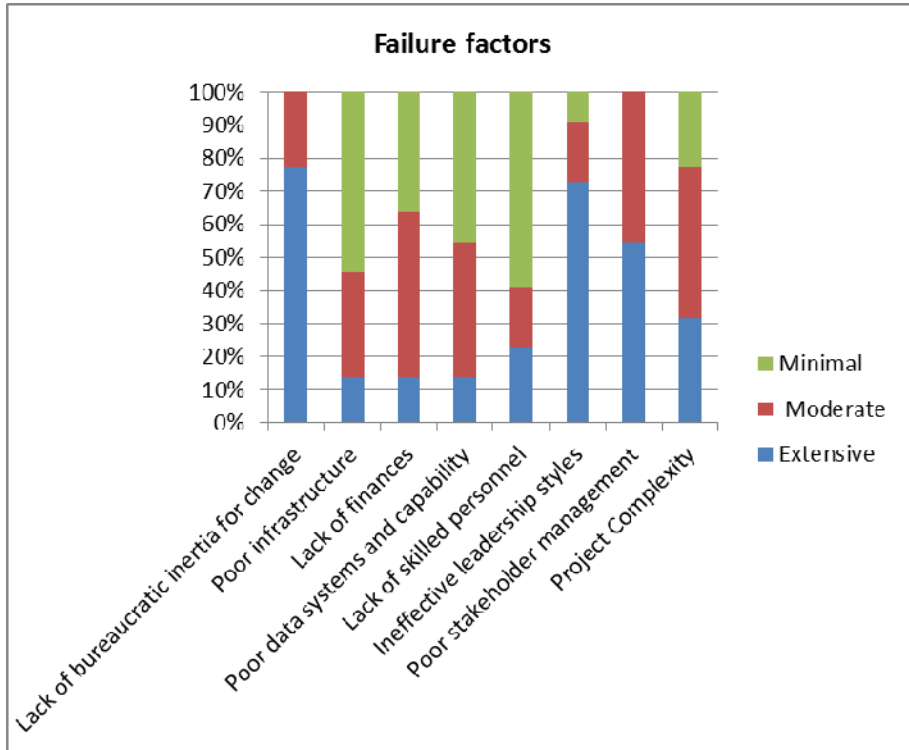
There are factors that lead to favorable outcome of the projects in Government from previous research. In contrast there are other factors that contribute to project failure. The research tool validated the relevance of the success and failure factors in disruptive innovation through the lens of digital TV migration in Kenya. Out of the 7 success factors, only the ‘*Rising customer expectations*’ factor was seen as having minimum significance. Vision & Strategy, Government Support, External Pressure & Donor Support and globalization garnered over 80% vote as having an extensive impact on government disruptive innovation project support. The results are shown in figure 4 - 18.





**Figure 4-18: Success factors' significance of in Government disruptive innovation projects**

The results for failure factors showed that *lack of bureaucratic inertia for change, ineffective leadership styles* and *poor stakeholder management* have great significance to disruptive ICT projects in Government. *Poor infrastructure, Poor data systems & capability* and *lack of skilled personnel* were rated as having minimum significance while *lack of finances* is rated as having a moderate significance. The results are depicted in figure 4-19.



**Figure 4-19: Significance of failure factors in government Disruptive ICT projects**

The results for both success and failure factors confirm their applicability to Government disruptive innovation projects.

#### **4.7 Project management methodology**

Project management methodologies give an approach to running projects with management practices whose actions help to defuse the effects of risks and influence project performance. When asked whether it is beneficial to adopt a project management methodology in Government ICT projects, all the participants gave a categorical YES as shown in table 4-6. The same result was obtained for the question as to whether a qualified/certified project manager should be employed to run the project.

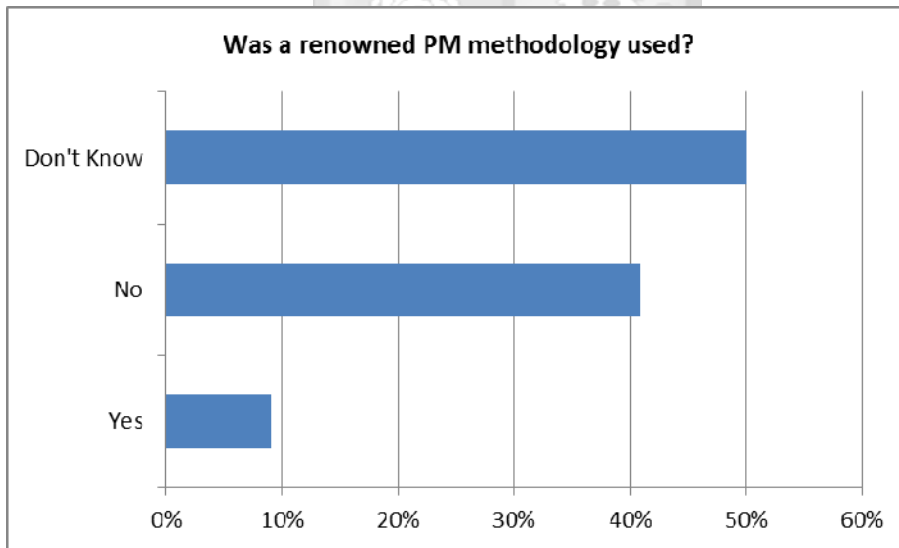
**Table 4-6: Project management methodology and qualified project manager.**

<b>Beneficial to adopt a project management methodology?</b>		
<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Yes</b>	22	100%
<b>No</b>	0	0%
<b>Don't Know</b>	0	0%

<b>Beneficial to appoint a qualified/certified project manager?</b>		
<b>Response</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Yes</b>	22	100%
<b>No</b>	0	0%
<b>Don't Know</b>	0	0%

Whether the implementation of DTV migration in Kenya adopted a renowned project management methodology, 91% of the respondents either stated that no methodology was followed or they were not aware. This is depicted in figure 4 -20.

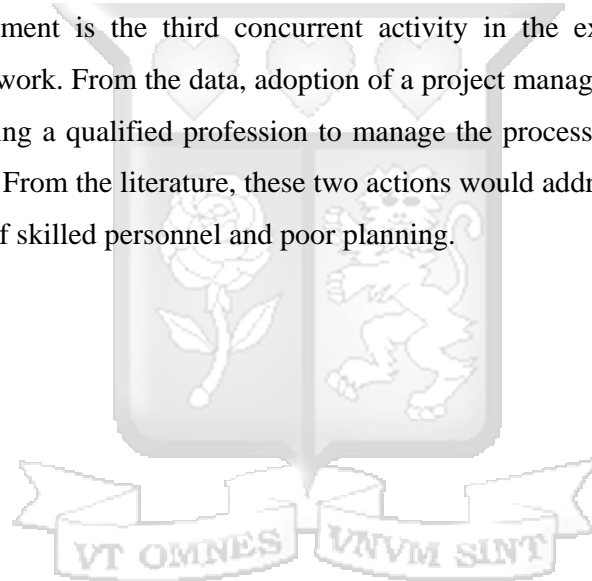


**Figure 4-20: Project methodology in DTV migration**

Using both the positive and negative experiences of the participants in DTV migration, the researcher explored to know the benefits of appointing a qualified Project Manager to run a government disruptive ICT project following a renowned methodology. Some of the responses are as follows:

- i. *Project Managers will fully engage stakeholders hence the project will succeed with agreed deadlines and proposed budgets.*
- ii. *More information is available and decision making is better and effective.*
- iii. *This will instill professionalism.*
- iv. *Proper measurement of progress and good steering. Information availability and validity is improved - making stakeholders happy*
- v. *Proper steering of project to successful completion*
- vi. *Higher probability of successful outcome*
- vii. *Execution get done the right way and success can be predicted*
- viii. *Generally things will run smoother and the team has a grasp of the status at any given time*

Project management is the third concurrent activity in the execution phase of the proposed framework. From the data, adoption of a project management methodology as well as appointing a qualified profession to manage the process are both necessary for project success. From the literature, these two actions would address the project failures related to lack of skilled personnel and poor planning.



## **Chapter 5: Discussions and Framework proposal**

### **5.1 Introduction**

The main purpose of this study was to develop a framework for managing and governing ICT disruptive projects in Government. This chapter discusses the key study findings derived from the data analyses in chapter 4 and validates the proposed framework. The discussions are organized according to the research objectives as presented in section 1.3 of chapter 1. The main purpose of this is to give an indication on the attainment of the research objectives.

### **5.2 Digital Terrestrial Television Migration in Kenya**

The first objective of the study was to review the execution of digital terrestrial television migration in Kenya. From the review, it was noted that even though the migration was sanctioned by ITU in 2006, the Government of Kenya adapted it as a flagship project in regard to vision 2030. The ITU's interest in the migration makes it, and other associated regional bodies, key project stakeholders. The Digital Television Committee formed in 2008 was the equivalent of the steering team discussed in this study. The whole digital migration effort could be split to two parts: the provision Digital Terrestrial Television Broadcasting (DTTB) and the Analog switch-off (ASO). The DTTB part was fairly smooth meeting all major milestones and could be considered successful connection to triple-constraint criteria of project success. The ASO on the other hand was a failure, persistently missing many deadlines. The main contributor to the failures was protracted battles brought about by the existing broadcasters as stakeholders in the whole process. The first botched ASO was thwarted by the consumer body citing lack of viewer readiness and so violation of basic right to information access. Though the viewer readiness was the individual viewers' scope, it impacted project success when viewed from user adoption and use as success criterion. The viewer readiness also raised the issues on change management and the influence of user attitudes towards adoption. The review of digital TV migration in Kenya confirmed it as a suitable case for study of disruptive ICT projects in Government.

### **5.3 Frameworks for success in Government ICT projects**

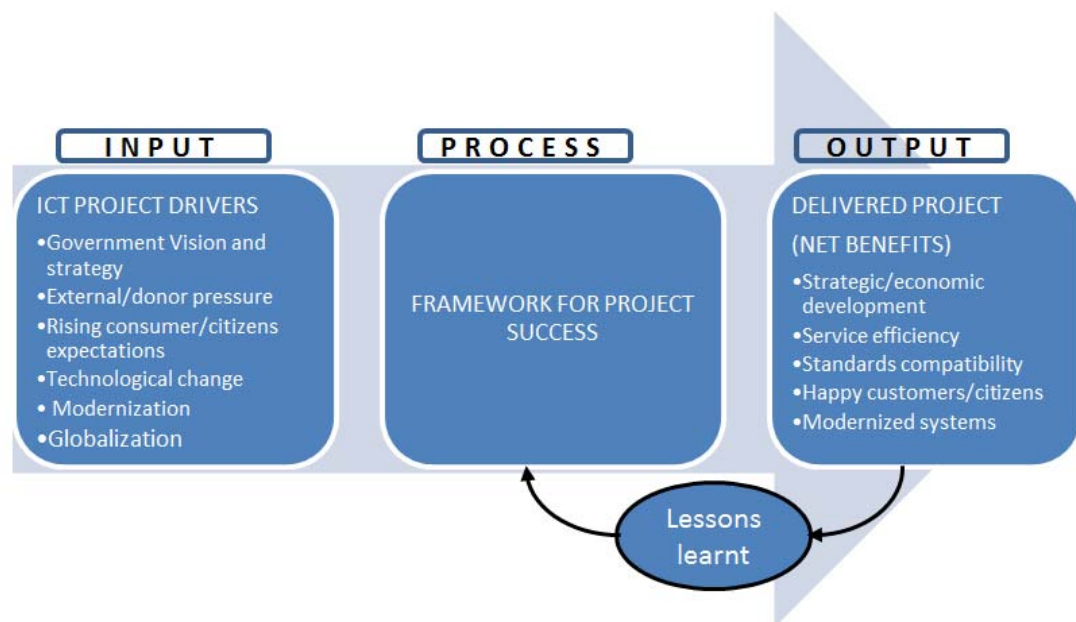
The second objective of the study was to examine frameworks for understanding and measuring success in Government ICT projects. Most of existing research is in private sector ICT projects. There is however available studies on Government ICT projects especially in the areas of e-government and digital villages. The difference between private and public sector ICT projects is well studied with the studies revealing disparities around project objectives and complexity of processes and resource interactions. The principles of project steering and success criteria remain the same for both sectors.

The DM-IS-success model, discussed in section 2.5.1, is widely used in the ICT industry as a framework for conceptualizing and operationalizing IS success adopts aspects of both process and outcome. According to the model, the end game of a project is its net-benefits. Net benefits may take time before they are realized depending on the nature of the project, but before the net benefits there is the use/adoption of the project product and user satisfaction which can be achieved and measured sooner. The net benefits, adoptions and user satisfaction relate to product success and their evaluation is subjective. It is however possible to measure parts of the success model objectively. These parts are system, Information and service quality. The DM success model focuses on the product or outcome of a project. It is important to also focus on the process of delivering the project. Process success will most likely beget product success. Process success mainly looks at executions adherence to the planning and the triple constraints of time scope and cost. This would call for a renowned project management methodology.

There are factors whose existence would lead to favorable outcome of the project. These are referred to success factors. On the other hand, there are factors that impair success once present. These are called failure factors. Both success and failure factors need to be identified and managed through the project life time. From the extended DM IS model and review of success failure factors, two tasks become amplified as remedies during project life cycle. The two are change management and stakeholder management.

## 5.4 Framework Development

The third objective of the study was to propose a framework for understanding success and failure factors in Government disruptive ICT projects in Kenya. A government project comes about due to one or a combination of factors termed as drivers. These include government vision and strategy, external/donor pressure, rising consumer expectations, technological change, modernization, and globalization (Gichoya, 2004). The project is geared towards certain known objectives/outcomes. It is therefore very important to evaluate the performance at the end of the execution. In the short and medium term, the project performance evaluation focusses on both process and product success. In the longer term, it is possible to evaluate the achievement of net benefits. The framework for successful ICT projects is the process between the project drivers and project outcomes. This is illustrated in figure 5-1 below.



**Figure 5-1: Project process overall view**

The framework being a process takes the form of a flowchart with a sequence of activities. The proposed framework is shown in figure 5-2. It starts off with a government ambition that is informed by one or a set of government ICT project drivers. Next the ambition is refined into clear objectives and scope. The scope is

treated carefully to avoid complexities due to size. The scope definition step gives clear guidelines to the attributes required for the steering team. In this framework, the ambition and scope definition steps are grouped together into a phase called identification. This phase is driven by the relevant government ministry/arm.

The phase that follows is initialization and encompasses selection of the steering committee and project set-up. The selection of steering team members is dependent on the required expertise and informed by HPT principles. The idea of empowered steering teams not only improves team performance but also breaks down government bureaucracy and speed decision making. After the its installation and receipt of the charter, the steering team proceeds with project set-up which entails structuring roles and responsibilities, choosing management methodologies and devising the success criteria. During this step the scope and objects may be revised and realigned with possible loopback to scope definition by the government arm. The execution phase follows, consisting mainly of project management, change management and stakeholder management running in parallel. Change management and stakeholder are stressed and handled outside normal project management process because the focus is on disruptive ICT projects which bring about enormous changes and so require intense stakeholder management.

The project management process should follow a renown methodology and driven by a qualified project manager. The project management effort mainly achieves process success - quality, time, scope and cost. The change management process mainly achieves user adoption and so product success. The stakeholder management effort is mainly to neutralize failure factors emanating from stakeholders and also to create a supportive ecosystem for the execution to thrive. After execution phase, the conclusion phase follows. This entails evaluation of project performance as per the criteria devised during project set-up. Lessons learned are published and fed back to the framework for its improvement. The last step is to close down the project where the steering team and project teams are dismantled. The initialization, execution and Conclusion phases are mainly driven and managed by the steering team.

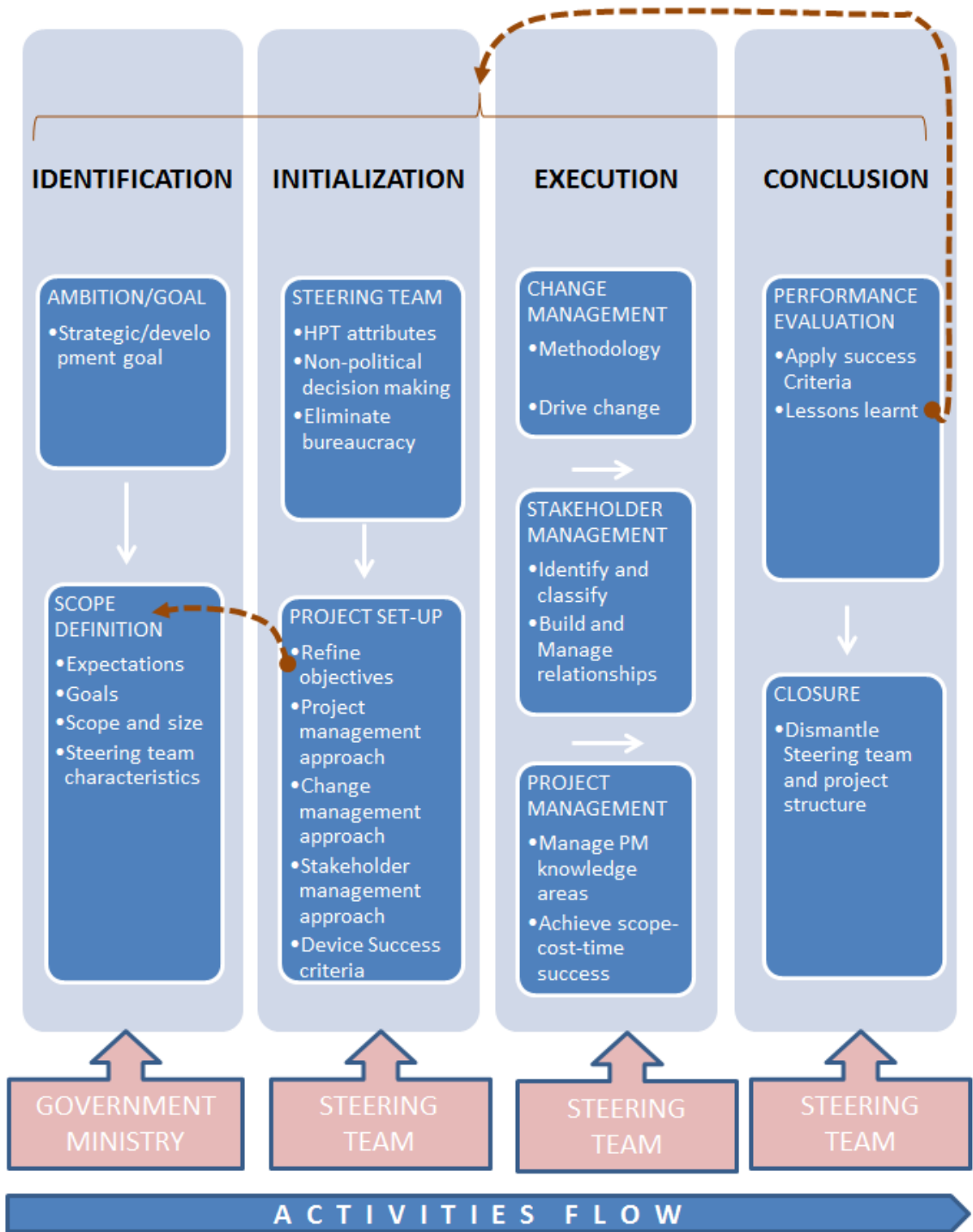
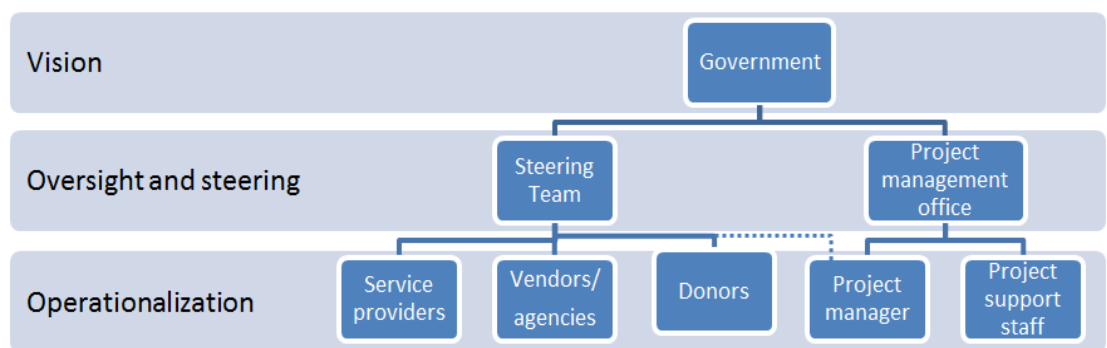


Figure 5-2: Framework for Government disruptive ICT project success

## 5.5 Framework Implementation

To implement change, the process should be driven by people organized in a structure according to Leavitt's diamond model ((Kræmmergaard et al, 2008). Consolidating the ideas discussed in the framework pertaining to organization issues, the matrix organogram in figure 5-3 is suggested for implementation of disruptive innovation ICT projects in government. At the top level is the government body sponsoring the project and their involvement is in setting high level vision and goal. Below it is the steering committee on one hand and Project management office (PMO) on the other, both focused on steering and oversight. The Steering committee and the structure below it are temporary structures, lasting the project lifetime only. The PMO is permanent and serves the role of contributing necessary assets and tools for project steering, enabling reuse of lessons learned and acceleration of learning curve for improved performance. The PMO trains and harbors the project managers and other project professionals. It is within the PMO organization where Six-Sigma is implemented for continuous improvement.



**Figure 5-3: Organization structure for ICT government project**

The phases of proposed framework for implementation are modular items forming the activities and the expected outputs making it easy for the government to implement. As listed in the previous section, the phases are definition, initialization, execution and conclusion, as depicted in table 5-1.

The methodology forms the base from which various questions and activities are derived to guide the execution of the project tasks. It is repeatable, with a feedback mechanism through lessons learnt to maintain or improve the project outcome/performance.

**Table 5-1a: Government ICT disruptive innovation project framework in detail**

Phase	Step	Key Activities	Expected Outputs
DEFINITION	Formulation of vision and goals	<ul style="list-style-type: none"> <li>▪ Evaluate strategic goals and other ICT project drivers</li> <li>▪ Prioritize and elect goals according to the vision</li> </ul>	<ul style="list-style-type: none"> <li>▪ Strategic/development goals and vision</li> </ul>
	Project Definition and Scoping	<ul style="list-style-type: none"> <li>▪ Define a project that addressed the vision and goals</li> <li>▪ State clear project objectives and scope and so counters failure factors such as ambiguous goals/scope and unrealistic expectations</li> </ul>	<ul style="list-style-type: none"> <li>▪ Common and unambiguous understanding of project goals and scope</li> <li>▪ Elimination of unrealistic expectations from the project Sponsor, vaguely defined goals and project complexity</li> </ul>
INITIALIZATION	Steering team selection	<ul style="list-style-type: none"> <li>▪ Appoint a high performance team to overcome political decision-making and fettering bureaucracy guided by project definition and scoping</li> </ul>	<ul style="list-style-type: none"> <li>▪ High-performance team for project steering</li> </ul>
	Project Set-up	<ul style="list-style-type: none"> <li>▪ Install an organizational structure and assign responsibilities and accountabilities as to break down task complexities.</li> <li>▪ Decide the Project management methodology, Change methodology and stakeholder strategy</li> <li>▪ Devise the project success Criteria</li> </ul>	<ul style="list-style-type: none"> <li>▪ Functional project steering team</li> <li>▪ Project management methodology, Change methodology and stakeholder strategy</li> <li>▪ Project success criteria</li> </ul>

**Table 5-2b: Government ICT disruptive innovation project framework in detail**

Phase	Step	Key Activities	Expected Outputs
EXECUTION	Project management methodology	<ul style="list-style-type: none"> <li>Achieve the process success through within budget, on schedule and in scope implementation of system quality, information quality and service quality of the ICT project</li> </ul>	<ul style="list-style-type: none"> <li>Project Process success</li> </ul>
	Stakeholder management	<ul style="list-style-type: none"> <li>Secure stakeholder involvement and proper management for project success. Salient model can be employed</li> </ul>	<ul style="list-style-type: none"> <li>Supportive and involved stakeholders</li> </ul>
	Change management	To manage disruptive change aspects towards the adoption of the project product and eventually the realization of net benefits. Suitable change methodology is followed	<ul style="list-style-type: none"> <li>Project product success</li> </ul>
CONCLUSION	Performance evaluation	<ul style="list-style-type: none"> <li>Evaluate the performance of the project according to success criteria developed earlier</li> <li>Produce and share lessons learnt</li> </ul>	<ul style="list-style-type: none"> <li>Project performance score</li> <li>Lessons learned</li> </ul>
	Closure	<ul style="list-style-type: none"> <li>Archive documentation and disband the steering and project teams</li> </ul>	<ul style="list-style-type: none"> <li>End of project life</li> </ul>

## 5.6 Validation of the Proposed Framework

Delivery of successful ICT projects by the government is the core of this framework. There are challenges in achieving this given the inherent failure factors and organization complexities discussed earlier. Despite all these, the proposed model should offers solutions that improve the chances of successful project delivery. The activities in various phases of the framework produce outcomes that are quantifiable as solutions for overall successful performance. Table 5.2 depicts key activities, outcomes and measurement metrics that can be used by the government to indicate the adherence to the framework to ensure great project performance. Various components are ranked on a scale of 1 to 5 with 1 being the least favorable and 5 being the most favorable.

**Table 5-3a: Activities/Outputs and Measurement Metrics – Definition Component**

Step	Activities/outputs	Measurement Metrics	Ranking				
			1	2	3	4	5
Formulation of vision and goals	Evaluate strategic goals and other ICT project drivers to derive a clear vision and goal	<ul style="list-style-type: none"> <li>▪ Is there a strategic/development vision and goal(s)?</li> </ul>					
Project Definition and Scoping	Gain common and unambiguous understanding of project goals and scope and so counters failure factors such as unrealistic expectations from the project Sponsor, vaguely defined goals and project complexity	<ul style="list-style-type: none"> <li>▪ Is the project defined with clear project goals?</li> <li>▪ Are the expectations of the sponsor clearly understood?</li> <li>▪ Is the scope clear and attainable?</li> <li>▪ Have all complexities been addressed?</li> </ul>					
<b>Component Subtotal Ranking</b>							

**Table 5-4b: Activities/Outputs and Measurement Metrics – Establishment Component**

Step	Activities/outputs	Measurement Metrics	Ranking				
			1	2	3	4	5
Steering team selection	Appoint a high performance team to overcome political decision-making and fettering bureaucracy	<ul style="list-style-type: none"> <li>• Has an independent steering team been appointed?</li> <li>• Does the steering team have the qualities of a HPT?</li> </ul>					
Project Set-up	To install an organizational structure and assign responsibilities and accountabilities as to break down task complexities. Project management methodology, Change methodology and stakeholder strategy are agreed. The success Criteria is agreed	<ul style="list-style-type: none"> <li>▪ Has the responsibilities and accountabilities of the steering team been defined?</li> <li>▪ Does the steering team have a clear charter and mandate to execute?</li> <li>▪ Are the Project management methodology, Change methodology and stakeholder strategy agreed upon?</li> <li>▪ Are performance criteria in place?</li> </ul>					
<b>Component Subtotal Ranking</b>							

**Table 5-5c: Activities/Outputs and Measurement Metrics – Execution Component**

			1	2	3	4	5
Project management methodology	To achieving the process success through within budget, on schedule and in scope implementation of system quality, information quality and service quality of the ICT project	<ul style="list-style-type: none"> <li>▪ Is the project management methodology adhered to?</li> <li>▪ Is the project run by a qualified/certified professional?</li> <li>▪ Is the time-scope-cost plans attained?</li> <li>▪ Can the project be closed?</li> </ul>					
Stakeholder management	To secure stakeholder involvement and proper management for project success. Salient model can be employed	<ul style="list-style-type: none"> <li>▪ Are all the stakeholders identified?</li> <li>▪ Are the stakeholders managed according to their salient features?</li> <li>▪ Have all benefits accruable from stakeholder involvement been harnessed?</li> <li>▪ Can the project be closed?</li> </ul>					
Change management	To manage disruptive change aspects towards the adoption of the project product and eventually the realization of net benefits. Suitable change methodology is followed	<ul style="list-style-type: none"> <li>▪ Have all disruptive changes been managed to gain industry acceptance?</li> <li>▪ Is the customer attitude towards the change positive?</li> <li>▪ What is the level of end-user/consumer usage?</li> <li>▪ Can the project be closed?</li> </ul>					
<b>Component Subtotal Ranking</b>							

**Table 5-6d: Activities/Outputs and Measurement Metrics – Conclusion Component**

Step	Activities/outputs	Measurement Metrics	Ranking				
			1	2	3	4	5
Performance evaluation	To evaluate the performance of the project according to success criteria developed earlier.	<ul style="list-style-type: none"> <li>▪ What is the project performance against the agreed success criteria?</li> <li>▪ Have the lessons learned been created and distributed?</li> </ul>					
Closure	To close down the project - archive project documentation and disband the steering and project teams	<ul style="list-style-type: none"> <li>• Has all the project documentation been archived?</li> <li>• Have the steering and project teams been disbanded?</li> </ul>					
<b>Component Subtotal Ranking</b>							
<b>Overall Total Ranking</b>							

## 5.7 Framework Validation Results

According to the research objects as set out in section 1.3, the proposed model was to be validated using the digital TV migration in Kenya. According to the literature review in chapter 2 and data analysis in chapter 4, digital TV migration is a disruptive innovation project and it is run by the Government. For that reason, to validate the framework for successful Government ICT disruptive projects, five respondents with direct involvement in Digital TV migration were selected to validate the framework. The direct involvement was critical so as to obtain an accurate feedback for the framework validation. The results of the validation are summarized in table 5.4.

**Table 5-7: Framework validation results**

	<b>Respondents</b>	<b>Phase 1 Score</b>	<b>Phase 2 Score</b>	<b>Phase 3 Score</b>	<b>Phase 4 Score</b>	<b>Total score</b>
1	Respondent 1	18	16	30	15	79
2	Respondent 2	20	21	35	17	93
3	Respondent 3	16	15	29	16	76
4	Respondent 4	19	17	32	17	85
5	Respondent 5	21	20	36	18	95
	<b>Maximum score</b>	25	30	60	20	135
	<b>Average score</b>	18.8	17.8	32.4	16.6	85.6
	<b>Percentage</b>	75%	59%	54%	83%	63%

### **Legend:**

Phase 1 – Identification

Phase 2 – Initialization

Phase 3 – Execution

Phase 4 - Conclusion

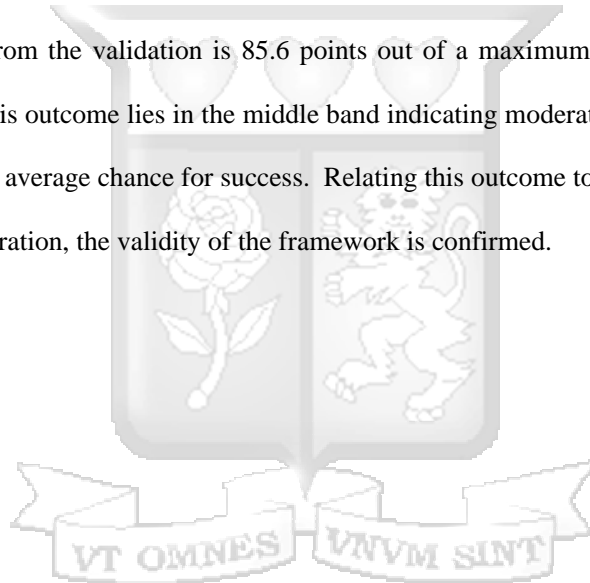
The names of the respondents have been withheld to safeguard confidentiality. The framework validation has a total of 27 questions each with a maximum score of 5 making the total maximum score 135. The minimum score for each question is 1 point, making the minimum total score 27 points. The percentage score per phase point at the performance of the phases

against the framework design. It is therefore observed that phase 2 and 3 were the weakest in the digital TV migration project. Table 5.5 gives the meaning and interpretation of different scores in the validation of the model.

**Table 5-8: Score indicator table**

27 -63	Indicates weak project steering and execution and low chance of project success
64 -100	Indicates fair project steering and execution and fair chance of project success
101 -137	Indicates well established steering and execution and high chance of project success

The total score from the validation is 85.6 points out of a maximum of 135. From the score indicator table, this outcome lies in the middle band indicating moderate steering and execution of the project and average chance for success. Relating this outcome to the known performance of digital TV migration, the validity of the framework is confirmed.



## **Chapter 6: Conclusion and Recommendations**

### **6.1 Introduction**

This chapter summarizes the key study findings derived from the analyses and discussions in chapter 4 and 5. Additionally, recommendations are made on management and governance of ICT disruptive projects in Kenyan Government. Suggestions for further research are also presented in this chapter.

### **6.2 Conclusion**

The management of Government ICT disruptive innovation projects in Kenya can benefit from the enrichment of the process by incorporating the suggested framework. From the discussions in Chapter 4, the suggested framework is entirely relevant and useful to the case project studied. The review of digital migration in Kenya brought out characteristics of government disruptive project that are distinct from the commonly studied e-Government projects. Key among them is the power of industry incumbent players whose value in the chain is threatened by the change. The definitions and measurements of project success were examined from existing frameworks. These were built in the proposed framework for project delivery. The validation of the framework was based on the respondent experience in digital TV migration, and the case can be extended to other Government ICT disruptive innovation projects.

The study established weak application of some phases of the suggested framework. The steering team diversity and size were not optimized in the reference case of digital TV migration. Similarly the success criteria for evaluating the project performance were not well in place. The stakeholder management could also have been made better. The academic contribution of this study then is a framework that can enhance the success of Government projects in ICT that by end would drive the realization of vision 2030.

### **6.3 Recommendations**

Use of ICT to drive economic growth as enshrined in the Kenya's Vision 2030 would require that the ICT projects be implemented successfully, especially the disruptive innovation projects. This study offers the following recommendations:

- i. The steering team should be carefully chosen for the members' expertise and diversity. The features of a High performance team should be built in.
- ii. The success criteria, over and above project objectives, should be determined from the onset and the success/failure factors managed throughout project lifecycle.
- iii. The project steering effort should have a focus on change management guided by various factors of change and geared towards total project success and user adoption
- iv. Stakeholder management can determine success or failure of a disruptive innovation project in the government and so a good model like the Salient model should be adopted.
- v. It is recommended that a qualified project manager is appointed to run the project and that a renowned project management methodology is adopted. With the anticipation of high volumes of ICT projects, formation of a project Management office is advised. This can consolidate the learning curves and improve efficiencies in project management.

### **6.4 Suggestions for further research**

This study validated a framework that can enhance the governance of disruptive innovation projects in the Government of Kenya to achieve greater success. With emerging knowledge in project management and Government project, there is room to improve the framework to encompass the advancements and therefore improve its efficacy. The investigation on team size of the steering committee did not give a clear result of a definite size. This indicates a possible lack of clear understanding

of the concept since the digital television committee (DTC) ran the project. From the literature review, DTC was formed mainly by members of functional organizational structure while perhaps a balanced matrix structure could have been better. A further study to establish the organizational structure barrier and other barriers to implementing this framework or similar frameworks in Government projects may be necessary.



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# Appendices

## Appendix A: Research Questionnaire

### RESEARCH QUESTIONNAIRE

Research Topic: Framework for government ICT disruptive innovation projects: A case study of digital TV migration in Kenya

#### Researcher and Confidentiality/Non-Disclosure Assurance

- The researcher is a student at Strathmore Business School researching on a framework for running government ICT disruptive project in Kenya.
- The data and/or information you provide shall be treated with utmost confidentiality and shall not be shared without your prior permission.

#### Research Objectives

- To review the components of digital terrestrial television migration
- To examine frameworks for understanding and measuring success in Government ICT projects
- To propose a framework for understanding success and failure factors in Government disruptive ICT projects in Kenya
- To validate the success/failure framework using the digital migration case in Kenya

#### Directions in responding to the Questionnaire:

- You are kindly urged to respond to all other questions
- Note that you may opt or not to respond to questions marked 'optional'
- Your participation in the study is voluntary yet very necessary for the success of the study
- Feel free to give additional comments where necessary in the spaces provided
- Fill the questionnaire only once

I will appreciate receiving your response before November 21 , 2015.

#### Correspondence/Inquiries:

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P.O. Box 59857 - 00200,  
Nairobi, Kenya.

### PART A: Personal and Company information.

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Please note that most questions in this part are optional

#### 1. Question A1

Individual Name (Optional)

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#### 2. Question A2

Business/Organization (Optional)

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#### 3. Question A3

What is your Job Title? (Optional)

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**4. Question A4**

Gender (Optional)  
Mark only one oval.

- Male  
 Female

**5. Question A5**

Please indicate the primary area (s) of business within the digital TV value chain  
Mark only one oval.

- Regulator  
 Consumer  
 Distributor  
 Curator  
 Creator  
 Other

**6. Question A6**

Please indicate your primary job function at your organization  
Mark only one oval.

- Technical/operations  
 Marketing/ Sales  
 Strategy  
 PR/Communications  
 Legal  
 General management  
 Finance/Administration  
 Other: \_\_\_\_\_

**7. Question A7**

Were you directly involved in the management of digital migration?  
Check all that apply.

- Yes  
 No

## **PART B: Steering team selection and project set-up – High Performance Teams (HPT)**

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To achieve high standards of performance in projects and change management, the concept of high performing teams (HPT) should be employed. The questions in this part relate to the concepts of HPT

**8. Question B1**

Based on the Digital TV migration in Kenya, what is the relevance of the following team attributes for a steering team of a Government disruptive innovation ICT project?  
*Mark only one oval per row.*

	Relevant	Neutral	Irrelevant
Clear team charter and logical basis for the project from the assigning Government arm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Clear authority and autonomy to execute the tasks with it's scope	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Small team size of 5 - 20	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Specific, measurable team performance goals	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Right mix of expertise (professional diversity) in the team	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Responsibilities and accountabilities assigned to individuals or groups for a given task	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The whole team collectively accountable for their performance	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**9. Question B2**

Did the digital TV migration project team have a clear team charter and rationale from the Government?  
*Mark only one oval.*

- Yes
- No
- Don't know

**10. Question B3**

Was the project steering team given clear authority and autonomy to execute the tasks within its scope?  
*Mark only one oval.*

- Yes
- No
- Don't know

**11. Question B4**

How many members were in the DTV project steering team?  
*Mark only one oval.*

- 2 - 10
- 11 - 25
- More than 25
- I don't know

**12. Question B5**

Was the digital TV migration effort broken down into specific, measurable performance goals?  
*Check all that apply.*

- Yes
- No
- Don't know

**13. Question B6**

Please tick from below list the essential expertise for a digital TV migration team?  
*Check all that apply.*

- Technical (Engineering) expertise
- Legal expertise
- Change management expertise
- Stakeholder management expertise
- Project management expertise
- Financial expertise
- Procurement and supply expertise
- Marketing expertise
- Other: \_\_\_\_\_

**14. Question B7**

How do you rate the mix of expertise (professional diversity) in the digital TV migration team?  
*Mark only one oval.*

- Very Diverse
- Diverse
- Not Diverse

## **Part C: Change management**

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A disruptive innovation can be defined as a technology whose application significantly affects the way a market functions. It defines new ways of value creation and value exchange and has the potential to reshape business processes or an entire industry. Disruptive innovation focuses on the use of technology unlike disruptive technology which focuses on the technology itself. The questions on this part relate to the concept of disruptive innovation and managing the change it brings.

**15. Question C1**

How do you rate the usefulness of the following aspects in managing change?  
Mark only one oval per row.

	Very Critical	Useful	Not so Useful	Immaterial
Adoption of change management methodology	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Evaluation of the task's level of difficulty	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Influencing the individual user attitudes towards adoption	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Exerting social pressure to consumers/users to take up new product	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Securing higher management's support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**16. Question C2**

Would you recognize digital TV migration as disruptive innovation? Please comment on your answer.

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**17. Question C3**

Was there a change management methodology adopted in digital TV migration?

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**18. Question C4**

What is your evaluation of the task's (digital TV migration) level of difficulty?  
Check all that apply.

- Difficult
- Moderate
- Easy
- Other: \_\_\_\_\_

**19. Question C5**

Were there actions taken to influence the individual user attitudes about digital TV? Please elaborate.

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**20. Question C6**

How would you rate the level of higher management's (Government/the executive) support for DTV?

*Mark only one oval.*

- Very Supportive
- Supportive
- Less Supportive
- Not supportive

## **PART D: Stakeholder management**

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In this context stakeholders will be defined as the people whose work lives are affected directly or indirectly by a transition. Stakeholders can be categorized according to their salience which is determined by their Power, Urgency and legitimacy for the purpose of managing them. High salience stakeholders are handled differently from low salience stakeholders. Stakeholders contribute to project success or failure

**21. Question D1**

How do you rate the importance of Stakeholder management in disruptive innovation projects?

*Mark only one oval.*

- Very Important
- Important
- little or no importance
- Not important entirely

**22. Question D2**

How do you rate the importance of Stakeholder management in digital TV migration in Kenya?

*Mark only one oval.*

- Very Important
- Important
- little or no importance
- Not important entirely

**23. Question D3**

Stakeholder power is defined as the extent to which a party has or can gain access to coercive, utilitarian or normative means to impose their will. Please tick from the list below the stakeholders with power in regard to digital TV migration in Kenya

*Check all that apply.*

- The Government
- The Regulator
- The broadcasters and signal distributors
- The equipment (STB) manufacturer and vendors
- The consumers and consumer organizations
- The international and regional Telecom bodies
- Other: \_\_\_\_\_

**24. Question D4**

Stakeholder Legitimacy is defined as 'a generalized perception or assumption that the actions of an entity are desirable, proper, or appropriate within some socially constructed system of norms, values, beliefs, and definitions'. Please tick from the list below the stakeholders with legitimacy in regard to digital TV migration in Kenya

*Check all that apply.*

- The Government
- The Regulator
- The broadcasters and signal distributors
- The equipment (STB) manufacturer and vendors
- The consumers and consumer organizations
- The international and regional Telecom bodies
- Other: \_\_\_\_\_

**25. Question D5**

Stakeholder Urgency is defined as 'the degree to which stakeholder claims call for immediate attention'. Please tick from the list below the stakeholders with Urgency in regard to digital TV migration in Kenya

*Check all that apply.*

- The Government
- The Regulator
- The broadcasters and signal distributors
- The equipment (STB) manufacturer and vendors
- The consumers and consumer organizations
- The international and regional Telecom bodies
- Other: \_\_\_\_\_

**26. Question D6**

Please indicate the influencing method which would be appropriate for different DTV stakeholders  
Mark only one oval per row.

	Intensive collaboration	Keep satisfied	Good information	Minimum effort	None
The Government	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Regulator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The broadcasters and signal distributors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The equipment (STB) manufacturers and vendors	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The Consumers and consumer organisations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The international and regional Telecom bodies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**PART E: Project Success/Failure factors and success criteria**

Critical success factors refer to conditions, events, and circumstances that contribute to project results. They are the drivers and enablers whose presence or absence determines the success of the project. Project success criteria on the other hand refers to a group of principles that judge project success.

**27. Question E1**

Which statement(s) below that fit your definition of project success? (choose all that apply)  
Check all that apply.

- Fulfilling the on time, within budget, and to specification implementation (triple constraints) of the project
- Satisfaction of major stakeholders with the project
- The quality (system, information, service) of the project product
- Adoption and use of the project product by the intended end-users
- Achievement of the net benefits intended for the project
- Other: \_\_\_\_\_

**28. Question E2**

Project Success can be broken into process success and product success. What should be the main focus in a government ICT projects according to you?  
Mark only one oval.

- Process Success
- Product Success
- Both process and product success

**29. Question E3**

What was the criteria for judging the success of Digital TV migration in Kenya? If not aware of a formal criteria, please state you ideal principles for judging the success.

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**30. Question E4**

From your experience in digital TV migration in Kenya, please rate the significance of the success factors below in relation to Government disruptive ICT project success  
*Mark only one oval per row.*

	Extensive	Moderate	Minimal
Vision And Strategy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Government Support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
External Pressure and Donor Support	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Rising Consumer Expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Technological Change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Modernization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Globalization	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**31. Question E5**

Name any other Success factors for Government disruptive ICT projects in addition to those listed in Question E4?

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**32. Question E6**

From your experience in digital TV migration in Kenya, please rate the influence of the below failure factors on Government disruptive ICT projects  
*Mark only one oval per row.*

	Extensive	Moderate	Minimal
Lack of bureaucratic inertia for change	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor infrastructure	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of finances	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor data systems and capability	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Lack of skilled personnel	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ineffective leadership styles	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Poor stakeholder management	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Project Complexity	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**33. Question E7**

Name any other failure factors for Government disruptive ICT projects in addition to those listed in Question E8?

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## **PART F Project management methodology**

The project management methodologies suggests an approach where management practices are adjusted, based on the risk exposure, with higher-risk projects receiving additional attention. These management actions help to mediate the effects of risks and influence project performance. From digital TV migration experience in Kenya, please answer the questions that follow:

**34. Question F1**

Is it beneficial to adopt a project management methodology (PMP, Prince, etc) in Government ICT projects?

*Check all that apply.*

- Yes  
 No  
 Don't know

**35. Question F2**

Is it beneficial to appoint a qualified/certified project manager to run a Government ICT project?

*Check all that apply.*

- Yes  
 No  
 Don't know

**36. Question F3**

Did the implementation of DTV migration in Kenya adopt a renowned project management methodology (PMP, Prince, etc)

*Mark only one oval.*

- Yes  
 No  
 Don't know

**37. Question F4**

Did the project management effort meet the triple constrain performance criteria?  
*Mark only one oval per row.*

	Met	Not Met	Don't know
Time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Scope	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Budget	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**38. Question F5**

From your experience in DTV migration, what benefits are attributable to appointing a qualified Project Manager to run a government disruptive ICT project following a renowned methodology?

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**39. Research findings.....**

I will be glad to return the favour; Please let me know if you like to get a copy of the research finding.

*Mark only one oval.*

- I would like to receive
- No thanks