

**Investigating Telecentre implementation through the lens of
Design-Reality Gap framework and Postcolonial Theory: the case of
the Ghana Community Information Centre (CIC) initiative.**

By

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DEDICATION

This thesis is dedicated to my wife, children, my parents of blessed memory and God almighty.

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LIST OF PUBLICATIONS

JOURNALS

1. Ayoung, D. A, Abbott, P and Armin, K. (Accepted). The influence of intangible ('Soft') constructs on the outcome of community ICT initiatives in Ghana: A Gap Archetype analysis. *EJISDC*.
2. Dasuki, S.I., Abbott, P. and Ayoung, D. A. (2014) 'ICT and empowerment to participate: a capability approach', *Information Development*, 30(4), pp. 321-331.

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3. Ayoung, A., Abbott, P. and Kashefi, A. (2015b) 'Investigating Telecentre implementation through a Postcolonial lens: the Ghanaian perspective', *Proceedings of the 13th International Conference on Social Implications of Computers in Developing Countries*. Negambo, Sri Lanka, May 2015. Norway: Department of Informatics, University of Oslo, 599-612.
4. Kashefi, A., Abbott, P. and Ayoung, A. (2015) 'User IT Adaptation Behaviors: What Have We Learned and Why Does it Matter?', *Twenty-first Americas Conference on Information Systems*. Puerto Rico, August 2015.

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ABSTRACT

This study explored in detail the Community Information Centre (CIC) initiative (also widely referred to as Telecentres) in Ghana by adopting a qualitative case study approach. The study involved eight CICs in the Upper East Region of Ghana and encompassed the use of semi-structured interviews covering forty-six participants and two focus group discussions (six participants in each group). The exploration brought into focus the need to investigate Telecentre evaluation by applying more of a soft factor approach than the usual economic indicator approach to understanding the tenuous relation between ICTs and development, especially in developing countries (DCs). The result of this careful exploration was a deeper explanatory framework of Telecentre evaluations for the investigated context underpinned by two analytical frameworks namely Design-Reality Gap framework (DRG) and Postcolonial Theory (PCT). Unlike other research work which were interested in economic indicators as a measure of success or failure or in determining impact, this study; **1)** heeded the call to look beyond the quantification approach to apply intangible elements (people issues, culture, emotions, politics, power asymmetries) to understand the underlying dynamics that influence the outcome of Telecentre success or failure; **2)** to determine the dynamic processual relationship between the outcomes of the evaluation and the underlying context.; **3)** to provide a higher-level depiction of policy makers' intentions for the continuing establishment of CICs in Ghana. This third analysis was underpinned by the application of postcolonial theory as a complementary analytical lens.

The findings not only showed the factors responsible for the failure of the CIC initiative but also surfaced the primary reasons for the reported failure by illustrating the dynamic, complex and reciprocal relationship between the various seed categories representing the dimensions of the DRG framework. The results further indicate that soft constructs were overlooked throughout the process of implementation that negatively affected the suitability of the Telecentres. It was also found that postcolonial legacies influenced the design and implementation of Community Information Centres (CICs) and their subsequent non-use. The study had interesting outcomes some of which have been highlighted in a

proposed framework. These new dimensions in the proposed framework have the potential to unearth fundamental gaps that significantly contribute to the outcome of Information and Communication Technology (ICT) initiatives and enable researchers to move a step further in understanding success or failure of pro-poor interventions such as the CICs.

The results can be particularly useful for practice by assisting ICT4D practitioners and Telecentre managers to perform a risk analysis before, during and after ICT project implementation. Specifically, it will be useful to designers who should appreciate the essence of contextual (cultural and historical factors), institutional and needs assessment concerns that constrain the implementation of ICT initiatives. Very few studies have been able to combine all three levels of analysis in a single qualitative study and at this depth in evaluating Telecentres in DCs. Additionally, this study is also a response to the call for a more in-depth evaluation of ICT4D initiatives underpinned by theory-/framework-based analysis.

ACRONYMS AND ABBREVIATIONS

ACE	Access, Capacity and Environment
ANT	Actor Network Theory
CA	Capability Approach
CAI	Computer Aid International
CAP	Community Access Programme
CBO	Community Based Organisation
CEO	Chief Executive Officer
CIC	Community Information Centre
CIDA	Canadian International Development Agency
CIS	Center for Information & Society
DAC	Development Assistance Committee
DCE	District Chief Executive
DFID	Department For International Development
DOI	Diffusion of Innovation
DotForce	Digital Opportunity Task Force
DRG	Design-Reality Gap
GICT4AD	Ghana Information and Communications Technology for Accelerated Development
GIFEC	Ghana Investment Fund For Electronic Communication
GSS	Ghana Statistical Service
ICT	Information and Communication Technology
ICT4D	Information And Communication Technology For Development
IDI	ICT Development Index
IDRC	International Development Research Centre

IICD	International Institute for Communication and Development
IMF	International Monetary Fund
InfoDev	Information for Development
IS	Information Systems
ISD	Information Service Department
IT	Information Technology
ITU	International Telecommunications Union
JICA	Japan International Cooperation Agency
KIT	Royal Tropical Institute
LFA	Logical Framework Analysis
MDG	Millennium Development Goals
MMDA	Metropolitan, Municipal and District Assemblies
NGO	Non-Governmental Organisations
OECD	Organisation for Economic Co-operation and Development
PAC	Public Access Centres
PCT	Postcolonial Theory
PEA	Participatory Evaluation Approach
PNDC	Provisional National Defence Council
SAP	Structural Adjustment Programmes
SARI	Sustainable Access in Rural India
SLA	Sustainable Livelihood Approach
SoG	Sociology of Governance
SRT	Social Representation Theory
UER	Upper East Region
UN	United Nations
UN/ACC	United Nations/Administrative Committee on Coordination
UNCTAD	United Nations Conference on Trade and Development
UNDP	United Nations Development Project

UNECA	United Nations Economic Commission for Africa
UNESCO	United Nations Educational, Scientific and Cultural Organization
VSAT	Very Small Aperture Terminal
WSIS	World Summit on Information Society

CHAPTER ONE - INTRODUCTION TO THE STUDY

1 INTRODUCTION

This chapter outlines the background to and explains the core concepts used in the study. It gives the background to the research, the research questions, objectives, scope, the justification of the research and the research domain, ending the chapter with the organization of the study.

1.1 Background to the Research

Several governments, agencies and organisations over the years have initiated Information and Communication Technology (ICT) programmes that seek to alleviate poverty by focusing on social, economic and political development (Brown, 2010; Walsham, 2012). The primary objective of these interventions has been to modernise the functioning of the state and to augment the delivery of government services to citizens in developing countries (Lin, Kuo & Myers, 2015). Through the diffusion of public information systems to deprived communities, governments aim to bridge the ICT access gap and provide an opportunity to such groups to participate in governance activities (World Bank, 2008). The idea behind this approach is to hasten a measured level of development to underdeveloped societies. The ideals of the techno-deterministic proponents are that the introduction of ICTs will leapfrog the staged process of development because developing countries do not have the luxury of time and unfettered resources (Gray & Sanzogni, 2004). Initially, the regenerative powers of ICTs were envisaged as their ability to enhance economic growth of adopters and increase gross national product (Zheng, 2009). However, some have called for a broadened concept of development to include human development (ibid). Accordingly, some development oriented organisations have adopted the human development paradigm hinged on the capability approach (CA) to tackle development challenges such as poverty, gender inequality, corruption and human rights (Dasuki, Abbott & Azerikatoa, 2014; Zheng & Stahl, 2011; Zheng, 2009).

Interestingly, some studies have pointed out that irrespective of the drive for the use of ICTs to support development, there is little evidence of a direct link (World Bank, 2012; Akpan, 2003). This notwithstanding, the dominant discourse appears to push for the application of ICTs to development (Sein & Harindranath, 2004). In developing countries, ICTs have been

viewed as the panacea to economic growth and as a way to bridge development gaps especially regarding access (Venkatesh & Sykes, 2013). The objective of these initiatives has broadly been threefold: 1) to ensure citizens are not unduly excluded from the benefits of ICTs; 2) as a means to alleviate poverty in the deprived communities (May & Diga, 2015); and 3) as a means of delivering government services to the wider society (Cordella & Tempini, 2015).

To bridge this access gap, ICTs have been made available through different initiatives such as Last Mile Initiatives, Library Connectivity, Rural Pay Phones, School Connectivity and Community Initiatives to name a few (Gunasekaran & Harmantzis, 2007; Gaible & Burns, 2005; Hudson, 2000). Arguably, the most common ICT intervention to have been adopted and deployed widely in developing countries to support development efforts in rural communities has been Telecentres (Pick, Gollakota & Singh, 2014; Mukerji, 2010). Telecentres are strategically located facilities providing public access to ICT-based services and applications (Mukerji, 2008) and often equipped with Internet enabled computers, facsimile, telephony, printers, photocopiers, radio, television and meeting spaces (Oestmann & Dymond, 2001). By promoting ICTs through Telecentres, marginalised communities are expected to become connected to the wider society and be able to exchange information and explore avenues for further development. Such initiatives are meant to give beneficiary communities the opportunity to improve their wellbeing and attain some level of relative empowerment. Their success is therefore vital in ensuring user agencies are satisfied. When ICT initiatives fail, they deprive beneficiaries of capabilities that promote development. In some instances, ICTs (Telecentres for example) meant to propel development actually fall short of their objectives.

Despite the unparalleled support ICT initiatives have received from governments, international agencies and non-governmental organisations, they seem not to be achieving the intended objectives for which they were established (Chaudhuri, 2012; Toyama, 2010). For instance, Heeks (2002) states that there seem not to be an end to the failure of Information Systems (IS) projects in most developing countries. The significant number of failed ICT4D projects in DC countries further illustrates the tenuous notion of ICTs being the panacea to development. Irrespective of this apparent lack of strong association of ICTs and development, a substantial number of DCs continue to implement such projects (Ayoung,

Abbott & Kashefi, 2015b). In Ghana, a form of Telecentre known as a “Community Information Centre” (CIC) has been in existence since 2005. They were spearheaded by a government initiative (GIFEC, 2013).

The focus of this thesis will be to examine the shortfall between design expectations of the CICs and implementation realities in the study context. In so doing, this study considered eight Telecentres in one region of Ghana. Ghana was selected as the case study country because the CIC initiative has received little attention by way of research to understand the developmental effects on the user community and the primary researcher is a citizen of this country and intimately familiar with the study context.

This research chose to determine success or failure in the Ghanaian context because, the success of the project may be an indication that citizen’s needs are adequately fulfilled and are able to meaningfully contribute to the growth of the community as well as their local economy, while failure may constitute a deprivation of the individual’s agency to exploit development opportunities. Additionally, this study is a response to the call for more in-depth evaluation of ICT4D initiatives underpinned by theory-/framework-based analysis (Heeks, 2010)

1.2 Research Motivation

In 1821, the British Government took control of the British trading forts on the Gold Coast (now Ghana). In 1844, Fanti chiefs in the area signed an agreement with the British that became the legal steppingstone to colonial status for the coastal area. Later, they succeeded in establishing firm control over the Ashanti hinterlands and eventually making the northern territories a protectorate. In 1951, a constitution was promulgated that called for a greatly enlarged legislature composed principally of members elected by popular vote directly or indirectly. This paved the way for elections to be held in 1954 and 1956 with Kwame Nkrumah’s CPP winning both elections and subsequently leading to the declaration of independence in 1957.

However, after a series of coup d’états and bad governance (Gyimah-Boadi, 2008), the country had almost collapsed financially. To forestall the total collapse of the country, the government had no choice than to seek external help from the World Bank and IMF (Abdulai, 2009) in 1983. Since then, the government has initiated several programmes

aimed at improving the structural deficit responsible for the 'collapse' of the economy. The state recognised that for the developmental effort to be successful, it was necessary to initiate and involve underprivileged communities in the development effort. In 2003 government passed into law the ICT4AD policy document which was to spearhead the development effort of the country with a focus on the implementation of strategic ICT initiatives through which the country was to be transformed into a middle income economy (G-ICT4AD, 2003). The policy proposed the implementation of universal access centres as the best approach to introduce the pervasive power of ICTs in underserved and underprivileged communities mostly located in rural areas of Ghana. Following this recognition, the first batch of universal access centres (CICs) were rolled out in 2005. Initially these centres emerged to be relatively successful but along the line there have been reports of non-use and closure of some of these centres comparable to reports from other developing countries that also adopted similar initiatives. Irrespective of this trend, the Ghanaian government is still pressing on with its implementation.

This study, therefore, seeks to assess critically the Telecentre initiative by government to understand the rationale for the continued establishment of Telecentres when a cursory survey shows that those already established are non-functional. To make a case for the continued establishment of these centres, it should be important to assess these programmes to determine their outcomes over time and the influence they have made on beneficiaries. Nevertheless, since the inception of the CIC initiative, there has hardly been any published evaluative research of this government intervention.

This apparent lack of management oversight in the light of continued support for the programme was the motivation for conducting this research. The purpose of this study, therefore, at one level, is to address this issue and establish empirically the current status (regarding success or failure) of CICs in Ghana. At another level, the study also seeks to discover why this situation exists.

1.3 Research Objectives and Questions

The underlying assumption informing this research is that the provision of ICT facilities to underserved and marginalised communities has the capacity to improve their wellbeing and improve local economies because of the potential they (ICTs) possess. The emancipatory

nature of ICTs that heralded the implementation of these initiatives have, however, not been realised in most communities where they were implemented. Thus, bringing into question the underlying assumptions that instigated their adoption in developing countries. The aim, therefore, is to understand the rationale for the sustained launch of new CICs in the study area. Specifically the objectives of the study are:

1. To identify key stakeholders in the CIC implementation space,
2. To empirically establish whether the Community Information Centre (CIC) initiative in Ghana is a success or failure,
3. To understand how intangible (difficult to measure) rather than just tangible (measurable) factors influence the implementation of Telecentres,
4. To respond to the call for a paradigm shift in the evaluation of ICT initiatives in developing countries by identifying useful techniques for evaluating intangible benefits,
5. To unearth evidence that supports the continuing pursuit of the Telecentre initiative by government,
6. To make recommendations to improve existing systems and suggest an alternative to complement the e-government effort.

The research objectives led to the following research questions:

1. How can we usefully evaluate the success/failure of the CIC initiative in Ghana?
2. What is the rationale for the continuing establishment of CICs in Ghana?

The two research questions were carefully formulated to guide the study and achieve the aim of the research. Together, these questions provide a richer understanding of the Telecentre phenomenon in Ghana and the likely consequences for the non-use of the facilities provided at great expense to the nation. These research questions also provided the framework for the conduct of this research, its boundaries and limitations as well as the development of the data collection protocols and the type of data collected (Bryman, 2008).

1.4 Research Approach

To address the above research questions, an empirical investigation was conducted to understand the context, users involved, dynamics and challenges of the process of implementation of the pro-poor ICT initiative in one of Ghana's deprived and impoverished

regions. A combination of realist (Stakes, 1995) and critical research (Myers, 1997) approaches were adopted in this study to understand the complex relationship of human and contextual elements that shaped the outcome of the initiative. These two approaches were adopted because the author believed their use would significantly contribute to the understanding of the reasons for failure or success of the CICs while bringing to the light the rational explanations for the scaling of the initiative.

In this study, the focus was to collect user perceptions about their engagement with the ICT initiative with the express objective of invoking their understanding of the usefulness of the facilities, its impact on their wellbeing and how it has aided in improving their way of life. The real world cannot be perceived only through experiences as such the author advanced further to ask 'why' about the evidence adduced through the perceptions of participants (Olsen, 2010). Examining individuals' experiences was valuable since descriptions of existing experiences offer authentic insights into the individuals' observations, thoughts, opinions and evaluations. Hence, the author was able to find out and understand, for example, what was important or trivial for the interviewees, what they paid attention to and their experiences of the facilities with which they had interacted.

The study was carried out during the period 2013-2014 through a single case-study design approach. The research was conducted in the Upper East Region of Ghana and involved eight Community Information Centres spread across the region. Forty-six (46) purposively sampled individuals participated in the study including two focus group discussions. Data collection was conducted via semi-structured interviews, field observations and document analyses while thematic analysis¹ was used to analyse the data (Braun & Clarke, 2006).

1.5 Theoretical Approach

The literature available indicates that most ICT4D initiatives in developing countries are prone to failure (Harris, 2015). Therefore, it is essential that initiatives be evaluated to determine their viability through a systematic and rigorous methodological and theoretical approach. Two analytical frameworks inform this thesis namely: Design-Reality Gap (DRG) framework and Postcolonial Theory (PCT).

¹ Thematic analysis is a method of organising and describing data in rich detail by identifying, analysing and reporting patterns referred to as themes.

The DRG framework serves as a benchmark approach for evaluating and determining ICT4D initiatives success or failure. The underlying assumption of the DRG is that there is a gap between design expectations and implementation reality (Heeks, 2003). Depending on the size of the gap, a project can be determined as a success or failure. The wider the gap, the higher the likelihood of failure and vice versa. In this thesis, the author adopted this framework to determine the status of the CICs in the Upper East Region of Ghana and also because of its efficacy and ease of use in assessments.

Although the DRG is useful in determining the success/failure status of an ICT project, this study also seeks to understand the underlying reasons for this status and the rationale for the consistent replication of the initiative. The DRG gap analysis does not at first glance provide this information explicitly. Hence, unanswered questions remain in relation to the sustainability of the CICs. The seven dimensions give insights into the factors that might lead to the near collapse of the CICs. The author believes applying a higher level of analysis would provide significant insight into how this success/failure might occur. The author draws on critical studies (through the lens of PCT) to unravel the rationale for this continuity.

Postcolonial theory “involves a studied engagement with the experience of colonialism and its past and present effects, both at the local level of ex-colonial societies as well as at the level of more general global developments thought to be the after-effects of empire” (Quayson, 2000, p. 2). The strength of Postcolonial theory is inherent in its “set of theoretical and methodological tools for deconstructing the colonial foundations of contemporary power structures” (Roy, 2008, p. 319). Its wide acceptance as an analytical tool makes it a recognised theoretical foundation in critical research hence our natural capitulation towards its use in a context encumbered with a colonial past. The notion of power relations afforded by postcolonial analysis gives researchers especially in developing countries the requisite tool to evaluate ICT4D initiatives. In other words, it serves as an indication of contemporary forms of critique requiring a critical lens to analyse phenomena.

1.6 Expected contributions

This research envisages contributing theoretically and practically to the research domain of ICT evaluations in general and the Telecentre phenomenon in particular by:

- Expanding the scope of Telecentre evaluation studies through the lens of two analytical frameworks, a case study design and informed by two philosophical approaches. Hence, emphasising the significance of conducting a systematic and reflective research process and by recognising the essence of methodological rigour and theoretical concerns,
- Improving the initial theoretical framework (DRG) by enhancing various aspects of the model based on the empirical findings of the case study research,
- Contributing to the debates on the conceptualisation and evaluation of Telecentres as development agents,
- Providing practical insights for managers by giving them a simple and useful tool to manage and predict failure/success without having expert knowledge in evaluations, which in turn can be used to improve the sustainability of the ICT initiative and ultimately, improve its impact on the beneficiaries.

1.7 Research Overview and Structure

The structure of the chapters is organised as follows:

Chapter one: is the introductory chapter which outlines the background to the study, research motivation, research objectives and questions. It introduces the research approach and theoretical philosophies underpinning the study. It concludes by suggesting expected contributions of the study.

Chapter two: begins with an overview of ICT4D followed by a review of the literature in the ICT4D domain. The literature review focuses on key dimensions of ICT4D literature that have influenced this study: the relationship between ICTs and human development, Telecentre evaluation and sustainability discourse. Following a discussion on the critique of the ICT4D domain and gaps in the literature, the chapter concludes with the formulation of the research questions informing this study. Hence, the literature review helped to identify areas to which this study might contribute.

Chapter three: discusses the different conceptual frameworks that have been applied in Telecentre evaluation research. This chapter introduces the theoretical basis underpinning this research by first exploring the relevance of theory to IS research. The ICT4D field has adopted diverse conceptual frameworks to investigate different phenomena. This chapter discusses theoretical frameworks relevant to ICT4D evaluation in the literature briefly by

highlighting how they have been used to evaluate ICT initiatives in developing countries. The review indicates the alternate approaches available to examine the CICs while at the same time bringing to fore reasons why the chosen approach is more suitable. It then proceeds to discuss the two primary chosen theoretical frameworks adopted to investigate the CIC phenomenon.

Chapter four: is devoted to describing the philosophical assumptions underpinning the study. The main strategy adopted for studying the contribution of Telecentres to development is an in-depth case study. The methodologies and methods used in conducting case studies are discussed. The work examined in this chapter shows how insightful a realist and critical approach could be used to evaluate effectively Telecentre implementation.

Chapter five: offers an overview of the research site and its associated characteristics. It begins with a brief historical overview of the country Ghana and an explanation of the contextual characteristics in which the CICs operate. This is followed by a discussion of the current ICT situation in Ghana with respect to IT penetration and infrastructure levels. It discusses the ICT policy strategy of Ghana and how it informed the founding of the CIC initiative. The author then proceeds to describe the CIC phenomenon in detail to shed light on the conception of the model to its implementation.

Chapter six: discusses the analysis of the findings. The units of analysis for this study were at the organisational and socio-political levels. The analysis is discussed in two stages. The first stage will deal with the findings arising out of the application of the Design-Reality Gap framework that was intended to determine the status of the CICs in Ghana. The second stage reflects the data-driven analysis where the data was subjected to the second round of analysis with the objective of establishing the rationale for continuing implementation of the CIC initiative in Ghana. Ultimately, this chapter through the analysis process evaluates the Telecentre as an IS system to determine success or failure of the pro-poor intervention while also investigating the role of governments policy on CIC implementation.

Chapter seven: discusses and examines the implications of the case analysis which are linked to the theoretical frameworks. In the preceding chapter, the case study analysis is conducted to understand the Telecentre phenomenon in the Upper East Region of Ghana with the objective of determining its status and rationale for replication. In this chapter, a

discussion and examination of the implication of the analysis is presented. The findings and analysis are discussed in relation to the literature while addressing the research questions of the study.

Chapter eight: reports on the implications of the research to both theory and practice. It will also introduce the enhanced theoretical framework and a proposed prediction model.

Chapter nine: concludes the thesis by first summarising the work done in the investigation, discussing the contribution of the research to both theory and practice, recommendations and suggestions for future research to progress the field of knowledge in the ICT4D domain.

CHAPTER TWO - LITERATURE REVIEW

2 INTRODUCTION

2.1 Overview of Information and Communication Technology (ICT) in Developing Countries (DC)

Information and Communication Technology (ICT) is a term frequently used in the Information Systems (IS) literature, but to date there is still no consensus as to its exact definition. Perhaps, this difficulty lies in the ever-changing nature of the field. This notwithstanding, practitioners and academics alike have attempted to describe the phenomenon. UNDP (2001b) describes ICT as “information-handling tools – a varied set of goods, applications and services that are used to produce, store, process, distribute and exchange information” (p. 2).

ICTs are described as being pervasive in that they are found to be essential in fields such as agriculture, health, education, governance and most importantly rural development. Their reach is widespread and they tend to have an influence in whichever sphere they are applied (UNCTAD, 2010). It is the opinion of Avgerou (1998) that any technology said to be pervasive has the capability to create new products and services where hitherto there were none while improving upon efficiency and cost effectiveness on already existing ones. The prospective technology usually also has a generally high level of acceptance and use and ordinarily gives its adopters a competitive advantage. ICT ticks all these boxes. It is therefore common to find that organisations and governments have quickly adopted their use (Gupta, Dasgupta & Gupta, 2008). On the other hand, Avgerou (1998) cautions that irrespective of its pervasiveness, it might not yield any meaningful benefits if there is no conscious effort to introduce “wider changes” in the given establishment. The transformational nature of ICTs is undeniable. This is evident in the exponential growth of the Asian Tigers (Hong Kong, Korea, Singapore and Taiwan) whose growth was claimed to have been underpinned by the deployment of a robust ICT infrastructure (Dutta & Mia, 2011). Its transformational nature can be ascribed to various attributes some of which are;

- Overcoming geographic boundaries,
- Overcoming social and literacy barriers,

- Providing frequency and repetition of contact,
- Storing information for on-demand access,
- Capturing the reality of events, by depicting them graphically and in real time, and
- Sending and receiving information with greater efficiency (Colle, 2008)

Since the 1980s, various organisations have given their endorsement for the use of ICT for national development. The United Nations Educational, Scientific and Cultural Organization (UNESCO) was one of the first organisations that led a crusade for the adoption and diffusion of ICTs in UN member nations. The unequal distribution of resources, such as telecommunications and technical skills of developing countries became a cause for concern (Servaes & Malikhao, 2008) for the UN. The UNESCO (1980) commissioned report titled 'Many Voices, One World' (McBride Report) tried to highlight the inequalities that existed in the Telecommunications industry and how the greater part of the world was disadvantaged. The commission therefore called for the democratisation of communications and the strengthening of national media (ibid).

In 1997, the UN made an official proclamation endorsing ICT as a major partner in the poverty alleviation fight and also acknowledged Universal Access to ICTs as paramount (UN/ACC, 1997). In the 2000 Okinawa Summit, the Group of Eight (G8) described ICT as "one of the most potent forces in shaping the Twenty-first Century [...] fast becoming a vital engine of growth for the world economy" (G8, 2000: p. 1). Under the auspices of G8, the Digital Opportunity Task Force (DOTForce) was born in 2001 with a mandate to provide policy advice to governments and international organizations on bridging the digital divide (DOTForce, 2001). Furthermore, the UN reaffirmed its commitment to ensure the widespread use of ICT in DC at the World Summit on Information Society (WSIS) in 2003 (Geneva) and 2005 (Tunis). At the Tunis meeting, all member states agreed to incorporate ICT into their national development effort to achieve the Millennium Development Goals (MDG) (WSIS, 2005). Since then, the UN has developed an assessment scheme through which it ranks countries around the world on their level of ICT use in each country called 'The ICT Development Index' (IDI) which started in 2008 (ITU, 2012). IDI is a "composite index combining 11 indicators into one benchmark measure that serves to monitor and compare the use of ICT across countries" (ITU, 2012: p.15).

The World Bank is another international organisation that has supported the ICT revolution in DCs that demanded for its inclusion in school curricula and government services. In support of this effort, the Bank established a unit in 1996 called Information for Development (infoDev) with the primary objective of focusing on how the use of ICTs can help to combat poverty and promote opportunity, empowerment and economic growth in developing countries. It funded various ICT projects in diverse fields (Health, Agriculture, Education, SMEs etc.). The Bank holds the view that ICTs are no longer a luxury but a necessary ingredient in the alleviation of poverty in the global South (World Bank, 2012). In recent times its investment in ICT has helped to “attract over US\$30 billion in private sector investments in ICT in low-income countries from 1997-2007” (World Bank, 2013, p.1). The Bank has facilitated various loans and grants ostensibly to aid in infrastructure development and to create the enabling environment for an ICT-enabled economy in DCs (ibid).

In the bid to benefit from the technology-enabled development opportunity offered by ICTs, the shared access concept of ICT facilities was thus implemented. This led to the proliferation of Public Access Centres (PAC) fashioned along the models of pilot projects in Europe (Qvortrup, 1989). This began the Information and Communication Technology for Development (ICT4D) movement in developing countries (Heeks, 2008). The ICT4D revolution has been loosely fashioned around modernisation theory which originated from development studies (Zheng, 2009). Modernisation theory seeks to emphasize change by looking at the internal dynamics of any given community while referring to social and cultural constructions and the adaptation of new technologies (i.e. to adopt and change technology to suit specific context of use if necessary) (ibid). Servaes and Malikhao (2008) hold the notion that for any given society to progressively achieve economic growth, it is necessary to ensure that societal and cultural norms that hitherto governed their daily existence are altered in ways that will allow for growth. They proposed that to achieve these ends, it is essential that change should focus on technological adaptations.

Modernisation theory draws strength from the hope that underdeveloped countries can achieve a measured level of growth just like their developed country counterparts if the ‘internal factors’ of a developing country are given adequate ‘technological’ support (Said, 2003). This is possible if they are able to establish the social variables that contribute to social evolution and consequently lead to the growth and development of communities

(Steyn & Johanson, 2010). An assumption of the theory is that developed nations went through a phase process of technological development. Therefore, if developing countries desire to achieve similar levels in development, it was necessary to undergo the same process of technological adoption (Sein & Harindranath, 2004).

It must be emphasised that modernisation theory is not without critique (Gavrov, 2004). Some claim that the net effect of modernisation for some societies was therefore the replacement of traditional poverty by a more modern form of misery (Castells, 1999). Similarly, Fuchs (2013) argues ICTs make economies technology-dependent thus distorting the way of life of such economies. This has led recent scholars in the ICT4D field to question whether these interventions in developing countries are worth the time, resources and energies spent in setting them up (Bailur, 2008; Avgerou, 2010; Sey & Fellows, 2011; Baron & Gomez, 2013). Whatever the case, developing nations have leaped headlong into the ICT4D foray. All that can be done now is to pause and re-examine strategies if initiatives are failing or forge ahead with replications of initiatives if there are any successes (Heeks, 2008). It is, however, worth noting that there are broadly three main advocates of the ICT4D agenda namely: Governments, International Organisations and ICT Vendors.

2.1.1 Government

The main proponents of the ICT4D agenda have been governments and their allied agencies (Harris, 2007; Andoh-Baidoo et al, 2013). Often, governments hold the belief that the widespread implementation of ICT initiatives can significantly lead to the social and economic transformation of their economies, with the added potential of an improved productive capacity which will ultimately create job opportunities (Chen & Zhu, 2004). Lack of infrastructure has often been cited as leading to collapse of such initiatives (Best, Thakur & Kolko, 2009; Moens, Broerse & Bunders, 2008; Best & Kumar, 2008). Consequently, governments in developing countries are investing large sums to shore up their IT infrastructure to reap the optimum benefits (Ngwenyama et al, 2006). A majority of governments have backed their zeal towards a technology-enabled development with national ICT policies to direct and drive these efforts with frequent support for reviews and assessments of policies from (UNCTAD, 2012; UN, 2004). For instance, Tanzania adopted a national ICT Policy in 2003 after an extensive national consultative process which saw the coming together of government and influential ICT professionals (Souter, 2011). Like

Tanzania, the parliament of Ghana, in 2004, passed into law the Ghana ICT for Accelerated Development (ICT4AD) policy representing the vision of Ghana in adopting the use of ICT for its development (Mangesi, 2007). Several other developing countries also set in motion similar policies to direct and drive their ICT sector (Ethiopia², Zambia³, Rwanda⁴, Tanzania⁵ and Seychelles⁶). Nonetheless, these policies and strategies have not escaped criticism from authors such as Souter (2011) who argues that implementation has been fragmented, without any formal approach to execution and monitoring.

2.1.2 International Funding Organisations

Numerous international organisations have advocated the ICT agenda as a route to economic recovery and have backed this up by initiating policies and programs directed at encouraging developing countries to invest heavily in ICT (World Bank, 2012; UNECA, 2008; UNDP, 2001b). A careful scrutiny of these policies reveals the sentiment that mere adoption could aid these disadvantaged nations to leapfrog the technological gap and immediately attain heights similar to that of the developed world (Fong, 2009; James, 2009). This is evident in the following words of the UN Human Development Report: “People all over the world have high hopes that these new technologies will lead to healthier lives, greater social freedoms, increased knowledge and more productive livelihoods. There is a great rush to be part of the network age—the combined result of the technological revolutions and globalization that are integrating markets and linking people across all kinds of traditional boundaries” (UNDP, 2001a, p.1). In pursuance of its ambition for member countries, the UN set up an ICT Task force with the main objective of encouraging member states to embrace ICTs so as to bridge the so called ‘digital divide’(DOTForce, 2001). Subsequently, at the WSIS in 2003 (Unwin, 2009), UN member nations adopted the declaration of principles and plan of action for an Information Society. This declaration gave the impetus for the adoption of ICT4D in developing countries. In their bid to ensure that this new found salvation was not missed by impoverished nations, some Non-Governmental Organisations (NGOs) took it upon themselves to fund some of the initiatives in developing countries (ibid). Notable

² http://www.mcit.gov.et/documents/1268465/1282796/ICT+Policy_final.pdf/b54ea006-0c42-4085-81f1-9c2a8937a110

³ <http://unpan1.un.org/intradoc/groups/public/documents/unpan/unpan032690.pdf>

⁴ http://www.myict.gov.rw/fileadmin/Documents/Rwanda_ICT_Policy_NICI_2005.pdf

⁵ http://www.ist-africa.org/home/files/Tanzania_ICTPolicy.pdf

⁶ <http://www.ict.gov.sc/resources/policy.pdf>

amongst them were Computer Aid International (CAI), International Institute for Communication and Development (IICD), ICT4D Collective, the International Development Research Centre (IDRC) to mention but a few. These organisations have been strong advocates for the use of ICTs and have funded their deployment.

2.1.3 ICT Companies - Vendors

Setting up of software houses in developing countries to tap into the cheap labour available cannot be achieved if underdeveloped countries are not conversant with these technologies. Some authors are of the opinion that ICT companies are investing in ICT4D project because in the end when the Western⁷ markets are saturated as is happening, the bottom-of-the-pyramid consumer will ultimately be the main clients (Heeks, 2012b; Prahalad, 2012). Furthermore, Heeks (2012b) is of the view that IT companies in Western countries should focus their attention to the emerging markets of developing countries because the region forms a significant portion of new markets for their products. It is clear that the South⁸ holds major potential for IT vendors (ITU, 2013). It is therefore not surprising to find that they are supporting ICT4D initiatives since they will be the greater beneficiaries of the yet 'untapped' resource if on their arrival there is a ready market (demand) for their wares. Most of the vendor activities are seen as corporate responsibilities to bridge the digital divide in developing countries by providing ICT infrastructure, products and services when in fact their intentions are to build capacity and market for the products (Andoh-Baidoo et al, 2013). Chaudhuri (2012) points out in his paper that most of these vendors go to the extent of sponsoring conferences and projects that they believe will be of mutual benefit to them and cites the specific examples of Intel being a 'strategic partner' of the World Summit on Information Society, 2012 and Microsoft sponsoring eLearning Africa, 2012. He argues further that "corporate social responsibility activities that incorporate the companies' products and services also help them in raising awareness and creating user bases" (p. 327-328). The following two very salient questions by Chaudhuri are worth considering and which might probably answer why most governments still pursue ICT4D when the extant literature depicts a gloomy scenario;

- "Why does ICT4D command such strong faith among its adherents?"

⁷ Western (or West) in this study refers to developed countries. It is also used interchangeably with 'North' to represent the same context.

⁸ South (or Southern) refers to developing countries (DC).

- Is it because the advocates profit irrespective of outcome?” (p.333).

He concludes by suggesting that all stakeholders in the ICT4D movement gain significantly except the most important of them all, the “beneficiaries whose lives the projects are intended to better” (p.333).

2.2 Who Benefits (‘Cui Bono’) from ICT Initiatives

Although Chaudhuri’s (2012) work succeeds in highlighting pertinent issues other writers try to avoid, his evidence fails to resolve some contradictions in his research. It is thus not surprising that hardly had his paper been published than it was met with some critique (Westrup, 2012; Heeks, 2012a). For instance, he consigns ICTs to three main types (computers, Internet and mobiles) and posits that it is only the latter that has gained huge penetration levels in DCs despite the absence of a conscious effort (Policy) to enhance its growth. This connotes that the other two failed because there was some form of regulation which one way or the other limited scaling. He ascribes very good reasons for the failure of the other two however, what he obviously ignores is that the rapid technological advancement has led to technological convergence (Westrup, 2012). As these new devices become cheaper and more portable (tablets, smartphones etc.), they become an obvious alternative. Furthermore, there is evidence to show that the bottom-of-the-pyramid technologies have been adopted in Western countries (Foster & Heeks, 2013; Heeks, 2012b) as is evident in the famous M-Pesa and Ushahidi innovations which have found their way upstream. An example of such a country is Romania with an unbanked population of 35% (CNN, 2015).

M-Pesa simply means mobile money. ‘M’ denotes ‘mobile’ while ‘Pesa’ is a Swahili word for ‘money’ (Jenkins, 2008). M-PESA allows subscribers to transfer cash using their mobile phones and has been claimed as one of the most successful scheme of its type on earth (Morawczynski & Pickens, 2009; Mbiti & Weil, 2011; The Economist, 2013). M-PESA was “originally designed as a system to allow microfinance-loan repayments to be made by phone, reducing the costs associated with handling cash and thus making possible lower interest rates. But after pilot testing it was broadened to become a general money-transfer scheme” (The Economist, 2013; p.1). Safaricom, a major commercial mobile operator in Kenya, introduced it in 2007. In November 2012, Safaricom launched another financial

innovation called M-Swari. This financial services platform allows M-Pesa customers to save and borrow money on their phones. It allows users to open savings accounts and obtain microloans at very favourable rates. According to Cawrey (2013), this innovation is changing lives in Kenya and its adoption rate is very high.

Ushahidi was originally a website developed during the Kenyan uprisings following the 2008 disputed Kenyan elections. Its main aim then was to map reports of violence and peace efforts between the feuding parties. It is a Swahili word which means 'testimony'. Based on its success, the developers behind the website decided to develop a more robust platform which could be used by the wider society. Currently, it has evolved into a non-profit technology company that specializes in developing free and open source software for information collection, visualization and interactive mapping (Ushahidi, 2013). The most popular of its applications is the 'Crowdmap' which is used by news organisations like Al-jazeera, World Bank, and the UN (Ushahidi, 2013). It is an application that allows users to set up their own deployment of the Ushahidi Platform without having to install it on their own web server.

All these notwithstanding, the question of 'cui bono' is still real and pertinent. Many a scholar has asked similar questions (Heeks, 2013a). This has led some researchers to ask whether ICT has any direct link to economic growth (Avgerou and Walsham, 2000). Consequently, there is scepticism as to the developmental role of ICTs in developing countries (Ciborra, 2003; Wade, 2002). Is it just another gimmick being pushed forcefully by 'unseen hands' to enrich a certain group of people as was the case of the agricultural revolution after World War II when the West shipped loads of agricultural implements into the developing world under the pretext of revolutionising agriculture when in fact they were creating a market for their goods? (Wade, 2002).

2.3 ICT4D and ICT in Development

The current IS literature in developing countries identifies two schools of thought; studies that focus on understanding technology 'for development' (ICT4D) and that which focuses on understanding technology 'in developing countries' (ICTD) (Walsham & Sahay, 2006; Brown & Grant, 2010). The debate has arisen based on the angles from which a particular author or researcher looks at its contributions. In a broad sense, one can assume that ICT4D tries to highlight the various technological innovations whose implementation has a

transformational impact on development of a given community. These initiatives are simply enablers of development. An expected impact occurs because of its explicit implementation (Thompson, 2008). Thompson and Walsham (2010) defined ICT4D in the following words; “the conception, development, implementation, and use of ICT as an explicit vehicle for furthering developmental aims – where ICT functions both as enabling artifact and enabled set of social behaviors” (p. 113). Researchers under this domain try to study how ICT initiatives have been able to influence the various productive sectors of the economy. They tend to focus on how it has led to human development in beneficiary communities (Spence & Smith, 2010) and how it has facilitated improved income levels and agricultural practices (Soriano, 2007), efficient health delivery (McNamara, 2003), better quality of education (UNDP, 2005) and the empowerment of all citizens (Ogan et al., 2009). Their view of the role of ICT in development is more deterministic. They assume that provision of technology will have a very high probability of having a developmental impact (James, 2009). Using this logic, the introduction of a health IS in a rural community clinic is expected to reduce waiting times of patients and eradicate disease epidemics. The belief here is that ICT have inherent technological characteristics which have the capacity to overcome or leapfrog the age old obstacles of development to offer hope for bridging the ‘digital divide’ (Servaes, 2008a; Gray & Sanzogni, 2004; UNDP, 2001; Phillip & Foote, 2007; Krishna & Walsham, 2005; Sein & Harindranath, 2004; Davison *et al.*, 2000).

On the other hand, the advocates of ICT and Development (ICTD) argue that there is enough evidence to show that the ‘enabling’ nature of ICT as the panacea to development is questionable (Avgerou, 2010). Bailur (2008) suggests that to date there is still no corresponding developmental evidence in the extant literature that justifies the large investment made in ICTs. This is corroborated by other researchers (Sey & Fellows, 2009; Assar, El Amrani & Watson, 2010; Baron & Gomez, 2013). For instance, McGrath and Maiye (2010) report of the failure of the Electronic Voters Register system initiated by the Independent National Electoral Commission (INEC) of Nigeria to combat electoral fraud for the 2003 and 2007 elections costing millions of dollars. Similarly, there is often a notion that the diffusion of ICT systems into government activities will eventually lead to the elimination of corruption and increase accountability and transparency in public spending (Bertot *et al.*, 2012; Shim & Eom, 2008). Evidence suggests that computerised systems do not necessarily

lead to elimination or even a reduction of corruption (Walsham, 2010; Heeks, 1998). These authors argue that in certain circumstances, computerisation could enhance corruption (De, 2006; Krishna & Walsham, 2005; Jafri et al., 2002).

The movement (ICTD) proposes that the solution lies more in attitudinal and institutional change than just the technology in place (Avgerou, 2008). According to Bhatnager (2009), bribes form a significant part of the cost of accessing services in developing countries. It is important to note that this does not exclude technology-enabled services as affirmed by other researchers (Caseley, 2004; Vasudevan, 2006). This was reinforced when in a 2010 study of nine computerisation projects in India; it was discovered that there was no significant reduction in corruption in four of the projects (Bhatnagar & Singh, 2010). As such, advocates of ICT and Development argue that it is better to implement ICT initiatives to complement other equally important sectors like health, education and anti-corruption initiatives rather than as a sole enabler (Ngwenyama *et al.*, 2006). It is increasingly clear, albeit worryingly, that ICTs alone cannot eradicate or alleviate extreme poverty as envisioned by UNESCO in the '80s. Therefore, any engagement of technology in developing countries must take into consideration the contextual particulars of the pre-existing community since these will have an influence on the intervention. These must work in tandem, complementing each other as they progress in order to achieve success.

2.4 ICT and Human development

Pro-poor ICTs are implemented with the notion to realise the needs of users in underprivileged communities and to enable them enrich their lives. To achieve this end, there is the need to ensure that the design and implementation of projects meet the real needs of beneficiaries to empower them and affect their human development needs (Johri and Pal, 2012). Designers of systems will have to integrate the needs of users into their design process to ensure that systems implemented are utilised for the growth of individual users and the local community (Kleine, Light and Montero, 2012). However, the ability to utilise fully the ICT facilities is hinged on the user's empowerment on different dimensions such as their educational and economic capacities. Therefore, it is not enough to make facilities available but to ensure that users have the capacity to utilise such resources to advance human development. An imperative for successful human development and empowerment amongst beneficiaries is therefore to understand the underlying socio-

economic context in which implementation of the initiative takes place. Only then can ICT projects have the desired impact, afford users the ability to help themselves and consequently, support national development. When ICT initiatives meant to empower and enhance the capabilities of users (Oosterlaken, 2009) fail, users are deprived their functioning's and their ability to meaningfully contribution to the development of their own lives and that of the community (Zheng, 2009).

2.5 Universal Access to ICTs

InfoDev/ITU (2015) defined universal access as when “every person has affordable and reasonable public access to defined ICT services considered essential for social inclusion and economic development” (p.6). The concept is to provide shared rather than individual access to ICTs housed in public spaces and usually in poor or remote communities. Universal access should however, not be misconstrued to mean necessarily the provision of telephony or other ICT facilities to everyone but whether these facilities provided are accessible and affordable. The International Telecommunication Union (ITU) and its allied agencies accordingly spearheaded the development of universal access policies among member governments (ibid). As a result, many governments and organisations in developing countries set in motion a number of initiatives and interventions with the ultimate aim of ensuring that beneficiary communities could take advantage of ICTs to better their lot (Gollakota, Pick & Sathyapriya, 2012; Mukerji, 2008). However to date, the mechanisms and ways in which ICTs may best be applied to development, and in particular poverty reduction, remain blurred (Bailur, 2008). Most of these countries face several challenges in their efforts to take advantage of these resources (Avgerou, 2008).

Developing countries lack access to Internet-enabled services and therefore are practically excluded from opportunities such as education, developmental information and democratic participation (UNDP, 2001). The level of poverty in some regions is so pronounced that they can hardly afford to put in place the needed infrastructure that will aid the diffusion of ICTs (Bailur, 2006). This resource constraint has necessitated strategically locating a network of public access venues where ICT facilities are made available to the public (Gomez, 2012).

The most popular of these public access venues favoured by governments and donor organisations is the **Telecentre** (Rogers & Shukla, 2001; Heeks, 2008; Murkeji, 2013). These

shared access venues make ICT available to people who would otherwise have no access to such facilities (Sey & Fellows, 2011). The global call for the inclusive, people-centred and development-oriented Information Society has led to the mass deployment of Telecentres (Gollakota, Pick & Sathyapriya, 2012; Mukerji, 2008). Whyte (2000) draws our attention to the fact that Telecentres have no universally accepted definition. He describes it as a physical centre to provide public access to long-distance communication and information services using a variety of ICTs. According to Telecentres.org (2013), a Telecentre “is public places where people can find information, create, learn, and communicate with others while developing digital skills through access to information and communication technology”. It further explains that they not only provide clients with avenues for job opportunities, but also provide critical services in the transmission of information of impending disasters and the outbreak of disease epidemics. It is a facility that offers community members the ability to use ICTs in a publicly shared manner (Fillip & Foote, 2007). Telecentres often provide the only connectivity available to many community members, and their services may be offered with or without a fee. It is, however, important to indicate that Telecentres differ from Internet Cafés (Clark & Gomez, 2011). Whereas Telecentres are usually established with a developmental focus, Internet cafés are established mainly to maximise profit.

Telecentres play an important role in a strategy for providing universal access to ICT services both in developed and developing countries, and the concept has in recent years been promoted by a number of national and international development agencies (Bailey, 2009). The concept of Telecentres has evolved over time since their first immergence in the early 1990s. Apart from their initial intentions of granting universal shared access to expensive ICT facilities for disadvantaged groups, they have in recent years tended to also incorporate services which are tailored towards the needs of the community in which they operate (Mukerji, 2008). Some of these services may include e-government, health and education services and synthesised local ‘knowings’ (Sun, 2009).

A number of different models for the development of Telecentres have been applied in different parts of the world. The first such centres established in Scandinavia focused on the provision of IT facilities and dissemination of technological knowledge (Qvortrup, 2001). The aim was both to reverse a trend of outward migration from rural areas, and to increase IT

awareness and capabilities. Public funds were provided for the initial investment and for operations during the first years. In developing countries, the concentration of the Telecentre was mainly in rural and semi-urban communities where the majority of underserved and unserved populations dwell (Colle & Roman, 2001). Their deployment was to support economic activities in the rural areas by providing ready information (Gollakota, Pick and Sathyapriya, 2012), public communication and educational support for community based development organizations (Oestmann & Dymond, 2001). Some centres also focused on the creation of new job-opportunities. Some centres act on a purely commercial basis (For-Profit), and are operated as any other private company (Sey & Fellows, 2009). Yet still some were established with a mixed intention (Awotwi & Owusu, 2010) (Part-Profit) in mind unlike other jurisdictions where these centres were solely funded and run by government (Free Access) (Madon *et al.*, 2009). Mukerji (2008) presents a classical typology of the various governance models for Telecentres. Though his summary typifies the situation in India, it can nonetheless generally be used to explain the situation in other developing countries. He identifies eight main models in his paper; Non-Governmental Organisation (NGO), Government (GO), Government-Non-Governmental Organisation (GO-NGO), Government-Community Based Organisation (GO-CBO), Government-Franchise (GO-Franchise), Individual Entrepreneur, Private Franchise and Private Corporate Models.

According to Bailur (2006), the implementation of Telecentres in developing countries was spearheaded by international NGOs often with the support of the government of the beneficiary country. Prominent amongst them is the Canadian IDRC's Acacia program in Africa, which had the objective of providing information on agriculture, health, education and training for clients (Avgerou, 2010). In most cases, they were established to cater for an 'information void' - lack of access to information (Kanungo, 2004). The initiatives were introduced to complement and enhance the traditional outlets that were seen to be deficient at providing value-added information and ineffective at achieving developmental goals (*ibid*). Irrespective of the location of a Telecentre, it was set up with an objective in mind. In almost all cases, they were established in rural or semi-urban communities where there was limited or no access to ICT facilities (Mukerji, 2008). They were meant to service the underserved or underprivileged, especially women and children (*ibid*). They provided programmes that focused on ICT Skills training, information and avenues for job

opportunities (Bailey and Ngwenyama, 2009). Others had the major responsibility of increasing the availability of computers with Internet connectivity and access to government services (Madon, 2005b). Furthermore, as the Telecentre movement began to grow in many countries, they began to evolve into closely-knit networks providing support for one another (Ariyabandu, 2009). This was possible because in most cases they had the same benefactor such as the eChoupal projects, SARI in Tamil Nadu and Warana Wired Village projects. This led to what in recent discourse is termed as 'Telecentre Ecosystem' (Shadrach & Sharma, 2011). Phillip and Foote (2007) describe Telecentre Ecosystem as consisting "of local telecenters, the networks that provide support to these local telecenters, the social enterprises that develop services and the investors who fund the centers" (p.12).

2.5.1 Performance of Telecentre Initiatives

The deterministic attitudes of the international community as to the developmental capabilities of the initiatives which were heralded as the ultimate and most feasible alternative to economic recovery, propelled countries into wholesale adoption and diffusion (Harvey, 2010). Almost all countries in the developing countries have established a form of Telecentre which was suitable for their environment (Harris, 2007). Some research has been done on most of these centres around the globe (Gomez & Baron-Porrás, 2011; Parkinson & Ramirez, 2007; Soriano, 2007; Madon, 2005b). While some sought to investigate reasons for success so as to replicate the models elsewhere (Kumar & Best, 2006), others wanted to understand why such initiatives which were touted as successful in Europe (telecottages) and the United States (Community Technology Centres) were failing in developing countries (Qureshi, 2012). The literature available indicates that the failure rate of the initiative far outweighs its successes (Gollakota, Pick & Sathyapriya, 2012; Qureshi, 2012; Soeftestad & Sein, 2003). For instance, Benjamin (2003) reports that out of 65 Telecentres established in late 1990s in poor communities of South Africa, only one-third were operational after a few years.

Souter (2011), in a study of Telecentres in Tanzania, postulates that the initiative was worth the investment by the government. Through the study, he discovered that the Sengerema Multipurpose Telecentre⁹ had successfully been able to use its facility to raise the level of

⁹ "The Sengerema CMC was established as a telecenter in 2000 with the assistance of the ITU. The centre became a CMC in 2003 after the installation of FM radio facilities, supported by UNESCO. The CMC's goal was

awareness with regards to health issues thereby improving the lives of the inhabitants of the surrounding villages (ibid). In Souter's account, according to the manager of the facility, before the arrival of the centre, immunisation levels were barely 50% of the population of the Sengerema. However, after the establishment of the centre and its subsequent educational programmes, the immunisation rate had risen to 100% (ibid). It would appear that a greater population of children had an improved life consequently reducing drastically the child mortality rate in the locality. As a result of these claimed successes, the manager of the facility was sent to assist with the start-up of the Kilosa centre¹⁰ (Creech *et al.*, 2006). The Gyandoot¹¹ Telecentre project in Dhar, India is heralded as another very successful project in their early stages of implementation (De, 2006).

It is essential to note that what is categorised as success for one can be seen as failure for another. For example, the Gyandoot project, which won prestigious awards for early successes, was later reported to be failing to reach the poorest of the poor in Dhar (Cecchini & Raina, 2004). The majority of the centres that were set up were very successful for a few years (Tschang, Chuladul & Le, 2002). This therefore served as an encouragement to implementers to continue the process since there appeared to be no evidence to the contrary. Later evaluations of Telecentre initiatives reveal that although most of these initiatives were success in the initial run (between 1-3 years), they eventually failed (Cecchini & Raina, 2004; De, 2006; Qureshi, 2012). Sponsors and researchers alike became disillusioned and started asking questions. Some sponsored researchers to unearth the real problems that had led to the failure (Bhatnagar & Singh, 2010; Young, Brown & Laursen, 1997). Heeks (2002) in his study discovered while reviewing IS literature in developing countries that two dominant failure patterns had emerged: 'Total Failure' and 'Partial Failure'. He described total failure as a situation where an intervention either never takes

therefore that of providing affordable communication and information services to meet the socio-economic and cultural needs of the entire Sengerema district" in Tanzania (Farjallah, 2007: p.33)

¹⁰ Following the success of the Sengerema CMC, the concept was replicated in other districts in Tanzania. "This telecenter is located in Kilosa district which is located in Morogoro region. The district borders Tanga region in the north, Morogoro rural district in the east, Kilombero district and Iringa region in the south and Dodoma region in the west. It has a total land area of 14,245 sq. kilometers, which is 19.5 % of the total land area of Morogoro region." (Mtega & Malekani, 2009)

¹¹ Gyandoot Telecentre projects were to directly provide e-government services to citizens in the relatively poor Dhar district of Madhya Pradesh state, India. Gyandoot was considered very successful in the early years of its implementation, and the project was awarded the Stockholm Challenge IT Award in 2000 for public service and democracy. It served as a standard for replication in other regions of India.

off after implementation or never gets implemented at all and cites India's Indira Gandhi Conservation Monitoring Centre as an example. "Despite more than a year of planning, analysis and design work, these ICT-based systems never became operational, and the whole initiative collapsed shortly afterwards" (Puri, Chauhan & Admedullah, 2000 (cited in Heeks, 2002, p. 101)).

A partially failed system, according to Heeks (2002), is one which has a significant proportion of its objectives not fulfilled or attained. Furthermore, on trying to study certain projects using a longitudinal approach, another pattern of partial failure also emerges which he termed as 'sustainability failures' and which he considers as peculiar to developing countries. This occurs when initially a system works nicely but after a period of two to three years, its patronage and functioning begins to wane until it is no longer viable to operate. This is consistent with the finding of Proenza (2003) when he discovered that as at the time of his research, it was difficult to tell the total number of Community Technology Centres in existence in Argentina out of a total of 1,281 established at the inception in 1999. These discoveries are further corroborated by findings in Australia which indicated that Telecentres disappeared after two years of implementation (Tschang, Chuladul & Le, 2002). Heeks' (2002) prognosis is that systems will continue to fail if the design of ICT initiatives does not reflect the conditions in the context of implementation. An analysis of the Telecentre literature has led to an amalgamated list of possible reasons for the failure of ICT interventions in developing countries. Table 2.1 is a summary of the author's construction of some of these reasons for failure after a systematic review of the Telecentre literature (**see Appendix G** for Systematic Literature Review (SLR) process summary). The SLR process also generated Table 3.1 (**see chapter three section 3.2**).

Table 2.1: Summary of some failure factors (Telecentres) from selected articles

Reasons for Failure	Source	Methods	Theory-Framework	Location-Context	Sponsorship-Governance structure
Inadequate skilled staff, training and motivation	Bailur and Masiero (2012)	Case study – Interpretivist approach	network theory	India	NGO
	Mtega and Malekani (2009)	Ethnographic exploration	**	Tanzania	Government
Unequal access to information as a result of e.g. Caste, Gender, Age, etc.	Kumar and Best (2006)	Case study – mixed method approach	**	Tamil Nadu, India	Universities/Private/NGO
	Attwood et al. (2013)	Action Research – mixed method	Choice Framework	KwaZulu-Natal, South Africa	Government
	De' (2009)	Case study - Qualitative	**	India	Government/ Private/ NGO
Lack/Inadequate stakeholder analysis and participation in design and implementation	Bailur (2006)	Case study using Secondary data	Stakeholder Theory	Madhya Pradesh, India	Government/Private enterprises
	Harris (2003)	Methodology Development	Social Mobilisation - Infomobilisation	Nepal	Government/UNDP
Fragmented Telecentre Networks	Wellenius (2003)	**	**	Telecentre Guide	**
	Fillip and Foote (2007)	**	**	Global Report	**
Lack of appropriate Local Content	Ali and Kumar (2011)	Case study- Quantitative methods	**	India	Private Corporate
	Badsar <i>et al.</i> (2011)	Case Study-Quantitative methods	Constructive Technology Assessment (CTA) using Roundtable	Malaysia	Government

			Process (RT)		
	Bailur and Masiero (2012)	Case study – Interpretivist approach	network theory	India	NGO
Reliance on enthusiastic ‘champions’	De’ (2009)	Case study - Qualitative	**	India	Government/ Private/ NGO
	Badsar et al. (2011)	Case Study-Quantitative methods	Constructive Technology Assessment (CTA) using Roundtable Process (RT)	Malaysia	Government
Reliance on volunteers	Bailey and Ngwenyama (2009)	Case study - Qualitative methods	Social capital and social network theories	Jamaica	NGO/CBO
Literacy Level	Bailey and Ngwenyama (2009)	Case study - Qualitative methods	Social capital and social network theories	Jamaica	NGO/CBO
	Gamage and Halpin (2007)	Case study - Mixed methods	**	Sri Lanka	Government
Location of Centre	Bailey and Ngwenyama (2009)	Case study - Qualitative methods	Social capital and social network theories	Jamaica	NGO/CBO
	Best and Maier (2007)	Case study – Quantitative methods	**	Tamil Nadu, India	Universities/Private/NGO
	Heeks and Kanashiro (2009)	Case study – Qualitative methods	Resource movement framework and	Pazos, Peru	Not available

			"information chain"		
Inadequate Infrastructure: power supply, inconsistent Internet service, roads etc.	Awotwi and Owusu (2007)	Case study – Qualitative methods	**	Ghana	Government
	Zamani-Miandashti, Pezeshki-Rad and Pariab (2014)	Case study – mixed method	**	Iran	Government
	De' (2009)	Case study - Qualitative methods	**	India	Government/ Private/ NGO
Low computer skills (Digital skills)	Islam and Hasan (2009)	Review of literature	**	Bangladesh	Literature Review
	Huerta and Sandoval-Almazan (2007)	Case study - Qualitative methods	Digital Literacy Framework	Mexico	Government/University
Country/Community/Environm ental Context	Prakash and De` (2007)	Case study using Literature review	**	India	NGO
Organisation and Governance	Attwood et al. (2013)	Action Research – mixed method	Choice Framework	KwaZulu-Natal, South Africa	Government
	Reinhard and Macadar (2006)	Case study - Qualitative methods	Actor Network Theory	São Paulo, Brazil	NGO

** This implies either the paper did not use a theory/framework or it was not explicitly state

2.6 Evaluation of Telecentres Initiatives

The promised potentials of ICT adoption are significant, and their transformational nature is undeniable (Walsham, 2012; Avgerou, 1998). The exponential growth of the Asian Tigers - Hong Kong, Korea, Singapore and Taiwan - is an example (Dutta & Mia, 2011). Enticing as the benefits may be, there is evidence that the implementation of ICT interventions particularly in developing countries is fraught with significant levels of failure (Harris, 2015; Qureshi, 2015; Heeks, 2002). Like other ICT initiatives, several studies have investigated the significance of Telecentres to the socio-economic development of beneficiary communities (Soriano, 2007; Ariyabandu, 2009; Rogers & Shukla, 2001). Yet still others find very limited impact (Young, Brown & Laursen, 1997). Researchers have discovered most of these centres are abandoned a year or two later after being set up (Kumar & Best, 2006; Robinson, 1998). Those that continue to function though in limited capacities, tend to be patronised by young, male and relatively educated persons who usually come from higher income households (Sey & Fellows, 2011). The intended targets for these initiatives are invariably still excluded and underserved (Baron & Gomez, 2013). As a result, there is on-going debate as to whether Telecentres are relevant at all considering their cost and the alternative use to which the resources invested could be put to (Gomez & Pather, 2011). Some researchers call into question such investments and call for their discontinuation in favour of more 'productive' ventures especially in developing countries where there are competing interests for development funding (Sey & Fellows, 2009). This situation is of particular concern because of the opportunity cost of the substantial sums invested in the design and implementation of systems meant to introduce efficiency in the delivery of public services (Heeks, 2002). Hence, the urgent need for evaluation to assess the viability of implemented projects, their impact and justification for continuity or otherwise (OECD, 2003a; Heeks, 2009). One of the best ways to ascertain the relevance of these initiatives is to conduct ICT4D project evaluations (Colle, 2008).

The term evaluation is defined or described to suit the condition and purpose for which it is undertaken. Evaluation has been defined by OECD (2003a) as a process "to argue the case for new projects and expenditure, to justify continuing with initiatives, to allocate additional IT funds, to assess progress towards programme goals and to understand impacts"(ibid: p.134). Evaluation is the systematic acquisition and assessment of information to provide

useful feedback about some object with the added goal of influencing decision-making or policy formulation through the provision of empirically driven feedback (Trochim, 2006). In some instances, it is meant to examine the costs and benefits of alternative actions (Whyte, 2000). In this study, the term evaluation is used to refer to the process where ICT initiatives are investigated during or after implementation of the initiative with the ultimate aim of determining outcome based on design objectives, proffer remedial action and rationalise continuing with initiatives. Once the new system has been implemented and is in full use, the system should be evaluated.

2.6.1 Types of ICT4D Evaluations

Trochim (2006) discusses two main types of ICT4D evaluations namely: Formative and Summative evaluations, and argues that the decision to use either one is influenced by the object being evaluated and purpose for the inquiry. Since their introduction for evaluation, they have been applied in IS research to evaluate IT/ICT projects worldwide (Cronholm & Goldkuhl, 2003; Karoulis et al., 2006). Formative evaluation is a process of self-evaluation where an organisation assesses their operational and managerial capabilities to determine progress or otherwise of an implementation process of an ICT intervention or project performance immediately after implementation. Self-evaluation usually involves staff and stakeholders internally assessing the initiative to determine strengths and weaknesses to better deliver their mandate (CTA/KIT/IICD, 2005) by measuring projects goals and objectives against progress. It mainly focuses on outputs and outcomes. All initiatives should have a built in mechanism that provides feedback to staff and stakeholders (Hudson, 2001). It is a good mechanism that informs donor organisations or sponsors of the status of a project and also demonstrates to them the outcomes of their investment (Ramírez & Richardson, 2005). It is a necessary component which should be conducted regularly throughout the life of the project since outcomes could be used to control the impact on beneficiaries (Tolani-Brown, McCormac & Zimmermann, 2011).

Formative evaluation is subdivided into two main classes of evaluation; ex-ante and mid-term evaluations (JICA, 2004). Ex-ante evaluation occurs at the end of the planning stage of the project with a focus on assessing the proposal for an ICT initiative to determine its relevance, feasibility, potential impact or expected benefits (CTA/KIT/IICD, 2005). According to JICA (2004), baseline information is gathered at this stage, which then becomes a

benchmark for subsequent surveys. As the name implies, mid-term evaluation is conducted half way through the project. Findings can then be used to rework the goals of the project, make improvements or reinforce the operational structure of initiative (ibid).

Summative evaluation seeks to determine the impact of the initiative. Evaluators in this category originate outside the organisation to evaluate staff, management and the project itself and present a report after completion of the process (Trochim, 2006). The primary object of the evaluators is to answer question such as; did the project make a difference? To what extent did the project achieve its goals and objectives? Were there any benefits to the wider community? (CTA/KIT/IICD, 2005). It is an impact evaluation to assess the overall effects of the intervention on beneficiaries and to ascertain the extent to which project goals have been achieved (Tolani-Brown, McCormac & Zimmermann, 2011). In the case of pilot projects, summative evaluations are conducted to determine impact on beneficiary community and to find justification for replication through empirical evidence arising out of the evaluation (Batchelor & Norrish, 2005). Summative evaluation is also subdivided into two classes; terminal and ex-post evaluations. UNDP (2012) defines terminal evaluation as providing “a comprehensive and systematic accounting of performance at the end of the project cycle, considering the totality of the effort from project design, through implementation to wrap up, also considering the likelihood of sustainability and possible impacts” (p.4). The guideline further explains that for effectiveness, terminal evaluations should be conducted within six (6) months before or after project closure. Ex-post evaluation is conducted typically after a period has elapsed following project completion and usually focuses on the impact on beneficiaries and sustainability issues (JICA, 2004). Lessons learned from the results of the study can then be used for improvements and scaling of projects (OECD, 2003b).

2.6.2 When to Evaluate an ICT Initiative

The timing of evaluation is paramount. Heeks (2002) asserts that due to the lack of adequate longitudinal studies, a problem arises when projects which hitherto were deemed successful later become failures. For instance, when separate studies were conducted on the Gyandoot Telecentre project, two distinct results emerged (De`, 2009). De` reports that in its first year the Gyandoot project won an award (Stockholm Challenge Award) for its successes however, a few years' later a study conducted by Cecchini and Raina (2004)

concluded that the project had alienated the beneficiaries it was intended to protect and serve (Kumar & Best, 2006). Making an assessment too early or too late into the project under study has a significant influence on the outcome of the results as seen in the Gyandoot instance. As such, timing is very essential in this endeavour. If assessment is done too soon as is the case with most Telecentres (Benjamin, 2001), then the results may be misleading. The literature available suggests that such initiatives are initially well received but after a few months or years of operation, 'sustainability failure' begins to set in. It is however important to note also that IS in developed countries also have a high failure rate (Heeks, 2002). Heeks espouses that it is safe to assume that developing countries should not be expected to achieve better than their developed counterparts in the West because even in the West there are reports of significant IS failure (Chao Peng & Baptista Nunes, 2009; Standish Group, 2015). This is also exemplified in the report of Bloch, Blumberg and Laartz (2012) which states that large IT projects delivered less than 56% value for money than was initially predicted. The findings were based on a research conducted on 5,400 IT projects which had a total cost overrun of \$66 billion. At what time or age can an initiative be considered as matured enough for an in-depth study? De` (2009) describes matured projects as initiatives which have been "sustained for more than five years" (p. 44). Similarly, Bhatnagar and Singh (2010) described matured projects as having been in operation "from three to eight years" (p. 115).

2.6.3 Who Evaluates?

It is prescribed by some sources that the evaluation process should be as impartial and independent in its function as much as possible (OECD/DAC, 1991). Impartiality is expected to allow for findings of an evaluated project to gain credibility and provide legitimacy of the process. Therefore, in preparing the evaluation report it is recommended to indicate successes as well as failures. Chaudhuri (2012) is of the opinion that it is rare to find objective third-party evaluations of ICT initiatives and further stresses that the majority of evaluated ICT initiatives around the world have failed in this regard. Most of the evaluations are usually conducted by funders or implementers. Hence, creating a conflict of interest which often affects the credibility of findings (Tolani-Brown, McCormac & Zimmermann, 2011). Critics believe that by virtue of being part of the evaluation process, there arises the question of impartiality. In the case of implementers, there might be the tendency to skew

the results to satisfy funders so that they can keep on funding them or even commission new projects (Parkinson & Ramirez, 2007). To ensure the elimination of doubt and suspicion JICA (2004) entrusts a portion of its evaluation to external third-parties who do not partake in the planning and implementation of the project thereby attempting to remove the element of bias.

2.6.4 ICT Evaluation Methods

There are several approaches to the evaluation of Telecentre initiatives in developing countries (Ramírez & Richardson, 2005). Ramírez (2007) is of the view that Logical Framework Analysis (LFA) is the traditional approach to project evaluations and is often embedded in project planning. He describes LFA as "a logical hierarchical sequence linking the overall purpose or long-term impact that is sought, all the way to each specific activity to be programmed" (p.86) and articulates further that its inclusion in a project evaluation is usually demanded by sponsors of projects. It, therefore, serves as a benchmark for output and outcome evaluations. However, critics of LFA argue that this straightjacket approach is not all encompassing (Leeuwis, 2008). It often neglects to measure the actual important indicators of impact which are often the unintended uses that arise out of the improvisation of beneficiaries (Sawhney, 2001). Since funders have a mind-set of what they expect out of a particular project, they tend not to notice impacts other than the expected ones. However, the unexpected outcomes of projects are often the most vital contributors to impact (Bansler & Havn, 2004). An example is the Ushahidi system discussed earlier which is widely used as an affective journalistic tool (Ushahidi, 2013). On the other hand, not all technological innovations can claim to have had a positive impact on society as can be seen in the case of the 'Arab Spring' where social media was used to galvanise support for mass protest in Egypt, Iran, Libya, Syria, Morocco, Yemen, Bahrain and Tunisia (Heeks, 2013b). Roth (2013) asserts that these protests have led to the loss of lives, property and political instability in these regions.

Due to the dynamic effect technology may have on society and the obvious limitation of the use of LFA in rigorous evaluation, Participatory Evaluation Approach (PEA) (Grinfeld, 2009; Harris, 2007; Chambers, 2006) has been suggested as an alternative to LFA. The underlying assumption is that if stakeholders (staff and community) are involved in the evaluation of community projects, there is a greater likelihood of acceptance of results and support for

the implementation of recommendations (Servaes, 2008b). However, the evaluation process should try to “balance the in-depth knowledge of the project’s operations with the research experience and independent perspective of ‘outside’ facilitators of the evaluation” (p.215). This recognises the fact that although stakeholders are essential, they might not be competent enough to carry out the evaluation alone, hence the inclusion of experienced ‘outsiders’. It also has the added advantage of empowering participants in the evaluation process (Hudson, 2001). Lennie (2005) suggests that, if effectively used, it could lead to improved communication and trust amongst stakeholders.

Some international and multinational organisations that have funded most ICT4D initiatives in developing countries have developed their own guidelines to evaluation different from the LFA and PEA (Earl et al, 2013). Organisations such as the IDRC (Gómez and Hunt, 1999) and ITU (Ernberg, 2001) have prominently developed guidelines through which the Telecentres they support are evaluated. Other prominent agencies include UNESCO (Crech *et al.*, 2006), Canadian International Development Agency (CIDA) (Jones, Young & Stanley, 2004), Department For International Development (DFID, 2005), Organisation for Economic Co-operation and Development (OECD) (OECD/DAC, 1991), Japan International Cooperation Agency (JICA, 2004) and the World Bank through infoDev (Batchelor & Norrish, 2005).

2.6.5 What should be evaluated?

It is argued that a significant number of IS projects in general are not formally evaluated at all, or inadequately evaluated (Smithson & Hirschheim, 1998; Walsham, 1993). Where they are evaluated, evaluation tends to focus on a quantitative analysis of the artefact and its economic aspects, such as its performance, reliability, robustness, security and cost-benefit (Walsham, 1993). The elusive character of the benefits or impact of ICT initiatives that accrue to a given society has led to calls for a rethink of the approach to impact assessments (Gomez & Pather, 2011). In recent discourse therefore, the argument has been for a fundamental paradigm shift in ICT4D evaluation (Ramírez & Richardson, 2005). It is argued that it is inadequate to only rely on the measurement of tangible and quantifiable benefits of ICT such as: number of people trained, quality of service delivery, ICT literacy levels, cost-benefit analysis, diffusion rate and achieved implementation schedules (Smithson & Hirschheim, 1998; Earl et al., 2013). Baron and Gomez (2013) and Gomez and Pather (2011) highlight the need to equally focus on the intangible benefits of ICT on development such as

empowerment, self-esteem and social cohesion because these factors may have a stronger influence on development. The above authors, however, agree that the lack of research in this area may be due to its complex nature and the difficulty of determining intangible impacts (Hudson, 1999). This, nonetheless, should not discourage researchers from seeking to unearth intangible impacts. Assessments of performance and benefits of centres to users should go beyond that which is obvious and try to illuminate the hidden impacts that actually shape society (Gurstein, 2003). Hence, measurements should not just be conclusively on outcomes (for example Teledensity¹²) but should move beyond and also measure real impacts (effective use).

2.7 Sustainability

Over the decades, international organisations with their bilateral counterparts have invested heavily in Telecentres around the world with the hope of bridging the digital divide. The results have however not been what was anticipated (Wellenius, 2003). This is even more worrying with research indicating that a significant proportion of these initiatives have failed to move beyond the implementation stage (Heeks, 2005). As such, their core objective of granting access to ICT facilities and information to the marginalised has failed (Ariyabandu, 2009). As described in the words of Phillip and Foote (2007), the “high mortality rate among Telecenters forces us to focus on sustainability—a complex issue with no simple solutions” (p. 9). “A sustainable project or institution will be able to continue to deliver benefits in the long term, even after external assistance has lapsed. Sustainable development considers the sustainability of the development process holistically, taking into account the economic, social and environmental dimensions of development. In that way the sustainability concern is multidimensional, relates to the context, and is dynamic over time” (Gerster & Zimmermann, 2005, p.21). From this description therefore, a sustainable Telecentres can be described as a facility which is self-sustaining and self-sufficient and hence, does not need external support to survive. There are several dimensions to the concept of sustainability (Kumar & Best, 2006; Madon, 2005a; Bailey, 2009). Initial sustainability studies identified the most pressing concern amongst these dimensions as financial sustainability (Phillip & Foote, 2007). However, as the Telecentres movement matured with their inherent failures, it was discovered that financial sustainability was not

¹² The number of telephone lines per every hundred people in a given population.

the only reason for failure of these initiatives (Kumar & Best, 2006). The interaction of the centres in the ecosystem resulted in the identification of other important dimensions contributing to the causal factors for failure. Mainly, the sustainability dimensions of the Telecentres are focused on the following issues:

1. Financial/Economic Sustainability (Fillip & Foote, 2007; Kumar & Best, 2006; Colle, 2005; Kumar, 2004)
2. Social/Cultural Sustainability (Bailey, 2009; Bailur, 2008; Kumar & Best, 2006; Madonb, 2005)
3. Political/Institutional Sustainability (Bailey, 2009; Bailur, 2008; Hanna, 2008; Bailur, 2006; Kumar & Best, 2006; Madon, 2005b)
4. Technical Sustainability (Ali & Bailur, 2007; Kumar & Best, 2006)
5. Environmental Sustainability (Kumar & Best, 2006; Batchelor & Norrish, 2005; Jones, Young & Stanley, 2004; UNICT, 2003)

It is worthy of note that the issue of sustainability is not peculiar to just Telecentres but also other IS initiatives. Chowdhury (2013) for instance, posits that digital information services face sustainability issues from the economic, social and environmental dimensions. According to Choudhury, the sustainability of information services is possible with the introduction of ICTs in the design, delivery, access and use of traditional forms of information. Similarly, sustainability concerns have been addressed in areas such as Land Use (Furuholt, Wahid & Saebo, 2015), environmental development (Watson et al, 2010; Melville, 2010) and energy efficiency (Laitner, 2015).

Several reasons account for sustainability failures and the lack of scale-up of Telecentres. Some of these are discussed in the following section.

2.7.1 Sustainability Failure Factors

2.7.1.1 Context

“The choice of technology design is influenced by notions of development and unless these notions are consistent with the contextual dimensions, the desired consequences might not ensue” (Prakash and De`, 2007, p.263). For any ICT project to succeed, they state that the design and implementation must recognise the contextual dimensions of development

within the environment in which it is to be situated (ibid). In other words, the initiative should cater for the development needs of a beneficiary community. They argue further that sustainability is threatened when the ICT intervention chosen does not fulfil its basic task. They buttress their point by using the Bhoomi Telecentre which, according to them, failed to service a significant proportion of the intended beneficiaries because the “development paradigm that was chosen during the ICT design was not receptive to the development contexts of this significant proportion” (p. 263). It is important to ensure that the best-suited technology is selected to meet the capacities and the context of beneficiaries. Some researchers propose that people-centred approach to selection of projects instead of an imposition is essential to success (Krishna & Walsham, 2005). A study by Heeks and Arun (2010) and Heeks (2010a) also note that a critical analysis of the context of the environment in which projects are to be implemented is paramount. Ali and Bailur (2007) claim that when implementers disregard 'context' in favour of their own 'selfish' interest, the resultant outcome is unsustainability.

2.7.1.2 *Fragmented Telecentre Networks*

Telecentres coming together to form networks are seen to inure to their own benefit (Ariyabandu, 2009). These networks could be localised where centres within a particular radius could collaborate to share resources. These networks could then be connected to other localised ones thus forming a national or international alliance (ibid). Collaborating centres then benefit from being part of a larger organisation that contributes scale and network economies (Wellenius, 2003). “A network of telecenters under a single management can share experience and best practices and provide quality standards, start-up support, an operating manual, recruitment and training guidelines, name branding, and standard payment vehicles (such as prepaid cards)” (ibid, p. 2). An organisation such as Tecentre.org, sponsored by Microsoft, IDRC and Information and Communications Technology Office (ICTO), is promoting the Telecentre networks agenda. Phillip and Foote (2007) describe the Telecentre scenario in Chile by stating that survival in the ecosystem is tough, with those still surviving belong to civil society networks such as *Sociación de Telecentros Activos de Chile (ATACH)*, signifying the relevance of networking among Telecenter operators. It therefore stands to reason that it is easier to survive when Telecentres are organised along the lines of networks where poorer or less resourceful

centres can take advantage of opportunities made available by others. Most centres do not have the facilities to manage information and knowledge transfer needed for community development. According to Ariyabandu (2009), the vast ambit of information and knowledge resides outside of the Telecentres and is therefore fragmented and thus this information needs to be packaged and made available at centres for the consumption of beneficiaries. His assumption is that this valuable resource can be shared with less endowed centres while fragmented Telecentres unable to meet user needs eventually collapse.

2.7.1.3 Stakeholder Participation

“Participation is a process through which stakeholder’s influence and share control over development initiatives and the decisions and resources which affect them” (World Bank, 1996, p.1). The lack of involvement of community members in the planning and implementation of Telecentre initiatives has been cited as a major contributor to the unsustainable nature of interventions (Hanna, 2008; Roman & Colle, 2002; Whyte, 2000). Community involvement leads to a strengthening of project ‘buying-in’, thereby improving long-term prospects for project sustainability (Jones, Young & Stanley, 2004). Community involvement should begin with the design stage of the IS. This will go a long way to garner support for, and raise awareness of, the project (UNECA, 2008). This bottom-up approach creates a sense of ownership amongst participants and eventually trickles down to the entire community (Cecchini & Raina, 2004; Kanungo, 2004). Krishna and Walsham (2005) claim through their study of the Public Information System in Andhra Pradesh that wide consultation and people-oriented projections were instrumental to its success. Nevertheless, this approach has not escaped criticism from Cooke (2003) who warns that stakeholder participation is sometimes a manipulation of the values and beliefs of beneficiaries, giving them a false sense of ownership and empowerment and thereby breaking the barrier of any form of resistance. Research by Lennie (2005), suggests that in as much as stakeholder participation is essential in the planning and implementation of community initiatives, it is similarly relevant to carefully manage the mix of participants (academics and urban bureaucrats and rural community members). Each group has its own agenda, hence power relations must be managed with tact. Bailur (2008b) points out that, irrespective of level of participation, the concept of ‘community ownership’ is problematic because the dynamics of society are complex.

2.7.1.4 Governance Models

The models that most organisations adopt to implement Telecentre initiatives have been instrumental in determining the sustainability of the centre (Mukerji, 2008). It is the opinion of Colle (2005) that donor-funded programs usually function in limited capacities when funding for centre is withdrawn. Batchelor and Norrish (2005) hold the view that donor agency projects were established to push an agenda of Universal Access and to prove that the concept was possible. Subsequently when the pilot phases were completed and projects handed to beneficiary communities without funding support, they started to fold up (UNDP, 2001b). Proenza, Bastidas-Buch and Montero (2001) emphasises that they are unsustainable because hitherto they had access to funds which were used to run the centre and so were not motivated to engage in demand-driven entrepreneurship. Colle (2008) suggests that lessons could be learnt from the commercial cybercafé concept since they seem to be more viable and have proven to be sustainable. He further cites an example where the name of Canada's Community Access Programme (CAP) was altered to include 'cybercafés' which later attracted more clients to centres. He concludes by proposing that "the sustainability of the Telecentre system is likely to depend on this kind of entrepreneurship" (p. 148). Interestingly, his proposal runs counter to the pro-poor campaigners (Kanungo, 2003) who are of the view that centres will be better off concentrating on few services that are catering for the poor and therefore more sustainable than running several services which might lead to failure. According to Kanungo (2003), the notion of commercialising Telecentres defeats the purpose for which they were established.

The School Telecentre concept has also been touted as a good governance model where school ICT facilities are shared with the surrounding community (World Bank, 2001). The idea is that while school is in session, pupils have access to the facility to do academic work. The community is then granted access after school hours. Some schools which have Internet facilities lie unused after school hours (ibid). The concept is therefore to ensure that the surrounding community makes use of the idle time to meet their information and training needs (Bloome, 2002). It is suggested the fees paid by clients from the community can be used by school authorities to supplement maintenance costs. The World Bank and ITU have piloted projects in developing countries since 1999 (Zimbabwe, Uganda, Mexico, Peru, and Chile) and report successes using this scheme (Mayanja, 2002; Proenza, Bastidas-Buch &

Montero, 2001; World Bank, 2001). Proenza, Bastidas-Buch and Montero (2001) admonish the implementers of this concept to tread cautiously since in practice, it has proven very difficult to implement. This is so because school administrators are often cautious about sharing their facilities with outsiders.

2.7.1.5 Demand Driven

It is essential that the information available to clients at centres is tailored towards their information needs (Bailur, 2006). Colle (2008) reports that managers of Telecentres lack the capacity and resources to determine the information and training needs of clients. For the survival of Telecentres, therefore, it is important to ensure an in-depth client or community needs assessment is done prior to and after project implementation (Bailur, 2008). Needs assessment should be on-going because needs are dynamic and so managers should not lose sight of needs of clients (*ibid*). Telecentres should synthesise information from the wide array available on the Internet and other information sources into relevant content and make it available in easily accessible formats (Ramírez, Parthasarathy & Gordon, 2014). Several authors have cited the lack of local content as a major obstacle to sustainability (Badsar *et al.*, 2011; Ariyabandu, 2009; Best, Thakur & Kolko, 2009).

2.7.1.6 Literacy, Computer Skills, Training and Staff Attrition

Insufficient training of Telecentre staff is also a major limiting factor to sustainability (Mansell & Wehn, 1998). Studies have shown that on-going training is fundamental and critical in service delivery (UNDP, 2001b). Staff attrition has also been attributed to collapse of Telecentres in developing countries. Attrition is very high in Telecentres mostly because the financial motivation to retain staff is inadequate and so skills gained through training are used to acquire more lucrative and rewarding jobs elsewhere (Colle, 2008). In addition, most centres are manned by volunteers who after a short while of community service or upon receiving job offers outside of the community, abandon the centre. Volunteers are an essential component of Telecentres (Liyanage, 2009). They are instrumental to their survival because most centres are inadequately resourced financially and will have to rely on the support of these individuals (Colle, 2005). The major challenge, however, is how to train and retain volunteers to keep centres opened and active.

Studies also show the level of computer skills of users of centres also influences the level of access to information (Islam & Hasan, 2009). Navigating electronic resources to retrieve desired information is contingent on skills which most rural folk do not possess (Mtega & Malekani, 2009). Therefore, users have no choice but to depend on intermediaries who may demand some form of payment for services rendered (Aundhe & Narasimhan, 2012). In some failed IS, 'Infomediaries' have been blamed for the low patronage or non-use of systems (Islam & Hasan, 2009). The fundamental factor responsible for non-use is illiteracy (Bailey & Ngwenyama, 2009). These authors argue that the language that resources are presented to users (English) is often alien to users in rural areas. It is thus suggested that such resources be translated into languages in which users can readily make use of if patronage is to be increased. Bailey (2009) in her assessment of sixteen Telecentres in Jamaica discovered that most adult males did not frequent facilities because they were mainly illiterate. The lack of literacy and computing skills, therefore, creates inequality of access and exclusion in Telecentres usage (Bailur, 2006).

2.7.1.7 Inadequate Infrastructure and Location of Centre

Telecentres are usually established in rural areas with the anticipation of influencing growth in the activities of beneficiaries. In developing countries however, implementation is hindered by an infrastructural deficit especially in remote rural communities (Best, Thakur & Kolko, 2009). Those that have been established are faced with erratic power supplies, inconsistent Internet service and poor road networks (Souter, 2011). The benefits of the Internet in the provision of required information for development is great but it is dependent on telecommunications infrastructure which is expensive to build and maintain. There are reports of instances where Telecentres have closed down due to infrequent supply of power and erratic Internet service (Cecchini & Raina, 2004; De', 2009).

Bailey and Ngwenyama (2009) are of the view that the location of a Telecentre has an influence on its survival. Their study revealed that the proximity of a community centre to schools, businesses and communal areas influenced usage and were an attraction to some people who had computers and Internet access at home. These centres were viewed not just as offering ICT facilities, but also as a point for community members to interact and socialise. Therefore, the selection of a location for a Telecentre should be considered

carefully since its growth appears to depend on it (Gomez & Baron-Porrás, 2011; Liyanage, 2009).

2.7.1.8 Reliance on enthusiastic ‘champions’

Self-reliance is espoused if Telecentres are to wean themselves from the problems associated with all the dimensions of sustainability. Some Telecentres that were implemented had backing from individuals, groups or even organisations, usually referred to as “Enthusiastic Champions” (UNDP, 2001b; Heeks & Stanforth, 2007). They play a vital role in the survival of systems. Champions usually have technological expertise and know the significance of technology to beneficiaries. Depending on the influence of the champion, a given project can grow to its potential (Unwin, 2009). Champions are admonished to be tactful in their approach since community leaders and power brokers may see their efforts as intimidating and countermanding their authority (Fillip & Foote, 2007). It is, however, important for centres to be nurtured out of the influence of Champions if they are to see a realistic form of sustainability. Most often, when the champion loses influence, then the future of the centre is uncertain as was the case of the Gyandoot Telecentres Projects in India (Taylor & Marshall, 2002; De’, 2009; Kumar & Best, 2006).

2.8 Research Gap

There are several studies that have sought to point out the significance of ICT interventions to the socio-economic development of beneficiary communities (Soriano, 2007; Ngwenyama *et al.*, 2006). Yet still others find very limited empirical evidence of impact (Heeks, 2010; Fillip & Foote, 2007; Ngwenyama *et al.*, 2006). Moreover, several researchers have discovered most of these centres are abandoned a year or two later after set up (Kumar & Best, 2006; 2008; Robinson, 1998). Those that continue to function though in limited capacities, tend to be patronised by young, male, relatively educated persons who usually come from higher income households (Bailey & Ngwenyama, 2009; Cecchini & Raina, 2004). The intended targets for these initiatives are invariably still excluded and underserved. Accordingly, researchers are wondering whether Telecentres are relevant at all considering their cost and the alternative use the resources divested could be put to (Ngwenyama *et al.*, 2006). The dissatisfaction of some researchers of the outcome of Telecentres has compelled some to question why such investments should not be

discontinued altogether in favour of more 'productive' ventures especially in developing countries where there are equally important problems (Sey & Fellows, 2009).

The literature is replete with questions as to the evidence of concrete impacts of ICT initiatives. One approach to help adduce empirical evidence of the relevance of these initiatives is to conduct project evaluations. Smithson and Hirschheim (1998) suggest that some IS projects in general are not evaluated at all, or inadequately evaluated (Walsham, 1993). It is the opinion of Walsham (1993) that where they *are* evaluated, evaluation tends to focus on a quantitative analysis of the artefact and its economic aspects, such as its performance, reliability, robustness, security and cost-benefit. In recent discourse, however, the argument is for a shift in the focus of ICT4D evaluations from tangible factors to include intangible factors (Baron & Gomez, 2013). Furthermore, some researchers emphasise that it is inadequate to rely only on the measurement of tangible and quantifiable benefits of ICT but rather the focus should equally be on the intangible benefits of ICT on development such as empowerment, self-esteem and social cohesion because these factors have a stronger influence on development (Gomez & Pather, 2011). They consequently join the chorus of researchers who opine that research to find evidence of impact is not rigorous enough and as such more empirically verified studies have to be conducted (Avgerou, 2010; Heeks, 2010; Heeks, 2009; Unwin, 2009; Heeks & Molla, 2008; Batchelor & Norrish, 2005; Roman & Colle, 2002).

It is important to note that, the Telecentre discourse is saddled with methodological, theoretical and practical gaps. Methodological gaps are observed in the literature concerning the methods employed in the investigation of ICT4D projects in developing countries. Most assessments of ICT initiatives have been described as descriptive and lacking rigour regarding the methods used by researchers (van Dijk, 2006).

Theoretically, researchers suggest ICT4D research is not rigorous enough and as such, more empirically verified studies have to be conducted (Avgerou, 2010; Heeks, 2010; Unwin, 2009; Heeks & Molla, 2008; Batchelor & Norrish, 2005). Therefore, there is the need to remedy this gap by employing the use of a robust theoretical framework(s) to underpin the investigation of socio-technical initiatives that focus on qualitative outcomes (Heeks, 2009; Roman & Colle, 2002). Bailur (2008) for instance, suggests the use of Postcolonial Theory to

critically investigate the problematic implementation issues associated with Telecentres around the world. Existing ICT4D evaluations are confronted with limitations and challenges, which influence the reliability of evaluation conclusions. For instance, Awotwi and Owusu's (2007) evaluation of CICs in Ghana is descriptive and does not make use of any theoretical framework in assessing the ICT project they evaluated, similar to other studies (De', 2009; Best and Maier, 2007; Islam and Hasan, 2009) (see Table 2.1).

Another missing element of ICT evaluations outcomes is its lack of actionable conclusions. Evaluation results should at its core be actionable and emancipatory in nature to make assessment worthwhile. However, there are few of such evaluations in the literature which only offer at best, a list of recommendations rather than giving compelling reasons for findings to be effectively applied to make a difference in the context of the study.

These gaps indicate the need to move beyond quantitative assessments to comprehensive evaluation methods that are sensitive to contextual conditions, have theoretical and methodological rigour and actionable conclusions. From the discussion of literature so far, three key issues emerge out of the discourse and are worthy of careful scrutiny;

1. Even though there is extensive research conducted to assess the impact of ICTs in developing countries, the link between ICT and development is still elusive.
2. Furthermore, there is a call for rigour in the conduct of evaluation research to determine the reasons and extent of Telecentre failure in developing countries.
3. Current research in Telecentre evaluations is largely skewed towards the study of tangible (measurable) factors to the neglect of intangible (difficult to measure) factors in developing countries.

2.9 Research Question

To address these issues, this research will seek to address the following questions:

1. How can we usefully evaluate the success/failure of the Community Information Centres initiative in Ghana?
2. What is the rationale for the continuing establishment of CICs in Ghana?

The thesis, in answering these questions, will highlight the problematic issue of sustainability concerning implementation of Telecentres in general and the specific case of Ghana. Ultimately, this study will seek to understand why the government of Ghana is still

keenly pursuing a Telecentre agenda when there is lack of empirical evidence of the link between ICTs and rural development and the doubtful long-term sustainability of Telecentre projects (Bailur, 2008).

CHAPTER THREE - THEORETICAL FRAMEWORK

3 INTRODUCTION

This chapter introduces the theoretical basis underpinning this research by first exploring the relevance of theory to information systems (IS) research. The ICT4D field has adopted a diverse range of conceptual frameworks to investigate different phenomena. Thus, a discussion on how theoretical frameworks are relevant to ICT4D evaluations used to evaluate ICT initiatives in developing countries have been highlighted in three main strands namely; ICT Studies, Development Studies and those from other disciplines. This is based on the author's conception of their close origins to the various strands. Though alternate approaches are available to examine the CICs, the study provides justification for the chosen approach. It then proceeds to discuss the primary theoretical framework and the complementary framework/model deployed to investigate the CIC phenomenon.

3.1 Relevance of Theories in the Research

Leedy & Ormrod (2010, p.5) describe theory as "an organized body of concepts and principles intended to explain a particular phenomenon". Like other fields of study, theory plays an invaluable role in IS research. In the view of some authors, the purpose of theory is to explain, predict, understand and critique a given phenomenon (Cua & Garrett, 2008; Gregor, 2006) and generate new theory as well as improve or discount an existing one (Kelly, 2010). Theory is instrumental in the design of data collection instruments and analysis. IS research has often had a long history of drawing on conceptual frameworks from other disciplines (Wade & Hulland, 2004). In support of the assertion, Fernandez et. al. (2007) argued the diversity of theories available for IS researchers inures to the benefit of the discipline by opening alternate avenues to multiple methods, different theoretical frameworks and ability to engage intimately with practitioners. Therefore, there is an intrinsic relationship between theory and research. In IS, when theory is applied to a study,

the result usually is intended to inspire further research, influence practice and decision making (McMillan & Schumacher, 2001).

3.2 Theoretical and Conceptual Frameworks used in Telecentre Evaluation Research

ICT4D has often been criticised for its weak theoretical foundations (Raiti, 2006). The discipline has for a long period relied on multiple theoretical ideas from mainly social sciences (Heeks, 2006) and applied to IC4D research. The ICT4D field is the hardest hit in the IS discipline because of the interdisciplinary space it occupies. It is a field largely dominated by IS and Development discourse (Heeks, 2009). As has been observed in the literature section, ICT4D emerged out of the application of the ICT artefact to advance development (ibid). Though several attempts at developing frameworks to investigate ICTs in developing countries have been made by the ICT4D community, there is no consensus. Highlighting this deficiency, Roman (2003) bemoaned the lack of in-house devised frameworks when studying Telecentres. Similarly, Parkinson (2005) observes that whereas there is a wealth of information available from case studies, the tools to analyse them are inadequate. As a result, scholars have developed an understanding of the impact of ICT initiatives by relying on tried and tested methods from other disciplines to assess projects implemented. The following subsection summarises some of the theoretical and conceptual frameworks used in ICT4D evaluation research with specific emphasis on Telecentres. The author introduces theories or frameworks that were applied to the assessment of Telecentres and not necessarily, ICT4D projects in general. It is also worth noting that not all theories or frameworks used in evaluations can be discussed adequately in this section. As such, the most prominent in terms of their application to Telecentres will be discussed.

3.2.1 ICT4D Studies

Under this category, theories/frameworks that emerged from the information system discipline and were applied to evaluate Telecentre implementation are discussed.

3.2.1.1 Diffusion of Innovation (DOI)

Diffusion of Innovation (DOI) examines the factors that influence a community or a group of people (or individuals) to adopt innovations (Rogers, 2003). It seeks to investigate the adoption of innovations over a period using diverse communication media in a given social context (ibid). The key element to adoptions is that a person or group must perceive the

idea or artefact as innovative but often this is not instantaneous but rather processual (Rogers, 1995). Rogers argues that four elements namely: the innovation itself, communication channel, time and context work in tandem to influence the adoption of any given innovation. To achieve sustainability, he contends that recipients must widely adopt an innovation.

Some scholars have applied the theory to Telecentre research. Roman (2003) applied DOI to investigate the social and economic impact of Telecentres on beneficiary communities by drawing meanings from the perception of Telecentre users. Kumar and Best (2007) following from Roman's evaluation also applied DOI to investigate the Sustainable Access in Rural India (SARI) project. They sought to understand why kiosk usage had not diffused to a wider section of the Tamil Nadu community and concluded that gender, age, caste, religion and income levels negatively affected adoption. Whereas the investigations of the two authors above dwelled mainly on underserved and marginalised communities living in rural areas, Chigona and Licker (2008) applied it to explain the adoption of public access centres amongst the urban poor in South Africa. The theory has been successfully applied to investigate ICT interventions because it gives researchers the capability to understand the recipient population and the factors that influence them to adopt an innovation. This ensures that in circumstance where scaling is necessary, implementers are able to influence adoption positively by eliminating or managing problematic factors.

However, the theory has been criticised because it works better with adoption behaviours but does not adequately address the prevention of behaviour that hinder adoptions (Greenhalgh et al, 2004). Also, DOI does not take into consideration the resources available to an individual to adopt an innovation. It concentrates more on the innovation itself and the individual adopting the innovation without considering social and cultural elements present in the context of implementation (Lyytinen & Damsgaard, 2001). As to the purpose of this study, while DOI focuses on adoption of interventions on the individual and the consequences of implementation, it does not address contextual factors that lead to non-adoption (non-use) of the innovation. Furthermore, less attention is given to structure and social processes inherent in pro-poor initiatives (Cranfield *et al.*, 2015). This study goes beyond the individual adoption to incorporate the effect of structure on implementation to elucidate the reasons for the continuing establishment of a failing model. The use of DOI in

the context of this study will limit our understanding of the complex processual interactions of elements that determine failure or success of the CIC initiative. Furthermore, it is inclined towards behavioural intentions of users which fall beyond the scope of this study.

3.2.1.2 Actor-Network Theory (ANT)

Another theory that features prominently in Telecentre assessment discourse is Actor-Network theory (ANT) (Latour, 2005; Callon, 1987). The concept can be defined as a heterogeneous network of aligned interest, including people, organizations, and standards (Walsham, 1997). A unique feature of ANT is its lack of distinction between human and non-human actors (or actants). Thus, the term 'actant' may be used to refer to people, organisations and regulations (ibid). Actors join networks through a process of 'translation' whereby others are enrolled into the network (Callon, 1999).

In the context of Telecentre literature, it has been applied by various authors to investigate the interests of diverse actors (defined as humans and nonhumans) interacting in a social and technical context (Díaz Andrade & Urquhart, 2010; Teles & Joia, 2011). For instance, Díaz Andrade and Urquhart (2010) contend that, when the interest of actors and sponsors of Telecentre initiatives are not aligned, networks are hardly established. The assumption is that ICT4D initiatives generally are superimposed on existing systems. Therefore, recipients will have to be 'enrolled' in such a manner that there is a focus on the alignment of disparate goals (ibid). Reinhard and Macadar (2006) drew on ANT to investigate the governance and management concerns that impacted the implementation of a Telecentre network in Brazil. Through a longitudinal participative action research study, Rhodes (2009) demonstrated the usefulness of ANT in unravelling the consequences of neglecting institutional factors in the implementation of government-sponsored Telecentres.

In as much as the theory is useful in studying the socio-technical aspects of interventions (Díaz Andrade & Urquhart, 2010), agency and structure (Latour, 2005; Reinhard & Macadar, 2006) which are all relevant in this study, it is inappropriate in determining failure or success of a given Telecentre project, even though it gives insight as to the factors that might impede implementation. Failure or success is vital to this research because the determination of the status of the CIC gives the author an indication or motivation to determine the rationale for continuing establishment of the project.

3.2.1.3 Access, Capacity and Environment (ACE) framework

Access, Capacity and Environment (ACE) framework was developed by a team of researchers from the University of Washington's Center for Information & Society (CIS). The framework draws its origins from Real Access framework developed by Bridges.org. It is a tool structured to "understand the range of economic, political, educational, infrastructural, cultural, organizational, and other factors that affect the way people use ICT in public access venues" (Gomez & Camacho, 2009: p. 6). It was developed and deployed with the main purpose of systematically comparing different public access venues in twenty-five (25) developing countries. This elaborate landscape study was instrumental in revealing the information needs of users and the institutional opportunities necessary to strengthen public access centres across multiple countries (Gomez, 2014; Clark & Gomez, 2011; Pather & Gomez, 2010; Terry & Gomez, 2011).

Basically, this framework looks at the impact of public access venues (libraries, Internet cafes and libraries) on users of such facilities and the immediate community. It does so by making a comparative assessment of these different facilities. This elicits broad patterns and associations based on the data collected across countries. While this is useful in determining the impact of public access centres on the beneficiaries, impact assessment is well beyond the remit of this research. As a single case study, this framework is not suitable since it was design for comparative case research.

3.2.2 Development Studies

The implementation of ICT initiatives in deprived communities is meant to leverage its potential to support the developmental efforts of such communities. The field has, therefore, benefited extensively from the application of development theories to understand how ICT is shape development. A description of some of these conceptual frameworks used in the evaluation of Telecentres is presented next.

3.2.2.1 Capability Approach (CA)

According to Sen (1999), CA is the expansion of freedoms to enable people to lead the lives they value (p. 18). The capability approach is by far one of the most widely used frameworks applied to investigate the implementation of ICT initiatives DCs. It conceptualises development as a process of actual freedom relished by a group of people. Its basic tenet is

unravelling the contribution of ICT to human development. In Telecentre assessment, CA was applied by Grunfeld (2013) to investigate the iREACH Telecentre project in Cambodia who reported that Telecentres were instrumental in encouraging farming practices that were compatible with their environment. Even though CA has elements that indicate how participatory development can lead to progressive development, the interest of this study is why ICT initiatives are constantly being implemented although they are a failure. CA stresses the consequences of the implementation of ICT initiatives to deprived communities and the agency of ICT users. CA deals more with individual and social structure (Zheng, 2009) while the interest of this research is inclined towards organisational and socio-political structure of the context of implementation. It is thus not suitable for this study.

3.2.2.2 Sustainable Livelihoods Approach (SLA)

This methodology was developed by Department for the International Development (DFID) to evaluate its projects aimed at improving the livelihood of beneficiary communities. It recognises five core assets (physical, natural, financial, human and social capital) on which sustainable livelihood is achieved and for that matter poverty reduction (DFID, 1999). It has been used to evaluate Telecentres to understand its impact on livelihoods surrounding the initiative. For instance, Parkinson and Ramirez (2007) adopted it to assess the impact of Colombia's Telecentres on the livelihood of beneficiaries. Their study focused on the kinds of risks and vulnerabilities encountered by individuals, their use of the Telecentre and how these impede or enhance their livelihood. To establish a linkage between community Telecentres and poverty reduction, Soriano (2007) employed SLA to investigate this linkage in Wu'an Province of China. Their study found a link between ICT and poverty alleviation albeit weak.

The SLA is a useful tool for assessing the contribution of ICTs to individual and community development. The expediency of the SLA is also evident in its departure from the assessment of macroeconomic indicators to the evaluation of intangible factors. However, it has been criticised as being large and complex to adopt especially in studies limited by time and resources with findings that might not be generalisable (Farrington et al., 1999). Similar to CA discussed above, the SLA cannot be considered as the theoretical lens for this research because its main purpose is to establish the impact of an ICT intervention to users and their surrounding community. Furthermore, this study is limited by time and financial

resources to conduct an elaborate study. The SLA is also limited in its use for critical analysis to unearth the underlying reasons for the status of a given Telecentre.

3.2.3 Social, Psychology studies

These are evaluation methods adopted from Sociology and Psychology disciplines because of the multidisciplinary nature of the ICT4D field. The implementation of IT artefacts can only occur in a social context and through the interaction of beneficiaries. This complex mingling of actors calls for a multidisciplinary approach to understand the various dynamics that make the success of any ICT project possible.

3.2.3.1 Social Representation Theory (SRT)

Moscovici (1963) first developed social Representation theory in 1961. His motivation was that there was a relationship between socio-cultural predispositions and the organisation of knowledge. Moscovici described SRT as a “system of values, ideas and practices with a twofold function; first, to establish an order which will enable individuals to orientate themselves in their material and social world and to master it; and secondly to enable communication to take place among the members of a community by providing them with a code for social exchange and a code for naming and classifying unambiguously the various aspects of their world and their individual and group history” (Moscovici, 1973, p. ix–xiv). It is an interpretation of the worldview of a social group through interpersonal communications and adhering to values in a social context. In Telecentre evaluations, SRT has been deployed to investigate how social groups perceive the information and communications function of community multimedia centres in Mozambique (Vannini, Rega & Cantoni, 2015). Similarly, Rega (2010) applied the theory to a Telecentre in South Africa to understand the role of psychological, economic and sociological issues in shaping the living conditions of the beneficiary community and sustainability of the initiative. Their findings indicate a misalignment between the founding organization’s conceptualization of the Telecentre and that of centre staff, users and by non-users.

Whereas this approach is instrumental in eliciting vital information, it is conducted at the individual level and the meanings they attribute to the centre. It emphasises individual agency and social structure as underpinning factors for representation. Although this study also dwells on the agency of community surrounding Telecentre, its’ interest also lie in political structure that govern the implementation of the government initiative. Therefore,

this theory cannot be used as the theoretical lens for this study despite containing several aspects applicable to this study.

3.2.3.2 Sociology of Governance (SoG)

The theory was developed by Kooiman (1993) drawing on a rich set of social theories to build his framework. The assumption is that governance is a complex interaction of social and political actors and entities. Complex in that, each actor or entity has different characteristics with diverse interests and at the same instance must coexist and function in the same context. This has the tendency to create tension and friction amongst actors and structure that often shapes the way an entity is governed. To understanding the element of Telecentre sustainability in this context, Madon (2005b) applied the SoG approach with the objective of investigating the financial viability of Telecentres in India. The evaluation drew attention to the fact that evaluation around governance of initiatives should move beyond only looking at good governance indicators but also focus on governance as an interaction. The value of the SoG approach has been exemplified in a study by Rajalekshmi (2007) in which he reports that “the institutional membership of the intermediary is critical for effective e-governance service delivery”. It sheds light on the invaluable role of the intermediary in executing the mandate of the facility to achieve sustainability. However, the intermediary must be trusted by constituents if there is any hope of success.

The emphasis of SoG is to understand how procedures and structure are organised and managed amongst different actors. They focus on the complex relationship and interaction of social and political actors (Kooiman, 2003) in the governance of initiatives. Therefore, a critical sustainability factors is how actors involved in the implementation of projects manage their mutual relationships successfully over time. Despite its apparent useful attributes (exchange of interactions and relationships between actors), it remains a tool that focus on the interactive relationships that actors in a governance process build to support the sustainability of an initiative. In so doing, it neglects to look at other pertinent issues such as contextual factors that are instrumental in shaping sustainability.

3.2.3.3 Social Capital

The conjecture is that social networks have value especially to actors within their confines (Putnam, 1995). This is expressed in a sense of community that shares common values such

as trust, reciprocity and collective action leading to mutual benefit for all (Coleman, 1988; Portes, 1998). The argument, therefore, is that high levels of social capital can engender better health service delivery, economic sustenance, job opportunities and even help eliminate crime in close-knit communities (Putnam, 1993). For Putman, when people engage in networks of association, they develop common values and belief systems which he terms “moral resource” (ibid, p. 169). Although social capital can enhance the fortunes of a group of people, it can also be used to perpetuate inequality and marginalisation by a category of individuals over others (Rankin, 2002). The theory has proved useful for the assessment of the socio-economic impact of information systems (Yang, Lee & Kurnia, 2009; Adam & Urquhart, 2009; Lee, Park & Lee, 2015). Thapa and Sein (2010) for instance, took a social capital perspective to study the Nepal Wireless Networking Project. Their reported findings were consistent with the thesis of Coleman, Putman and Portes cited above.

The use of social capital in the assessment of Telecentres is useful especially in determining the socio-economic impact to beneficiaries. However, it does not tell us why these systems are consistent failures. Again, it lacks the ability to give insight into reasons for continuing establishment of these facilities although they are unsustainable especially in the case of Ghana’s Telecentres.

3.2.3.4 Institutional theory

Institutional theory has traditionally been used to describe the condition where organisations, firms or industry conform to institutional pressures that define the way of life in an organisational environment over time. Scott (2001) defined institutions as multi-faceted, durable social structures, made up of symbolic elements, social activities, and material resources. Institutions exhibit distinctive properties. They are relatively resistant to change. They tend to be transmitted across generations, to be maintained and reproduced (pg. 49).

Institutional theory in the information systems context tries to unearth the relationship between the ICT artefact under investigation and the institutional context in which it is implemented through its three main elements: regulative, normative, and cultural cognitive elements (Scott 2008).

Researchers have selected some constructs of the theory to investigate ICT implementation in developing countries to determine the role institutions play in strengthening such initiatives concerning institutional change and persistence (Noir & Walsham, 2007; Avgerou, 2000; Bada, Aniebonam & Owei, 2004). Even though the theory has been widely applied in the investigation of Information Systems (Avgerou, 2000; Orlikowski & Barley, 2001; Sahay, 2003; Baptista, 2009; Bharati, Zhang & Chaudhury, 2014), the only known application of the theory in Telecentre evaluation is through the work of Madon et al. (2009).

Using three cases, Madon et al. (2009) illustrated the benefit of applying institutional theory to investigate the 'dynamics of institutional stability and change' with reference to digital inclusion projects. Their focus was to establish how digital inclusion projects established to benefit the poor could be institutionalised. They conclude digital inclusion "projects change significantly over time. Early successes may not always be sustainable or scalable, but, on the other hand, persistence sometimes brings rewards after initial difficulties" (pg. 104).

The theory is insightful in explaining the enduring role of institutionalisation of initiatives if there is to be a chance of project success. It is useful when the unit of analysis is the group, firm or industry. Whereas it would be useful to identify the institutional constraints that affect the implementation of systems, the interest of this thesis is to investigate the underlying reasons for the enduring institutional and political constraints that hinder implementation of ICT projects in developing countries.

Table 3.1 gives a summarised list of the most frequently used theories, frameworks or models that have been applied to the study of the Telecentres.

Table 3.1: A summary of theoretical frameworks used in Telecentre assessments derived from the review of literature.

Theory/Framework/Model	Research Articles
ICT4D Studies	
Diffusion Of Innovation	Roman, 2004; Kumar & Best, 2007; Gollakota, Pick & Sathyapriya, 2012; Wahid, Furuholt, & Kristiansen 2004; Pick & Gollakota, 2010; Chigona, & Licker, 2008
Actor-Network Theory	Reinhard & Macadar, 2006; De Zoysa & Letch, 2013; Rhodes, 2009; Díaz Andrade, & Urquhart, 2010; Teles & Joia, 2011
ACE Framework	Gomez, 2014; Clark & Gomez, 2011; Pather & Gomez, 2010; Gomez & Camacho, 2009; Terry & Gomez, 2011
Development Studies	
Capability Approach	Grunfeld, 2013
Sustainable Livelihoods Approach	Parkinson & Ramirez, 2007; Soriano, 2007
Postcolonial Theory	Bailur, 2008
Social/Psychology/Other studies	
Social Representations Theory	Bailey & Ngwenyama, 2010; Vannini, Rega & Cantoni, 2015; Rega, 2010
Sociology of Governance	Rajalekshmi, 2007; Madon, 2005a
Social Capital	Thapa, & Sein, 2010
Institutional Theory	Madon et al., 2009

Figure 3.1 illustrates the various field's contributing to the evaluation of Telecentres as reviewed in this chapter.

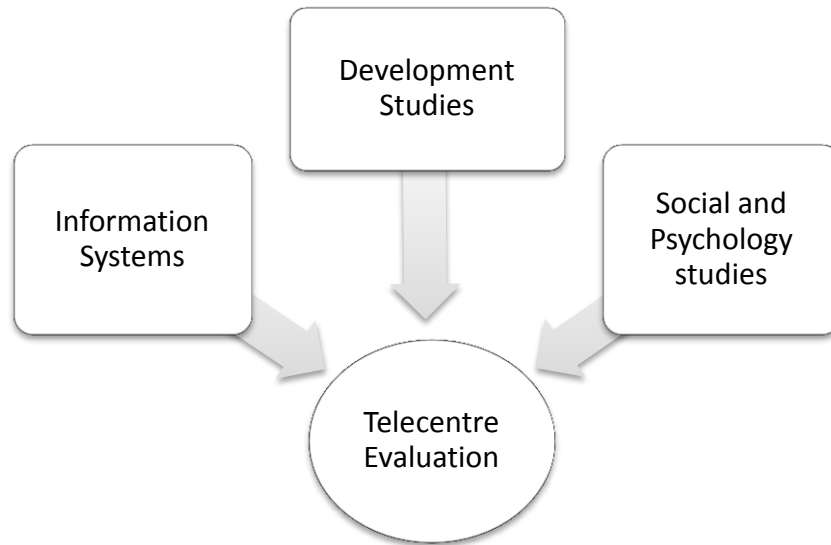


Figure 3.1 Interaction of research disciplines in the Telecentre evaluation space

3.3 Conceptual Frameworks Guiding this Research

This section discusses the selected evaluation tool and theoretical framework that informed the creation of the protocols, data gathering instruments and data analysis.

3.3.1 Design-Reality Gap (DRG) framework

DRG framework was initially adopted to investigate the status of CICs empirically since the first research objective of this study was to determine whether the CICs were a failure or success. After a careful analysis, the author selected the DRG framework as an evaluative tool to achieve the stated objective and to answer the first research question. In discussing the framework, therefore, the author is by no means equating the DRG to a theoretical framework. However, since the framework played a pivotal role in the design, collection and analysis of the initial data to establish the status of the CICs, it is significant to explain and provide the rationale for its selection and deployment. Consequently, the author emphatically states that the DRG was applied in this thesis more as a pragmatic evaluation tool than as a theoretical framework.

In literature, models, theories or frameworks that have been used to evaluate ICT4D projects have approached the object of study from diverse angles, achieving varied results. Collectively the various approaches have given readers a rich understanding of ICT interventions, especially in developing countries. From the extant literature, we have come

to understand that the vast majority of these systems have failed to achieve their intended purposes (Dada, 2006; Attwood *et al.*, 2013). However, none of these theoretical approaches were able to give a definite understanding as to whether a system was a success or failure. In response to this gap in research, Heeks (2003) devised the Design-Reality Gap (DRG) framework as a benchmark approach for evaluating and predicting success or failure of ICT4D initiatives. The first objective of this research is to determine the status (success or failure) of the Telecentre initiative in Ghana. This framework is accordingly adopted to determine this status.

Heeks developed the framework on the notion of contingency, which is based on the principle of fit and congruence (Heeks, 2006). The inference is that there is usually a match or mismatch between any given factor and that the tendency is always for such factors to be adapted and skewed towards achieving a fit/match as a necessity for success. He argues that the main concept of contingency is the fit of an organisational system and the context in which it operates. Therefore, for there to be a good fit, design inscriptions for a system should not pull further from the reality of the environment. This formed the foundation for the development of his DRG framework.

It is used as an analytical tool to evaluate projects to examine the shortfall between design expectations and implementation realities (Heeks, 2002). The assumption is that a gap exists for all ICT projects between the design requirements and the reality of the client's public agency (Heeks, 2008). The size of the gap between design and reality determines the success or failure of the project. The framework has seven dimensions on which projects are evaluated. Each dimension is numerically rated on a scale from zero to ten where zero implies no change and ten means complete change between the design and current reality (Lessa, Negash, & Belachew, 2012). The essence of the framework is to determine the gaps that exist between the design process of a given ICT intervention and the realities that exist in the receiving community. The smaller the gap, the higher the likelihood of success of the project while a large gap indicates the probability of failure.

It is the contention of Heeks (2002) that the DRG framework is much more useful in developing countries than developed countries when assessing information. In developing nations, the context of design is often divorced from the context of use. For example, Kumar

(2002) reported that the eShringhla information kiosks in Kerala were designed in a language (English) alien to the majority of the users (Malayama) of the system. This indicated a clear neglect of context inscriptions in favour of designer inscriptions. The DRG framework uses seven dimensions to assess an IS initiative. Table 3.2 gives a description of the seven dimensions.

Table 3.2: A description of the seven DRG dimensions

DRG Dimensions	Constituent Features
Information	Information needs of patrons, how information is used, sources, information flow from managers to patrons
Technology	ICT equipment e.g. computers, printers, Internet, power, scanners, photocopiers, etc. (hardware and software)
Processes	Work, managerial and institution processes necessary for successful implementation of project
Objectives and Values	What was the objective of establishing initiative, organisational politics, organisational context, cultural values of users
Staffing and Skills	Adequate number of staff and requisite IT and managerial skills
Management Systems and Structures	Ownership of centres, reporting structures
Other Resources: time and money	Time frame for implementation, adequate financial support, remuneration

It is Heeks' (2002) belief that when projects are evaluated using these dimensions, it is possible to determine the state (Success or Failure) of a given project. The framework provides a basis on which to understand success and failure of any given ICT initiative. As an evaluation instrument, it can be used as a risk management tool that identifies major sources of risks which can lead to proposals for appropriate mitigating actions to be taken.

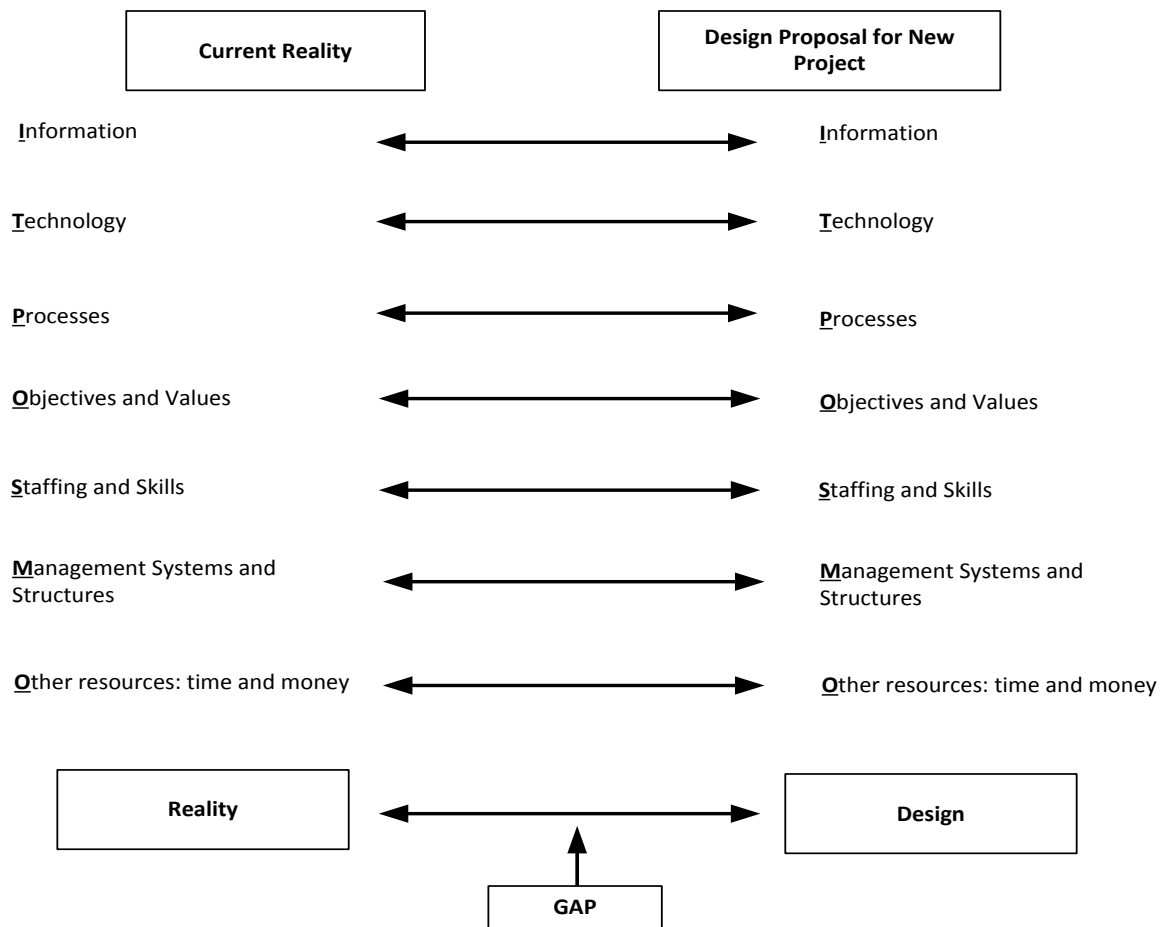


Figure 3.2: The seven dimensions of Design-Reality Gap Framework (Adapted from Heeks (2003))

3.3.1.1 Application of DRG

The model can be applied in two main ways; as a risk assessment tool or project evaluation tool (Braa & Heeks, 2011). In this study, the author employed the latter approach where design expectations are compared with the reality at a period after implementation.

There are few options as to whom or how the scores of each dimension can be generated. The rating scale can be used by a single individual, usually the researcher, with the help of project or research assistants. On the other hand, scoring could be done by selecting key stakeholders of the project in a facilitated workshop where the various dimensions are explained to them. Scoring is then done collectively when a consensus has been reached on each dimension. Participants at the workshop then identify which dimensions need immediate mitigation. Furthermore, dimensions could be weighted. Each dimension could

be given a weight anywhere between 1 and 3 depending on the value placed on the particular dimension. "An 'ordinary' dimension might be given a weight of 1; a dimension that was considered 'important' in the particular e-government project could be given a weight of 2; and a dimension that was considered 'very important' in the particular project could be given a weight of 3" (Heeks, 2008). The weighted number is then multiplied by the assigned dimension score to give the gap score for that dimension. For instance, if the Technology dimension is rated as ordinary, then a weight of 1 is assigned. If the gap is moderate, then it could be assigned a gap score of say 4. The overall score then is 4 (i.e. $1 \times 4 = 4$). A more complex form of calculating the gap score could involve the situation where each dimension is divided into sub-dimensions and each given a score after which all scores in the dimension are then summed up. This is more time consuming and laborious but offers the best possible score.

It could also be case specific in which workshop participants determine the sub-dimensions that should be peculiar to the project under investigation. For instance, the Technology dimension could be sub-divided into three: a) software b) hardware c) networks. Stakeholders can even further create and add their dimensions as they deem fit to aid in the evaluation process as well as incorporating drivers. The seven dimensions are seen as constraint determinants. Adding drivers will help in identifying factors that can otherwise help propel the project to success. This could then be depicted in a diagram where on one-half will be displayed the constraint while the other half shows drivers. Heeks contends that the process may be more valuable than the outcome. It may be appropriate to take a more iterative, learning approach to gap analysis. In this situation, stakeholder groups revisit gap examination at regular intervals during the project cycle. An agreement is reached as to which gaps need attention and the most appropriate gap closure techniques are recommended.

The gap scores from all the dimensions are then summed up and a table of results generated as seen in the example (Table 3.3). The total of scores emerging from the table of results is then interpreted using the Likely Outcomes table (Table 3.4).

Table 3.3: An illustration of a result table

Dimensions	Rating
Information	5
Technology	6
Process	5.5
Objectives and Values	4
Staff and Skills	6
Management Systems and Structure	3
Other Resources	7
Overall Total	36.5

Table 3.4: ICT Projects Likely Outcomes table (adapted from Heeks (2003))

Overall Rating	Likely Outcomes Table
57 - 70	ICT project will almost certainly fail unless action is taken to close design-reality gaps
43 - 56	ICT project may well fail unless action is taken to close design-reality gaps
29 - 42	ICT might fail totally, or might well be a partial failure unless action is taken to close design-reality gaps
15 - 28	ICT project might be a partial failure unless action is taken to close design-reality gaps
0 - 14	ICT project may well succeed

He suggests that an overall gap score of 20 on all the dimensions or a score greater than five on each single dimension should be a cause for concern. In such a situation, several actions could be tailored towards the reduction of such gaps. There could be a generic approach in which case one or more of the dimensions that were identified as having the most gaps are targeted and remedied. The following are proposed as generic techniques that could be used to narrow gaps: *a.) Legitimising and mapping current reality, b.) Customisation to match realities, c.) Client-vendor relationship management, d.) Step-by-step: modularity and*

incrementalism, e.) 'Hybrids' and 'tribrids', f.) Scope limitation: KISS and automation and g.) Reality-supporting not rationality-imposing applications (Heeks, 2008). On the other hand, a specific approach could be employed. In this instance, only a specific dimension is targeted with the hope that it will overturn the fortunes of the initiative for the better. Whichever approach is adopted, it should be noted that the 'technique is not only desirable but also feasible' (Heeks, 2008). Irrespective of the method, there will have to be a rework of either the design of the system, its current reality or both.

Taking a keen look at failure patterns and through evaluation experience, he identified a trend. These were categorised into three main dimensions namely: Hard-Soft Gaps, Private-Public Gaps and Country Context Gaps (Heeks and Bhatnagar, 1999; Heeks, 2002; Heeks, 2008). Heeks (2008) referred to these three dimensions as Gap Archetypes discussed in the next subsection.

3.3.1.2 Gap Archetypes

From the earlier literature, we are informed that evaluations are predisposed to measure or consider tangible (quantifiable or 'Hard') objects in an attempt to determine factors that account for success/failure of an initiative. Heeks' argument is that in as much as these tangible factors are important, evaluators should equally consider or shift their focus towards intangible measures (Gap Archetypes or 'Soft') in IS project evaluations. For instance, the non-payment or constant delay in the payment of a quantifiable object like staff salaries can lead to a stressful state for employees and the inadvertent lack of motivation towards work. However, the condition of stress is difficult to quantify but has been found to contribute significantly to poor productivity (Halkos & Bousinakis, 2010).

The core argument of this framework is that these constructs invariably hinder the practical implementation of IS in most developing economies. Thus, the capacity of ICTs to fulfil developmental mandates is constrained by the inability to manage these constructs successfully. They are seen as obstacles that must be overcome to achieve desired goals. These constraints referred to as gaps often occur at the same time in a given project and thus should not be viewed as isolated occurrences affecting ICT implementations. These categories are discussed next.

- *Hard-Soft Gaps.* The assumption is that some projects are designed without taking into consideration the nontechnical aspect of the project. Machinery and Engineering, rationality and objectivity are often considered as 'hard' factors. However, the reality on the ground is that 'soft' factors such as people, politics, emotions and culture that are usually unpredictable have the greatest influence on project success. Often in the implementation of projects much emphasis is placed on the ICT artefact and the various components that ensure its success. Most of these components are predictable and, therefore, their functions can be rationally and objectively benchmarked. In reality, however, these functions are influenced and dominated by 'soft' factors (people, politics, emotions and culture) which are usually subjective and unpredictable. The notion is that information systems fail when there is a mismatch between the 'hard' and 'soft' factors, consequently leading to the emergence of a large gap.
- *Private-Public Gaps.* These occur when private sector systems are adopted wholesale and often imposed on public sector agencies. What designers or implementers of systems overlook is that the culture, structure and environment of the private sector are entirely different from that of the public sector. Imposing systems from one onto the other is bound to create large design-reality gaps and consequently, failure. The design of information systems is 'system and situation' specific. As such, designed inscriptions take into consideration the organisational culture of the institution. The inability to deconstruct and adapt to meet new conditions will lead to large implementation incongruity.
- *Country Context Gaps.* Governments looking for quick answers try to implement off-the-shelf solutions from other countries. Every country has its peculiarities that are usually factored into the design of a given system. Large design-reality gaps occur when a system meant for a particular country is transferred and implemented in another without due consideration for adjustments to fit into the new environment. This gap exists when an information system designed for a developed country is implemented in a developing country. In a desperate attempt to reap the benefits of technology, systems are adopted from one context and implanted in another without taking necessary steps to ensure that the new system is aligned with

contextual factors. A system designed for one context might not necessarily be suitable for another.

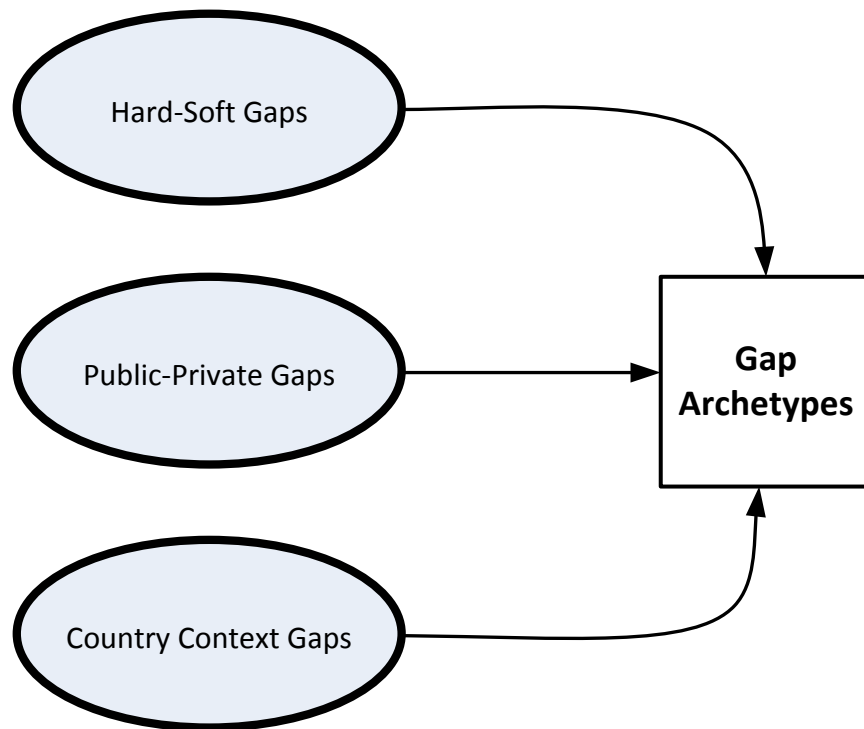


Figure 3.3: Gap Archetypes

3.3.2 Postcolonial Theory (PCT)

Postcolonial theory is a body of discourse that traces its origins to literary and cultural studies. Slemon (1994) describes postcolonial theory “as a way of ordering a critique of totalizing forms of Western historicism; as a portmanteau term for a retooled notion of “class”, as a subset of both postmodernism and poststructuralism” (Slemon, 1994, pp. 16-17). It encompasses the period following the disbandment of political and economic domination or subjugation of one nation or group of people over another (Colonialism). Postcolonialism represents that period of “decolonization and the determined achievement of sovereignty – but also the realities of nations and peoples emerging into a new imperialistic context of economic and sometimes political domination” (Young, 2001, p. 57). The theory is a convolution of ideologies (theories) by scholars who try to define the influence colonialism had on the colonised. Unlike other theories, its plural genealogies imply diverse theorists bringing to bear a varied range of ideas. This has often led to a conflict between the character and scope of the concept (Roy, 2008). What is certain,

however, is that it emerged after the Second World War when new nation-states were born in the wake of decolonisation (Fulcher, 2000).

Postcolonial literature offers a counter-narrative to the dominant master narratives of Europe (Klein, 1995). The reality is that postcolonial theorists have vested interest in analysing and explaining the effect colonialism and by extension imperialism, had on so-called subjugated nations and, therefore, cannot be considered neutral (Srivastava, 1995). Postcolonial theorists engage their audience through a specific critical lens. That critical lens is meant to analyse and explain the effects of colonialism on indigenous societies. This analysis takes various forms or ideas each espoused by different postcolonial scholars. Dominant discourses in this regard have emerged from scholars in Africa (Chinua Achebe), Asia (Gayatri Chakravorty Spivak) and the Middle East (Edward Said) or predominantly from descendants of these origins.

However, the term postcolonialism has been in direct conflict with imperialism (going beyond implantation of settlements to include indirect mechanisms of control) which some scholars argue will more aptly describe the conditions postcolonialism seems to address (Kohn, 2014). Said (1994), however, holds a different view of both concepts. In his opinion postcolonialism is simply trying to understand the tenets of imperialism/dependency theory.

Dependency theorists, first of all, argue that there are different kinds of states in the world with each meant to perform a particular role. Countries at the periphery (South) serve the economic interest of those at the centre (North). This has been made possible through the creation of a class system in these countries whose primary aim is to ensure that the system stays the same through the formation of alliances and corporations amongst the dominant classes of both divides. A wealthy few use resources at their disposal to ensure technological and economic dependence and the domination of the poor. This system of dependence is controlled by multinational corporations such as Banks and Institutions that all serve the interest of those at the Centre. Hence, the South is susceptible to suggestions from these organisations as to how to improve their economies (Kapoor, 2002). Dependency scholars are of the opinion that the world is structured in such a way that the South is meant not ever to get developed but rather stay in the status quo so as to serve the interest of the global North. From their point of view, it is not possible for Southern states to

ever develop because state structures are designed to prevent development (Kapoor, 2002). The system promotes dominance, exploitation and, therefore, underdevelopment (Frank, 1969). Capitalism according to dependency theorists motivates the drive behind dependency relationships.

More recently a third strand of theorists in the field of Science and Technology Studies have questioned some of the assumptions of Postcolonial theory. They illustrate how citizens from the Global South not only passively receive ideas and material relations from the North, but also reshape and reinterpret them often in unpredictable ways. They are especially critical of the Northern style of science and technology for development and the cultural assumptions embedded within these technologies received from the North (Rajao & Duque, 2014). According to Rajao and Duque, (2014), this body of studies have investigated the use of Northern technologies in postcolonial settings with most of them “questioning the linear and deterministic assumptions linking technoscience and socioeconomic development” (pp. 768). For instance, Cherlet’s (2014) article articulates how Northern concepts of development, through the provision of technology, are reshaped and adapted to fit local context as opposed to wholesale adoption as espoused by Postcolonial theorist. Similarly, Rajao and Duque (2014) argue that the hegemonic hold of northern collaborators of developing countries is not as strong and irresistible as hitherto imagined.

Just as dependency theorists have received a fair share of criticism from Postcolonialist, so also has Postcolonial theory been critiqued. For instance, there has often been a contention of the period ‘Postcolonial’ refers to. Childs, Williams and Williams (1997) ask; “after whose colonialism? After the end of which colonial empire?” This has arisen because there has been a series of colonisations around the world at different times. In some cases, colonised states later became colonisers. Some also criticise the theory as being too diffused with no core tenet to tackle (Chibber, 2014). Chibber posits that if one tenet is critiqued, Postcolonial theorists merely point to the other tenets and try to leverage their argument on those concepts. Spivak’s works are often criticised for their density and difficulty to be understood by some audience. Similarly, Bhabha has been accused of writing lengthy and incomprehensible text (Eakin, 2001).

Postcolonialism has been used by a diverse group of scholars to represent a wide-range of ideologies: slavery, settlement, migration, multiculturalism, suppression, resistance,

representation, difference, race, sexuality, class, otherness, hybridity, indigeneity, ethnicity and identity (Davies, 2002). This study adopts the use of some of these Postcolonial concepts relevant to the findings of the study to unravel the rationale for the ongoing construction and implementation of ICT systems that have proven to be unsustainable in the Ghanaian context. These strands of Postcolonial concepts emerging out of the analysis process will support in the unpacking of the nuances discovered in the findings. These concepts are discussed in the following subsection.

3.3.2.1 Voice

This concept describes the marginalised lower classes or social groups who are often denied agency because of their status in society (Goetz & Nyamu, 2008; Klugman *et al.*, 2014). People in this grouping are denied a 'voice' to decide what is right for them (Williams, 2000). Their needs and wants often get mediated through the thoughts of the elite. Gayatri Chakravorty Spivak's literary work ("Can the Subaltern Speak?") brought to the fore the concept of the subaltern in Postcolonial studies (Spivak, 1988). Sandeep and Ravishankar (2014) used the Indian caste system where one's status in society is determined by virtue of one's birth (high born or low born), as an example to explain this concept of class disparity and categorisation. In development discourse, the subaltern can be described as the underprivileged and underserved in rural communities (margins) whose daily livelihood is dictated by powerful government officials who reside in the capital (centre). Their agency is often denied because developmental projects are often 'imposed' on them from the 'centre' without necessarily considering their actual needs (Williams, 2004). The people at the 'margins' have little access to their means of communication and are reliant on the language and methods of the ruling class to express themselves. This highlights the importance of Spivak's question; "Can the Subaltern Speak". However, Spivak is critical of adopters of the concept and accuses them of oversimplifying the concept of subaltern (de Kock, 1992).

3.3.2.2 Stereotypes and Class differentiation

It is the situation in which a group of people begin to label or categorise others and in so doing exclude or marginalise these groups, often manifested through social or psychological means but more prominently in economic relationships. Stereotyping and differentiation is often entrenched in such a way that the less privileged often seek the approval, respect and

admiration of the dominant group. Historically, one's social and economic status in certain cultural settings can lead to a form of stereotyping which can adversely affect their ability to demand what is rightfully theirs or even their livelihood (Sandeep & Ravishankar, 2014). In Postcolonial literature, this can be likened to the concept of 'Otherness' (Bhabha, 2004; Lacan, 1968). Otherness is illustrated in two forms; one with the big 'O' and the other with a small 'o' (ibid). "Lacan refers to the symbolic Other as the big Other and the imaginary other as the little other, but for the most part Lacan simply uses capitalization to distinguish the Other from the other" (Van Pelt, 2000). It is through the gaze of the powerful 'Other' that the dominated 'other' gains identity. The 'other' depicts the colonised or subjugated who must seek acceptance in the eyes of the 'Other' (coloniser). Bhabha (2004) describes this situation as a crisis of identity. An example of this concept could be countries where women, minority groups and indigenes deprived of their rights must at the same instance be seen to be in awe of the superordinates so as to have a chance of receiving what is rightfully theirs and the hope of future rewards. This is reflective of how contemporary organisations, institutions or even governments of high status interact with those perceived to be of low standing. Some countries are powerless in the face of a need for genuine support to alleviate poverty levels. In most instances, they accept bad treaties/agreements that represent solutions to immediate needs (Wade, 2003).

3.3.2.3 Power Imbalances (Hegemony)

Hegemony is sometimes referred to as an extension of a nation's rule over a territory beyond its borders. It could also refer to the establishment and maintenance of colonies in one territory by people from another country or those in power to maintain their control through dominant ideologies. In contemporary discourse, however, hegemony has assumed a different connotation especially in the wake of the disbandment of physical structures of the power it was associated with (slavery, colonialism). They are seen as universal ideologies, perceived to benefit everyone while only really benefiting its proponents (Gramsci, 1991). These hegemonic ideologies are evident in the conditionalities (Washington Consensus) enforced by the Bretton Woods Institutions before the granting of loans to less endowed nations.

Wade (2003) discusses how powerful nations still exert their authority on weaker nations to keep them under check (subjugation) politically and economically while pretending to

support developmental effort. He uses the Doha Declaration on “TRIPS and Public Health” to illustrate his argument. Economic ideology of the TRIPs concept indicates that the higher returns on knowledge generation will lead to an increase in more innovations eventually culminating to a diffused benefit to developing countries. It however raises the old question of turning the global south to knowledge consumers and thus “raising the flow of rents from South to North” (Wade, 2003: p. 3).

Postcolonialism as discussed in current discourse also looks at the contemporary forms of colonialism (Ashcroft, 2001). Hegemony holds true and strong even today and does not necessarily involve nations imposing their authority and ideologies over others but involves corporations, organisations, conglomerates and in some cases occur in-country. The dominant discourse suggests that colonialism did not end with decolonisation but continues in different forms.

3.3.2.4 Hybridity

Homi Bhabha projected the concept of hybridity. Drawing on Fanon’s work on the psycho-social effects of colonialism on colonised, Bhabha (1994) explained the role colonialism played on the colonised. He elaborated that colonialism produced a condition called hybridity where the colonised had dual or fluctuating identities. The social, political, linguistic, religious and racial mixing of several groups resulted in the emergence of a new form of society and identity (or double identity). Bhabha (2004) argues that although there was a mixing of cultures, it could hardly be termed as an integration but rather a layering of experiences and ways of life. Hybridity in this instance shows a state of self-doubt and ambivalence. He, however, states that hybridity affects not only the colonised but also the coloniser. The identity of a given nation is constantly changing as it interacts with outsiders and as such must constantly redefine itself in relation to the Other. This ideology runs counter to Edward Said’s concept of binaries. What Bhabha tries to portray is that not only were the cultures of the colonised hybridised, the colonisers were equally affected. Therefore, it is not always the case that colonialism usually left traces of a culture behind, but that the coloniser was equally infused with traces of cultural elements from colonised states.

In science and technology, a new school of thought has emerged where scholars argue that there is bi-directional travel of ideas between the North and the South and this has been made possible through the leveraging of the agency of users of technology usually in developing countries. In effect, technology can be hybridised to meet user agency. An example is the case of mPedigree is anti-counterfeiting system¹³. The developers of the system found an unintended use for mobile technology to solve the critical and fatal problem of drug counterfeiting especially in DC where policies, standards and enforcement are lacking. The idea is a simple one: to put a code on all packaging of participating pharmaceutical companies, enabling consumers to check if the product they have purchased is authentic through a simple and free text message. The usefulness of the technology has gone beyond drug counterfeiting to other products and has been widely accepted throughout the world by companies who stand to profit more from it.

In the ICT4D literature, there is evidence to show that technological diffusion is no longer the preserve of the West as is evident in the famous M-Pesa and Ushahidi innovations that have found their way upstream (Foster & Heeks, 2013; Heeks, 2012b). Another form of hybridity is manifest in concepts of bricolage and improvisation (Ciborra, 1992; Heeks, 2002, 2006; Orlikowski, 1996) where beneficiaries of ICT initiatives appropriate facilities or change existing conditions to suit a purpose other than the intended objective for which they were established.

3.4 Significance of the Assessment Tool/Theoretical Frameworks to this study

This section discusses the reasons for the choice of theoretical framework for this study over the others identified in the review in the preceding section. The selected theoretical frameworks adopted for this study possess the analytical power and the characteristics needed to effectively answer the research questions and fulfil the objective of the study

3.4.1 Design-Reality Gap

An important feature of the DRG is that it is a participative endeavour where all or identified stakeholders get involved in the evaluation of the facilities. Involvement of stakeholders increases the probability of beneficiaries accepting the outcome of assessment than if it was done by just the researcher alone. Guijt (2014) wrote that the participation of stakeholders

¹³ <http://mpedigree.net/>

in evaluation engenders "better data, better understanding of the data, more appropriate recommendations, better uptake of findings" (p.2). Their inclusion ensures that gap scores are not assigned arbitrarily but grounded in a systematic and empirical methodology.

It is a relatively simple method to understand and to adapt quickly to investigate IS. It affords the researcher the ability to fluidly incorporate innovation and improvisation approaches (in the form of 'gap closer' measures) to the implementation process to steer failing initiatives to success thus making it "different from traditional, planned methodologies" (Heeks, 2006). In essence, it espouses that each project is unique and thus the one-size-fits-all implementation approach is often ineffective.

It provides a systematic approach for monitoring the implemented initiative to identify and report gaps needing immediate attention. Catching gaps early on in the project ensures speedy resolutions to problems before they escalate beyond maintenance. However, this is dependent on the readiness of project managers to perform regular monitoring and evaluation in the project life continuum.

The seven dimensions of DRG reflect factors that earlier studies have identified and applied but they mostly focused on one or two of those elements. This framework however, combines all these factors into one basket in a dynamic approach to track the ICT initiatives over the project lifespan (Hawari & Heeks, 2010). As a contingent approach, it avoids the "one-size-fits-all" chasm that underpins the implementation of ICT projects in developing countries, instead supports a flexible consideration of implementation context as a basis of design (ibid).

Finally, the framework is grounded on sound theoretical origins; from "literature on social construction of technology" and that of "contingency in organisational change" foundations (Bass & Heeks, 2011, p. 5). Thus making it a robust framework that can stand the test of time (Gregor, 2002). As a robust framework, it has the capacity to explain and predict phenomena. This feature additionally draws this author to adopt its use in this study.

Although a relatively new assessment framework, it has managed to gain critical mass in its use for ICT4D evaluations in developing countries due partly to its efficacy and largely due to its ease of use in assessments (Macias-garza & Heeks, 2006; Lessa, Negash & Belachew,

2012). A number of researchers have reported its expediency in evaluations (Heeks, Mundy & Salazar, 2000; Dada, 2006; Syamsuddin, 2011; Heeks, 2006; Hewapathirana & Rodrigo, 2013; Gbenga, 2014). Moving from a factor list approach to assessment, Hawari and Heeks (2010) adopted the DRG framework to investigate the implementation of an ERP system in a manufacturing company in Jordan. They applied a Pre- and Post-hoc approach to evaluation. The study found significant gaps that culminated in the failure of the ERP project. They proposed the DRG as an effective risk assessment and mitigation tool which should be implemented by project managers before and after implementation of IT projects, especially ERP systems.

Encouraging as it may be, research to date applying DRG has tended to neglect by far the most widely implemented IS intervention in developing countries: Telecentres. The motivation of this research amongst others is to address this gap bearing in mind that Telecentres have widely been reported in ICT4D literature as having had more failures than successes (Best & Kumar, 2008; Gomez, Pather, & Dosono, 2012; Attwood et al., 2013). This study provides an important opportunity to advance the understanding of reasons for failure. Leveraging the framework's assessment techniques gives researchers the opportunity to question the planning and control of ICT4D projects.

3.4.2 Critique of DRG

Though the framework is useful for the evaluation of ICT initiatives, it must be emphasised that it is not without shortfalls. The DRG is more or less a benchmarking tool that identifies the performance of an ICT4D intervention through a set of defined dimensions. This adequately expedites the appreciation of the elements that account for the failure/success of ICT4D initiatives. A significant concern in the use of the framework has been that the dimensions are measured in isolation. As a factor approach, it falls short of shedding light on how the different dimensions are related and the influence they exert on each other to determine a particular gap score. It 'simply' adds up the individual scores and generates an outcome.

Another concern is the issue of researcher bias (Onwuegbuzie, 2006) in the scoring of the various dimensions since the assignment of scores is subjective. Often, it is the prerogative of researchers/assessment teams to assign scores to each dimension based on the findings

of research (Heeks, 2008). In an attempt to increase the number of participants in the assessment process, Heeks (2003) reasons that a workshop could be organised for selected key stakeholders. In as much as a workshop could be seen as widening the resource base in an attempt to reduce the tendency of a subjective exercise, it falls short of adequacy. Moussaïd *et al.* (2013), claims that opinionated individuals could influence the outcome of focus group and workshop discussions.

Heeks in pre-empting a critique of the DRG admits that it is very good at identifying constraints that prevent the successful implementation of projects but not the drivers that push for success (Heeks, 2006). Strong project drivers (political will, adequate funding, etc.) have the potential to overcome constraints that can cause failure of projects (*ibid*).

Also, the framework does not enable the establishment of the benefits an initiative delivers to the target recipients neither does it provide answer(s) as to why ICT4D initiatives that the DRG has identified as failures keep being implemented in some developing countries.

3.4.3 The use of complementary theory

Relevant as the DRG may be to our research, it goes as far as adequately answering only the first research question of the study (How can we usefully evaluate the success/failure of the Community Information Centres initiative in Ghana?). The author notes that the DRG is deficient in dealing with the second research question (What is the rationale for the continuing establishment of CICs in Ghana?). As a result, a second form of analysis is necessary to fulfil this objective. Postcolonial theory is selected amongst other theories available because, in the authors' frame of analysis, it is the most suitable to immediately answer the second research question that needs a critical outlook.

As noted earlier, PCT emerged out of literary and cultural studies. Postcolonial signifies a "period (after the colonial); a location (where the colonial was); a critique of the legacy of colonialism; an ideological backing for newly created states; a demonstration of the complicity of Western knowledge with colonial projects; or an argument that colonial engagements can reveal the ambivalence, anxiety and instability deep within Western thought and practice" (Anderson, 2002; p. 645). In other words, it serves as an indication of contemporary forms of critique requiring a critical lens to analyse phenomena. Postcolonial theory grants us a renewed opportunity to study how structure (political and economic) in

the 'new world' affects daily existence. Despite the obvious significant relationship between development studies and postcolonial theory, not much by way of research is available to understanding this synergy. The notion of power relations afforded by postcolonial analysis gives researchers especially in developing countries the requisite tool to evaluate ICT4D initiatives. Bailur (2008) in a position paper illustrates the usefulness and strength associated with understanding the Telecentre phenomenon. Using secondary data (mainly published articles) her evaluation brought to the fore refreshing and insightful conclusions thereby presenting an alternative and compelling argument for the use of postcolonial theory to understand the underlying reasons for failure of Telecentres. This research adopts Postcolonial theory as a theoretical lens for the evaluation of the CIC project in Ghana. The application of PCT in this study constitutes a pioneering approach to analysis using PCT in Telecentre evaluation. The reasons for this choice are elaborated next.

3.4.4 Postcolonial Theory (PCT)

Several reasons account for the choice of postcolonial theory as an analytical tool to unravel underlying reasons for continuing establishment of Telecentres based on a failing model.

First, ICTs were introduced because they were perceived as instrumental in the developmental efforts of developing countries (Avgerou, 2010). Development partners were influential in ensuring member states adopted its use (World Bank, 2012; UNECA, 2008). In some cases, as we have observed from discussions above, they were mandatory in order to have access to donor funds (Ciborra & Navarra, 2005; Wade, 2002). In this thesis, the 'imposition' of ICT interventions is classified as 'colonial artefacts'. As pro-poor interventions, they operate in a social context and are managed by a set of governing structures. As such the relationship between success and failure of the CIC project in Ghana could be described as socially constructed. In a context that has colonial legacies, a Postcolonial theoretical lens is suitable to investigate the relationship between a Postcolonial context and a colonial artefact.

Second, decolonisation led to the reordering of political, social, technological and economic structures (Milne, 2002). The new world order is still believed to be dominated by the leaders of the old world. The multidisciplinary nature of Postcolonial theory, therefore, offers a fresh perspective to investigate the ever-changing political and economic spheres of

influence. Taking a critical analytical approach, this thesis will unlock the potentials of the theory to unpack the rationale for the continuation of the CIC model in the face of evident failure. An engagement of critical theory and practice (ICT implementation) will give insights into the effect of global transactions on local context.

Thirdly, the strength of Postcolonial theory is inherent in its “set of theoretical and methodological tools for deconstructing the colonial foundations of contemporary power structures” (Roy, 2008). Its critique of hegemonic control of southern economies is not only superficial but also intended to offer alternative power and economic structures in the interest of the marginalised. For instance, postcolonial scholars promote the ideology of co-creation or co-production rather than technology transfer.

The theory’s analytical potential is evident in its application in several fields. It has been variously applied in different capacities depending on the perspective of evaluation. Some of these include its application as a cultural critique (Westwood, 2006; Ul-Haq & Westwood, 2012), its use in management studies (Varman & Saha, 2009; Prasad, Pisani & Prasad, 2008), Indigenous Knowledge management (Briggs & Sharp, 2004), information science (Christen, 2011; Caswell, 2011) and Information Technology implementation (Ravishankar, Pan & Myers, 2012; Bailur, 2008; Irani et al, 2010). Its wide acceptance as an analytical tool makes it a recognised theoretical foundation in critical research, hence, the authors’ natural capitulation towards its use in a context encumbered with a colonial past.

CHAPTER FOUR - RESEARCH METHODOLOGY

4 INTRODUCTION

This chapter discusses the philosophical assumptions underpinning this study. The philosophical assumptions (paradigm) for conducting this study were drawn from the “realist traditions of research” (Bass & Heeks, 2011, p. 6) and critical research perspective (Myers & Klein, 2011; Orlikowski & Baroudi, 1991). A philosophical assumption is a means through which researchers conceptualize problems and proceed to design strategies to address problems (Vogel, 2012). The choice of paradigm is influenced by the objectives of the research (Hennink, Hutter & Bailey, 2011).

This chapter also discusses the methodological approach adopted to conduct the entire study showing rationalisation for the choice of the various methods employed. The qualitative research method adopted for this study constitutes a single in-depth case study. Fieldwork was carried out on site during the period of 2013-2015. The qualitative data sources used include: observations, semi-structured interviews and document analysis (Myers, 1997).

The scope and limitations of the research are also defined in this chapter. This is then followed by the discussion of the research design, ethical considerations for the selection of participants of the study, data collection instruments deployed to gather relevant data necessary for a meaningful representation of the phenomenon under investigation. The data analysis approach adopted is then discussed to conclude this chapter.

4.1 Philosophical Perspective

The choice of paradigm in any given research is not an easy decision to make and yet there are a plurality of research perspectives available for the researchers to choose from. As Olikowski and Baroudi (1991) articulate, the field tends to gain by the coexistence of a

plurality of perspectives that will enrich research outcomes. Researchers should ensure that they adopt a perspective that is compatible with their research interests and predilections and with the appreciation of the fact that other perspectives exist. In adopting a perspective, the researcher must bear in mind that this choice will heavily influence the outcome of research. IS research (and by extension ICT4D) has been dominated by two main paradigms namely; positivism and interpretivism (Wynn & Williams, 2012). In recent discourses, however, there appears to have emerged a new paradigm called Critical research perspective (Myers & Klein, 2011; Orlikowski & Baroudi, 1991). These paradigms have been used in diverse ways to try to understand IS implementation and application.

Philosophically, this study is situated in two paradigms by adopting a combination of realist and critical research approaches. This was so because the investigation applied two analytical frameworks to design data collection instruments and for the analysis of the data. Specifically, the first analytical framework informed the design of the data collection protocols and was instrumental in answering the first research question. The complementary theoretical framework adopted to answer the second research question employed the critical philosophical approach in the data analysis. These two research paradigms are discussed next.

4.1.1 Realist Approach

This philosophy originated with Roy Bhaskar through his seminal work (A Realist Theory of Science) on transcendental realist philosophy for natural sciences (Bhaskar, 1975) and its extended version (The Possibility of Naturalism) for the social sciences (Bhaskar, 1998). The assumption of realism is that there is a “real” world to discover although yet imperfect (Guba and Lincoln, 1994). That is, the world is abstract and is basically the conception of individuals’ thoughts but exist independent of any one person. It is neither value-laden as interpretivism claims nor value-free as claimed by positivism. In Bhaskers’ (1975) opinion, the real world cannot be perceived only through experiences as espoused by empiricists. It is achievable by moving far beyond the experiences of participants and advocates the use of retroduction¹⁴ strategy to data analysis (Bhaskar, 1989; Potter, 1999) instead of inductive or deductive strategies. “Retroduction refers to asking why things are being observed as they

¹⁴ Induction, deductions, abduction and retroduction are the four main research strategies (Blaikie, 2010).

seem to be. [...] for any given topic, retrodution involves asking ‘why’ about the evidence, about the theories and about the causes of the thing itself” (Olsen, 2010, p. 7).

Stake (1995) argues that by its very nature, realism is distinct from paradigms such as constructivism which also employs qualitative approaches. Whereas in constructivism the case itself is the focus of research (intrinsic case study), in realism, the case becomes a window to understand and appreciate the reality beyond the perceptions of participants (instrumental case study) (ibid). Realism shares some features with the positivist philosophy. The belief that social and natural science enquiry should adopt the same approaches (Vogel, 2012) and, the belief in the assumption that there exists an external reality to which researchers should focus on (ibid). It, however, departs from positivism by arguing that researchers’ conceptualization of reality is simply a way of knowing reality and not actually reflecting that reality (Blaikie, 2009). In essence, the realism paradigm falls between positivism and interpretivism to address the shortfalls of both paradigms (Zachariadis, Scott & Barrett, 2012). In ICT4D research, Bass & Heeks (2011) applied the realist paradigm to investigate the issues surrounding the implementation of international computing curricula in Tanzania using Design-Reality Gap (DRG) framework as an analytical lens. The DRG is grounded on sound theoretical origins: from “literature on social construction of technology” and that of “contingency in organisational change” (Bass & Heeks, 2011, p. 5), thus making it a robust framework (Gregor, 2002). As a robust framework, it has the capacity to explain and give insights on the irrational, subjective and unpredictable factors that affect ICT implementation in developing countries. Bass and Heeks (2011) also suggest that the framework is rooted in the “realist traditions of research” (pg. 6).

Consistent with the use of prior framework or theory to guide in the formulation of interview protocol, this study used the DRG framework to determine the failure/success of the CIC projects in the study area. A realist assumption is that the use of triangulation can be a means to evaluate the reliability of collected data and analysis (Madill, Jordan & Shirley, 2000). Triangulation is a method used by researchers to check and establish validity by analysing a research question from multiple perspectives (Bryman, 2008). In this study, the use of triangulation of multiple data sources was to give multiple perspectives of participants and to aid in the collaboration of data gathered in support of ‘causal analyses’

(Wynn & Williams, 2012, p. 796). This study is not just interested in the causal factors relevant in determining failure/success but also an analysis of how the interactions of the various factors were responsible for the outcome of the initiative, similar to the 'causal analyses' of Wynn and William (2012). In this study, the CIC is conceptualised as a socio-technical phenomenon. Accepting this concept leads the researcher to adopt the use of realist approach since it has a particular interest in IS that focus on the artefact under investigation (natural science) and its implementation in a social context (social science) (Zachariadis, Scott & Barrett, 2012). Also, it is deployed to understand the predetermined constructs and the relationships that they share with the assumption that the phenomenon under investigation objectively exists (Madill, Jordan & Shirley, 2000). In the next section, the second philosophical approach is discussed.

4.1.2 Critical Realist Research Approach

Critical researchers assume that people replicate social realities which are often historically embedded in their daily existence. Although they have the capacity to effect change of the status quo, they are constrained by existing social, political and cultural structures (Myers, 1997). Therefore, critical researchers seek to reveal these contradictions in contemporary society with the objective of obtaining emancipatory consequences (ibid). "Critical studies aim to critique the status quo, through the exposure of what are believed to be deep-seated, structural contradictions within social systems, and thereby to transform these alienating and restrictive social conditions" (Olikowski & Baroudi, 1991: p. 6). According to Guba and Lincoln (1994), critical research assumptions are value-laden since they are grounded in social and historical realities. Whereas the positivist and interpretivist are satisfied with the ability to predict and explain phenomena respectively, the critical theorist critically evaluates so as to provide further insights and transformational outcomes (Mingers, 2001).

Despite this assumption, there is still some doubt as to what constitutes critical research (Richardson & Robinson, 2007). A common critique has been that it is fragmented in its approach and application because of the lack of consensus as to what constitutes critical research or what emancipation represents (ibid). In answer to some of these questions, Myers and Klein (2011) proposed an alternative to the conduct of this kind of research by establishing a set of seven principles that could be a point of reference. Another critique has

been that there is no direct link between theory and practice. McGrath (2005) argues that there is still a gap between critical research output and its application in a real social context to effect its emancipatory goal.

These critiques notwithstanding, Richardson and Robinson (2007) argue that, the paradigm has a lot to offer and assert that contrary to the call for plurality of approaches in research, critical research has the capacity to stand independently as opposed to forming a unitary body of knowledge. The focus, however, should be on how each approach can be applied to reflect different viewpoints. Critical research offers opportunity for the voices of the marginalised to be heard and a conscious interrogation of taken-for-granted concerns that reinforces the status quo of domination (Richardson & Howcroft, 2006). To achieve this end, Robinson and Wilson (2003) suggest that a more critical analysis of the social and political context of project implementation is conducted. In ICT4D research, investigations underpinned by the critical philosophy is emerging with one such example being that of Krauss (2012).

This study adopts the Critical Realism variant of the realism philosophy gaining traction in the IS field (Mingers, 2004; McGrath, 2013, Mingers, Mutch & Willcocks, 2013; Volkoff & Strong, 2013). McGrath (2013) argues that the critical realist philosophical approach has the potential to “reconcile positions previously seen as distinctly different or even incommensurable” (pg. 1). In single case studies, the approach is concerned with the issue of causality, explanation and generalisation (ibid). In this study, the application of critical realist approach is meant to go beyond the ‘how’ and ‘why’ questions to provide insightful data which has transformational ability. Specifically, it is applied to explain the underlying reasons for the continuing implementation of a failing ICT intervention in Ghana. Through the re-evaluation of the qualitative data, the author applies a critical lens to unravel the role structure backed by influential leaders (and without collaboration), constrained the successful implementation of the socio-technical initiatives. It is the contention of the author that some ICT interventions implanted in deprived communities such as in this study are encumbered with their own assumptions which might lead to counterproductive outcomes during and after implementation. Using critical theory, the author will argue that this process denies recipients a voice and hence, the ability to be emancipated. The following section discusses the methodological perspective applied in this study.

4.2 Methodological Perspectives

A research approach is described as a systematic process deployed to support data collection, analysis and interpretation (Creswell, 2003). To accomplish the research agenda of the various paradigms discussed above, researchers employ various methodological techniques. The multiplicity of approaches at a researcher's disposal must be carefully examine to ensure that the methodology selected is the best for the study under the given circumstances and is the most appropriate to elicit the best information possible to answer question(s) raised and to fulfil intended objectives. Three main dominant perspectives exist; Quantitative, Qualitative and Mixed Methods (Johnson and Onwuegbuzie, 2004). The choice of a method is grounded on the objective of the research and the philosophy guiding the investigation (Creswell, 2009). This study employed the qualitative approach which is discussed in the following section.

4.2.1 Qualitative

“Qualitative research methods involve the systematic collection, organisation, and interpretation of textual material derived from talk or observation. It is used in the exploration of meanings of social phenomena as experienced by individuals themselves, in their natural context” (Malterud, 2001: p. 483). Similarly, Kaplan and Maxwell (2005) describe qualitative research as a “systematic and detailed study of individuals in natural settings, instead of in settings contrived by the researcher, often using open-ended interviews intended to elicit detailed, in-depth accounts of the interviewee’s experiences and perspectives on specific issues, situations, or events” (p. 32). Proponents of this method suggest that multiple-constructed realities exist, and hence the subject knower is the only source of reality (Guba, 1990). They reject the assumption that claims scientific research rigour, as established in quantitative methods, cannot be applied in qualitative research. They suggest that scientific rigour, as espoused by quantitative researchers, is reflected in qualitative study through the conduct of a systematic and reflective process. Unlike other disciplines where qualitative research is viewed with some scepticism (Malterud, 2001), it is gaining prominence in the field of IS (Sarker, Xiao & Beaulieu, 2013).

Methodologically, this research employed the use of qualitative field research approach. As explicitly stated by Bricki and Green (2007), “... if the question is a qualitative one, then the most appropriate and rigorous way of answering it is to use qualitative methods” (p. 2). The

purpose of qualitative field research is to gain an in-depth understanding of a particular phenomenon, to generate data about human groups in social settings rather than a superficial interpretation of a large sample population. It is fundamental that study outcomes are held as 'valid' and supported by evidence (Patton, 2002; Maxwell, 2005). To achieve this end, triangulation was utilised. The term has its origins in the discipline of Survey¹⁵ where the validity of a map is ascertained by incorporating measures from different angles (Flick, 2004). The objective of triangulations is to obtain insights about the same phenomena from different perspectives with a view to making an informed notion of its complexity. Data sets gathered through a triangulation process are checked against each another to ascertain research rigour (Seale, 1999). There are multiple instances of the concept in IS. These include; (1) methodological triangulation - the use of multiple qualitative and/or quantitative methods; (2) data triangulation - using different sources of information in order to increase the validity of a study; (3) theory triangulation - the use of multiple perspectives to interpret a single set of data; and (4) investigator triangulation - using several different investigators in the analysis process (Denzin, 1970; Krefting, 1991). "Validity, in qualitative research, refers to whether the findings of a study are true and certain - "true" in the sense that research findings accurately reflect the situation, and "certain" in the sense that research findings are supported by the evidence" (Guion, Diehl and McDonald, 2011: p. 1).

One of the main shortcomings capitalised on by critics of qualitative research studies is the close relationship between investigator and participants (Krefting, 1991). Qualitative researchers accept the subjective nature of research and maintain that it rather reinforces the research process and concedes that the researcher's background influences every investigation, position, emotion, action and inaction (Porter, 2003). A solution to this crisis is reflexivity (Hennink, Hutter and Bailey, 2011; Porter, 2003). Reflexivity refers to the assessment of the influence of the investigator's background, perceptions, and interests in the qualitative research process (Bailey, 2007). The researcher was, therefore, mindful of this influence and on the role this could play throughout the research process. In discussing

¹⁵ Survey: science of determining the terrestrial or three-dimensional position of points and the distances and angles between them.

the role that an investigator should play in a research process, researchers can play one of two roles in the process: the outside observer or involved observer.

The involved observer is an individual who joins study participants in their day-to-day activities and rituals to gain first-hand knowledge about their way of life. An outside observer on the other hand, studies participants from a removed distance. Regardless of which approach is adopted by the researcher, it is important to note that the research is not an objective one. In the case of the outside observer, he/she still exerts some level of influence on outcomes through the sharing of concepts and interpretations with field workers or participants. This thesis takes the stance of an outside observer. The level of contact with study participants occurred during the in-depth interview sessions when they were asked to express their opinions with regards to the community information centres. Interviews were conducted in the setting of the phenomenon under investigation with the view to eliciting the best qualitative data possible in a familiar environment and discussing issues about the particular venue where the study was conducted.

4.3 Research Design

The aim of this research was twofold. First, Telecentres, as we observed in chapter two, are social interventions mainly established to benefit underprivileged communities. Apart from their initial intentions of granting universal shared access to expensive ICT facilities for disadvantaged groups (Fillip & Foote, 2007), they have in recent years tended also to incorporate services that are tailored towards the needs of the communities in which they operate (Mukerji, 2008). By promoting ICTs through Telecentres, marginalised communities become connected to the wider society and are able to exchange information and explore better avenues for further development. Despite the unparalleled support initiatives such as the Community Information Centres (CIC) have received from government, international agencies and non-governmental organisations, they seem not to be achieving the intended objectives for which they were established (Chaudhuri, 2012; Toyama, 2010).

To understand reasons for failure or success, it is important to evaluate these programmes to determine their outcomes over time and the influence they have made on beneficiaries. Since the inception of the CIC initiative, there has hardly been any published evaluative research of this government intervention especially from the context of northern Ghana.

According to Whyte (2000), “evaluation helps to answer strategic questions about how and why certain outcomes arise, [...] and examine the costs and benefits of alternative actions” (p. 3). Consequently, the first step in this study is to determine empirically whether the CICs in the Upper East Region of Ghana were a success or failure. The research instrument was thus structured in a manner that was to elicit appropriate responses from stakeholders to answer the first research question: How can we usefully evaluate the success/failure of the Community Information Centres initiative in Ghana? The design of the research instrument was guided by the key constructs of the Design Reality Gap framework. Thus, the focus was to examine the shortfall between design expectations of the CICs and implementation realities in the study context. The second phase was to analyse critically the outcome of the first phase of the research. In this phase, the study turned to critical studies and employed Postcolonial theory to explain the outcome and to analyse the rationale for the continuing establishment of Telecentres in Ghana.

4.3.1 Timing of the research

For the outcomes of evaluative studies to be considered credible, the timing of evaluations is very essential. Making an assessment too early or too late in the project under study has a significant influence on the outcome of the results (NTCA, 2000). De’ (2009) describes matured projects as initiatives that have been “sustained for more than five years” (p. 44). Similarly, Bhatnagar and Singh (2010) described mature projects as having being in operation “from three to eight years” (p. 115). The first CIC in the study area started operation in 2005. As at the time of data collection for this research in 2013, the centres had been operating for over eight years and could, therefore, be described as mature projects (Bhatnagar & Singh, 2010). The timing is adequate because it is not too early where the underlying characteristics necessary for an efficient evaluation would not have emerged, neither is it too late since all dynamics required for an effective evaluation are still present. Therefore, it is an opportune time for an evaluation to be carried out.

4.3.2 Role of Theory

The evaluation of ICT initiatives has been particularly very problematic. For instance, Heeks (2002) observed the following; first, evaluation outcomes are subjective (usually depends on who conducts the evaluation) and second, timing of the assessment directly influences outcome (a single project can be a success today but a failure tomorrow). Equally

problematic has been the issue of a standardised set of measurable variables for evaluations (Goussal, 1998). In the absence of an objective assessment, adequate timing for evaluation and standardised metrics, it becomes difficult to achieve universal generalisation of evaluation outcomes. Therefore, more rigorous and robust means have to be used to achieve the desired evaluation results. Heeks (2010) advocates theory or framework driven approaches to the evaluation of ICT initiatives. In support of this statement, he argues that some evaluations are primarily descriptive, lack clarity and methodological rigour. Similarly, Roman (2003) posits that evaluations often consider technological factors and neglect theoretical concerns. The arguments of both Heeks and Roman converge on one conclusion; the use of systematic and rigorous steps to investigate ICT interventions.

Daft (1983) suggests that constraints of time and available resources impact the scope of the study and as such research should be guided by a form of framework or set of indicators. This practice allows the researcher to focus on relevant areas of interest and be able to manage the scope of research. This allows for the elicitation of thorough and concrete data needed to answer questions regarding the phenomena under investigation. Walsham (1995) identified three main roles of theory namely: (1) as a guide to design and collect data; (2) as part of an iterative process between data analysis and collection; (3) as the final product of research. In this research, theory was applied in all three areas. It served as a guide for the formulation of the data collection protocols. As an initial analysis of data gathered, the application of the framework served as a means of analysis around which an evaluation outcome was determined. Walsham also warns that the use of theory has the tendency to blind researchers to focus on a narrow array of themes (predetermined by theory/framework) with danger of neglecting to see and extract relevant emerging themes which could have groundbreaking potentials. To forestall such an occurrence, the researcher used theory in a reflective manner to make room for emerging and significant themes to enrich research findings.

4.3.3 Role of Researcher

Patton (2002) emphasises that the “researcher is the instrument” in the study through whom the investigation is possible. The philosophical and methodological orientation of a researcher has a great influence on the approach to data collection, analysis and reporting of findings. Malterud (2001) observed that a "researcher's background and position will

affect what they choose to investigate, the angle of investigation, the methods judged most adequate for this purpose, the findings considered most appropriate, and the framing and communication of conclusions" (p. 483-484).

The author took a reflexive approach to data collection. As an individual researcher, the author was aware of his influence on the whole research process and thus took steps to ensure that it did not affect the research process negatively. The researcher's knowledge of the cultural and social dynamics of the study context was useful in negotiating access to participants. The author also hails from the study area and this played a significant role in the choice of the case study. However, this did not influence the researcher in selecting a context based on emotions and self-interest but rather suggested the strong motivation for selection of study area. It is further acknowledged that these could have impacts on decisions made at each stage of the research (stakeholder selection, interview protocol, and observations). As Mason (1996, 2002) suggested, the researcher kept reflexive diaries, field memos and used a reflexive approach to data analysis which sought to create a picture of the CIC phenomenon by using ideas and data from multiple sources guided by theory.

The author assumed the role of an etic researcher ('outsider') (Morris et al., 1999). Taking this stance had the merit that employees did not view or perceive the researcher as being aligned with a particular individual or group, concerned with political affiliations, as an informant for a third party or having strong prior views of specific users, systems or processes. The author, thus, was seen as a normal researcher not having a direct personal stake in interpretations and outcomes. The investigator's perceived neutral status allowed individuals to feel safe and comfortable to talk freely and share their experiences and views. Table 4.1 is a summary of the research methodology utilised in this research.

Table 4.1 Summary of research methodology

Level of decision	Choice
Philosophical Assumption	A combination of realism and critical paradigms
Research Strategy	Single in-depth case study
Research Methods	Interviews, Observations, Focus Groups and Document Analysis
Levels of Analysis	Organisation and Socio-Political

Timeline	December 2013 to April 2014 December 2014 to February 2015
Subject of the Study	Evaluation of an ICT initiative
Analytical Theoretical Frameworks	Design-Reality Gap and Postcolonial Theory
Role of theory	As a guide to design, data collection and analysis
Type of theory	Theory for explaining (understanding)

4.4 Research Strategy

Using a particular research approach has merits and demerits. The goals of the researcher and the nature of the research topic influence the selection of a strategy (Benbasat, Goldstein & Mead, 1987). The intention of this research is to study a particular phenomenon (Community Information Centres) in a particular social setting. For this research, the investigator opted to use the Case Study design.

4.4.1 Case Study

Case study research is particularly appropriate for the study of certain types of phenomena such as those that have a far-reaching consequence in a given context. According to Dubé and Paré (2003), its use is expedient when a phenomenon is broad and complex, requires an in-depth investigation and cannot be studied outside the context in which it occurs. Yin (1994) defines a case study as “an empirical inquiry that investigates a contemporary phenomenon within its real-life context, especially when the boundaries between phenomenon and context are not clearly evident” (p. 13). Drawing from the work of Yin (1994), Johari (2006) cautions that case study research could be positivist, interpretivist or critical, depending on the philosophical leanings of the researcher.

The choice of case study in this research is guided by the following three strengths of case study usage in information systems: (1) the researcher can study information systems in a natural setting, learn about the state of the art, and generate theories from practice; (2) the method allows the researcher to understand the nature and complexity of the process taking place; and (3) valuable insights can be gained into new topics emerging in the rapidly changing information systems field (Benbasat, Goldstein & Mead, 1987: p. 370). Similarly, Yin (2009) advocates the use of the case study under the following conditions: (1) the focus of the study is to answer “how” and “why” questions; (2) you cannot manipulate the

behaviour of those involved in the study; (3) you want to cover contextual conditions because you believe they are relevant to the phenomenon under study; or (4) when the boundaries between the phenomenon and context are not clear. The choice of a case study was influenced by the fact that the researcher wanted an intimate interaction with stakeholders in an environment they could relate to.

According to Benbasat, Goldstein and Mead (1987), the unit of analysis can be an individual, group or an entire organisation. The unit of analysis could also be a specific project or decision. For this research, the Community Information Centre initiative was selected as our broad unit of analysis to ascertain its current status in the study context and whether they merit replication. This qualitative case study is an approach to research that facilitates exploration of a phenomenon within its context. This approach enabled a close interaction between the researcher and stakeholders while allowing study participants to feel comfortable to engage in a productive discussion about the CIC's (Crabtree & Miller, 1999). It also made it possible for participants to discuss issues relating to their interaction and use of the CICs and their perception of the CICs current condition.

This notwithstanding, the researcher recognises that case studies (especially single cases) have several limitations mainly focused on methodological rigour, researcher subjectivity, and external validity. According to Yin (2009), the greatest critique has been on methodological rigour. In this instance, researchers are accused of being sloppy by not following standardised procedures. Also, they are criticised for allowing researcher bias to influence data collection unlike when using other methods where standards and concrete procedures prevail thus making data collected subjective and findings unscientific and consequently not generalisable. Yin (2009), however, suggests that single case study is relevant if: (1) It is a revelatory case, i.e., it is a situation previously inaccessible to scientific investigation; (2) It represents a critical case for testing a well-formulated theory; (3) It is an extreme or unique case; (4) Longitudinal case: studying the same single case at two or more different points in time; (5) It is the representative or typical case.

The researcher was mindful of the shortcomings of the use of case study design (Yin, 1994) and thus employed the use of techniques such as those suggested in Dubé and Paré, (2003) and Yin (1981) to safeguard findings of this study: (1) pitfall may be avoided if a study is built

on a clear conceptual framework; (2) the case study narrative may be replaced by a series of answers to a set of open-ended questions and; (3) reactions by informants may be minimal when they are asked to review aggregate data rather than individualised data.

4.4.2 Brief historical antecedent to the CIC initiatives

In 1821, the British Government took control of the British trading forts on the Gold Coast (now Ghana). In 1844, Fanti chiefs in the area signed an agreement with the British that became the legal foothold to colonial status for the coastal zone. Later, they succeeded in establishing firm control over the Ashanti hinterlands and eventually making the northern territories a protectorate. In 1951, a constitution was promulgated that called for a greatly enlarged legislature composed principally of members elected by popular vote directly or indirectly. This paved the way for elections in 1954 and 1956 with Kwame Nkrumah's CPP winning both elections and subsequently leading to the declaration of independence in 1957.

However, after a series of coup d'états and the mismanagement of state resources, "Ghana had become a veritable symbol of the "failing" and/or collapsing African state, improvident government and decaying society. Its economy was stagnant, the fiscal situation could be best described as bankrupt" (Gyimah-Boadi, 2008: p. 2). It was against this contextual poor economic performance that the government initiated the Economic Recovery Programme (ERP) in 1983, based on the Structural Adjustment Programs (SAP) of the World Bank and IMF (Abdulai, 2009). Since then, the government has initiated several programmes aimed at improving the structural deficit responsible for the 'collapse' of the economy. The state recognised that for the developmental effort to be successful, it was necessary to initiate and involve underprivileged communities in the development effort. In 2003, government passed into law the Ghana Information and Communications Technology for Accelerated Development (ICT4AD) policy document which was to spearhead the development effort of the country with a focus on the implementation of strategic ICT initiatives through which the country was to be transformed into a middle-income economy (G-ICT4AD, 2003). The policy proposed the implementation of universal access centres as the best approach to introduce the pervasive power of ICTs in underserved and underprivileged communities mostly located in rural areas of Ghana. Following this recognition, the first batch of universal access centres (CICs) was rolled out in 2005. Initially, these centres emerged to be relatively

successful but along the line, there have been reports of non-use and closure of most of these centres comparable to reports from other developing countries that also adopted similar initiatives. Irrespective of this trend, the Ghanaian government is still pressing on with its implementation.

4.4.3 Case Selection

Ghana is divided into ten (10) administrative regions. According to the 2010 Population and Housing Census, Northern, Upper East and Upper West regions are the most deprived, underserved and poorest among the ten (10) regions of Ghana (Ghana Statistical Services (GSS), 2013). These Regions are also the least urbanised in the country with only about 21 % of the population living in urban communities.

The demographics of these regions are illustrative of people who may not readily have access to ICTs at home and thus would need public access to ICTs. For instance, the three northern regions recorded the lowest percentage of households with fixed telephone lines (Northern (0.8%), Upper East (1%), Upper West (0.7%)). Also, they reported significantly low proportions of 4.2%, 2.1% and 1.2%, respectively of mobile phone penetration levels. Similarly, the lowest proportions of households with computers were in the Northern (2.2%), Upper East (1.3%) and Upper West (0.9%) regions (GSS, 2013). The trend is the same for Internet penetration. The tele-density in the three regions is therefore very low. It is for this reason that the availability of public facilities in these areas is crucial if the country is to achieve universal access to ICTs for all.

Since most Telecentre initiatives worldwide were meant to bridge the digital divide, efforts were made to ensure that the most deprived, underserved and impoverished communities were provided with ICT facilities as a form of providing universal access to all. The study area has one of the highest population densities (118.1 persons per sq. km) in the country. However, about 79% of the population live in rural areas where the availability of ICT facilities is generally scarce (GSS, 2013). As a result of resource constraints, all three regions could not be captured in the study. A large sample will not necessarily have varied the results as most of the centres are located in a similar geographical location. CICs in the Upper East Region (UER) of Ghana were purposively selected for the study because some of the earliest CICs were established in this region. Their experiences over the years will inform

this research on some of the major challenges CICs have had to overcome over the years and thus the possible reasons for which some have closed. Choosing the UER CICs to study was also important because it is a microcosm of the rest of northern Ghana (technological, social, political and economic conditions).

The substance of access to a research site will often influence the selection of the case to investigate. Ordinarily, gaining access to a study site to conduct research is mostly problematic, especially in an environment fraught with suspicion and the questioning of management decisions. Buchanan, Boddy and McCalman (1988) thus suggest an opportunistic approach to gaining and maintaining access to research sites during fieldwork. The opportunistic approach has become necessary because most organisations have become inundated with requests by academics to conduct research such that most have become fatigued. Also, most view the time spent with researchers as wasted. Hence, the reluctance to grant an audience to researchers. The researcher had good contacts with an International Institute for Communication and Development (IICD) consultant who had worked with all the CIC sites in the region and was, therefore, able to negotiate access to the CICs for the research. Also, the researcher had a good rapport with three District Chief Executives (DCEs) (owners of the CICs) through previous business and academic engagements. These individuals then negotiated with their colleagues (other DCEs) to grant researcher access to staff and facilities.

Furthermore, there has also been very limited research at this level of concentration in this context or similar settings. Least of all, funding was a challenge and the researcher did not want to compromise quality by spreading out to a wider research area that might yield insignificant results. Together, these dynamics justify the reasons behind the current investigation in this research location.

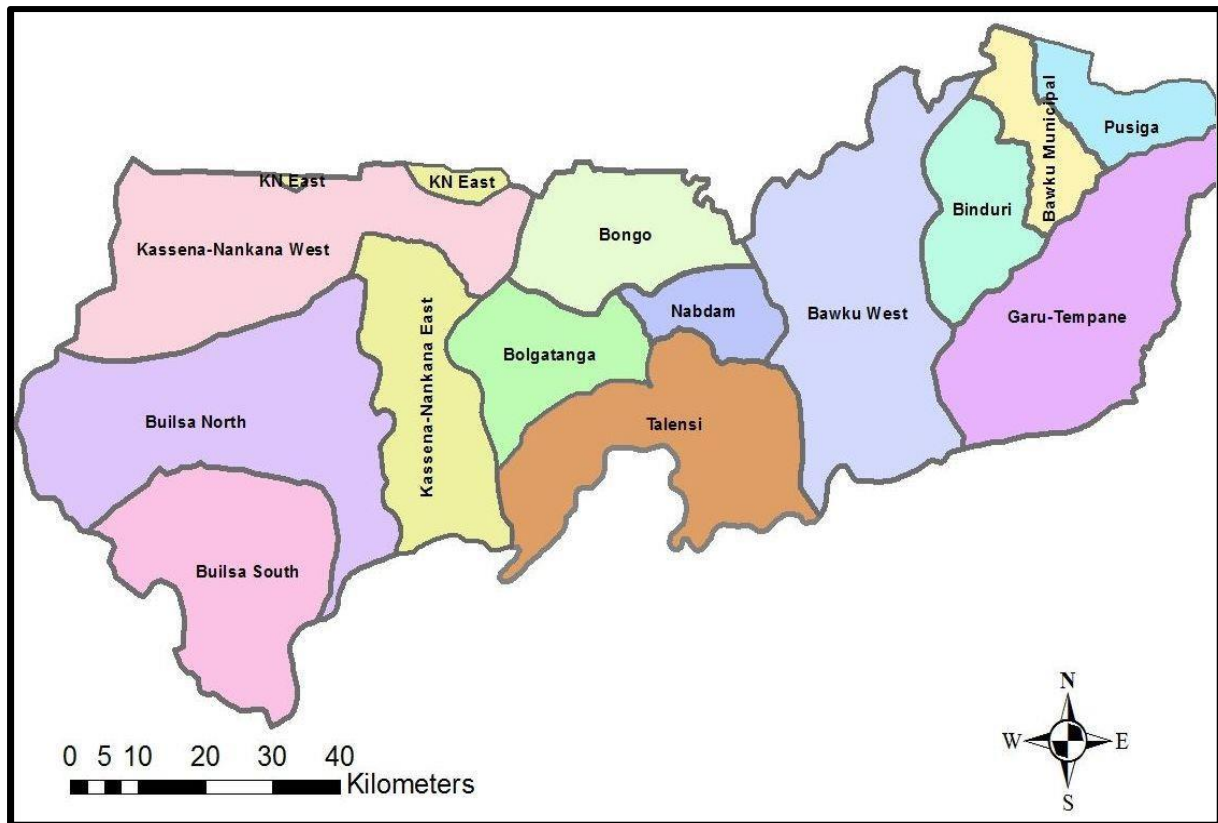


Figure 4.1 Administrative Map of Upper East Region

4.4.4 Implication of case selected

A major concern with case study research has been the issue of generalisation of research findings. Further, the researcher also acknowledges criticisms from various scholars about the use of this research strategy earlier in the chapter. However, in the selection of this case study, care was taken to ensure that the limitations of this approach were minimised to acceptable levels by adopting robust methods in the design, collection and analysis of data (Silva, 1997; Yin, 1994; Dubé & Paré, 2003).

This research draws inspiration from one major strength for the of case study research; the appropriateness of a single case study for under-researched areas where the phenomenon under study has not previously been investigated in-depth. This work reports on an in-depth case study evaluating the CIC initiative in Ghana, which has not been studied previously with this level of focus in Ghana and the northern sector, in particular. This thesis undertakes a critical analysis of the underlying reasons for implementation failures and contributes to understanding the problematic issues of Telecentre implementation in developing countries by introducing an alternative evaluation approach. The use of a case study presents an

opportunity to analyse the rationale for the continuing establishment of CICs in Ghana. Therefore, there is the need for a systematic synthesis with the object of augmenting the knowledge base and informing policymaking and practice. In the next section, the techniques for data collection and analysis used in this study are presented in detail.

4.5 Ethical Considerations

Resnik (2011) refers to research ethics as “norms for conduct that distinguish between acceptable and unacceptable behaviour”. Ethical standards promote values that are essential to the conduct of good and acceptable research in Information Systems. The issue of ethics surrounding the conduct of research is so important that organisations, institutions and particularly universities have enacted policies and guidelines to streamline the way it should be applied. For instance, ethical policies set standards with regards to compliance with the law, health and safety, data sharing and confidentiality. Recognising the relevance of ethics in IS research, Davison *et al.* (2001) emphasised the urgent need for ethical guidelines and concluded that self-regulation through norms set by a code of practice is probably the best approach.

The study was undertaken in accordance with the Brunel University Ethical Framework, Good Research Practice Policy, and Code of Research Ethics. The research protocols were approved by the University Research Ethics Committee. The role of the human subject in this research was limited to the semi-structured interviews as participants. The Protection of the human subjects of this study was paramount. As such, several measures were employed to safeguard participants. Orb, Eisenhauer and Wynaden (2001: p. 95) described three ethical principles (autonomy, beneficence, and justice) as a benchmark for qualitative studies involving human participants. The three principles are discussed next based on their application in this study.

4.5.1 Autonomy

In this instance, the researcher ensures that participants are given the opportunity to exercise their right as autonomous persons or individuals and to accept freely to participate in the research or vice versa. A conscious effort was made to explain in detail the rights of the volunteers who wished to take part in the study. They were duly informed of the fact that it was purely a voluntary exercise that did not carry any monetary gain to the

participant. As potential participants, they could choose to take part or not. Further, should anyone agree to participate, they could opt out at any stage of the interview process without having to give any reason. For the avoidance of doubt, each participant was asked to complete an Informed Consent form (Appendix C). It constituted a form of mutual contract between participants and researcher and explained the purpose of the research, the data to be collected, a guarantee of anonymity and privacy of expressed thoughts and opinions. An important element of the form was the consent for the interview to be recorded. For participants who objected to be recorded, responses were recorded in a field notebook. It is important to note that consent was obtained from the onset of the interview process for each participant. Since a majority of participants were drawn from the Municipal and District Assemblies (except centre Users), written consent was first sought from institutional heads before participants identified as suitable candidates were approached (Appendix D).

4.5.2 Beneficence

As earlier stated, the health and safety of participants was paramount. Adequate care was thus taken to ensure that no participant was at risk or come to any harm. Interviews were conducted in a safe environment, and often interviewees selected the venue for the purpose of convenience and comfort. In the case of Assembly staff, interviews were conducted in the safety of their offices and usually organised when they had fewer workloads so as to give them the needed time to concentrate and participate effectively. There were instances when sessions had to be terminated midway to make way for impromptu engagements or because the interviewee was tired. It is important to note that interview sessions took an average of sixty (60) minutes to complete. New appointments were fixed to complete questions. The anonymity and privacy of a participant was protected by not referring to interviewees by name or official capacity but represented by a coding convention to prevent attribution of information to individuals. The following coding convention was adopted: location in which the individual is/has been based (in this instance the Telecentre where the participant was interviewed), position or title of interviewee and optional number to distinguish between individuals in the same location(s) and same position. Each Telecentre has been given a pseudo name (ranging from Centre1-8) to represent the eight centres investigated. For instance, a quote attributed to a user in say

Centre7 will be identified as follows: **SnUs01**. Table 4.2 illustrates the coding convention used in this study.

Table 4.2 Coding Convention

Location	Assigned Code	Position	Assigned Code
Centre1	Bl	District/Municipal <u>C</u> hief <u>E</u> xecutive	Ce
Centre2	Bn	<u>A</u> ssembly <u>O</u> fficials	Ao
Centre3	Bw	<u>C</u> entre <u>M</u> anager	Cm
Centre4	Kn	<u>U</u> sers	Us
Centre5	Nv	<u>I</u> mplementing <u>A</u> gency	Ia
Centre6	Tn	<u>E</u> xperts	Ex
Centre7	Sn	<u>C</u> onsultant	Co
Centre8	Zb		

4.5.3 Justice

The selection of study participants is significant to the quality of data gathered. Care must be taken to sample the right informants for the study. This research adopted a purposive sampling approach (Creswell, 2012; Tanner and du Toit, 2015) for the obvious reason that there was a limited set of individuals who had an intimate relationship with the study object. For instance, in every Municipal or District Assembly, there was a schedule officer specifically assigned to the centre. Hence, they were instrumental in offering rich insights into the affairs of the centre. Therefore, participants, especially from the Assembly structure, were selected without bias but based entirely on their relationship and experiences with the CICs.

Adherence to these three principles discussed above enabled the gathering of rich insights from participants in a congenial atmosphere. Engendering mutual trust between interviewer and interviewee enabled a smooth data gathering process.

4.6 Data Collection Instruments

The reliability and validity of research outcome is dependent on the quality of data gathered. This study employed the use of multiple data sources to collect rich data

(Benbasat, Goldstein & Mead, 1987; Yin, 2003). The use of multiple approaches to inquiry (triangulation) elicits richer data and access to the views of a broader and more diverse set of individuals involved in the topic under investigation (Lennie, 2006). Denzin (1970) indicates that the use of triangulation increases the validity of qualitative studies, decreases the investigator's bias, and strengthens the interpretative potential of the study. The sampling process and the various tools used in the gathering of quality data are discussed in the following sections.

4.6.1 Sampling

In selecting participants for the study, it was paramount that the sample selected was representative of the diverse stakeholders in the catchment area (Boyce and Neale, 2006). A careful process was used to select key stakeholders. A representative sample is a subgroup of a population that accurately reflects the members of the entire population. For the purpose of this study, participants were purposively sampled. In this approach, 'the researcher actively selects the most productive sample to answer the research question' (Marshall, 1996: p. 523). This kind of sampling is often adopted for research in which a very specific phenomenon, such as the CIC, is investigated (Patton, 1990). The significance of purposive sampling lies in selecting information-rich individuals. The stakeholders were purposively sampled because they could give an insightful and detailed understanding (Creswell, 2012) of the CIC phenomenon because they were directly involved in its implementation (GIFEC officials), use and management (MMDA officials, Experts/Academia, IICD consultant and ISD official).

The snowball method (Browne, 2005) was also employed to recruit a section of participants (centre users). The snowball sampling technique is described as the situation where identified subjects recruit future subjects from among their acquaintances (ibid). This approach was used because the author did not have access to sufficient informants who were 'heavy users' because the majority of centres under investigation had closed. It is worthy of note that the author had access to managers of closed facilities. This method began by interacting with well-placed individuals in the study context (Patton, 2002). The first point of call was with the centre managers who introduced the researcher to frequent users of the facility. In this instance, users interviewed directed us to others they frequently met at the centre and had befriended. Such individuals were then approached by the

researcher when they arrived at the CIC. A meeting was then arranged with those that agreed to participate in the study. Key informants were people with above average knowledge of the phenomenon under investigation. Table 4.3 shows a list of the key stakeholders who were interviewed.

Table 4.3 Research Informants/Participants

Institutions	People Interviewed	Content of Interviews	Number Interviewed
GIFEC	CEO/Deputy	History of GIFEC and its role in the Implementation of CICs	2
MMDA	DCEs	Implementation and management of CICs	3
	Coordinating Directors	Implementation and management of CICs	6
	Centre Managers	User information needs, management issues, services offered, Service delivery and information needs of clients	11
IICD	Consultant	Support and training	1
Experts/Academia	Expertise based on subject knowledge, publications	Opinions on ICT initiatives especially the CICs	2
Beneficiary Users	Clients	Use and Impact	20
Information Service Department (ISD)	Staff	Government information linkages with the centre.	1

4.6.2 Interview Protocol

The primary source of data gathered for this study was through in-depth interviews. Interviews are usually conducted on a one-on-one basis although under some circumstances it involves two or more people. Interviews may not solicit objective information from participants but rather capture subjective views and opinions on the object of interest (Kvale, 1996). A good approach to conduct case study fieldwork is the use of in-depth interviews as the main way of gaining access to the explanations of informants in the field. Hennink, Hutter and Bailey (2011: p.109) suggest that to achieve depth and emic perspective, the following steps should be attempted;

- Using a semi-structured interview guide to prompt the data collection
- Establishing rapport (a trust relationship) between the interviewer and interviewee
- Asking questions in an open, empathic way
- Motivating the interviewee to tell their story by probing

They emphasise that it is a cooperative exercise where researcher and participant co-construct reality in an attempt to generate knowledge and meaning about a phenomenon. An “In-depth qualitative interview is an open-ended, discovery-oriented method, which allows the interviewer to deeply explore the respondent’s feelings and perspectives on a subject” (Guion, Diehl & McDonald, 2011: p.1) with the objective of obtaining rich contextual data that can shape further questions pertinent to the study. Patton (1987) and Oates (2006) promote three main approaches to conducting qualitative interviews namely: structured, unstructured and semi-structured interviews.

For the purpose of this research, the approach adopted was the use of semi-structured interviews. It is believed to be the best approach to soliciting the desired outcomes of the process in this context. It was directed by a research guide (checklist) used by the researcher to ensure that relevant themes were covered but did not impede or detract the researcher from probing further to solicit relevant information pertinent to the study. Participants spoke freely, but subtle questions were used to prompt and guide them to the issues under discussion. Multiple sources of information were required to build a good picture of the Telecentres under investigation.

Personal history conversations (Gomez & Baron-Porrás, 2011) about personal experiences of users of the facility were conducted. Since it was not practically possible to interview all users, this approach was adopted and applied to heavy users of the centre identified by the various centre managers. The rationale was that because they were frequent users, they would have had an intimate interaction with the centre, managers and other users. As such their input could prove to be invaluable. With regards to centre users, a snowball approach was used to help identify information-rich participants as discussed in the sampling section. A meeting was then arranged with those that agreed to participate at their convenience, time and place. In most cases, interviews were conducted at the centre.

Interviewees were asked questions mainly structured around the seven dimensions of the Design-Reality Gap framework (DRG). Their responses were to provide depth about their

interaction with the system and for the researcher to also gain insight into their perception of the centre. This was particularly useful in that it made the rating of the dimensions more comprehensible to them since they had been introduced to the various dimensions through the interview questions. In essence, the interview was used to sensitise respondents to the different dimensions. At the end of the interview, respondents (Managers, Users and Focus Groups) were then asked to rate the seven dimensions to the best of their ability using the scale given (as discussed in the previous chapter).

4.6.3 Observation

“To understand fully the complexities of many situations, direct participation in, and observation of, the phenomenon of interest may be the best research method” (Bricki & Green, 2007: p. 20). Observation is indispensable in that it allows the researcher to reconcile what participants said during interviews and what actually they do and could even lead to the discovery of behavioural patterns that are not even obvious to the participants themselves. Observation is a process of interaction between the researcher and participants in the latter’s social setting. It is an attempt to view the society or subject of study from the standpoint of a participant (Kawulich, 2005). Participant observation is founded on the theory of Symbolic Interactionism (Blumer, 1969 cited in McRoy, 2013). Nelson (2011) describes Symbolic Interactions as “the process of interaction in the formation of meanings for individuals”. The researcher in this instance conducts the research as either a Covert or Overt participant (Van Deventer, 2009). Covert implies the researcher disguising their identity and mingling with participants while conducting research whereas overt suggests being open about reasons for being part of the group under study.

The researcher engaged in participant observation (overt approach) of client visits to centres and how they use the facilities available to satisfy their information needs. There was an observation of how clients were served by centre staff and also the discharge of their general duties in the work environment. This was to let the researcher gain an insight of the information needs of beneficiaries who visited centres and their level of satisfaction with services rendered.

4.6.4 Focus Groups

A focus group (also referred to as group interviews) is a data gathering process where a selected group of people are put together to discuss issues on a given topic or questions about a particular phenomenon often guided by a moderator (Kitzinger, 1995). They are asked various questions and encouraged to discuss amongst themselves, exchange ideas while commenting on each other's experiences (Sobreperez, 2008). This helps to unravel the inconsistencies and variations of people's way of life in a particular community. It can also be used to explore deeper meanings of findings from a survey that cannot be satisfactorily explained through statistics (ODI, 2009).

The intention was to have a discussion with beneficiaries. Issues discussed were to unearth the intangible impacts as a result of the presence and use of the Telecentres within the study area. Also recurring themes to emerge out of the survey were discussed further to generate more insights to help achieve the research objectives and to answer the research questions. The sample population was the beneficiary community immediately surrounding the Community Information Centre. The CIC blue print lists the following as beneficiaries of the Centre (Ministry of Communication, 2004; p. 3); (1) the general community members, (2) school children, (3) youth out of school, (4) women and women's groups, (5) private businesses, (6) non-governmental organisations and (7) local government authorities. A total of six individuals were conveniently sampled to represent these various categories of stakeholders. Two focus group sessions was organised in two separate Telecentres.

4.6.5 Document Analysis

ICT4AD Policy document was consulted to gain an understanding of government's push for ICT use in all spheres of the economy. Specifically, the eighth (8th) pillar of the policy strategy which mainly deals with the deployment and use of ICT in communities was analysed to see the extent to which the policy influenced the implementation of the CICs (G-ICT4AD, 2003). The researcher obtained pre- and post-implementation documents (Needs Assessment forms/templates, Evaluation reports, Training manuals, Site selection forms, Ghana Poverty Alleviation Strategy document etc.) from GIFEC, District and Municipal Assemblies, Ministry of Communication and IICD. These documents were useful in illuminating the discussion on the implementation criteria and the day-to-day activities of

centres with regards to the discharge of their duties in fulfilment of the objectives of the centres.

Newspapers and online news portal articles were also uploaded to QSR Nvivo 10 software and analysed. The analysis of data from these sources provided insights into the perception of stakeholders about the CIC initiative as viewed through the lens of the media (Qureshi & Trumbly-Lamsam, 2008). An analysis of data from these sources can enable the assessment of values and relationships of the phenomena under investigation (Krippendorff, 1980). Table 4.4 illustrates the type of secondary data sources consulted to augment data collected.

Table 4.4 Documents – secondary data sources

Document Category	Example
Statistical Data	- Human Development Index - 2010 Population and Housing Census - CIA Fact book
ICT policy plan	Ghana ICT4AD policy
ICT4D project detail	- CIC Blueprint - GIFEC Website
Regulatory Instruments	Electronic Communications ACT 775, Ghana

4.7 Data Analysis

After having collected data, the next step for the researcher is analysis. Dey (2003) suggests that, there are different types of qualitative data analysis methods and argues further that the choice of approach adopted in analysing data gathered is dependent on the perspective of the researcher and the purpose of the research. He, however, cites Tesch (1991: p.17-25) as having reached a fundamental core by consolidating the myriad of approaches into three basic orientations: (1) Language-Oriented approach – the use of language and the meaning of words which arises out of interactions of people in a given environment; (2) Descriptive/Interpretive approaches – description and interpretation of social phenomena and (3) Theory-building approach – identifying connections between social phenomena (p.2-

3). In tune with his approach, this study adopts the descriptive approach in analysing data gathered.

Bricki and Green (2007) advocate the use of thematic analysis when using a descriptive approach. Thematic analysis is a process of pattern recognition (theme) generated from data gathered (Braun & Clark, 2006). The emerging themes then become the focus of analysis (Fereday & Muir-Cochrane, 2006). Thematic analysis is grounded in empirical research and is a method used in identifying and analysing the meaning and relationships that are contained in data (Braun & Clarke, 2006). This research adopted the use of thematic analysis.

Data collected is presented in a format that is useful for analysis. It also depends on whether the researcher intends to conduct a manual analysis or employ the use of software. In this study, interview data was collected in audio format and so the researcher chose to transcribe all interviews into text format. Furthermore, this study employed the use of NVivo 10 qualitative data analysis software to analyse transcribed data and secondary documents uploaded to it. The reliance on the transcription of the recorded interviews emanated from the notion that output data gives an accurate representation of the perception of the interviewees and the meanings they assigned to phenomena as compared with field notes that might be tinged by researcher's representation (Hammersley, 2010). Conducting transcription by the author also offers an added advantage in that the hearing of the voice of the interviewee repeatedly may lead to the discovery of new ideas or meanings that were hitherto missed. Denzin (1995) notes;

"There are no original voices, for every instance of a voice being heard is an original, a new hearing, a new voice speaking (and hearing) its mind. Every transcription is a re-telling, a new telling of a previously heard, now newly heard, voice". (p. 14)

A broad approach to the analytical process took the form of first organising the data gathered (interviews, documents and observations) into a form that was uploaded to Nvivo 10. The author then did a careful read and re-read of data in the system while taking note of patterns that illustrated the frequent occurrence of an idea of potential interest to the study. Recurring patterns were coded and similar patterns were classified together and placed in categories. These categories were then revised and placed under the seed

concepts (themes) of the framework or theory (Boyatzis, 1998) discussed in the theoretical chapter. Lichtman (2012: p. 251) refers to this process as the “three Cs of analysis: from coding to categorizing to concepts”.

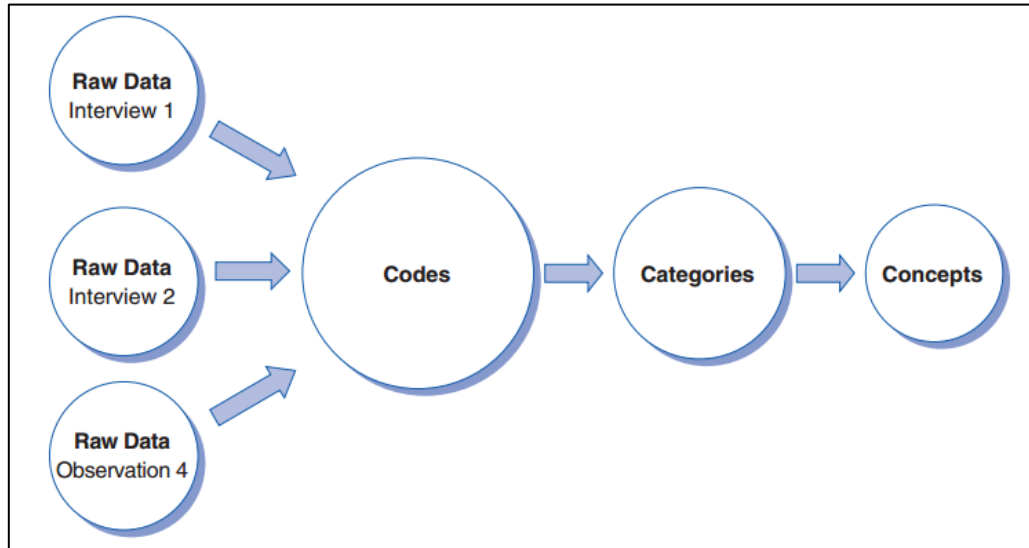


Figure 4.2 Analysis concept diagram (Lichtman, 2012: p. 253)

The analysis of the research data was conducted in two stages. In stage one, the intent was to fulfil the first objective of the study, i.e. to determine the status of the CIC initiative. The Design-Reality Gaps framework guided data collection and analysis. In stage two, a critical perspective was explored. The data was subjected to a second process of analysis to fulfil the second objective of the study: to determine the rationale for the continuing establishment of Telecentres in Ghana. The first stage of the analysis is discussed next.

4.7.1 Stage One Analysis

The coding process was conducted in phases as shown in Figure 4.3. The seven dimensions of the framework formed the seed categories (Information, Technology, Objectives and Values, Staff and Skills, Management Systems and Structures and Resources dimensions) for the initial analysis. The implication, therefore, is that the thematic analysis took a deductive approach. The *Priori* themes were created in Nvivo as nodes for relevant data to be coded to them. The researcher followed a systematic process to ensure that all data were coded to the appropriate theme. Codes consisted of brief statements, whole sentences or paragraphs. An interview transcript was selected and read while coding to the various themes associated with the selected text. The process continued until the author was

satisfied that all relevant data had been adequately coded to matching themes. This process was repeated for all the interview transcripts. In the second phase, initial codes generated for the various themes were revised to ensure that duplicates were eliminated and similar codes collapsed into one code. This was done systematically for each concept/theme. For instance, quotes that described and offered meanings about IT and Internet infrastructure, software and ICT equipment use in the various centres were coded to the ‘Technology’ theme. Similarly, data with respect to frequent staff attrition and inadequate skills level of centre managers was coded to the ‘Staffing and Skills’ theme. Figure 4.3 gives an illustration of the ‘coding to themes’ process for the first stage of analysis.

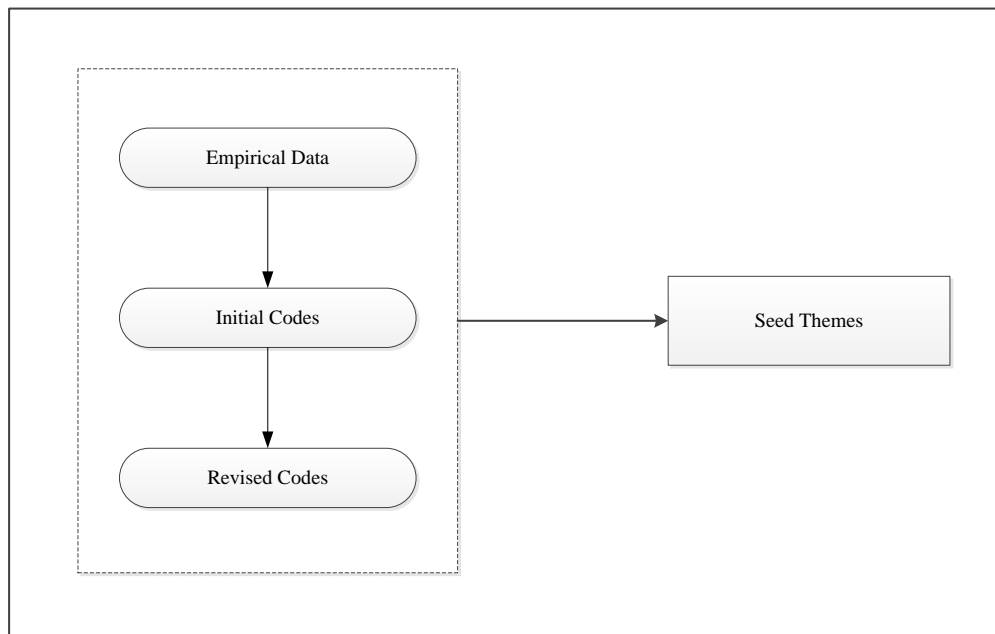


Figure 4.3 An illustration of the ‘coding to themes’ process

Table 4.5 Sample of themes and transcript excerpts used in thematic coding for some

Sample Themes	Meaning and Sources	Sample-coded extracted from transcripts/field notes
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<p>Information</p>	<p>Source: Pre-reading of transcripts and theoretical concepts</p> <p>Meaning: Refers to users' evaluations of the availability of relevant local content information for personal needs e.g. information on market prices for agricultural products, educational resources, awareness creation</p>	<p>"I have now acquired new knowledge which I did not have before which I believe it can help me in my life. I know what booting is and MS word is which I think is useful to me. it boost my esteem and image"</p> <p><i>"how many of us even know that this centre exist let alone use it to empower themselves"</i></p>
<p>Technology</p>	<p>Source: Pre-reading of transcripts and theoretical concepts</p> <p>Meaning: user's perception of the availability of ICT tools and the conditions of these tools and what extent were they useful in fulfilling their needs.</p>	<p><i>"The computers were few and those that were there always break down".</i></p> <p><i>"The Internet facility use to be off and on. So I used not to be sure whether I will get Internet service or not. So they should make it more regular".</i></p> <p><i>"I have been asking the assembly for several months to buy a projector for the CIC to facilitate teaching and learning especially when the school children come to use the centre but never got one".</i></p>

<p>Processes</p>	<p>Source: Pre-reading of transcripts and theoretical concepts</p> <p>Meaning: refers to how the Assemblies and management made decisions regarding the CICs. Also refers to whether the entire CIC concept, as a process, was completed or partially implemented.</p>	<p><i>“We eagerly awaited the community radio component to help disseminate information to the rural folk especially on disease epidemics such as cholera but any time we contacted GIFEC, we were told it was still in the pipeline”.</i></p>
<p>Objectives and Values</p>	<p>Source: Pre-reading of transcripts and theoretical concepts</p> <p>Meaning: refers to the objectives for the establishment of the CIC initiative e.g. providing access to information on job vacancies, to create job opportunities, provide ICT training and alleviate poverty. It also refers to role culture or work ethics</p>	<p><i>“I am a frequent user of the centre so last week I met a gentleman here who showed me a website where there had been some jobs advertised. Since I was seriously looking for a job I decided to try my luck. Faith smiled on me and I got a call to come to Kumasi for an interview”</i></p> <p><i>“I would be happy if they had a facilitator permanently there. He shouldn’t use training hours for his personal businesses so that if u know training is starting at 8am and finishing 5pm then it is that time not when he wants to come”.</i></p>

<p>Staffing and Skills</p>	<p>Source: Pre-reading of transcripts and theoretical concepts</p> <p>Meaning: refers to sufficient number of staff with requisite level of IT skills to deliver on the functions of the centre.</p>	<p><i>“So you employ someone from the secretarial school, he cannot manage the place so eventually it collapses. There were probably other factors involved in the recruitment of people for the CICS other than competence”.</i></p> <p><i>“When the CICS were built they first of all looked for young people who were supportive of the government and were jobless. It didn’t matter whether they had skills or not”.</i></p>
<p>Management Systems and Structures</p>	<p>Source: Pre-reading of transcripts and theoretical concepts</p> <p>Meaning: refers to the structures and systems in place for managing the CICS and how efficient they are.</p>	<p><i>“The manager wasn’t accounting to the assembly, even if he wasn’t generating much but the Assembly should be told what it is generating. Income coming to the centre was not given to the Assembly so most assemblymen thought it was a private business and did not understand why they should be pumping money to the centre”.</i></p>

<p>Other Resources dimensions</p>	<p>Source: Pre-reading of transcripts and theoretical concepts</p> <p>Meaning: refers to the financial support available to the facilities i.e. money for establishment of CICs, revenue generated from users, remuneration of staff. It also refers to period and hours of operation and its impact on users and the centre.</p>	<p><i>“I was supposed to be given GH¢ 80 at the end of each month to feed me, my wife and my baby, how were they expecting me to survive. Even with this small money, they always delay like three to four months before it comes, why? I have no choice than to do a little business on the side”.</i></p> <p><i>“I would be happy if they had a facilitator permanently there. He shouldn’t use training hours for his personal businesses so that if u know training is starting at 8am and finishing 5pm then it is that time not when he wants to come”.</i></p>
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4.7.2 Stage Two Analysis

The second stage of the analysis took the shape of an inductive approach. In this bottom-up approach to data analysis (Braun & Clark, 2006), the author finds themes that relate to the reasons for failure of the CIC initiative and the underlying reason for the continuing establishment of failing projects in Ghana. The same data was thus subjected to another round of thematic analysis. However, this stage was not informed by a theory or framework as was the case in the first set of analysis but rather was data-driven. The data was coded without reference to a pre-existing coding frame. This stage of analysis was also conducted in four phases resulting in the final themes.

In the first phase, the author carefully read and re-read the data again with a focus on identifying patterns that spoke to the second objective of the study. Since this approach was data-driven, the author noted patterns that were thought to be relevant. The idea of careful reading and re-reading was to ensure that an effort was made not to overlook important

patterns. It is important to note that the author was still working on the same data that was uploaded to QSR NVivo 10.

The second phase was to identify initial codes after the familiarisation with the data. While reading the data, interesting patterns were coded and identified with their data extracts. In Nvivo, the author, after finding relevant patterns, highlighted the data extract and assigned it at the node level by creating a node (coding scheme) for the extract. For each idea identified the same process was initiated until the transcript was complete. This process was repeated systematically for all the data transcripts gathered for the research. A total of 21 codes were generated from the initial coding process (see Table 4.7). Table 4.6 gives an illustration of the initial coding process in the first phase.

Table 4.6 Sample of three data extracts and codes generated

Sample Data Extract	Code generated
<p><i>“Not everybody. Some people come and ask what we do here. So it is like they do not know. When I first came, some people used to come here to pay their water bills. I tell them this is a computer centre. Others to come here with their animals. Some come saying they want to vaccinate their dogs. There is a veterinary service over there so they come here thinking it is the place. We then direct them to the right place”.</i></p>	<p>Lack of awareness of centre</p>
<p><i>“There are some Internet cafes in town where if you are not at a certain level you cannot go in there. But for this place anybody at all comes. Even students and children come here. These are good things so you allow that. But when you go to the commercial ones they do not allow that. Here elderly people, rich poor they all come here”.</i></p>	<ul style="list-style-type: none"> - Access to centre - Welcoming atmosphere
<p><i>“It was mainly political. Our politics is such that every government has four years and within that It must try to satisfy those it sees as having brought into power. So every job opportunity is one opportunity to employ people who</i></p>	<ul style="list-style-type: none"> - Political influence - Discrimination - Quality of centre staff

were perceived as being key in bringing the government into power. So when the CICs were built the first of all looked for young people who were supportive of the government and were jobless. It didn't matter whether they were they had skills or not".

Phase three pertains to the search for themes amongst the initial codes derived. This was achieved by sorting the codes into similar categories. In this phase, similar codes were collapsed to form a single code but which reflect the same meaning of the data extract they represent. The grouping of codes led to the generation of broader themes to represent relevant ideas about the objective of the study and the phenomenon under investigation. At this level, some of the codes were discarded because they were not immediately useful for the study. At the end of this phase, the number of themes was reduced to 12 candidate themes. The mind map diagram (Figure 4.4) shows the various candidate themes from the third phase of analysis.

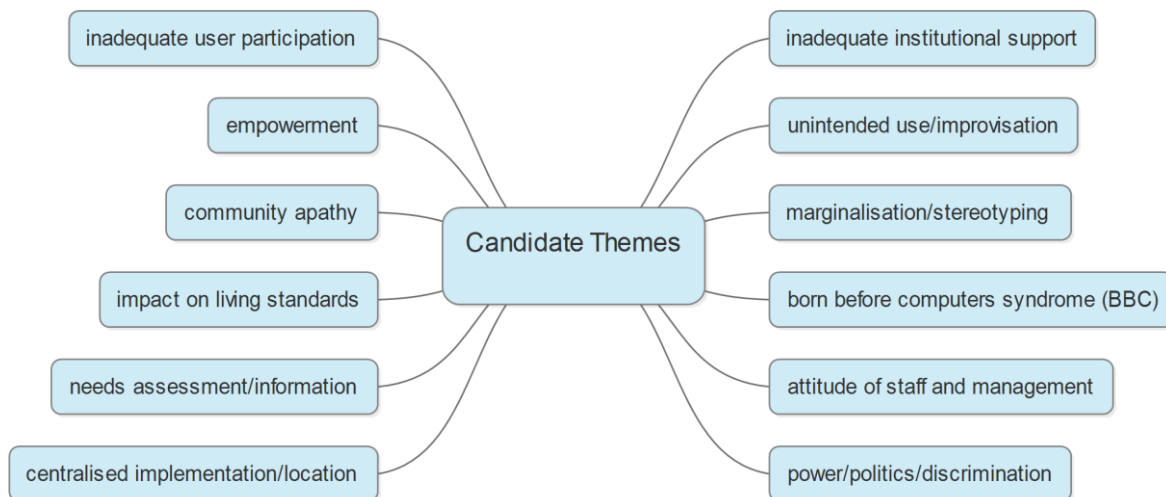


Figure 4.4: Candidate Themes

In the last phase, the candidate themes and their related data extracts were reviewed and refined. The intent was to get refined themes representing the data gathered. The author also looked for coherent patterns between themes and data extracts and ensured that collectively, they told a rich story. Satisfied that the candidate themes and data extracts

presented a consistent pattern, the author proceeded to define and name broader themes to present for analysis. This resulted in four major themes and eight subthemes on which the analysis of the study was based. Table 4.7 indicates a summarised view of the phased process of the thematic approach adopted to generate the main themes for analysing the data gathered.

Table 4.7 Phased process of thematic approach adopted to generate the main themes for analyses

Phase One: 21 Codes	Phase Two: 12 Codes	Phase Three: 8 Candidate Themes	Phase Four – Main Themes
<ul style="list-style-type: none"> • User empowerment • Lack adequate user skills • Participation • Needs assessment • Ownership of CIC facilities • Awareness of the centre existence • Access to clients • Customer services 	<ul style="list-style-type: none"> • Empowerment • Inadequate user participation • Community apathy • Needs assessment/Information 	<ul style="list-style-type: none"> • Participation and Empowerment • Needs assessment/information 	<ul style="list-style-type: none"> • Voice
<ul style="list-style-type: none"> • Centralised implementation • Location of CIC facilities • Political influences and discrimination • Show of power and authority 	<ul style="list-style-type: none"> • Centralised implementation/Location • Power/Political/Discrimination • Inadequate Institutional support 	<ul style="list-style-type: none"> • Power/Political and discrimination • Institutional support 	<ul style="list-style-type: none"> • Power Imbalances

<ul style="list-style-type: none"> • Institutional support • Revenue generation and funding • Public-private partnership 			
<ul style="list-style-type: none"> • Unintended use/Improvisation • Agency/impact on user of facility 	<ul style="list-style-type: none"> • Unintended use/Improvisation • Impact on living standards 	<ul style="list-style-type: none"> • Unintended use/improvisation • Impact on user of facility 	<ul style="list-style-type: none"> • Agency/Hybridity
<ul style="list-style-type: none"> • Marginalisation/stereotyping • Born Before Computer syndrome (BBC) • Attitude of staff and management • Quality of centre staff 	<ul style="list-style-type: none"> • Marginalisation/Stereotyping • Born Before Computer syndrome (BBC) • Attitude of staff and management 	<ul style="list-style-type: none"> • Marginalisation/stereotyping • Attitude of staff/Management 	<ul style="list-style-type: none"> • Stereotypes and Class differentiation

In conclusion, this chapter sought to outline the epistemological and methodological leanings of the research. It further explained how these leanings were employed to achieve the objective of the study and to answer the research questions. In the next chapter, the author presents a contextualisation of the case study. Information on the background of the CIC projects, origins of the concept, stakeholders and the context of implementation are presented.

CHAPTER FIVE - CASE STUDY CONTEXTUALISATION

5 INTRODUCTION

This chapter offers an overview of the research site and its associated characteristics. The information reported in this chapter was sourced mostly from document analysis and some interviews with stakeholders. It begins with a brief historical overview of the country Ghana and an explanation of the contextual characteristics in which the CICs operate. This is followed by a discussion of the current ICT situation in Ghana with respect to IT penetration and infrastructural levels. The government organisation with oversight responsibility (Ministry of Communication) is discussed with respect to their role in the establishment of the intervention. The next subsection discusses the ICT policy strategy of Ghana and how it informed the founding of the CIC initiative. The author then proceeds to describe the CIC phenomenon in detail to shed light on the conception of the model to its implementation.

5.1 Country Profile

Historical accounts attribute the state formation of the country to trade (Ghana, 2016). The West African region was noted to have huge amounts of Gold deposits. This attracted European traders to the Gulf of Guinea. The arriving Europeans named the country Gold Coast because of its enormous deposits and trade in the product (ibid). This precious commodity led to an influx of traders from around the world. The first to arrive on the shores of the Gold Coast was the Portuguese (Berry, 1995). Britain had become the most powerful and influential trader on the Gold Coast by the beginning of the 18th century and subsequently followed their trading activities with a colonising effort (ibid).

The British administration took control of the trading forts on the Gold Coast in 1821 and subsequently signed an agreement with Fanti chiefs in the area beginning the legal foothold to colonial status for the coastal zone (Ghana, 2016). Later, they succeeded in establishing firm control over the Ashanti hinterlands and eventually made the northern territories a protectorate. By 1902, Britain had extended its control to virtually the whole of what is now present day Ghana. To ensure that their rule was not unduly challenged, the colonial administration introduced the system of indirect rule where they involved the local chiefs and selected prominent individuals to be part of the colonial administration.

The period following the Second World War (WWII) saw a series of agitations from mostly veterans who called for self-governance. The Gold Coast elite took the opportunity to organise protests while calling for independence from colonial rule. In 1951, a constitution was proclaimed that called for a significantly enlarged assembly composed predominantly of members elected by popular vote. This paved the way for elections in 1954 and 1956 with Kwame Nkrumah's CPP winning both elections that later led to the declaration of independence in 1957. It became the first country south of the Sahara to gain independence. At independence, the new government changed the name of the country to 'GHANA' after the old Ghana Empire, which existed in parts of present-day Senegal, Mauritania and Mali.

Under Nkrumah's rule, Ghana witnessed rapid economic and infrastructural development. Not long after becoming president of Ghana, he was accused of being a dictator, implementing policies that alienated chiefs and the elite (Pinkney, 1972). Those who dared to oppose him were arrested and detained (Addo, 1997). He was ousted in a coup d'état and exiled in 1966. This was followed by a series of coup d'états and the mismanagement of state resources. Between 1966 and 1979, the country had recorded four coup d'états with each group of coup makers citing corruption, nepotism, lack of rule of law, injustice and economic hardship for the ordinary citizen as reasons for taken over. Ghana had become a "veritable symbol of the "failing" and/or collapsing African state, improvident government and decaying society. Its economy was stagnant, the fiscal situation could be best described as bankrupt" (Gyimah-Boadi, 2008: p. 2). These high levels of mismanagement of the economy by successive governments plunged the country into further hardship. To arrest this decline, the Provisional National Defence Council (PNDC) administration headed by Jerry J. Rawlings sought external support. In 1984, Ghana enrolled on the Stabilisation and Structural Adjustment Programmes (SAP) of the IMF and the World Bank amidst resistance from a section of the population who felt the policies were extremely harsh (Kraus, 1991). These agitations persisted incessantly until, in 1992, the government was forced to organise general elections to return the country to a democratic state. Since then, the country has witnessed a relative measure of peace but the economic conditions which led to the numerous coups d'états persist.

5.1.1 Geography

Ghana is located in West Africa and sandwiched between three neighbouring countries. It is bordered to the north by Burkina Faso (602km), to the West by Cote d'Ivoire (720km) and to the East by Togo (1098km)¹⁶. To the south is the Gulf of Guinea with a coastline of 539 km. Its total land area of 238,533 Sq. Km and lies between latitude 8° 00' N and longitude 2° 00' W¹⁷.



Figure 5.1 Map of Ghana¹⁸

The country is divided into ten political and administrative regions (see Table 5.1) with the Greater Accra as its capital and the most populous. The second most populous is the Ashanti region. The largest by land area is the Northern region and the smallest is Greater Accra. The country is further subdivided into 216 Districts¹⁹. Ghana is home to Lake Volta, the

¹⁶ <https://www.cia.gov/library/publications/the-world-factbook/geos/gh.html>

¹⁷ http://www.mapsofworld.com/lat_long/ghana-lat-long.html

¹⁸ <http://www.lonelyplanet.com/maps/africa/ghana/>

¹⁹ http://www.gra.gov.gh/docs/info/all_mmdas_in_ghana.pdf

largest man-made lake in the world¹ (by surface area). The lake is dammed at Akosombo in the Eastern Region to generate electricity.

Table 5.1 Administrative regions and corresponding capitals

Region	Area(km ²)	Capital
Ashanti	24,389	Kumasi
Brong-Ahafo	39,557	Sunyani
Central	9,826	Cape Coast
Eastern	19,323	Koforidua
Greater Accra	3,245	Accra
Northern	70,384	Tamale
Upper East	8,842	Bolgatanga
Upper West	18,476	Wa
Volta	20,570	Ho
Western	23,921	Sekondi-Takoradi

Source: GSS (2013)

The country is further divided along three climate regions. The first is the coastal savannah that has a dry tropical climate. It has a low annual mean precipitation between 30 inches (760 mm) and 40 inches (1,000 mm)²⁰. The second is the forest belt with considerable high amounts of rain all year round. The mean annual precipitation ranges from 50 to 86 inches (1,270 to 2,180 mm) and is home to the largest rainforest in the country. The third climatic region is the guinea savannah zone that has a mean annual precipitation between 40 and 55 inches (1,020 and 1,400 mm). It is characterised by a prolonged dry season for most parts of the year with severe weather conditions during the harmattan season. The mean annual temperature⁴ for the country ranges from 78 to 84 °F (26 to 29 °C).

5.1.2 Demography

An appreciation of the demographic dynamics of any given country is essential for planning purposes. In the context of this study, it highlights the contextual conditions prevalent in the

²⁰ <http://www.britannica.com/place/Ghana#toc55172>

study area that influenced the implementation of the CIC projects. Table 5.2 gives a summary of the main demographic characteristics of Ghana.

Table 5.2 Demographic Data

Indicators	National
Population	26,442,178.0
Population density (people per/sq.km of land)	116
Population growth rate (annual %)	2%
Life expectancy at birth	61
Official Language	English

Source: World DataBank (2014)

As noted in Table 5.2, the official language of the country is English. However, there are 46 recognised ethnic groupings in Ghana each with its distinct language. The most widely spoken is 'Twi' of the Akan ethnic group. The country is predominantly Christian (71.2%) followed by Islam (17.6%) and Traditionalists²¹ (5.2%) (GSS, 2013).

5.1.3 Economy

Ghana is rated 138 out of 187 countries in the world although it is considered as one of most resource-rich nations on the African continent (UNDP, 2014). Its natural resources include Cocoa, Timber, Gold, Diamond, Bauxite, Manganese and recently Crude Oil. It is highly dependent on the proceeds of Gold, Timber, Cocoa and Crude Oil which form a major proportion of its unprocessed exports. Revenues from its resources have not been able to alleviate the high poverty levels in the country. The contention is that the dwindling revenues are as a result of the fact that exports are mainly in their raw state and so command less in revenue as compared with processed products that the country tends to import. As a predominantly import economy, the balance of payments is often in a deficit. The domestic economy is dependent mainly on agriculture that employs 44.7% of its workforce and contributes about 22% of gross domestic product (GDP). The discovery of crude oil in commercial quantities in 2007 brought a ray of hope to the country. In 2011, the government realised its first revenues of US\$444.12 million against a budget estimate of

²¹ Refers to indigenous African religious beliefs and practices 'considered religious but neither Christian nor Islamic'. <http://www.oxfordbibliographies.com/view/document/obo-9780199846733/obo-9780199846733-0064.xml#obo-9780199846733-0064-div1-0005>

US\$833.86 million from the Jubilee oil fields²². However, this appeared not to be enough to solve the financial crisis facing the country. At the beginning of 2015, the country was plunged into severe power crisis with some businesses closing down and laying off workers thereby deepening the economic woes of the state. In the face of imminent collapse of a once thriving and resilient economy (with an unprecedented economic growth rate of 15% in 2011) (Okudzeto, 2015), Ghana once again turned to the Bretton Woods institutions for budgetary support. In April 2015, the International Monetary Fund (IMF) approved a \$918m (£584m) loan facility to Ghana to support its medium term economic reform programme (IMF, 2015). However, the opposition parties accused the ruling NDC government of plunging the country into further debt by contracting loans which are often misappropriated (NPP, 2015). Ghana's total public debt as at June 2015 stood at GH¢ 94.5 billion (£16.95 billion)²³ (BoG, 2015). The government is nonetheless optimistic that the stringent fiscal policies agreed with IMF, would lead to an increased growth of the economy. Some of these policies include a reduction of the bloated national wage bill, removal of subsidies for fuel and utilities and a freeze on employment to the public sector. However, the president is optimistic the country will pull through and has sworn to deliver on his promises by 2016²⁴.

5.1.4 Education

During the trying times (1980s-1990s), Ghana's educational system saw a steady decline in enrolment numbers, particularly at the basic level. To remedy the situation, the new 1992 constitution made basic education a right and instituted a new programme called Free, Compulsory and Universal Basic Education (FCUBE) (Akyeampong, 2009). The idea was to ensure that basic education was free and compulsory for any child of school-going age while improving the quality of teaching delivered. In 1996, the programme rolled out across the country with particular emphasis on rural communities where enrolment levels had diminished. The World Bank in an assessment of educational reforms in Ghana reported that the FCUBE had succeeded in increasing enrolment (White & Masset, 2004). Ghana's educational system is made up of six years at the primary level, three years for Junior High and three years in Senior High with an option to proceed to the tertiary level. Recently, the school feeding programme and schools under trees project have been vigorously pursued to

²² <http://www.parliament.gh/assets/file/Hansard2015/2nd%20June%202015.pdf>

²³ 1 GBP = 5.57470 GHC

²⁴ <http://news.yahoo.com/ghana-president-promises-bold-action-electricity-crisis-183645317.html>

increase school attendance and improve the infrastructural deficit. Table 5.3 gives an indication of the educational characteristics of Ghana.

Table 5.3 Education Indicators

Indicators	Figures (%)
Expenditure on Education (% of GDP)	8.2
Literacy rate (% ages 15 and older)	71.5
Pupil–teacher ratio (number of pupils per teacher)	33
Gross enrolment ratios:	
- Primary (% of primary school-age population)	110
- Secondary (% of secondary school-age population)	58
- Tertiary (% of tertiary school-age population)	12

Source: UNDP (2014) – Human Development Report

The country has several tertiary institutions that are meant to absorb qualified students. Due to the enormous number of graduating students but fewer opportunities or job openings, competition is keen especially in the few public universities in the country. The sheer number of student backlog has led to the proliferation of private tertiary institutions to take advantage of the gap and to help fulfil the dreams of desperate students in need of higher education. A common blot on the educational landscape is the frequent strikes by teachers' unions in the country usually over salary issues²⁵ and conditions of service²⁶. This has often set back progress in the academic calendar with its consequent effect on the quality of education at all levels.

5.2 ICT situation in Ghana

The first known national use of ICTs was in 1881 when a telegraph line was installed in the Gold Coast to facilitate communication between the colonial governor's castle in Cape Coast and Elmina (Allotey & Akorli, 1999). Since then, Ghana has taken a pioneering role in the telecommunication industry in sub-Saharan Africa. Ghana was a pioneer in the deregulation of its telecommunications industry in Africa. The deregulation process began earnestly in

²⁵ <http://www.ghanaweb.com/GhanaHomePage/NewsArchive/Teacher-unions-declare-another-strike-332263>

²⁶ <http://graphic.com.gh/news/general-news/26831-utag-declares-full-support-for-potag-strike.html>

1996 when it privatised the state telecommunication organisation (Ghana Telecom). The liberalisation of the sector led to an influx of radio, television, fixed-lines, mobile and Internet operators into the industry. The competition that followed this influx resulted in a reduction in service charges, improved service provision and enhanced sector infrastructure and employment. Ghana is currently ranked 113 out of 166 countries on the ICT Development Index (ITU, 2014). Table 5.4 outlines a brief history of the introduction and use of ICTs in Ghana.

Table 5.4 History of Telecommunication in Ghana

Year	Event
1881	First telegraph line installed
1892	First manual telephone exchange installed
1935	First radio broadcasting system (BBC relay station) opened in Accra
1936	First Radio station established at Cape Coast
1953	First automatic telephone exchange installed
1965	Ghana Television service launched 31 July
1974	Post & Telecom Corporation
1977	Ghana Frequency Registration and Control Board established by SMCD 71
1985	Colour Television service launched in Ghana
1992	First mobile telecom operations launched (Analog)

Source: Prempeh (2014)

5.2.1 Radio and Television

Another form of ICT widely used in Ghana is the radio. The first radio station was launched in 1936. Frempong (2012) in national households' survey suggests that 72% of households own radio sets and attributes these high numbers to the fact that radio sets are relatively affordable due to the influx of low-end handsets from China. He further attributes the large percentage to the proliferation of radio stations in virtually every locality that provide relevant local content to listeners. In the same study, it is reported that 54% of households sampled own television (TV) sets. The country is in the process of migrating its transmissions

from analogue to a digital platform in line with the International Telecommunications Union's (ITU) standard. Table 5.5 represents a list of authorised operational radio stations in the country.

Table 5.5 List of authorised Radio stations

Radio/TV Stations	Total number in operation
Radio	309
TV	30

Source: NCA (2015a, 2015b)

5.2.2 Telephony

There are only two main fixed-line operators in the country. Vodafone Ghana, which has a market share of about 98%, has a virtual monopoly as compared with Zain, which has just 2% (NCA, 2015c). Subscribers to fixed lines are mainly urban dwellers with the majority being businesses. The few non-business users subscribe for the purpose of broadband Internet services. The liberalisation of the mobile cellular communication industry has seen fierce competition amongst cellular service providers. In 1992, Ghana became the first country in sub-Saharan Africa to launch a mobile cellular network. From the initial single mobile provider, the country now has six mobile providers. Fixed lines were initially the only option to get Internet services. However, the advancement in technology and the increasing preference for the use of mobile devices to access Internet services have further affected fixed line subscriptions. The decline in fixed line subscriptions is not only peculiar to Ghana but across developing countries (ITU, 2014). ITU figures indicate that there has been a steady decrease in the deployment of fixed lines while that of mobile subscription is on the rise. Mobile telephony has become an obvious choice because of its utility. The convergence of data and voice on mobiles has made its utility even more significant. For instance, almost all the mobile providers now operate mobile money services that have proven to engender financial inclusion especially amongst the unbanked in rural communities (Davidson & McCarty, 2011). The introduction of new services such as ATM cash-out service by some operators without necessarily holding an account with the banks has become very popular.

Table 5.6 represents the subscription, market share and penetration levels of the various telecommunication companies operating in the country.

Table 5.6 Telecommunications in Ghana²⁷

Indicators	Voice Subscription	Data Subscription	Market Share (%)	Penetration (%)
Fixed-line operators				0.97*
Vodafone Ghana	253,627			
Airtel	8,187			
Total	261,814			
Cellular mobile operators				119.41*
Scancom (MTN)	14,886,291	8,128,130	46.00	48.34
Airtel	4,111,766	2,486,877	12.71	14.79
Vodafone Mobile	7,296,394	2,995,917	22.55	17.82
Millicom (Tigo)	4,490,078	2,572,877	13.87	15.30
Glo Mobile	1,445,727	586,819	4.47	3.49
Expresso	132,855	45,514	0.41	0.27
Total	32,363,111	16,816,134	100	100

Source: NCA (2015c, 2015d)

* Penetration levels (%) for fixed and mobile telephones

5.2.3 Internet

Ghana was one of the first in Africa to connect to the Internet with an ever increasing Internet penetration rate (Frempong, 2012). As stated earlier, access to an Internet connection in the country initially was through the fixed lines with the first being through dial-up services. The first Internet service provider (ISP) in the country was Network Computer Systems. Although over 140 ISP licences have been issued, very few actually operate. The SAT3 submarine cable owned by Vodafone provided most of the fibre broadband services prior to the arrival of other competitors. Ghana's broadband capacity was boosted by the arrival of Main One's submarine fibre optic broadband in 2010. Since then, more companies have launched fibre networks (GLO-1 in 2010; WACS in 2011, ACE in

²⁷ Data was culled from National Communications Authority and represents trends for the month of June 2015

2012) (Ospina et al., 2012). The competition amongst these firms was expected to push down the cost of broadband services to consumers.

Currently, Vodafone Ghana's Broadband4U has the largest market share and enjoys monopoly due to its vast infrastructure base across the country. The high Internet penetration levels have been attributed to the high proliferation of data-enabled mobile devices in use in the country and the increasing decline in voice and data tariffs. Vodafone Ghana recently launched a series of Internet cafés around the country linked to high-speed connectivity to serve local community needs. Vodafone prides itself of having set up the fastest and relatively affordable Internet access points in Africa with speeds of more than 40 megabytes per second (10 times faster than anywhere else in Africa)²⁸. The cafés also have Wi-Fi hotspots in and around the café to cater for individuals with mobile devices and laptops thus freeing up desktop space for other users. The service gives the opportunity to users who have the need to upload or download bulk data for business or personal purposes but would otherwise not have such bandwidth size and speed at home or work place. All the mobile services providers also provide mobile broadband packages to clients. This new initiative is a contributory factor for the sharp decline in the fixed line broadband services which were usually unreliable and relatively expensive. Month-on-month growth for the month of June 2015 was -3.28% (NCA, 2015d).

5.2.4 Computer Access

Enacting ICT policies alone will not necessarily lead to the achievement of the objectives of such policies. Although ICTs are enablers, a low ICT literate population will not yield a successful output when deployed. They are deployed with the anticipation of effecting change in work processes and to enhance growth. However, access to systems is not enough if those it is intended to benefit cannot adequately utilise its value. Government, realising this deficiency in the general population, set about to tackle the problem at its roots. It ensured that the teaching of ICT was incorporated into the educational curriculum from the basic level (Acquah, 2012). Similarly, the curriculum of teacher training institutions was upgraded. Teacher trainees were encouraged to specialise in the teaching of ICTs (ibid). To ensure that the subject was taught to pupils practically, the government built computer laboratories in some public schools. Ghana Investment Fund for Electronic Communication

²⁸ [http://www.vodafone.com.gh/Personal/Internet/Internet-cafes-\(1\)/About-our-cafes.aspx](http://www.vodafone.com.gh/Personal/Internet/Internet-cafes-(1)/About-our-cafes.aspx)

(GIFEC) equipped and provided broadband services to these facilities. Schools that did not have laboratories were to share with schools close to them on special arrangements. Having access and the ability to use computers enhances greatly the potential to which it can be put to in the hands of a user. It provides opportunities for users to explore the potentials of the Internet and the various opportunities available for self-development. To grant access to ICT facilities to a wider population, government through GIFEC constructed and equipped ICT centres (CICs) in most districts to grant public access to ICT facilities (GIFEC, 2013). This project is discussed in detail in section 5.5.

5.3 ICT Policy Strategy of Ghana

Ghana recognised the potential role ICTs could play in the growth of its economy especially poverty eradication in rural communities. The Ghana Poverty Reduction Strategy (GPRS I & II) policy documents highlight the essential role ICTs could play to alleviate poverty in the country (GPRS, 2003). It was identified as a tool with the potential to reach the poor in society and give each the opportunity to take part in the information age. The GPRS I policy document proposed the development of an ICT policy strategy to guide the implementation and governance of the sector. It also called for the creation of regulatory bodies to enforce the proposed strategy. This set the scene for the formation of a committee to fashion out a robust ICT strategy for the country.

Prior to WSIS of 2003 and the WSIS Tunis declaration of 2005, the African Information Society Initiative (AISII) was launched in 1996 (UNECA, 2008) with support from ministers of member states. The commission was asked to constitute a;

“high level work group to develop an action plan on ICTs to accelerate socio-economic development in Africa” with the hope that it will “accelerate its development plans, stimulate growth and provide new opportunities in education, trade, health care, job creation and food security, helping African countries to leapfrog stages of development and raise their standards of living” (p. ix).

This laid the foundation for the subsequent emergence of ICT policy documents for member states with support from UNECA. In 2003, UNECA commissioned a National ICT Policy and Plan Development Committee. They developed an ICT policy document for Ghana, which was ratified and adopted in January 2004. This policy was the foundation upon which

Ghana's vision of an information and knowledge economy was to be built (Ngugi et al., 2007). The policy was anchored on fourteen (14) pillars on which the ICT4AD agenda was to be implemented. Pillar eight (8) deals with the Deployment and Spread of ICTs in Communities (G-ICT4AD, 2003). The objective of this strategy was;

“to facilitate the deployment and exploitation of ICTs in the society and economy, special efforts will need to be directed at promoting the use of these technologies in rural, urban and underserved communities [...] the development of Ghana's information society will depend on the level and the spread of access to these technologies, and their resources, services and applications” (p.57).

It stressed further that there had to be a deliberate effort to ensure that the benefits of ICTs reach the underserved and poor communities.

5.4 Ministry of Communication (MoC)

The government organisation with oversight responsibility for all IT/ICT interventions in Ghana is the MoC. The ministry has the primary objective of developing national policy aimed at regulating the information and communication industry to attain value for money for the nation. This is achieved through the maintenance of cost effective ICT infrastructure and the delivery of a world-class service²⁹. It also has the obligation to promote the widespread adoption of e-governance to enhance transparency and accountability by making government information accessible to citizens. Furthermore, it strives to ensure that systems are in place to inspire citizen's trust in the use of ICT for national development.

5.4.1 Agencies and Statutory Organisation

To achieve its mandate, the ministry has about 17 agencies and statutory organisation to support service delivery to citizens and to implement policies and regulations. However, eight are of specific relevance to the ICT sector. They are as follows:

- i. Information Technology Enabled Services Secretariat (ITES)
- ii. Ghana-India Kofi Annan Centre of Excellence in ICT (AITI-KACE):
- iii. National Information Technology Agency (NITA)

²⁹ <http://www.moc.gov.gh/index.php/abt-us/moc>

- iv. Data Protection Commission (DPC) and Internet Registry
- v. National Communications Authority (NCA)
- vi. Ghana Multimedia Incubation Centre (GMIC)
- vii. Information Services Department (ISD)
- viii. Ghana Investment Fund for Electronic Communications (GIFEC)

All these agencies are regulated and mandated by law to execute functions for which they were established. Table 5.7 indicates the functions each performs and the act from which they draw their authority. GIFEC, which is of specific significance to this study, is discussed in subsection 5.4.2.

Table 5.7 Summary of functions of agencies supporting the MoC in the delivery of its mandate

Agency	Function
ITES	To create a globally competitive enabling environment to help develop, build and sustain a strong and vibrant Business Process Outsourcing (BPO)/ITES industry in Ghana and to also position Ghana as the preferred outsourcing destination in Africa ³⁰
AITI-KACE	To produce the human resource capacity needed for the emerging ICT industry in Ghana and the sub-region ³¹
NITA	<ul style="list-style-type: none"> - Establish and monitor the implementation of the national information communications technology policy - Serve as the certifying agency as provided under the Electronic Transactions Act - Play the dual role of enforcing the provisions and regulations of this Act and those of the Electronic Transactions Act - Establish quality of service indicators and reporting requirements that apply to licence holders ³²

³⁰ <http://www.ites.gov.gh/about.php>

³¹ <http://www.aiti-kace.com.gh/?q=Node/2>

³² <http://nita.gov.gh/Mission-Vision>

DPC	To implement and monitor compliance with this Act; Investigate any complaint and determine it in the manner the Commission considers fair Keep and maintain the Data Protection Register ³³
NCA	To licence and regulate communication services and its attendant activities Ensuring universal access to communication services To ensure fair competition among licensees, operators of communication networks and service providers of public communications ³⁴
GMIC	To serve as an incubator where new ICT start-ups can be nurtured and the developing of the needed ICT skills ³⁵
ISD	Provide Public Relations support to government Ministries, departments, agencies and Ghana's missions abroad. Create awareness of government policies, programmes and activities and to collect feedback on same ³⁶
GIFEC	To enable the establishment of ICT, Internet connectivity and infrastructure to deprived communities of the country ³⁷

5.4.2 Ghana Investment Fund for Electronic Communications (GIFEC)

Following the promulgation of the ICT4AD policy in 2003, the government of Ghana set up a fund with the objective of providing financial resources to establish universal access centres for deprived and unserved communities throughout the country. They were also mandated to provide access to telephony, Internet services and connectivity, broadcasting and many other ICT facilities to communities, small-scale businesses and deprived public institutions (Prisons, Police, Public Libraries and Schools). The Fund was officially launched in 2004 but started operations the following year under the name Ghana Investment Fund for Telecommunications (GIFTEL). GIFTEL's first major project was the construction of the CIC projects in deprived communities. Its personnel were trained to manage the first batch of centres. In 2008, the name GIFTEL was changed to GIFEC when the Electronic

³³ [http://www.dataprotection.org.gh/sites/default/files/Data%20Protection%20Act%20,%202012%20\(Act%20843\).pdf](http://www.dataprotection.org.gh/sites/default/files/Data%20Protection%20Act%20,%202012%20(Act%20843).pdf)

³⁴ <http://www.nca.org.gh/19/142/What-We-Do.html>

³⁵ <http://gmic.gov.gh/web/about-gmic>

³⁶ ISD was the main agency of the Ministry of Information. However, this ministry and its relevant bodies were subsumed under the MoC in 2015.

³⁷ http://www.gifec.gov.gh/index.php?option=com_content&view=article&id=86&Itemid=53

Communications Act 775 was conceded into law giving the agency legitimacy and a larger scope to operate. The fund has a secretariat that oversees its disbursement and the day-to-day activities (see organogram - Figure 5.2).

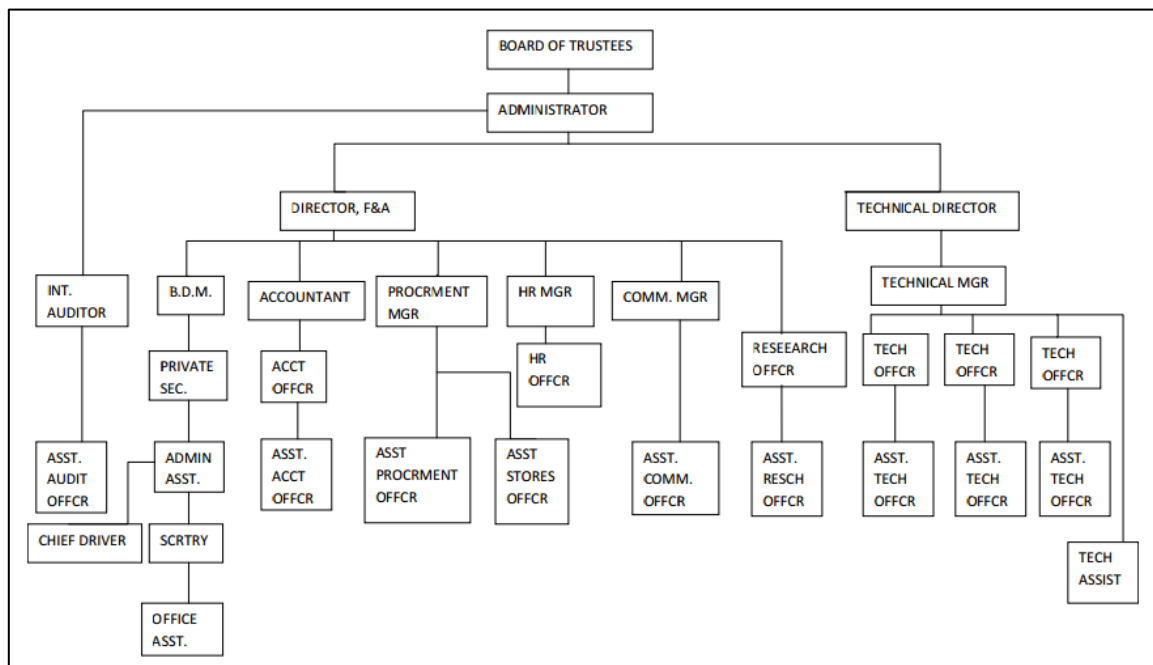


Figure 5.2 Organogram of GIFEC (Prempeh, 2014)

As a universal access fund, its primary sources of funding are diverse. The seed funding for the agency was from the Highly Indebted Poor Countries (HIPC) Initiative to construct the initial CIC projects. To find a permanent solution to finance projects of the fund, licenced telecommunication operators are required by law to contribute 1% of annual revenue to the fund. Other approved sources of revenue include; monies provided by Parliament, monies accrued to the fund through investment, donations, grants, gifts and any other monies that may become lawfully payable to the Fund (GSMA, 2014). Table 5.8 list some of the major projects completed by GIFEC. The Fund has done tremendous work in providing universal access to ICTs and helped to augment telecommunications infrastructure in the country. It is however, beset with problems of implementation and the sustainability of initiated projects. A Key project of interest to this study that has sustainability concerns is the Community Information Centres (CIC) project. The CIC project is discussed in section 5.5.

Table 5.8 List of major projects completed by GIFEC

Project	Quantity
School Connectivity Project (SCP) - ICT laboratories furnished and equipped	524 Schools
Community Information Centres (CIC) - furnished and equipped	114 Facilities
Library Connectivity	30 Libraries 10 Mobile library vans
Post Office Connectivity	15 Rural Post Offices
Common Telecommunications Facility	41 Masts
Security Services Connectivity – ICT equipment and Internet connectivity to units	371 Units
ICT For Sustainable Fishing	200 Fishfinders
Rural Payphone	2200 Installed
ICT Support for Disability Schools	2 Schools
Community Initiated Projects	37 Communities supported

Source: Adapted from Prempeh (2014)

5.4.3 E-Ghana Project

Since the inception of the ICT4AD policy in 2003, the government of Ghana has initiated several major projects to leverage the potential of ICTs to bridge the digital divide, alleviate poverty and accelerate development. Ghana has received considerable support from external organisations (UNDP, World Bank, IMF and ITU) in its drive to implement its ICT policies. The main project changing the ICT landscape of the country is the e-Ghana Project. This is an elaborate national project that is meant to boost the country's communications infrastructure and services sector to make it competitive in the information age. The World Bank in 2006 granted a loan facility to Ghana to support its effort to leverage the potential of ICTs to boost employment, growth of businesses and to facilitate the dissemination of government services through its e-government portals (World Bank, 2015). At its inception, the project constituted three main components. Subsequently, another component was added in 2010. European Union (EU), Danish International Development Agency (DANIDA)

and the United Kingdom Department for International Development (DFID) also supported this elaborate project financially.

Table 5.9 A summarised description of the e-Ghana Project components

Project Components	Description
Creating an Enabling Environment	The formulation and implementation of robust ICT sector policies and action plans as well as the requisite human and institutional capacities as enforcement agents.
Support to Local ICT Businesses and ITES in Ghana	Support to existing ICT enterprises and the nurturing of start-ups through the creation and implementation of the human resource development plan. To provide matching grants to local ICT businesses, incubators and ITES training institutions. Develop ITES skills set standards, training curricula and training institutions accreditation mechanisms and carry out short-term and long-term ITES education activities.
e-Government Applications and Government Communications	Development of IT architecture and interoperability standards for government applications and network. The establishment of a high-speed communication network among all governmental institutions to share information seamlessly. To support a public-private initiative to develop and deploy electronic applications and web portals for various government agencies.
Ghana Integrated Financial Management Information System(GIFMIS)	Establishment of technical infrastructure for ICT-based public financial management systems across government-subservent organisations at the central, regional and district levels. Establishment of public financial management business processes and control systems through the provision of budget planning tools, public financial management regulations and processes as well as treasury and cash management systems.

Source: World Bank (2015)

5.5 Community Information Centres (CIC) Initiative

In Ghana, entrepreneurial individuals spearheaded the provision of public access centres equipped with ICT facilities in the 1990s. Realising the possibilities that ICT facilities offer and the inherent income that could be raised, private individuals invested in 'Communication Centres' more as a means of livelihood than as a social initiative. The expansion of electricity and subsequently the communication infrastructure (Owen & Darkwa, 2000) well beyond the national capital facilitated a rapid growth of communication centres mostly in the regional capitals across the country. These facilities provided computers for typing of letters, photocopying of documents, fax, scanning and printing services and usually had one or two land lines available for clients to make or receive calls (Falch, 2004). The majority also provided computing lessons to individuals who were interested and mainly focused on Microsoft Office applications. Around the same period, private individuals started setting up 'Computer Schools' obviously in response to the skills gap. The setting up of these schools was mainly to provide services to the public for a fee.

The liberalisation of the telecommunication industry and its subsequent expansion of telephone services to most urban communities led to a further uptake and diffusion of communication centres in Ghana (Falch, 2004). Falch explains that the concentration of phones lines was in Accra and spread thinly across the country. With landlines widespread in the business district of the capital, a Ghanaian company, Network Computer Systems, introduced Internet services to the Ghanaian economy providing Asymmetric Digital Subscriber Line (ADSL) broadband services in 1995. In 1992, the first cellular company started operation in Ghana making it one of the first in Sub-Saharan Africa. Today, Ghana has six (6) mobile network companies offering sophisticated services to customers.

With the introduction of Internet services, most of the centres capitalised on the innovation and subscribed for the service which they in turn sold to clients who visited them. This began the 'Internet Café' movement in Ghana. They provided all services offered in their old businesses in addition to Internet services. It is relevant to note that, these businesses were run without the support of government. The support from government was to create an enabling environment by way of liberalisation of the telecommunication industry (Falch, 2004). Although the services provided by these centres were commercially motivated, they

were filling a vacuum. They were available to support the information and knowledge needs of the community and consequently, supported economic development.

Following the WSIS conference in 2003, Ghana set about to develop an ICT policy framework to drive its developmental agenda in the information age. The policy specifically identified the establishment of universal access centres as a driving force to train citizens with requisite ICT skills needed in support of the developmental effort of the country (ICT4AD, 2003). The vision was to ensure that all citizens, especially the marginalised in rural communities to be granted access to this development laden technology. This vision paved the way for the establishment of the government funded Telecentres, called Community Information Centres (CICs). The Government of Ghana acknowledged the importance of ICTs for accelerating development. Ghana is also a signatory to the United Nations Millennium Development Goals framework, which calls for universal access to ICTs for poverty reduction and sustainable development (Gilhooly, 2005). Ultimately the CICs were envisioned to provide access to ICTs for marginalised groups with the anticipation of reducing disparities in access to ICTs and eventually to other services.

The Ghana Community Information Centre (CIC) project is a hybrid for-profit Telecentre and non-profit community resource centre, implemented by the Ministry of Communication through its subsidiary, Ghana Investment Fund for Electronic Communication (GIFEC). The initial funding was from the Highly Indebted Poor Countries (HIPC) Initiative (GIFEC, 2013). The vision of the Community Information Centres was to ensure universal access to ICT applications for accelerated growth and development through the efficient and timely availability of information. The purpose of the CIC was to provide business services and community development information to remote communities. They were to help make people ready for the technological era. Services rendered by an operational CIC to achieve the above-mentioned objectives are; access to Internet-enabled computers, software based on local information needs (mainly local content), facsimile (fax), photocopying, telephone, radio and television, library facilities, training in basic computer skills, entrepreneurship and business services for small and medium enterprises (See Table 5.10) (GIFEC, 2013). It was the hope of proponents of CIC projects that its eventual adoption and diffusion will aid in the reshaping of the Ghanaian rural economy into an ICT-led economy by creating a new sense of cultural identity shaped by technology.

5.6 System Design and Implementation

The implementation strategy of the project is to extend ICT infrastructure and communication access accompanied by the requisite human resource capacity throughout the country. The intention was to provide eventually all districts in the country with at least one centre. It was difficult to determine where the CIC concept originated. However, based on the CIC blueprint (MoC, 2004) the first 12 prototypes built were co-sponsored by the Indian government which had to sign off even the structural plans of the facilities. Efforts to determine the origins of the design from the implementing agency proved futile.

“I am not aware of the actual role that the Indian government played, this is something that you could find out from my boss ... [Implementation strategy] can be found in the implementation document on our website. It spells out all the necessary information as to the vision, and goals of the project” (Go).

An assessment of the implementation document, however, did not give any indication of the origin of the model or whether it was home-grown. Efforts to meet the ‘boss’ were not successful. In the absence of first-hand report, this study relied on the evidence available in the form of the blueprint document to deduce that the model most likely originated from India. This assertion is also based on the fact that India was one of the pacesetters in the Telecentre movement in developing countries and could more readily share their experiences with a development partner.

In terms of project implementation, the CIC concept was conceived by the Ministry of Communication. As an organ of government, its primary responsibility was to secure funding for the establishment and replication of CICs. Following the availability of financing, it then oversees the infrastructure deployment in the selected communities. This step is however, realised on behalf of the MoC by its subsidiary agency (GIFEC) set up with the objective of implementing MoC’s ICT infrastructure deployment throughout the country. Through a regional consultative dialogue in conjunction with the beneficiary District/Municipal Assembly, the best location for the establishment of the centre is selected. The objective is to ensure that the facilities are sited at locations with the maximum utility to the community.

“The assessment was done by the ministry of communication together with the district assembly specifically as to where the building should be situated” (Go).

The proposed projects are then put on competitive tendering and advertised to the general public for contractors to express their interest. The selection of contractors and the award of projects is done by the respective Regional Coordinating Councils³⁸ benefiting from the projects. Figure 5.3 shows a typical layout of a CIC while ‘Appendix H’ shows pictures of two of the CICs investigated.

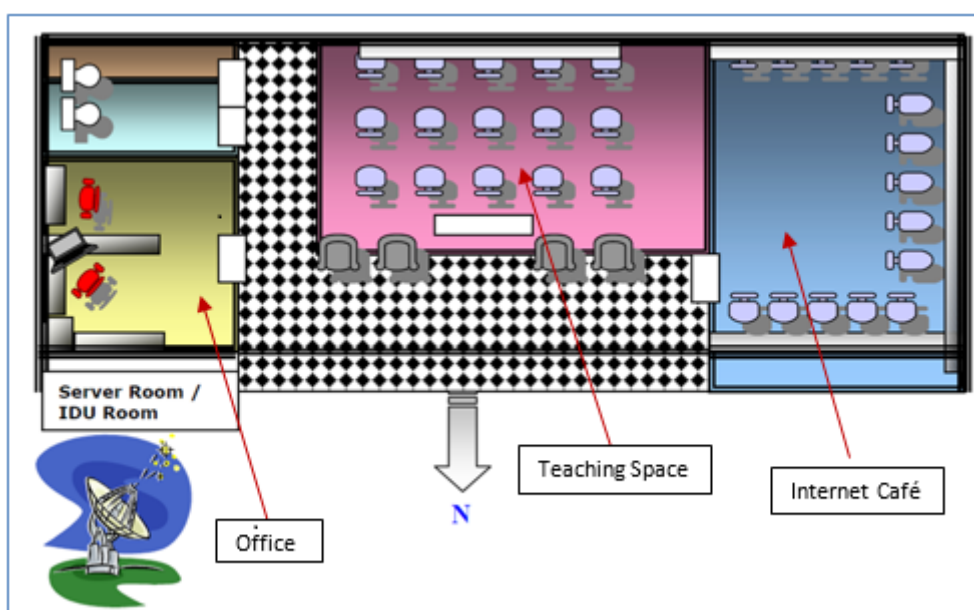


Figure 5.3 Layout of a typical CIC facility (Source: GIFEC (MoC, 2004))

Table 5.10 Envisioned Products and Services for CICs

Community Services	Business Services	Social Services
Provision of accurate crop prices to assist farmers in marketing their products	Internet browsing	Low-Cost computer training
To provide weather information to	Internet Communication	Computer access to rural

³⁸ The Regional Coordinating Councils represent the highest level of Local Government in Ghana and are established in each of the 10 regions of the country. The RCC consists of the Regional Minister (the chairperson), his deputies, Chief Executive of each district in the region and the Presiding Member of each District Assembly, two chiefs from the regional house of chiefs and the regional heads of decentralised departments, who have no voting rights (Local Government Act 462 of 1993) (<http://library.fes.de/pdf-files/bueros/ghana/10487.pdf>)

guide farmers and fishermen	– e-mail, instant messaging.	students
Promotion of basic extension services for women groups engaged in microcredit ventures	Desktop publishing and printing	Tele-library for Teachers
Radio and Television Broadcasting	CD sales and writing	Access to online text-scores
HIV/AIDS Communications	Scanning	Student loan or scholarship information
Public Health Management	Faxing and copying	
Local government information	Telephone-Local and Long distance access	
Internet navigation for beginners		

Source: GIFEC (2013)

5.7 Management Structure

As indicated in the above text, the centre is established by MoC through its agency GIFEC. After the infrastructure provision and equipping of a facility, they are usually handed over to the respective District/Municipal Assembly. In principle, the respective Assembly owns the CIC. The Assembly then constitutes a management committee with oversight responsibility for the centre. The committee is composed of members from various organisations within the catchment area. They include a representative each from;

- District Assembly (DA)
- Health Services (HS)
- Ghana Education Service (GES)
- National Commission for Women's Development (NCWD)
- Information Services Department (Secretary) (ISD)
- Ministry of Food and Agriculture (MoFA)
- Telecom Service Providers (TSP)
- Non-Governmental Organisations (NGOs)
- Community-Based Organisations (CBOs)

The committee is responsible for the implementation of the CIC policy and oversee the day-to-day activities of the centre. None of the CICs involved in this study had constituted this committee neither were there any plans to constitute such a committee as at the time of this research.

“Ours wasn’t formed from the beginning and that is why I said that the way they were rolled out, it was when they finally engaged the assembly to let the assembly understand that it was its project, and we should see to the maintenance of the place that management decided to form a three member committee made up of myself, the finance officer and another person. However, these people did not have time to carry out the day to day running of the centre that also did not help matters” (BAO)

The respective Assemblies were to appoint the manager with the requisite ICT skills and capacity to deliver the obligation of the CIC. “The District Assembly shall be responsible for the total subsistence of the centres and shall also be responsible for the payment of the wages of the administrator and one support staff” (MoC, 2004: p. 6). However, only one centre had a supporting personnel in the study area.

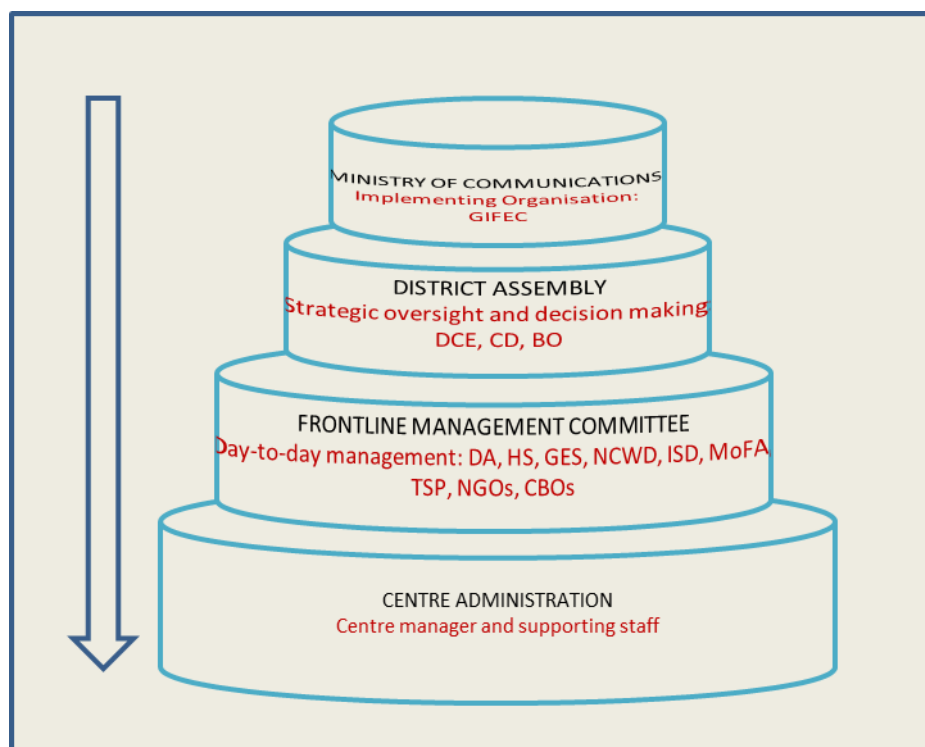


Figure 5.4 Implementation structure of a typical CIC initiative

5.8 Collaboration/Cooperation

To fulfil the mandate of disseminating development information to citizens in the catchment area, CICs were to collaborate with government and non-governmental organisations. Strong ties were to be created with partner agencies such as the department of agriculture, information services department, health services, district sanitation unit and local traditional units. The alliance was to help in the acquisition or generation of relevant local content needed for local consumption. For instance, the health service and sanitation unit alliance was to enable the provision and dissemination of public health information (information on pandemics and preventions) to patrons of the centre. For agrarian communities, CICs were to provide market access and price information, extension services and available credit facilities. There was, however, no evidence of collaboration between the centres and any agency. As part of the decentralisation drive of government, the ISD was to make government information available at the CICs for easy access to users with the aim of enhancing national integration. The study showed that there was no such collaboration. The District Assembly itself did not provide the centres with information about their activities and the local government system. The only known and established collaboration was with GIFEC, IICD and to a lesser extent, UNDP. GIFEC provided technical and periodic training support for centre staff. Similarly, IICD provided training to managers and was instrumental in equipping CICs in the study area. The UNDP occasionally provided funding for training and the supply of equipment to CICs in distress. A centre manager recounted her encounter with UNDP in the following statement:

“UNDP people gave me the scanner, projector and the photocopier. They were on a tour when they came into the centre and saw what I was working with and saw that I had very little. The only thing I had done was the training. So they asked me what I needed and I told them I needed photocopier, printer. So they called me later and asked me to come for these machines. They gave a projector, scanner, printer and laptop. But the laptop is with the coordinating director”. (NvCm)

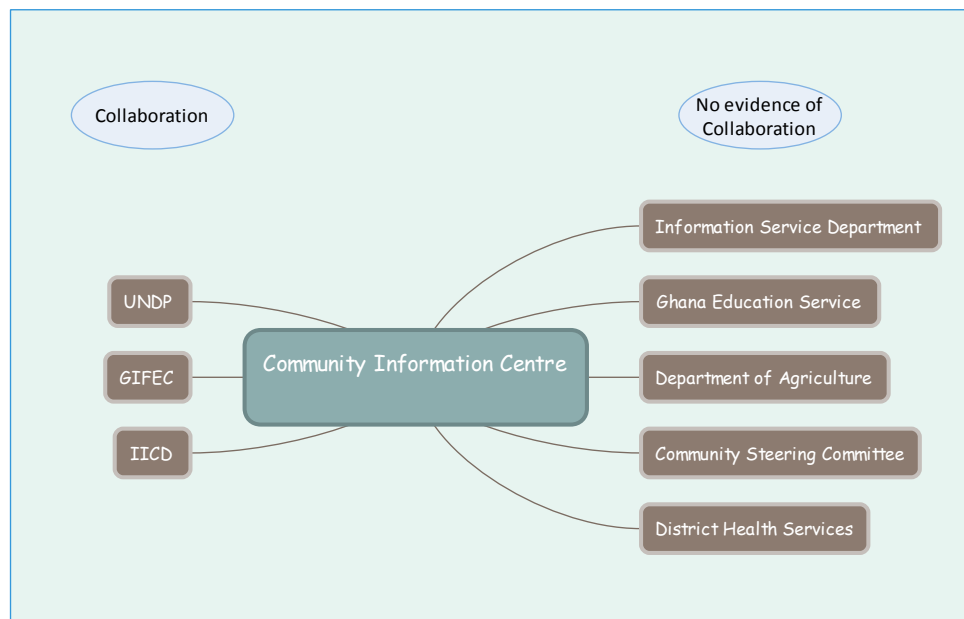


Figure 5.5 An illustration of CIC and its collaborators

5.9 How Do CICs Operate?

Once a CIC has been constructed, furnished and equipped, it is handed over to the respective district assembly that proceeds to appoint a manager to take care of the facility. The centre is open to the general public to use services provided at relatively cheaper prices compared with other (commercial) public access centres. Users interviewed stated that at the beginning services were efficient and queries were dealt with speed and professionalism. This is reflected in this quote by a user:

“The first time I visited, I got help from the manager. Actually, it was a problem with the link so I thought it was a problem with a cable” (TnUs4).

Several individuals were giving basic skills to use the facilities for their needs. Basic schools around the facilities were given access to the centres free of charge in some districts. Other centres charged far less for school children than what the general public was charged. This was meant to promote the use of computers and the Internet amongst children in the community.

“It was helping the communities a lot especially the school children. At that time, the coordinating director told me to use the centre to educate the school children because ICT is a core subject” (ZbCm).

5.10 Limitation of CIC Project

The implementation of the CIC initiatives as discussed earlier was beset with several limitations that probably account for their non-performance. There have been apparent issues of staff attrition and quality of staff to deliver the mandate of the centres. Recruitment and remuneration of skilled IT personnel have become problematic. The lack of maintenance of equipment or the replacement of old ones has led to a severe setback in the gains of the early years of the initiatives. Similarly, the lack of or non-existence of monitoring and evaluation of implemented projects has had a significant effect on the performance of the centres.

On the part of project implementers (GIFEC), they have also been constrained in the effective execution of their obligation. High bandwidth cost has hindered the constant supply of Internet services to deprived facilities. Community members do not see themselves as part owners of centres probably because they were alienated in the design and implementation process. As such, sustainability beyond implementation has been a constant complication.

The next chapter presents the analysis of the research findings. The first section of the chapter will present an analysis based on the Design Reality Gap framework while the second section will deal with a Postcolonial theory-driven analysis of the findings.

CHAPTER SIX - CASE STUDY RESULTS AND ANALYSIS

6 INTRODUCTION

The case study findings will be analysed in this chapter. The levels of analysis for this study were at the organisational and socio-political levels. The analysis is discussed in three stages to reflect the different levels. To achieve these levels of interrelated analysis, the author interviewed individual patrons, facility managers, district assembly officials and government officials. The organisational-level analysis was conducted in two phases. The first level will reflect what was happening at the various centres regarding access and utilisation of facilities to attain various needs of patrons. The Design-Reality Gap (DRG) Framework (Heeks, 2003) guided the design of data collection protocols. This level of analysis was applied in line with the assessment tool (DRG) to provide insight on end users' insightful

accounts of their association with the CIC of interest and their perception of centre performance. The second organisational-level analysis was to determine the interaction in the networks supporting the CICs by looking at the relationships that exist between the various dimensions of the DRG framework and their influence on the overall outcome of the CICs. The third level of analysis (Socio-Political level) was to investigate the broader political and social spheres that affect attitudes towards projects like the CIC. The higher-level socio-political analysis was applied in line with the primary theoretical framework (PCT) to shed light on the rationale for the continuing implementation of a system that was failing.

The method of analysis followed the principle of thematic analysis as indicated in chapter four (**Section 4.7**). The thematic analysis was both framework (DRG) and data-driven where emerging themes were also coded to show the flexibility of the author to emerging themes. This approach was adopted to remedy concern of using theory rigidly resulting in researchers losing sight of other equally important emerging themes. The use of the theory/framework, therefore, served as a guide to data collection and data analysis but this did not blind the researcher from identifying significant themes that emerged during the analysis process. The first level analysis (organisational) reflects the theory-framework driven analysis while the third (socio-political) level analysis reflects the data-driven analysis where the data was subjected to the second round of examination with the objective of establishing the rationale for continuing implementation of the CIC initiative in Ghana. Second Analysis examined the interplay of DRG dimensions in order to uncover underlying reasons for the failure (**Section 6.2**). The third level examination was necessitated by the fact that the first and second level analysis had revealed more questions than answers regarding the status of the CICs. As such, it was necessary to find explanations to these findings. In addition, the first stage had generated more data than the DRG framework could adequately explain within the seven dimensions (**Section 6.1**). Therefore, there was the need to critically evaluate (using Postcolonial theory) to move away from the case itself and to look at overarching reasons for the persistence of the powers that be in continuing a failing system (**Section 6.3**). The following section discusses these three steps in detail.

6.1 First Level Analysis – Applying the Design-Reality Gap Framework

In this section, the analysis is based on the seven seed categories already identified in the framework namely: Information, Technology, Objectives and Values, Staff and Skills,

Management Systems and Structures and Other Resources dimensions. Through a systematic process, data was coded to these seed categories after which they were analysed and a report generated. The author uses quotations (data extracts) to support analysis made. At the end of the analysis of each dimension, the DRG score is given based on the assessment made by the study participants. This is used to determine whether the CIC is a success or a failure as was described in chapter three. The following sections describe in more detail the analysis of the findings and their contribution to determining the status of the CIC initiative.

6.1.1 Information

The analysis of this dimension was to elicit insights about the information needs of patrons of the CICs and to determine whether these information needs were met while on a visit to the facility. Centre managers indicated that information was not packaged in any form for clients. This dimension was vital in that it fulfilled the primary mandate for the establishment of the CIC initiative: to provide relevant information for beneficiary communities, to enhance their ability to participate favourably in the growth of the local economy and consequently afford them the opportunity to make informed decisions based on the knowledge acquired from centres (GIFEC, 2014). For this to be successful, centre managers needed to have the capacity to anticipate information needs of patrons and synthesise information for local consumption. Colle (2008) suggested that the information delivered at a Telecentre must be tailored towards the immediate needs of surrounding communities to enable effective utilisation. Evidence from the study was, however, contrary to this position. There was hardly any local content information at the various centres, neither did they provide any information on market prices for agricultural products, HIV/AIDS, local craft industry or support for women's groups.

However, a manager stated that information provided was dependent on the user needs when interacting with the facility. Although there was no conscious effort to make certain types of information readily available, an attempt was made to satisfy customers in need of specific information. Therefore, information delivery was demand driven. As to what information patrons of the centre usually demand, the manager indicated that their preference was skewed towards information on employment, education and to a lesser

extent, health related issues. With regards to information needs of clients³⁹, the manager stated:

“Mostly information on education, health, not much about agric., for those who browse mostly also look for employment information. Periodically I do check the browser history and I see a lot of graduates like the SHS students browse for jobs. About 70% of our users check for jobs”. (BICm).

A respondent felt that the centres primary objective was to provide useful information to patrons that was relevant to their daily livelihood although limiting content provision in specific CICs to local needs might be viewed as limiting their information liberties. In his opinion, this was more important than what was observed in most of the other centres where patrons were left to look for information on their own with little support from staff. Content developers were also encouraged to create content that was appropriate to user needs and to cater for all sectors of the community. One of the respondents expressing their view with regards to content stated that:

“CICs should get support from content developers to help develop content appropriate for the community in which it exists so that people who are not well educated to also have access to such facilities. Even though some will argue that that will limit their participation in the information society because it is just not about your local society but then they need to start somewhere.” (Ex1).

As a major objective of the CICs, there was an expectation of patrons to utilise the centres in fulfilment of their information needs. As part of the design, therefore, implementers envisaged the information needs of users to revolve mostly around specific types of information; government information, crop prices in nearby markets, weather information, extension services and public health information.

In reality, however, very few patrons visited the CICs in search of these types of information enshrined in the design of the system. The majority of respondents and managers opinions of user’s information seeking behaviour suggest that patrons mostly came to the centre to communicate with friends via email and social media. Most users often visited social media

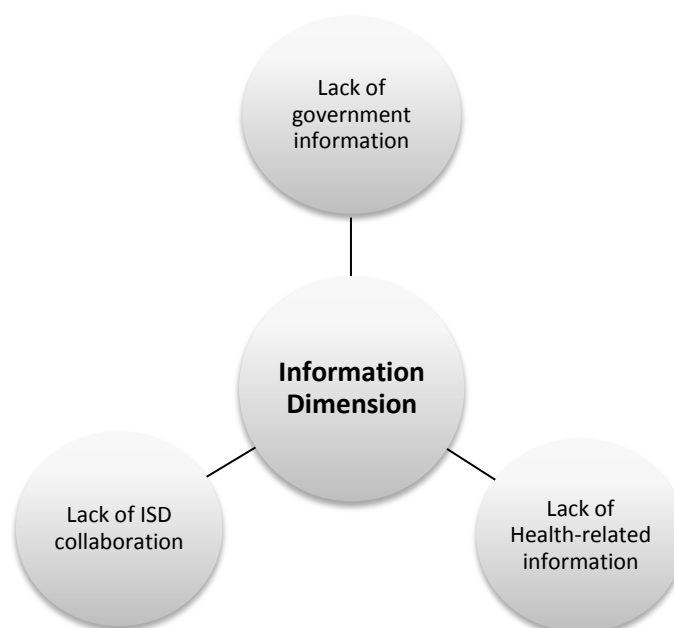
³⁹ Clients, Patrons and Users are used interchangeably to refer to individuals who access a Telecentre for their services.

sites such as Facebook to communicate with friends. Furthermore, a large proportion of visitors to the centre came for secretarial services (i.e. Photocopying, typesetting, comb binding of documents and printing).

Similar to the information needs embedded in the design process, there was to be an integration of the Information Services Department (ISD)⁴⁰ in the structure of the CICs management as espoused in the CIC blue print. There was also no evidence of collaboration with the ISD in the dissemination of government information to users of the centre. This collaboration is critical because the ISD is the official mouthpiece of government. As such, official information could have been collected and made available to patrons.

Design expectation was far below reality at the centres. What had been intended by implementers and inscribed into the design of the system was far from what occurred in the context of implementation, thus, creating a significant design-reality gap. Figure 6.1 shows the various components of the information dimension and how these factors interacted to inform the outcome in the context of implementation. The diagram is a depiction of the deficiencies of the system regarding information needs of clients.

Design-Reality Gap Score: 7.25



⁴⁰ An agency of government responsible for the dissemination of government information to citizens.

6.1.2 Technology and Infrastructure

ICT initiatives such as that of the CIC are largely technology and infrastructure dependent. They encompass technology and infrastructure requirements such as the deployment of computers and accessories, reliable Internet setup, wider telecommunication infrastructure and electricity. These must necessarily be available and sufficient for the CICs to function effectively. The findings show that although these amenities were present at some centres, they were not adequate and mostly unreliable. Five out of the eight centres studied had lost Internet connectivity. Frequent requests for the restoration of Internet service yielded no results culminating partly in their closure. Managers explained that most patrons visited the CIC to use mainly the Internet facility and subsequently other services. Therefore, the

Figure 6.1: An illustration of the deficiencies in the information dimension
collapse of Internet connectivity led to a reduction in the number of users after a few weeks.

“When the Internet broke down, nobody came here again. In a normal day, the number of people who come for services like printing, photocopying is not that much like those who come to access information from the Internet and at the close of the day the highest revenue received is from Internet services.” (SnCm)

The other three centres (that had Internet) had severe disruptions. According to managers, there were frequent link failures. For example, a respondent mentioned:

“We also have Internet services but it’s highly unstable and unreliable and cannot be used for even 30mins. I usually inform them [users] about the state of our Internet service before they make up their mind to stay or go away” (BICm).

Some users of the CICs also expressed their dissatisfaction with the quality of Internet service. The following are comments from some users:

“The Internet facility is off and on. So I used not to be sure whether I will get Internet service or not. So they should make it more regular.”(BIUs1)

“The Internet service was poor previously. You could be accessing your Internet then it goes off. It is frustrating, sometimes midway your work the link fails. I sit here for a while. Sometimes it comes, other times it doesn’t.” (SnUs5)

“The Internet is very slow. The link is so so bad.” (FgP5)

Clients and managers alike complained of the frequent power outages. The situation was also compounded for some centres because of the recent government policy of installing prepaid electricity metres at all government facilities (Ministry of Finance, 2015). An important cause of closure of the five centres was attributed to unpaid electricity bills. Some were in arrears of up to two years. Some managers stated that it usually took a whole day or more for the Assembly to release funds for the purchase of power credits due to bureaucratic procedures. One of the managers expressed his frustration:

“We use the prepaid system to purchase credit for electricity. Whenever we run short of credit, it takes me close to two to three days to buy credit after the request has been sent to the District Assembly”. (NvCm)

Similarly, another CIC manager stated the following:

“Power is a problem. We now use prepaid metres. At a point in time you have to raise a memo before they release money to buy unit to run the centre. So at a point when it is out and it is not yet approved the place goes off. Sometimes due to technical faults the light goes off on its own”. (BICm)

Also, most of the computers at the centres had not been replaced since they were installed and so frequently broke down. This was problematic in that the survival of the centres was dependent on the availability of working computers and peripherals. A recurring theme amongst all participant responses was the inadequate availability of desktop computers. The few that were functioning constantly broke down.

“The computers also caused a major hindrance. They were not enough, they were not in good condition, and they were not good so they broke down regularly. A total of 19 computers but only 5 were in working order.” (SnCm)

Another CIC manager expressed that although his centre was given some equipment, the promise of a working Internet connection never materialised. The manager described the difficulty he had in attracting patrons to the CIC as follows:

“I was given five computers, one server, a printer and the VSAT outside. Since they brought the VSAT, we never used it. They said it was left with something [parts] for it functions. That is why my place was not that vibrant. They just mounted it [VSAT for Internet] but never worked.” (ZbCm)

A major obstacle to the utilisation of the centres whenever Internet service or computers were working was the issue of space. Some of the centres hosted students from nearby schools that used the facility to deliver ICT lessons to pupils. However, some patrons complained that they had to wait for several minutes for such lessons to finish before they could have access to computers. Since none of the centres offered wireless services, individuals who urgently needed to use the facilities had no choice than to wait until lessons were over. The following are statements from users regarding access to facilities:

“We all use the same space so they should have a schedule so that we know when the students are coming so we don’t have to come when they are here. So that we don't have to be waiting when the students have their classes.” (NvUs2)

“The owners must also expand the building because the space here is too small to accommodate more people and also increase the number of computers in the centre.” (SnUs3)

“The place is not big. So if you even encourage people to come you cannot contain them. So I proposed that they introduce a wireless service which can cover a wide area so that if you have a laptop you can browse even outside the centre by coming to buy time you need. Now look. Am using a laptop but i am covering space which could have been used by another.” (NvUs6)

A significant design-reality gap emerged on this dimension. Although some equipment was supplied to centres at their inception, no conscious effort was made to repair or replace equipment over time. This was prevalent at all CICs investigated. In most cases, centres were handicapped in the delivery of their mandate due in large part to the inadequate

availability of computers, peripherals and more importantly, Internet service. Figure 6.2 illustrates a summary of the factors that affected the technology dimension.

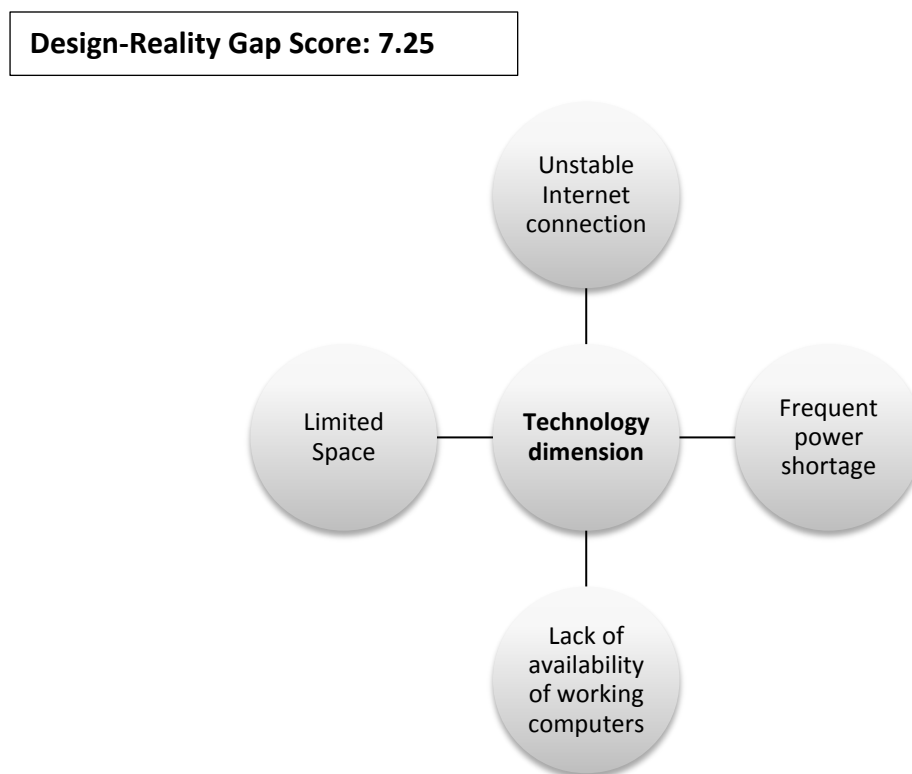


Figure 6.2: Technology dimension showing militating factors

6.1.3 Processes

This theme represents the various work and information flows (processes) from the period of construction of the CICs to implementation and use of the facility. The procedure of establishing a CIC for any given community involves several processes including the period of feasibility study through to the handing over to the Assembly responsible from which point it is open to the general public for use. Processes are as important as the outcome of an initiative. Well planned and well intentioned processes only yield good results if applied.

The reality from the data indicates that there was hardly any process flow with regards to decision-making and information dissemination concerning the CICs. Information flow was irregular and occurred in an unstructured manner. For instance, there was an apparent lack of stakeholder participation in the implementation process. Although the respondent from the implementing organisation was emphatic that stakeholders such as the Assembly and community leaders were involved in the consultation process, these groups during the interview indicated they were not directly involved. As a result, there were concerns about

the 'ownership' of these centres. In an apparent expression of dissatisfaction with the lack of participation, an official alleged the following:

"Yes it is in principle in our hands but the way the whole setup was carried out came with its own problems, I must say it was not properly done. It looks like the stakeholders were not properly involved in the policy framework to understand it to know their roles and responsibility which has been carried through to let the assembly know who really owns the project."(BIAo)

An officer of the implementing agency appeared to corroborate the claim of the Assembly official when he stated that the handing over of new CICs was fraught with ownership concerns.

"The project management process is the major obstacle to delivery of services. Stakeholders do not know when one's obligation starts and another ends. Even though some [CICs] have been completed, there has been a problem of whom to handover to. That is, to the Assembly or Ghana Post? This might sound funny but that is the reality on the ground. Power struggles amongst politicians is hindering progress. As a result, they are not being utilised."(Go2)

In response to a question as to whether GIFEC involved some stakeholders in the design and implementation process, an official of the organisation stated that:

"There was no actual participation from the beneficiaries or citizens."(Go1)

This seeming lack of clear lines of ownership was also evident in the mindset of some managers who felt their allegiance was to the implementing agency rather than the Assembly, which was meant to be the owners of the facilities. A case in point is reflected in the following statement:

"Our mother organisation [GIFEC] from Accra came and installed phone booths ..." (BICm)

When asked to substantiate what he meant by the phrase "Our mother organisation [GIFEC] from Accra", his response was that the Assembly did not care about the state of the CIC but often referred them to GIFEC to enquire about issues such as equipment replacement and

in-service training. To him and some of his colleagues from other CICs, GIFEC in ‘faraway’ Accra was more interested in their survival than their respective Assemblies.

Another critical implementation process had still not been realised as at the time of this study. The component of a community radio station attached to the CICs had not been implemented. These processes had not been incorporated in the CIC implementation phase neither were there any known intentions to execute that phase in the study area. An official of one of the municipal Assemblies stated:

“We eagerly awaited the community radio component to help disseminate information to the rural folk especially on disease epidemics such as cholera but anytime we contacted GIFEC, we were told it was still in the pipeline.”. (BwAo)

It was obvious from respondents that the CIC project was in two principal components. However, it had been partially fulfilled although a critical component (Community Radio) was yet to be realised, hence, there was a medium design-reality gap.

Design-Reality Gap Score: 5.50

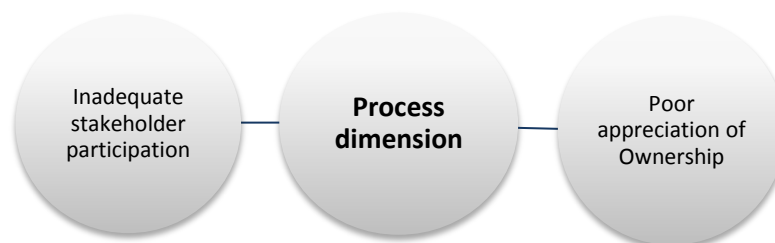


Figure 6.3: An illustration of the inter-related factors in the Process dimension

6.1.4 Objectives and Values

This dimension represents the pivot of the CICs mandate and is essential to the survival of the whole initiative. It demonstrates the rationale for the deployment of the pro-poor initiative in underprivileged communities. The system was designed to cater for a context that had cultural and social values that respected structure and authority within a structured local government system. It was thus envisaged that such structures, when used in an organised manner, would yield positive outcomes for beneficiary communities. These values were, however, not apparent in the CICs studied. Rather, it was overshadowed by a

political culture that favoured the use of structure to subvert due process in the management of CICs with preference to political affiliation. Concerning the establishment of new CICs, one official explained how some politicians circumvented due process:

“Some politicians have used their clout to influence the location of some of these centres in their constituencies even though they have CICs. As a result, needy communities are neglected.” (Go1)

This met political aspirations of local politicians and incumbent governments but failed to fulfil the objectives and rationales for the establishment of the CICs in deprived communities. This theme and its value element is directly related to the staff and skills theme (**subsection 6.1.5**) in that political influence led to the employment of staff with similar political ideologies and often without requisite IT skills.

There were fewer women than men patronising the services of the centres. Even though efforts had been made to include and improve women’s participation in centre activities, gender inequalities remain. On average, managers agreed that approximately three (3) out of ten (10) users of the centre were women.

These failures notwithstanding, the reality was that the objectives had been partly fulfilled. For instance, at a point in time, it was observed that the facility was in use by nearby schools for their lessons. The managers of these centres had scheduled time so that during ICT periods, the schools will visit the facility to have practical lessons to complement the theory taught in class. In an innovative manner, one manager through the support of a technician who frequented the centre, connected a 40-inch flat screen TV (donated to the centre) to a computer and was using it as a ‘projector’. The centre manager recounts her experience:

“I have been asking the assembly for several months to buy a projector for the CIC to facilitate teaching and learning especially when the school children come to use the centre but never got one. One day a client came and suggested that we could connect the TV to the PC and it could still serve the same purpose. See the way it is making teaching and learning easy now.”(NvCm)

Also, some centres were able to provide an Internet point of presence albeit sporadically to community members and enabled users to learn or improve their computer skills. Some

managers recounted stories of individuals who got jobs because of the training they received from the CICs. One user recounted his story of how through the centre he applied for a job and was called for an interview:

"I am a frequent user of the centre so last week I met a gentleman here who showed me a website where there had been some jobs advertised. Since I was seriously looking for a job I decided to try my luck. Faith smiled on me and I got a call to come to Kumasi for an interview."(NvUs8)

This dimension yielded a medium gap since design inscriptions were partially fulfilled.

Design-Reality Gap Score: 5.50

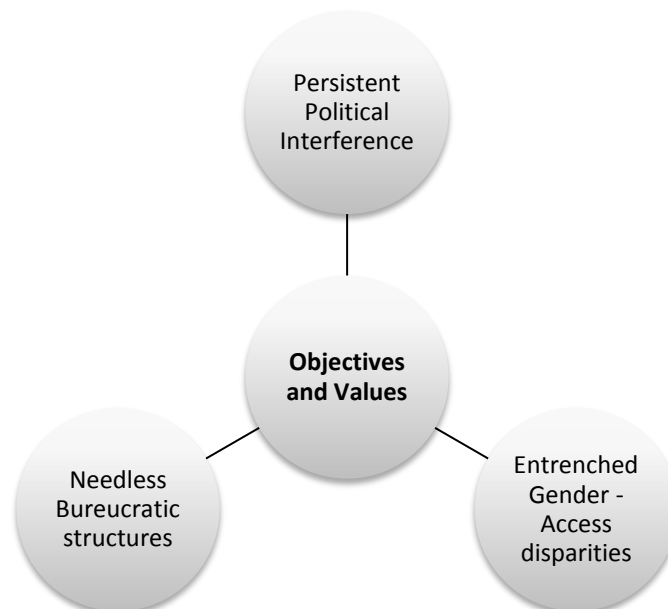


Figure 6.4: Factors influencing the objective and values dimension

6.1.5 Staffing and Skills

The designers of the CICs assumed the presence of skilled staff (IT, managerial and entrepreneurial skills) to manage them efficiently. This assumption was premised on the notion that the success of the project was hinged on the quality of staff trained or engaged to manage the information centres. In reality, all centres except two had no permanent staff to manage the facility. Managers for the closed centres indicated that at the time the facilities were operational, they were the only individuals taking care of the facilities. Periodically, GIFEC and other agencies such as UNDP and Institute for International

Cooperation and Development (IICD) trained staff of CICs to equip them with requisite skills to manage the centres and make them sustainable. An IICD consultant stated:

“What IICD sought to do was to first start with the managers of 10 CICs, 5 in the northern region and 5 in the upper east region to build capacity and to change the mind-set of the district Assemblies or the immediate people who were overseeing the running of the CICs. And as time went on IICD supported with equipment and further training. Basically over a period of 3 years IICD provided training and equipment for the CICs. (Co)

Staff attrition since the inception of the various centres has been very high and problematic. At the time of this study, only one manager out of the eight had been with the centre at the beginning. The rest had changed an average of three managers each. Some of the managers who left for other jobs, cite the skills attained as managers as the main catalyst for getting their new jobs. At the inception of the centres when patronage was high, the number of clients often overwhelmed managers. When requests were made for additional staff, some Assemblies would deploy staff they considered ‘redundant’ to support managers.

Another issue of relevance was the remuneration of centre managers and volunteers. Some of these managers attested to the fact that some of those who left were paid better in private establishments than they were currently receiving. This often demoralised them considering that it took several months before they could be paid. This perception was even compounded when they realised that some trainees from the centres had gotten better remunerated jobs as a result of the skills acquired from centre training programmes. Low morale and lack of enthusiasm had a significant effect on the running of the centres.

“Managers were trained, the equipment was provided but we did not have the power to maintain or employ managers. So, you would realise that we train the managers alright but if the assembly refuses to pay the manager, then the manager will not be committed although he is knowledgeable, skilled and has the equipment to support him he simply cannot devote all his time to the centre when he is not paid. I know of a situation where a manager was not paid for 17 straight months and he complained a lot and we came in to help to talk. They paid him three months and he had to wait another five months for the next salary to come. So you see that we always say the human resource is the overriding factor

and if managers are not motivated to do their work then they cannot certainly be motivated to take advantage of the other factors.” (Co)

The study also revealed that political authorities influenced the employment of managers. Some assembly officials who participated in the study indicated that because of this influence, some centre managers lacked initiative and the skill to innovate to avert declining profits.

Some centre managers complained they were hounded out of their positions because they were branded as belonging to an opposition party. This often led to the departure of centre staff who felt frustrated and unable to work under such conditions.

“I don’t want to put in politics. No one told me to leave the place because you were with NPP, or NDC or CPP. politics did not come into it like that but I could see that at a point in time especially when the change (government) effected, they were not listening to me and that time it was IICD which was supporting us and anytime a letter came for me to come to tamale for training they will say no funds. So I got to know that my services were no longer needed so I said let me also find something else doing.” (ZbCm)

The departure of such a manager means the centre is closed for some weeks or months until a ‘favourable’ person is appointed. Frequent replacements prevented continuity of programmes and the loss of skilled manpower. In such situations, the facility had to close until such a time when a replacement was obtained. By the time the new person gets the basic training and skills to run the centre, another government might be taking over. The cycle is then repeated. The following quote illustrates this point:

“Along the line when there was a change in government new people came in and for whatever reason recruited new managers, so these people would come in fresh with no skill and no experience and it is like you are starting again from scratch. So we come back to the human resource problem.” (Co)

On the opposite side, assembly officials complained that some managers did not feel accountable to officers from the Assemblies because of their political affiliations. This often led to a clash of personalities where managers and owners of the CICs blamed one another for the non-performance of facilities. Overall, staff capacity relates directly to the ability of

managers to synthesise information for local consumption as observed in the Information theme. Consequently, the mismatch and misalignment of personalities, staff attrition and political influence led to a large design-reality gap on this theme.

Design-Reality Gap Score: 7.19

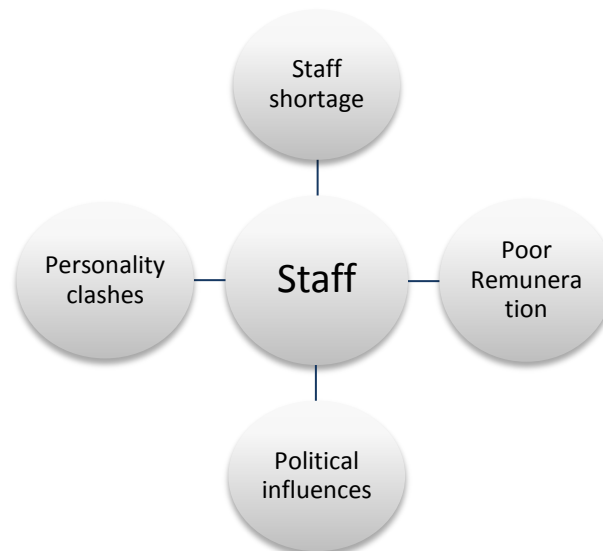


Figure 6.5: An illustration of the inter-related factors in the Staff dimension

6.1.6 Management Systems and Structures

This theme refers to the management and reporting structures in place at the Assembly through to the CIC. The administration of the CICs was designed on the notion of the decentralisation concept instituted by the local government of Ghana. This approach was to allow for a structured form of decision making with the Assembly taking ownership and direct responsibility for CICs. After the handover of the centres to District or Municipal Assemblies, each centre was to establish a steering committee. The findings indicate that the steering committees were to take charge of the day-to-day administration of the centres and were to ensure that the facilities adopted sound management practices and guaranteed their sustainability. Periodic meetings were to be organised by the chairpersons of the committees to evaluate the progress of the centres and to streamline their activities to ensure value for money. Respondents, however, stated these committees were never established. An interview with some assembly representatives and managers of the centres revealed that most centres never had steering committees in place and those that were formed hardly met to deliberate on issues affecting the facilities. An indication of the situation is reflected in the statement of one CIC schedule officer at an assembly:

“Ours was not formed from the beginning and that is why I said that the way they were rolled out, it was when they finally engaged the assembly to let the assembly understand that it was its project, and we should see to the maintenance of the place that management decided to form a three-member committee. However, these people did not have time to carry out the day-to-day running of the centre that also did not help matters. To some extent, there was always a problem of the assembly and the centre especially when it comes to the assembly members because on a number of occasions I convinced management to in a way take up certain expenditure on the centre.” (BIAo)

Another assembly official made the following statement that reflected similar sentiments expressed above:

“We were supposed to form it. The coordinating director was to get nominations from the chief but the chief could not bring some people and at the end of the day, they did not form it. It was being run by the assembly alone.” (SnAo)

Another negative trend was the delay in responding to requisitions from managers. They complained that when they made requisitions for stationery or repair of damaged equipment, it often took several weeks for such requests to be fulfilled. This usually disrupted service delivery to customers. In response to the above statement made by the managers, an Assembly official stated that the said manager was culpable and so the assembly found it difficult to meet his demands since he was not accounting for the revenues accruing to the centre:

“The manager was not accounting to the assembly, even if he was not generating much but the Assembly should be told what it is generating. Income coming to the centre was not given to the Assembly so most assemblymen thought it was a private business and did not understand why they should be pumping money to the centre.” (BnAo)

This condition was prevalent with most CICs. It was observed that the problem lay with the non-existence of a separate bank account for the facilities as was stipulated in the management guidelines. A separate account from that of the assembly was to be opened specifically for the centre managers to deposit any revenue generated at the facility. Managers were, however, instructed to pay monies into the main accounts of the mother

entity instead. In a bureaucratic environment such as that of the local government setup, it often took days for funds to be released for the day-to-day running of CICs. The constant conflict between staff and management resulted in a stagnation of service delivery and thus produced a medium to large design-reality gap on this theme.

Design-Reality Gap Score: 6.38

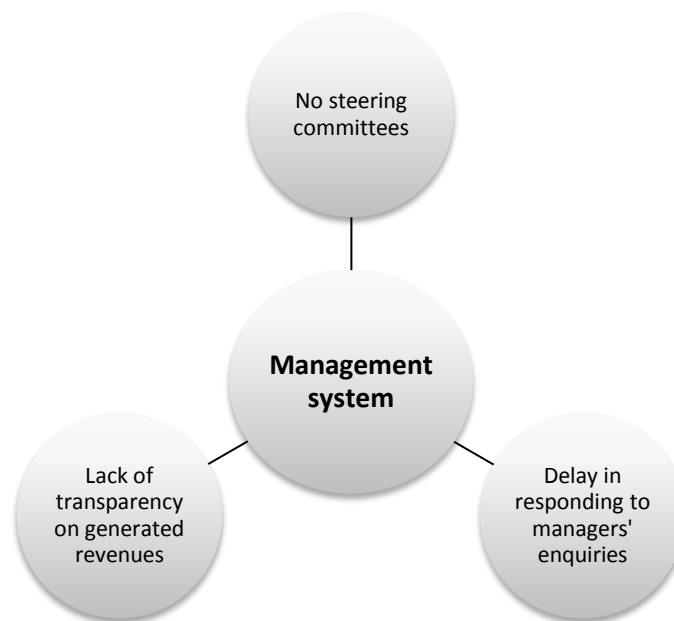


Figure 6.6: An illustration of the inter-related factors in the Management system dimension

6.1.7 Other Resources

This theme embodies other factors that do not represent any of the themes above but are also essential for the evaluation of the status of the CIC. It encompasses subthemes such as finance/revenue and timescales.

The centres were established to cater for the underprivileged and poor in the community. Therefore, charges for services and products including secretarial services from centres were meant to be affordable for all in the surrounding community to take advantage of such services for a better livelihood. Managers and clients interviewed intimated that pricing of services in the facilities were the lowest in the community compared with other ICT facilities (private businesses). Irrespective of these apparent nominal charges, CICs were expected to generate enough revenue to sustain themselves.

Though charges for services were relatively inexpensive, the opening times of CICs were observed to be a major challenge and an obstacle to income generation. Most respondents indicated that opening hours were not conducive to them because of their work schedules. According to managers, a large proportion of users were school children and working individuals. As such, it was only when they closed from school or work that they could make fair use of the facility. These centres, however, were scheduled to close at 5 pm each working day. CICs were officially closed on weekends and holidays. A manager explained this condition:

“Most of the time workers also complain that the opening hours are not favouring them because they are usually at work and at the time they are free the centre is closed.” (SnCm)

Another disturbing trend that emerged was that only two managers out of the eight were on the mechanised payroll of the Assemblies. Most complained of the amount given to them at the end of each month. One of the managers stated that the amount supposed to be given to him as remuneration was woefully inadequate. Interestingly, this meagre amount was always in arrears of at least three to four months. The manager summed up his frustration in the following statement:

“I was supposed to be given GH¢ 80 at the end of each month to feed me, my wife and my baby, how were they expecting me to survive. Even with this small money, they always delay like three to four months before it comes, why? I have no choice than to do a little business on the side”. (BnCm)

The above comment by the manager was corroborated by Schedule Officers⁴¹ of the CIC's of the various Assemblies that did not have managers on payroll. The argument of the schedule officers was that the centres were running at a loss. Therefore, it was not prudent to be paying staff when returns were poor. The only fully operational centre had its manager on the assembly's payroll.

These issues of revenue, opening times and demotivated staff had a considerable toll on CICs which subsequently resulted in a significant design-reality gap on this dimension.

⁴¹ Schedule Officers are officials of the various assemblies who had direct oversight responsibility for the CICs. Managers reported directly to these officers who in turn reported to the District or Municipal Chief Executives.

Design-Reality Gap Score: 7.25



Figure 6.7: An illustration of the inter-related factors in the other resources dimension

6.1.8 Summary of the Design-Reality Gap scores

As would be recalled from chapter three, as part of the interview process, respondents were introduced to the rating scale and then based on their perceptions they were asked to rate the CIC on the seven constructs explained to them (DRG framework's seven dimensions). It should be noted that the framework uses a subjective approach in its use of the scale to determine the gaps that exist. To minimise the level of subjectivity, the main stakeholders interviewed were introduced to the scaling system and then asked to rate the various dimensions using a scale of 0 and 10 with 0 being no gap at all and 10 being the most likely cause of failure. The result of the scale was then summed up and compared with the table devised by Heeks (2008) (Table 3.4). An interpretation was then given as to whether the project was a success or failure. To arrive at the gap scores, respondents were grouped into three categories. For example, scores from all managers were summed and an average score derived for each dimension. This was done for all other groups and a total average score generated for each dimension. The total average scores were then summed up to produce the final DRG score for the CIC initiative in the Upper East Region of Ghana. As illustrated in Table 6.1, the total DRG score for the CIC initiative was **46.31**. An analysis of Table 6.1 gives a negative image of the CIC project. According to the interpretation of the

outcomes in Table 3.4, the CIC project in the Upper East region falls within the 43-56 score bracket: **‘ICT project may well fail unless action is taken to close design-reality gaps’**. This implies that the project in the region is not just a partial failure but close to collapse. Urgent steps have to be taken to ensure that these gaps are as much as possible closed to ensure the survival of this indispensable initiative.

Table 6.1: Summary of Gap Scores

Dimension	Managers	Users	Assembly Officials	Author	Total Average Scores
Information	7	8	7	7	7.25
Technology	7	8	7	7	7.25
Other Resources	8	7	7	7	7.25
Staff and Skills	7.25	7.5	7	7	7.19
Management System and structure	7.5	6	6	6	6.38
Process	5	6	6	5	5.50
Objectives and Value	5	6	6	5	5.50
Total DRG Score					46.31

Although the DRG is useful in determining the success/failure status of an ICT project, this study also sought to understand the underlying reasons for this status. The DRG gap analysis does not at first glance provide this information explicitly. However, because the framework has the capability to capture contextual information within its dimensions, an understanding of how these dimensions interact may shed light on how those gaps arose. The author believed applying a higher level of analysis would provide significant insight into how this success/failure occurred. This study will thus conduct a further analysis based on the relational interactions of the seven dimensions to determine how these interactions dynamically influenced the status of the projects under investigation. This led to the second level of analysis explained next.

6.2 Second Level Analysis – Investigating the Interplay between DRG Dimensions in this case

This section reports the results of the second analytical exercise, which seeks to surface the underlying reasons for the reported partial failure. This analysis indicates a dynamic, complex and reciprocal relationship between the various seed categories representing the

dimensions of the design-reality gap framework as illustrated in figure 6.8. The diagram offers an overall depiction of how the findings related to a particular dimension influence and are influenced by each other to determine the outcome of the phenomenon. The red bubbles represent the seed categories derived from the DRG framework, e.g. Information, Technology, Processes etc. The arrows represent a presumed influence of one dimension on another dimension as revealed through the secondary analysis. Each of these arrows further has a coded label indicating the presumed relationship. The dashed rectangles represent the categories obtained from the second data analysis process as described in the methodology section. The analysis revealed a close and logical relationship between some dimensions (e.g. Other resources and Staff & skills) hence the need to group them to make a meaningful discussion. The larger rectangle further grouped the two categories noted to be closely linked and having reciprocal relationships into one main theme referred to as Managerial and Resource Influence. The discussion is therefore split into three primary themes namely: Technology, Information Needs and Managerial and Resource Influence. In order to offer a clear depiction of the relationships, a labelling mechanism is used to show influence while they are discussed. For each of these themes the relevant linkage/association (labels) is provided and the theme explained with an example. Figure 6.8 gives a brief explanation of the type of arrows and the meaning associated with the codes they carry.

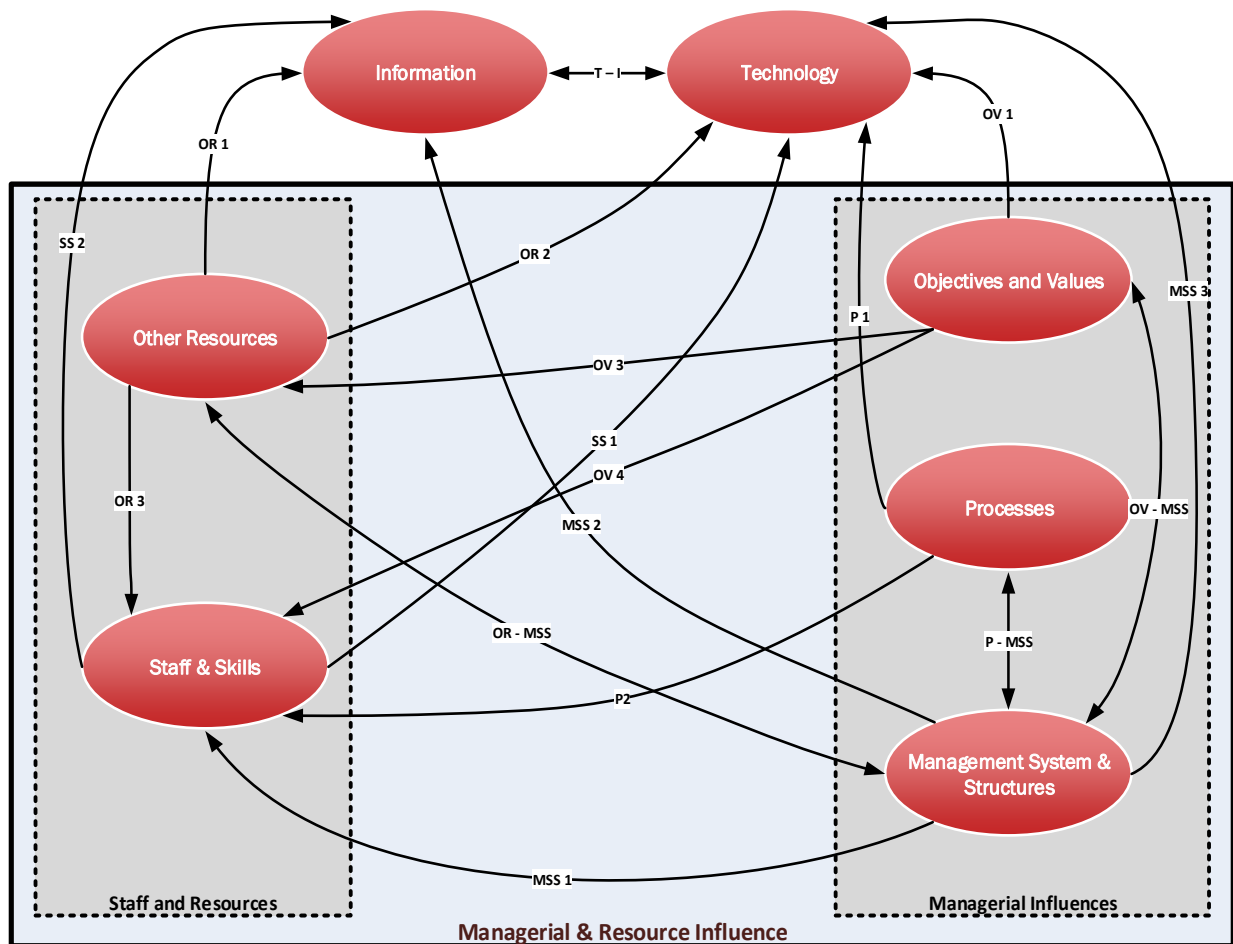


Figure 6.8: An illustration of the complex relations between the various dimensions of the design-reality gap framework

6.2.1 Managerial and Resource Influence

Managerial influence category was noted to underlie and interact closely with other categories, directly or indirectly, such as information, technology and the staff and resources categories. For instance, the lack of political leadership at the local level to ensure the sustainability of CICs was apparent. The findings and analysis shed light on the fact that DCEs, were either not aware of the status of the CICs or deliberately did not focus attentions on the CICs. This could be due to the fact that communities, where CICs were cited, were facing challenges especially high poverty levels and, therefore, their (DCEs) attention could have been focused on meeting these needs instead. However, the author argues that there should be an effort to balance the approach to development because the role of the CICs and provision of other community services in the bid to alleviating poverty are not mutually exclusive.

There were significant Managerial influences on staff/resources category (i.e. MSS1, P2, OV3 and OV4 in Figure 6.8). Although the aim of the CIC was to facilitate access to ICT amenities, local and online content through skilled IT personnel, management's ambiguous strategies and the consequences of those ambiguities prevented the CICs from implementing the system successfully. The following represents instances of such ambiguities. For example, the MSS1 linkage represents the direct impact of management decisions underpinned by political influences on the recruitment process of centre managers. With respect to the technology related strategies (MSS3), top management failed to provide adequate budgetary allocations towards the maintenance of ICT equipment with the CICs. Consequently, users were denied capabilities (improving ICT skills, accessing online materials, personal and social communications, accessing market prices, educational and research information) that ICTs offer. Another ambiguity was associated with the quality of Internet service. Even though steady Internet service provision accounted for the single highest factor attracting users to the CICs, all the centres reported a negative impression of service quality. Surprisingly, Internet service providers were still allowed to continue providing this erratic service. This certainly was not value for money considering that the evidence available suggests that patronage of centres dwindled drastically in centres that did not have regular and reliable Internet connectivity. It therefore, stands to reason that either contractual agreements made it impossible to change service providers or that there was a vested interest in maintaining the status quo.

In a resource poor environment such as that of the study area, more in terms of ingenuity on the part of management was needed to sustain projects beyond funding periods. This usually falls on the shoulders of individuals directly involved in the delivery of the service. Staff did not lend themselves to adapt to the needs of users. The evidence implies that there was no zeal on the part of management and centre staff to ensure the survival of the centres. Whereas centre managers blamed the assembly for the bad state of the CICs, the assembly laid the blame on the government for dwindling subventions to deliver government business on one hand and centre managers as lacking initiative and entrepreneurial skills to make centres profitable. In the meantime, centres were left to deteriorate while this friction between top management and Telecentre staff continued. For instance, as a result of a conflict between a centre manager and his supervising officer,

urgent support was denied the centre in a bid to let the said manager look bad. The constant abuse of authority compounded by political interference affected the quality of service delivery to clients. There was therefore a sense of defused responsibility since no one wanted to assume responsibility for failure.

This theme also had direct relationship with the managerial influence subtheme (as depicted in Figure 6.9) in that staff of CIC operated in a management structure which was meant to be hierarchical in nature and subsumed under the district assembly system. Therefore, managerial influence was supposed to have been brought to bear on the CIC to guarantee good governance. Failing this essential function, most CICs collapsed. It was observed that most centre managers were not engaged permanently. This played a vital role to negatively affect the deployment of services. Managers were powerless in effecting change in the system because they were constantly reminded of their status (as casual staff). In effect, they were expendable in an environment where it was difficult to get jobs. For fear of losing their jobs, some managers could not muster the courage to ask for materials and support to effectively administer centres but looked on helplessly while centres collapsed.

6.2.2 Technology

Technology and ICT infrastructure was adversely affected by the other constructs throughout the project. It was the pivot around which the CIC was to have been successful. However, the analysis revealed that this dimension was fraught with impediments which hindered the successful deployment of the ICT initiative as discussed in the findings. For instance, there was a direct reciprocal relationship between the information and technology dimensions which led to the non-performance of the CICs (relationship T-I from Figure 6.8). In this instance, the inability of the centres to provide reliable Internet service, adequate number of functioning computers had a direct influence on the level and availability of facilities for patrons to use to access the relevant information needed to improve their livelihood. The lack of consistency and the inability of managers to assure patrons of the regular availability of these basic facilities accounted for the declining patron numbers and low revenues thereafter. The benefits of the Internet in the provision of required information for development is great but it is dependent on ICT infrastructure which is expensive to build and maintain. This is consistent with the report of De' (2009) which

indicated that Telecentres closed due to irregular supply of power and erratic Internet service.

Similarly, managerial bureaucracy on the part of Assemblies and implementing agencies adversely affected effective implementation. The frequent power outages in most centres were instrumental in the damage of some of the ICT equipment due largely to the absence of voltage regulators to safeguard these equipment. An interesting scenario is that it was not because Assemblies were not aware of the needs for these gadgets, but was as a result of an inflexible approach to management which did not allow for quick responses to centre needs. This was compounded by poor managerial and inadequate basic troubleshooting skills to fix simple hardware problems to keep centres open for a little longer before major maintenance services were necessary, making it nearly impossible to keep centres afloat. Similarly, the lack of patronage meant low revenues and consequently, lesser resources to support the replacement or repair of damaged computers and peripherals. From this posture, it was evident that there was every indication of failure from the onset of the CICs. There was no administrative plan to replace ageing equipment neither was there any for repairs. Although consistent with the available literature on the failure of some Telecentres (Souter, 2011; Best, Thakur and Kolko, 2009), the findings not only shed light on the direct relationship that the lack of relevant facilities and infrastructure have on beneficiary information consumption but also its adverse effect on growth of centres and stagnation of the local economy.

6.2.3 Information Needs

The results of this study represent that there is a strong interrelationship between the users' information needs, their productive use of the CIC and subsequent ICT infusion in the beneficiary community. The findings assert that user information needs were hardly met because information requirements inscribed in the system were not available for local consumption. Less patronage resulted in the unproductive use of facilities and hence, minimal infusion levels. Evidence points to the fact that there was a disconnect between government agencies (CICs, Information Services Department and Local government) which were to support each other in the delivery of e-government services to citizens. The inability of these agencies to effectively collaborate to achieve the vision of the concept stalled the fulfilment of the initial intentions for setting up the ICT initiative.

Prakash and De` (2007) suggest that for any ICT project to succeed, its design and implementation must recognise the contextual dimensions of development within the environment in which it is to be situated. In other words, the initiative should provide the development needs of a beneficiary community. As suggested by Colle (2008), the information delivered at a centre must be tailored towards the immediate needs of surrounding communities to enable effective utilisation. The absence of relevant locally generated content negatively affected the utilisation of the facility. The deficiency of relevant local content could have been overcome if centre managers had the capacity and initiative to generate content useful to clients through user profiles and frequently sought-after information. This could have been in the form of keeping a tally of what clients needed that the centre could not immediately provide. Based on this index, relevant information could be synthesised and made available to users. It was evident from the centres also that there was a lack of political will through the District Assemblies (local government structure) to ensure the CICs were used in the dissemination of vital public and government information as initially envisioned.

The above analysis of the findings emanating from the use of the DRG framework led to some unanswered questions in relation to the sustainability of the CICs. The seven dimensions gave an insight into the factors that led to the near collapse of the CICs. Irrespective of the knowledge of why these systems have failed, there is still a drive by government and its agencies to establish more centres (Tawiah, 2013). The author moved a step further drawing on critical studies to unravel the rationale for this continuity. The next section explores this perspective.

6.3 Third level Analysis – Applying Postcolonial Theory

As discussed in chapter three, the study context has a beleaguered postcolonial past and, therefore, laden with some colonial legacies. This thesis argues that colonial legacies have permeated the social, cultural and political fabric of Ghana with most of these instances still being practised in public administration albeit in different forms. For instance, during the colonial era, the British at a point administered the Gold Coast (now modern Ghana) using proxies who were controlled from the metropole in a form of governance termed 'indirect

Rule'⁴². The British used this system to impose their authority on locals to the extent of even appointing chiefs contrary to the laid down traditional rules of appointing leadership (Chiefs) or public sector officials (educated elite) to govern, thus, perpetuating the interference of political authority in the appointment and management of local institutions. This system was opposed because it limited the role of public participation by making chiefs accountable to the colony rather than to the people. This system of proxy governance has been empirically proven to have affected governance even after the period of colonialism and as far as the current dispensation in countries where it was practiced (Acemoglu, 2014; Goldstein and Udry, 2008; Acemoglu, Reed and Robinson, 2013; Talton, 2003). A practical example of the effect of politicians meddling in traditional leadership is the case of the famous Dagbon Skin Dispute⁴³ in northern Ghana. This thesis suggests that like the case of indirect rule, there is semblance of such practices in the guise of foreign donor, aid agency and the Bretton Wood institutions' conditionalities which mimic the impositions of the old era which subsequently affect the successful implementation of policies and programmes meant to alleviate poverty among deprived communities.

Furthermore, the deliberate attempt of the colonial masters to delay the introduction of western education to marginalised northern regions of Ghana is another example of the hegemonic influence of authority (Brukum, 1997). This was deliberately done to ensure that there was constant flow of labour for the mines, plantations and railway construction sites consequently turning the northern territories into labour reserves to feed the demands of the economically viable South (Bening, 1975). In the view of the colonial authority, the people of the northern territories were "an amiable but backward people useful as soldiers, policemen, and labourers in the mines and cocoa farms, in short fit only to be hewers of wood and drawers of water for their brothers in the Colony and Ashanti" (Amanor, 1994, p.

⁴² Indirect rule was a system where colonial powers used traditional rulers ('chiefs') as the local level of government, empowering them to tax, dispense law and maintain order. Chiefs often maintained police forces, prisons and were in charge of providing public goods like roads and garnering the resources and manpower necessary to build them (Acemoglu, 2014, p. 2-3).

⁴³ For over half a century, disputes over who should be the Ya Na (King) of Dagbon have involved local factions attempting to capture the support of national political leaders. In many cases, actual faction members have been incorporated into national governments. Traditionally, the succession to the Yendi 'Skin' was vested in the descendants of two royal 'gates', Abdu and Andani. A group of 'soothsayers' chose kings alternately from the two Gates. However, from 1948 (before independence), succession to the Skin was marred by political interference. Wars have been fought since with countless loss of human lives. To date the government faces enormous difficulties in finding a peaceful resolution to the situation. (see Crook, 2005, p. 3; Tsikata and Seini, 2004)

44). Hence, the colonial authority developed areas they felt were beneficial to their interest while ensuring that marginalised communities were deprived further. When the colonial authority yielded to the pressure to educate people in the northern territories, it was limited only to educating administrative auxiliaries required for government work thereby entrenching the marginalisation of the northern territories. Unlike in southern Ghana, most of the dwellers in this region did not have educated elite to mediate their grievances and fight for their rights. They lacked the ability to decide or to contribute to the curriculum for which generations of citizens in this territory were to be educated. These individuals were often undermined, disregarded and commanded very little influence. This is still persistent in modern Ghana although it may take different forms and shapes.

The notion that whatever belongs to government is for 'everyone and no one' predates the postcolonial period and was often used by the colonised as a form of defiance or resistance to colonial authority. For instance, damaging or pilfering government property was not seriously frowned upon. It was seen as hurting the oppressing hand (in this case the colonial authority). This was similar to the period following the departure of the colonial masters where infrastructure (and properties in general) were left to deteriorate without anyone taking responsibility for their maintenance. They saw the new government as the continuation of the colonial authority because the reins of authority were left largely in the hands of chiefs, mulattos⁴⁴ and the few educated elite who were often resented by the general population. This was because these first administrators were imposed by the colonial authority (Goldstein and Udry, 2008) and were not necessarily the most qualified. Even in situations where more individuals were employed to facilitate governance, they still resented their superiors. This attitude of 'defused responsibility' for government property and lackadaisical attitude towards work ethic has transcended that period till date to still affect the psyche of government officials.

Some infrastructure development of present day Ghana is reminiscent of some colonial legacies. An example is reflected in the way prisons and charge offices for the police are still constructed with aperture-like windows as was done in the colonial era. Precolonial prisons were constructed in that format so as to break the will of inmates who had often defied colonial authority. Similarly, the barracks of service men are constructed as if they were

⁴⁴ Mulatto refers to an offspring of the European castle staff and their African women (see Goodwin, 2008)

meant for single occupancy. Historically, services men were often not married. Similarly, in the colonial era, the location of infrastructure (such as post office, health post, police station, etc) were 'strategically' located in close proximity to the administrative authority in order to have an overview of their management. In present day Ghana, the situation is not any different.

Finally, it is not surprising that under certain circumstances, the current government teams up with foreign entities when it suits their interest especially when they stand to benefit probably economically. Historically, this has been a norm even when the alliance was with the oppressor. For instance, Akurang-Parry (2006, p. 214) reports that the "colonial government and the African intelligentsia were at the forefront of the recruitment campaigns [military and labour recruitment], while the chiefs were directly responsible for the actual recruitment of their subjects when it served the interest of the Chiefs and educated elite". The Chiefs through the indirect rule system sought to gain more favours from the colonial masters from whom they drew their strength especially at a time when their authority over the indigene was waning while the elite participated for fear of German colonial rule perceived to be worse off than the present form of oppression. In the contemporary dispensation, alliances are formed with economically stronger partners who dictate what should be done in-country, although such 'suggestions' might not be to the interest or actual need of the beneficiary community.

Due to this evidence of postcolonial influence on social and political structures in Ghana, the author believed that the application of postcolonial theory as a complementary analytical lens could help to further clarify and uncover the rationale for the continuing establishment of a failing concept. As a result, while sections **(6.1 and 6.2)** presented first, an analysis based on the design-reality gap framework to determine the status of the CIC initiatives in Ghana regarding the likelihood of success/failure, and second, an analysis to uncover underlying reasons of this failure through the interplay of DRG dimensions, this third analysis provides a critical examination of policy makers' underlying reasons for the continuing establishment of failing CICs in Ghana. Accordingly, to achieve this objective, the data was subjected to a third round of examination. A careful analysis yielded several themes broadly classified under four significant postcolonial themes namely: Voice (Subaltern), Stereotypes and Differentiation, Power Imbalances (Hegemony) and Hybridity

(Agency), which represent four of the several constructs developed over years by prior scholars in this field. Collectively, these themes explain and give insights into possible reasons for the current status of the CICs from a postcolonial perspective. The following subsections explain the various themes as they apply to this research. Figure 6.10 is an illustration of the four postcolonial theory constructs used in this study.

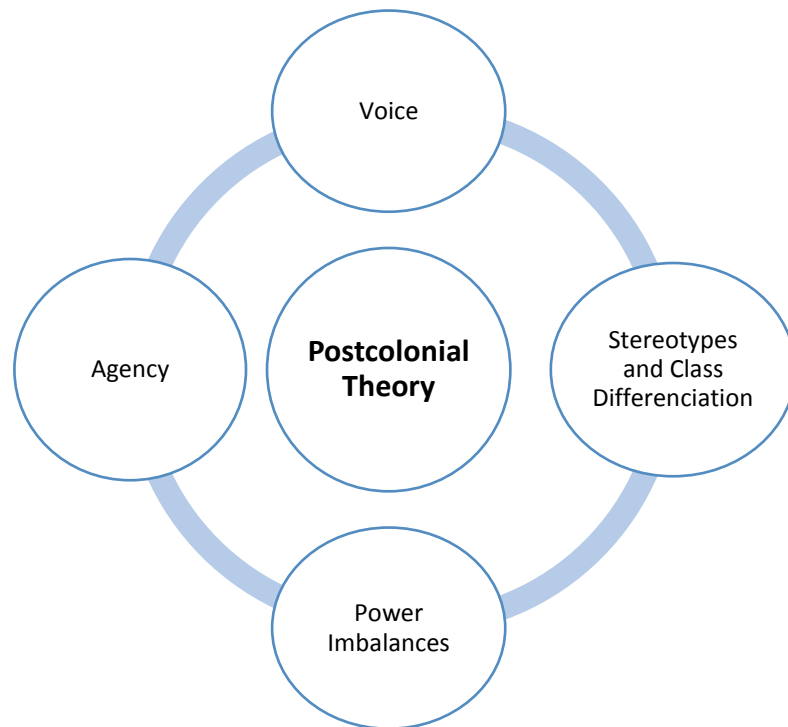


Figure 6.9: The four primary themes from the analysis of the data

6.3.1 Voice (subaltern)

This theme describes the scenario where decisions are made on behalf of stakeholders without their knowledge or involvement. User needs are dictated and imposed on them similar to the imposition of local leadership and authority by the colonial administration (Talton, 2003). Often the needs of these groups of marginalised stakeholders are mediated through government agents often divorced from the context of implementation. Once the system is imposed, users are denied a voice on the very artefact that is meant to improve their lives. The analysis of the data identified three broad subthemes. These are discussed next.

6.3.1.1 Stakeholder Participation

The absence of participation of major stakeholders in the design and implementation of the project could also be cited for its current status. The project implementation document

indicated that stakeholder meetings were conducted. However, interviews with some stakeholders revealed otherwise. How then is it possible to ensure that what was written in project implementation documents reflects what was really in the 'field'? Evidence from the study shows that the beneficiaries (or a majority of stakeholders) of the project neither participated in the planning or design of the initiative in any way nor were they involved in the implementation of the project. A member of staff at the implementing agency made the following reference:

"The assessment was done by the ministry of communication, with the district assembly specifically asked to show where the building should be situated" (Go1)

Interviews with most assembly officials corroborated the above statement. The only indication of participation had occurred when the beneficiary District Assembly participated in the tendering process to award the building of the CIC structure (building) and in identifying the location of the building. Community support and needs were therefore assumed and inscribed into the planning and design of the system. Respondents were of the opinion that the centre had not given villagers more choice over their lives:

"Specifically for the illiterate populace I don't think it has directly changed their lives. Indirectly, because their children are using it indirectly help them in such a way that if your mother wants to transact business they can do it on their behalf but I am looking at those women being able to use the centre on their own. You know most of them are traders" (Co).

6.3.1.2 Empowerment

People feel empowered when they have been given the opportunity to decide what they need and can use this effectively to their benefit (Small and Marsden, 2003). It appears the whole implementation process was disempowering by its nature. Once information needs assessments were overlooked or assumed, it became difficult for users of centres to adequately utilise the full potential of the facilities.

6.3.1.3 Inadequate resources and local content

Some managers said the most requested service was video games and was usually made by children. They, however, did not have such software neither did they encourage children to engage in their use.

“Initially I use to allow them to play games. But later some of the CDs were having problems and viruses so I stopped them. The games I have are not good for them. That is Cards and Zulu.” (NvCm)

Likewise, there was little or no local content. Content provision from a cultural perspective alienated most community members. What was available was invariably in a language (English) that few patrons could acceptably use. Mutula (2005) observed that the language of content provided to users of facilities was the biggest hindrance to the effective use of ICTs. Since very little, by the way of content, was generated in-house, it was evident centre managers just passed on what they had gleaned from elsewhere, mostly foreign material. These came with local inscriptions of the originating milieu hence, they were often not useful to users unless special efforts were made by managers to synthesise what they had gleaned and then make them available to users. The majority of centre managers lacked the skills to perform these functions resulting in the marginalisation of a wider section of the community. A respondent opined that possibly, the answer to the issue of content lay in the potential of developing our local languages to be able to support the creation of relevant local content.

“Maybe that is it, local content. But local content has to concern whatever is happening here not just in the local languages. I am also looking for a way where it is possible to learn in their languages. So it, therefore, means that CICs should get support from content developers to help develop content appropriate for the community in which it exists so that people who are not well educated to also have access to such facilities. Even though some will argue that it will limit their participation in the information society because it is just not about your local society but then they need to start somewhere.” (Ex2)

Users interviewed said they knew of people who decided not to visit the centres because the information they were looking for was not packaged in a way that they could sufficiently use to their benefit. Centre managers pointed out that the number of patrons visiting their facilities was dwindling by the day, partly because the centres could not provide their basic information needs.

Findings also indicate that the CIC did not seem to facilitate a bridging of any of the gaps it was intended to close. It did very little to bridge the gap between the rich or poor, male or

female and young or old. Rather, the disparity in these categories was rather widening at the time of this research than when they were initially established. A respondent stated:

“I think that the main purpose of the centre is actually to serve the underprivileged as you said they are less educated. Those who cannot read and write but they have a problem accessing the Internet because they cannot read and write. I have not seen any conscious effort to help these people to be able to use the facilities.” (Ex2)

Marginalised groups were disadvantaged not only because they could not read and write, but also because they were priced out of the centres. Even though prices of services were the lowest in the surrounding area, some users were still unable to use facilities because of cost:

“They are people who cannot pay for the services even though the cost is very low, it is still at a higher cost to them. I do not think there is any conscious effort to give them some training or assist them in accessing information or creating awareness for them to know that if I want to do this you can do it at this centre.” (Ex2)

Lack of adequate or basic IT skills

A peculiar deficiency on the part of users was their lack of adequate or basic IT skills to aid in their effective utilisation of centres. Users interviewed indicated that it took courage and persistence for them to be familiar with the basics to be able to use the computers in the centres. For those who were shy or saw it as a burden, they never returned to the centre. This case was especially prevalent with women who tried to use the facility for the first time. It was therefore not surprising that the number of women who visited CICs in the study area was very low. A manager put the ratio of women to men at 3:7:

“The men were more than the women. About 30% were women and 70% were men.” (SnCm)

Another manager stated that the biggest barrier for users accessing information at his centre was the low level of user IT skills:

“User’s lack of training on how to use computers and also because we have very few computers. Only 8 working computers for the café. So even if people want to be trained it is not possible.” (BwCm)

For users to be able to build capacity to take advantage of the potentials that the CICs offer, they had to be trained. One interviewee proffered advice on how to tackle the situation:

“There is not much awareness of the CICs amongst the underprivileged women. Let me be specific, the uneducated men and women. There is no effort to let them learn how to use the centres. So an awareness creation is paramount. Then they should be able to train them as to how to use the facilities. Even it is possible to help them or to be able to install certain things to help them to learn in their own local way. That is if it is possible to develop our local languages”. (Ex1)

Lack of education and awareness

Perhaps, the issue of apathy was as a result of lack of education and awareness of the existence and potential of an ICT facility in the community. This was an important recurring concern in the focus group discussions made up of a cross-section of stakeholder participants. The following quotes represent statements from focus group participants:

“We have not educated them to know that there is a centre there for them to take advantage of the opportunities available at the centre. Education is not just there at all”. (FgP3)

“How many of us even know that this centre exist let alone use it to empower ourselves.” (FgP5)

“Sometimes I feel that there is no avenue for me to participate. I am not aware of any means to participate.” (FgP1)

Some users also expressed their dissatisfaction with the level of awareness of the general public about the facility:

“The awareness is very poor. If I had not been posted to do my services around here, then I would not have known there was a facility here. So more radio and, if possible, TV announcement is needed. Also, the space is too small, not all the computers are also working.” (BIUs10)

“A lot of people do not know that there is space here. A lot of sensitisation is needed to get more people into the centre. The sign board outside is helping since it was put up. When they see it, they know there is Internet here but more needs to be done.” (NvUs9)

A direct result of the lack of user involvement and disempowering nature of implementation was the apparent community apathy towards the use and welfare of the CICs. This is similar to the conditions during the colonial period where indigenes defied or resisted colonial authority simply for not involving them in decisions that affected their wellbeing (as discussed in **section 6.3**). The community, in general, did not feel involved in the whole process and as such did not see the need to ensure its survival. As stakeholders, users and the assembly were both neglected. Consequently, there was no sense of ownership on the part of these important stakeholders. It was obvious from findings some managers, although treated badly (as observed in earlier accounts), still kept their post because there were no better options. The assembly, on the other hand, looked unperturbed while centres were mismanaged and run down. For instance, although officials knew that the survival of centres was hinged on electricity, they neglected to pay bills for several months. In one instance, the bills had not been paid since the inception of the centre. The power company had no choice other than to cut off power to the facility. This led to the closure of the facility as expressed in the following statements:

“The electricity bill was not paid since the inception of the centre. As a result sometime in 2012, they came and disconnected power to the centre.” (BwCm)

“For some period we were not able to pay our utility bills so they disconnected it since the beginning of last year [2013]. This was as a result of the fact that we were not able to provide other services and Internet and so did not have any income.” (KnCm)

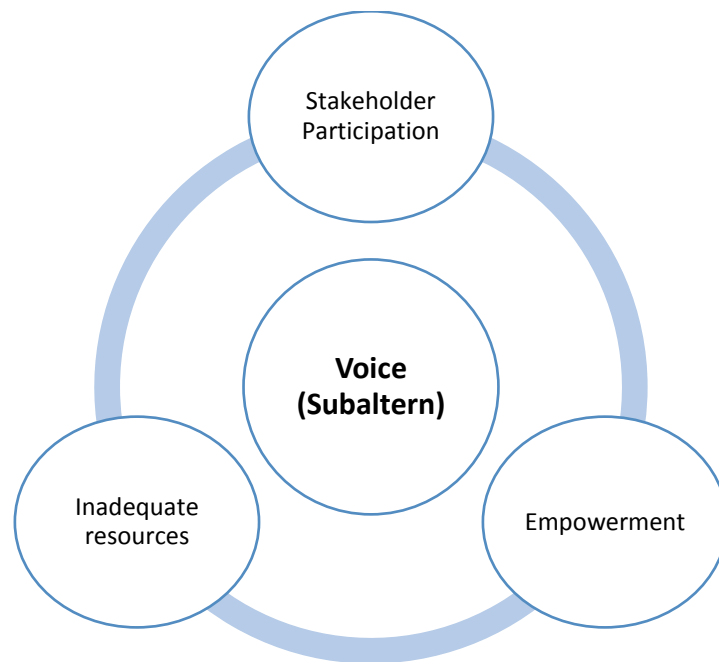


Figure 6.10: Illustration of Voice and its subthemes.

6.3.2 Stereotypes and Class Differentiation (Otherness)

This theme is used to describe the condition where one group of stakeholders tend to marginalise another in the delivery of the mandate of the CIC. It was also used to refer to the attitude of management and staff in administering the functions of the centres. An example of such conditions can be likened to the preferential treatment given to the castle boys (Mullatos) over well qualified and enterprising indigenes (Goldstein and Udry, 2008). A careful scrutiny of the data identified three subthemes associated with this major theme namely: marginalisation, attitudinal dynamics and differentiation (Othering).

6.3.2.1 Marginalisation

An issue of relevance was the remuneration of centre managers and volunteers. Some of these managers attested to the fact that their colleagues who left were being paid better in private establishments. This often demoralised them considering that it took several months before they could be paid.

For this reason, some managers, especially those who managed centres that had closed, had a divided attention to manage the facilities they were responsible for. They complained of inconsistent payment of salaries that often took several months. Also, a majority of managers were not the permanent staff of the assembly. This was corroborated by Assembly officials and the IICD consultant interviewed. They had promised to engage them

as core staff. However, these promises had been long overdue and was affecting their work since they did not know their fate. In their opinion, this was because their superiors (Significant Other) did not care about their wellbeing neither did they feel respected or held in any esteem. According to them, this was demoralising and thus affected the way they administered the centres. This was even compounded when they realised that some trainees from the centres had attained better-remunerated jobs as a result of the skills acquired from centre training programmes. However, one manager stated that irrespective of the disrespect and neglect by management, he was motivated to work at the centre for reasons other than money:

“Sometimes we are sacrificing and also because we are benefitting or getting some incentives out of the centre. Indirect benefits not monetary. The love to serve the community is one and the respect that is accorded to you because you are the centre manager and the self-esteem. Some of us like that. We have had such offers [better-remunerated jobs] before but did not take it.” (BICm)

Low morale and lack of enthusiasm had a significant effect on the running of the centres. For some managers, it had an emotional toll on their daily existence and invariably affected their output at work. This affected them emotionally because they felt they did not ‘belong’ and were not a part of the system (District Assembly).

Closely related to the above comment of remuneration is the issue of staff attrition due to poor conditions of service. This was a dire issue and of great concern to centre managers. The consultant interviewed stated the following with regards to staff attrition:

“We train the managers all right but the assembly refuses to pay the manager then the manager will not be committed although he is knowledgeable, skilled and has the equipment to support him he simply cannot devote all his time to the centre when he is not paid. I know of a situation where a manager was not paid for 17 straight months and he complained a lot and we came in to help to talk. They paid him three months and he had to wait another five months for the next salary to come.”(Co)

6.3.2.2 Differentiation (Othering)

In findings, ‘otherness’ begins to emerge in the form of rural versus urban inclusion in the information society and the country comparing its economic status with the outer world

regarding 'economic revolution'. From the analysis of the website of the GIFEC, a clear manifestation of existing in the eyes of big Other comes to the fore. The work of GIFEC is given a boost through the Communication, Multimedia and Infrastructure Association of India (CMAI) NTA World Communication Awards. This is evident in the statement:

"... with GIFEC's recognition as the Most Outstanding Universal Access Fund, Ghana has been placed as the nation foremost in the provision of access to electronic communications. This, therefore, means strides have been made in the provision of basic telephony, ICT, broadcasting, Internet, multi-media service, to the unserved and underserved communities in Ghana" (Gf).

This in the eyes of the interviewee is recognition by external agencies of their hard work. The fact that these awards are coveted implies something must be going right for them to have been awarded such a prize.

It was also evident from the findings that there was othering of the managers by the assembly. The fact that they did not bother to mechanise the wages of their employees was evidence of their lack of appreciation of their value in the scheme of management at the assembly. The situation was compounded by the distance that existed between employer and employee which created a sense of master-slave relationship at the workplace reminiscent of colonial and postcolonial attitudes of people in authority. As such, some managers stated that they looked at their superiors with reverence. Unfortunately, this resulted in a poor relationship between them and influenced their performance at work.

6.3.2.3 Attitudinal Dynamics

This theme was manifested in the differences in working culture during the alliance of the CICs and IICD. Reports from managers and assembly officials revealed a sense of responsible work ethic where managers were made to account for whatever decisions they took and presented regular reports of their activities which were assessed by the IICD consultant in charge. This work ethic, however, relapsed in the period following their departure. This laidback attitude on the part of management appeared to have influenced the lack of sustainability of CICs. A respondent expressed his opinion of the lack of enthusiasm on the part of management towards the CICs:

“In a few Assemblies, you would see the top being receptive and this you will normally find out is as a result of the personal knowledge of such people but not their positions. Majority of the Assemblies were not even interested in the CICs. They kept calling them ‘CIC centre’ which was some form of tautology. This might not be much but it showed some level of disregard or disinterest in the initiative which reflected in the way they even referred to it. Some saw it as an Internet café built by Ministry of Communication sometime ago and not too sure of their role in it.” (Ex1)

In some instances, there was the issue of lack of institutional ICT champions. For some respondents, this was an issue of the mindset of management and the lack of appreciation of the role of ICTs in community development. One manager described his supervisor as a ‘Technophobe’⁴⁵ who did not appreciate the need to refurbish old equipment or support centre managers to administer the centres. One assembly official, however, was singled out as an outstanding example and an ICT champion:

“We had in [Nv] for example where the District Coordinating Director was very active. He literally approved everything he deemed positive. Along the line, he was posted to [Bn] but this was a time we were complaining about the people at [Bn]. He went there and all of a sudden things changed and everybody was saying [Bn] was the star whereas the [Nv] one started going down. When he was posted again to a different place, the CIC in [Bn] literally closed down. [Nv] started coming down but I understand it is getting better again because people have changed. A lot of the people at the helm of affairs are in their late forties and fifties and we have a situation where people in that age grouping, we called them BBC – Born Before Computer, do not appreciate technology that much. So you can understand when they are not supportive of the CICs.” (Co)

⁴⁵ The fear or dislike of advanced technology or complex devices especially computers. See Gilbert, Lee-Kelley & Barton (2003)

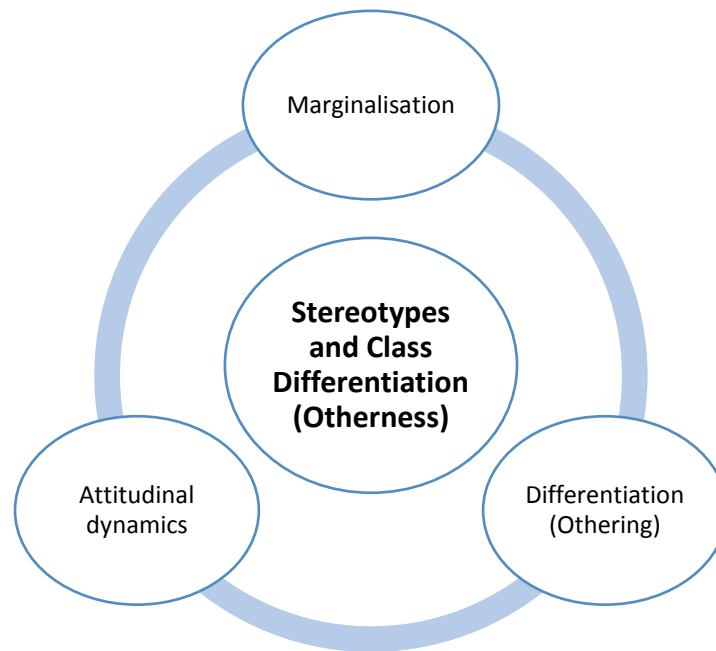


Figure 6.11: Illustration of Stereotypes and Class Differentiation and its subthemes.

6.3.3 Power Imbalances (Hegemony)

This theme represents the hegemonic influence of government and its allied agency on the implementation of the CICs in underserved communities in the Upper East Region. A careful analysis of the data identified two major subthemes under this theme namely: Power/Political Influence and Inadequate Institutional Support. These subthemes were derived from the thematic analysis process described in chapter four. They were selected because they were noted as key concerns and influential in unearthing the rationale for the continuing system failure in the case of the CIC initiatives. The two themes had a direct relationship and influence on one another since they occurred in the same organisational setting. They are discussed in detail to illustrate how these elements adversely affected the implementation process.

6.3.3.1 Power/Political Influence

This subtheme refers to how political actors manipulated the implementation procedure and the entire system to their benefit. It also depicts how political authority was used to impose or 'implant' the CIC concept in recipient communities in the study area. The manifestation of this theme occurred in diverse dimensions. In the first occurrence, politicians used their influence to site the project at locations that favoured their political ambitions. In this way, they intended to use the facility to gain political capital in the event of an election. This occurred in the background where it is the norm for individuals in

political office to often promise electorates that upon electing them they will site developmental projects in their communities (Lindberg, 2003; Hanusch and Keefer, 2011). This phenomenon is widespread. Hence, it is not uncommon to find that such individuals ensured that a project such as the CIC was sited at particular locations as pertained in the study area. This could be a contributory factor for the low uptake at some of the centres (probably because they were wrongly located). An official at the implementing agency (IA) confirmed the phenomenon and suggested that with the establishment of the latest batch of 50 restructured CICs, some politicians had influenced their siting contrary to the locations identified through feasibility studies.

“Some politicians have used their clout to influence the location of some of these centres in their constituencies even though they have CICs. As a result, needy communities are neglected” (Go2)

In the second instance, the implementation of the CIC initiative could be described as an ‘implantation’⁴⁶ in that government imposed the centres on the beneficiary communities without giving them a voice. In a discussion with one of the CIC schedule officers at an assembly, the officer complained that:

“To some extent, there wasn’t much consultation because people did not know what they were meant for. When I made some follow-ups by interacting with the people from GIFEC, I got to know that the project was not even supposed to be as it is now. Every constituency was supposed to have one and was to be developed into a community radio station with all other things that was to open the communities up to governance and to the rest of the world.” (BwAo).

Similar to the above complaint, there was a contradiction between the assembly officials and implementation agency on the issue of participation of the former in the design and construction of facilities in the study area. Whereas the government agency responsible for the building of the facilities stated that the various recipient Assemblies were duly informed and participated at all stages of the project, the assembly officials suggested the contrary. For example, it was interesting to note that whereas government officials stated that the

⁴⁶ The concept is used to refer to the imposition of authority or projects without the adequate knowledge, permission or willing participation of the recipient as in the case of the implantation of colonies (See Lange, Mahoney and Vom Hau, 2006).

contracts for the building of the CIC structures were awarded in consultation with the various Assemblies, responses from the majority of Assemblies suggest differently. An official in one of the Assemblies state:

“The construction of the structures were not properly done, they were awarded in Accra, so people came and did whatever they wanted, nobody knew the design, they put up structures and at the commissioning then people are then getting to know what is going on, so you could see some cracks, frequent breakdown of equipment”. (TnAo)

The third dimension occurred on the recruitment of centre staff. The findings of the study clearly depict a picture of political interference in the administration of the facilities. Also, there was political interference in the appointment of some centre managers and this according to assembly officials occurred along political lines. Appointing officials were sometimes not given the free will to choose competent people to manage centres. A change in government invariably meant a shift of alliances. Consequently, some staff lose their jobs. New people are then recruited and have to be trained again.

There were instances where centre managers and district assembly officials indicated that such interferences significantly affected service delivery. In one case, a District Assembly staff said they were powerless to administer control over the centre because some “powerful” political figure was protecting a non-performing centre manager. Apparently, they were ordered to employ the said manager and so had no direct control over him.

“He goes about doing what he wants without even accounting to us”. (BIAo)

Conversely, some centre managers claimed they were persecuted because of their political affiliations. Managers who could not withstand the constant disregard had to leave their post. The following quote illustrates this point:

“In some places also, you would realise that the managers are well trained but along the line when there was a change in government new people came in and for whatever reason recruit new managers, so these people would come in fresh with no skill and no experience and it is like you are starting again from scratch. So we come back to the human resource problem.” (Co)

The hegemonic approach to management of CICs and its subsequent creation of power imbalances amongst principal stakeholders of the initiative had an adverse consequence on the sustainability of the CIC initiative.

6.3.3.2 Inadequate Institutional Support

This theme looked at the various institutional stakeholders involved in the management of the CICs. The posture of the assembly as owners of the CICs could be described as one of indifference in some instances. This was particularly prevalent with owners of centres that had closed. It was evident from observation that centres were underperforming but managers were powerless to stem the tide. Owners were either oblivious to the conditions until it was too late or did not care about the survival of the centres. The authoritarian nature of management made it difficult for easy flow of communication between managers and facility owners. It was also evident that there was an apparent lack of supervision of the activities of managers and consequently their performance. While interviewing one of the District Chief Executives (DCE) of a beneficiary community, this observation became apparent. It appeared the principle officer of the assembly did not even know whether the CIC was operational or had closed. This was evident in his statement:

“I don’t think it is working currently. The Jubilee ICT centre has overshadowed it. It has better equipment and has more space so it looks like everyone prefers that one. Our attention is on that one for now. The best person to talk with will be the schedule officer in charge of the centres.” (BICe)

Without institutional support some of the facilities ground to a halt, managers were laid-off and centres closed to the general public. As a result of the historically centralised nature of implementation of projects, most Assemblies had neglected their decentralised role of localised management and were looking up to the significant Other (central government) for support to perform roles ceded to them. Maintenance of equipment and salaries of staff were a major problem. The findings indicate that the trend in some CICs was so bad that sometimes centres that hitherto housed about 15-20 computers had just one working due mainly to negligence on the part of institutional structures. One respondent described this condition:

“At the end of the day we realised that most of the computers were not functioning. It got to a point where only one was functioning there and that was the main server or something like that. I think there were delays to his [manager] salary that attributed to his going away. I can testify that sometimes it gets to 10th or 15th [of the month] and he has not been paid his salary. Since the computer was left with one and the photocopier toner too got finished, he was not able to replace it because he wasn’t making any money out of the centre. All other services ground to a halt except the photocopier.” (BnAo)

Another DCE speaking to the negligence and indifference of his predecessor towards the management of the CIC stated:

“When I took over from my predecessor I realised the centre had been mismanaged. Also, the centre had accrued a huge electricity bill which had not been paid since the inception of the operation of the centre leading to the company cutting power to the facility and its subsequent closure. It is a very important facility for the community. I will therefore, do everything possible to ensure it is revived. In fact, I will organise for the CIC management committee to meet on it and start planning for its reopening.” (SnCe)

This was an encouraging revelation from the principal owner of the centre. The DCE further promised to take urgent steps to ensure the centre was up and running within the shortest possible time. When the author visited the centre six months later, it was observed that there had not been any change in its condition. It was still not opened for business.

Acknowledging the significance of the CIC, another DCE claimed to have taken a keen interest in ensuring the centre was reopened. He stated:

“It is an important facility for my people. Unfortunately, I have not had the time to look into its closure since I took over last year. We have been looking for the manager to help us understand what went wrong.” (TnCe)

Centres could hardly generate enough revenue to maintain themselves. As was stated in section 6.1, the centres could hardly maintain their ICT facilities primarily because income was low and also because there was no institutional support.

“Now business is very bad. You can see that the centre is empty. At the beginning, an average of GHc200 [\$52.5] a month but now sometimes nil.” (BICm)

It was apparent that all district Assemblies were struggling to keep the centres open to the public as has been illustrated by the various accounts above. When asked why they were not seeking external help since it was evident they could not cater for the needs of the centres alone, they argued that the bureaucratic nature of authority made it difficult for them to seek external support. For that to be possible, some stated that they would have to apply for permission from the Regional Coordination Council for approval which will, in turn, seek permission from a higher authority for policy direction. These cumbersome procedures hindered their effort at ensuring external participation. The majority of centre managers and assembly officials stated they needed partnership to operate efficiently. Since it was not possible for owners of the centres to effectively manage them, private support could be sought to guarantee the sustainability of the centres.

All DCEs indicated they were willing and open to proposals from private partners in an attempt to keep the facilities open for surrounding communities to benefit from services they offer. An alliance will benefit from mutual reinforcement regarding capital/finance, equipment and managerial skills. The importance of this type of collaboration was evident from the accounts of some managers and district assemblies when IICD (Donor agency) partnered five centres in the region in a project they ran from 2008-2010. This was confirmed by the IICD consultant interviewed. The vision of IICD then was to build capacity and to change the mindset of the district assemblies or the immediate people who were overseeing the running of the CICs. Later, IICD supported participating CICs with equipment and further training. Over a period of three (3) years, IICD provided training and equipment to beneficiary facilities. However, the consultant added that there was a constant struggle in managing the relationship between the centre managers, centre owners and IICD. Reports from both centre managers and District Assembly officials indicated that while they received support from IICD, the centres were doing very well until the latter parts of 2010 when the project ended. The obvious lack of institutional support from assemblies was captured in the following statement:

“When we were coming out of the CIC project to move on after supporting them for three years, we did a research and in the research we compared our CICs to others we did not support, there was such a huge gap in terms of everything. The future looks much brighter for the CICs that had support than those that had not been supported. So if the majority of

CIC have not received this kind of support, then I am not sure of a bright future. Even for those we had supported, soon after we withdrew, we started hearing complaints. We heard some of those complaints of how they were treated by the assemblies as in the assemblies not being supportive enough. Generally with the way the assemblies are running the CICs, there is no future but then it is not too late to reverse this.” (Co)

As was observed from the above interactions and quotes, these subthemes had a direct link with one another and significantly impacted the sustainability of the CICs. The political influence and pressure of powerful individuals brought pressure to bear on the recruitment and management style of CICs. Similarly, the paucity of institutional support and the lack of direction from the leadership of assemblies negatively affected the survival of Ghana’s Telecentres.

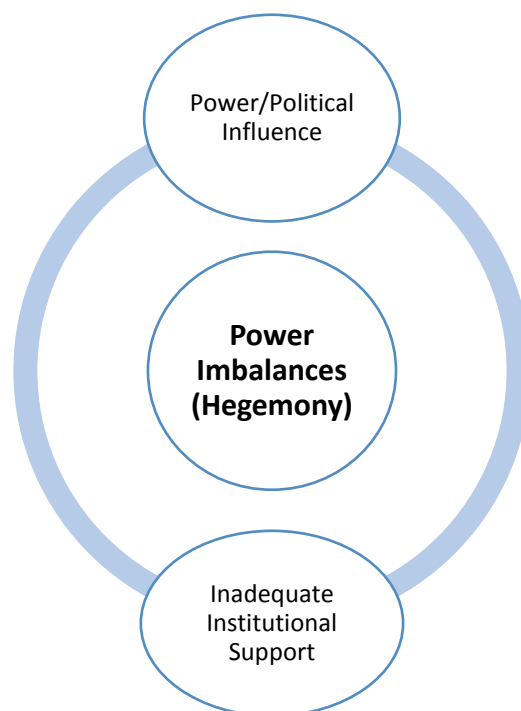


Figure 6.12: Illustration of Power Imbalances and its subthemes

6.3.4 Hybridity (Agency)

Hybridity is used in this study to represent the inscription of the agency of the subaltern into an otherwise imposed project. The theme examines the ability of agents (stakeholders) to appropriate the CIC initiative to their benefit irrespective of the lack of needs assessment and involvement in the implementation process. The analysis process identified two main subthemes that are used to explore the concept of hybridity in this study. The following

subsections describe how the agency of the subaltern was restructured to favour beneficiaries.

6.3.4.1 Impact on Living Standards

The author recognises that although some stakeholders were marginalised and denied a voice in the design and implementation of the CIC, they nonetheless utilised the centres in ways that yielded some impacts.

By far the biggest beneficiary of the CIC initiative was school children.

“We organise classes for JHS students. Normally we go to the school and discuss with the head teacher and the one in charge of ICT. Then we schedule a day. It is believed that most of the school children don’t know what the computer is. They only heard of it. They don’t have a clue of what is happening. So we bring them to feel, see and touch them. So normally, the schools that are far organise on market days so that they can get means [transport] to come and go. They come from averagely about 15 kilometres away.” (SnCm)

“Students and pupils are the highest beneficiaries as it aids in the online exams and school registration for university students. Student ICT lessons in there with television for audio-visual.” (Go1)

A patron to one of the centres in reference to the benefits of the centre stated that:

“In terms of education the students will not get such opportunities elsewhere. The private centres don’t have a place to accommodate students and also don’t have reduced prices for access.” (TnUs2)

An interviewee observed that although the CIC had not in some sense been able to contribute to changes in equality between men or women, rich or poor, increased school enrolment, it had, to some degree, contributed to the development of an important section of the community (school children and the elderly):

“There are some Internet cafes in town where if you’re not at a certain level you cannot go in there [level of ICT competence]. But for this place, anybody at all comes. Even students and children come here. They need just Ghc30p and they can use the Internet. Sometimes when they come, they use it to open their email addresses. These are good things so you allow

that. But when you go to the commercial ones they don't allow that. Here elderly people, rich and poor all come here". (Ex2)

Some individuals also benefited immensely from contacts they made at the centre. In one instance, a mutual acquaintance from the centre introduced a user to the United States visa lottery scheme who then applied and won. A manager recounts this event:

"I can cite an example of someone who applied for a US visa lottery. He won it and is outside the country now. He got to know about it in the CIC. Even though I think it is a negative impact, I think it is an opportunity for that person although the brain drains on the country. This is an intelligent guy who should have helped in the development of the country." (NvCm)

According to the manager of the centre where the user made the application, the user has since arrived in the USA, gotten a job and the lives of his family in Ghana has improved tremendously through his cash remittances.

Contrary to the adverse responses from most users of the disempowering nature of the centres, one respondent stated that it at least empowered a marginal section of the beneficiary community. The interesting revelation was that there was a degree of some bridging of knowledge gaps between those who had access to news outlets at work or home and those who were not fortunate enough. One of the expert interviewees made the following observation;

"I think it has bridged some gaps and theses are more in line with knowledge gaps and not rich or poor, male or female gaps. Those who would have had the CIC as their only option to read news will now be closing the gap with those who have more money or can read news from their offices or newspapers" (Ex2).

On the part of managers of the centres, most were optimistic that their involvement with the CICs had a positive impact on their livelihoods notwithstanding the many obstacles they faced. The following statements affirm this point:

"It has opened my world. It has built my capacity. Through the centre, i have a lot of contacts. At a point, i was selected to embark on a national exercise like helping the electoral commission to train their staff about data entry, helping with registration of voters and

during the election itself. I think these are the great successes. Of course, it has given me some income.” (BICm)

“Provided a source of income, Increased your access to information and communication, increased your ICT skills, increased your social networks through meeting people at this and other venues and Feeling more a part of the community.” (BwCm)

A respondent observed that irrespective of the gains of the initiative, the uneducated, underprivileged and underserved sectors of the community were still largely underutilising the CICs. This category did not gain any direct benefit. He, however, indicated that they could probably have gained indirectly through the interactions their children had with these facilities:

“Specifically on the illiterate populace, I don’t think it has directly changed their lives. Indirectly, because their children are using, it has indirectly helped them in such a way that if your mother wants to transact business they can do it on their behalf but I am looking at those women being able to use the centre on their own. You know most of them are traders. Apart from using mobiles to communicate, I don’t think they are using the centre so no direct benefit”.

6.3.4.2 Unintended Use/Improvisation

This subtheme looks at the uses to which patrons and management have put the centres other than the intended purposes for which the CICs were established. These alternative uses arose as a necessity rather than as a norm.

For instance, some managers instead of idling when centres were less busy or closed took the opportunity to learn new skills. One manager recounts his experience when he took advantage of the frequent breakdown of computers to learn hardware troubleshooting through trial and error.

“It [CIC] has been able to equip me with enough skills to go to other areas to compete with other people. With the hard work when people get problems with their computers I repaired them and make extra money. It was the computers here i used to learn more of my hardware which gave me more income.” (KnCm)

In another instance, community members found an alternative use for the centre, as a public space to train women's groups. With the help of IICD, female entrepreneurs, organised women's groups as well as some female teachers were invited to a workshop at one of the centres. The idea was to train such groups to be resource persons and ambassadors in the community and in turn educate other women on the new entrepreneurial skill they had been taught. Some of them were given the opportunity to discuss their experience from the training and their various workplaces on community radio. The organiser made the following observation:

"We run a project where they brought rural entrepreneurs, women teachers and some other organised women groups. The women's organised groups were taken through radio sessions where they were resources persons. This will not have happened if the CIC had not helped organise it. So I see it as closing a certain knowledge." (Co)

One of the centres, out of the initiative of the manager, had put together a video recording of the local festival. This attracted some patrons, especially those who did not come from the community. The festival takes place once every year. Due to the popularity of the video, the manager went further to gather more information and created a notice board where information about the festival was posted. By this act, the manager had managed to bring the festival to the CIC throughout the year.

"I went to the chief's palace and one man there gave me the history of the Fao festival and some pictures and how it started and I came and posted it there and some pictures of tourism sites. The history is a written document so he gave me a copy which I have made available here. How to use multimedia. How to produce information about the district so that if anyone comes you can show it to the person. They gave us a software to do it. So when I came, I used it and recorded the Fao festival. So when people come, we play it for them to view." (NvCm)

It is evident from the above discussion of this subsection that although the CIC project was disempowering by nature, the agency of the subaltern along the line was reconstructed to derive benefits to the voiceless in the community.

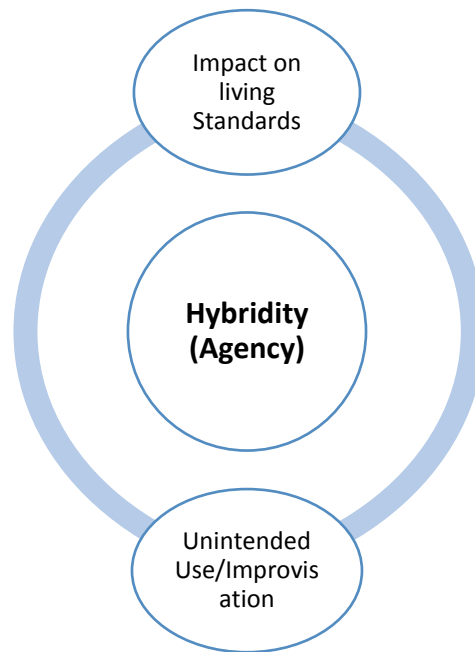


Figure 6.13: Illustration of Hybridity and its subthemes

In this chapter, the author discussed the analysis of the findings. Guided by the DRG framework, the analysis showed that the Ghana's CIC initiative was failing ('ICT project may well fail unless action is taken to close design-reality gaps') and needed urgent measures to ensure that the investment made by the government was not a total waste of taxpayers' resources. To understand the underlying reasons for the outcome and continuing establishment of failing initiatives, the author subjected the data to another round of analysis to augment what was available from the initial analysis. It was evident from the subsequent analysis that, postcolonial elements could account for the continuing establishment of CICs. In the next chapter, the author presents a discussion based on the analysis of the findings.

CHAPTER SEVEN - DISCUSSION

7 INTRODUCTION

In the preceding chapter, the case study analysis was conducted to understand the Telecentre phenomenon in Ghana (Upper East Region). The implications of the case study analysis are discussed and examined. In this chapter, a discussion of the findings is presented in relation to the research questions of the study. These interrelated questions sought to unravel the complex implementation process, the status of the phenomenon and the rationale for the continuing replication of the CIC concept. This study is guided by two principal research questions:

1. How can we usefully evaluate the success/failure of the Community Information Centres initiative in Ghana?
2. What is the rationale for the continuing establishment of CICs in Ghana?

It is worth emphasising that this study by no means seeks to generalise the results and findings of the case study to infer that Telecentre evaluation would provide similar results across other contexts like this study. Rather, it focuses on the conducted case study and the way Telecentre users and management interacted with the facility. An attempt is made to address these research questions grounded on the findings of the study.

7.1 Research Question One

In relation to the first research question, this section presents a discussion of how various factors such as technology, politics, staffing/training skills, management decisions, project objectives, etc. contributed to the status of the CIC initiative. An effort is made to bring into focus these factors regarding the findings and literature and how these elements were instrumental in shaping the status of Ghana's CICs as a failing system (**see chapter six, section 6.1.8**). These factors are discussed in the following subsections.

7.1.1 Power and Political Decisions

There was a strong indication of political and power interference in the establishment of CICs which inadvertently affected access in that these powerful individuals cited CICs contrary to the advice of professional opinion. As described by an official: "*Stakeholders do*

not know when one's obligation starts and another ends. Power struggles amongst politicians are hindering progress. As a result, they [CICs] are not being utilised" (Go2) (**See chapter six, section 6.1.3**). Similarly, political decisions negatively affected both government agencies as well as ordinary centre users in the stakeholder group. Neglecting to involve stakeholders in the planning, management and delivery of CICs implied that some stakeholder requirements were overlooked. Although this is in-line with the literature suggesting that the absence of participation of relevant parties in the design and implementation of projects could have an adverse consequence on the utilisation of systems (Bryson, 2004; Kanungo, 2004; Siefer, 2013), the results show that the importance of this factor was ignored. If beneficiaries or the assemblies were not consulted in the requirements gathering phase, how did project implementers inscribe their needs in the project? The author argues that assuming the project requirements instead of doing in-depth studies to obtain them led to costly failures as witnessed in these projects. The lack of user involvement also meant their views and opinions were not inscribed into the system design. Hence affecting the implementation process. Cecchini and Raina (2004) suggest that it is prudent to establish the information and service needs of clients by involving beneficiaries if a project is to succeed. A participatory approach (Cooke, 2003) does not only foster ownership but also allows users to make an input on crucial matters such as local content (Oestmann & Dymond, 2001). Figure 7.1 indicates the relationship between the power and political decisions dimension and DRG framework.

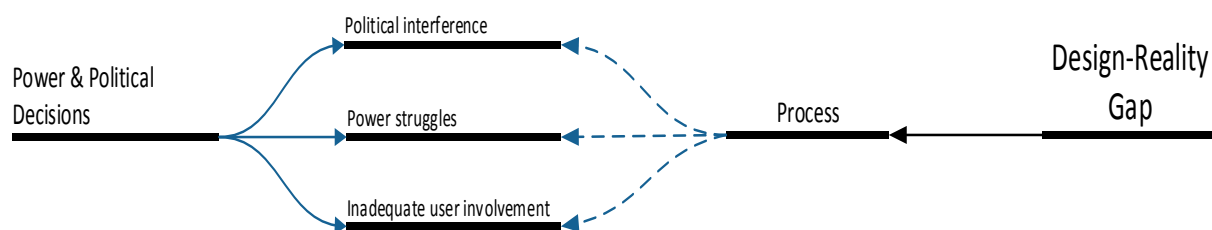


Figure 7.1: Relationship between power/politics factor and DRG framework

7.1.2 Stakeholder Apathy

The results also revealed an attrition within the stakeholder groups. Assembly officials did not feel the need to ensure the success of centres because they felt the centres were imposed without their contribution. As a result, they did not feel responsible for the

mismatch between centre capability (what centres could deliver) and user needs. On the other hand, while users considered the centre managers as being responsible for this mismatch, centre managers pointed to the assembly (owners of CICs) as the cause of the problem. In essence, the blame game meant no one group accepted responsibility for the diminishing performance of the facilities under their care. If the structures for supervision, monitoring and evaluation of CIC activities had been established at the start of the project, the apathy witnessed in the case study would not have occurred. A noticeable omission in the lines of authority in the study was the apparent lack of clear reporting structures between centre managers and assemblies, though from the accounts of some assembly officials, the impression was different. There should have been an unambiguous reporting structure set-up with responsibilities assigned to individuals or groups who could be held accountable. For example, in one of the centres, it was not immediately clear to the centre manager who was responsible for the maintenance of the facility because, on several occasions, different officers were assigned to handle problems at the facility. Another major concern for apathy, especially on the part of staff, was the lack of motivation exhibited by the management of CICs. The majority of staff engaged to manage CICs were temporary staff who were given stipends instead of being employed full time and given living wages (**see chapter six, section 6.1.5**). As a result, such staff were demotivated and were interested in pursuing other avenues that would benefit them financially. In one centre, a manager attested to the fact he had to engage in other jobs on the side just to make ends meet because the allowance given was inadequate to take care of his family (**see chapter six, section 6.1.7**). These findings are consistent with literature where Telecentre staff were demotivated because management either did not care about staff or did not see any reason in paying managers that were perceived not to be making an adequate income (Attwood et al., 2013). Pro-poor ICT initiatives are social interventions established in marginalised communities where people mostly live under high poverty incidence (a major feature of the context under study (GSS, 2015)). Therefore, implementers should not expect such projects to make profits or break even. Figure 7.2 represents the relationship between stakeholder apathy and DRG framework.

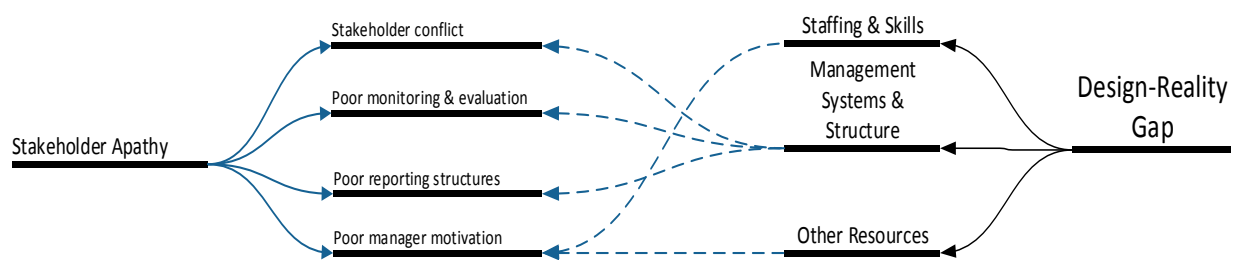


Figure 7.2: Relationship between Stakeholder Apathy and DRG framework

7.1.3 Access and Adoption of CICs

Prior research on adoption suggests that when users perceive the characteristics of a new initiative positively (in this case an ICT intervention), there is the high likelihood of adoption (Venkatesh et al., 2003). The findings and analysis of this study support the findings of prior research to the extent that in its early years of establishment (CICs), patronage of facilities was high probably because they were perceived as a new intervention that held the promise of fulfilling functionings. This thesis, however, argues that utilisation of CICs was hampered because of the neglect of significant contextual factors (culture, leadership, politics, personality clashes, bureaucracies, nepotism, etc. as discussed in **chapter six**) that emerged over time. Similarly, the findings of this study in the examined context indicate users' unequal access to ICTs (only a third of users being female) compounded by socio-cultural norms and exacerbated by the high poverty levels of women (Gurumurthy et al., 2006). Consistent with the literature, the findings of this study are not surprising in a context where less than a third of the female population have access to ICT facilities, high illiteracy and poverty levels and so might not even appreciate the value of ICTs (Madon et al., 2009). However, it should be acknowledged that the provision of the ICTs might not necessarily lead to empowerment.

In some communities where the concept of ICT in support of rural enterprises has taken hold, previously disempowered micro-enterprise owners have gained the benefit of technology (Cummings & O'Neil, 2015; Balaji, Kumaran & Rajasekarapandy, 2002). The literature discusses that ICTs may offer emancipatory abilities, especially when dealing with the gender perspective (Gurumurthy, Nandhini & Saloranta, 2012). In this study, however, it was observed that CICs were not emancipatory as envisioned by implementers to a wider section of the population, specifically women. Women dominate the craft industry (mainly

weaving and pottery) within the study context. As such, it would have been expected that women would have been heavy users of the facility to get information to transform local craft into developing local enterprises. Most of these crafts (Bolga baskets⁴⁷ and aesthetic pottery figurines) find their way to most European and American markets through intermediaries who pay pittance for them but make profits trading with foreign partners. This is reminiscent of the unequal trade partnerships that have shaped the economy of Ghana (Ighobor, 2014). The implementation of the CICs was to ensure that the perpetuation of power asymmetries was dismantled. The resources at the CICs were meant to link and grant local enterprises direct access to markets and in so doing restructure market forces in favour of micro-enterprises and to eliminate or minimise the role of intermediaries. Figure 7.3 indicates the relationship between access and adoption of ICTs and DRG framework.

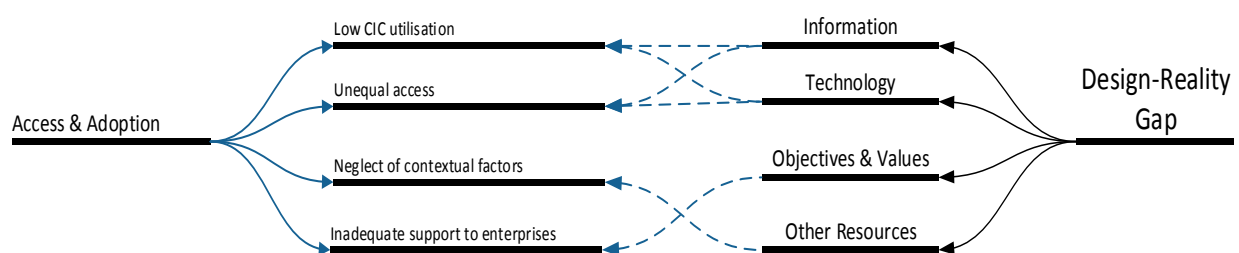


Figure 7.3: Relationship between Access/Adoption and DRG framework

7.1.4 Role of Intermediaries

The ideal intermediary should have good entrepreneur abilities and desirable ICT skills to manage facilities (Gopakumar, 2006; Gomez, Fawcett & Turner, 2012) effectively. The results show that in the CICs, political pressures put personal relationships over competence that negatively affected not only the performance of managers but also the staff and the quality of services offered by them to users of CICs. This political interference in the recruitment of “infomediaries” reflects the norm in the public sector of Ghana (Asamoah et al., 2013; Ayee, 2007) where some staff are recruited into positions due to family, societal

⁴⁷ Beautifully woven straw baskets affectionately called Bolga Basket mainly because they were commercially produced in the Bolgatanga metropolitan area, Ghana. It is however, woven in the whole region. To get good prices for their products some NGOs (e.g. TradeAid) have formed women’s weaving groups so they can collectively price their baskets for the international market. These groups are also supported with some form of financing to purchase raw materials while using the opportunity to teach members empowerment skills.(see: <http://tradeaid.internationalservice.org/2014/08/weaving-future-for-bolgas-beautiful.html>)

or political bonds. Heeks (2002, p. 8) describes this as “kin loyalty”. This kinship, however, has the potential to disrupt good work ethics and consequently the failure to achieve intended goals if the recruited individual does not possess adequate ICT skills and initiative as was the case in some CICs. The findings expand on the current literature that points to the importance of skilled ICT intermediaries are needed to ensure the success of ICT initiatives (Cecchini & Raina, 2002; Harris, 2001). Good intermediaries have the capacity to anticipate user needs and have the initiative to package information for clients especially in a dispensation where little local content is available. In such circumstances, the role of the manager becomes instrumental in attracting users to the centre, thereby improving the income stream of the facility and user satisfaction. Figure 7.4 demonstrates the relationship between the role of intermediaries and DRG framework.

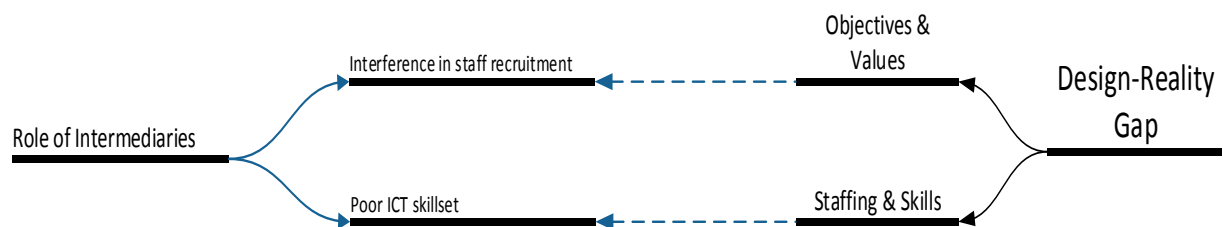


Figure 7.4: Relationship between intermediary roles and DRG framework

7.1.5 Traditional Bureaucracies

The current management structure is based on traditional bureaucracies⁴⁸ and hierarchies that make it difficult for centre owners to involve external partners in the running of centres. It was apparent from the accounts of DCEs that external support was necessary for the survival of CICs since funding sources had dwindled. Despite interest from the private sector to invest in the initiatives, bureaucracies hindered participation which demotivated potential investors from making meaningful contributions to the ICT development effort. Sharma (2007) reports on successes achieved in the second phase of the Bhoomi project relaunch (in 2000) when bottlenecks resulting from bureaucratic policies hindering successful implementation of the initial project were removed, thereby allowing a smooth linkage between private partners and government agencies especially the land records office.

⁴⁸ Traditional Bureaucracies – is one that recognises hierarchies (different levels of management) with clearly laid out rules, regulations and procedures and an appreciation of clear lines of authority. It differentiates subordinates from superiors and the roles they each play in an establishment.

Bureaucracy and red tape that inhibit innovation must be dismantled to allow for a more progressive endeavour where immediate decisions are taken without recourse to red tape that delay successful implementations as was the situation in this case study (see **chapter six, section 6.2.2**). Figure 7.5 explains the relationship between traditional bureaucracies and DRG framework.

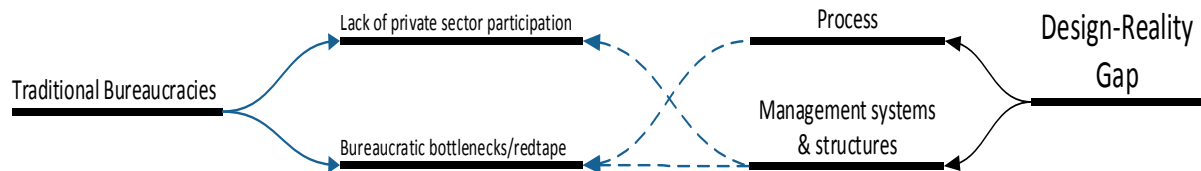


Figure 7.5: Relationship between traditional bureaucracies and DRG framework

7.1.6 Context adaptations

The influence of government decisions to adopt technology without doing due diligence on centres to meet the needs of the receiving context has dire consequences. In this instance, it appears the government adopted such initiatives for political expediency. At the WSIS conference in 2003, member countries were encouraged to adopt the implementation of the Telecentre concept to support national development (Muylkens, 2010; WSIS, 2003). The CICs were implemented following the conference. It appears in the Ghanaian case, the CIC concept was adopted from the Indian experience, without necessarily adapting it to suit the local context as discussed in chapter five (**section 5.6**). The literature shows how country context adaptations are essential for the survival of technology projects ‘borrowed’ from different countries (Heeks, 2002). Heeks argues that a system designed for one context might not necessarily be suitable for another. Since these new initiatives are not home grown in most DCs (where local values may be incorporated in their design), the government has to ensure that adaptations are integrated to suit the local context. In a failing system like that of the CICs, implementers or owners can adopt the concept of local improvisations as espoused by Heeks (2002) by introducing hybrids (technology and management experts who also have an appreciation of contextual elements) to redesign failing projects to improve the likelihood of success. These individuals should be local experts with an understanding of context-dependent factors that can inhibit or promote

sustainability in order to make a meaningful contribution to the implementation process. Figure 7.6 shows the relationship between context adaptations and DRG framework.

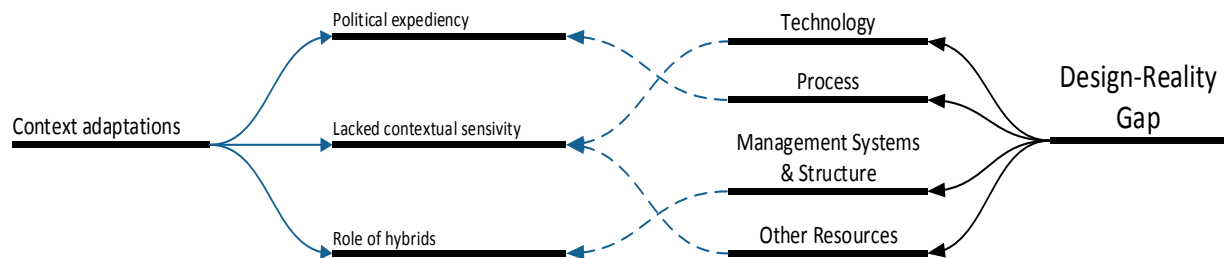


Figure 7.6: Relationship between context adaptations and DRG framework

7.1.7 Information needs

Delgadillo, Gómez and Stoll (2002) state that if people feel empowered by Telecentres, they will be more inclined to ensure its survival. In this study, the inability of centres to provide relevant information to potential users was problematic. Once the basic informational needs are not met, the likelihood of indifference towards the CIC may be very high, leading to the dwindling attendance of the centres and consequently their closure. Most of what is on the Internet or in public documents is mainly in English. This could have been abridged into useful formats readily accessible to local users (Roman & Colle, 2002; Wellenius, 2008; Johansson Hedberg, 2011). Etta and Parvyn-Wamahiu (2003) suggest that the goal of linking Telecentres with the growth of local economies will be fruitless unless strenuous efforts are made to address the content gap. In the context of this study, the unavailability of local content affected its frequent use. The level of illiteracy, gender disparities and low levels of education amongst community members made them less enthusiastic and hindered the use of ICTs. Figure 7.7 demonstrates the relationship between user information needs and DRG framework.

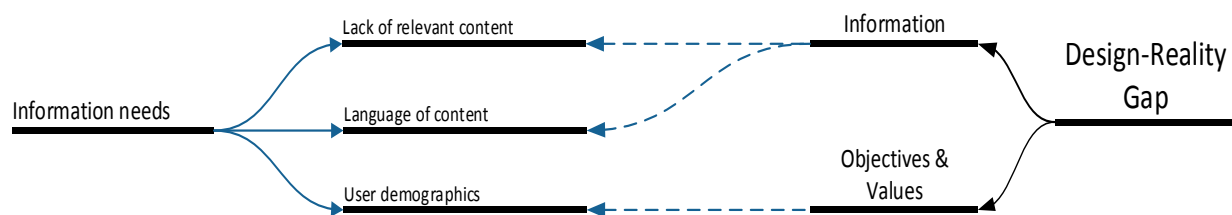


Figure 7.7: Relationship between user information needs and DRG framework

7.1.8 Collaboration and ICT Champions

Another significant obstacle to adoption of the CIC project was the lack of a Telecentre network and enthusiastic CIC champions. It is easier to survive in the Telecentre ecosystem if centres are organised and linked as a network to share experiences and resources (Fillip and Foote, 2007; Wellenius, 2003). In Rwanda, the Telecentre ecosystem is striving (De Luca et al, 2013). Unlike the case of the Rwandan Telecentre network adopted and spearheaded by the single effort of a charismatic ICT4D enthusiast (*ibid*), Ghana has no such ecosystem. In a fragmented implementation system, weak and vulnerable centres without support collapse while closely-knit collaborative networks as formed in Rwanda can help one another to grow through the support they get from the collective. Similarly, the Ghanaian Telecentre environment lacked a strong champion unlike the case of other developing country contexts (De', 2009; Kumar and Best, 2006). In the absence of national champions other than the government, the initiative as observed through this research failed to achieve intended goals. This study found that Telecentres which were close to each other in terms of distance, where stronger ties could have been made to create networks, to improve user experience and participation, did not know each other. The lack of association was a weak link in forming a strong Telecentre network. Although there was an effort to form some network by the IICD consultant in the region to engender a culture of cooperation amongst the centres, personality clashes and lack of enthusiasm from both managers and District Assembly officials stifled the effort of growth. This study also argues that the Telecentre environment in Ghana did not have a passionate champion(s) to mediate the voices of the beneficiary communities and to argue a compelling case for the rehabilitation of failed or failing centres in the appropriate corridors of power. Figure 7.8 illustrates the relationship between collaboration and ICT champions and DRG framework.

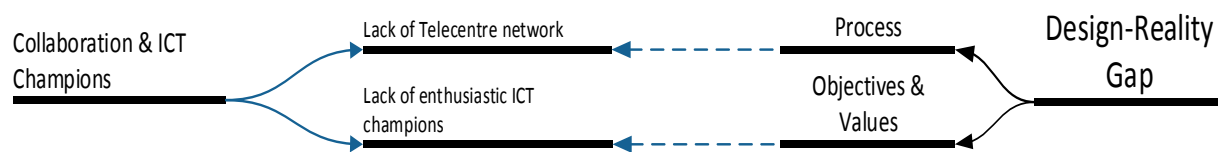


Figure 7.8: Relationship between collaboration and ICT champions and DRG framework

7.1.9 Governance Model

The model of governance of a given centre has a strong influence on its survival (Mukerji, 2008). With the evidence of failed examples in donor funded and run facilities, some researchers have called for the commercial model approach to management of Telecentres (Colle, 2008). However, Kanungo (2003) does not share in this idea because it would defeat the purpose of these interventions (as pro-poor initiatives). As government interventions, the CICs were run similar to the donor-funded concept (Not-for-profit). When government built and equipped the facilities and handed over to assemblies, it was not long before they were run down (GIFEC, 2014). The government had ensured that further support was to come from the budgetary allocations made to the recipient assembly and not from central government. Over the years, these centres were run down without adequate maintenance and financial support from assemblies. The problem lies not just with financing but also with the management and organisational work culture. The findings in this study illustrate that collaboration with a private entity could improve organisational performance by sticking to strict adherence to organisational best practices. For example, whereas the CICs were in near collapse before IICDs support of beneficiary centres, they recovered shortly after the takeover and started making gains with respect to sound accounting and reporting standards resulting in the growth of supported centres (**see chapter six, section 6.3.2.3**). The key to this success was partly due to the constant monitoring and evaluation (by IICD staff) of the activities of participating facilities. This is in-line with the report of Gomez and Reilly (2002) which states that the success or failure of community ICT initiatives hinge on effective and constant monitoring and evaluation of implemented projects. Figure 7.9 exemplifies the relationship between governance model and DRG framework.

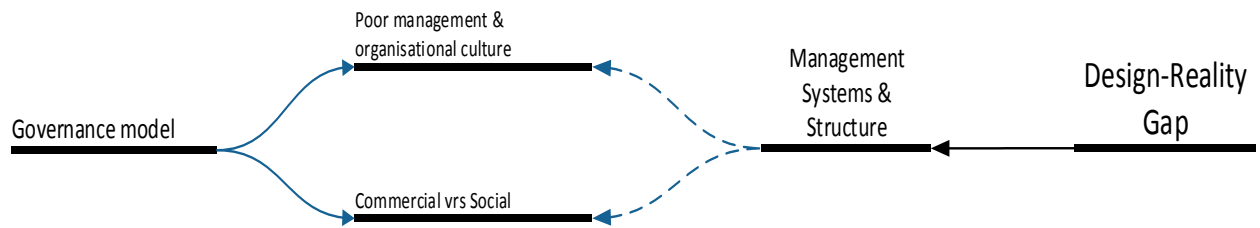


Figure 7.9: Relationship between governance model and DRG framework

The following diagram (Figure 7.10) gives an overall depiction of the main themes in the discussion while showing their individual relationship in the light of the DRG framework. The diagram has four main features; findings, factors, dimensions and framework. The findings section illustrates the main themes discussed in this section. Each of these is then mapped to the various subthemes (Factors) that represented the main theme. In essence, this diagram depicts a mapping process in which the discussion is presented by demonstrating how literature is linked to the findings and analysis. This in turn is linked to the respective framework constructs (Dimensions) and subsequently to the theoretical framework (Design-Reality Gap Framework).

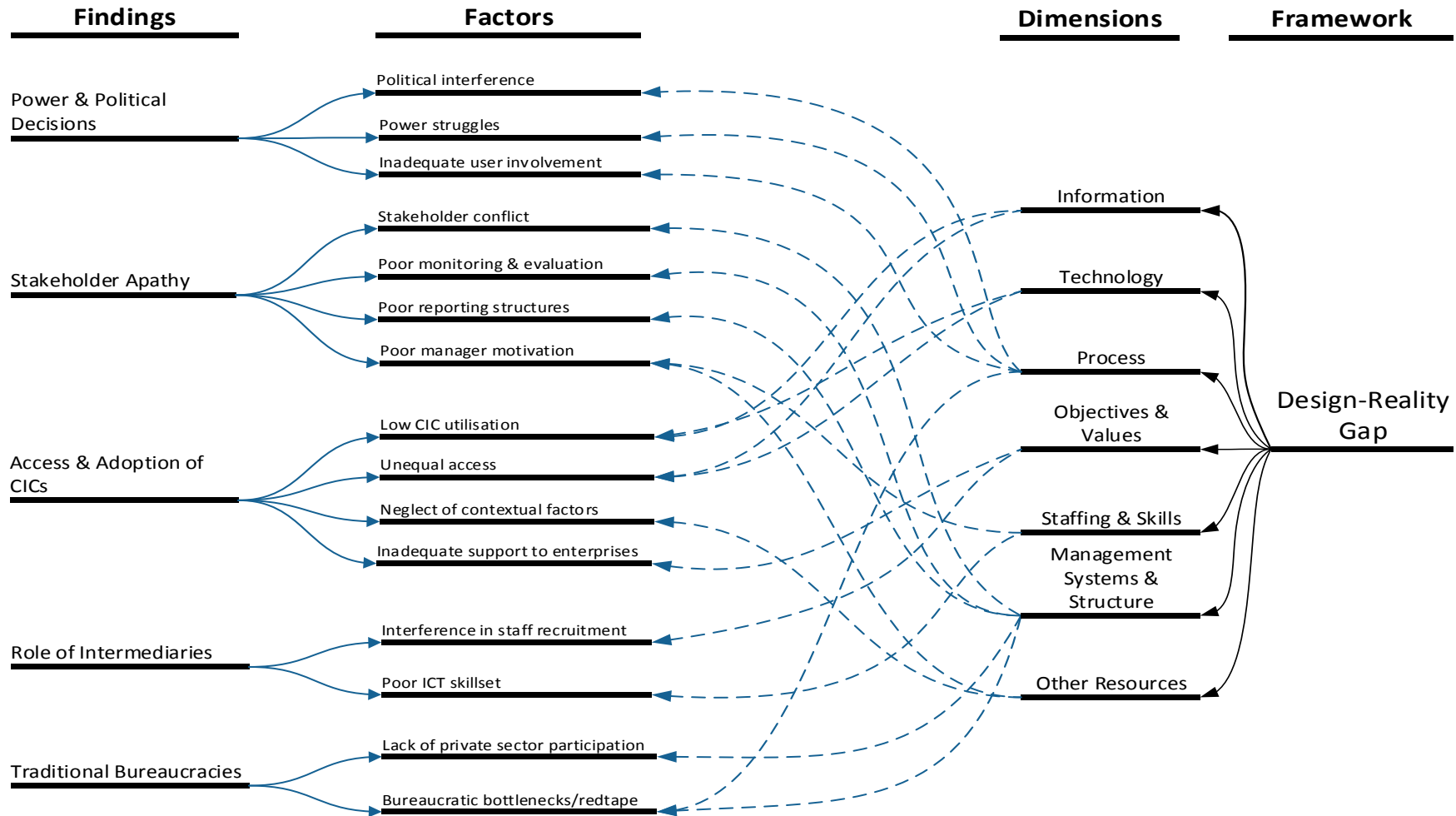


Figure 7.10: An illustration of the relationship between findings and theoretical framework (1 of 2)

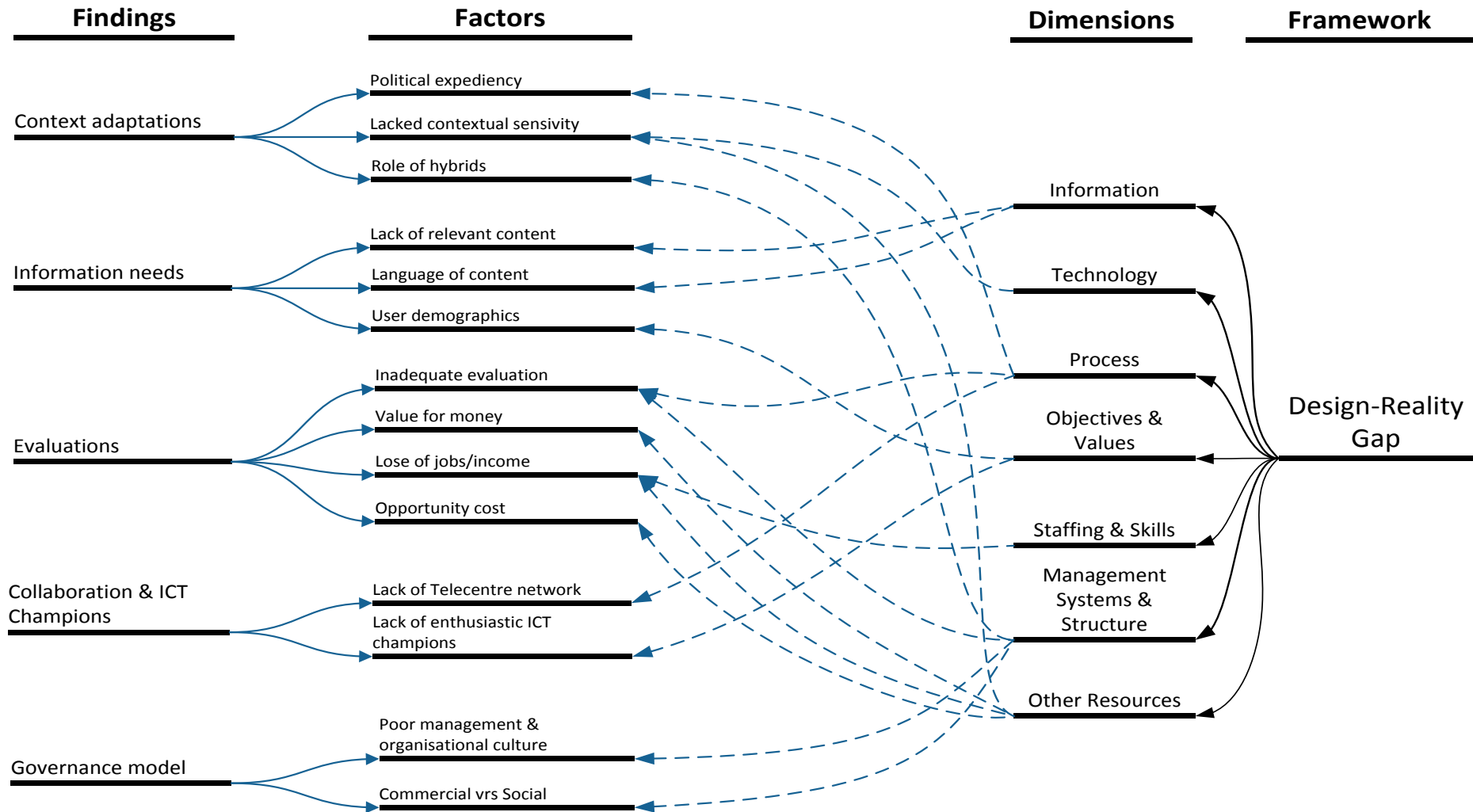


Figure 7.10: An illustration of the relationship between findings and theoretical framework (2 of 2)

7.2 Research Question Two

As stated in the earlier section of this chapter, the two research questions are closely related to one another. In the first instance, the objective was to determine the status of the CICs (with reference to success or failure). Having determined that they were virtually a failed system, the author wanted to further understand why the government was still establishing new centres when the evidence available indicates widespread failure. This enquiry lead to the second question: What is the rationale for the continuing establishment of CICs in Ghana? An attempt, therefore, was made in chapter six (**section 6.3**) through the support of the analytical lens of Postcolonial theory (PCT) to unravel this condition. Using PCT as a critical lens, a discussion of the results from the findings and analysis is presented. From the findings and analysis, the author observes colonial and cultural legacies which have influenced the implementation of the intervention. The discussion that follows presents evidence of some of these conditions.

7.2.1 Historical Perspective

Immediately after Ghana's independence in 1957, successive governments set out to close the "spatial inequalities inherited from the colonial era" (Yeboah, 2006, p. 51). This was evident in the first president's attempts to bridge the educational gap between the south and north of Ghana by providing free and compulsory basic education (1961 Education Act) (Kadingdi, 2006). Since then, other major interventions have been initiated to bridge disparities in development (for example the National Health Insurance Scheme (NHIS Act 650, 2003)). The CICs have been one such intervention as well. Historically, Ghana's government has a tradition of starting initiatives that later encounter sustainability complications in the long run (Witter & Adjei, 2007). In some instances, this has been as a result of lack of adequate funding mechanisms worked into the design of the project and so after initial funds have dwindled, projects begin to spiral into crises (Frimpong, Oluwoye & Crawford, 2003). Some are also initiated just to fulfil manifesto or campaign platform promises which later become an albatross on politicians and so they hurriedly put these projects together to showcase fulfilment of pledges (political expediency) (Lindberg, 2003). Here also, sustainability is not planned into the design. Similarly, some donors initiate projects which might not necessarily be in the interest of authorities, yet they accept them because of the additional benefits that might be gained from accepting such projects (Whitfield, 2005). For example, the implementation of certain programmes as a

precondition to accessing donor funds. Lastly, the initiation of projects to fulfil vested interests (e.g. corruption) of implementers and are therefore “inclined to tolerate projects, even when the trajectories of such projects are ambiguous and their outcomes uncertain” (Sandeep & Ravishankar, 2014, p. 701).

In the case of the CICs, they were handed over to the DAs who were to take custody and ensure their survival. The evidence from this study indicates that the revenue streams from the CICs were minimal and so could not usefully sustain the CICs on their own. It was also clear from the DAs that these projects were imposed on them which did not give them the opportunity to make input into their design. Although they were seen as developmental initiatives, the lack of participation had detrimental effects on their ownership and management. Coupled with the above is the fact that the DAs themselves had substantial funding gaps that placed a heavy burden on their budget and hence, the high likelihood of management not investing in the growth of an ‘ostensibly imposed project’. Reverting to the earlier discussion, this scenario fits in with the historical convention of political expediency and vested interest. Figure 7.11 depicts the various factors underpinning the historical perspective in relation to the dimensions of the PCT.

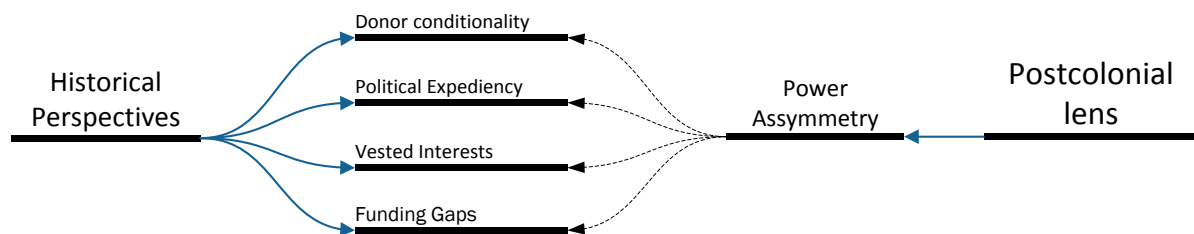


Figure 7.11: An illustration of the relationship between the historical perspective discussion and theoretical framework

7.2.2 Cultural Perspectives

Culture has become increasingly acknowledged as important in the introduction and use of ICTs (Kappos & Rivard, 2008; Walsham, 2002; Westrup et al, 2003). Therefore, understanding the role of culture is important to the study of ICT initiatives (Leidner & Kayworth, 2006). Although this is consistent with the general ICT literature, cultural perspectives in the implementation of Telecentres is conspicuously missing. This study highlights the importance of local culture in the design, implementation and use of ICTs

while denouncing the ideology of one-size-fits-all model of implementation. Culture determines the type of beliefs and values that may directly or indirectly affect the successful implementation, management, and sustainability of Telecentres. A highly structured cultural context is usually hierarchical, unequal and usually determines how senior leaders relate with subordinates, with implications for management. Ghana has a high-status difference that greatly affects the implementation and sustainability of projects. The author suggests that this condition was strongly influenced by Ghana's long colonial tradition. It reflects more of master-slave type relations. This was evident in this study context. There was a distance between employers and employees which created a strained relationship between them. For example, a laptop, a projector and other accessories were donated to one of the centres but these were appropriated by assembly officials although the centre manager needed these tools urgently for teaching purposes. The highly hierarchical and structured organisational practices made it very difficult for centre managers to contest management processes which were obviously detrimental to the growth of the centres for fear of reprimand or of losing their jobs. This is similar to findings reported by Leidner and Kayworth (2006) in which "subordinates were uncomfortable expressing disagreement with superiors or conveying bad news" (pg. 358). Similarly, 'clan based thinking'⁴⁹ ideology was also prominent in the findings. This was evident when political affiliation was either detrimental or influential in getting a job. Whereas an affiliation with a ruling party could get an individual a job as CIC manager, an association or perceived alliance with an opposition party was enough to lose one's job. In these instances, kinship takes precedence over qualification and competence, reminiscent of reports of post-independence Ghana (1957-1966) where political affiliation and ideology featured prominently in the promotion of public officers (Thompson, 1969).

Enduring systems of management of Assembly's has had a significant influence on the management of CICs. The standard practice of political interference has had lasting problems with the siting, recruitment (staff) and management of the CICs. This condition is consistent with reports of Barrett, Sahay and Walsham (2001) where political processes influenced the siting of Wells contrary to standardised methods used to select locations.

⁴⁹ Clan based thinking: condition where an individual or group is accorded preferential treatment due to family, societal or political bonds.

Another cultural legacy of colonialism is the English language. The official language of Ghana is English, however, over 70% of its population communicate using local dialects specific to geographical locations (Schuppan, 2009). The situation is even worse in rural communities such as in this study context where the local dialects were even higher than the national average, with the implication that a significant number of the population will not be served. Although a difficult concept to achieve, attaining universal access as claimed by implementers of pro-poor initiatives requires an additional effort to include marginalised groups. It is thus important that the design of ICT initiatives such as the CICs be culturally sensitive to the context of implementation (Erumban & De Jong, 2006). While the literature on Telecentre implementations and assessment is widespread, surprisingly little empirical data exists that systematically document the effect culture (of the context in which projects are sited) has on Telecentre initiatives. Antin (2006) wrote:

“Considering cultural factors as the hub of a holistic perspective can lead to more sustainable success. A culturally appropriate kiosk does not require that communities abandon deeply rooted, historically produced values and behaviors in favor of new, foreign, and unproven ones. Rather, it is designed with respect for the powerful sociocultural traditions embodied in existing beliefs and practices, and integrates itself with them as a means to lasting change.”
(p.176)

Walsham (2002) suggests that successful implementation of information systems would benefit from the “need to take culture seriously” (p.227). As Tedre et al. (2006, p.128) uphold, “[t]echnological systems are socially produced, and social production is culturally informed”. The findings of the thesis suggest that this was not taken seriously, hence, contributing to the collapse of the project besides other barriers. The author is not, however, oblivious that national cultural identities are constantly shifting (Westrup et al., 2003). Therefore, the assumption that most ICT initiatives fail primarily because they are embedded within Western milieus is not always the case. Figure 7.12 indicates the cultural elements that affected the sustainability of the CIC initiative in relation to the PCT.

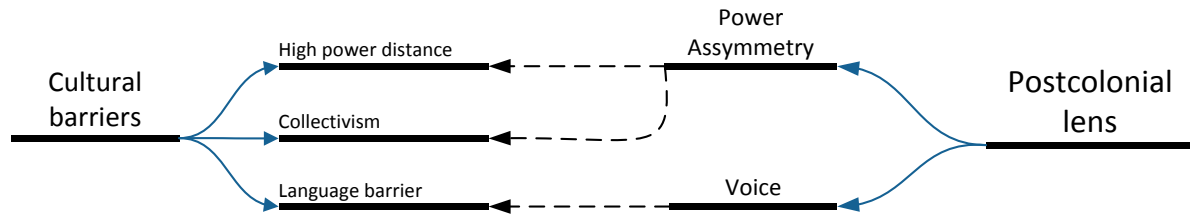


Figure 7.12: An illustration of the relationship between the cultural barriers discussion and theoretical framework

7.2.3 Inadequate User Participation

According to implementing officials, an opportunity for effective participation is directly linked to educational background, because school leavers understand the benefits of ICTs and the ability to use them. Hence, they can effectively participate in their use and consequently, the design process. This can be interpreted to mean that since villagers or the poor majority was uneducated the decision of participation was taken out of their hands. The assumption and thinking of the implementers can be associated with the actions of colonial authority (as observed in the evidence adduced in the analysis) who imposed chiefs on communities without necessarily trying to understand the community dynamics in electing chiefs. The fact that a user is illiterate does not imply that he/she has no information needs. The ideology behind the initiative was to ensure that the facility was utilised to further the developmental goals. With this outlook from implementers, the author posits that the project had failed even before it was actualised. Furthermore, this attitude of government officials was seen as a form of 'othering' as described by Bailur (2008) where the needs of marginalised voices are mediated through officials who assume (or make up) the needs for the underserved community. Findings indicate that the 'centre' imposed the CICs on the 'periphery' thereby deepening the 'othering' process. Community members were disengaged from the project since they were hardly involved, and hence its non-performance. The district assemblies in an attempt to exist in the eyes of the 'Other', neglected to question the intentions of the imposition. The impression of participation where district assemblies were to indicate where the centres were to be sited gave a false illusion of participation similar to that described by William (2004). Consistent with colonial establishment of infrastructure close to the seat of government, this study revealed that all the centres were established a few metres from the district assemblies. This finding corresponds to Telecentre literature emanating from some developing countries (DC). The

evidence from this literature indicates that the proximity of the facility to officialdom usually hindered its usage. In an earlier study of CICs in southern Ghana, Awotwi and Owusu (2010) discovered that close location of the centre to the district assemblies impacted negatively on the patronage of the centre and contributed to the failure of the centres studied. Findings of this study supports this assertion. The diagram (Figure 7.13) illustrates the link between factors affecting user participation and framework.

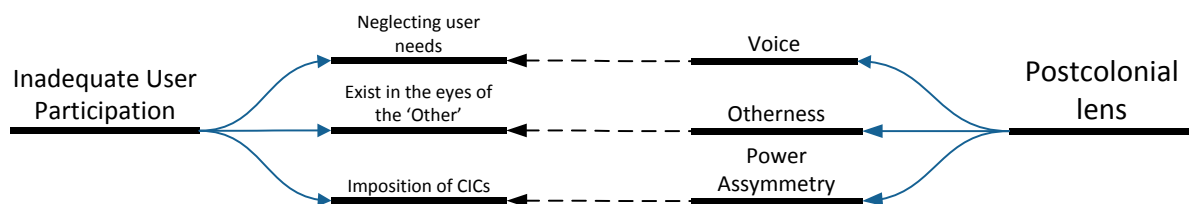


Figure 7.13: An illustration of the relationship between the user participation discussion and theoretical framework

7.2.4 Managerial Structure and Authority

The findings also revealed that most centres had managers who were appointed through nepotism. As a result, this often led to resistance and personality clashes between managers and assembly staff because the lines of authority were not clear. While the allegiance of the centre manager was with the political head who influenced his/her employment, officials treated such individuals with hostility. This is reminiscent of the age-old issues of political interferences which predate the establishment of CICs (Acemoglu, Reed & Robinson, 2013). In this study context, this friction played a significant role in the closure of some centres. This is similar to situations described by Acemoglu (2014) where in the colonial dispensation, citizens refused to cooperate with proxy chiefs whose allegiance was to the colonial authority. Under those conditions, the chief became a figurehead and was not able to perform his role as community head. Similarly, centre managers' efforts were frustrated with requisitions for supplies delayed or denied, requests for in-services training opportunities declined while managers conversely took advantage of the challenge to appropriate revenue as they deemed fit instead of accounting to supervising officials.

Managers and owners of the CICs were involved mostly in 'othering' the subaltern (underprivileged rural folk). Whereas most managers and Assembly officials complained that CIC users were dwindling by the day, they took very little steps to ensure that this was curtailed. First, most of the users interviewed indicated that they discovered the centre by

chance or through friends who had used the centres before. Awareness creation was therefore minimal. Second, those who found their way there to use the system were not encouraged to keep coming (due to the lack of useful information and poor service quality). If the underprivileged and underserved who were meant to reap the benefits of the CICs do not know they existed, how then were they going to have access to, use and then leverage its full potential? The indifferent mindset of managers and officials alike was instrumental in the deteriorating conditions that engulfed centres. There was a sense of defused responsibility on the part of both actors towards the welfare of CICs and its users. In this instance, both actors blamed each other while centres collapsed. The lack of supervision implied a passive posture towards management as observed in chapter six.

As Bailur (2008) points out, the introduction of ICTs is given as an example of progress and modernity over tradition. The fact that rural folk have to 'catch up with' urban dwellers implies that the status quo is not acceptable and must be eliminated in order to usher in a new world order which is better with ICTs. To achieve this end, it requires an understanding of the needs of all those at the periphery. This is akin to the Orientalist mentality espoused by Said (1978). As a country, Ghana is determined to join the economic revolution implying there are those countries 'below' and those 'above'. Ghana finds itself below and wants to ensure that it joins those above. It is interesting to note that the GIFEC official and by extension GIFEC as an institution revel in the award given by an external institution (seeking acceptance in the eyes of the Other). We must, however, ask whether this reflects the situation especially in the case of CICs. Is the recognition by the 'Other' greater than the benefit that the subordinate 'other' gets from these projects? At least, in this study the evidence points to the fact these communities were not getting value for money since the majority of centres investigated had recently closed. The diagram (Figure 7.14) illustrates the link between factors affecting managerial perspective and the framework.

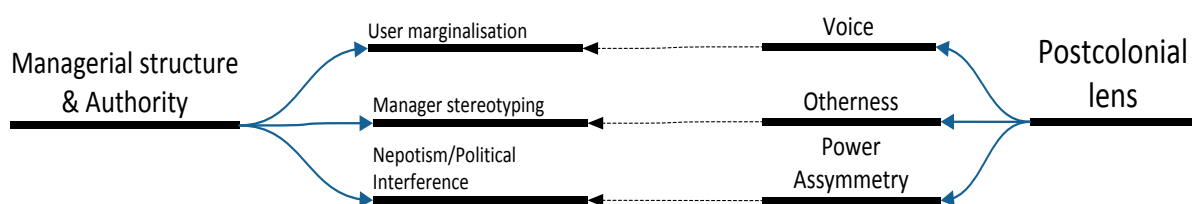


Figure 7.14: An illustration of the relationship between the managerial perspective discussion and theoretical framework

7.2.5 Stakeholder Agency

It was not immediately clear how users appropriated the imposed system to their benefit. However, the little evidence available indicates that few users benefited from the friendships developed with other users of the facility which yielded some fruits outside of the domain of the facility. One such benefit was described by an interviewee who mentioned that received a reference from an acquaintance at the centre which helped to get him an interview opportunity with an NGO that needed research assistants for an impending research project. Similarly, there was a report of a user applying and winning a US Green Card. Women's group used the CIC as a convenient meeting space instead of sitting under trees. These were a few instances of user agency being fulfilled. What is, however, clear is that the mismanagement of the centres and their consequent failure led to the deprivation of potentially broader and far reaching user agency such as the ability to participate in local governance. In a high structured establishment, it was difficult for users and managers to achieve any meaningful form of agency. For instance, although some managers realised that the management style of their superiors were inimical to the growth of the centre (i.e. delay in the release of requisitioned stationery, replacement parts or accessories), they could not take any initiatives because of the bureaucratic environment in which the system operated. Figure 7.15 illustrates the link between factors affecting stakeholder agency and theoretical framework.



Figure 7.15: An illustration of the relationship between the agency discussion and theoretical framework

The following diagram (Figure 7.16) gives an overall depiction of the main themes in the discussion while showing their individual relationship in the light of the postcolonial theoretical framework. Similar to figure 7.10, this diagram also has four main features; findings, factors, dimensions and theory. The findings section illustrates the main themes discussed in this section. Each of these is then mapped to the various subthemes (Factors) that represented the main theme. In essence, this diagram depicts a mapping process in which the discussion is presented by demonstrating how literature is linked to the findings

and analysis. This in turn is linked to the respective theoretical concepts (Dimensions) and subsequently to the theoretical framework (Postcolonial Theory).

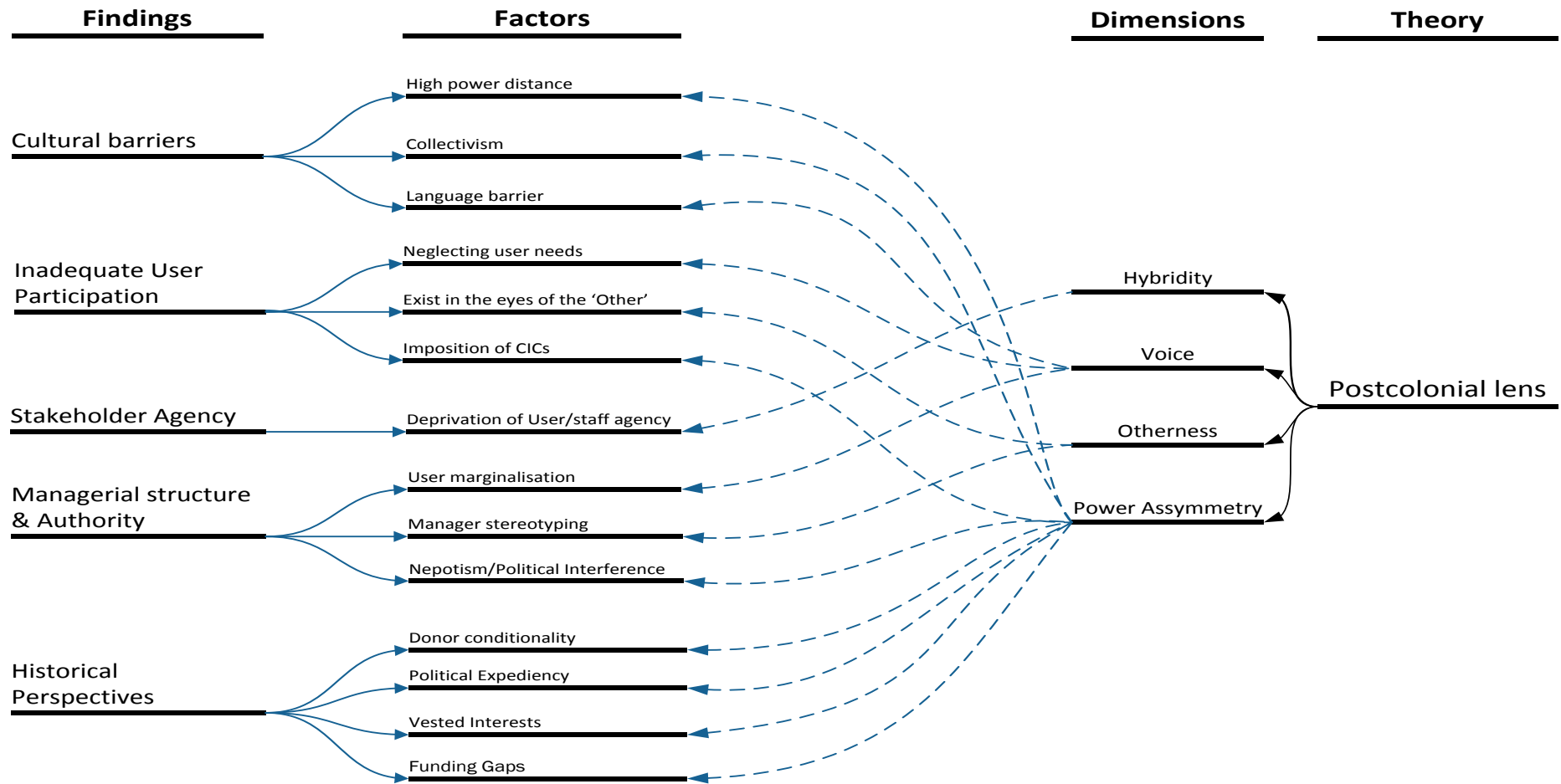


Figure 7.16: An illustration of how findings are related to the theoretical framework.

Through the combination of the two theoretical frameworks (DRG and PCT), each used to analyse a research question, the status of the implementation of Telecentres in Ghana and their consequent setbacks have been brought to light. The insightful revelations of the causal factors for the non-performance of the CICs coupled with the underlying historical, cultural and institutional logics underpinning continuity efforts offers researchers and policymakers' lessons in support of future implementations. The author states that the CICs of Ghana were a failed project necessitated by the concerns discussed above. To forestall the occurrence of failure or to rejuvenate barely surviving centres, urgent steps (by government and management) have to be taken. Alternate methods have to be devised to arrest these poor standards. In the next chapter, the author makes some proposals that might be useful in the design of new projects, as well as to help steer failing projects to success. Also, an alternative evaluation method is proposed to complement the efforts of management in the assessment of CICs without the support of experts and to ensure that scarce resources invested in the CICs benefit the wider community.

CHAPTER EIGHT - IMPLICATIONS FOR RESEARCH AND PRACTICE

8 INTRODUCTION

The analysis and discussion chapters drew our attention to the complex interrelationships arising out of the implementation of ICT4D initiatives in Ghana. These complex context-dependent relationships between human and technological artefacts were identified to have significantly influenced the failure of the CIC initiative in the study context. These discoveries, therefore, have implications for future research and practice in Ghana. The purpose of this chapter is twofold: First, the findings, analysis and the discussions have highlighted rich insights into the Telecentre phenomenon especially in the Ghanaian context. Additionally, the contribution of the theoretical framework made the investigation more robust and systematic in unearthing fundamental concerns that constrain or enable sustainability of the CICs in this case. The DRG framework shed light on the links and influence of constructs/dimensions on the implementation of CICs in Ghana by exploring each construct individually while illustrating the dynamic relations that existed amongst dimensions. The author suggests that the neglect of Soft constructs⁵⁰ (i.e. politics, government, culture, stakeholders) played a crucial role in the unsustainability of Telecentres in the study context. The findings notwithstanding, the DRG framework could not adequately explain the rationale for the perpetuation of the CICs, hence, the application of the PCT to unpack this perspective. The in-depth complementary analysis led to the emergence of results that influenced the use of a proposed alternative analytical framework based on the DRG (presented in **section 8.1**).

Second, from prior studies, it is noted that evaluators should possess an appreciable level of expertise (i.e. methodological approaches, interviewing, community entry, critical thinking, reporting and analytical skills) which are necessary to facilitate their evaluation endeavour. However, comprehensive evaluations by researchers are often elaborate, cost money and take time to complete. In a context where resources are limited, it is prudent to find alternative approaches to achieving the same evaluation goals but with limited resources. The outcome of the practical case study in this research was used to propose a prediction

⁵⁰ Soft constructs: denote all constraining factors other than 'hard technology' such as IT infrastructure, equipment and accommodation. Some of these soft construct may include empowerment, social capital, self-esteem, social cohesion, emotions, culture and politics (See Ayoung, Abbott and Kashefi, 2015).

model that is intended to determine failure or success of a Telecentre before it occurs and which is designed to be used by managers and other stakeholders who do not necessarily possess evaluation expertise (presented in **section 8.2**).

8.1 Implication for Research/Theory

Regarding implications for research, i.e. ICT4D assessments, this study in-line with current research, supports the tenuous relationship between ICTs and development (World Bank, 2012; Akpan, 2003). However, this study took a step further and contributed to the literature by going beyond economic indicators to label initiatives as success or failure to investigate and understand the complex context-dependent relationships between human and technological artefacts. This approach and in-depth inter-relational analysis can help point our attention to relevant but overlooked elements instrumental in the success or failure of ICT4D projects.

The thesis proposes the use of an alternative framework based primarily on the DRG for analysing and evaluating Telecentres in this and similar contexts. This alternative analytical framework incorporates the significant components that emerged from the data analysis which the DRG framework does not currently consider. These important elements were found to be pertinent to the holistic understanding of the CIC phenomenon. While the proposed model borrows key constructs from the original DRG framework, it extends and adds new constructs as well as modifies some of the existing ones according to the findings of the study context. By using the complementary strength of a well-established critical theory (PCT) to analyse “taken-for-granted assumptions” with the aim to expose “deep-seated, structural contradictions within social systems” which influence the failure of a socio-technical phenomenon like the CICs (Orlikowski & Baroudi, 1991, p. 6), we are provided with insightful constructs which may prove to be interesting and significant additions to the alternative framework. As elaborated in previous chapters, this study was not just “content to predict or explain the status quo” (Orlikowski & Baroudi 1991, p.19) but to explore the plausibility of changing the “material and social circumstances [...] constrained by prevailing systems of economic, political, and cultural authority” (Klein & Myers, 2011, p. 19).

In the following illustration, the author demonstrates the proposed model and explains the suggested enhancements. The suggested improvements (shown in Figure 8.1) made to the

original DRG and based on the findings of the case study analysis, are explained in the following subsections. The double edged arrows linking the various dimensions indicate that there is a reciprocal relationship between dimensions and advance the idea that they affect each other.

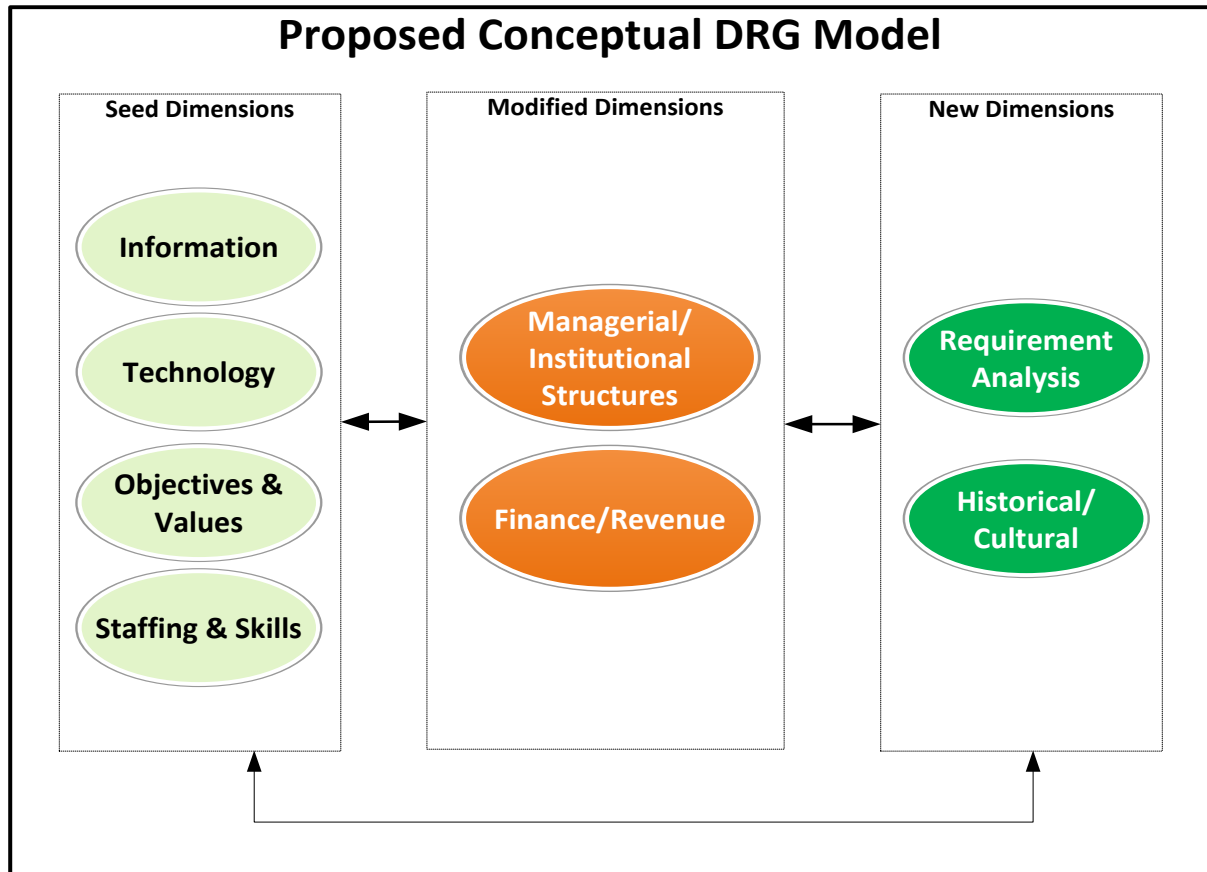


Figure 8.1: The Proposed Enhanced Model for identifying DRGs

8.1.1 Management/Institutional Structures Dimension

Management and organisational values inscribed into the design of systems should take into consideration the already existing values prevailing in the institutions so as not to cause radical changes which might instigate resistance by officials who will be implementing the new system. The innovation needs to become necessarily fused with organisational practices to guarantee the realisation of intended objectives. This dimension also considers the work, managerial and institutional processes necessary for successful implementation of the project. When there is a mismatch between designer inscribed processes and that of context reality, there is the likelihood of conflicts that may affect the efficient execution of processes. Local government and institutional politics may be a deterring factor to the

effective execution of the ICT project. Often, politicians hijack such initiatives to their benefit for various political reasons and often influence the selection of the location of centres or staff who may not necessarily be the most qualified for the job. For fear of political repercussions for the management of the projects (in the Ghanaian instance where MCEs are by political appointment) who might resist the machination of politicians, unqualified party sympathisers are imposed on projects. This may also affect the reporting structures already in place because imposed staff may have allegiance to an external authority rather than to immediate superiors. The ensuing mismatch or disharmony in the lines of authority usually affects the smooth implementation of the project.

8.1.2 Finance/Revenue Dimension

Gaps will most likely arise along the line of funding and income generation in support of sustainability efforts for established facilities. As an important component of the viability of the system, the inscription of objectives and goals of the innovation should take into account essential negotiations which safeguard the “required financial and knowledge resources, and political commitment” (Avgerou, 2008). Moreover, a guaranteed sustained support for initiatives irrespective of returns on investment is essential (i.e. regarding revenue generated from the use of centres). For instance, in the case of this study, the findings indicate that assemblies were indifferent to the financial needs of centres. Hence, some facilities could not even fix basic hardware problems resulting from wear and tear. The lack of resources to put centres into proper working conditions was also blamed on the low revenue generated from centres. Similarly, the untimely and inadequate disbursement of funds to assemblies (resulting in financing deficits) (Abbey, Azeem & Kuupiel, 2010) meant that budgeting of the available resources was skewed towards projects perceived more ‘important’ than others such as the CICs. As social interventions established in poor communities, designers have to appreciate that revenues may be low because of cost implications for accessing services. Accordingly, the governance model inscribed at the design stage should include and encourage financial sustainability.

8.1.3 Requirement Analysis Dimension

Haikin and Duncombe (2013) suggest that the level of participation of beneficiaries in the design and implementation of a given project determines the success/failure of that initiative. Irrespective of this assertion, Heeks (1999) cautions that mere participation in the

design of systems can be superficial, thus rather widening existing unequal power relations instead of closing the gap. The kind of participation proposed by this thesis is that of participation where potentials users are involved in inscribing into the system the ability to adequately serve their information needs. This way, content can be targeted specifically at user needs rather than general needs which might not serve the interest of the immediate community of users. This study observed that this was a vital factor in the collapse of the projects in Ghana because they did not meet the information needs of a large proportion of users. Designers and implementers neglected to involve users but rather proceeded to inscribe designer induced user requirements for the system. Ultimately, users were dissatisfied with services and patronage declined.

8.1.4 Historical/Cultural Dimension

This study shares the belief that “knowledge is grounded in social and historical practices” (Chua, 1986, p.620). The beliefs and practices of a community are rooted in their historical antecedents which are also reflected in the decisions and policies made with regards to the implementation of initiatives and how these initiatives are governed. To thoroughly understand the underlying reasons for the failure or success of an intervention such as the CIC, the researcher must fundamentally interrogate the historical and cultural background of the receiving community so as to better appreciate the elements that may inhibit or engender the achievement of the goals of the intervention. Therefore, local cultural values should be deliberately inscribed into the design of systems to guarantee the appreciation of its value (system values) by recipients. For instance, through the analysis, we appreciate that Ghana’s postcolonial past has left in its wake colonial legacies which have permeated the course of history till the present. In other words, path dependency influenced by our long colonial background forges most of the decisions still being made today. Hence, when designing or creating protocols for management, policy makers and designers should acknowledge this sensitive cultural environment to make room for the hierarchical, unequal, and highly structured management levels which reflects more of a master-slave relationship type. A mismatch, therefore, in the design and the reality (historical and cultural milieu) of the context of deployment may lead to unsustainability as seen in this case.

8.1.5 A Processual Approach to DRG Determination

The practicality of the above framework has been illustrated by drawing on the empirical case study of the CIC in Ghana in this research. The diagrammatic form of the alternative framework uses arrows to show the relationships between the various dimensions. It should be noted that these relationships are not simple cause-effect relationships but rather interrelationships that are influenced by a wide range of contextual factors. While these dimensions have been used to analyse and determine gaps in ICT4D initiatives in past studies, their interrelated linkage and the way these factors influence one another to shape the outcome of an implemented Telecentre project, has received little attention. Accordingly, this thesis advances and contributes to the framework by highlighting the relationships amongst the dimensions. It expands the original DRG framework beyond a factor approach to assessment to include a relational analysis thereby showing the sequence of impact each dimension has on the overall evaluation. The following diagram (Figure 8.2), illustrates the relationship that exists between dimensions and how these interactions shape the outcome of the CIC initiative. The interaction could be one of the reciprocal relationships where interacting dimensions affect or are affected by one another with various outcomes or a unidirectional interaction where one dimension affects another.

In the table following (Table 8.2), the labelling scheme used in the figure 8.1 is described. The labels with double-edged arrows indicate a reciprocal relationship/interaction while those with a dashed single arrowhead represent a unidirectional relationship/interaction. These descriptions are based on the findings of the study in this study context and do not reflect a generalisation of the findings. However, the findings would be insightful and significant to studies in similar context.

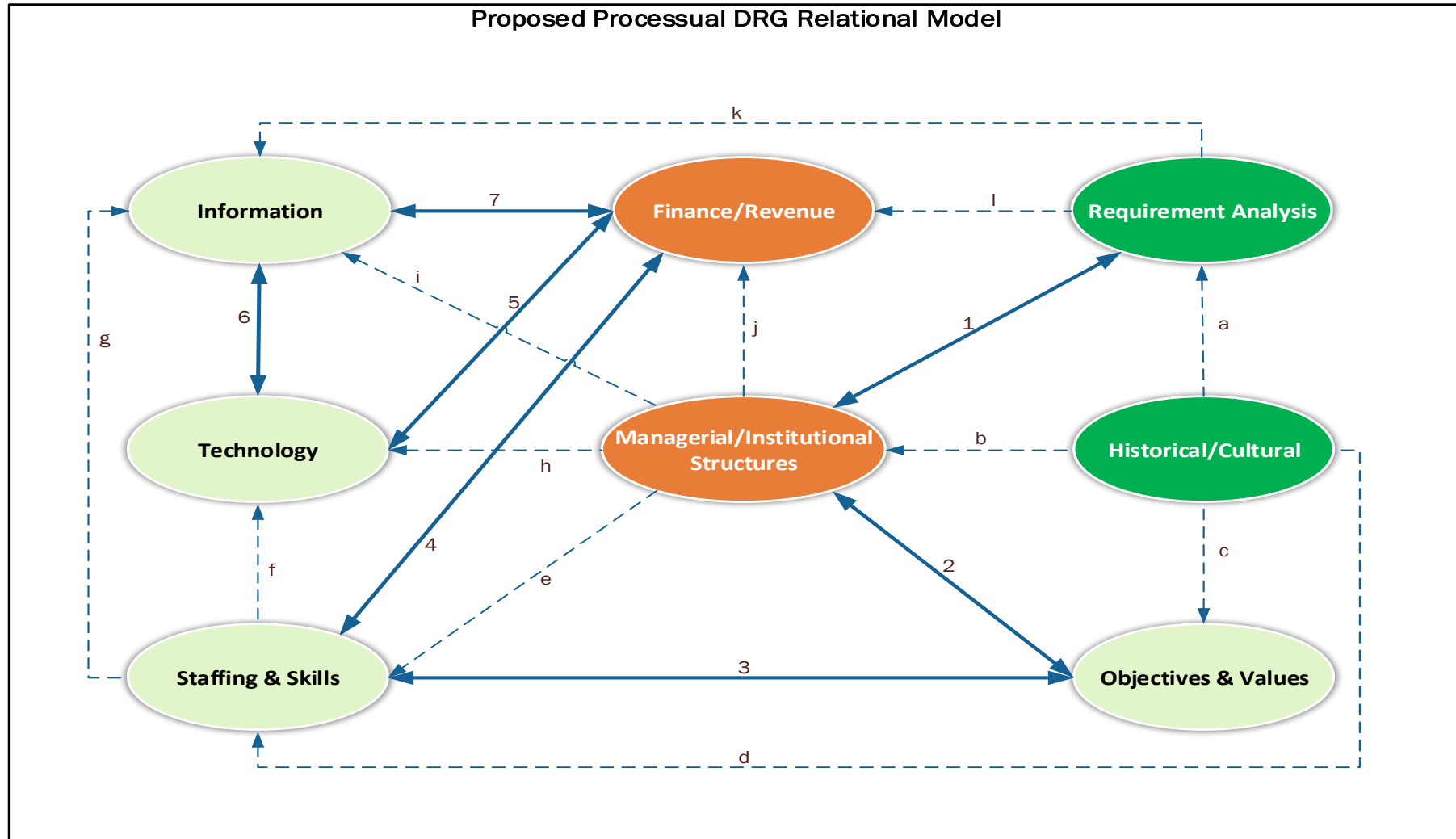


Figure 8.2 An illustration of the interaction and relationships that exist between dimensions

Table 8.1: A description of the labelled interaction of dimensions

Relational Labels	Description	Example from the study
The section below shows a reciprocal (bidirectional) relationship between the various dimensions depicted by the solid double arrow heads (←————→)		
1	In most projects in developing countries, requirements gathering and analysis is an afterthought when implementers realise that user needs have not been realised and projects fail. To salvage a failing system, management needs to re-evaluate the initiative to capture user requirements and rework requirements into the system. Failing this, the system becomes unsustainable.	As was discovered in this study, user requirements were not satisfactorily factored into the design of the system neither has there been a re-evaluation of user needs to account for this mishap. It is, therefore, not surprising that the system is failing to achieve its mandate.
2	The managerial/institutional structure ensures that objectives and values are enforced to ensure that the goals of the project are achieved. However, if dominant actors of the project alter the objectives and values of the project, management processes might be altered to fit the change. Invariably, falling far from the objectives or values of the project might lead to unforeseen and unaccounted for outcomes.	The original CIC values were altered to fit political values of incumbent political officials who influenced the location centres and the appointment of managers. The direct result was non-use because of poor location and poor management.
3	The objective of the projects is to provide users with relevant information, provide training, offer value added services, etc. to users. This requires adequately trained staff to fulfil objective. In the absence of qualified individuals, objectives are threatened and goals not achieved.	As a result of the high staff attrition rate, most managers were not adequately skilled in handling complex user needs. There were instances where trained staff quit joining well-paying organisations. New managers had to be trained all over again.
4	There is a reciprocal relationship between finance/revenue and staffing/skills dimensions. Skilled staff offer excellent services to clients who will keep coming to use resources and consequently increase income and impart knowledge. Similarly, adequate remuneration of staff keeps them motivated to give off their best to the survival of the CIC. Innovative staff have the capacity to take initiative in response to changing needs of clients' especially packaging content of relevance to clients.	In reality, most managers were demotivated because they were kept as casual staff and paid occasionally with the promise of being absorbed as mainstream staff. In most cases this never happened.
5	The available of adequate financial resource to the CIC means all equipment are made available while worn out ones are replaced or repaired. It also implies that users can benefit from the full range of ICT facilities which subsequently means more income to the centre.	There was clear evidence to show that all centres investigated were under-resourced and lacked the very basic facilities that they promised to offer e.g. photocopiers, printers, fax, computers, projectors, etc.
6	The availability of relevant information without	In the case of this study, most centres were

	upgrade their skills is essential.	
f	Skilled staff should have a significant level of appreciation of hardware and software troubleshooting skills to manage the CIC adequately without seeking external help. This way, basic problems can be tackled immediately for users to access services at the facility.	The evidence from this study showed that some managers had no troubleshooting knowledge and often had to wait for external help in most cases to solve technical problems.
g	The staffing/skill dimension has a direct relationship with information dimension. Content has been cited to be a major obstacle to the sustainability of centres. Skilled staff will, therefore, be able to fill that gap if they are innovative enough to take user needs into consideration and package relevant information into formats that can be accessible to users.	The content creation skills gap of managers hindered their ability to pre-empt the information needs of users and to tailor content towards these needs. This often led to dissatisfied users.
h	It is the duty of the owners of the CIC to ensure that the ongoing technological needs of the CIC are provided. Repairs or replacement of aging equipment is the obligation of management but when this is ignored it affects the CIC.	Most centres did not receive adequate support from management regarding maintenance of CIC equipment.
i	Similar to relationship 'j', it was the responsibility of the respective assembly to monitor its CIC to ensure that the information needs of clients are met. If lapses are observed, then steps are taken to mitigate them especially in the case of content generation to meet local needs and language barrier of the community.	There was lack of monitoring of activities of centre managers and facilities in general. It was common to find that some Chief Executives did not know the state of facilities.
j	The institutional and managerial structure has a significant influence on how the CIC are managed financially.	In the case of this study, it was the direct responsibility of the DA to ensure that its annual budget captured its CIC. Therefore, when it failed to exhibit sound financial management practices, the CIC suffered.
k	User needs assessment is a prerequisite to information needs identification and user acceptance.	However, when this was neglected, the result was unmet information needs.
l	Similar to relationship 'k', the lack of relevant information for users in support of their daily endeavour means they will no longer have a need for centre thus a reduced patronage of centre and a subsequent loss of revenue.	In reality, reduced patronage led to the closure of most of the centres in the study context.

8.1.6 Operationalising the Proposed Framework

The proposed framework is an extension of the DRG framework. The assumption is that the same process used to evaluate the various dimensions (as described in **section 3.3**) would apply to this extended framework. It is designed to reflect the context of developing countries and hinged on the assumptions of the DRG framework from where it draws its origins: gaps exist for all ICT4D projects between the design assumptions/requirements and implementation reality. The wider the gap, the greater the likelihood of failure and vice versa. The Historical/Cultural dimension is used to illustrate how the proposed framework can be used by future researchers to evaluate ICT projects in a similar context (in conjunction with the descriptions indicated on **Table 8.1**).

Historical/Cultural dimension: from this thesis, it has been demonstrated that the historical and cultural background of the context of implementation greatly influenced the implementation of the CIC project and negatively affected its sustainability. For instance, one of the CICs was determined that in a predominantly Islamic community. Through the interviews, it was established that most female community members were not comfortable using the centre because no separate sections for them to access ICT facilities in a public space. Culturally, when Muslim women (especially married women) are in public spaces, they are usually separated from their male counterparts. This, therefore, hindered the efficient use of this facility by such individuals.

Another cultural problem in the study context was language. Although Ghana's official language is English (written and spoken), in actuality, it is the second or sometimes the third language to most individuals. The cultural setting was also one that did not encourage girl child education until recently and even so very few families send their children to school. As such, a substantial portion of the population is largely uneducated. The trend then emerges where most of these women get married to men who were mostly uneducated who are most likely not going to encourage their children to be educated, thus, perpetuating the cycle. The implication, therefore, is that most constituents of the CICs were worse off since the content was in English. This has a serious implication on access to these facilities. These obvious gaps create a huge design-reality mismatch. In this scenario, this dimension could have been awarded a score anywhere between 0 – 3 on the 10 point scale.

If design inscriptions had been culturally sensitive, designers would have been informed of the conditions in the community. Adequate provisions would have been made to provide separate sections or different time slots for the different gender. However, the best solution would be to provide separate sections. This is so because, in the same community, women are not allowed to leave the house without guardians. Separate sections would mean that guardians could be

encouraged to use the male section instead of idling outside the facility. Thus, inadvertently increasing the patronage of the facility and increasing revenues. Similarly, content could be designed to capture the needs of the predominantly illiterate community.

8.2 Implication for Practice

From the literature, it is clear that failure rates of ICT4D interventions in DCs are relatively high. It is also apparent from the Telecentre discourse that urgent measures have to be put in place to assure beneficiaries of pro-poor initiatives that these investments will pass value for money audits and achieve developmental goals. Through this study, the author has determined (through the DRG framework) that the CIC project in Ghana is a failing project. It was also observed that although there have been reported closure of centres especially in the study context, the government of Ghana is still scaling the project. The continuing proliferation of underperforming CICs has left in its wake a series of closed centres nationwide although a few have survived. In the search for answers for the rationale underpinning the reasoning for the perpetuation of this failing ICT4D model, the author turned to critical studies (through the lens of PCT) and adduced reasons for such actions. The above notwithstanding, the problematic issue of failure persists although the underlying causes of this current condition in the study context are now evident through this research. Based on data from both successful and failed centres, this thesis proposes a technique that can be used to predict success/failure of centres. This is possible through the combination of two approaches (ICT4D evaluation and Machine Learning⁵¹) to predict the likelihood of success/failure of a Telecentre. This gives a refreshing indication suggesting that it may be feasible to use Case-Based Reasoning (CBR)⁵² to evaluate ICT initiatives and to predict an outcome of an initiative. Through this mechanism, it would be possible for managers and

⁵¹ "Machine learning is the study of computational methods for improving performance by mechanizing the acquisition of knowledge from experience. Expert performance requires much domain specific knowledge, and knowledge engineering has produced hundreds of AI expert systems that are now used regularly in industry. Machine learning aims to provide increasing levels of automation in the knowledge engineering process, replacing much time-consuming human activity with automatic techniques that improve accuracy or efficiency by discovering and exploiting regularities in training data. The ultimate test of machine learning is its ability to produce systems that are used regularly in industry, education, and elsewhere". (see Langley and Simon, 1995, p. 1)

⁵² Case-based reasoning is an approach to problem solving and learning based on the adaptation of solutions of similar past problems. (see Aamodt & Plaza, 1994)

owners of Telecentres to pre-empt an outcome and have the advantage to take mitigating steps in order to reduce failure. This provides managers with an opportunity to take remedial action for sustainability. The following section describes the proposed approach.

8.2.1 Proposed Evaluation Method

Various methods have been proposed to evaluate IT projects. However, very few of these methods have been used to predict Telecentre success/failure. Effectively using these methodologies to evaluate Telecentres for success or failure takes a significant level of expertise, time and resources. The use of interviews requires skill, tact and patience to execute. Similarly, the time frame and resources at the disposal of the researcher also influence the depth of the research and evaluation outcome. However, in most instances managers or owners of Telecentre facilities do not possess these capabilities in-house. Consequently, evaluations become an afterthought when systems have failed to achieve intended goals.

The proposed method combines two approaches by applying the well-established Case-Based Reasoning (CBR) methodology on real life dataset to predict the likelihood of success/failure of a Telecentre at predetermined intervals, with minimal effort and expertise. The objective is to predict failure or success of a given Telecentre long before it happens. Through this mechanism, it is possible for managers and owners of Telecentres to pre-empt an outcome and have the advantage to take mitigating steps against failure.

The problem of predicting Telecentre success or failure would be a typical example where CBR strategy for problem-solving can be utilised (Aamodt and Plaza, 1994). CBR is the process of solving new problems based on the solutions of similar past problems. The fundamental principle of CBR is as follows: when a new 'X' score for a project is required, the most similar past projects are selected to predict the 'X' score of the new project by utilising a similarity measure. Using the information from the case study under investigation and the results of the DRG assessment of centres in the research context, this approach was tested with real data. The result (as presented in Ayoung, Sigweni & Abbott, 2015⁵³) was very encouraging and demonstrated that it is possible to use CBR to predict the DRG score for a Telecentre, consequently, predicting the success/failure of Telecentres. This approach

⁵³ The proposed method was tested with real life data using nineteen features to predict the DRG score of Telecentres in the study context with the objective of predicting failure or success.

has advantages that inure to the benefit of evaluation studies. For instance, features of a new case are relatively easy to obtain. Therefore, the evaluator need not be an expert to be able to use this method, enabling anyone to predict to some degree the sustainability of a particular Telecentre. It is therefore suggested that CBR estimation should become standard practice within ICT4D sector when dealing with estimations and where experts are not readily available (or might be expensive to engage) to conduct extensive evaluations.

8.3 Reflections on Telecentre Evaluations

The core of this study was the determination of the best approach possible to evaluate effectively ICT4D projects (particularly Telecentres) with a specific focus on determining the sustainability of initiatives. The need for the evaluation of ICT initiatives especially those implemented in DCs is critical. From the literature review, the author reviewed studies that report on several approaches to evaluations. The review accounts for studies that focused on the evaluation of the impact of initiatives with a concentration on the socio-economic benefits of projects (Soriano, 2007; Ariyabandu, 2009). Most of these studies have reported widespread failure with regards to implementations of the initiatives (Harris, 2015; Qureshi, 2015) with some reporting limited impact (Kumar and Best, 2006; Baron and Gomez, 2013). It is particularly important to assess implemented projects because of the cost implications, the opportunity cost for such projects and as a justification for continuity or closure of centres (OECD, 2003a; Heeks, 2009; Colle, 2008).

In the literature review, the author discusses the pertinent issues of ‘who, when and what’ to evaluate (**chapter two, section 2.6**). These three concerns have a significant influence on the success/failure of any given initiative. This study identifies an inadequacy on these three concerns. For example, it was observed from the findings that very little by way of evaluation of the CIC project was publicly available. There was only one published study which investigated Telecentres in the southern part of Ghana (Awotwi and Owusu, 2010) and reported poor performance of those studied. Ghana like most developing countries is beset with huge internal and external debt (Kim, 2015) coupled with a huge proportion of its population living under the poverty threshold and unemployed (GSS, 2015). It is, therefore, imperative that the available resources be put to good use to the benefit citizens. The non-performance of these expensive ventures calls into question the prudence of such initiatives and the “high opportunity costs of investment in IT projects” (Avgerou, 2008,

p.137). Similarly, closure of centres means the loss of income to staff who would otherwise have been successfully employed. For instance, at the inception of the CICs, each centre had, at least, a manager, a supporting staff and a cleaner. As such in a case of a failed centre, it meant that the livelihood of three people at the least was disrupted. In an economy with high unemployment levels such as that of the study context, this could have a significant effect on those individuals and their dependants. Similarly, the implication of failure on the part of the state is enormous considering that monies invested in such projects could have been prudently invested in the provision of much-needed amenities such as pipe-borne water, sanitation facilities, schools, community health centres, or even welfare benefits to impoverished households. Therefore, it is important that monitoring and evaluation of projects must be an integral part of project implementation to assess risk, arrest pitfalls in time and mitigate problems long before they become complications.

The extant literature, however, could not offer an appropriate method of evaluation that goes beyond the mere listing of factors to give insightful accounts of deep-seated concerns that inhibit the implementation of Telecentres in DCs. In an innovative approach to evaluation, this thesis sought to find a better alternative method to evaluation. It not only concentrated on a factor approach to evaluation as bemoaned by some sections of researchers (Baron and Gomez, 2013; Gomez and Pather, 2012; Harris, 1999; Mutula, 2005), but also adopted a critical approach to further ascertain embedded and foundational elements that prohibit sustainability. In previous studies, several theoretical methods have been proposed and applied to the evaluation of Telecentres, however, this study found the DRG framework to be the most appropriate and useful in this context (**see chapter three, subsection 3.3.1**). It offered the easiest but the most robust approach to identify failed or successful projects through a factor list of seven dimensions. Not satisfied with this result, a further relational analysis was performed to see how these factors affect one another and consequently shape the outcome of a project (positively or negatively). The results of the factor approach and relational analysis were deeply insightful as shown by discussions in (**see chapter six, section 6.1 and 6.2**). However, they fell short of explaining certain gaps in the findings and analysis (**see chapter six, section 6.2**). Through a critical approach to evaluation, reasons for these gaps become apparent (**see chapter three, section 6.3**). The method, to the author's knowledge, is the first known technique to evaluation that has

combined a three-pronged approach to evaluate an ICT project effectively (with emphasis on Telecentres) and to have found the outcome as a failed system. This approach strengthens our understanding of not only factors for failure or success, but also provides us with an understand of how relationships between dimensions are formed and to help shape ICT development projects as well as the underlying reasons for unsustainable projects in DCs such as Ghana with thick contextual backgrounds.

8.4 Why does this study matter?

In this section, the author reflects on the obvious question of “how different is this study from prior research”. This study explored in detail evaluations of ICT4D initiatives with a specific emphasis on Telecentres by conducting a systematic survey of the evaluation literature on Telecentres in developing countries. The exploration brought into focus the need to investigate Telecentre evaluation by applying more of a soft factor approach than the usual economic indicator approach to understand the tenuous relation between ICTs and development, especially in DCs. The result of this careful exploration of attention to detail was a deeper explanatory framework of Telecentre evaluations for the investigated context. This study differentiates itself from other studies in diverse ways.

This thesis indicated in **chapter three** the choice of DRG framework as the best analytical framework to explain the objective of the investigation and why this selection was the best approach over other equally relevant frameworks. The chapter also gave reasons for the selection of PCT as a complementary theoretical framework to address adequately emerging themes resulting from the analysis of the data that the DRG could not sufficiently address. Collectively, these combined frameworks addressed:

1. The status of the CIC initiatives with regards to success/failure and
2. The rationale explanations for the replication of the current model of universal access to ICT initiatives to underprivileged communities

The application of these complementing analytical frameworks allowed the researcher to address the research gap in Telecentre evaluation literature. Existing research recognises that evaluation tends to focus on quantitative analysis of the ICT intervention’s impact and its economic aspects, such as its performance, robustness, security and cost-benefit rationale (Fuchs, 2009; DeLone & McLean, 1992). These factors however, have been found

not to meaningfully explain the benefits of ICTs to users due mainly to the elusive character of impacts, hence the call for a fundamental paradigm shift in ICT4D evaluation (Ramírez, 2007) to include assessment of intangible ICT implementation elements that contribute to the success or failure of interventions (Baron and Gomez, 2013; Gomez and Pather, 2011). According to Whyte (2000), “evaluation helps to answer strategic questions about how and why certain outcomes arise, [...] and examine the costs and benefits of alternative actions” (p. 3). Unlike previous research work which were interested in economic indicators as a measure of success or failure or in determining impact, this study:

1. Heeded the call to look beyond the quantification approach to apply intangible elements (people issues, culture, emotions, politics, power asymmetries, etc) to understand the underlying dynamics that influence the outcome of Telecentre success or failure. Hayes and Westrup (2012) suggest that the failure of interventions in DCs is because of insufficient attention to context and human-centred elements;
2. The research went a step further to determine the dynamic processual relationship between the outcome of the evaluation and the underlying context. It not only showed the factors responsible for the failure of the CIC initiative but also surfaced the primary reasons for the reported failure by illustrating the dynamic, complex and reciprocal relationship between the various seed categories representing the dimensions of the DRG framework;
3. The two previous analyses were organisational level analyses to determine the status of the CIC initiatives in Ghana. The third step was to provide a higher-level depiction of policymakers’ intentions for continuing establishment of CICs in Ghana.

This analysis was underpinned by the application of postcolonial theory as a complementary analytical lens. Very few studies have been able to combine all three levels of analysis in a single qualitative study and at this depth in evaluating Telecentres in DCs. Additionally, this study is also a response to the call for a more in-depth evaluation of ICT4D initiatives underpinned by theory-/framework-based analysis (Heeks, 2010; Roman, 2003).

The study had interesting outcomes some of which have been highlighted in the proposed framework. These new dimensions have the potential to unearth fundamental gaps that significantly contribute to the outcome of ICT initiatives and enable researchers to move a

step further in understanding success or failure of pro-poor interventions such as the CICs. The results can be particularly useful for practice by assisting ICT4D practitioners and Telecentre managers to perform a risk analysis before, during and after ICT project implementation. Specifically, it will be useful to designers who should appreciate the essence of contextual (cultural and historical factors), institutional and needs assessment concerns that constrain the implementation of ICT initiatives.

CHAPTER NINE - CONCLUSION

9 INTRODUCTION

The purpose of this investigation was to understand why ICT4D interventions are being initiated and subsequently whether these interventions meet their intended goals of contributing to national development. It was critical to understand 'why' and 'how' these imposed interventions were expected to be utilised by beneficiaries to achieve capabilities and consequently enhance human development. In furtherance of this motivation, the study adopted and applied two analytical approaches to explore and provide in-depth insights and to contribute to Telecentre evaluation. The first framework was applied to establish the status of the CIC initiative concerning success/failure of Telecentres whereas the second framework was applied to find plausible explanations to the continuing implementation of CICs.

This concluding chapter reviews firstly the major findings of the study, and second presents the contributions made to the field of ICT4D. This is followed by recommendations arising out of the findings and discussions. The final section highlights limitations of the study and suggests further areas for research.

9.1 Major findings

This section presents a summary of the major findings of this thesis as discussed in chapters five and six:

- The neglect by project implementers to conduct comprehensive user requirements gathering and analysis,
- Inadequate regulatory framework governing the establishment of CICs and the nonexistence of private participation in delivery of ICT facilities in marginalised communities,
- Power and political interference in the implementation of pro-poor ICT interventions in deprived communities in Ghana,
- The role of path dependency and its effect on ICT implementation,
- Ghana's Telecentres outcome was significantly influenced by historical and cultural antecedents (postcolonial past),

- Indifferent and bureaucratic attitude of management partly contributed to the poor uptake of the CICs,
- Structural and institutional voids accounted for unsustainability of the CICs in Ghana,
- The lack of a guaranteed/sustained support for initiatives irrespective of returns on investment,
- The lack of political commitment to turn manifesto pledges into sustained developmental agenda,
- The need for an effective assessment tool that is easy to use and cost effective.

9.2 Contributions of this thesis

The contributions of this study are categorised into three areas: theoretical, practical and methodological contributions.

9.2.1 Theoretical Contribution

The contribution discussed here are twofold: contribution to mid-range theory⁵⁴ development (Gregor, 2006; Merton, 1967) and the generalisation of findings to theory. From a theoretical perspective, this study expands on the DRG framework (Heeks, 2003) which was the basic analytical framework for this investigation and gave us the foundational dimensions to investigate the success/failure of an ICT4D intervention. This study contributes a novel analytical framework that draws upon the DRG framework and some elements of PCT to analyse ICT4D projects. Using this method helps to provide a deeper understanding of the concept of power/politics, technology and contextual dimensions from the perspective of ICTs in DCs. The results of the study and subsequent additional dimensions proposed (as described in **chapter eight**), has the potential to advance the field of ICT evaluations concerning success/failure. The study contributes to the Telecentre literature by highlighting the important role of contextual factors such as cultural and historical elements of the community where centres are established. Another area of theoretical extension is the role of empowered stakeholders who must be given a voice in the planning and implementation of initiatives that affect their daily existence. It also contributes to the literature by taking a processual approach to gaps identification and

⁵⁴ Theories that lie between the minor but necessary working hypotheses that evolve in abundance during day-to-day research and all-inclusive systematic efforts to develop a unified theory that will explain all the uniformities of social behaviour, social organization and social change. (Merton, 1967: pg. 39). Another term used is mid-range theory, referring to theory that is moderately abstract, has limited scope, and can easily lead to testable hypotheses (Gregor, 2006: pg. 616).

sheds more light on the causal link between dimensions and the status of a Telecentre. This study, therefore, expands on the scope of theoretical analysis and contributes to provide a better understanding of the reasons for success/failure of a Telecentre project.

Generalisation of findings of single case studies is often under scrutiny. Conventional understanding assumes that a single case study is a “detailed examination of a single example of a class of phenomena, a case study cannot provide reliable information about the broader class, but it may be useful in the preliminary stages of an investigation since it provides hypotheses, which may be tested systematically with a larger number of cases” (Abercrombie, Hill, & Turner, 1984, p. 34). However, Flyvbjerg (2006) describes the statement as simplistic and “grossly misleading” (p. 220) and claims that the foundation of that argument is weak in that it is not necessary to link the empirical process of a case study on hypotheses or multiple cases (Dubé and Paré, 2003). The essence of research in IS is to surface and emphasize the generalities of the phenomenon in its social context and thus cannot be deemed to be context-independent. Therefore, this thesis and its findings in line with generalisation “recognizes the role of case study research in empirical generalization, theoretical generalization, and theory testing” (Tsang, 2014, p. 183).

The use of the well-established PCT allows this thesis to be generalised to theory and its use as an analytical lens affords the author to claim empirical and analytical generalisation. Its successful use in this investigation fulfils the option of theory testing. As to generalising to context, this study cannot claim to be context-independent. Therefore, it can be generalised to a similar context. As Easton (2010, pg. 126) explained, “... generalisation of any kind is not possible unless there is some invariance in the world. If all events and their causes are unique then there could never be theories that work. And by unique I mean substantially and not trivially unique since in some sense every event in the world is unique”. The ultimate purpose of the study was to understand Ghana’s Telecentre phenomenon in-depth and comprehensively. The single case thus made it possible to achieve this objective. As an iterative approach to research, the case study allowed the researcher to tease out complex relationships that affected the implementation of the CICs.

9.2.2 Practical Contribution

On the practical side, this study first draws attention to the human development aspects when assessing the worth of development initiatives. Human development can be reached

when initiatives achieve the purpose for which they were intended. Indeed, recent literature points to the fact that when these initiatives fail, users are deprived of the capabilities inherent in their use. Hence, users lose not just those capabilities such initiatives offer but rather re-enforces the derelict state they exist (McNamara, 2003). Although our results do not explicitly examine the impact of the project on users, it contributes to this line of discourse by highlighting the consequences of failure to both users and the state. For instance, the lack of devolution of authority and decision making to managers of the CICs inhibited their ability to support the wider community to attain an appreciable level of human development and consequently empowerment. The investigation also drew attention to how individuals' emotions, trust, motivation, self-esteem and their social and political affiliations affected the intended outcomes of the CIC initiative. This study highlights the important role of contextual dynamics (social, economic, educational, cultural etc.) in the evaluation of ICT4D initiatives, particularly, Telecentres in Ghana. It has shown that these overlooked contextual dynamics have the potential to reveal the actual causes of ICT4D failures and how they can be tackled to steer failing projects toward success.

Second, the investigation led to the development of a proposed prediction model whose main objective is to enable virtually any stakeholder in a given Telecentre to assess and predict to a certain degree, the success/failure of their centre with the opportunity to identify early warning signs of failure. The proposed model (as discussed and described in **chapter eight**) can be used by centre managers without the need for the expertise required in commissioned researchers.

9.2.3 Methodological Contributions

From the existing ICT4D literature, it has been observed that most ICT evaluations employ a factor-based approach to evaluation of Telecentres, while there are very few studies which have investigated the influence of intangible elements on the implementation and management of Telecentres. Heeding the call for more in-depth studies into the role of intangible factors in Telecentre evaluations, this thesis was carried out in an innovative manner, adopting a three level methodological approach to the evaluation of the case under investigation. Underpinning the successful use of this method was the combination of two philosophical paradigms (Realism and Critical approach) through the deployment of Design-Reality Gap framework and the application of Postcolonial theory as a

complementary analytical lens. This provided insightful accounts of deep-seated concerns that impeded the execution of Telecentres in Ghana. This method, to the author's knowledge, is the first known technique to evaluation that has combined a three-level process to assess a Telecentre project which strengthens our understanding of not only factors for failure or success, but also provides an understanding of underlying reasons for sustainable projects.

While the novelty in the use of two analytical tools in one study has been demonstrated by well-known researchers of ICT4D domain (e.g. Bass, Nicholson & Subhramanian, 2013), this study expanded the concept to include a third processual analytical lens which offered a novel approach to Telecentre evaluation. Therefore, this thesis recommends the following:

9.3 Recommendations

While the findings of this study support the findings of previous studies (Vannini, Rega and Cantoni, 2015; Badsar *et al.*, 2011; Best, Thakur and Kolko, 2009), it expands on them by demonstrating that simply putting up ICT facilities in poor communities does not necessarily return positive outcomes or fulfil project goals. They may in fact perpetuate information disempowerment of the patrons (McNamara, 2003).

9.3.1 Participatory and community-based implementation

This study argued that although CICs were established to disseminate relevant content to beneficiaries, the lack of it discouraged the continuous use of the system and consequently led to the minimal adoption and adaptation of the CICs to support daily endeavours. This means that future CIC design and implementation should look beyond designer inscribed needs for communities and realise the importance of information needs assessment by incorporating participatory mechanisms where potential user needs are captured and integrated into the design process. This will lead to improved community buy-in for the project.

The fact that Internet cafes (private entities) are thriving is an indication that public access to computing services is essential in deprived communities. As a result of the reliance on the 'technological deterministic rhetoric', there has been too much emphasis on sustainability to an extent where the realities that exist in these communities are neglected. As observed by Mutula (2008), beneficiaries will not hasten to utilise the most modern and fully

equipped ICT facility merely because they view other necessities (electricity, potable water, toilets and health services) as more important to improving their wellbeing. Perhaps, the time has come for Telecentres in Ghana to be community-led and built based on participatory budgeting process instead of the current state. This way, they become owned by the community with the support of agencies/NGOs. Community ownership allows centres to evolve and meet the changing needs of users. In so doing, communities will be able to embed specifications that will give them the opportunity to find a way to fulfil their local needs. Community-based participatory approach to the design and development of information systems should be adopted in implementing new systems (Gregory, 2003) since the evidence from this study shows that the top-down implementation approach is inappropriate. Until Telecentres are perceived by implementers as socio-technical phenomena, and not as implanted artefacts that will 'mysteriously' transform societies, the risk of failure will continue to escalate.

9.3.2 Institutional support

It was also noted from the findings and analysis that the general nonchalant and bureaucratic attitude of assembly staff partly contributed to the poor uptake of the CICs. To address this imbalance, it would be prudent to include the sustainability of the CICs as part of the performance indicators of District Chief Executives. Once it forms part of their appraisal, there is a greater likelihood of the assembly devoting resources to ensure the survival of CICs while enforcing the supervisory and monitoring roles of designated officers. This way, facility can be progressively monitored and deficiencies addressed well in advance to curb failure.

9.3.3 Contextual Adaptations

The discussion and analysis of the findings from a postcolonial perspective gives a worrying depiction of failure. In a broad sense, postmodernist hold the view that communities or individuals have agencies and, therefore, do not necessarily have to adopt wholesale what has been imposed on them. Therefore, we need to ask why organisations, communities and individuals involved in the initiative were not appropriating these facilities to their benefit. Increasingly, ICTs are being used as a means to create a new form of cultural identity for some societies. For instances, Westrup et al. (2003) report on the widespread proliferation of ICT centres in Jordan with the view to improving the capabilities of citizens and the

subsequent emergence of a new Jordanian identity shaped by ICTs. Here the objective is to use ICTs as a catalyst for cultural change. In designing and executing systems, implementers are cautioned to note that social and cultural values that influence design vary between contexts. A cautious approach is thus advocated since transporting systems across cultures have proven to be problematic. For instance, Ess (2007) reports that in South Africa, the implementation of computer-mediated communication (CMC) was a failure because the communicative preferences of the western designers of the system was in direct conflict with the values of the indigenous community who were to benefit from the project. In the Ghanaian situation, this thesis found that contextual elements instrumental in the survival of the CIC initiative were overlooked leading to costly failure.

9.3.4 Institutional void

The failure of the CICs could be conceptualised as an 'institutional void' (Khanna & Palehu, 2010) because the infrastructure necessary for the success of the initiatives in the context of the study is present. Khanna & Palehu describe 'institutional voids' as the absence of efficient intermediaries in an organisational environment whose supporting role are essential in the execution of an instructional mandate. The key to success is to understand that voids exist and find the most appropriate means to work around them to the advantage of the institution. This study identified a void (deficiency) in the governance system of the CICs that needs urgent attention to turn around the failing fortunes of the initiative. In order to plug that void, a realignment of institutional 'thinking', as well as alternative and beneficial use, would have to be found for the CICs. For instance, it is suggested that the present governance model of the CICs be restructured to involve the private sector in the delivery of services. Such public-private arrangements may be skewed towards the use of these facilities as regional Technology Hubs to engage young and enterprising individuals in these deprived communities. They could serve as spaces where young entrepreneurs are given the opportunity to nurture dreams, learn and start their businesses. The failure of the centres, although can be ascribed to a postcolonial malaise of inaction does not have to persist. The institutional structures (although dormant) are in place to create an alternate reality for these initiatives.

9.4 Limitations of this study

Although this research has been instrumental in shedding light on the constraints of successful implementations of universal access centres in DCs, some limitations have been identified to have inhibited the full potential of this study. These limitations are discussed next.

- One limitation of this thesis is its exclusive look at only government funded Telecentres. The findings are therefore constrained to reflect insights from one spectrum of access points while the vast ambit of access providers (libraries and Internet cafes) have not been captured. Therefore, the findings can be generalised conclusively to government funded Telecentres providing access to ICT facilities.
- Second, the study focused on a single case where Telecentres in one region were investigated as one single unit. The study could have benefited from a comparative analysis between Telecentres investigated to understand their various statuses. This study may have lost vital insights into Telecentre specific constraints, management styles of their managers and owners and specific user concerns.
- Third, the study emphasised structure but less on user agency. Attwood et al. (2013) argue that Telecentre evaluation “literature has been dominated by a rather 'structuralist' and supply-side approach with less attention to individual agency and the demand-side”. Both analytical frameworks employed (DRG framework and PCT) to understand the Telecentre phenomenon in Ghana focused on an analysis of the role of structure on implementations with less emphasis on the agency. It is the contention of the author that the agency of the centre managers and especially the beneficiary community could prove useful and offer insights into the impact of the initiative on the individual and the wider community.

9.5 Future Research

This study has advanced numerous questions that have value for future research on Telecentres in DCs. The following are possible areas that future investigations could consider:

- As observed from the literature, it is clear that there have been wide range of research that report on the failure of Telecentre implementations across several

DCs. Lessons could have been learned from the experience of the reported evaluations. However, more recent evaluations such as reported in this thesis lend credence to 'history repeating itself'. This thesis argues that this is probably due to the fact that there is little or no synthesised evidence-informed knowledge (Tranfield, Denyer & Smart, 2003) on Telecentre implementations in DC that researchers, practitioners and policy makers can readily consult. Consequently, there is the need for a systematic synthesis with the object of augmenting the knowledge base and informing policymaking and practice.

- Furthermore, future research could be expanded to include other public access centres such as libraries and Internet cafes to determine whether they are influenced by similar factors and how they are dealing with them. This study concentrated mainly on government funded Telecentres. Therefore, to make findings more generalisable, future study could consider wider coverage to make findings more representative.
- Similarly, this assessment raised some questions regarding the role of the private sector as actors in the diffusion of Telecentres in hard-to-reach areas. Future research into the role of a public-private partnerships in the diffusion and sustainability of social interventions will be useful to Telecentre literature and to practice.
- Since this investigation covered just one region out of ten in Ghana, future research could be considered involving all government funded Telecentres. This way, it is possible to generalise the results to cover the whole country instead of that covered by this research and could also have far reaching practical and policy implications since a wider coverage will have the benefit of including a detailed list of contextual factors that influence the implementation of Telecentres in Ghana.
- In the study, it was evident that the culture and historical backgrounds of receiving communities greatly influenced the status of the CICs in the investigated context. The synopsis from the systematic review however indicated a cultural gap in Telecentre evaluation literature. Therefore, future research could investigate the role of culture on the implementation of Telecentres although this was partially explored in this study.

- To determine adequately the extent of achievement of the initiative beyond just the closers of centres, a longitudinal study is recommended especially in the dispensation where more CICs are being established.
- Finally, a validation of the proposed model on evaluating ICT4D projects in general (and Telecentres specifically) can show the potential benefits of the approach. It is also essential to establish how this model can benefit or improve decision-making in ICT4D implementation.

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APPENDIX A: ETHICAL APPROVAL

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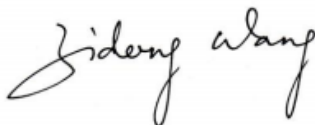
STATEMENT OF ETHICS APPROVAL

Proposer: Daniel Azerikatoa Ayoung

Title: An assessment of the Community Information Centre (CIC) Project in Ghana as an eGovernment outlet

The school's research ethics committee has considered the proposal recently submitted by you. Acting under delegated authority, the committee is satisfied that there is no objection on ethical grounds to the proposed study. Approval is given on the understanding that you will adhere to the terms agreed with participants and to inform the committee of any change of plans in relations to the information provided in the application form.

Yours sincerely,



Professor Zidong Wang
Chair of the Research Ethics Committee
SISCM

APPENDIX B: PARTICIPANT INFORMATION SHEET

Title of Research:

Investigating Telecentre implementation through the lens of Design-Reality Gap framework and Postcolonial Theory: the case of the Ghana Community Information Centre (CIC) initiative.

Name of Researcher: Daniel Azerikatoa Ayoung

Email: Daniel.Ayoung@brunel.ac.uk

Introduction

This is an invitation to participate in a research study. Please read this information sheet to better understand the research purpose and what it entails. Please note that participation is voluntary and your consent should be given freely of your own accord. Also, even with prior consent given, you may withdraw at any stage without being required to provide any reason for doing so.

Information about the proposed study is provided below. Please do not hesitate to contact the above-named investigator for further discussion on any unclear issues.

Purpose of the Study

To critically assess the Telecentre initiative by government to determine their viability or not in the Ghanaian e-government context so as to understand the rationale for the continued establishment of Telecentres when a cursory survey shows that those already established are non-functional.

This research is carried out in partial fulfilment of the requirements of the award of a PhD (Doctor of Philosophy) in Information Systems Management from Brunel University.

Participant Selection

A prerequisite of the selection of participants was stakeholder identification. This study requires the participation of people who have vested interests in the system. These include the Centre Manager and supporting Staff, Users, District Chief Executive, Coordinating Director, Community Leaders, Advocacy officers and Information Service Department.

Voluntary Participation

Noting the earlier statement on voluntary participation, consent is indicated by signing a consent form. This, however, does not compel you in any way to continue to participate should you decide to change your mind at any time.

Benefits of Participating in the Study

The value of participating in this study cannot be explicitly expressed for each individual's case but it will provide an avenue to express your opinions. This may thus lead to identification of issues that provide rich insights and contribute significantly to development of further information systems in developing countries.

Risks

There are no apparent risks in participating in the study. The interviews will not take longer than one hour and will involve the investigator taking notes of things relevant to the study and may also be audio-taped. However, the interview will only be audio-taped with your prior consent. Also, a copy of the notes taken during the interview can be made available to you on request.

Complaints

If you have any problems or reservations about the conduct of your interview and do not wish to take up issues with the investigator, you may contact Dr Pamela Abbott who is supervising this research by email at Pamela.abbott@brunel.ac.uk

Confidentiality

Assurance of confidentiality of all that transpires during interviews is given by the investigator. This also applies to all respondents of questionnaires as they are not required to furnish names so that all information is anonymous. Also all the data gathered during the study will be used only for academic purposes including writing a thesis as required for the award of a PhD.

Post-Research Findings

On completion of the study, the report will also be made available to the participants; however, anonymity of participants will be preserved and that no individual comments are attributable.

If you have any concerns or complaints regarding the ethical elements of this project please contact siscm.srec@brunel.ac.uk or Professor Zidong Wang (Chair of School Ethics Committee), Tel. No. 01895 266021.

APPENDIX C: CONSENT FORM

Title of study: Investigating Telecentre implementation through the lens of Design-Reality Gap framework and Postcolonial Theory: the case of the Ghana Community Information Centre (CIC) initiative.

Name of Researcher: Daniel Azerikatoa Ayoung

I confirm that I have read the researcher participant information sheet.

I have had an opportunity to ask questions and discuss this study.

I have received satisfactory answers to any query I asked.

I am aware that my participation is voluntarily and I can withdraw anytime I so desire without giving reason.

I understand that this research is part of a thesis for a PhD program and therefore any information I provide can be disclosed to concerned academic supervisors for review purposes

Tick all applicable

I agree to be interviewed.

Be taped during interview.

Name of Research Participant _____

Signature _____

Date _____

APPENDIX D: COMMUNITY ENTRY ACCEPTANCE LETTER

BONGO DISTRICT ASSEMBLY

In case of reply the number and date of this letter should be quoted.



P. O. Box 1
Bongo
Upper East

Date: 30/11/13
Tel. Number 072 - 22019

My Ref:.....
Our Ref:.....

Mr. Daniel Azarikatoa Ayoung
PhD Candidate,
Brunel University
+44 (0) 257 680 7074

Cc: pamela.abbott@brunel.ac.uk


RE: REQUEST FOR ACCESS TO CONDUCT EMPIRICAL RESEARCH

We acknowledged receipt of your letter requesting for access to conduct an empirical research in our district. We wish to indicate that we will grant you permission to do so and the Officers concern will be available to grant you interviews and assist in your data collection if you so required.

It is our expectation that your research and similar ones will help add new knowledge to the subject under investigation and particularly help educate the academia and other policy makers in finding solutions to the many challenges in the ICT field.

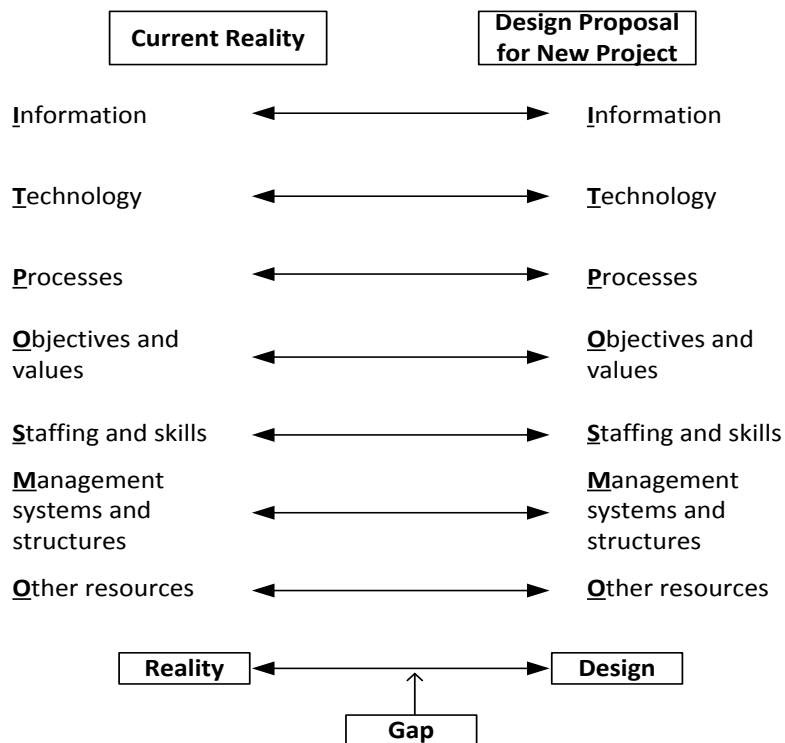
Please, count on our unflinching support on this matter. Should you require further information or enquiries on this matter, do not hesitate to contact me directly.

Sincerely yours,

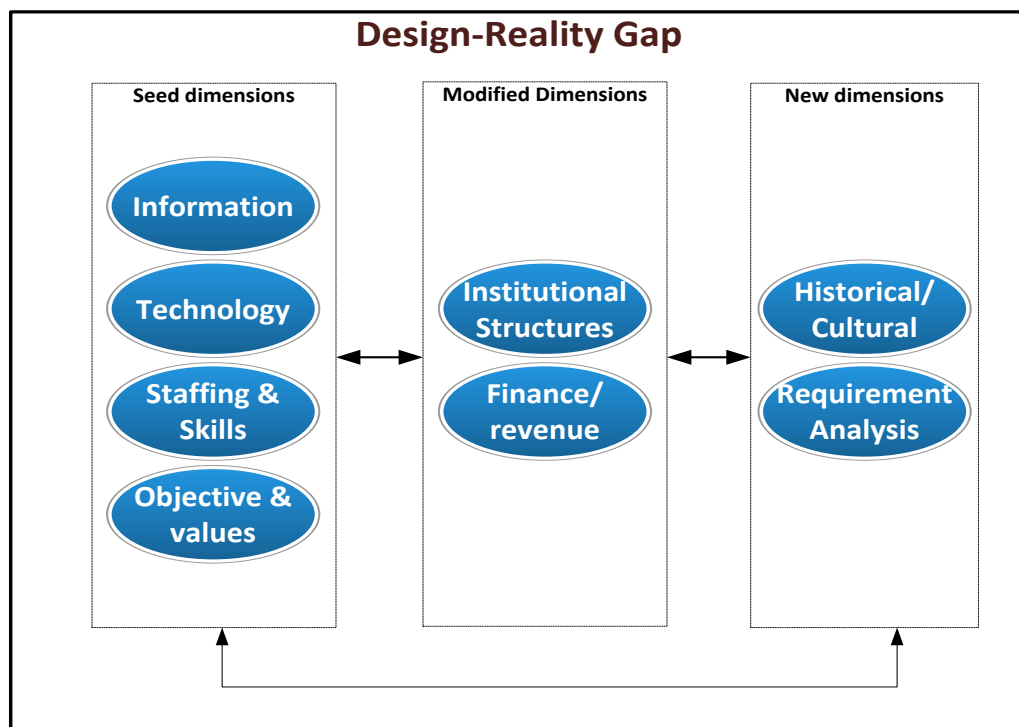

HON. Ayamdor Alexis Adugdaa
(DISTRICT CHIEF EXECUTIVE/MAYOR)

APPENDIX E: COMPARISON OF THE ORIGINAL DRG FRAMEWORK (A) AND THE PROPOSED ENHANCED VERSION IN THIS THESIS (B)

A) Original DRG framework adopted from Heeks (2003)



B) The Proposed Enhanced Model of DRG derived from the findings of the case study



APPENDIX F: SAMPLE INTERVIEW QUESTIONS

Interview Protocol: GIFEC Officials

- What is your role in this organisation?
- Please can you explain how the CIC concept came into being?
- Can you explain the implementation strategy of the project?
- Did you conduct a needs assessment before the implementation of the CIC projects in the Upper East Region?
- In the implementation document, it is mentioned that the first 12 centres were established through a collaboration of the Governments of Ghana and India. What role did the Indian government play in this endeavour?
- How were the other centres funded?
- How do you monitor their operations?
- What is your source (s) of funding for infrastructure development?
- Did you get any technical or advisory support from any external organisation?
- Was there participation by the community members before and during implementation?
- How much did/does it cost to establish one centre?
- Can you kindly explain through which policy the CIC project was/is based on?
- Can you describe what opportunities exist for the poor to participate in the design of the CIC directly or indirectly?
- How did you arrive at this model to solve the problem of the digital divide?
- Can we assume it was adopted from India especially that they were instrumental in helping you set up the first batch?
- What are some of the reported challenges in the implementation of this project?
- In your opinion, do you think the current governance model of the centres is useful?
- Briefly describe how the public acceptance of the CICs has been so far, and whether it has done well in particular areas and not in others?
- Do you think the centres have any direct or indirect influence on development of beneficiary community? If so, how?
- What support do you give to CICs after project implementation?

- There are reports of some of these centres closing down. What do you think accounts for this?
- How can these be remedied?
- Why do you think there is a high staff attrition rate at the various centres?
- If you had to do it all over again, would you still suggest that the government implement this project and why?
- In your opinion, do you think ICT interventions are a solutions to Ghana's developmental problems?
- Do you think the introduction of CICs has contributed to improving lives and the lives of others in the community? If so, how?
- Has your organisation done any evaluation of the viability of these centres after implementation especially those in the Upper East Region?
- What do you think is the future of the CIC projects?

Interview Protocol: Centre Managers

Information and Content

- How long have you worked in this position?
- How often do you interact with the Information Services Department?
- Do you organise community meetings in your centres?
- How do you market your centre to the general public? How often is this done?
- By your estimation, do you think community members know the services you offer here?
- How is information packaged for user consumption?
- What is your perception of information people most seek at this venue (estimate)?
- What is your estimate of ICT activities users most frequently do at this venue?
- What are some of the services users demand for that you do not have in your centre?
- What is your assessment of the frequency of use at this venue (approximate estimate)?
- What do you feel are the biggest barriers for users accessing information at this venue?

Training

- What is your level of ICT competence?
- How often are you involved in in-service training?
- Can you please explain the content of these training seminars/workshops?
- How relevant are they to the delivery of your work?
- Who organises these training sessions?
- How good are your software and hardware troubleshooting and maintenance skills?

Questions on Facility

- Year of establishment: _____
- How many computers are available (and in working order) for users?
- How old are computers at this venue?
- What other technology services are available?
- What other services are offered?
- How many of these computers are connected to the Internet?
- What type of Internet connection does this venue have?
- What is the maximum bandwidth provided by this venue’s Internet service provider?
- What operating systems are available?
- What means are available for tracking computer usage?
- Does this venue have regular availability of:

Power supply		Internet service	
Potable water		Place of convenience	

Finance

- What is your source of funding for operations?
- What is the center’s total revenue (or operating income) in a typical month?
- How much of a typical month’s expenses do you spend on the following?

Internet connection		Software/licenses	
Staff salary		Training for staff	
Buying and repairing computers/hardware		Rent	
Utilities		Other(Specify)	

- Taking into account all expenses and revenues, is the center: losing money, breaking even or making profit?

About Users

- On average, approximately how many people use this venue each day?
- Do you have a database or register of your users?
- Approximately, what percentages of users are male or female?
- What services do clients demand when they come to your centre?
- What is the educational Level of users (your best estimate)?
- What is the approximate percentage of users that are from high/middle/low income brackets?
- What is the approximate percentage of users from each of these age brackets (estimate)?

Infomediary role

- How many computing staff at this venue are: Male or Female?
- How do you learn about the information needs of users in your community?
- What activities could you do in this venue to better serve the information needs of the users?
- So you have any restrictions on the use of computers in this facility? If yes what are the restrictions?
- Since you began working at this venue, has there been a variation in the number of users?
- How many centre staff have the skills to assist computer users with technical problems?
- How many of your staff have the general skills to assist computer users in finding information they are searching for?
- Which of the following types of in-house or outside training does this venue provide for its staff?

Perceived Impact

- In your experience and observation, how does public access to ICT change people's lives?
- How does public access to ICT help users get better employment/income?

- How does public access to ICT help community development?
- In your opinion, what has been the biggest impact of venue on the community at large?
- What are some of the most important ways in which working at this venue has impacted you?
- To the extent you can ascertain, what has been the overall impact on venue users from their use of ICTs at this venue?

Future of CIC

- What is the future of CIC in this community?
- What are the relative strengths or weaknesses of this centre in relation to other types of centres in the district/municipality?

Interview Protocol: Personal Histories

- Please tell me a little about yourself.
- Please indicate your income brackets?
- How did you start using ICT? When? What made you get started?
- When did you start using this centre?
- How frequently do you use this facility?
- How far do you live from this centre?
- Do you visit any other facility for similar services you get here? If yes, which type of facility?
- What information do you expect the centre to make readily available for users like yourself?
- Do you usually require help with facilities at this centre?
- Has centre management ever asked your opinion on how you want the centre to service your needs?
- Have you on your own offered some suggestions to management on how they could better serve customers and meet your information needs?
- What do you feel are the biggest barriers for users accessing ICT services and information at this venue?

- How do you think others in your community can better make use of ICTs at this venue?
- How do you think the CIC can better serve the needs of people in your community?
- Has the CIC enhanced your opportunities to do anything you did not realise you could do?
- Do you think the introduction of the CIC has contributed to improving your life and the lives of others in the community? If so, how?
- What has changed in your life as a result of using ICTs in this place?
- Are you politically aware of the governance of your community?
- Has the centre enabled you to be more aware of your political environment? If yes, how and if no, by which means or media?
- Does the centre meet your information needs?
- How has the CIC changed your life?
- Has this change/empowerment transformed into social action, social participation and civic engagement?
- Has it aided in the improvement of your economic status?
- Has the centre helped to improve your interpersonal interaction with community members?
- Has the CIC provided opportunities for villagers to have more choice over their lives? If yes, how?
- Has CIC contributed to changes in equality between; men/women, rich/poor, more/less education?
- Have villagers been involved in organising activities in the village since starting to use the CIC facilities.
- Do you think the presence of the centre has led to a negative attitude/life style of the youth? If yes, how?
- Looking at the unprecedented mobile phone penetration levels in Ghana, do you think the CICs are relevant with regards to meeting your information needs?

Interview Protocol: Focus Group Discussion

Perception about community involvement

- Can you please tell me a little about yourselves?
- How long does it take you to come to the CIC?
- Are there any new/recent improvements in the community that come to mind?
- Did the information centre play an active role in any of these activities? How?
- What were the main/other factors contributing to this improvement?
- If you could change something in the community, what would it be?
- How would you go about making these changes?

Use of CIC

- How long have you been coming to CIC?
- How often do you use it? Average hours per week
- What other ICT facilities do you use?
- What do you use CIC for and why?
- How relevant or useful are the services and the equipment available at the CIC for your day-to-day activities?
- Is there anything you were hoping to use the CIC facility for, but have not been able to? If so, what would you like to do and for what reason?
- Do you need assistance with or training for using the computers or the Internet? If yes, what assistance do you need?
- Are you satisfied with what the CIC offers?
- If you have encountered any problems, have these affected your interest in using the centre? How?
- Do you think you get value for money for services at centre?
- Is there anything CIC can do to encourage usage?
- Are you prepared to assist on a voluntary basis at the facility to help others use computers and the Internet or with some other tasks?
- Can you suggest anything that would improve the facilities to better meet your needs and others in the community?

Perception of Impacts

- What is the most significant change you have noticed as a result of CIC?
- What is the main benefit of the centre?

- What difference has the CIC made and what difference is it likely to make in the future?
- Do you think CICs can contribute to making your life and the life of others in the village, better? If so, how?

Interview Protocol: District/Municipal Assembly Officials

- Your assembly is listed as being responsible for the “total subsistence” of the CIC. What does this mean exactly?
- What is the makeup of the CIC Steering Committee?
- Were you consulted before the CIC was set up? If yes, what was your input?
- How do you motivate centre staff?
- Are you familiar with the problems of the CIC?
- How are you proposing to resolve these problems?
- What accounts for the delay in paying your staff?
- Has the CIC provided opportunities for villagers to have more choice over their lives? If yes, how?
- Has CIC contributed to changes in equality between; men/women, rich/poor, more/less education?
- Do you think the presence of the centre has led to a negative attitude/life style of the youth in surrounding community? If yes, how?
- How do you see the future of this CIC?

Interview Protocol: Experts/Academia

- Based on your experience and research, what is the context (environment) in which public access ICT initiatives take place?
- What helps or hinders performance?
- Who are the main users of these centres?
- What do you think they are looking for and how are they using ICT in these centres?
- What are the main strengths, weaknesses, threats and opportunities for Telecentres?

- Has the CIC provided opportunities for villagers to have more choice over their lives?
If yes, how?
- Has CIC contributed to changes in equality between; men/women, rich/poor, more/less education?
- How do they contribute to human development?
- How can they be strengthened?
- Looking at the unprecedented mobile phone penetration levels in Ghana, do you think the CIC are relevant with regards to meeting our information needs?
- Do you think Mobile Phones are a better option to bridging the digital divide than the CICs? How?
- What in your opinion is the future of CICs?

APPENDIX G: SYSTEMATIC LITERATURE REVIEW PROCESS SUMMARY

Characteristic	Value
Review type	Systematic literature review
Research question(s)	RQ1: What are the publication trends over the past decade? RQ2: How many, and which sources publish papers on Telecentre evaluation methods? RQ3: To what extent are researchers aware of the breadth of potential ICT4D evaluation sources (i.e. citing relevant papers from non-ICT4D journals?) RQ4: What methods are used in the evaluation of Telecentres in developing countries? RQ5: Are there clear definitions of failure/success which can be accepted as a convention for evaluations RQ6: What are the metrics used by evaluators in their assessments? RQ7: Which Telecentre governance models have been adopted in the management of Telecentres? RQ8: Are evaluation studies relevant to practitioners/policy makers?
Purpose	Provide current status and trends in the evaluation of Telecentre initiatives
Audience	Researchers, Practitioners, Policymakers
Search method	Automated and manual search, citation analysis, previously known articles and approached authors.
Databases used	Science Direct, Google scholar, AIS digital library, Springer, Sage
Population	Empirical studies and reports relating to Telecentre evaluations
Setting	Developing Countries
Research Strategy	Action research, case studies, observational studies, ethnography etc.
Inclusion criteria	(i) Refereed paper (journal or conference) (ii) Grey literature (iii) Copy of the article available
Language	English language only
Last date of search	December 2014
Article dates	2000-2014 plus in press articles

APPENDIX H: PICTURE 'A' IS ONE OF THE CLOSED CICS INVESTIGATED WHILE PICTURE 'B' IS AN ICT LESSON IN PROGRESS AT THE ONLY ACTIVE CIC AMONGST THOSE INVESTIGATED.



