

ICTs and Development: A Capability Perspective of Nigeria's Experience with the National Identity Project

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Abstract

This study is about the impact of information and communications technologies (ICT) in developing countries, in light of development expectations in healthcare, education, commerce, government services, and other activities that can improve the lives of citizens. However, the deployment of these ICTs have not always resulted in the anticipated ends i.e. development outcomes. Also, expectations and deployment experiences vary amongst developing countries - indicating a need to understand what is locally relevant, meaningful and achievable within development initiatives. These ideas are explored within this study, with intent to contribute to a better understanding of the dynamics of ICTs and Development.

The study is particularly concerned with the current efforts at deploying a National Identity system in Nigeria, in light of failed attempts over the past 34 years. This is an essential initiative due to the lack of a secure, reliable, or cost effective system of identification within the country (e.g. international passports and drivers' licenses). The case is explored using Sen's Capability Approach (CA) to development, which advocates the expansion of people's freedoms (and opportunities) to engage in valued activities that improve lives.

The unique application of the CA for a comprehensive study of the deployment and outcomes of the National Identity system constitutes a theoretical contribution (amongst others) to research - in light of previous applications which only evaluate the latter. Also, the findings reveal deep seated socio-cultural issues (such as corruption and tribalism) as sources of commonly reported technical and managerial problems within IS projects. These offer useful insights and advice for both policy makers and practitioners involved with the ICTs and Development agenda.

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(Adapted from NIMC 2008)

List of Publications (over the course of the PhD)

Conference Papers

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Maiye, A. and McGrath, K. 2008. Examining Institutional Interventions: The Case of Electronic Voters' Registration in Nigeria. *Proceedings of the International Federation for Information Processing (IFIP) Working Group 9.4 Conference*

Journal Paper

McGrath, K. and Maiye, A. 2010. The Role of Institutions in ICT Innovation: Learning from Interventions in a Nigerian E-Government Initiative, *Information Technology for Development*, 16(4), pp. 260- 278

List of Abbreviations

Abbreviations

CA – Capability Approach

DCs – Developing Countries

DNCR – Department of National Civic Registration

GDP – Gross Domestic Product

GMPC – General Multi-Purpose Card

HDI – Human Development Index

ICTs – Information and Communication Technology

ICT4D – Information Technology for Development

IS – Information Systems

IT – Information Technology

ISDC – Information Systems in Developing Countries

NI – National Identity

NIC – National Identity Card

NIM – National Identity Management

NIMC – National Identity Management Commission

NIPOST – Nigerian Postal Service

MRW – Mobile Registration Workstation

PHCN – Power Holding Company of Nigeria

1. Chapter One: Introduction to the study

1.1. The Research Domain

This thesis is about the impact of information and communication technologies (ICTs) in developing countries, in light of the claim that ICT is a “powerful tool” for nationwide developmental growth (DOT Force 2001; UNDP 2001). The term “developing countries” refer to those nations that major international organisations usually rank low in aggregate indicators such as literacy, life expectancy and personal income (UNDP 2010; World Bank 2010). Walsham et al. (2007) note the potential of ICTs to enable improvements in these indicators, with expected benefits in sectors such as healthcare, education, business and government services in general.

Encouraged by such claims, governments and other development organisations increasingly commit valuable resources to ICT projects with expectations to achieve a variety of social, economic and political objectives. However, these projects have not always resulted in the anticipated ends – either by failing to satisfy implementation objectives (Heeks 2002), or by failing to transform the socio-economic conditions within the implementing societies (Avgerou 2008). Nevertheless, developing countries continue to be inspired by the promise of developmental growth and introduce ICTs to complement public and private sector activities.

Research on information systems in developing countries (ISDC) often highlights problems associated with the deployment of ICTs, particularly those that are transferred from abroad i.e. more advanced nations. Some have called for ISDC to be split up into two distinct domains i.e. research on technology “in developing countries” and research on technology “for development” (Brown and Grant 2010) – the proposed difference being to separate the focus on the process of implementation of ICTs, from the focus on the realization of developmental impact.

However, the position adopted in this research runs contrary to such propositions, as there are developmental expectations apparent in these ICT deployments even when not explicitly stated. In other words, even when the process of ICT implementation is the focal research agenda within a piece of work, it remains possible to discern what development outcomes are anticipated and whether or not they are achieved. The contention in this research is that ISDC work would benefit from more explicit consideration of development goals within implementing contexts.

1.2. The Problem

Although there is consensus on the relevance of ICTs to developing countries (Walsham et al. 2007; Walsham and Sahay 2006), it is the relationship between the former and development that continues to be an issue. In the views projected by international development agencies (UNDP 2001; DOT Force 2001), ICTs are regarded as silver bullets that can effect nationwide development goals such as eradicating poverty, improving health services and governance. This is based on assumptions that technologies have been the main driving force of economic growth in advanced and more progressive nations, and that the aggregate benefits of such growth would trickle down to all segments within a society. Following this, Developing Countries are urged to invest in ICTs, with much aid from the international development agencies. The weaknesses in adopting this approach are as follows.

Firstly, countries are treated as homogenous entities, where a model of growth is universally applied regardless of each country's local and contextual factors e.g. condition of ICT-relevant infrastructure. What often follows is an uneven distribution of the benefits of the development initiatives (Madon 2009; Soeftestad and Sein 2003), where inequalities (e.g. between rural and urban areas) are further intensified. Secondly, development is value relative i.e. dependent on what one may consider or desire as growth. Hence, development initiatives may fail to make relevant contributions to stakeholders in terms of achieving locally meaningful development goals (Prakash and De' 2007). Thirdly, there is much

emphasis on the economic significance of ICTs within a global market regime. In other words, development is sought through improvements in accessibility and operations within markets in efforts to increase aggregate indices such as gross domestic product (GDP). However, there is less consideration for other social and political institutions that may be relevant in sustaining the conditions required to locally accommodate ICTs (Avgerou 2003).

As such, the simplistic link between ICTs and development has resulted in a lot of emphasis on ways to increase the widespread access and reach of the former - without much consideration or regard for the long term usage and viability of the deployed ICTs. Indeed, research focus has been on the experiences with implementations, whilst developmental impact of ICTs has received little attention (Thompson and Walsham 2010). Hence, much of the research into the failure of ICTs in developing countries explains technical and managerial problems encountered with implementations, with less on the socio-political issues which affect usage and the realisation of development outcome within societies. Nevertheless, one may consider failure as the non-achievement of development outcomes, since development is a major expectation within ICT projects in developing countries. In essence, it seems inadequate to focus on the process of implementation without considering development outcomes - under assumptions that the latter are guaranteed with successful technical deployment of ICTs.

These are valid concerns, considering the capital expenditures required to deploy ICTs in developing countries. As developing countries are considered to be relatively poor in regards to the indicators of the development agencies earlier noted (World Bank 2010; UNDP 2010), there may be other pressing issues which require more urgent attention. In other words, the relative scarcity of resources within developing countries further confound the justification for any investments in ICTs in light of many opportunity costs. Hence, there is scope for a more comprehensive approach to understanding the problems with the deployment of ICTs in developing countries, as failure also constitutes the non-achievement of development outcomes. In regards to the weaknesses earlier outlined, the contention of this study is that the dynamics of the link between ICTs and development is much more complex than often presented within the development community. This warrants further research, in terms of investigating ways in which ICTs can contribute meaningfully to

development within societies, and understanding why this is often not the case. This research therefore seeks to contribute by asking the question:

How can information system deployments support the achievement of locally meaningful development outcomes in a developing country, and why is this often not the case?

1.3. Theoretical Approaches

The focal components of the research question are development outcomes, information systems deployments, and developing countries. Development outcomes refer to the potential contributions of information systems towards improvements in the lives of the people concerned. The approach to address the research question is to investigate what issues of context are perceived to influence both the implementation process and the achievement of development outcomes within a developing country. A series of theoretical approaches have been proposed in addressing failures to realise development outcomes from IS deployments. One focuses on the problems in applying and assimilating technologies within developing countries. A second focuses on the problems with managing IS projects in developing countries, while a third discusses the unfavourable social and institutional conditions within developing countries.

Studies in the first category (i.e. application and assimilation of technology) mainly address issues relating to the poor state of IS infrastructure within developing countries (Adam and Urquhart 2007; Al-Jaghoub and Westrup 2003), with suggestions on how access and reach of ICTs can be increased. However, underlying this approach is a regime of development as economic growth. This study's contention with such an approach is the assumption that aggregate increases in a country's income (e.g. GDP) would trickle down to all sectors within societies (Madon 2009; Zheng 2009; Soeftestad and Sein 2003). In essence, the approach is unsatisfactory for this research as it does not address human diversity and other sources of inequality which affect societal life.

Studies in the second category (i.e. managing IS projects) address issues regarding the shortage of resources (Best and Kumar 2008; Kimaro and Nhampossa 2005), showing how relations between sponsoring institutions affect project operations. However, underlying this approach is a belief that development objectives amongst various stakeholders can be adequately aligned. The contention in this case is the rationality associated with managing objectives and expectations of diverse stakeholders (Mitev 2005). In essence, this approach is also unsatisfactory for this research owing to the impracticality of unifying the interests of various stakeholders towards some common purpose.

Studies in the third category (i.e. unfavourable socio-institutional conditions) address issues relating to societal values (Miscione 2007; Walsham and Sahay 1999), showing how culturally-influenced practices affect IS deployments. This approach is more comprehensive as it considers human diversity alongside the issues of IS infrastructure and relevant institutions identified in the categories earlier described.

In line with the third category, the approach adopted in this study is able to address issues with IS infrastructure, institutions, and societal values – including the prospects of exploring cultural elements such as corruption, tribalism, bureaucracy and scepticism (some of which have received little attention in the IS research domain). As will be discussed in **Chapter Three (Theoretical Framework)**, this study builds on Sen's Capability Approach (1999; 2009) as a way of assessing development outcomes while considering individuals' opportunities to engage in activities that they value. The difference between this approach and economic growth (for example), is its recognition of the fact that individuals need different levels of support to achieve similar goals. For instance, a disabled person would need more financial support to function on the same level as a healthier person (Ferrer and Carrasco 2010; Johnstone 2007; Oosterlaken 2009). Similarly, a person in a rural village would need more money to access the internet than one in a city filled with internet service providers.

1.4. The Research Aims

The overall aim of this research is to explore how IS deployments can support the achievement of locally meaningful development outcomes in a developing country, and to understand why this is often not the case. The approach proposed here is two pronged, which is to examine issues affecting the implementation of an information system, and to investigate reasons why locally meaningful development objectives are not easily achieved within its context of deployment.

These ideas are explored with the information systems deployment efforts of a Nigerian public organisation i.e. the National Identity Management Commission (NIMC) which is described in more detail in **Chapter Four (Research Methodology and Setting)**. NIMC is aiming to effect socio-economic development within the country through the implementation of a National Identity Card Scheme (NIMC 2009). This is an essential initiative due to the lack of a secure or reliable system of identification (e.g. international passports or drivers' licenses) within the country. The National Identity Cards (NIC) are expected to increase people's access to important services such as consumer credit, insurance and banking services; and to enable them engage in valued activities such as employment, voting and travelling. In Sen's terms, the NICs are expected to expand individuals' capabilities (or opportunities) to engage in activities which improve their lives. However, the project history shows a series of failed implementation efforts over a period of 34 years (NIMC 2008; 2007). Hence, this research aims to examine issues affecting the implementation efforts, and investigate why development outcomes are not easily achieved within the initiative.

Accordingly, the approach is to explore these issues through the perspectives of people who are involved with the initiative. This community of interest consists of NIMC officials, staff of NIMC's partner organizations (i.e. other public organisations with legacy systems to be integrated with NIMC's), and members of the public who have needs for the NICs. Also, as development is value relative, this involves understanding what people make of the NIC system, and how they think the NICs will be of use to them in supporting activities that improve their lives. It is expected that the findings of this research will have implications for development theories. The use of Sen's concepts and ideas offers a way to consider issues

from individual perspectives, contrary to the aggregative modes of other approaches. Also, there are grounds for policy recommendations to those involved in promoting the development agenda. The issues raised in this research are such that can be extended to other settings which have similarities in context.

1.5. The Research Methods

As the approach of this study involves the interpretation of multiple meanings of the phenomenon under investigation (i.e. people's understandings of development outcomes), the interpretive research approach is adopted (Orlikowski and Baroudi 1991). The aim is to gain valuable insights from key stakeholders which may shed light on reasons why development outcomes are not easily achieved with the deployment of the national identity project. The philosophical assumptions that inform the choice of this research approach are based on beliefs that reality cannot be "objectively" captured (Walsham 2006; Orlikowski and Baroudi 1991), but merely understood in terms of the subjective meanings people give to things or events; and these meanings constitute our social actions. Hence, the analysis involves a variety of stakeholder viewpoints based on their understanding of system's enactment processes, and the development benefits they expect the NIC Scheme to bring to their lives.

In the efforts to understand people in the social world they live, a case study approach (Stake 2005) is adopted for the study. This offers opportunities to engage with subjects of the study in a longitudinal way – albeit, retrospectively. This approach enables the administration of data collection at various intervals and through various means during the study – to accommodate changes in people's situations and elicit more relevant information as things progress with NIMC's implementation effort. The specific data collection efforts constitute a combination of interviews, participant observations and document analyses. Interviews are conducted with key stakeholders at NIMC offices and supplemented with phone calls and emails for follow up conversations. Observations consist of visits to the NIC registration centres and attendance at stakeholder meetings comprising all representatives

of NIMC's partner organisations. Document analyses entail reviews of project reports, presentations and other materials gathered from the websites of NIMC and its partner organisations.

1.6. The Chapters to Come

The chapters which follow are outlined to present the main ideas in this study, and how these were developed through the research process.

In **Chapter Two (*Literature Review*)**, a broad classification of ISDC literature is presented to review the main theories that have been used to explain reasons for failures to realise development outcomes from information systems in developing countries. This commences with a discussion of the core entities of ICTs and Development, and the role technologies are thought to play within the development process. Earlier noted was the potential of ICTs to enable developmental growth (Walsham et al. 2007), and the definition of failure as the non-realisation of development outcomes. Hence, literature which focus on IS implementations without explicitly addressing the developmental aspect are also reviewed in the chapter to understand reasons why development outcomes are not easily achieved in developing countries. Also IS innovation experiences in some developing countries (i.e. Nigeria, South Africa, and Brazil) are compared, to show why Nigeria in particular may lag behind others due to culturally-influenced practices such as corruption and tribalism.

In **Chapter Three (*Theoretical Framework*)**, the classification of the ISDC literature from the review is brought together to consider the main themes that are useful in studying why development outcomes are not easily achieved with the implementation of ICTs in developing countries. This was done to evaluate which framework would be most applicable for this research, in light of other alternatives. Sen's Capability Approach is introduced, with a discussion of the theoretical basis of the approach (1999; 2009). The key concepts from Sen's work that are adopted in this research are then described, with the justification for the choices made. Some applications of the capability approach within the domain of

information systems are discussed, to differentiate its application in this research and highlight potential areas for contribution. Lastly, some critiques of the capability approach are discussed, to show how the apparent weaknesses of the framework are addressed in this research.

In **Chapter Four (*Research Methodology and Setting*)**, the methodological approach and assumptions that inform the research perspective and choice of research methods are discussed. The discussion draws on Denzin and Lincoln's (2005) classification of the generic activities which define the interpretive, qualitative research process to describe the assumptions about the study of NIMC's implementation experience. These are described in terms of the philosophical views that guide the researcher and researched (and their multicultural relations); the interpretive paradigms and perspectives (that guide action); research strategies; methods of data collection and analysis; and the art of interpretation. Also, the focal case (i.e. national identity project) is presented, starting with a description of the situated context. In describing the context, some relevant aspects of the Nigerian society are discussed, emphasizing the country's need for a secure and reliable system of identification. Previous implementation efforts of the National Identity Card Scheme are also discussed, to set the grounds for the particular events that are examined in the analyses.

The remaining chapters present the findings, analysis, reflections and conclusions of the study. In **Chapter Five (*Case Study Findings*)**, the findings of the field visits and document analyses are discussed. These are presented within themes which represent the results of the coding exercise of all the data gathered from the identified sources. **Chapter Six (*Analysis and Discussions*)** presents an analysis of the findings, using concepts adopted from the capability approach as "illuminating lenses" (Gregor 2006), to view and explain the events that relevant in understanding how IS deployments can support the achievement of locally meaningful development outcomes in Nigeria, and why this is often not the case with the national identity project. Also, the chapter considers what the national identity case reveals, with reflections on its implications for previous work in the ICTs and Development domain. Lastly, **Chapter Seven (*Conclusions*)** presents the conclusions of the study. The discussion establishes the areas of theoretical and practical contributions of this research, and describes potential areas for further work.

2. Chapter Two: Literature Review

2.1. Introduction

In this chapter, a case is made for a comprehensive study of the deployment of information systems i.e. examining the technical implementation whilst extending the analysis to consider broader development outcomes. As developmental growth is an anticipated outcome of ICTs in developing countries, this study investigates reasons why deployments often fail to bring about such benefits. A significant argument is for the consideration of failure in ways which account for how the use of ICTs is expected to deliver development outcomes, beyond mere challenges encountered with technical implementation efforts. This approach is proposed in order to understand why development outcomes are often not achieved from ICTs in developing countries.

2.2. ICTs and Developing Countries

The notion that information and communication technologies (ICTs) are being used in support of national development objectives in many countries is not new in the literature, particularly those which focus on developing countries i.e. ISDC research. Walsham et al. (2007) note the potential of ICTs to enable improvements in many societal sectors including healthcare, education, business, and government services in general. This potential is increasingly recognised within developing countries, and often propagated (albeit politically) as a universal remedy for the social, economic and political problems faced in societies (DOT Force 2001).

Such views on the one hand, advocate the implementation of ICTs with beliefs that this will effect developmental growth within developing countries. As will be discussed in the

following section (2.3) a lot of emphasis has been placed on the significance of ICTs in contributing to economic growth. Encouraged by such claims, governments and relevant organisations in developing countries are urged to commit valuable resources to the implementation of ICTs. However, such implementations have not always resulted in the anticipated ends. ISDC landscape studies have reported a substantial number of failures in ICT implementations within developing countries. For example, Heeks (2001) notes the high levels of implementation failures in developing countries owing to disparities between designs and the actual contexts of deployed systems. Also, Avgerou (2008) describes the failures of implemented systems to transform the socio-economic conditions of people within developing countries. These views on the other hand, shed more light on the significance of socio-political structures and activities, and other risks associated with the deployment of ICTs within developing countries.

Informed by the latter views, this research follows the tradition of a few studies which examine the implementation of ICTs in the context of a developing country, and investigate its outcomes in terms of the achievement of locally meaningful development goals. For example, Avgerou et al. (2009) examine the implementation of an e-voting system in Brazil, and discuss its outcomes in terms of citizens' expectations i.e. trust towards the electoral process and the political institutions responsible for conducting elections in the country. Likewise, Silva and Hirschheim (2007) examine the implementation of a strategic information system in Guatemala, and discuss its outcomes in terms of engendering enthusiasm towards healthcare activities and government organisations. Such approach is geared towards a more holistic understanding of what goes wrong within ICT deployment and usage contexts - beyond technical implementations.

Also, implicit in this approach is a belief that ICT projects in developing countries share some prospects in regards to the development of a nation despite arguments which suggest the contrary. An example is Brown and Grant's (2010) suggestion to split the literature into two distinct domains i.e. research that focuses on understanding technology "in developing countries" and research that focuses on understanding technology "for development" – the proposed difference being to separate the focus on the process of implementation of ICTs, from the focus on the on the realisation of development impact respectively. However, each

of the proposed domains is not exclusive of the other as there are development expectations apparent with these ICT projects, even when not explicitly stated.

For example, public sector projects with the objectives to improve governance administration bear promises of socio-economic development for rural areas through the services offered (Madon 2004; Ndou 2004; Kottemann and Boyer-Wright 2010). Hence, the idea of addressing these 'domains' under separate research objectives is not as clear cut as Brown and Grant propose. The implication of this argument is that research which addresses the developmental aspects of ICT projects in developing countries would rightly consider the context of deployment in its analysis i.e. implementation and usage. Likewise, research which addresses implementation of ICTs in developing countries would often engage to an extent (which even when implicit is arguably discernible) with the countries' development ideals - bearing in mind the expectations underlying these projects.

Furthermore, Thompson and Walsham (2010) highlight the relative shortage of studies which focus on the developmental impact of ICTs within the African context. The authors show how research in the domain often fails to consider developmental impact – despite development being an impetus for the introduction of ICTs. This also serves as an influence on the approach adopted in this study, where the implementation and context of use of ICTs in a development initiative is examined, with an investigation of desired developmental outcomes from a variety of key stakeholders who are involved in the initiative.

2.3. The Relationship between ICTS and Development

Although there is some consensus on the relevance of ICTs to developing countries and the promises they hold towards developmental growth (Walsham et al. 2007; Walsham and Sahay 2006), it is the way that ICTs are simply linked to development that continues to be an issue. Orlikowski and Iacono (2001) identify different conceptualisations of information technology (IT) in their review of information systems literature as follows. One role regards IT as a tool which is capable of delivering specific outcomes e.g. increased productivity,

enhanced information processing, and improved social relations. A second considers IT by proxy where focus is on aspects that are considered critical in assessing its significance e.g. value in terms of money, or extent of diffusion amongst individuals. A third sees IT as an ensemble of technological artefacts in constant interaction with people in the context of some socio-economic activity. The last role views IT as a computational apparatus capable of executing algorithms, modelling or simulating aspects of the real world.

Amongst the first three¹, the tool view continues to be the most common conception of IT, with particular dominance in relation to the achievement of development outcomes. Such is reflected within the body of ISDC literature, where there is little focus on developmental impact (Thompson and Walsham 2010) – as it is often assumed to trail the introduction of ICTs. In the next subsection some major approaches to development are discussed, followed by critiques of the tool, proxy, and ensemble roles (with examples of relevant literature) which ICTs are thought to play within development projects.

2.3.1. The Approach to Development

Arguably, the main proponents of the tool conception within development initiatives are international development agencies which often promote ICTs, through their programs and publications, as a “powerful tool” capable of advancing national development in terms such as eradicating poverty, and improving health services and governance (UNDP 2001; DOT Force 2001). Under the banner of “ICT for Development” (ICT4D), such communities project ICTs as silver bullets that can enable developing countries “leapfrog” stages of development. This notion is based on assumptions that investments in ICTs have been the main driving force behind societies that are developed, or are experiencing some form of progress. Following from this is the proposition that less developed countries that are desirous of developmental growth should follow suit. Understandably, this leapfrogging notion and

¹The discussion in this chapter is limited only to the tool, proxy, and ensemble views as they represent conceptualizations of ICTs which have developmental meanings attached owing to their focus on people in social contexts.

resulting propositions have attracted much criticisms (Madon 2009; Zheng 2009; Soeftestad and Sein 2003), challenging the possibilities of developing countries emulating the 'development' trajectory of foreign nations.

These studies critique the dominant ideologies on economic growth underlying development initiatives (e.g. modernization and globalization) on grounds of the immense infrastructure and resource inequalities inherent in low income countries. The presence of such inequalities compromises the assumption that the aggregated benefits of growth (measured in economic terms such as gross domestic product and gross national income) would trickle down to all the segments of a society and redress all poverty related problems. Furthermore, 'developing countries' are treated as homogenous entities, implying that a particular approach to development can be universally applied to achieve growth, regardless of each country's local and contextual factors. In sum, the development approaches based on the 'western perspectives' are believed to further widen the income inequality between rich and poor, rather than reduce the 'divide' between developed and developing countries (Madon 2009; Zheng 2009; Soeftestad and Sein 2003).

Fuelled by such apparent weaknesses, alternative ideologies (focused on basic needs and capacity building) emerged with intent to redress the inequitable distribution of income (Wade 2004); accommodate the diverse nature of peoples' needs beyond mere increases in income (Midgley 2003); cater to the needs of the largely marginalised and more populous segments of societies (Gasper and Truong 2005); prioritize development objectives and initiatives in ways which are predisposed to the poor (Ashley and Carney 1999); and improve networking and social inclusion within societies through technological means (Castells 2010). A notable example is the capabilities approach (Sen 1999; 2009) which considers development in terms of an individual's freedom to pursue what (s)he values in life.

The capability approach (CA) emphasizes the political and institutional dimensions of development in which governments have a key role in enabling individuals to avoid deprivations resulting from lack of education, healthcare, security, civil liberties and other constituents essential for achieving higher living standards (Corbridge 2002). The CA is discussed in more detail in **Chapter Three (Theoretical Framework)** as it is adopted as the

theoretical basis for the framework of this study. Within the discussions, the CA is critiqued in light of the above ideologies and other theoretical approaches that may be considered for a study of this nature (**Section 3.4.2**).

Nevertheless, Sen's approach to development involves promoting individuals' capabilities to engage in activities which improve the quality of their lives, and strengthening the institutional capacity of a society to support participation in relevant activities. The relevance of such an approach to this study is its consideration of development as a context specific process, intertwined with individual desires and efforts of relevant institutions in addressing the needs of the society, including the ICTs deployed to support such goals. Although this is a normative approach to assessing development, it provides a framework of thought (Zheng 2009; Robeyns 2005), which allows one to define what is meant development outcomes and consider different ways in which they can be conceived in regards to ICT projects in developing countries.

Also, development is value relative i.e. dependent on what is perceived as growth. Hence, it is considered in this study as either an improvement, or that which enables or supports an improvement in people's lives. Previous studies utilizing Sen's capability approach have investigated such outcomes in terms of the objectives of improved governance and administrative reforms (Madon 2005a); provision of health information services (Zheng and Walsham 2008); and capacity building of citizens (Madon 2004) and rural communities (Prakash and De' 2007). These and other applications of Sen's capability approach are critiqued in detail in **Chapter Three (Theoretical Framework)**. Nevertheless, it is in this light that public sector information systems are reviewed in this chapter (**Sections 2.4.1 – 2.4.3**) in terms of development goals, and considered for reasons why such goals are often not achieved.

2.3.2. The Role of ICTs (within the Dynamics of Development)

Typically, information and communications technologies (ICTs) refer to the technological artefacts which

“enable the processing and transfer of data and information electronically for the purposes of an information system” [in which] “knowledge of the capabilities and limitations of ICT as components of information systems is essential to understanding the design, performance, operation and use of information systems” (UKAIS, 1999: 5).

Such “knowledge” undoubtedly emerged out of a western and scientific tradition of studying information systems (Soeftestad and Sein 2003; Puri and Sahay 2007) which continues to pervade the use of ICTs in development (referred to in this study as IS projects). Reverting to earlier discussion on the different conceptions of IT in information systems research (Orlikowski and Iacono 2001), this “knowledge” is also reflected in the tool view associating ICTs with development - with much emphasis on how to increase access and reach for improvements in people’s productivity, performance and competitiveness.

With regards to poverty alleviation for example, the application of ICTs as a tool for economic growth can be seen in the literature. Kenny (2000) discusses the role of the internet in addressing poverty related problems in the rural and underserved parts of Africa. Such a view is based on the reasoning that improved access to market-related information and knowledge increases the potential earning power of people in rural areas, and that access to health and education information constitute a vital contribution of ICTs towards poverty reduction (Urquhart et al. 2008). What is proposed within Kenny’s (2000) study is a system of liberalization within telecommunication sectors, coupled with subsidies from governments to increase access to internet infrastructure for relevant information within developing countries.

Cecchini and Scott (2003) hold similar views in terms of government interventions to drive down the costs of access to information infrastructures (e.g. telephone lines for dial-up internet access) to support the objectives of development initiatives aimed at the poor in rural India. Exemplifying the tool view, these studies bring to light the high costs of ICT infrastructure in relation to the levels of poverty faced in developing countries. However,

there is an assumption that increased access to the internet and other ICT interventions would be beneficial to adopting communities. What is unquestioned within this view is how (or whether) such interventions can contribute to locally relevant development goals.

Taking such propositions further, Bollou and Ngwenyama (2008) investigate the productivity of ICT sectors in six West African nations to evaluate the performance of the investments in ICTs within those countries. Although this qualifies as the proxy conception in terms of evaluating the significance of deployed ICTs, the authors utilize secondary data obtained from the International Telecommunications Union and the World Bank to measure the increases in ICT sector productivity which have (in their views) resulted from technological change. Hence, in line with the 'powerful tool for development' rhetoric earlier noted (UNDP 2001; DOT Force 2001), and the optimism of international development agencies in general (Soeftestad and Sein 2003), Bollou and Ngwenyama's findings demonstrate a positive relationship between investments in ICTs and productivity growth in each of the countries over a period of eight years.

Following from this, Bollou and Ngwenyama propose complementary investments in other sectors (e.g. education) to address the declining rate of growth observed within those countries. In comparison with the tool view, this shows an acknowledgement of other requirements beyond increasing the amount of investments in ICTs (and hence access and reach). However, little consideration is given within this view to the relative scarcity of resources in developing countries, and associated opportunity costs of ICT inclined investments. In other words, there may be other pressing issues which require more urgent attention than further ICT inclined investments within such countries.

Nevertheless, other studies are more critical of the ways in which ICT innovations are expected to contribute to development. A notable one concerns the discourse on the economic significance of ICTs, where Avgerou (2003) criticizes the ways ICTs are associated with economic growth (particularly within the spaces of international development organizations). As earlier discussed, these organizations promote views that investments in ICTs will bring economic benefits to rural and under-served areas, and seek further improvements in terms of accessibility and operations within open and free markets. Avgerou's study exemplifies the ensemble view in highlighting the role of other political and

institutional forces (beyond markets and its mechanisms) in sustaining the conditions for IS interventions. Hence, her argument suggests that the dynamics of the relationship between ICTs and development are much more complex than presented by development organizations - indicating the need for more understanding of what is locally meaningful, and what actions are more appropriate to context in the various efforts to accommodate ICTs.

Another critical view of ICTs and Development asks what growth means in light of the diverse ways the term development may be conceived - in a bid to understand what is being pursued and how ICTs may make relevant contributions. For example, Prakash and De' (2007) argue that what development constitutes in the context of an initiative matters in the design and implementation of ICT4D projects. In critiquing the notions of development which take on nation states as their focal unit of conception (i.e. modernization and liberalization), the authors demonstrate how limited perceptions of development objectives restrict not only the potential, but influence the nature of use of ICTs within a land management system in India. The findings from the Prakash and De' study show that the project was not well appreciated by a significant portion of the intended beneficiaries as their expectations for improved quality of lives were not achieved. What is emphasized in the study is a need for broader views of development which acknowledge contextual variations in the ways people conceive of the notion. The rationale for such a view is that appreciating people's perceptions while designing relevant ICTs is necessary if such innovations are to make meaningful contributions towards improving the quality of their lives.

From the discussion so far, two broad positions can be discerned concerning the perception of the roles of ICTs in development. On the one hand are the tool and proxy conceptions which indicate an instrumental role of technology as instruments that enable desired (albeit foreign) states of development. On the other hand is the ensemble conception which suggests a more mediatory role of technology as artefacts able to support the achievement of locally relevant and meaningful development objectives. In the instrumental role, much emphasis is placed on the widespread uptake of innovations as a way of expediting aggregate economic growth - with measures proposed to facilitate access to such innovations. However, in the mediatory role there is much cognizance of the limitations

associated with the transfer or deployment of technology, and hence more realistic on the ways in which ICTs may be conceived in the bid to improve living conditions.

Although each of the different conceptions of technology (i.e. tool, proxy and ensemble) highlight valid challenges associated with the use of ICTs in development (e.g. issues with access and conditions in accommodating IS interventions), this study is more inclined to the ensemble view. This comes from recognizing that beyond the issues of access are other socio-cultural aspects involved in accommodating ICTs. Furthermore, there are concerns about what is perceived as developmental growth amongst those concerned, and how deployed ICTs are expected to support such growth within the adopting contexts. Bearing in mind the perspective of development adopted within this study (i.e. improvements or that which enables or supports improvements in people's lives), public sector projects can be examined in terms of intended, desired, and achieved outcomes from concerned actors. What is hoped for is an initial understanding of the challenges to ICT deployments, as a prelude to a fuller appreciation of the reliance on ICTs for development outcomes by proponents of the ICT4D agenda.

2.4. Failures of Public Sector IS in Developing Countries

Earlier noted (**Section 2.2**) was the belief that IS projects in developing countries, particularly those in the public sector, share some prospects in terms of development potential. An argument here is that efforts to answer why information systems in developing countries fail to achieve developmental outcomes require an understanding of the sort of forces which hamper the realization of such objectives. Public sector information systems in developing countries are unique for two main reasons as follows.

One is the issue of context, where authors have identified how developing countries face additional challenges in the deployment of ICTs – in comparison with more advanced nations. Some of these include poor technological orientation, where low levels of literacy (Bhatnagar 2000); and unfavourable socio-cultural conditions (Corea 2007; James 2004) are

perceived as constraints to the assimilation of ICTs within developing countries. Others include poor levels of commitment to IS projects, where inadequate infrastructural developments (Heeks, 2002); and the lack of appropriate policies (Adam and Urquhart 2007; Ndou 2004) are seen as limitations on developing countries' capacity to innovate successfully.

A second is the element of justification for the investments in technology, where the value of systems to project sponsors in the public sector is noted to differ from the value to those in the private sector. A key difference between such projects is that private sector projects are market driven (Silva and Hirschheim 2007), while government sponsored projects are often dependent on their contributions to the development of a state, or improvements in the quality of lives of its citizens.

An implication of this difference is that the literature which focuses on the business value of systems to private organizations tends to give rise to managerial and technical accounts of the problem of failure, while ignoring broader issues of social, economic, political, cultural, and historical natures such as the concerns on context highlighted earlier. This is aptly expressed by Mitev as "*...a truncated understanding of organizations*" in which there is often an assumption of rational management and technical intervention, little acknowledgement of power relations or organizational politics, and a narrow conception of the situated context e.g. customer/supplier activities rather than government/citizen transactions (2005: 78). Accordingly, reasons for failures often suggested from such literature include the inability of organizations to learn from past experiences (Lyytinen and Robey 1999); or the inability to manage the scope and specifications of ICT projects within organizations (Ewusi-Mensah and Przasnyski 1994).

While these remain valid views, the issue of failure is arguably more complex, involving a wider variety of challenges alongside the above concerns regarding developing countries. Heeks (2002) notes the subjective nature of failure, which is often dependent on what goals are being assessed and the timing of such assessments. These draw attention to conflicting interpretations on failure, as one person's failure may be interpreted as another's success. Also, the periods of assessment may not capture a project's outcomes to an adequate extent.

These further relate to the dimension of interests, which often differs amongst concerned actors - and is crucial in understanding the value-laden nature of failure (Bartis and Mitev 2008). In other words, different stakeholders, often for politically motivated reasons, are able to attach different meanings to deployed systems to either support or hinder its course over time. The relevance of this is that public sector projects arguably present a wider variety of stakeholders. It is in such stride that Avgerou and McGrath (2007) study the IS innovation efforts of an organization within the Greek public sector, and show that 'technical/rational' analyses, even when laced with power relations within organizations, may be inadequate in explaining the dynamics of IS project failures.

Nevertheless, earlier landscape studies of ISDC literature suggest that failure has often been discussed in connection with aspects of design and implementation of information systems (Heeks 2002; Avgerou 2008; Walsham et al. 2007). These authors identify the way concerns on IS failures are addressed along a spectrum of issues relating to project completion, usage of information systems, and integration of ICTs into everyday routines and practices. Accordingly, the failure themes that were observed seemed to focus on the problems of scalability, sustainability, and institutionalization within organizational change efforts. Interestingly, such classifications illustrate the need to further examine the broader social, economic, political, cultural and historical forces which influence IS projects in developing countries.

For example, scalability is considered as the expansion of an information system's operations beyond its test phases and immediate setting of deployment (Sahay and Walsham 2006; Avgerou 2008). Scalability studies examine the value of IS projects to the larger society as it constitutes a different context from its initial scope or space of influence. This is based on a perspective of scalability as a peculiar problem in developing countries which requires an increase in both the levels of technical competence amongst users, and the capacity of support within projects to address additional issues arising from the socio-cultural aspects of the wider society (Sahay and Walsham 2006). This fundamentally differs from one which focuses on the technical complexities involved in managing scope and specifications in IS projects (Ewusi-Mensah and Przanyski 1994) within the business space of implementing organizations.

Sustainability refers to the sustenance of ICT-based projects over the long term (Walsham and Sahay 2006; Kanungo 2004; Madon 2005b; Butler 2001). Sustainability studies show how an initiative may succeed initially, but go on to identify the forces that threaten the long term viability of the systems to local communities. This is based on the perspective of sustainability as a problem faced in developing countries where issues of social support (i.e. information and other benefits that may be accrued from ICT-enabled interaction) from governments and other relevant institutions is crucial in maintaining the activities in ICT projects (Butler 2001). Other perspectives on sustainability identify the financial, institutional, and technical requirements for sustaining operations in ICT projects (Harris et al. 2003; Best and Kumar 2008; Kumar and Best 2006). However, they often treat each aspect in isolation of the others and offer managerial-inclined solutions, while overlooking the primary basis for such operations i.e. the anticipated benefits as desired by the target population.

Lastly, institutionalization of an information system implies some level of stability in its processes such that the activities associated with it are taken as routine (Currie 2009; Silva and Hirschheim 2007; Silva and Backhouse 2003). Sustainability studies consider the social dynamics surrounding an implementing organization alongside aspects of the technological infrastructure in understanding the constraints to successful integration of ICTs into work and everyday practices. This is based on the perspective of institutionalization as an issue which requires much consideration of the pressures external to implementing agencies within the use of technology in change projects (Currie 2009). In other words, the perspective recognizes the fluid nature of change resulting from environmental influences (e.g. regulative policies and government legislations), rather than assuming that institutionalization in information systems can be achieved in a seemingly linear process guided by 'appropriate' managerial practices within IS projects (Bada et al. 2004; Bada 2002) – with little attention given to the often non-sequential and disjointed nature of change.

Reverting to earlier discussion on the subjectivity of failure (Heeks 2002), the dependence on ICTs for the achievement of development goals within the wider society comes to mind. As development is often a major objective within IS projects in developing countries, failure is thus defined in this study as the non-realization of development outcomes from the deployment of ICTs. This is in line with the belief that information systems innovation

comprises socio-technical change (Avgerou 2008) i.e. technology and its implications for the conditions (social, economic, and political) of the people within the context of deployment. In essence, the approach adopted here considers the reach of ICTs beyond the immediate space of implementing organizations to the larger society in understanding the full implications of the outcomes of its deployment.

In the following sections (**2.4.1 – 2.4.3**), a structured review of some literature on ICTs in developing countries is presented to account for the types of failures often observed. Although the causes of IS failure are not always explicitly mentioned in each case, the studies address different aspects of IS implementation that are able to shed light on reasons why development goals may not be achieved within IS projects. Invariably, such studies often discuss how to achieve success, avoid failure, or are indicative of important issues which need to be addressed for desired outcomes to be achieved within the implementation of ICTs in the focal contexts.

Also, there is no claim in this study to being exhaustive on the causes of IS failures within developing countries. Rather, the aim is to explore reasons why such IS deployment are often problematic – which is consistent with efforts at understanding what happens in such contexts to address adoption and implementation challenges (Avgerou et al. 2009; Silva and Hirschheim 2007). Nevertheless, the sections (**2.4.1 – 2.4.3**) present a comprehensive view of work on ICTs and Development within developing countries; as well as notions of failure that can be found within the global IS research community. This is owing to a systematic selection of literature which considers and reflects the following.

Firstly, the main discourses on IS innovation and related societal change that can be found within ISDC research. Avgerou's (2008) landscape study of ISDC research identifies three discourses namely – IS innovation as ICT and knowledge transfer (from advanced nations) and adaptation to local contexts; IS innovation as social actions embedded in local conditions; and IS innovation as transformative interventions laced with prospects and expectations for socio-economic development. Secondly, key theories on IS innovation that have been used within the wider IS research community. Examples are actor-network and institutional theories which have been adopted from advanced nations into developing countries' contexts e.g. India (Walsham and Sahay 1999) and Peru (Miscione 2007)

respectively. Hence, by reviewing literature which covers the above, this study makes claims in presenting a comprehensive view of the literature on ICTs and Development, and notions of IS failure.

2.4.1. Type 1 Failure: Problems in Applying and Assimilating Technology

2.4.1.1. Poor Policy Driven IT Environment

In recognition of the low levels of penetration of ICTs in some developing countries, much of the literature emphasizes the role of governments in creating conducive environments which enables these technologies to yield benefits. One of the identified ways is the legislation and appropriation of supportive policies, which are in turn expected to encourage and facilitate the uptake of ICTs within societies. An example is Adam and Urquhart's (2007) study of the implementation of ICTs within the Maldivian tourism industry. With regards to development outcomes, the implicit intent on the part of the government and tourist resorts were improvements in the knowledge processing and sharing capabilities within the tourism industry which was supported by investments in internet infrastructure. The tourist staff on the other hand desired access to the internet to maintain communications with friends and family members. Although the goals in both cases were not achieved, emphasis was on the shortage of IT capacity building and human development programs (resulting from ill-guided national policies) in explaining the failures to achieve intended outcomes.

Other authors further stress this need for governments to implement relevant policies which address the shortage of IT skills and human capital within developing countries (Mann 2003; Yusuf 2005). Such authors assert that the effective use of ICTs resulting from a certain level of IT proficiency is required to enhance the capacity of developing countries to successfully derive development outcomes from their investments in ICTs. However, alongside the adequate levels of IT proficiency is the infrastructure required to support the penetration of ICTs across the regions within a country. National policies become relevant in this aspect as rural areas often lack sufficient access to ICT infrastructure (e.g. telephone lines for internet connectivity) in comparison with other areas, and are less able achieve

significant outcomes from the deployed ICTs. Following this, governments in developing countries are advised to introduce appropriate policies which address the inequitable access to ICT infrastructure, regardless of the poor economies of scale in providing such services to the underserved areas (Ndou 2004; DOT Force 2001).

Other concerns related to the creation of a viable policy driven environment highlight the need for much stronger ICT sectors to support IS innovation efforts. In the Kingdom of Jordan for example, there is emphasis on the implementation of policies and relevant legislative changes to encourage foreign investments and facilitate collaborations between public and private enterprises within its ICT sector (Al-Jaghoub and Westrup 2003). With an explicit focus on the government's approach, the developmental intentions are apparent in the bid to make the country more competitive in the provision of IT services to countries within the Middle East, and other regions in the world. Consequently, the private sector and workforce stand to receive economic benefits from the anticipated income growth. However, despite the early advances made in terms of entry into international markets within the region, sustaining such successes is arguably dependent on further policy and legislative changes to meet the requirements for competition at a more global level e.g. copyright laws and interventions to attract and retain the much needed skilled workforce and expertise.

The retention of skilled workforce is a particularly important issue worth further comment. IT professionals often aim for, and are themselves targets of international markets which may lead to the loss of resources which are already scarce in developing countries. Reports on the yearly provision of at least 65,000 visas by the United States to highly skilled professionals (USCIS 2010; UNDP 2001) for example, indicate how invaluable skills and other benefits may be lost to such countries regardless of the level of commitment to developing their ICT sectors. Furthermore, the creation and implementation of policies in general are not free from challenges, particularly in the context of developing countries. The enforcement of policies requires some level of stability in a country's social, economic, and political environment (Uhegbu 2004), to enable committed and consistent efforts from the institutions charged with its appropriation. This is a major issue within the context of this study i.e. Nigeria, as a significant number of its institutions undergo a cycle of dissolution and re-establishment by successive governments, and hence have not been established long

enough to warrant such a disposition (McGrath and Maiye, 2010). This will be discussed further on in this chapter showing how a lack of institutions and institutional mechanisms in some countries result in the failure to achieve intended outcomes within IS initiatives.

2.4.1.2. Lack of Community/End-User Involvement

Another problem regarding the low ICT uptake in developing countries concerns the exclusion of end users or target beneficiaries in IS projects. Recognizing the shortcomings in adopting or imposing western or externally oriented forms of knowledge over indigenous ones within IS initiatives, much of the literature makes the involvement of end beneficiaries the main issue of interest in addressing the unfavourable outcomes observed. This is geared towards incorporating the local needs of host communities. An example is the earlier discussed study of two implementation experiences in the Indian microfinance sector (De' and Ratan 2009), where one of the systems failed to be scaled up due to a lack of consideration of the needs of end beneficiaries (i.e. clients of the microfinance agencies). Conversely, the successful outcome of the other system was attributed to the involvement of end beneficiaries, which resulted in its early acceptance and sustained use.

Such a view suggests a more active role for IS actors outside the sphere of designers and project sponsors. Some participatory approaches have been proposed to address the lack of acceptance syndrome observed in developing countries. However, before moving on to this, other challenges associated with externally oriented development approaches will be considered in terms of their significance to the outcomes of IS projects in developing countries. Some of these relate to the development of context-relevant systems, where proposed services are perceived inadequate at addressing the needs of target populations. On such grounds Heeks (2002) asserts that the disparities between system designs and the actual contexts of development efforts lead to higher risks of failure within IS initiatives. On a similar note Mursu et al. (2000) argue for the consideration of context specific requirements within IS development efforts in developing countries. These views query the ways IS deployments are dominated by project sponsors' assumptions on what is needed, rather than the requirements which emerge from the local realities of target beneficiaries.

Others relate to the need for users to derive some form of socio-economic benefits from the exposure to IS initiatives (Kanungo 2004; Madon et al. 2009). Although this has been identified as a major element for justification of IS on the part of governments, it further serves as an incentive to sustain the participation of target users. In the Madon et al.'s study involving three IS projects across a number of developing countries (India, Brazil, and South Africa), the significance of socio-economic activities to the sustainability of the projects is exemplified. In the Indian case for example, the development objectives of generating entrepreneurial activities seemed questionable on the grounds that there were no clear links with 'key socioeconomic sectors' (e.g. health, education and agriculture). In the Brazil case however, while the intended objectives were not achieved, the system was seen successful in terms of engaging the youths due to the social activities generated by the project.

Involving end beneficiaries is generally believed to improve the outcome of IS projects (Puri and Sahay 2003; 2007; Mursu et al. 2000). Hence, there is much emphasis on facilitating participative processes to drive early acceptance and ownership of IS amongst target users, particularly those external to implementing organizations (i.e. local community members and other marginalized people). An example is the case of a child health information system in a rural part of South Africa (Byrne and Sahay 2007), with its explicit objectives to address the information needs for healthcare provision to children under the age of 5 years. On a similar note, the community members desired the care of vulnerable children. The successful achievement of the goals was attributed to the 'participatory situational assessment' exercise which entailed the involvement of actors responsible for childcare in the design of IS in order to understand the well-being requirements of children in the community. Similarly, in earlier discussed case involving information kiosks in some Indian villages (Kanungo 2004), the 'participatory rural appraisal' (PRA) was identified as the major component responsible for building villagers' confidence in the project. The PRA in this case refers to a collaborative exercise in which elected village members were involved in decisions regarding the implementation of the kiosks.

In sum, the literature in this category of failure brings to light challenges of a technical nature encountered with the use of ICTs in developing countries. Reasons for failures are often expressed in statements such as: limited IT skills (or capacity) to utilize the systems;

poor access to IT infrastructure; and so on. Following these are prescriptions to improve the IT competence of beneficiaries through training or involvement in the design of systems, and to provide access to required infrastructure. While these are valid concerns, the contention with this category is that technology is often isolated and treated as a neutral and unproblematic object which is able to deliver desired outcomes. In essence, the body of work in this category presents a technical form of rationality in addressing the problems with ICT deployments. This is inadequate on account of its neglect of broader social, economic, political and historical issues that are also implicated in the deployment of information systems.

	IS FAILURE THEMES/SUB-THEMES	MAIN REFERENCES	SUPPORTING REFERENCES
1	Poor Policy-Driven IT Environment		
a	Shortage of IT skills and human capital	Adam and Urquhart (2007)	Mann (2003); Yusuf (2005)
b	Limited access to ICT infrastructure	Ndou (2004)	DOT Force, (2001)
c	Weak and uncompetitive ICT sectors	Al-Jaghoub and Westrup (2003)	UNDP (2001); USCIS (2010)
d	Unstable social, economic, and political environment	Uhegbu (2004)	McGrath and Maiye (2010)
2	Lack of Community/End-User Involvement		
a	Lack of consideration for end beneficiaries	De' and Ratan (2009)	
b	Poor context-relevant content development in IS projects	Heeks (2002)	Mursu et al. (2000)
c	Limited socio-economic gains to end beneficiaries	Madon et al. (2009)	Kanungo (2004)
d	Ineffective participatory approaches for stakeholders	Puri and Sahay (2007)	Byrnes and Sahay (2007); Kanungo (2004); Puri and Sahay (2003)

Table 1 - Type 1 Failure

2.4.2. Type 2 Failure: Problems in Managing IS Projects

2.4.2.1. Context-Specific Issues Affecting IS Projects

A common theme underlying the literature on IS in developing countries is the shortage of resources (i.e. financial, technological, and human), and the management of such resources within IS projects to achieve intended outcomes. Many public sector projects are reliant on support from governments and international aid agencies which only commit a limited amount of resources due to investments in other areas of interest – a problem further amplified when these sponsors withdraw their support from the projects. Authors theorise on different ways to address this problem indicating how operational issues may be resolved in the bid to achieve desired outcomes. On the issue of funding for example is Harris et al.'s (2003) study of two telecentre implementation projects in India, where operations were dependent on commercial services - in contrast to the more common externally donor funded ones. The explicit development objectives include the provision of technical information to support agricultural activities amongst farmers within the districts, and the delivery of government services to citizens such as electoral activities and petitions to public officials. The cases demonstrate that such outcomes can be achieved within projects if the issue of operational funding is tackled from the onset through the delivery of relevant income generating services.

Nevertheless the issue of funding continues to be one of the major challenges to the achievement of desired outcomes within IS projects (Best and Kumar 2008; Braa et al. 2004; Walsham and Sahay 2006). Another resource-based problem related to the management of IS projects in developing countries is the availability of technical support for operations, particularly on a larger scale involving external actors from the society. Sahay and Walsham (2006) address this issue in their study of the implementation of health information systems in India. The implicit development goals in implementing the project derive from the provision of information infrastructure for the health centres in a region which caters for the healthcare needs of an estimated 75 million people. In this case, the concerted efforts at developing the technical competence of the implementation team (i.e. in terms of the capacity to manage the increasing complexities associated with the growing operations),

played a major part in the successful expansion of the project from its pilot phases to state-wide operations.

While other authors have been more explicit on the lack of availability of technical support as one of the major reasons for the failure of IS projects in developing countries (Avgerou 2008; Walsham and Sahay 2006; Mursu et al. 2000), it is apparent from the Sahay and Walsham (2006) case that there was a high level of commitment from the project sponsors (i.e. the Indian government), which translated to a consistent allocation of resources to fund relevant activities within the project. This indicates a much larger issue of political and institutional support, which is required to maintain the flow of valuable resources within IS projects if they are to stand a reasonable chance at achieving desired outcomes. Kumar and Best (2006) identify this issue in their study of the rural internet project in India. The implicit development goals associated with the project were to improve citizens' access to government services such as birth and pension certifications, both of which represent the most demanded services from citizens. However, despite the initial successes in the delivery of such services, the project failed to sustain its operations after a year due to diminishing support from the government and partner agencies in terms of the lapses in training of project staff, and the transfer of key personnel who served as project champions without competent alternatives to serve in their positions.

Another dimension of the resource availability perspective involves the transfer of knowledge alongside the technical aspects of deploying information systems in developing countries. Knowledge gained from learning and sharing of experiences within projects is seen as an effective means of addressing the challenges encountered in the various efforts to adapt systems to local contexts. For example, the health information systems program (HISP) illustrates the relevance of action research to the deployment of IS in a number of developing countries (Braa et al. 2004). In general, the prospects for development to the countries deploying the systems include the provision of information to support the delivery and management of primary healthcare services particularly in deprived communities. However, the cases demonstrate that such goals are often dependent on the extent to which the advances made in some areas can be successfully replicated in others through the transfer and sharing of relevant knowledge and experiences within the projects. Also, the cases further emphasize earlier identified need for IS projects in developing countries to

maintain a strategic connection with political and institutional forces to remain viable in terms of relevant resources (Kumar and Best 2006).

2.4.2.2. Poor Capacity in Managing Change Efforts

Considering the nature of the problems in developing countries observed so far, one may question the capacity to manage change efforts. On the one hand, there is the technological orientation necessary to embark on change programmes, while on the other, there is organizational capacity required to execute such projects. In other words, do the concerned actors understand how ICTs may contribute to the desired objectives i.e. organizational or societal reforms? These point to a number of issues which have implications for the achievement of development outcomes.

A first concerns the methodical practices adopted within change projects in developing countries, which are often based on models adapted or transferred from more advanced nations (Bada 2002; Bada et al. 2004; Braa et al. 2007; Jacucci et al. 2006). These studies query the homogeneity inherent in these practices and propose their adaptation to accommodate contextual requirements. An example is the implementation of a change project in a Nigerian bank (Bada 2002; Bada et al. 2004). The implicit development objectives in deploying the banking system derive from the government's policy to increase the geographic reach and coverage of banking services, particularly to rural areas. In this case, the advances made in terms of achieving the objectives were attributed to the 'adaptations' of the standardized procedures to cope with local practices. While adaptation of global standards at local levels has received much attention in the literature (Braa et al. 2007; Jaccucci et al. 2006), it reveals the difficulties within organizations implementing relatively large ICT infrastructure that are transferred from abroad.

The issue above refers to the complexities in operations resulting from conflicts between the rules embedded in a system and prior established organizational routines or social processes (Ciborra 2005; De' 2008; Silva and Backhouse 2003). These studies observe the

ways that specific features of a system disrupt the norms and order within its embedded context to produce unintended consequences. In the Ciborra study for example, the development goals in implementing e-government systems on the part of the government were to reform its agencies and improve the delivery of services to citizens in Jordan. The projects' consultants on the other hand saw this as a form of transformation, from a military culture to a service-oriented state. However, the risks of failure in achieving these goals derive from the model of state inscribed in the systems and its conflict with the bureaucratic nature of the government agencies. Such conflicts could also be politically motivated for reasons such as acquiring voters' confidence during elections (Silva and Hirschheim 2007), rather than resulting just from bureaucratic influences.

Other issues concern the integration of relevant systems, where there may be compatibility challenges with legacy systems or those of partner organizations (Ciborra and Navarra 2005; Kimaro and Nhampossa 2005). Such studies focus on the issue of control and the difficulties inherent in cultivating networks between organizations at various hierarchical levels. In the Ciborra and Navarra study for example, the objectives to enable reliable inter/intra agency communications towards efficient service delivery were considered at risk of failure due to the introduction of disparate systems by autonomous government agencies.

Also, in regards to inter-organisational activities within IS projects, the collaborations between relevant institutions may prove unfavourable to the IS innovation process for a number of reasons. One concerns the selection of appropriate partners, where the increasing use of public-private sector collaborations in development initiatives are believed to have an influence on the capacity to effectively utilize ICTs towards development goals (Hosman et al. 2008). Another concerns the relations between relevant institutions, where power conflicts between organizational actors and project sponsors (Kimaro and Nhampossa 2005); or the lack of political will to relinquish power and share information within partner agencies (Silva 2007) are seen as obstacles to the achievement of successful outcomes within IS initiatives. Taken together, these views project the need for inter-institutional relations to be effectively managed towards the achievement of successful outcomes within development initiatives.

	IS FAILURE THEMES/SUB-THEMES	MAIN REFERENCES	SUPPORTING REFERENCES
3	Context-Specific Issues Affecting IS Projects in Developing Countries		
a	Insufficient operational funding within IS projects	Best and Kumar (2008); Harris et al. (2003)	Braa et al. (2004); Walsham and Sahay (2006)
b	Limited availability of technical support	Avgerou (2008); Mursu et al. (2000); Walsham and Sahay (2006)	Sahay and Walsham (2006)
c	Insufficient political and institutional support to sustain required resources	Kumar and Best (2006)	Braa et al. (2004); Sahay and Walsham (2006)
d	Limited availability of IT-related knowledge	Braa et al. (2004)	
4	Poor Capacity in Managing Change Efforts		
a	Inadequate methodological practices within change projects	Bada (2002); Bada et al. (2004)	Braa et al. (2007); Jacucci et al. (2006)
b	Complexities in systems' operations due to locally established routines and practices	Ciborra (2005); Silva and Hirschheim (2007)	Silva and Backhouse (2003); De' (2008)
c	Incompatibility issues with other systems (e.g. legacy systems or those of partner organizations)	Ciborra and Navarra (2005); Kimaro and Nhampossa (2005)	
d	Organisational conflicts	Hosman et al. (2008)	Kimaro and Nhampossa (2005); Silva (2007)

Table 2 - Type 2 Failure

On the whole, the literature in this category highlight issues of a managerial nature experienced with the implementation of IS projects in developing countries. Reasons for failures here are often expressed in terms such as the poor management of operational funds; conflicts of interests amongst sponsoring agencies; and inconsistent support from project partners to sustain project operations. The recommendations which follow advocate smooth operations through selection of appropriate partners, management of power conflicts between organizational actors and partners, and so on. Although this category (in comparison to **Type 1 Failure**) looks beyond technology to other issues, such as power and politics, to explain the problems at hand, there is some contention with the body of work. It seems optimistic to expect that the interests and objectives of concerned actors can be managed or aligned towards some common purpose. In essence, the body of work in this category presents a managerial form of rationality in addressing the problems at hand. This is inadequate on account of its negligence of the many possible and valid interpretations of what may be considered as successful outcomes.

2.4.3. Type 3 Failure: Unfavourable Social and Institutional Conditions

2.4.3.1. Unfavourable Socio-Cultural Conditions

It is generally assumed that developing countries exhibit a lower level of ICT penetration than the more advanced nations and there is much effort from governments and international development agencies to address this divide through substantial investments in technology. However, alongside the provision of technology, there is much recognition of the social, economic, and cultural conditions which affect the uptake of ICTs in these countries. Much research on IS in developing countries emphasize the significance of these conditions within the various development efforts, from which lessons can be learned regarding the achievement of development outcomes. An example is widespread poverty and its implications for citizens' access to technology within developing countries (Cecchini and Scott 2003; Heeks 2008; James 2004; Kenny 2000). Such studies attribute the unfavourable outcomes observed in IS initiatives to the relatively high costs of access to IS infrastructure within developing countries.

Another concerns the literacy levels observed within societies in developing countries, particularly its rural areas. For example, Bhatnagar (2000) discusses the application of ICTs within co-operative societies in rural India. The implicit development objectives in this case were primarily to support farmers within the district in the production and distribution of milk. Although advances were made in administration and delivery of the services, the case shows that longer term objectives on produce quality were only achievable through the co-operative's efforts at educating the rural farmers. Others have compared the experiences of IS projects different areas within developing countries, and attributed the poor usage of ICTs to lower literacy levels in the more rural parts (Cecchini and Scott 2003; James 2004). Such studies propose the use of intermediaries within IS initiatives to alleviate the unfavourable conditions in rural areas.

Others have stressed the need to consider the cultural aspects of development interventions within developing countries (Miscione 2007; Silva and Figueroa 2002; Zheng and Walsham 2008). This concerns the values and beliefs of people within developing countries and how these are brought to bear on the implementation and use of ICTs

transferred from other countries. The case of the public healthcare system in the Amazon jungle in Peru exemplifies this issue (Miscione 2007), with its explicit development goals of supporting the remote delivery of healthcare services. While these goals were achieved in a number of ways, the case shows how the interplay between the telemedicine system and local healing practices often resulted in some unintended consequences. The issue of culture here does not imply a developed–developing country categorization of citizens’ behaviours or actions, but refers to aspects of the historically formed values that are specific to the focal context (Avgerou 2009).

Lastly, some studies consider the condition of infrastructure within developing countries as an indication of their capacity to achieve intended outcomes within IS initiatives. Often described under the term “e-readiness”, such studies identify key factors that contribute in protecting the proliferation of information systems e.g. the development of copyright and legal frameworks which support the innovation process (Kottermann and Boyer-Wright 2010; Ndou 2004). These serve to improve the quality of services to citizens by ensuring transparency within government services. Furthermore, the focus on transparency indicates a much larger issue of corruption being dealt with in some developing countries, particularly within the public sector. An example is the Bhoomi project (De’ 2006; Prakash and De’ 2007), with its explicit development objectives of managing the land reforms in India. While improvements in land administration were observed as a result of the deployed system, the case shows how the rent seeking activities of corrupt officials continue to impede the achievement of the overall goals.

2.4.3.2. Insufficient Government/Institutional Action

Looking beyond the notion of digital divide as a problem that can be addressed only through the provision of technology in developing countries, much of the literature examines the social and institutional conditions that shape the uptake of IS in developing countries, and call for action from governments and relevant institutions to support the process of innovation (Avgerou 2003; Corea 2007). Examples of these forms of action include

administrative reforms within government institutions to complement efforts at improving the delivery of services within the public sector through IS innovations. Madon (2004; 2005a) evaluates e-government projects amidst the organizational processes underlying governance activities in India. The developmental goals can be understood from the government's intent to address the low employment rates and income generating capacity within the country. However the cases suggest that achieving such long term goals are significantly dependent on the levels of commitment to reforms in administrative processes and procedures within the relevant government agencies, regardless of the initial advances observed in terms of enhancing the conduct of transactions involving citizens.

Other forms of action are more focused on end users capacity to effectively use the systems in question. An example is the geographical information systems case in India (Walsham and Sahay 1999), where the implicit development goals in deploying the systems relate to the development and management of wastelands within the nation. However, its application proved unsuccessful due to political and culturally entrenched conflicts within its context of use. What is proposed by the authors are educational interventions to condition the interests and values of those interacting with the systems. Other studies propose similar interventions from governments and relevant institutions either in the forms of investments in education in general (Ngwenyama et al., 2006; Bollou and Ngwenyama 2008), or in more specific areas such as indigenous research (Silva and Figueroa, 2002); and IT training (Corea 2007; DOT Force 2001) to benefit the process of innovation in developing countries.

Other aspects of the technology-driven development struggle in developing countries relate to the operations of markets and their mechanisms, where governments are advised to facilitate conditions favourable to the realization of development outcomes from ICT deployments. An example is the creation of ICT-enabled social and economic networks in support of effective interaction amongst relevant stakeholders within a market system (DOT Force 2001; Mann 2003). What is believed is that improved connectivity would be of benefit particularly to those in remote areas such as local producers - in terms of the ease of access to international consumers. However, such views are based on positive experiences involving ICTs deployments in some nations, with little consideration for the situated nature of IS innovation which may result in different outcomes in other nations.

Awareness of such issues have led to the consideration of other forms of institutions beyond markets, within the dynamics of IS innovation in developing countries. For example, Avgerou (2003) highlights the important role of non-market institutions (e.g. governments and political associations) in sustaining the conditions required for ICTs to be accommodated in more contextually appropriate ways. In other words, rather than the minimalist roles attributed to these institutions within development interventions in developing countries, such institutions often lack the required influence despite the significant advances observed with IS innovation in some of these countries - refuting the models derived from the experiences in more advanced nations. In another study, Silva and Backhouse (2003) identify different regulatory mechanisms as sources of power which influence organizational activities through defined rules and regulations. Although the study was focused on the implementation experience within an organisation, the case shows the relevance of institutional mechanisms within the public sector (even though external) in resolving conflicts and maintaining order within IS initiatives.

The third category represents literature which emphasizes societal problems faced with the deployment of ICTs in developing countries. Reasons for failures are expressed in terms such as low literacy levels; unsupportive cultural activities; and lack of institutional mechanisms and activities. The suggestions which follow promote ways to improve the divides between various sections of a society through educational interventions in communities, cultural conditioning of beneficiaries, and institutional reforms. This body of work has merits in looking beyond technical and managerial affairs to social, economic, political and historical issues affecting the deployment of IS in developing countries. Nevertheless, the contention here is that there is more to be learned from other societies, especially on historically formed values which cannot be easily generalised (Avgerou 2009).

	IS FAILURE THEMES/SUB-THEMES	MAIN REFERENCES	SUPPORTING REFERENCES
5	Unfavourable Socio-economic Conditions		
a	High costs of access to IS infrastructure	Cecchini and Scott (2003); Heeks (2008); James (2004); Kenny (2000)	
b	Low literacy levels within societies	Bhatnagar (2000)	Cecchini and Scott (2003); James (2004)
c	Lack of consideration for local cultural values	Zheng and Walsham (2008); Miscione (2007)	Avgerou (2009); Silva and Figueroa (2002)
d	Poor infrastructural development	Kottemann and Boyer-Wright (2010); Ndou (2004)	
e	Corruption	De' (2006); Prakash and De' (2007)	
6	Insufficient government/institutional action		
a	Governments' lack of commitment to administrative reforms	Madon (2004); Madon (2005a)	Braa et al. (2007); Jacucci et al. (2006)
b	Lack of investments in supportive interventions (e.g. education, indigenous research, and training)	Walsham and Sahay (1999)	Bollou and Ngwenyama (2008); Corea (2007); DOT Force (2001); Ngwenyama et al. (2006); Silva and Figueroa (2002)
c	Inefficient markets and mechanisms	DOT Force (2001); Mann (2003)	
d	Lack of institutions and institutional mechanisms enabling/sustaining IS intervention	Avgerou (2003); Silva and Backhouse (2003)	Kimaro and Nhampossa (2005); Silva (2007)

Table 3 – Type 3 Failure

The tables (1 – 3) present a generalised summary of the types of failures reported in the literature on IS in developing countries, with an aim to shed light on reasons why development outcomes are not easily achieved. Drawing on these, this research proposes a comprehensive approach which investigates both the implementation and development outcomes of a deployed IS, with prospects to shed light on issues that have received little attention within the existing body of work. In the following section, innovation experiences in some developing countries are compared to tease out some issues worthy of particular attention within the focal country of this research i.e. Nigeria. Interestingly, some of the issues identified have received little attention to date in information systems research (e.g. corruption, tribalism, and scepticism).

2.5. Nigeria as a Unique Context (for an IS Deployment)

The challenges to the deployment of ICTs in developing countries noted in the literature imply a contrast between the conditions in such countries and more advanced nations. In their editorial on the special issue of IT investments in emerging economies in *Information Technology for Development*, Roztocky and Weistroffer (2008) note the ways countries are categorized into developed and developing nations according to their standards of living, economic growth, and levels of infrastructural development. However, this may be misconstrued to suggest that all developing countries exhibit the same or similar problems when it comes to the deployment of ICTs, regardless of differences in contexts within these countries. Arguably, such differences have implications on the outcomes of ICT project implementations despite whatever similarities are observed.

To understand the point above one may compare South Africa and Nigeria, both of which are classified as developing countries within the African continent. With respective rankings of 110 and 142 out of 169 countries in the human development index (UNDP 2010), both have high levels of poverty and wealth inequality - borne out of a history of repressive regimes i.e. apartheid in the case of South Africa, and military rule in the case of Nigeria. These countries are known to exhibit high levels of economic polarisation within the different indigenous ethnic groups, where the distribution of wealth is reflective of the dominant political forces within each country. It is therefore not uncommon to see dilapidated facilities and conditions which indicate abject poverty existing side by side with modernized and highly developed infrastructure. Both countries also share other similarities in terms of national policies and expenditure towards transforming the lives of citizens, with their federal governments being the largest investors in social services towards the provision of opportunities particularly for the poor (such as education, health, housing, and security).

An example of such development initiatives in South Africa is the health information system programme (Braa et al. 2007), introduced to facilitate equitable access to services in the health sector of the country - post-apartheid period. The authors note how the adoption of flexible standards enabled the successful development of the information infrastructure despite the fragmented and incompatible nature of prior existing reporting systems. The

authors attribute this success to the country's current 'political climate' with its underlying philosophy of empowering local users - which was favourable to the creation of standards at the local levels within the initiative. In comparison to Nigeria such views are arguably optimistic as they are dependent on a collective and relatively unanimous agreement of the desired goals. A closer look at Nigeria reveals some defining issues that are worth discussing in relation to public activities including the implementation of ICTs and development initiatives in general.

Some of these issues include the cultures of tribalism, bureaucracy, corruption, and scepticism which permeate and have arguably been institutionalized in most aspects of the country's public sector (Achebe 1984). These issues are believed to be cultivated and amplified by the poor systems of governance, which has characterised the Nigerian public life since its independence in 1960. Over the years, the country has been through a series of democratic governments punctuated by oppressive military regimes. These forceful changes have often resulted in the termination and abandonment of public projects, where each successive regime articulates new policies and manipulates existing systems and procedures to favour members of the ethnic groups that are affiliated to the government of the day. Such practices give rise to poor productivity, dysfunctional systems of administration, and weak systems of accountability (Achebe 1984; Uhegbu 2004; Pierce 2006).

To elaborate, the geographical landscape of Nigeria is made up of about 250 ethnic groups (Commonwealth 2011), of which the Hausa, Ibo, and Yoruba are the largest three. While each of these has several distinguishing characteristics that are believed to define them in terms of the degree of formalization of rules and customary practices (Ahiauzu 1984), the discussion here is focused on more substantive and formalized aspects of public organization. This is to avoid a seeming generalization of the behaviours of people. More so, present day developments in terms of social mobility and inter-tribal interactions limit the extent to which 'behaviours' can be presented in strict regimes of classification.

Nevertheless, the federal quota system illustrates the extent to which the issue of tribalism has been institutionalised within Nigerian public sector. This system aims to ensure an equitable representation of members from each of the country's ethnic groups within public programs (Johnnie 1997; Aiyede 2009). It is applicable to the allocation of resources and

other government controlled activities such as public sector employment, participation in sports and admissions to educational institutions. While this may be regarded as the country's version of the "affirmative action" plan of the United States - in terms of ensuring equal employment opportunities to different racial groups (ACLU 2000), a fundamental difference is that the quota system places much emphasis on tribe with little consideration for technical competence. In other words, an applicant is selected due to his ethnic origin regardless of the technical merits of those from other tribes.

As earlier mentioned, the quota system has been subject to manipulations by successive authoritarian regimes (Achebe 1984). Also, there is a bureaucratic dimension to the use of the quota system in Nigeria. Bureaucracy refers to the rule-based practices of administration adopted in public service agencies which aim to organise activities in efficient and rational manners (Johnnie 1997). However, it has been subject to much misappropriation, with relevant authorities invoking the rules to promote parochial interests (Aiyede 2009). As such public programs are often filled with less competent staff despite the availability of more qualified ones. Even in more recent times (where there has been more stability in democratic governance), the quota system has extended to elective positions with eligibility based on politicians' tribes of origin - rather than residence as practiced in other parts of the world. It also informs the informal zoning practices engaged by political parties in nominating candidates for presidential elections on a rotational basis between the three major tribes (Salawu and Hassan 2011; Olugbade 1992).

Relating this to the South African 'political climate' noted earlier (Braa et al. 2007) and other contemporary issues such as the reported conflicts in parts of Africa and the Middle East (BBC 2011) it is hard to see how such events would take shape in the Nigerian context i.e. the unified struggle against oppression from leaders. Despite the history of oppressive regimes under successive military governments, the few comparable events which have exhibited some level of unification amongst the citizens have often been along tribal lines i.e. amongst members of the same ethnic groups. Examples are the Biafran war of the late 1960's - where the 'Ibos' attempted to secede from the rest of the country due to allegations of oppression; and the more recent inter-tribal conflicts - where rival political leaders mobilize ethnic solidarities to favour their struggles for power and authority (Ikpe 2009).

Another country worth comparing with Nigeria is Brazil in terms of the pursuit of developmental growth through technological innovations. Brazil may be considered a developing country or emerging economy, with a human development index ranking of 73 of 169 countries (UNDP 2010). While the lead in Brazil's performance may be attributed to income from the exploitation of natural resources such as oil and iron ore (BBC 2010), it is worth noting that Nigeria is engaged in similar activities on a larger scale with less success, as shown in the respective indicators. Nevertheless, both countries share similarities in terms of poverty and other divides between the geographical regions; high levels of illiteracy and corruption; and civil unrest. Each of the countries stand to benefit from the deployment of information systems in addressing such issues, and hence, their respective government's commitment to IS projects.

Brazil is currently experiencing some progress as a result of technological developments. In the political arena for example, which is reported as one of the 'world's biggest democracies' (BBC 2010), there is some influence on the public's interpretation of election outcomes due to the electronic voting system deployed. Although the technical system may be believed to have had little effect on the election's perceived outcomes (Avgerou et al. 2009), it reveals a vital aspect of the government to citizen relations i.e. trust. In this case, the presence of citizens' trust towards the institutions responsible for the elections, and by extension its mechanisms (including the introduced system) led to the acceptance of the election's outcomes. Nigeria's experience on the other hand, paints a different picture in the conduct of elections. The general consensus is that they have been anything but free or fair (Olarinmoye 2008; Ajayi 2007; Commonwealth 2003; 2007), with practices which reflect a state of affairs in which corruption is seemingly institutionalized within Nigeria's public sector.

The emergence of a culture of corruption has been traced to Nigeria's colonial era i.e. before 1960 (Pierce 2006; Arowosegbe 2009), with historical accounts of how the systems of governance were reformed to support the indirect rule of the British. To the extent that this is true, corruption has assumed a certain level of legitimacy within the public sector and is branded with subtle pseudonyms (such as settling, taxing, or commission) to conceal its negative meaning. Under these, citizens are extorted for money for public services, and as Pierce rightly observes "interactions with bureaucrats almost always result in demands for

bribes” (2006: 889). Nigeria often tops the list of the most corrupt countries, with poor corruption perception indices over the last 10 years (TI 2010). Even the country’s foremost corruption body estimates that about US\$380 billion of public funds was misappropriated by public officials between the years 1960 and 1999 (Aiyede 2009).

Despite this, it is interesting to note that only a few officials have ever been jailed or tried on corruption charges, leading some to perceive the organization as a political instrument for partisan politics (Ajayi 2007). Relating these with the situation of trust in Brazil (Avgerou et al. 2009), a culture of corruption arguably has implications for the institutional contexts in which elections and other important activities are conducted in a country. It is on such grounds that questions are raised on the transparency and competence of the institutions charged with the conduct of such activities (Ajayi 2007; McGrath and Maiye 2010) - often resulting in much scepticism amongst stakeholders, and reluctance to use deployed systems.

This leads onto the last issue worth exploring in context i.e. the culture of scepticism. Scepticism refers to a reluctance of people to engage in public programs or activities (Goldfinch 2007). This is borne out of an experience with failed programs and unfulfilled promises, leading to a negative mind-set in terms of confidence and credibility towards government authorities. This issue is particular relevant to the deployment of information systems as it often sets the pace for the reaction of situated actors towards development initiatives. In India for example (Kanungo 2004), sponsors of the information kiosks introduced in rural villages to improve access to credit facilities had to commit a substantial amount of time developing confidence and mobilizing villagers to accept the initiative. However, despite similar efforts at building confidence and mobilizing host communities in development initiatives in Nigeria, project sponsors continue to receive severe criticisms, mistrust and outright rejection of proposed activities (Eweje 2007). Indeed, India is reported to experience an increasing level of development through ICTs (UNDP 2010) while Nigeria on the other hand, continues to lag behind.

In light of such disparities in the contexts of individual developing countries, the approach in this study considers the influences on an IS project’s outcomes brought about by the conditions within which the system is deployed. In essence, rather than accepting the

challenges of developing countries as given, other peculiar issues affecting the deployment of ICTs within the Nigerian context will be taken into account in the bid to understand why such systems often fail to achieve development outcomes.

2.6. The Research Question

In this chapter, suggestions have been made to consider failure in information systems as the non-realization of development benefits. Public sector projects present an interesting manifestation of IS in terms of the value to societies and hence require an understanding of issues from a wider perspective. If such projects are being implemented for developmental benefits, it seems credible to account for how such development is conceptualised and by extension, why the desired outcomes are often not achieved. What is most apparent within the development community is a prescriptive view of ICTs, which assumes that developmental impact will trail its deployment. Such is reflected in the publications of major development organizations (UNDP 2001; DOT Force 2001), with developing countries being urged to invest in the implementation of these ICTs.

The contention of this research is that the dynamics of the link between ICTS and development are much more complex than presented within the models of growth often adopted within IS initiatives. This is based on the awareness that development means different things to different people (Prakash and De' 2007); each country presents its own unique challenges to the deployment of ICTs (Madon 2009); and local action is often required to accommodate ICTs more meaningfully (Avgerou 2003). Assuming a simplistic link between ICTs and development within IS initiatives, often results in a focus on the process of implementation - whilst less attention is given to the long term usage and viability of the deployed ICTs. Indeed, research focus has been on the experiences with implementation, whilst developmental impact has received less attention (Thompson and Walsham 2010). Such focus gives rise to technical and managerial accounts of the problems encountered with these deployments, with less regard for socio-political issues which affect usage and realisation of development outcomes. In essence, it is inadequate to focus on the

process of implementation under assumptions that development outcomes will be realized with the deployed ICTs.

Furthermore, there is scope to elaborate on historically formed values (such as the cultural elements of corruption, tribalism, scepticism and bureaucracy) which affect the deployment of information systems within societies and have received little attention within the existing body of work. This research therefore proposes a more comprehensive approach to understanding the problems with the deployment of ICTs in developing countries by asking the question:

How can information system deployments support the achievement of locally meaningful development outcomes in a developing country, and why is this often not the case?

In this study, “development outcomes” refer to the potential contributions of information systems towards improvements in the lives of the people affected. Underlying this definition is Sen’s perspective of development (1999; 2009), which emphasizes the expansion of the capabilities (or opportunities) of individuals to pursue what they value in life. Other perspectives identified within this literature review chapter focus on income growth or reforms in health and governance administration (UNDP 2001; DOT Force 2001); or interventions to improve the general delivery of services to citizens (Kenny 2000; Cecchini and Scott 2003). These conceptualise development outcomes in terms of aggregates in economic growth derived from increases in efficiency, productivity and reach of ICTs. The difference between the Sen-informed perspective adopted in this research and the others is that it considers variations in the conditions of individuals to account for inter-personal constraints to the achievement of IS-enabled improvements. As such, development outcomes may be conceived in terms of actual opportunities for capacity building such as improvements in the well-being of individuals (Madon 2004; 2005); enhancement of individuals’ freedoms to engage in valued activities (Prakash and De’ 2007); and the reduction of social exclusion of individuals within societies (Zheng and Walsham, 2008).

“Information system deployments” refer to all activities related to the introduction, technical implementation, and usage of ICTs within the focal context. Although a normative definition describes information systems as “the means by which people and organizations, utilizing technologies, gather, process, store, use and disseminate information” (UKAIS,

1999: 1), it is also considered as a social system which involves actors using technology to achieve certain outcomes (Sauer, 1999). The purposeful intent in the latter definition implicates both the technological artefact and people in constant interaction within the focal context. Of concern within this study are the activities which shape and are shaped by the information systems and by implication, the (non)-achievement of development outcomes. Hence, the deployment of information systems is considered in terms of all the practices involved within the enactment process.

A “developing country” refers to a nation often ranked low within the development indicators of international development agencies (World Bank 2010; UNDP 2010). However, different classifications show some inconsistencies depending on what measures are used. For example, India is reported as the fourth largest economy in the world in terms of purchasing power parity (World Bank, 2010) while Nigeria is presented as the largest income earner from crude oil in Africa (World Bank, 2005). These countries on the other hand are ranked 119 and 142 out of 169 respectively in the human development index (UNDP, 2010), based on measures of literacy, life expectancy and personal income. Within this research, the term developing countries is informed by the latter classification, as the indices upon which they are based are more indicative of the living conditions of individuals within those countries.

Having defined the terminologies used in the research question, the overall aim of the study is to explore how IS deployments can support the achievement of locally meaningful development outcomes in a developing country, and understand why this is often not the case. The approach is to examine the issues affecting the implementation of an information system, and investigate reasons why locally meaningful development outcomes are not easily achieved within its context of deployment. Such issues need to be addressed if the proponents of ICTs for development agenda are to understand how IS projects can be more effective in contributing to improvements in the quality of lives of people.

3. Chapter Three: Theoretical Framework

3.1. Introduction

In this chapter, a case is made for adopting Sen's capability approach in light of other alternatives for addressing this study's research question. On the one hand, the capability approach offers a way of conceptualising development outcomes beyond the emphasis on income and other economic resources, to what people are effectively able to do in achieving their personal goals. On the other hand, it offers a way of exploring socio-cultural elements which enable or restrict the achievement of such goals. A significant aspect of the discussion is how the framework is able to deal with peculiar cultural elements earlier identified within the Nigerian context i.e. corruption, tribalism, scepticism and bureaucracy. The chapter starts with a description of an appropriate framework for this a study of this kind. Some of the frameworks and concepts from previous literature are evaluated in light of the research question, with useful themes identified for addressing why development outcomes are often achieved with IS deployments. Sen's Capability Approach is then introduced with justification for its choice as the theoretical basis for the framework in this study.

3.2. An Appropriate Framework for this Study

Arguments in the Literature Review chapter (*Section 2.4*) suggested the need to move beyond accounts of failure that focus mainly on the technical and managerial aspects of information systems on the grounds that they often present a narrow conception of the problem at hand. Mitev (2005) expresses these as technical and managerial forms of rationality which assume an objective engagement with the phenomenon of failure. In these forms, technological artefacts are perceived unproblematic and neutral, and constitute little social, political or cultural influences. In one of the examples discussed, a framework for

organisational learning is presented which associates ineffective learning practices within ISD teams to the continued failure in information systems implementations (Lyytinen and Robey, 1999). In another example, Ewusi-Mensah and Przasnyski (1994) use concepts of abandonment to link changes in scope and technical specifications of IS projects to failure. To note in such studies is the objective rationality associated with the failure of information systems. However, in both frameworks there is little consideration for broader influences beyond the technology within the implementing organizations.

Having defined failure within this study as the non-realisation of development outcomes, what is required is a framework which examines the wider contexts of IS deployments, and considers broader political, social, and cultural issues. In selecting an appropriate framework for this research, much consideration is required for the focal components of the research question² which are development outcomes, IS deployments, and a developing country (DC). Hence, an appropriate framework would address how development is conceived, and what issues of a DC context are perceived to influence both the IS deployment process and the achievement of the development outcomes.

Also, in light of this study's definition of development outcomes as the potential contributions of information systems towards improvements in the lives of the people concerned, much consideration is required for human diversity within the dynamics of development. Hence, the appropriate adopted framework would address developmental issues from an individual perspective. Based on these criteria, some of the frameworks, theories and concepts from the categories of failure developed in Chapter Two (***Literature Review***) are reviewed in the following section, with useful themes identified for addressing why development outcomes are often achieved with IS deployments.

² How can information system deployments support the achievement of locally meaningful development outcomes in a developing country, and why is this often not the case?

3.3. Previous Frameworks and Useful Themes (to address the Research Question)

Having identified and discussed the main criteria for selecting an appropriate framework, some of those from the categories of failure were considered inadequate to address the research question.

An example from **Type 1 Failure** (i.e. problems in applying and assimilating technology) is Adam and Urquhart's (2007) model for IT capacity building. The authors draw on theories of knowledge management and social capital (i.e. knowledge creation, transfer, training and capacity) to examine the implementation of ICTs in the Maldivian tourism sector. The study links these concepts to the infrastructure and processing capabilities of organizations in developing countries. In another example, Al-Jaghoub and Westrup (2003) draw on the concept of globalisation to examine political and economic structures which determine the nature and level of ICT enabled activities within a nation state.

Such frameworks have merits in addressing issues with the poor state of IS-related infrastructure in developing countries and the resulting influence on the implementation of ICTs. However, underlying such frameworks is a regime of development as economic growth, where improvements are judged in aggregates. This often leads to much emphasis on widespread access and reach of ICTs, regardless of inequalities which typify societal life (Madon 2009; Zheng 2009; Soeftestad and Sein 2003). In other words, such frameworks consider the impact of context on IS to a certain degree but do not sufficiently address human diversity.

An example from **Type 2 Failure** (i.e. problems in managing IS projects), is Best and Kumar's (2008) sustainability failure model. This is based on an idea of effective institutional partnerships between public and private sector agencies. The model links the coordinating and monitoring activities of such agencies to the long term delivery of viable services within IS projects. In another example, Kimaro and Nhampossa (2005) draw on concepts of institutionalisation to explain how information systems fail to become sustainable in the long term. They link the disparate interests of institutional actors (e.g. donors and recipient organisations) to methodical and coercive activities which restrict the levels of coordination within IS projects.

Such frameworks are able to shed light on institutional activities and address underlying issues of politics and power that may be associated with the provision of resources (e.g. funding, training and technical support) within IS project environments. However, underlying the frameworks are beliefs in the prospects of aligning objectives of stakeholders regardless of diversity. The managerial form of rationality surfaces in the assumption that expectations and objectives can be effectively managed (Mitev 2005). In essence, such frameworks are unsatisfactory owing to assumptions that stakeholder interests and funds can be managed and unified towards some common purpose.

Lastly, an example from **Type 3 Failure** (i.e. unfavourable social and institutional conditions) is Miscione's (2007) framework to examine the interplay between local Peruvian herbal practices and telemedicine systems. The study links the concepts of ethnomethodology and accountability from new institutional theory to the routines of actors which build and sustain institutions within IS projects. Also, Walsham and Sahay (1999) draw on actor network theory to understand the influence of local values on the usage of geographical information systems. The study links the concepts of enrolment and translation to the interests and motivations of relevant actors which establish and stabilise alliances within IS projects.

Such frameworks have merits in examining a fundamental aspect of societal life i.e. socio-cultural values, in addition to the issues with infrastructure and institutions in developing countries. In essence, these frameworks are more comprehensive in addressing issues with IS deployments than those from the earlier discussed categories as they consider human diversity and other sources of inequality within societies.

Main Themes	Reference	Critique
IS-related Infrastructure The issues with infrastructure that constrain access and usage of information systems	Adam and Urquhart (2007); Al-Jaghoub and Westrup (2003)	Development is considered in economic growth aggregates without much regard for human diversity
Institutional Activities The role of relevant institutions in relation to operations within the IS project	Best and Kumar (2008); Kimaro and Nhampossa (2005)	Development is addressed in terms of unifying objectives despite the diversity of stakeholder interests and expectations
Socio-Cultural Values The issues of culture and societal values which influence the deployment of information systems	Miscione (2007); Walsham and Sahay (1999)	Development is addressed in light of human diversity with scope to explore socio-cultural issues arising from the focal context

Table 4 – Useful Themes for a DC Study

So far, the discussion highlights themes which are useful for explaining why development outcomes are not easily achieved with the deployment of information systems in developing countries. These themes relate to the focal components of my research question (i.e. development outcomes, IS deployments, and a developing country) as follows. The first category (**Type 1 Failure**) shows there is a need to examine issues with infrastructure that constrain widespread access and usage of information systems in developing countries. The second category (**Type 2 Failure**) emphasises the need to consider the role of institutions within the dynamics of IS project operations. The third category (**Type 3 Failure**) stresses the need to explore the influence of socio-cultural values on the deployment of IS in developing countries.

Table 4 (**Useful Themes for a DC Study**) summarises these themes as important aspects of an IS deployment that should be addressed in a study of this kind. Nevertheless, other types of socio-cultural elements identified (within the literature review chapter) to warrant particular attention within the Nigerian context have not been explicitly discussed. Hence, the sub-sections that follow (**3.3.1 – 3.3.4**) will expand the third theme (socio-cultural values) to include the key elements of corruption, tribalism, scepticism and bureaucracy.

3.3.1. The Element of Corruption

Corruption has been broadly defined as the abuse of public office for private gains (World Bank 1997), constituting all acts of soliciting, extorting, accepting or offering bribes to influence the conduct of activities. Some studies consider corruption as a cultural issue within developing countries, and look to societal norms to explain its tolerance in everyday activities. For example, Berthon et al. (2008) draw on concepts of culture and e-readiness to examine the capacity of actors in developing countries to engage in trans-national business. Social values are linked to the high levels of corruption and tolerance, despite the unfavourable impact in maintaining business relationships with other international partners. Similarly, Bertot et al. (2010) emphasise the idea of social change to complement the efforts of governments in fighting corruption. They link the cultural attitudes of actors at both government and societal levels to the acceptance of corrupt practices within developing countries.

Other studies associate the practice of corruption with the socio-economic conditions in developing countries, drawing on a variety of theories to explain its impact on initiatives designed to facilitate national growth. For example, Blackburn et al. (2011) use the theory of dynamic equilibrium to explain the origin of rent seeking behaviours within public service sectors. They present a model that links the concept of incentives to the low incomes of public officials in developing countries, and the resulting embezzlement of funds that are designated for development programmes. Hellsten and Larbi (2006) also associate corruption with socio-economic realities of public officials in developing countries. They link the concepts of expectations and realities to the differences in public and private values and hence, the commitment of officials towards personal goals rather than the nationwide agenda of public institutions.

However, as corruption refers to situations in which officials are able to perpetrate oppressive and self-interested acts, it implies a failure in the polity and administrative structures of a state. Studies in this perspective draw on ideas of organization, to highlight the weaknesses which give opportunities for corrupt practices. For example, Csaki and Gelleri (2005) use the concept of decision making to examine the potential of technologies to support anti-corruption efforts within public service organisations. They identify

regulatory laws as a necessary complement to technologies in enabling effective organizational processes that control corruption. Similarly, Fritzen (2007) develop a framework of accountability and incentives to combat corruption within organisations. They link the concepts of managerial incentives and standards to the establishment of formalised practices which reduce the vulnerability to corruption.

3.3.2. The Element of Tribalism

Tribalism refers to the practice of privileging particular individuals over others on grounds of their ethnic identities or affiliations (Ekeh 1999; Suzuki 2004). Although the notion of tribalism may connote negative undertones, some studies have considered it to be a useful development within information systems deployment. For example, Doorenbos et al. (2011) develop a participatory model to engage rural stakeholders in the design and implementation of a tele-health system. According to the authors, a vital aspect of the model was the recognition of the tribal orientations of the native communities which aided in obtaining approval for the project, and its eventual acceptance by the community members. In another example, Eyono Obono (2010) draws on the technology acceptance model to develop a framework for evaluating the quality of web portals. The framework links the concepts of information and system quality (such as usefulness, accessibility and interaction) to the preservation of the tribal identities of community members.

However, others have considered the practice of tribalism as a hindrance within development projects. For example, Hilder (2004) uses the ideas of authority figures and followers within peer and other social groups to understand the dynamics of tribal behaviour within organisational change programs. It links the concepts of obedience and conformity to human resistance which arises when the agenda in change efforts run contrary to the interests of the social groups. Similarly, Price and Cybulski (2007) develop a framework of tribal loyalties to understand the communicative behaviours of stakeholders within IS projects. They relate tribal concepts such as uniformity, boundary and proximity, and leadership to the characteristics of IS stakeholder groups in terms of collective image

and identities, group allegiances and organisational hierarchies which influence the resolution of conflicts within information systems deployment.

3.3.3. The Element of Bureaucracy

Bureaucracy refers to the rule based practices of administration adopted by organisations which aim to organise activities in efficient and rational manners (Ciborra 2005; Feldman and Pentland 2003). The studies on bureaucratic practices focus on the mechanisms by which the government and other institutions aim to maintain certain standards such as equality in terms of the provision of services and opportunities for citizens. For example, As-Saber et al. (2007) develop a framework for e-governance which examines various aspects of public organisations such as policies and practices. Within this framework, the elements of accountability, transparency and responsiveness are linked to the level of e-readiness observed in developing countries. Similarly, Gauld (2007) draws on ideas of public governance and management to examine the failure of a health information system. It links the adherence to government policies and directives to the problems in IS deployment processes.

Others consider bureaucracy as a cultural practice within organizations, with roots in the hierarchical nature of some societies. For example, Berger (2007) uses ideas from organizational culture to examine the development approach adopted in a failed government IS project. The author links the systems of beliefs, meanings and values amongst stakeholders to conflicts within IS development processes which often lead to failure. In another example, Constantinides and Barrett (2006) draw on ideas of organizational change to examine implementation of a healthcare system. The authors link the reference structures of stakeholders (i.e. meanings and intentions) to the adherence to existing practices and resistance, both of which shaped IS deployment processes.

3.3.4. The Element of Scepticism

Scepticism refers to the reluctance of situated actors in engaging with public programs and other activities involving governments. This indicates a negative mind-set in terms of confidence and trust towards institutional arrangements, resulting from a history of failed programs (Kanungo 2004). Some studies consider scepticism a useful development particularly towards large scale IS implementations within the public sector. For example, Goldfinch (2007) uses a model of expectations to propose some level of scepticism in information systems development. Within this model, concepts of enthusiasms are linked to the unrealistic expectations that are thought to effect IS failures. From another approach however, scepticism is considered a phase through which new innovations undergo. For example, Currie (2004) draws on institutional theory to examine the adoption and diffusion of application service provision innovations. She uses the concepts of interpretation, legitimation, and mobilization to explain the trajectory of the innovations ending in scepticism as a result of failed deployment efforts.

Nevertheless, others consider scepticism as a negative development, with long term adverse effects on organizations. For example, Bharadwaj et al. (2009) uses ideas on resource based view of the firm to examine the impact of IS failures on the value of organizations. They link existing stakeholders' knowledge of IS failures to the greater loss in value experienced by organizations with a history of failed implementation efforts. In another study, Ifinedo (2006) uses historical accounts of governance projects to describe the challenges of implementing e-government in Nigeria. Amongst a variety of institutional problems, the author links the poor outcome of e-government to the negative attitudes of stakeholders.

Main Themes	Reference	Justification
<p>IS-related Infrastructure</p> <p>The issues with infrastructure that constrain access and usage of information systems</p>	Adam and Urquhart (2007); Al-Jaghoub and Westrup (2003)	The need to examine the technological artefacts and related features
<p>Institutional Activities</p> <p>The role of relevant institutions in relation to operations within the IS project</p>	Best and Kumar (2008); Kimaro and Nhampossa (2005)	The need to understand organisational relations and conflicts between project sponsors
<p>Socio-Cultural Values</p> <p>The issues of culture and societal values which influence the deployment of information systems</p> <p>Elements of Societal Culture</p> <ul style="list-style-type: none"> • Corruption: Attitudes of tolerance, socio-economic circumstances, weak systems of accountability • Tribalism: Ethnic affiliations, tribal orientation • Bureaucracy: Administrative mechanisms e.g. organizational policies and directives • Scepticism: Historical experiences 	<p>Miscione (2007); Walsham and Sahay (1999)</p> <p>Blackburn et al. (2011); Berthon et al. (2008); Bertot et al. (2010); Csaki and Gelleri (2005); Fritzen (2007); Hellsten and Larbi (2006)</p> <p>Cybulski (2007); Doorenbos et al. (2011); Eyono Obono (2010); Hilder (2004)</p> <p>As-Saber et al. (2007); Berger (2007); Constantinides and Barrett (2006); Gauld (2007)</p> <p>Bharadwaj et al. (2009); Currie (2004); Goldfinch (2007); Ifinedo (2006)</p>	The need to explore societal issues affecting IS implementation and achievement of development outcomes

Table 5 - Useful Themes for a Nigerian Study

The sub-sections above discuss additional elements identified as important for the study of an IS deployment in the Nigerian context i.e. corruption, tribalism, bureaucracy and scepticism. These relate to the socio-cultural aspect of this study as follows. The studies on corruption highlight the need to examine issues with societal norms (constituting cultural values and personal circumstances) and weaknesses in administrative structures which allow for opportunistic behaviours amongst situated actors. On tribalism, the studies

emphasise the need to understand issues relating to the ethnic orientations of actors which foster or constrain collective activities. The studies on bureaucracy stress the need to examine administrative mechanisms (e.g. policies and directives) to explain core organizational values; while those on scepticism indicate the need to explore the influence of historical experiences on people's attitudes towards IS development initiatives. Table 5 (*Useful Themes for a Nigerian Study*) expands the previous compilation to include these elements.

In summary, the discussion suggests that the themes that are relevant for this research include (i) the issues with infrastructure, in terms of access and usage of information systems; (ii) the role of relevant institutions in relation to operations within the project; and (iii) the issues of culture which influence deployment of the information systems e.g. corruption, tribalism, bureaucracy and scepticism. Also, the research question requires a consideration of the aspect of development. In light of this study's definition of development outcomes as potential improvements in the lives of people, there is a need to account for human diversity within the focal case.

The next section introduces Sen's Capability Approach (CA) as the theoretical basis for the framework adopted in this study. The ideological foundation of the CA is first described, following which is the justification of its choice for this study (in light of other possible options), and a discussion of the key concepts that are relevant for this research.

3.4. The Capability Approach

3.4.1. The Ideological Foundation (of the Capability Approach)

The Capability Approach (CA) is an alternate development ideology developed by Amartya Sen for the evaluation of the wellbeing of individuals and social arrangements within societies (Sen 1999; 2009). The CA considers development as the expansion of people's capabilities (or opportunities) to engage in valued activities that lead to growth (Sen 1999;

2009). Sen challenges economic theories and philosophical approaches that focus on income, utility, and consumption by arguing that the resources that we own or have access to are only useful for what they can help us achieve i.e. means to an end. According to Sen, mere increase in resources is not a fair representation of people's growth owing to interpersonal variations.

To illustrate the difference between the capability approach and those that focus on resources is a much cited comparisons between two individuals, one of whom is disabled (Ferrer and Carrasco 2010; Johnstone 2007; Oosterlaken 2009). Given the same increases in income, the disabled person would still be at a disadvantage as he requires more resources to function at par with the healthy one. For Sen, the end of development should be the expansion of individuals' capabilities to pursue what they have reason to value in life, and enhancing their freedoms to do so. Hence, the capability approach would consider poverty a deprivation of one's freedom to engage in valued activities, rather than a mere shortage of resources (which can be simply redressed with an increase in income).

Placing freedom at the centre stage also implicates institutions comprising of government, markets, and other social entities (including policies and norms), in facilitating the choices that individuals make in the pursuit of their dreams. In addition to the availability of resources i.e. goods and services, a major responsibility on such institutions is enabling an environment free from deprivations and inequalities. In other words, in providing the means or resources necessary for good health for example (e.g. medical consultation and medication), relevant institutions are also expected to ensure that people have effective access to use them in pursuing the goal of healthy lives. Hence, the capability approach aims to evaluate a society's arrangements in terms of the impact on what people are able to achieve i.e. capabilities.

The capability approach has been described as a philosophical set of ideas which are conceptually rich but methodologically vague (Robeyns 2005; Molla and Heeks 2009; Zheng 2009). However, Sen expects it to be adapted to suit a variety of purposes (Sen 2009). Moreover, ideas have been put forward to develop the capability approach more cohesively by other authors such as Alkire (2005) and Robeyns (2005), effectively linking the range of opportunities that an individual is exposed to into realised achievements. It has also been

developed by Nussbaum (2003) into a list of human capabilities which represent the basic requirements that people are entitled to within societies, to live a dignified life. The capability approach has been used for evaluative purposes in many areas in regards to the assessment of development within societies. A notable application is the human development index of the United Nations Development Program, although its comparisons of progress amongst societies is based on aggregate measures of the wellbeing of people such as literacy, life expectancy and health (UNDP 2010).

The capability approach has also been applied by authors within the field of IS to evaluate the impact of ICTs in societies (Madon 2004; De 2006). Others have combined it with some theoretical approaches in analysing the process of development more explicitly. For example, Kleine (2010) uses elements of the empowerment and sustainable livelihood frameworks along with the capability approach in conceptualising development outcomes in terms of ICTs contribution to individual capabilities. Notwithstanding, the capability approach continues to be subjected to many criticisms in terms of being too individualistic and difficult to operationalize (Navarro 2000; Corbridge 2002; Heeks and Molla 2009). These criticisms arise from Sen's focus on individuals in light of groups and social structures, and his refusal to endorse any predefined set of capabilities. These are discussed in more detail in **Section 3.7**, showing how it is nevertheless applicable for this study.

3.4.2. The Justification (for selecting the CA)

The main difference between the CA and other approaches is that it considers development at an individual level rather than in aggregates. In comparison with the economic growth frameworks³ for example, the CA recognises that individuals require different levels of support to achieve similar goals. To illustrate, a person in a rural village would need more money to access the internet than one in a city filled with internet service providers. Also, the CA's emphasis on the individual level takes into account interpersonal needs and

³ These refer to earlier described frameworks within type 1 failure (i.e. problems in applying and assimilating technology) which regard development as economic growth

aspirations. This differs from other frameworks⁴ which attempt to manage and unify the interests and objectives of the stakeholders of a development initiative. In essence, despite a central focus on the individual level, the capability approach is able to address the themes identified as useful for this study i.e. infrastructure, institutions, socio-cultural values. Also, the CA is able to address the additional elements of societal culture identified as important within the Nigerian context i.e. corruption, tribalism, bureaucracy and scepticism. These are illustrated in **Section 3.5** which describes the proposed framework.

Although a few development approaches bear ideological similarities with the CA (such as those focusing on basic needs and capacity building referred to in **Section 2.3.1**) there are yet some fundamental differences. These arise mainly from the extent to which the CA focuses on the individual to whom responsibilities for choice and participation in developmental activities are ascribed. For example, the Sustainable Livelihoods (Ashley and Carney 1999) and Network Society (Castells 2010) approaches place much emphasis on influence of societal structures - such as community-level institutions and digital media mechanisms respectively - within the dynamics of development. While the CA recognises the role of such structures in enabling favourable conditions, it proposes that the ultimate decisions on developmental activities (i.e. choice and participation) should be left to individuals rather than governing institutions or relevant mechanisms.

In essence, the CA advocates for individuals to be given the freedom to pursue the lives they reason to be of value (*see Agency and Choice - Section 3.4.3.2*), rather than having external notions of development imposed – even if at community levels. This is particularly important within the focal setting of this research (i.e. Nigeria). As will be explained in more detail in the **Research Setting (Section 4.3)**, the country has undergone a variety of failed authoritarian regimes which have effected a lot of scepticism towards government initiatives. Hence, a development approach (i.e. the CA) which favours the involvement of individuals in decisions which significantly affect their lives is arguably of immense interest to those concerned.

Despite the above justifications for adopting the CA for this study, the approach presents its own shortcomings. These are discussed in detail in **Section 3.7 (Critique of the Capability Approach)**.

⁴ These refer to earlier described frameworks within type 2 failure (i.e. problems in managing IS projects) which consider development as a state of unity in the objectives of stakeholders

3.4.3. The Key Concepts

3.4.3.1. Capabilities and Functionings

In Sen's perspective on development, human capability is considered as the focal object to which all development efforts should be directed. Capabilities represent what people are effectively able to do or be regarding their desires for better lives. Functionings on the other hand, represent the actual beings or doings of an individual such as being healthy, being literate, and being able to participate in different aspects of societal life. In other words, functionings refer to actual achievements, while capabilities are the opportunities to realise the valued achievements. Capabilities can thus be said to represent the alternative combinations of functionings that are possible for an individual to choose from. Accordingly, the main purpose of development should then be expanding people's capability sets, also conceptualised as the 'substantive freedoms' to lead the lives they value (Sen 1999).

The emphasis on capabilities rather than functionings offers a means to address the shortcomings of externally imposed notions of development, such as economic growth. Development is considered to be specific to context (Prakash and De' 2007), with various conceptualisations based on people's expectations. It is therefore useful to retain some level of open-endedness towards people's needs within development efforts, without imposing a particular notion of growth.

However, this may present some problems in terms of both development research and practice. The difficulties in measuring capabilities make it more feasible to evaluate functionings (Robeyns 2006). Moreover, Sen (2009) refuses to endorse any set of capabilities, arguing that the identification and listing of capabilities should be dependent on the purpose and context of an evaluation. Nevertheless, some authors have used empirical information on functionings as proxy, i.e. to deduce what capability sets are relevant in development programs (Kivunike et al. 2009; Vaughan 2011).

3.4.3.2. Agency and Choice

Sen considers an individual as an agent who is able to pursue his or her own interests actively, given the right conditions. Agency is described as the freedom to decide and engage in the pursuit of one's own goals or welfare. Choice on the other hand reflects personal preference of the variety of options to which an individual is exposed prior to decision making. According to Sen, individuals should be able to exercise their reasoned agencies, rather than being mere recipients of the benefits of planned initiatives. While agency and choice are related, the contrast between both concepts can be illustrated by the hypothetical example of two individuals who are both malnourished due to starvation (Sen 1999). One has chosen to fast for religious purposes, while the other is starving for reasons out of his control e.g. poverty. Although the welfare of both individuals will be affected, the one who chose to fast can be said to have exercised his agency freedom while the other has been deprived of his choice in the matter.

The capability approach is thus concerned not only with the possession of, and access to resources but the ability of an individual to exercise his agency freedom. While the provision of resources can be an important means to an end (e.g. food in the example above), what is considered more valuable are the effective opportunities an individual has in achieving what they reason to be of utmost value. The focus on agency and choice within this research presents an opportunity to examine the contexts in which individuals operate i.e. to determine whether the circumstances in which people pursue their goals are favourable to them.

Also, considering that the pursuit of one's welfare may be one of the goals of an individual (Zheng and Walsham 2008), it presents a more holistic approach to understanding what development outcomes are anticipated within a development project. Lastly, agents are expected to act in changing their circumstances to achieve desired goals (Sen 1999), including influencing the social arrangements that facilitate their capabilities. This last point is crucial in understanding how people are further constrained in the face of available opportunities (capabilities), despite having made concerted efforts towards achieving their end goals (i.e. functionings).

3.4.3.3. Commodities and Conversion Factors

Commodities refer to the goods and services that individuals possess or have access to, which enable their doings and beings. Sen argues that commodities are only useful in the sense of being means to an end, the possession of which is not sufficient in guaranteeing our welfare. In other words, commodities possess particular characteristics which enhance our capabilities to achieve certain functionings (Robeyns 2005). However, the extent to which people can translate commodities into capabilities is influenced by three major sets of conversion factors identified as personal, social and environmental (Sen 1999; 2009). Personal factors consist of the physical attributes of an individual (e.g. age, literacy, and gender) which influence how a person can convert the characteristics of a commodity. Social factors consist of the characteristics of societal settings such as educational facilities, public policies, and cultural/religious norms which cause variations in people's abilities to function. Environmental factors comprise elements relating to societal conditions such as climate, infrastructure, and which affect the quality of lives that people can have.

The capability approach is primarily concerned with the opportunities that arise from the exploitation of commodities. Although Sen does not explicitly discuss technology in the capability approach, the element of commodity within the framework allows one to consider technology and its role in the development process. Various authors have thus considered technology as a commodity (Hatakka and De' 2011; Zheng and Stahl 2011; Zheng 2009), arguing that its features enable the conversion into relevant capabilities and potential functionings. Hatakka and De (2011) take the argument further by including supportive interventions such as training and provision of IT support as part of the commodities to be exploited.

Also, the conversion factors are useful in the sense that they enable one to know more about individuals and the circumstances in which they operate. Take for instance a case in which a farmer wants to request a government service online (e.g. land permit), but resides in a community which is very distant from any internet facilities. In this case geographical distance is a conversion factor which prevents the exploitation of a commodity (i.e. land) to achieve a potential functioning (e.g. farming). The onus would then be on governing

institutions to provide internet facilities or alternative means which support such an individual and others in similar circumstances.

3.5. The Proposed Framework

Within the proposed framework, the key elements from the capability approach relate with the earlier identified themes as follows. By evaluating social arrangements, the capability approach advocates a scrutiny of the contexts in which economic production and social interactions occur (Robeyns 2005). In essence, the availability and use of commodities are shaped by the activities of institutions such as markets and governments, and the state of relevant infrastructure e.g. policies, market mechanisms and technological interventions. Take for example a computer as a commodity which is considered useful in achieving numerous functionings. Government can intervene with import duty exemptions to increase its availability, and provide internet connectivity infrastructure to enable its use. On the one hand, this means that the proposed framework is able to address issues with the institutions involved in an IS project, including those of IS related infrastructure.

On the other hand, the commodities that an individual possesses (or has access to) are expected to expand their capabilities to achieve desired functionings. Ideally, the conversion of commodities into capabilities is enabled by the variety of personal, social and environmental conversion factors described earlier. However, the conversion factors also represent the source of societal influences which may constrain people's capabilities. The social environment influences people's capabilities and determines the nature of use of commodities. In the last example, societal norms may restrict the use of the computer on certain websites (e.g. for gambling or pornography). Other issues of culture apply in this regard, including the elements of corruption, tribalism, bureaucracy and scepticism as will be later illustrated in a hypothetical case involving a telecentre. This implies that the framework is able to address issues of culture which influence the deployment of information systems.

Also, the actual achievement of functionings is considered to be a result of the exercise of one's agency and personal preference out of available options. However, personal choices can also be affected by conversion factors (Kleine 2010; Robeyns 2005) as personal history and other social influences have a bearing on an individual's decision to select from available options. This aspect of the framework is relevant if one considers that people with similar capabilities may pursue different functionings depending on their conception of welfare (or development). Lastly, the agency of an individual can influence the conversion factors if he acts in a way to change the circumstances in which he operates. **Figure 1 (The Framework)** depicts the proposed framework, incorporating the important themes (identified from the failure categories) with the capability approach. The relationships between the elements from the capability approach described here are based on Sen's work and operationalizations of his ideas by previous scholars (Robeyns 2005; Zheng and Walsham 2008; Kleine 2010).

To put simply, Sen's work primarily links the core aspects of commodities, capabilities and functionings through the mediating elements of conversion factors, agency and choice. The agency and choice aspects are seen as acts of reason and individual preferences that are sensitive to social influences (Sen 1999). Robeyns (2005) further explains the choice element of agency by articulating the influence of social institutions and other entities on individuals' preferences i.e. choice of which capabilities to pursue out of the achievable functionings. Kleine (2010) also focuses on the choice element by introducing concepts of empowerment and livelihoods assets to propose a framework for conceptualising development outcomes as capabilities derived from the use of ICTs.

Zheng and Walsham (2008) expand the relationship between commodities and conversion factors, arguing that the exploitation of the former contributes to personal abilities amongst others. In other words, the constant use of technology for example, improves individual capabilities and subsequent conversion into functionings. In essence, the proposed framework takes the key elements from Sen's work and substantiates the relationships between these elements with the work of other authors. Nevertheless, there are differences in application that will be discussed in the next section after illustrating the workings of the framework.

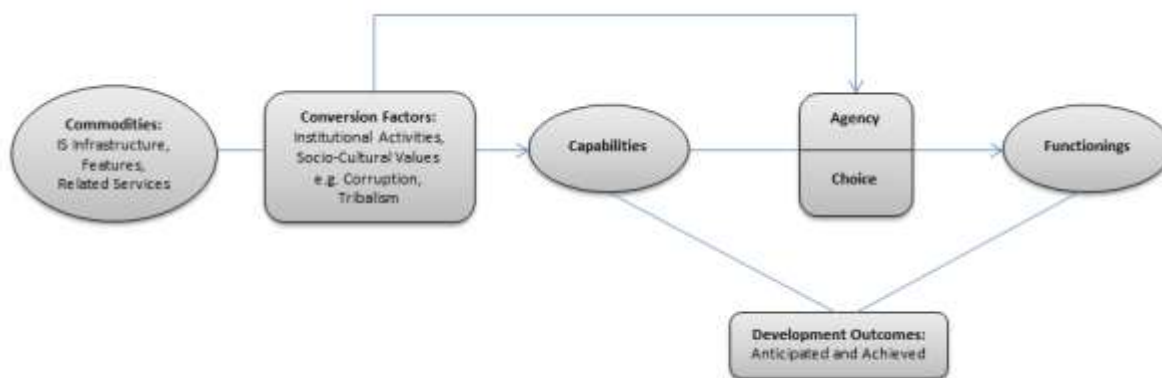


Figure 1: The Framework

To illustrate the full workings of the framework two hypothetical scenarios involving the deployment of a telecentre initiative in a rural community are discussed. Suppose that the government has also introduced free IT training programs to develop the competence levels of community members. The telecentre and training programs are commodities which an individual would have access to; while literacy, operational policies, geographical distance, and social demographics such as age and gender are some of the conversion factors which would enable the capabilities of accessing health or commercial information.

In one scenario, an individual may enrol in the training program and develop his abilities to access information to achieve desired functionings e.g. improved health or business. If this is enacted with no constraints, then a development outcome can be said to have been achieved. In a second scenario however, this link could be broken if a telecentre official prevents the individual from enrolling in the training program, either by demanding bribes or favouring members of the former's ethnic group. In this case, the elements of corruption and tribalism can be considered as conversion factors. This also applies to the element of bureaucracy, if the policies of stakeholder institutions constrain such an individual in enrolling in the program. In any event of these, the individual can be said to have been denied his capabilities (i.e. freedom to access health or commercial information) and by extension, his achievement of the relevant functionings.

In a third scenario, the individual may enrol successfully in the training program and develop his capabilities to access useful information. (S)he then chooses not act in obtaining useful health information, owing to scepticism of online resources (from past experiences or

relations with peers). In the event of this, the individual's agency can be said to have been constrained by the conversion factor of scepticism.

3.6. Applications of the Capability Approach in IS

Although there are similarities in this study's usage of the capability approach (CA) with other research, there are also some differences. To illustrate is Olatokun's (2009) use of the CA in examining demographic differences in the use of ICTs within a developing country. The approach in his study consists of the core elements of commodities and functionings, with a reference to capabilities as the "set of vectors of functionings" (ibid, pg. 484). Olatokun's study was valuable in expanding the notion of digital divide along the socio-demographic dimensions of gender and age. Also, James (2006) adopts the CA in examining the impact of the internet on poverty. His use of the CA is limited to the functionings aspect, which is contrasted with other economic theories of consumption. This was useful in the sense of analysing the actual usage of the internet and getting a more perceptible view of its impact. Although these studies refer to capabilities in theoretical terms, they translate this to functionings seemingly to address the epistemological difficulties in measuring the former.

Kivunike et al. (2011) use the CA in investigating the opportunities ICTs offer towards improving quality of lives. The study focuses on the aspects of freedom (i.e. substantive and instrumental) in conceptualizing a set of rights and opportunities that influence the usage of ICTs in rural communities. Its value lies in analysing the limited exploitation of ICTs within societies despite the opportunities offered through their deployment. Similarly De' (2006) adopts the CA in evaluating the developmental impact of an e-government initiative. In the study, the instrumental freedoms are used to understand how ICTs contributed to people's standards of living. Its value is in its evaluation of project outcomes based on long term development goals, beyond the efficiency gains often derived from technical implementation objectives. Although these studies are more explicit on the concept of capabilities, their analysis is limited to the elements of the instrumental freedoms as the conversion factors which influence the use of ICTs.

Zheng and Walsham (2008) adopt the CA in examining social exclusion within two societies. Their use of the approach consists of the core elements of commodities and capabilities, with indications of what functionings are enabled with the effective use of ICTs. The value of Zheng and Walsham's work is its focus on capability deprivation to explain how deployed ICTs may not result in development outcomes. Hatakka and De' (2011) use the CA to evaluate the potential contributions of an ICT for development initiative. The approach comprises of the core elements of commodities and capabilities, and the consideration of the potential functionings that are made available with the deployed system. The value of their work is the treatment of ICTs as a commodity consisting of technology and supportive interventions (such as training and technical support). In comparison with previously discussed studies, these applications of the CA focus more on the capability element in their analysis, and are more explicit on the role of technology in within development initiatives.

By considering technology and associated features as a commodity i.e. only a means to an end, they are cognisant of the fact that the deployment of ICTs with the aim of improving access alone is insufficient in development initiatives. The inherent features are expected to enable different capabilities for different people and hence, less specific on the actual outcomes that are to be achieved with their deployment. This runs contrary to the tool view approach, where technology is seen as neutral object expected to deliver specific outcomes (Orlikowski and Iacono 2001). Furthermore, the treatment of ICTs as a commodity consisting of both technology and supportive interventions recognises its dynamic relationship with people. In other words, the technology can influence people's capabilities, just as people may in turn influence the technology and supportive interventions including the infrastructure that enables its conversion.

Compelled by these views, this research follows the applications of the capability approach offered in the Zheng and Walsham (2008) and Hatakka and De' (2011) studies. Nevertheless, differences exist in the emphasis on the agency aspect. The studies hardly consider the agency aspect of the capability approach. This is particularly important in differentiating between capabilities and functionings to understand which conversion factors affect the latter. In other words, extricating the concepts allows one to understand what issues constrain the actual achievement of development outcomes, after efforts have been made to utilise available opportunities.

On the whole, little attention has been paid to the agency aspect of the capability approach within development research (Zheng 2009). Also, the IS studies adopting the CA have investigated the impact of deployed ICTs, with little attention given to the process of implementation. This point is particularly important in qualifying the comprehensive approach adopted in this study which aims to investigate the issues affecting the implementation of an information system, and explore reasons why locally meaningful development outcomes are often not achieved within its context of deployment.

The variations in the application of the CA in this study represent potential areas of contribution. A key potential contribution arises from extricating the concepts of capabilities and functionings in light of previous applications which adopt the latter as proxy for the former. This has the potential to offer a more comprehensive view of available opportunities from deployed systems, beyond those that have already been achieved. Furthermore, by extricating the concepts, there is some potential to comment on the agency aspect of the CA – thereby contributing to address its neglect in research (Zheng 2009).

3.7. Critique of the Capability Approach

As earlier noted (**Section 3.4**), Sen's capability approach is often criticised for being too individualistic and difficult to operationalise (Heeks and Molla 2009; Navarro 2000; Corbridge 2002). These criticisms point to epistemological difficulties in terms of the informational basis on which one may assess development outcomes.

In regards to the individualistic orientation of the capability approach, a challenge is on the use of individuals as the focal entity of assessment. Sen is criticised for paying insufficient attention to groups and social structures such as communities and institutions (Evans 2002). Robeyns (2005) has strongly contested this claim, arguing that all social entities constitute individuals and their relational features. In other words, individuals do not exist in isolation and are in constant interaction with others and the institutions that operate within a

society. The element of conversion factors within the framework applies in this regard as it considers the influence of societal structures on both capabilities and the choice to achieve a particular functioning. Hence, the emphasis of the capability approach on human diversity does not exclude an account of groups and social structures if one considers the impact of institutional mechanisms such as policies. Nevertheless, issues with institutions are explicitly dealt with under the component of conversion factors within the proposed framework (see **Figure 1 – The Framework**).

The emphasis on individuals relates with another criticism of the capability approach which concerns the formation of preferences i.e. choice aspect. Sen is criticised for considering an individual as a rational human being whose choices are autonomous and independent of cultural conditioning i.e. influences from corporations with great economic clout such as Coca-cola (Evans, 2002). The arguments suggest that such corporations have significant control over consumption standards, and hence what is preferred in a society. The relevance of this is the conception of capabilities that one might accept as valuable within a development initiative. In other words, there is a dilemma in validating some capabilities such as the ability to engage in leisure or entertainment, in the face of more pressing issues of poverty, illiteracy and deprivation in poor societies. However, a major essence of the capability approach is to promote an increase in the diversity of options that people have to live better lives (Clark 2005). Hence, the framework is arguably more applicable to a wider proportion of the society, including those who are poor.

In regards to operationalising the approach, a difficulty concerns the identification of a consistent set of capabilities (Nussbaum 2003), in light of the diverse nature of individuals and their conceptions of a good life. Sen is criticised for not supplementing the capability approach with a definitive list of capabilities. Following this is a related difficulty of prioritizing capabilities (Stewart and Deneulin 2002), given the potential disagreements about the value that may be assigned to each person's needs. Although there have been efforts to develop a universal set of basic capabilities (e.g. Nussbaum 2003), Sen refuses to endorse any specific list of capabilities (2009). Instead, he refers to democratic mechanisms and public discussions for the selection and prioritization of capabilities.

While such mechanisms may be applicable in development planning, they are less suitable in research situations. The difficulty remains in adopting a version of what constitutes a good life and this has a bearing on how development is assessed in regards to the outcomes of a deployed information system. However, a compromise is for a researcher to allow the emergence of recurrent themes from the respondents of a study, regardless of any previously defined set of capabilities (Clark 2005). This approach is useful in the sense that it takes people's interpretations of the objectives into account, and hence expectations of the system. Furthermore, the approach is in line with the specification to maintain some openness towards people's developmental needs (Sen 1999; Robeyns 2005), without imposing any particular notion of growth.

The emphasis on democratic mechanisms for selecting and prioritizing capabilities relates to another criticism of the capability approach regarding the political contexts of development initiatives. Sen's notion of democracy is considered abstract and idealistic (Stewart and Deneulin 2002; Navarro 2000). These suggest that the capability approach neglects issues of power that may lead to decisions that further worsen the position of the poor, or are unfavourable to other classes within a society. This is relevant if one considers the practicality of exercising agency (i.e. an individual acting to change his circumstances) in the face of powerful institutions. Admittedly, this may present challenges for an individual in terms of the numbers required for collective actions.

However, formal constitutions are available to guide governments and relevant institutions in response to citizen's demands (Gasper 2007). Furthermore, feedback mechanisms and other systems by which individuals may voice their concerns or hold authorities accountable (e.g. the press, courts of law) are useful in understanding people's efforts to change their circumstances. In other words, there are possibilities for the collective support required to initiate change - failure of which further reflects the shortcomings of societal systems and the general state of affairs in a country.

Nevertheless, an awareness of such issues within this study engendered an iterative approach to the development of the research framework. As will be discussed in more detail in **Chapter Four (Methodology and Setting)**, participants' concerns and issues of interest were integrated into the framework of inquiry through the course of the study. This aligns

with Sen's notion of democracy which favours a shift beyond traditional means of representation (i.e. elective mechanisms) to the involvement of individuals in decisions which significantly affect their lives (2009; 1999). In essence, Sen's approach is particularly useful for the nature of this study i.e. understanding locally meaningful development outcomes in light of human diversity.

4. Chapter Four: Methodology and Setting

4.1. Introduction

In Chapter Three (*Theoretical Framework*), arguments were made to adopt an approach that was interpretive in nature - without explicitly stating this, or discussing the philosophical assumptions which underlie the approach. The assumptions are explicitly discussed in this chapter, followed by a description of how they were enacted during the field visits for the study. A significant aspect of the discussion is how the research question evolved, and how the data collection techniques were adapted - to accommodate developments which emerged during the study. Lastly, the case study is presented, discussing details which are contextually relevant to the information system being deployed within the focal setting.

4.2. The Research Methodology

4.2.1. Philosophy and Assumptions

A main aspect of the approach⁵ adopted in this research involves the conceptualization of development outcomes from the perspectives of different individuals who have a stake in the focal IS initiative. This involves investigating meanings which people have ascribed to the initiative, which help understand their actions towards the deployed information systems. In essence, focus will be on understanding how individuals expect the implemented system to contribute to improvements in people's lives and what influences the realization of such.

⁵ The approach adopted in this study involves investigating issues affecting the implementation of an information system, and exploring reasons why locally meaningful development outcomes are not easily achieved within its context of deployment

The objective is to understand the social context of the information systems intervention, where interest is in the wider social and material conditions that shape peoples interests and actions. In other words, the study aims to connect participants' perspectives to the variety of social, historical, and economic grounds on which they are based.

In discussing the assumptions about a study of the social world indicated above, the chapter draws upon Denzin and Lincoln's (2011; 2005) classification of the generic activities that may be used to define the interpretive qualitative research process. These activities are described in terms of the philosophical views behind the researcher and the researched (and their multicultural relations); the interpretive paradigms and perspectives (that guide human action); research strategies; methods of collecting and analysing empirical materials; and the art of interpretation. This chapter shows how these assumptions informed the perspectives on the subjects of the study, the approach in conducting the inquiries, and the representation of the events in the situated context.

Also, the approach in this study (i.e. interpretive) is contrasted with the objectivist one through the discussion for explanatory purposes - the objectivist being an approach which assumes that reality can be studied, captured and understood through ways which allow researchers to be neutral in their inquiries (Orlikowski and Baroudi 1991). Having said, little distinction is made with the critical approach to conducting research for reasons as follows. Firstly, both critical and interpretive research approaches share some underlying principles (McGrath 2005), which make them methodologically similar. Secondly, the foremost element of the critical approach involves gaining insight into social situations (Myers and Klein 2011), ahead of critique and transformative redefinition. In other words, it is necessary to understand before critiquing and transforming phenomena. Hence, this study may be considered a vital step towards initiating change within the focal context.

4.2.1.1. The Researcher and the Researched

This research identifies with arguments that suggest that people's construction of events and experiences are social in nature (Denzin and Lincoln 2005; 2011; Klein and Myers 1999; Walsham 1993), which innately consist of historical and cultural elements. However, there is some recognition that the researched (i.e. subjects) may be unaware of the extent to which their actions are influenced by these elements. Nevertheless, the study adopts a belief that people are capable of giving reasons which account for what they have done and why. This is in line with Sen's conception of the human agent which considers humans as agents that act with sufficient reason - even if "relying on very primitive and very defective reasoning" (2009: xviii). In essence, there is scope to understand people's actions while connecting such to the historical and cultural elements that inform relevant meanings.

Also, the study is cognisant of the view that a researcher's personal experiences may influence the research inquiry and process (Denzin and Lincoln 2005). This is fundamentally different from the objectivist approach which advocates a value-free study, where a researcher's prior knowledge is set aside during the inquiry. In this study, the researcher's experiences are considered also to bear historical and cultural influences which may cause conflicting or contradictory meanings with those of subjects. However, one may resolve contradictory meanings in ways that reflect that the concerns of subjects have been given much consideration and integrated into the study. This is further explained in section 4.2.2 (*The Fieldwork Experience*) which notes how the framework of inquiry evolved during the course of the study. The essence of this is an opportunity for both the researcher and subjects to co-create knowledge that is both empowering and grounded in local discourses (Smith 2005). This aspect is valuable particularly in the conduct of research that is considered to be in society's interest as will be further discussed in the subsection that follows (4.2.1.2).

Lastly, there may be issues with the representation of subjects owing to differences in gender, class, ethnicity (or tribe) and other cultural elements that define our social identities (Fine and Weis 2005). Although this study does not subscribe to beliefs that such elements make individuals homogenous in behaviour, there is some recognition that they may have significant political and economic consequences in our social lives. Earlier stated were

assumptions regarding a researcher's personal experiences. Being an indigene of the focal context (i.e. Nigeria), the researcher drew upon these experiences during the course of the study. This sensitizes the study to certain elements that may be cultural in nature, and enables a better understanding and articulation of culturally informed constructions of the subjects - owing to a direct and personal engagement with the field of inquiry (Bishop 2005).

4.2.1.2. The Interpretive Paradigm

According to Denzin and Lincoln (2005; 2011), the world views of a researcher can be understood in terms of the basic beliefs that guide human action i.e. ontology (the nature of human being and reality), epistemology (the relationship between an inquirer and the known), and methodology (how knowledge of the world is acquired).

The study adopts a view that people are concerned about their existence and livelihoods, and will be interested in looking after entities which contribute to improvements in their lives. However, this does not mean that they are always resolute or willing to engage with opportunities (even when they have the freedom) to do so. Such resolutions or willingness may be based on negotiated discourses (i.e. what they believe) which arise from continuous social relations with other individuals in their communities (Guba and Lincoln 2005; Butler 1998); or their knowledge of societal systems – including associated opportunities and constraints. Hence, the study considers our perceptions of reality to be a social construction of the events around us – which is invariably a historic and cultural constitution of the economic, political and institutional influences from our societies.

Having said the above, the study contends that this “reality” cannot be captured objectively, but understood in terms of meanings that people give to things and events. These “meanings” constitute our social actions (Walsham 2006; Orlikowski and Baroudi 1991). Hence, interest in this study is in the socially constructed nature of reality, in which experiences are created and given meaning. Reiterating Heeks and Bailur's argument on research philosophies, this study asserts that what matters the most about constructs are

the particular meanings given by individuals (2007). In this case, development is considered a construct which constitutes individuals' lived experiences over time within their worlds. The social worlds constantly created and recreated by individuals give opportunities to understand the nature of their actions within the enactment of the focal initiative. This is in contrast to the objectivists' approach which aims at getting truths by measuring and analysing causal relationships between variables.

Earlier in the previous subsection, the nature of this research inquiry was described as a process shaped by the experiences of both the researcher and subjects. Accordingly, the prospect of 'active' participants was much desired such that the framework of inquiry was further informed by their concerns and issues of interest. As such, the study subscribes to the hermeneutic philosophy (Butler 1998; Klein and Myers 1999), where one oscillates between whole and parts in the process of understanding phenomena. Also, this is particularly relevant in resolving interpretations which conflict with those of the subjects. The emphasis on integrating the concerns of subjects into the inquiry also increases the possibilities of fostering democracy and empowerment (Guba and Lincoln 2005), by giving voice to those who have a stake in the focal initiative. This is arguably in society's interest, which aligns with Sen's approach to development i.e. involving people in decisions which affect their lives significantly (2009; 1999). Having said, this research is not expected to transform existing societal structures as obtained with the critical approach, but to articulate issues in ways which may initiate action towards change within the focal context.

4.2.1.3. Research Strategies

As earlier discussed, this study is interested in the meanings that have been associated with the focal initiative, and how such meanings have been created and shaped over time. Hence, a case study approach is adopted for an in-depth understanding of people within their social worlds. This is based on beliefs that the meanings of actions can be derived from the consequences that are produced by them (Stake 2005), including explanations of

historic experiences i.e. realities of the past. Case studies give one the opportunity to engage with the subjects of a study in a longitudinal way, albeit retrospectively.

Furthermore, people's meanings are continually evolving (Orlikowski and Baroudi 1991), thus their interpretations of reality are not always constant. Adopting a case study approach allows one administer data collection at several time intervals and accommodate the possible changes in people's realities over the course of the study. This increases the prospects for clarifying (and eliciting more current) information from the subjects. Although other ethnographic strategies - such as action research (Avison et al. 1999) – offer some of the merits discussed above, the case study approach was adopted for this study for the main reason as follows. At the time of this study, the researcher was a student at Brunel University in the United Kingdom, which made it impractical to be actively involved with the implementation of the focal system in another country i.e. Nigeria.

Having said the above, this study recognises that what constitute case studies are a combination of both the strategies employed, and the outcome of the inquiry (Stake 2005). In this research, the strategies involves the collection and study of a variety of empirical sources which include interviews, observations, documents, informal conversations, and other interactions that may offer insights into events and meanings in people's lives. The use of multiple sources in this study represents an effort at gaining a more in-depth understanding of the subject matter at hand. This differs from the triangulation strategy of objectivists, which is aimed at validating empirical materials.

Also, informal conversations and other interactions refer to opportunistic instances where respondents are arbitrarily approached - based on the principles of convenience and snowball sampling (Bryman 2001). This opportunistic selection of respondents was adopted as a contingency plan to locate subjects that may have peculiar experiences which enable a richer description of the events under study. Furthermore, it reflects some flexibility in this study to accommodate the possibilities of emerging issues – as will be discussed some more in the following subsection.

4.2.1.4. Methods of Data Collection and Analysis

As earlier noted, the research strategy for data collection involves a variety of empirical sources namely interviews, observations, documents, and informal interactions. Primarily, interviews and documents provided the basis for constructing the historical and cultural contexts of the events in the study. The interviews were carried out in person with some follow up conversations conducted through electronic means i.e. telephone, email and online chat. The respondents were made aware of the research aims, to give them a shared notion of the expected contributions of the study (Fontana and Frey 2005). Also, respondents were informed of the possibilities of follow up conversations through the electronic means mentioned above - to minimise feelings of intrusion.

Observations and informal interactions were useful in supplementing the primary data sources. On one hand, the observations aided in situating the activities (that constitute the events) in context; and also in taking note of gestural cues that gave more meaning to the words of respondents (Angrosino 2005). On the other hand, the informal interactions were helpful in optimising relations and establishing a rapport of understanding with the study respondents. These further served to corroborate responses received from interview participants. Having said, the nature of the inquiries occasionally required answers to some sensitive questions. The influence of this on the data collection was to an extent dependent on the study participants. Some considered the researcher as an outsider and were relatively open in their discussions and activities, while others for the same reason were more guarded. However, drawing on experiences as an indigene of the focal country, the researcher was able to probe with the appropriate “words and phrases” during interviews – in line with Myers and Newman’s mirroring approach in which interviewers use dictions derived from respondents (2007).

Lastly, thematic analysis (Fereday and Muir-Cochrane 2006) was employed in analysing the data gathered through the sources discussed above. This involves coding of the empirical data (i.e. transcripts of the interviews, notes from observations and documents) into related themes. Following which concepts from Sen’s Capability Approach (discussed in the Theoretical Framework chapter) were used as illuminating lenses (Gregor 2006) - to view and explain the social world of the focal initiative. In other words, the framework only

served as a guide with which to construct relevant events and activities within the initiative. This accommodates the degree of openness advised (Walsham 1995), which prevents one from seeing only the constructs of a theory. Hence, much consideration was given to other issues which emerged during the field study, beyond the initial framework concepts. These issues informed further exploration of relevant themes and the modification of the theoretical framework - as will be explained later on in section 4.2.2 (*The Fieldwork Experience*).

4.2.1.5. The Art of Interpretation

In terms of purpose and contributions, the findings of this research are expected to have both theoretical and practical implications. The use of the framework offers a way to consider issues with the deployment of information systems from the perspectives of individuals who are affected by such interventions. As such, there are grounds for policy recommendations to those involved in promoting the use of ICTs for developmental outcomes within societies. Incorporating these with the interpretive approach of the study, the implications for the interpretation of events and activities in the focal context are social in nature. There is an inclination towards people, especially those who are marginalised by societal arrangements and structures - in line with Sen's perspective of development i.e. improvements in the lives of people to avoid deprivations.

Having said the above, the findings of this research are not expected to be generalised in the statistical sense of the objectivist approach, but to give insights that may be worth extending to other settings with similarities in social context. Also, in line with social research (Fine et al. 2000), this study aims beyond a mere critique of public sector activities, to showing an image of how things could be in a society characterised by transparency and participatory citizenship. As will be discussed in more detail in **Section 4.3**, the study is set in a context that is premature in its practice of democracy (i.e. Nigeria). Hence, there is much to be learned in terms of "giving voice" to people in decisions that significantly affect their lives, rather than imposing. However, this is not to deny the presence of other motivations

which are based on both the interests of the researcher, and those of study participants i.e. academic or career goals. Much care is taken to accommodate the foremost purpose that drives this work i.e. generating ideas and knowledge which may inform policies and societal activities.

4.2.2. The Fieldwork Experience

The fieldwork (to study the progress of a development initiative set in Nigeria) was approached bearing the assumptions discussed above. Three major field visits were undertaken during the course of the study. The first was conducted between August and November 2010; the second between November 2011 and January 2012; and the third between April and June 2012. The researcher was well received by the primary organisation, to the extent that he was assigned a desk space within the main project office. Members of staff gave assurances that they could be approached for interviews at any time (when the researcher was introduced around the organisation by the project manager).

The researcher was initially suspicious of their motives, but quickly learned that no formal research had ever been conducted on the project since its inception. This explained the staffs' interests and willingness to participate in the study. This gave them a sense of belonging to the research process, and an opportunity at co-creating knowledge (Smith 2005). Nevertheless, the researcher was responsible for the choice of participants - which were based on roles within the project; and leads from conversations with other respondents – based on principles of snowball sampling (Bryman 2001).

In the first field visit, the focus of the inquiry was on evaluating the deployed systems' contributions to development within the country. At the initial stage of this field visit however, it was discovered that the system was not in operation owing to a dispute between the primary organisation and its main technical partner. This was a closely guarded piece of information which only the organisation staff, project partner and select government staff were privy to. Members of the public continued to present for registration

and were told by the organisation staff to return after two weeks to collect their identity cards. This development led to the revision of the focal research question from an evaluation of a system's contribution to development, to understanding why such outcomes were not being realised.

Hence the framework underwent iterations where there were shifts in focus on some theoretical concepts, and substitutions in others. Also, the contingency plan to interact with registrants was enacted during observations of the registration process - to understand their concerns and frustrations with the system. These concerns were later integrated into the study. Such activities demonstrate the disposition within the study to accommodate emerging issues (Walsham 1995); locate subjects that have peculiar experiences that enable richer insights into the situation under study (Bryman 2001); and corroborate the 'stories' of previous interview respondents.

Having revised and incorporated new ideas from the first field visit, the second one proceeded to address gaps that had emerged. In this exercise, the focus of the study was on the primary organisation's partner agencies in terms of understanding the benefits of the system from other institutional and wider perspectives. The research activities were conducted during a period of heavy unrest - owing to civil strike action against the federal government for increasing fuel prices; and terrorist attacks from religious fundamentalists who abhor western education. These made access to respondents (and their willingness to discuss sensitive issues) a bit more challenging.

However, the researcher drew on his experiences as an indigene of the country to alleviate the difficulties faced (Fine and Weis 2005). Although English is Nigeria's official language, the local dialect spoken in the country contains a lot of native slangs and nuances which ease communication with others. For example, during an interview in which a respondent was reluctant to discuss a case of corruption within the project, the researcher adopted the local lingua for the term (e.g. settle, shake-body, egunje, chua-chua, and kola-nut) to ease the situation. This also aligns with earlier discussed Myers and Newman's (2007) mirroring approach to conducting interviews.

The third visit presented an opportunity to learn of the most recent developments within the focal project. A significant one was the launch of a pilot registration exercise, where the

researcher was given an opportunity to register and receive a unique identification number. This was significant in light of the duration of the suspension of the system's operations (i.e. 7 years), and the renewed effect it had on stakeholders' convictions towards the project. Some respondents seemed to have revised their initial dispositions and expressed more confidence in the on-going activities regarding the project while others remained adamant on their initial stance.

In either situation, adopting the case study approach within this study (with data collection administered at various time intervals) proved an effective strategy in capturing the changes in realities of the participants as earlier anticipated (Stake 2005; Orlikowski and Baroudi 1991). On the whole, the multiple visits to the field allowed the researcher and subjects to shape the research inquiry, where focus on the phenomena of interest were often negotiated between both – in line with the hermeneutic philosophy earlier mentioned (Butler 1998; Klein and Myers 1999); and concerns of the latter integrated into the study – to give them “voice” (Guba and Lincoln 2005).

4.3. The Research Setting

4.3.1. Nigeria in Context

Nigeria is currently the most populous country in Africa with about 160 million people residing within its 36 states and a federal capital territory called Abuja. Nigeria is considered a developing country (UNDP 2010), with a ranking of 142 out of 169 nations in the human development index (HDI). The HDI is based on aggregate measures of literacy, life expectancy and other indicators of people's wellbeing. Nigeria fares poorly in other aggregate development indicators such as the gross domestic product (GDP), with a per capita income of US\$1.092 (World Bank 2011). Nigeria is rich in natural resources most notably crude oil, with accrued foreign reserves reported to be in excess of US\$38 billion (CBN 2010). Nevertheless, poverty levels remain high in the country - with the majority of Nigerians living on less than US\$1 a day.

Also, the poor state of public infrastructure impedes any efforts at socio-economic development within the country. Most public utilities are inefficient, such that individuals and businesses have to look to alternative (and usually more expensive) sources which lead to higher overhead costs. An example is the reliance on privately owned generators rather than the public electricity supply i.e. PHCN⁶. Another example is the reliance on private couriers for mail deliveries rather than the public postal service i.e. NIPOST⁷.

In the current political scene, Nigeria operates a democratic system similar to the American style of governance – with one president, and a governor in each of the states. The states are further divided into senatorial districts and constituencies, each with representatives at the legislative national assembly. Since independence in 1960, Nigeria's democratic regimes were often punctuated by authoritarian ones when the military seized power from the civilian governments of the day. This instability has been argued as a reason for the poor state of development within the country (Achebe 1984; Uhegbu 2004), as public projects are often interrupted or abandoned during the forceful changes in government. Each regime articulated new policies and manipulated existing systems and procedures to favour members of the tribal/ethnic groups affiliated with the government of the day. Such practices give rise to poor productivity, inefficient administrative processes and weak systems of accountability which foster corruption and other negative practices (Achebe 1984; Uhegbu 2004; Pierce 2006).

However, in the more recent years (since 1999), Nigeria has experienced some stability in its polity. There has been little interference from the military and the country has successfully transitioned from one civilian rule to another. Nevertheless, past events continue to shape the current state of affairs within the country. Public infrastructures remain uncompleted or ineffective. For example, the national addressing system for streets and buildings is largely limited to the metropolitan cities – explaining the incompetence of NIPOST. Also, public organisations remain filled with redundant staff to the extent that public activities (e.g. legal affairs) are difficult to discharge. These have instilled high levels of scepticism amongst people towards projects initiated by the government.

⁶ PHCN refers to the government run Power Holding Company of Nigeria

⁷ NIPOST refers to the government run Nigerian Postal Service

The conditions described above present both challenges and opportunities for the introduction of a secure and reliable national identity management system. On one hand is the poor infrastructure which is ill-equipped to support the deployment of the system, amidst the levels of corruption and inefficiency. On the other hand is the potential to contribute to the socio-economic development of the country in a number of ways. Some of these include increasing people's access to important services such as consumer credit, insurance and banking services; and to enable them partake in employment opportunities, commerce and voting. Others include identity theft control and crime reduction in general. Presently, the existing means of identification in the country can be easily duplicated or forged for use in unlawful activities. For example, reports indicate that individuals can obtain multiple copies of the Nigerian international passport and use them to operate bank accounts in different names (World Bank 2009A).

4.3.2. The National Identity Project

There have been several attempts to implement the National Identity (NI) project over a period of 34 years since 1978 (NIMC 2008). The focus of this study is on two of the most recent implementation efforts which were conducted within the last decade i.e. 2003 and 2007. This is due to the limited availability of data sources (i.e. archives and informants) which could provide an extensive historical account of the earlier implementation efforts. Nevertheless, the earlier efforts were conducted during the periods of heavy instability when most projects were disrupted or terminated by the military regimes that seized power. Within this period, two attempts were made to introduce the system but got terminated before full implementation i.e. issue of cards to the general public. In 1979 only the technology was installed, while in 1998 citizen registration occurred (NIMC 2008).

However, the two most recent efforts were conducted in the relative stability the country has experienced since 1999, with democratic governments being in power without military interference. The first effort was conducted between the years 2003 and 2006 and it involved the implementation of the system with identity cards issued to eligible residents in

the country. The second effort was launched in 2007 and its implementation is on-going to date. These efforts are closely linked as the latter is an upgrade of the former, with similar formal objectives in regards to the nation's development (NIMC 2009). However, at the time of this study, no cards have been issued from the second effort despite plans to begin production in October 2010. Nevertheless, the continuity in both efforts is of benefit to this study as it gives more grounds to assess what development outcomes have been achieved with the project over the years.

4.3.2.1. The NI Project 2003 to 2006

The 2003 implementation effort was conducted by the Department of National Civic Registration (DNCR) in partnership with international consultants Sagem, S. A. France. Sagem was engaged to procure and install the technological equipment required to register and 60 million citizens, and produce national identity cards (NIC) for the registrants. DNCR provided funding and operational support through its offices in the 36 states and 774 local government areas within the country. The main objectives of the project were to establish effective control of illegal immigration, support the validation of other civic documents (e.g. international passports), and set up a reliable identification system for securing commercial transactions within the financial sector of the country (NIMC 2007).

In this implementation effort, 60 thousand mobile registration workstations (MRWs) were deployed across the country during a 3-week period set aside for a mass registration exercise. Registrants' details were recorded onto paper forms by DNCR staff and support staff engaged by Sagem. Photographs and fingerprints were also taken using the MRWs, which had the capacity to capture details of 500 registrants daily. At the end of each day, these images were downloaded unto zip disks and sent, alongside the paper forms, to a data-centre located at the headquarters of DNCR in Abuja. At the data-centre, the images and scanned copies of the forms were stored onto a database which was used to process and issue NICs. Processing involved the use of fingerprint biometric verification to identify and disqualify individuals who had registered more than once. Issued cards were sent to

state and local government offices of DNCR for collection by the registrants, who used slips detached from the original paper forms as a means of identification (NIMC 2007).

About 52 million people registered for NICs (out of the anticipated 60 million) with cards produced for approximately 37 million of them. The discrepancies were attributed to insufficient time for the mass registration exercise and errors in the collection and transmission of the data respectively. NICs quickly became the most preferred means of identification, based on the view that individuals could not possess multiple copies - owing to the biometric verification exercise carried out before card production. Also, the NICs were popular amongst citizens because they were issued at no cost to them, with registration points easily accessible through the deployment of MRWs in residential areas. The NICs can be used in a wide range of transactions such as opening bank accounts, applications for loans and other credit facilities, and confirming identities in other instances e.g. job applications, examinations in educational institutions and travel across the West African free trade zone.

However, the cards were not universally accepted by third parties for a variety of reasons. These include the inability to update and authenticate the information on the cards. Others include allegations of corruption against officials involved with the project, and inadequate infrastructure to support the project's operations e.g. the interconnectivity with third party systems needing to authenticate cards presented by individuals. In these circumstances, the federal government set up a committee to review the project in 2005. It recommended establishing a new government agency to take over operations of DNCR and develop a national identity management system.

4.3.2.2. The NI Project 2007 to Date

The National Identity Management Commission (NIMC) was established in May 2007 to carry on with the implementation of the NIC project. It formed a public-private partnership with two local card technology firms (Chams Consortium and Iris One Secure Card

Consortium), and a specialist identity management firm from Pakistan (Nadra). The main objectives of this upgrade - reconceived as the National Identity Management (NIM) project - are to create a sustainable identity management system managed by Nigerians, with specific goals to develop the consumer credit industry, fight the proliferation of false documents and identity theft, and improve administrative procedures in organizations that need to validate citizens' identities (NIMC 2009).

The main differences between this system and the previous one are that it will enable continuous and year-round registration of people; integrate existing databases of other government agencies (e.g. international passport, drivers' licence, voters); and provide identity verification services to third party organizations. The anticipated service improvements include instant validation of registrants' details – to minimize registration errors; real time data upload to the datacentre – to prevent data corruption or loss; and updates on request – when card holders' details change. Also, interconnectivity with the systems of third party organizations is expected to minimize the exclusion of citizens from vital services, and reduce identity related crimes.

NIMC plans to achieve these through an upgrade of the system in two parts. At the front end, NIMC is working with the local technology firms (Chams and Iris One Secure Card Consortiums) to install permanent registration centres in place of the MRWs. These centres are to be fitted with card issuing devices to allow card production at the point of registration. Also, card acceptances devices are to be deployed in third party organizations (e.g. banks) to enable communication with the National Identity database to validate transactions. At the back end, NIMC is working with the identity management partner (Nadra, Pakistan) to integrate the NIM system with the legacy systems of other government agencies. To ensure that the NIM system is in constant demand and use, the federal government has mandated the use of the cards in certain transactions. These include the opening of bank accounts and all consumer credit transactions, and applications for government services e.g. issue of international passports, pension claims, and public service employment.

Having inherited the assets and liabilities of the defunct DNCR, NIMC anticipated being able to reuse and update the existing National Identity database. However, a dispute with the

former DNCR consultant Sagem, France is causing a review of this plan. Sagem is refusing to handover the infrastructure from the 2003 project on the grounds that it is owed money for post implementation support provided after the fold up of DNCR. Sagem has not given NIMC the access codes to the datacentre where the National Identity database and card production equipment are housed. This has delayed the full implementation of the system, which was initially planned for October 2010. Attempts are currently being made by the Office of the National Security Advisor and the Federal Ministry of Justice to resolve the dispute between NIMC and Sagem. In the interim, NIMC decided to procure an alternative system, which is to be used in a pilot implementation.

4.3.3. NIMC – Current Operations and Organization

The current operations of NIMC involve the registration of eligible residents in the country ahead of the full implementation of the NIM project. Eligible residents present at NIMC offices nationwide and provide their details to registration officers for entry on to paper forms. Biometric details (i.e. fingerprints and photographs) are also captured at this point. However, no cards are being issued owing to the situation with Sagem. Also, NIMC is distributing the NICs which were produced during the 2003 project. The registrants present at NIMC offices within their registration areas to collect the NICs. A customer care unit was set up to facilitate the collection process. Call-centre operatives trace the location of each registrant's NIC and provide the contact details of the relevant NIMC office for collection. In cases where registrants have relocated and are unable to return to the specified areas, the call-centre operatives make alternative arrangements for the NICs to be delivered to nearest NIMC offices.

The operations of NIMC are supervised by a governing board which consists of a chief executive officer (CEO), representatives of NIMC's partner agencies (i.e. Harmonization Committee), and 3 individuals that represent the public's interest; and a management team which consists of the CEO and 8 departmental heads. NIMC's partner agencies consist of other government organizations bearing legacy systems to be integrated with the NIM

database. Some of these include Nigeria Immigration Service - international passport system; Pension Commission – pensioners’ database; and Independent National Electoral Commission - voters’ register system. The representatives of public interest refer to individuals who are elected to the governing board to speak for residents of the country. The departments include National Identity Database (NIDD), Legal Services (LSD), Information Technology (ITD), and Process and State Coordination (PSCD) amongst others. See **Figure 2 (NIMC Organogram)**.

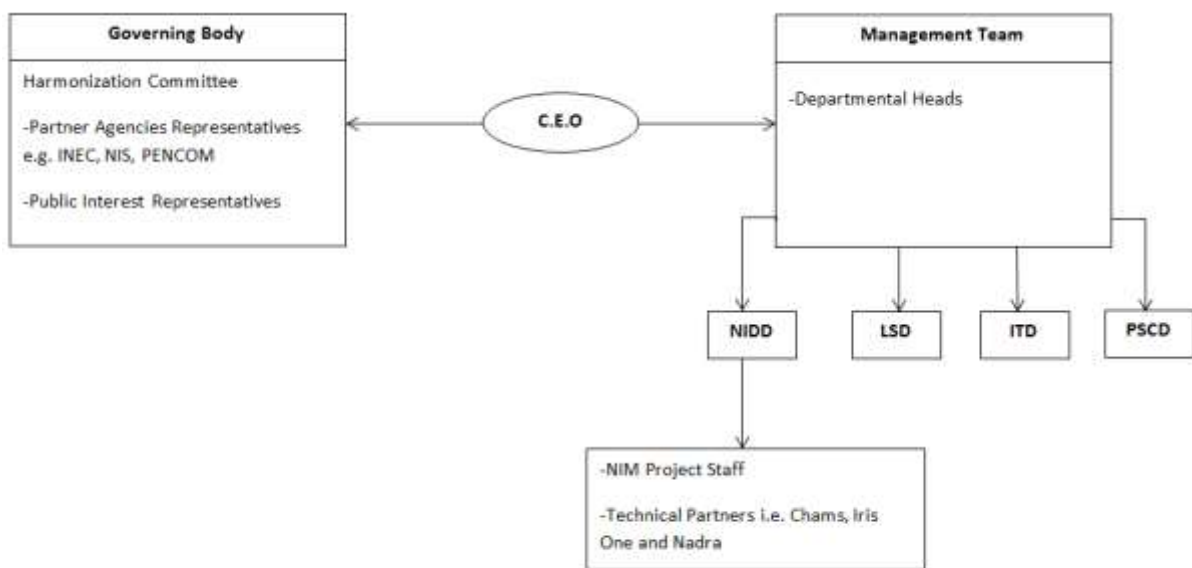


Figure 2: NIMC Organogram

(Adapted from NIMC 2008)

4.4. The Approach to Data Collection and Analysis

To reiterate, the interpretive research approach (Orlikowski and Baroudi 1991) was adopted in this study to gain valuable insights which shed light on reasons why locally meaningful development outcomes have not been easily to achieve with the deployment of the NI project. This entailed investigating issues from the perspectives of different stakeholders of the project, and understanding what meanings help explain their interactions with the

deployed system. To complement this, the case study approach (Stake 2005) was adopted for an in-depth understanding of people in their social world, and how the meanings associated with the NIM system have been created and shaped over time. Furthermore, the approach allowed data collection at various intervals to accommodate changes in people's situations and with the on-going implementation effort. The data collection techniques constitute a combination of interviews, participant observations and document analyses.

In sum, the data collection involved interviews with key staff of NIMC and other partner agencies (supplemented with phone calls and emails for follow up discussions); observations at NIC registration centres, project meetings, and harmonization committee meetings (comprising of representatives of NIMC's partner organizations); and document analysis of project reports and other materials sourced from the websites of NIMC and its partner organizations. The observations consist of attendances at two 4-hour project meetings; two 2-hour harmonization committee meetings; and three 4-hour visits to the NIMC registration centre.

The oral interviews ranged between thirty minutes to one and a half hours each; and were conducted in English and digitally recorded to ease transcription. These interviews were conducted within NIMC premises and offices of respective harmonization committee members. See **Table 6 (Summary of Interviews)** below for a summary of the interviews; and **Appendices 1 and 2 (Interview Guides and Questions)** for sample questions used in the interviews. **Appendix 1** presents the initial set of questions posed to participants before the research framework was revised as discussed in **Section 4.2.2 (The Fieldwork Experience)**. **Appendix 2** presents the revised set of questions, having incorporated emerging issues such as corruption, tribalism, and other concerns of participants. Hence, a degree of openness was maintained (Walsham 1995), to accommodate issues which emerged and informed further investigation during the course of the study.

Department	Participants	Participant Code Prefix	No of Interviews
National Identity Database	Director and Project Staff	NID	9
Legal Services	Director and legal Staff	LS	4
Information Technology	Director and IT Staff	IT	6
Process and State Coordination	Director and PSC Staff	PSC	10
Harmonization Committee	Representatives of Partner Organisations	HC	10
Technical Partners	Project Staff	TP	4
<i>Others</i>	NIC Applicants		8
Total			51

Table 6 - Summary of Interviews

Lastly, thematic analysis (Fereday and Muir-Cochrane 2006) was employed in analysing the data gathered through the means highlighted above i.e. oral interviews, observations, documents. This involved careful coding of all interview transcripts to abstract an initial set of related themes discussed by the study participants. This coding exercise was carried out with the support of NVIVO software - to manage the quantity and complexity of the gathered data. The data from other sources (i.e. observation, official, and newspaper reports) were also analysed to reveal background information and relevant socio-cultural issues that may be set in the context of the study. These were then synthesised with the initial codes to produce the final set of themes that are discussed in Chapter Five (**Case Study Findings**). **Table 7** presents some sample themes and relevant excerpts from the transcripts and observation notes to illustrate the thematic coding exercise.

Also, elements from the theoretical framework were used as “illuminating lenses” to view and explain the events that are relevant to this study (Gregor 2006). This involved interpreting the previously constructed themes in light of the concepts adopted from Sen’s Capability Approach. The themes relate to the theoretical framework as follows. **Meanings of Development** represent the **Capabilities** and **Functionings** that can be expanded by the NIM system. **Potential of the NI System** represent the **Commodities** and **Features** that people have access to. Lastly, **Project Management** and **Societal Issues** represent the **Conversion Factors** that influence the achievement of development outcomes i.e. capabilities and functionings. These are also illustrated in **Table 7** below.

Hence, Chapter Six (**Analysis and Discussion**) presents the analyses of the case study findings, with the development themes as sub-units for the analyses i.e. secure and cost

effective means of identification, increased access to civic documents, increased access to banking services and consumer credit, and increased access to government services and valued activities. Within each unit, the focal development theme is discussed, followed by the potential of the system in supporting the development outcome, and the issues which influence the achievement of such outcomes.

SAMPLE THEMES AND RELATED FRAMEWORK ELEMENTS	MEANINGS AND SOURCES	CODED EXCERPTS FROM TRANSCRIPT AND OBSERVATION NOTES
<p>Theme: Meanings of Development</p> <p>Access to secure and cost effective means of identification</p> <p>Related Framework Element: Capabilities/Functionings</p>	<p>Source: Coding of transcripts</p> <p>Meaning: Refers to the inadequacies of the existing means of identification within the country</p>	<p><i>“We have no identity card that everybody can get easily. Like the international passport and drivers’ licence, those ones are expensive and not everybody can afford them. Even people that can afford them can get different [multiple] copies. How do we know which one is real or which one is fake? So identifying people can be very problematic”</i></p>
<p>Theme: Potential of the NI System</p> <p>Automated Fingerprint Identification System (AFIS)</p> <p>Related Framework Element: Commodities/Features</p>	<p>Source: Observation notes</p> <p>Meaning: Refers to the biometric verification of individual applications to prevent multiple registrations</p>	<p>[It seems this is the most important feature of the system according to conversations with respondents. They believe this feature will tackle all identity-related crimes and enable other value added services e.g. tracking and non-repudiation of transactions. But does it prevent people from providing false information at points of registration?]</p>
<p>Theme: Project Management Issues</p> <p>Lack of established procedures and lines of communication</p> <p>Related Framework Element: Conversion Factors (-ve)</p>	<p>Source: Coding of transcripts</p> <p>Meaning: Refers to current organisation of NIMC in terms of poor structure and decision making processes</p>	<p><i>“It [NIMC] is a commission that is not fully established. They are still trying to define themselves. They don’t have for a proper structure for the project. They just have the CEO and different directors for different departments and their roles are not clearly defined. The issue we are having is many decisions are taken without the PMO members being involved in it. There is no active project manager. That means we have the responsibility to do many things without the authority”</i></p>
<p>Theme: Societal Issues</p> <p>Corruption</p> <p>Related Framework Element: Conversion Factors (-ve)</p>	<p>Source: Coding of transcripts</p> <p>Meaning: Refers to the exploitative practices of officials within the project</p>	<p><i>“...tell me by paying a minimum wage of 18000 naira [£71 monthly], how can we achieve these things [development outcomes]...how won’t people be corrupt in-order to pay rent, send their kids to school and feed? This is why there is a lot of corruption everywhere”</i></p>

Table 7 – Sample Themes and Transcript Excerpts

5. Chapter Five: Case Study Findings

5.1. Introduction

In the last chapter, details of the National Identity project were presented, including some relevant aspects of the Nigerian society that describe the context in which the information systems are set. In this chapter, the findings of the study are presented within major themes which show what development outcomes are anticipated by key stakeholders; and different issues which influence the achievement of such outcomes. Firstly, the development outcomes are extensively discussed, followed by the potential of the technical system in addressing anticipated outcomes. Lastly discussed are the different issues that were identified as constraints to the deployment of the System. A significant aspect of the discussion is the way liabilities of past implementation efforts continue to affect the deployment of the new project amidst other issues NIMC has to contend with.

5.2. Meanings of Development

Based on the definition of development outcomes adopted within this study⁸, the meanings of development are considered in light of improvements in the lives of people. As such, organisational improvements are discussed in terms of the benefits they offer NIC holders.

The main objective of the National Identity Project is to improve the socio-economic development of Nigeria (NIMC 2007; 2009), with specific goals to develop the consumer credit industry, fight the proliferation of false documents and identity theft, improve administrative procedures in organizations that need to validate citizens' identities; and to

⁸ "Development outcomes" refer to the potential contributions of information systems towards improvements in the lives of the people affected by them - based on Sen's approach to development (1999; 2009), which emphasizes the expansion of the capabilities (or opportunities) of individuals to pursue what they value in life

prevent the exclusion of eligible residents from important opportunities associated with travel, commerce, and government services in general. In line with these, the Federal Government mandated the use of the National Identity Cards in earlier noted transactions i.e. applications for international passports and other civic documents; operation of personal bank accounts; pension transactions; consumer credit transactions; voting activities; payment of taxes; and other transactions requiring verification of individuals' identities. Also, earlier mentioned Harmonization Committee (comprising representatives of NIMC's partner organisations) was set up to ensure that services of the represented organisations are integrated with the national identity project.

To reiterate the need for a reliable identity management system within the country, the existing systems of identification (i.e. international passports, drivers' licences, workplace IDs etc.) are reported to be unreliable and insecure i.e. can be forged and/or duplicated (NIMC 2007; World Bank 2009A). In other words, individuals can obtain multiple copies of these identity documents to perpetrate unlawful acts towards organisations or other individuals. As will be discussed in the following subsections (**5.2.1 – 5.2.4**), means of identification that are readily available (and often taken for granted) in other nations are not within Nigeria. As a result, important transactions are not accessible to some individuals within the country. Hence, an overarching meaning of development discussed in this chapter concerns the implementation and management of identity mechanisms within the country. After this, other meanings of development that different stakeholders have attached to the national identity project are discussed.

5.2.1. Access to Secure and Cost Effective Means of Identification

NIMC publicises the current project⁹ as an “identity management system” to differentiate this implementation effort from previous ones (NIMC 2007; 2009). The 2003 effort is labelled “a card issuing system” owing to a lack of mechanisms with which third parties can

⁹ For clarity purposes, the current national identity project is referred to as NIM (National Identity Management) while previous one is labelled NIC (National Identity Card) in this study

authenticate the NICs. Existing alternatives to the NIC are believed to be insecure, unreliable, and expensive (for individuals to acquire) - often requiring additional documents and informal mechanisms to qualify applicants. According to some of the project sponsors, these make the identity verification process cumbersome to both organizations and individuals in the conduct of activities within the country.

An example of an existing alternative discussed by study respondents is the Nigerian international passport. This is expected to be available to all legal residents of the country and accepted as a means of identification in relevant transactions, as obtained in other parts of the world. However, this is not the case for a variety of reasons discussed by the study participants as follows. First is the cost of obtaining the international passport at 8750 Naira or £35 (NIS 2011). In light of the country's minimum monthly wage of 7500 Naira (£30)¹⁰, this is considered a significant expenditure for individuals earning within that income bracket, and a burden for the poor or unemployed – all of whom may have more pressing needs. In essence, the international passport is not commonly regarded a cost effective choice of identity document, as its acquisition may be limited to people with specific needs e.g. travel purposes.

Second is the application process for obtaining passports which will be discussed in more detail within the next subsection. Applicants require additional documents (i.e. breeder documents) to establish their eligibility for the Nigerian passports. Obtaining the breeder documents present challenges which were reported to further increase the costs of obtaining the international passports for applicants. Lastly, the passport system considered by project stakeholders (including the relevant harmonisation committee member) to be insecure on the grounds that it has no technical infrastructure to prevent multiple applications from one person. For reasons also discussed in the following sub-section, individuals are able to falsify information on breeder documents and obtain multiple copies of the international passport for fraudulent purposes.

Other alternative forms of identification discussed by study respondents include the national drivers' licence, workplace ID cards and civic documents. However, these were also

¹⁰ The minimum wage was recently adjusted to 18000 Naira (£71). However, at the time of writing, many of the country's public organisations within the federal and state levels were yet to implement the new figure

considered to be inadequate for identification along similar lines described with the international passport. The following quotes from two project members summarise the situation:

“We have no identity card that everybody can get easily. Like the international passport and drivers’ licence, those ones are expensive and not everybody can afford them. Even people that can afford them can get different [multiple] copies. How do we know which one is real or which one is fake? So identifying people can be very problematic” (HC5)

“When we want people to identify themselves and they start giving us all these funny [phony] IDs, we can’t be sure if they are telling the truth or not. Like when they [travellers] want to cross Seme border now, one Cotonou person [Citizen of Benin Republic] can have a fake ID that has a Nigerian name” (HC3)

In the case of drivers’ licences, the cost is 5000 Naira or £20 (FRSC 2011) – an amount which is significantly increased on account of additional requirements for processing e.g. driving tests. This is believed to make it an unattractive option for individuals who do not drive. Also, there is no infrastructure within the licensing system to prevent multiple applications under falsified information. The last alternatives mentioned were thought to be even less adequate for identification purposes. Workplace ID cards are not widely recognised, while civic documents do not contain features that are vital in instances of identification e.g. photographic images.

In sum, the systems of identification currently in existence in Nigeria are perceived by project stakeholders to be inadequate on grounds of cost, security and reliability. Identity documents which are widely available in other parts of the world are not easily accessible to individuals within the country. Hence, a secure identity management system that is cost effective for people is a form of development that is desired and anticipated amongst project sponsors and other stakeholders.

5.2.2. Increased Access to Civic Documents

Processing and issuance of civic documents such as international passports and drivers' licences are handled by government agencies in Nigeria i.e. Nigeria Immigration Service (NIS) and Federal Road Safety Commission (FRSC) respectively. Again the expectation is for these to be readily available to legal residents who require them for different purposes. However, this is not the case as discerned from study respondents and publications of international development organizations. The issuing agencies have to establish each applicant's place of origin and hence, eligibility for the civic documents.

Ideally, breeder documents such as birth certificates should suffice in establishing one's origin as universally practiced. However, birth certificates are not widely available as a significant number of births are unregistered in the country. Reports of the United Nations estimate that only 30 percent of an annual 5 million births are registered in Nigeria (UNICEF 2007), including a lower ratio in rural areas due to the centralisation of civil registries. Also, formal registration of births began much later than other parts of the world (Dow 1998), leading to the exclusion of those born before the certificate-issuing era.

In the absence of birth certificates, applicants are subjected to informal exercises by local government officials to determine their eligibility for civic documents. In these exercises, judgements made by the officials are based on applicants' accents and descriptive knowledge of the geography and events within the places they claim as origin. According to some respondents, non-legal residents who have acquired local accents and knowledge can qualify while some eligible individuals may not. Also, in the absence of birth certificates to specify age, applicants are required to provide alternative documents obtained from courts of law. These are honour-based documents in which an individual swears an oath to an indicated date of birth and is endorsed by the court as legally acceptable. In essence, an individual can claim to be of any age (any number of times) and have official documents issued to that effect. A harmonisation committee member describes the situation with applications for international passports as follows:

"So when someone [an applicant] comes and says I want an e-passport and my age is this, and here are my breeder documents, how are we sure they are authentic? And that is a big problem now, people are forging documents anyhow. Today they can come as mr. x,

tomorrow mr y..... Sometimes we can tell by the names they give. Like if they give hausa names when they look ibo, then we ask them which village they are from and other things. From the kind of answers they give, we know if they are telling the truth or not” (HC3)

A notable example of falsified identity documents in recent press reports is the re-incarcerated UK ex-convict (BBC 2012; Sky 2012). According to the reports, the individual in question was able to falsify his age and names for a new identity in Nigeria to contest and get elected as the governor of a state¹¹.

The perceived difficulties in applying for civic documents can be summarised as follows. Firstly, the limited availability of breeder documents is seen to necessitate a reliance on informal means of validating applications. In the subjective exercises, individuals may be extorted for money, or unjustly denied documents they are eligible to acquire. Secondly, the unreliability of honour-based documents is believed to allow illegal applications for civic documents in false names. Owing to such inadequacies in the existing system, individuals can falsify information to obtain multiple copies of international passports (as earlier mentioned in the previous sub-section) and other civic documents for fraudulent purposes against other individuals and organisations alike. Hence, the potential to improve applications, ease people’s access to civic documents, and fight the proliferation of false documents are desired forms of development amongst those who have a stake in the NIM project.

5.2.3. Increased Access to Banking Services and Consumer Credit

The banking industry in Nigeria is considered to be underperforming in terms of individual bank account operations. The World Bank estimates that only about 26 per cent out of an adult population of 64 million have ever had bank accounts (World Bank 2009A). Identifying individuals is noted as one of the major problems with banking operations. To own accounts, individuals have to establish their identities with either of the documents

¹¹ By law in Nigeria, ex-convicts are not allowed to participate in elections or hold electoral positions

previously discussed (i.e. international passports and drivers' licences), in addition to other mechanisms designed to augment the lapses in existing identification systems.

For example, individuals are required to provide a minimum of 2 references (i.e. bank staff or other individuals who already own bank accounts) to guarantee their identities (GTBank 2012). Also, this study's inquiries into banking operations revealed that counter transactions often require endorsements from bank staff that can identify the individuals concerned. In third party transactions, telephone authorisations are often required from account owners to confirm identity of a cheque bearer before payment is made.

Obtaining credit through formal means is also seen as a difficult undertaking in Nigeria. The Central Bank of Nigeria estimates that only about 35 per cent of the economically active population have access to formal financial services (CBN 2005), with only 2 per cent in the rural areas. The reluctance of credit institutions to finance commercial activities is linked to the lack of secure identification systems (World Bank 2009B), and the ensuing difficulties in building credit histories for individuals. The perception is that individuals are able to obtain credit facilities using false identities under the current systems of identification. Likewise, individuals are reported to operate multiple bank accounts in false names, which enable them to develop bogus financial histories to obtain credit.

To cope with this situation, credit institutions often resort to measures which are unfavourable to intending applicants. For example, credit institutions require applicants to provide letters of guarantee from employers who are to be held accountable in cases of default. Also, the institutions demand high value properties from applicants as collateral securities for credit facilities.

In summary, the challenges with people's access to banking services and consumer credit can be respectively summarised as follows. Firstly, the difficulties in establishing individuals' identities have necessitated the introduction of cumbersome mechanisms within the banking industry. The request for references would exclude individuals who may have no access to willing guarantors. Also, in situations where some concerned parties may be unavailable (e.g. familiar staff or account owners), it could be a challenge for individuals to complete their transactions.

Secondly, the unreliability of the existing means of identification has given rise to measures which may be unfavourable for some individuals seeking facilities from credit institutions. The request for letters of guarantee would exclude individuals who are not employed in widely recognised organisations (including those who are, but may want to keep such transactions confidential). Also, the requirement for collateral property is unfavourable in situations involving relatively low amounts of money and levels of risk e.g. overdraft requests and credit cards which are usually assessed on individuals' credit histories. Hence, the potentials to increase people's access to banking services and consumer credit are anticipated forms of development amongst project sponsors.

5.2.4. Increased Access to Government Services and Valued Activities

NIM project partners expect the new system to contribute to socio-economic development in a myriad of other ways beyond the previously discussed ones. Their underlying belief is that the NICs would increase people's access to important activities (within both government and private sectors) that improve the quality of lives in the country. Amongst these are employment opportunities which are expected to arise from the permanent registration centres being set up in each of the 774 local government areas (in conjunction with the private sector partners) to replace the temporary mobile registration workstations (MRWs). Others discussed by study participants include opportunities associated with travel, commerce, crime control, and government services in general as are explained in more detail below.

One area of expectation concerns administrative procedures within government agencies that need to validate individuals' identities before offering services to them. An example is the Corporate Affairs Commission (CAC) which registers all start-up businesses within the country. Study respondents reported cases in which registrants provided false names and minors (under-aged children) as directors of start-up companies. According to the respondents, these acts expose individuals and organisations to fraudulent transactions

where perpetrators are either untraceable or cannot be held liable for charges in legal courts.

Another example is the National Pension Commission (PENCOM) which manages the pension funds of civil servants. Respondents discussed allegations of corrupt practices in which representatives of government organisations include ghost names (i.e. non-existent workers) on nominal roles for payments. In the situation earlier described with the banking sector, such representatives are able to claim the payments utilising bogus bank accounts. At the time of this study, the Economic and Financial Crimes Commission (EFCC) was investigating the Pension Fund Scheme (Tribune 2012; Punch 2012), where funds in excess of 12 billion Naira (£45 million) were alleged to have been paid to untraceable individuals while actual retirees await payments.

Another area of expectation concerns crime control, with respondents suggesting that the police would be better able to confirm people's identities and keep offenders off the streets. Under the current systems of identification, offenders are reported to simply assume new identities to avoid detention and/or punishment, with the possibility of perpetrating other crimes. According to a harmonisation committee member speaking on the operations of the police:

“With these ordinary ID cards we can't do anything. If we catch a thief he will just give us a fake name. How can we prove it? This will change. We will just confirm if you have registered. We will ask for your ID card, or your identification number, and if you don't have we can take a live sample [fingerprint] and access the database to confirm you. [With the NIM system] we can track people, even armed robbers for example, and monitor them to control crime rate” (HC7)

Furthermore, controlling crime is expected to enable people live in the country without fear of criminal attacks. However, some NIC applicants attached a different meaning to the situation. Their expectations from owning the NICs were to prevent harassment and extortion from the police during stop and search procedures which are common place in the country. Other areas of expectation include (but are not limited to) voting and the payment

of taxes. Respective Harmonisation Committee members (i.e. INEC and FIRS¹² representatives) discussed their expectations for improved services in addressing conflicts between politicians, where allegations of voters' register manipulation are made against each other; and in making accurate assessments for tax payers within the private and informal sectors of the economy.

Lastly, NIC applicants discussed their expectations in terms of personal desires and opportunities that could lead to their individual development. For example, an applicant expressed his desire to travel within the free trade zone of the Economic Community of West African States (ECOWAS). The NICs are accepted as travel documents across the borders of the ECOWAS countries. Being cost-effective in comparison to other alternatives makes it an attractive option for individuals who travel within the free trade zone for commercial purposes.

Another applicant expressed a desire to obtain a visa from a foreign mission to enable him travel for education purposes. The proliferation of false identity documents within the country raises suspicions towards applicants (Carling 2006), to the extent that foreign missions have been instructed to reject applications where there is any doubt on the authenticity of submitted documents. Some of these foreign missions often request the NIC as part of the documents required for visa applications. Similarly, in job advertisements, NICs are often listed as part of the documents required from applicants. Some applicants explicitly stated the increased exposure to job opportunities as their main reason for acquiring the NICs.

5.3. Potential of the NI System

NIMC expects to achieve the previously discussed development outcomes by implementing the NIM project as follows. The NICs issued during the 2003 project are to be replaced by

¹² INEC and FIRS refer to government agencies of Independent National Electoral Commission and Federal Inland Revenue Service respectively

General Multi-Purpose Cards (GMPC), which contain chip devices for storing information that will be accessed by devices installed at partner organisations across the country. Permanent registration centres are being set up in each of the local government offices in place of the previously utilised mobile registration workstations (MRW). These are expected to enable individuals update their personal information periodically; and apply for new or replacement GMPCs all year round (unlike the old system). Also, the GMPCs will continue to be issued at no cost to encourage applications from all eligible individuals. According to one of the interview respondents speaking of electoral activities:

“The National ID card is free. People will be more interested in the free option. If people know that there is no wahala [difficulty], they will be more encouraged to come and register. I mean if they know that it will be easy to just come and give their names and fingerprints just like that, then it will be better for them. Instead of all the wahala [difficulties] of bringing birth certificate and declaration of age” (HC1)

Underlying such a statement appears to be the belief that more people will acquire the GMPCs rather than the expensive alternatives i.e. international passports and drivers’ licences. As such, the anticipations for a cost effective identity system are expected to be achieved.

Regarding the anticipations of secure and reliable identity management, connectivity infrastructure is being installed across the country to enable front-end integration with third party organisations needing identity verification services. This implies that individuals will have access to services without the cumbersome procedures previously described. At NIMCs back-end, the national identity database is supported by an automated fingerprint identification system (AFIS) which is expected to prevent multiple registrations from any individual. Although registrants may still be subjected to validation exercises (similar to previously described) in establishing origin and birth details, respondents believe that registration can only occur once for each individual owing to the AFIS. In other words, the information declared by an individual at the point of registration remains his or her legal identity, which cannot be falsified at a later time.

Also, the NIM system comprises of tracking mechanisms to enable non-repudiation of transactions. According to NIMC, this means that transaction utilising a GMPC will be

traceable to the concerned individual through their national identification numbers (NIN) i.e. numbers unique to each eligible individual. As such, these are expected to improve identity-based services for individuals; tackle cases of multiple registrations and other identity related crimes within the country. According to one harmonization committee member:

“What I believe is that everybody will have only one national ID number. If we use that there won’t be any room for multiple registration[s]. This is how we have been for a long time but we can’t continue to allow it. We can’t keep doing the same thing over and over again like with INEC registration [multiple registrations in elections]. This technology is a way forward for us. It has the ability to keep accurate records and prevent funny malpractices” (HC1)

In the case of applications for civic documents for example, project sponsors expect the requirements for breeder documents to be annulled. Also, the subjective exercises are expected to be cancelled as the required information would be obtained from the NIM database. These are expected to reduce individuals’ exposure to extortion or exclusion. Furthermore, the validation through NIM database is expected to prevent applications in false names, also reducing individuals’ exposure to fraud. Similarly, in the cases of banking services and consumer credit, project sponsors believe there will be no need for references (i.e. staff or account owners; and letters from employers) to guarantee the identities of individuals in relevant transactions. These are expected to increase people’s access to the services. Also, the requirements for high value property to secure credit facilities are expected to be lessened for applicants, with credit institutions having more confidence in transactions - to the extent of reducing interest rates. According to a harmonisation committee member speaking of the consumer credit industry:

“The banks are saying if they can identify people convincingly then they will be more encouraged to give loans, even to those who don’t have the collateral they ask for right now. Remember that these people are petty traders. People who can’t afford the collateral that banks usually ask for. Look, right now people are borrowing money and running away and it is negatively affecting the market. If you can make it that people will not run away, it makes it easier to access a loan. And when you are sure they [credit applicants] will pay back, it

drives down the interest rates. So it is a benefit to people too because they will borrow money cheaper” (HC2)

Lastly, in regards to government services and valued activities in general, project sponsors expect that relevant organisations would be better able validate people’s identities thereby exposing them to a wider variety of valuable opportunities.

On the whole, over 50 million people presented for registration in 2003 for the NIC project. At the time of the third study (May 2012), a pilot registration scheme had commenced at the NIMC head office in Abuja. NIMC and other government agencies’ staff were being invited to provide relevant details and receive NINs. However, NIMC is yet to begin production of the GMPCs for the registered individuals. The researcher was also allowed to register and issued a NIN (See **Appendix 3 – NIN Registration**), enabling an observation of the pilot exercise. Although the project is yet to open to members of the general public, people continued to present in high numbers daily at NIMC to register – owing to rapid spread of the news on the pilot. This indicates the high levels of enthusiasm and expectations for the project amongst individuals within the country. Nevertheless, achievement of the expectations is perceived to be dependent on a variety of issues which are discussed in the following section. Most significant are issues with the management of the 2003 project and its continued effect on the current effort; and societal issues which are perceived by stakeholders to influence the deployment of the system.

5.4. Project Management Issues

Some of the issues discussed in this section concern the organisation of NIMC and its effect on the NIM project. As earlier noted in the **Research Setting (section 4.2)**, NIMC was established in 2007 after the government reviewed the operations of the DNCR and the NIC project¹³. Specifically, study participants expressed concerns about the current structure of

¹³ The Federal Government set up a committee to review the 2003 NIC project in 2005, which recommended establishing a new government agency (NIMC) to take over operations of the Department of National Civic Registration (DNCR) and develop a national identity management system. NIMC began operations in May 2007

the organisation in terms of the absence of established procedures/processes and lines of communication. To quote a project partner:

“It [NIMC] is a commission that is not fully established. They are still trying to define themselves. They don’t have for a proper structure for the project. They just have the CEO and different directors for different departments and their roles are not clearly defined. The issue we are having is many decisions are taken without the PMO members being involved in it. There is no active project manager. That means we have the responsibility to do many things without the authority” (NID3)

This and other respondents were of the opinion that decisions were being made arbitrarily without the involvement of key project partners. Specific reports were made on cases involving the speedy acquisition of earlier mentioned AFIS (i.e. Automated Fingerprint Identification System); and the acceptance of software prototypes without testing. While management’s decision on these matters were alleged to have been based on the need to meet target dates for the pilot implementation, some project partners considered it to be a result of ill-defined processes and lines of communication within the organisation. These issues (i.e. absence of established procedures/processes and lines of communication) were also reported to have affected the NIC project in ways that will be discussed further on in this section.

A related issue discussed by study respondents concerns logistics and planning, and how these affected the NIC project operations. According to a project member:

“There [was] no coordination at all levels. When you look at the whole thing carefully you will see that there was no conscious planning for long term. During the registration [exercise] we employed ad-hoc staff who did not look at themselves as part of the system. So you’re in a project but you don’t understand the impact of what you’re doing. You don’t even know who you are delivering to” (NID2)

The lack of coordination refers to project activities which some respondents felt could have been handled differently. For example, there were numerous complaints from registrants who did not receive their cards after the mass registration exercise was conducted in 2003. While part of the data collected was unusable for card production, these respondents were

of the opinion that the 3-week period allocated for registration was not sufficient to capture the details of 60 million eligible citizens. They felt that the exercise was poorly planned, leading to a lot of errors during data capture. This situation was aggravated by registration officers who did not remain at their posts, but went from house to house registering people. Other study participants discussed cases in which officers with access to NIC storage centres mislaid cards. These officers were reported to have haphazardly retrieved NICs with intent to hand over to the owners that they had access to (e.g. family, friends and people in their areas of residence).

The previously discussed issues (i.e. absence of established processes, procedures and lines of communication; and poor logistics/planning) were reported to have culminated in a lot of confusion and disarray during the NIC project in 2003. According to staff who participated in the project, registrants were not educated on procedures relevant for acquiring NICs. As one call-centre operative stated:

“You have people say they have enrolled but they don’t know the status of their cards. They don’t know who to speak to....to pick their cards. They had a lot of mix up. Some people registered in one local government and their cards were found in a different local government area. In some cases in the rural areas you just take these cards to a location for people to come and pick their own” (PSC5)

The lack of information partly explains why registrants relied on NIMC staff (with access to NIC storage centres) to hand over their NICs in person. This also explains why to date (i.e. 9 years after registration), registrants are still contacting NIMC’s call centre to arrange receipt of their cards. Lastly, no cards are reported to have been produced for individuals who registered after the 3-week mass exercise. Although study respondents attributed this to the suspension of card production over the past 5 years, NIMC is yet to issue an official statement explaining the situation to members of the general public.

A last issue discussed by study respondents concerns relations between organisations involved with the NIC project, and how these continue to affect the current implementation effort. To quote a staff of NIMC:

“The problem is between the government and the contractor. They [the government] did not consider a lot of things before signing the agreement. It’s as if Sagem wrote the agreements and government just signed. They did not think about handover strategy. The handover was not clear. There was nothing for skills transfer to the people who will take over” (LS3)

This and other respondents attributed problems being encountered in the NIM project to the former technical partners (Sagem, S. A. France) in different ways. Firstly, the earlier discussed dispute¹⁴ with Sagem (Research Setting chapter), is reported to be delaying full implementation of the new system. With no access codes to the data centre, NIMC cannot re-use the database or card production infrastructure from the 2003 project. This explains why no cards have been produced for individuals who registered (and continue to do so) after the mass exercise.

Secondly, the MRWs supplied during the 2003 project are described as proprietary systems that can only be upgraded by Sagem or its licensees. This affected a social safety net programme launched in one of the country’s states to provide free health care for pregnant women and children under the age of 5 (CRS 2010). The plan to use the MRWs in issuing programme beneficiaries with exclusive identity cards could not be pursued due to the situation with Sagem. NIMC staffs (who transferred from DNCR) were of the opinion that Sagem made deliberate efforts to prevent them from operating or accessing the data centre so as to lock-in DNCR and partake in future operations.

5.5. Societal Issues

Some of the issues discussed in this section concern the socio-political environment in which the NIM project is embedded, and its perceived influence on the achievement of the development outcomes. As discussed in the **Research Setting (section 4.2)**, earlier

¹⁴ Sagem is refusing to handover the infrastructure from the 2003 project on the grounds that it is owed money for post implementation support provided after the fold up of DNCR. Sagem has not given NIMC the access codes to the datacentre where the National Identity database and NIC production equipment are housed

implementation efforts¹⁵ of the national identity project were disrupted and terminated by the governments that came into power.

Study respondents made references to this issue, linking the changes in government to changes in the management and executive boards of the agencies sponsoring the projects i.e. DNCR and NIMC. These respondents were of the opinion that successive heads of government (even though democratic since 1999) habitually replaced project executives for political reasons. Specific comments were made suggesting that these heads of government replaced past project executives with their own supporters – to the extent of trumping up charges against the former. For example, three former ministers and two officials (all involved in past projects) were indicted on corruption charges in 2003 even though they have not been convicted to date (Vanguard 2012).

Other participants made references to the federal quota system¹⁶ as an instrument being utilised by politicians in power to pursue self-interests. This issue of the quota system is further explained later on within this section. These political manoeuvrings were believed to affect the project in terms of continuity in operations; and liability of unqualified staff. A management staff summarised the situation by stating that:

“It will depend on the political will of government to change all these things to make the project work very well. Government needs to understand the value of the project. We have qualified people in the country who can handle it [the project] but politics interferes with everything. This is how projects have been in this country. They will appoint people because they are coming from a very powerful political background. And because everyone here is also politically appointed, how do you balance? We need to deal with continuity as we have done the project many times before” (IT2)

Follow up discussions with respondents about the federal quota system revealed some concerns on its influences on the past and current implementation efforts of the national identity project. Although the quota system is supposed to equalise the distribution of

¹⁵ Attempts to introduce the National Identity Card in 1979 and 1998 where terminated during the changes of government in the country

¹⁶ The federal quota system aims to equalise the distribution of resources and appointments amongst the different ethnic groups within the country

resources and appointments amongst the various ethnic groups within the country, its tribal nature was believed to mask some poor practices within the projects. For example, some management staff reported cases where politicians invoked the quota system to demand that members of their wards be appointed to the DNCR during the 2003 project. According to these respondents, the appointments were based on ethnic origins rather than technical competence or qualifications of project appointees.

This explains why NIMC is saddled with the liability of unqualified and technically incompetent staff – labelled as “redundant staff” by a management staff due to the ensuing training responsibilities on NIMC. In another example, a management staff of NIMC described an instance where some job opportunities were advertised to members of the general public. According to this respondent:

“over ninety per cent of the shortlisted candidates were from the south-east [the Ibo tribe in Nigeria]. I could tell from the names on the list. That is why you can see a lot of them [Ibo people] around” (IT3)

By this statement, the respondent was suggesting that the official in charge of screening applicants’ resumes largely selected members of his own tribe to fill the job vacancies.

Another issue discussed by study participants concerns the poor state of infrastructure within the country, particularly those required to support the project in achieving set objectives. An example is the country’s legal system which is considered to be ineffective in enforcing the terms specified in the agreements with Sagem. Study participants expressed reservations about the competence of existing legal mechanisms to resolve the conflicts which have been on-going since 2007 to date. Similar reservations were expressed about the legal systems in terms of protecting the investments of NIMC’s private-sector partners. This is a significant issue considering past government’s history of terminating projects without consideration for investments of third parties. A study respondent stated this as a reason for the delays in the installation of the front-end card devices procured by NIMC’s private sector partners.

Another example is the address system in the country which is considered to be inadequate in locating the residences or workplaces of individuals. The lack of standardised address

system was identified as a constraint to operations within NIMC's card distribution network. This explains why NIMC relies on registrants picking up issued cards in person (at the risk of disarrays in collection as earlier described), rather than mailing them through the national postal service i.e. NIPOST. Also, some respondents expect the lack of standardised addressed systems to compromise the capability of the NIM system to track individuals. According to them, the tracking feature of the new system may be limited to cases in which offenders or defaulters re-use their GMPCs in subsequent transactions.

Respondents also linked the limitations of the existing infrastructure in the country with corrupt and exploitative practices within the project. Some were of the belief that powerful vested interests were manipulating the legal situation and enabling Sagem hold out on handover in the hope of benefiting from any further payments made by NIMC. Also, the state of the economy was implicated as a reason why exploitative and corrupt practices were rife within the project. Specific references were made to the low salaries paid to government officials. To quote one respondent:

"...tell me by paying a minimum wage of 18000 naira [£71 monthly], how can we achieve these things [development outcomes]...how won't people be corrupt in-order to pay rent, send their kids to school and feed? This is why there is a lot of corruption everywhere" (HC1)

This and other respondents linked the economic situation to some of the earlier reported exploitative activities of public officials within the project. For example, the situation with registration officers leaving their posts in the 2003 project was reported to be a result of exploitation, where registrants offered or were solicited for incentives to receive the service at home. Similar reports were made about the situation with officers in charge of card storage centres in terms of receiving money or other forms of gratuity from registrants they had access to. These practices were seen by respondents as a consequence of the poor economic situation within the country, aptly summed up by one with the popular Nigerian saying "their [public officials] take home pay is not taking them home". Registrants were also thought to foster such activities (i.e. by offering incentives to the officials), as it provided cheaper and more convenient alternatives than travelling to NIMC offices.

There were also discussions on historical events which study respondents seemed to have associated with the NIM project. Despite the high levels of expectation observed in this

study, some stakeholders remained sceptical of the on-going project owing to previous outcomes, and those of similar projects. For example, references were made to a SIM card registration project which was recently embarked upon by the Nigerian Communications Commission (NCC 2012). Despite strict deadlines set by the government for GSM phone owners to provide personal details (including biometrics), the sanctions to disconnect defaulters from services was not enforced. Respondents believed this and other such initiatives of the federal government to have a negative effect on the NIM project. Some respondents went as far as labelling the NIM project a “government project” despite its private partners, and suggesting that “nothing good will come out of it”.

Other respondents made references to terminations and levels of corruption experienced in previous projects with concerns that similar may occur in the current NIM implementation effort. Also, respondents indicated some reluctance amongst partnering organisations to modify their procedures/processes owing to the concerns of the project’s history. While this was seen by NIMC management as an attempt at holding on to established processes (often for vested interests), other project partners were of the opinion that NIMC was not creating enough awareness to address these concerns.

Lastly, informal conversations with respondents revealed further dimensions of some of the previously discussed issues. One concerns attempts at holding on to established processes for vested interests. A management staff reported cases in which officials at the office of the accountant-general invoked bureaucratic procedures to deliberately delay project funds, with the hope of receiving some gratuity. Although the respondent stated this was no longer the case at the time of the study, it was said to have delayed NIMC in some project related transaction e.g. payments to NADRA to commence software development.

Another dimension of previously discussed issues revealed by participants concerns the scepticism towards the on-going project. Some respondents were of the opinion that one of NIMC’s front-end partners (Chams Consortium) was unable to secure facilities from banks to purchase card devices due to the latter’s beliefs that the on-going project would be no different from previous efforts. As a result, only the other front-end partner is (Iris-One Secure Card) is progressing with NIMC’s pilot implementation.

A third dimension also concerns the general scepticism towards the on-going project. Some of the management staff acknowledged that NIMC was not creating much awareness, or sensitizing the general public about the on-going project. These respondents explained NIMC's largely mute position as a deliberate act towards addressing the scepticism. In their opinions, eventual success with the project would be the best form of response to sceptics.

6. Chapter Six: Analysis and Discussion

6.1. Introduction

In the last chapter (Case Study Findings), the findings of this study were presented within themes which showed what development outcomes were anticipated by key stakeholders; the potential of the new system in achieving such outcomes; and different issues which influence the achievement of these outcomes. In this chapter, an analysis of these findings is presented utilizing concepts from the framework adopted within the study. Firstly, the concepts are briefly discussed to recap the theoretical framework, followed by the development themes outlined within the findings. Secondly, each of the themes is interpreted in light of the framework concepts to address the focal research question of the study, and to relate observed events to previous work in the ICTs and Development domain. A significant aspect of the analyses is the insights into the sources of the often reported technical and managerial issues affecting the deployment of information systems within developing countries.

6.2. Recap on Theoretical Framework

Earlier described (in *Chapter Three*) was the theoretical framework adopted in this study, which is based on Sen's capability approach (1999; 2009). The approach considers development as the expansion of people's capabilities (or opportunities) to engage in valued activities that improve their lives. This comprises both individual desires and efforts of societal institutions in preventing people's exclusion in developmental activities. The main concepts adopted from the framework include commodities, conversion factors, capabilities, agency and choice, and functionings - briefly explained as follows.

Commodities represent the goods and services that individuals own or have access to, which enable their doings and beings. In other words, commodities are seen only as a means for people to achieve an end i.e. development. Conversion factors represent intermediary elements which either facilitate or constrain the abilities of individuals to benefit from accessible commodities. Conversion factors comprise of personal (e.g. literacy, gender); social (e.g. politics, culture); and environmental elements (e.g. societal infrastructure) that affect developmental activities. Capabilities represent what people are effectively able to do or be regarding their desires for better lives. In other words, capabilities are the set of opportunities individuals have to achieve development expectations. The related concepts of agency and choice represent the freedoms to effectively decide and actively pursue one's personal goals and welfare. The conversion factors are relevant here as they affect individuals' decisions to actively engage in developmental activities. Lastly, functionings represent the actual doings and beings of individuals regarding their welfare. In other words, functionings are the actual development outcomes that have been achieved.

6.3. Analysis

In the sub-sections that follow, the development themes¹⁷ identified in the study findings are analysed in light of the concepts described above. Consequently, these development themes are used as the main sub-units of the analyses. The purpose, on the one hand, is to explore how IS deployments can support the achievement of locally meaningful development outcomes in a developing country i.e. Nigeria. On the other, it is to understand why this is often not the case with the focal initiative i.e. national identity project.

On the whole, the national identity project is examined as an ICT-based initiative with potentials to contribute to development within Nigeria. It considers how the project may contribute to improvements in the lives of people within the country. Central to the

¹⁷ The themes refer to the meanings of development discussed in the Case Study Findings chapter i.e. secure and cost effective means of identification; increased access to civic documents; increased access to banking services and consumer credit; and increased access to government services and valued activities

initiative is the national identity card (NIC) or general multipurpose card (GMPC) which constitutes a commodity in Sen's terms. Furthermore, the technological infrastructure which consists of the national identity database (NID); automated fingerprint identification system (AFIS); and the variety of services provided, are also considered commodities – as Sen describes commodities as accessible goods and services that can improve the lives of individuals (1999; 2009).

6.3.1. Access to Secure and Cost Effective Means of Identification

As earlier discussed (*subsection 5.2.1*), the current identity verification processes in transactions within the country are considered cumbersome to individuals and organisations on grounds of cost, security and reliability. This provides the primary basis for NIMC's implementation of the national identity management system (NIM), and previous efforts that were conducted over the past 34 years.

In Sen's terms, the provision of means of identification can be considered a commodity since it is a service fulfilled by public organisations (i.e. NIMC and the defunct DNCR), which is purportedly accessible to all legal residents of the country. Also, the mobile registration workstations (MRW) and permanent registration centres (of the NIC and NIM projects respectively) supported by the technological infrastructure (i.e. NID and AFIS) can be conceived as commodities, as they represent accessible goods which enable individuals to apply for identity cards.

The specific features of these commodities that are relevant to the provisioning of identity cards include the capture and storage of individuals' personal information. The registration officers deployed all over the country to capture registrants' details can be considered as conversion factors to facilitate access to secure and cost effective means of identification. Other conversion factors would include the card production equipment, and the card distribution network – which comprises card storage centres and staff nationwide. These are expected to facilitate access to secure and cost effective means of identification in light

of previously discussed alternatives¹⁸. This means that opportunities to obtain secure and cost effective means of identification can be considered as capabilities, while actual acquisition of the cards without hassle conceived as functionings in Sen's terms. Although this functioning may be considered trivial in other contexts, it is significant in light of the opportunities which it can expose individuals to in Nigeria – some of which are further discussed in following subsections (**6.3.2 – 6.3.4**).

Ideally, project sponsors expect eligible residents to present at the registration units and give their details to technically competent staff. Each registrant is to return at a specified period for card collection, enabled by adept operations of the accessible technical infrastructure and card distribution network. In the event of this, the development outcomes of access to secure and cost effective means of identification can be said to have been achieved.

However, the study findings show other conversion factors which help explain why this is often not the case with the project. For example, the reported issues concerning logistics and planning of the NIC project affected operations in several ways. The insufficient time for registration (i.e. 3 weeks to register 60 million people) led to exclusion of eligible residents, and errors in data capture. Also, the officials reported to have left their posts during the registration exercise (for house calls) led to the exclusion of eligible individuals. In Sen's terms, these mean that eligible individuals were denied their capabilities to achieve the desired development outcome i.e. access to secure and cost effective means of identification.

Similarly are the issues concerning organizational procedures and lines of communication which were reported to have affected operations during the NIC project. Specifically, staff with access to card storage centres (that mislaid NICs), and DNCR's little efforts at educating individuals on relevant processes were partly responsible for registrants not receiving their cards (or receiving with much hassle) after registration. Also, the societal issues identified within the study affected the implementation of the NIC project as follows.

¹⁸ The alternatives refer to international passports, drivers' licences, and work ID cards previously discussed in the Case Study Findings

Firstly, the lack of standardised address systems in the country (with DNCR's reliance on personal pick up of cards) and the corrupt and exploitative practices of staff at storage centres further explain why registrants did not receive their cards without hassle. Secondly, the tribal use of the federal quota system and the ensuing shortage of technically competent project staff explain the high error rates in data capture during registration. As a result of these issues, a lot of registrants did not receive identity cards even though they made efforts by registering. In Sen's terms, this means that these conversion factors hindered registrants' agencies in achieving desired functionings i.e. acquisition of identity cards without hassle.

In the on-going implementation effort, some of these (and other) issues can also be considered as conversion factors which help explain why development outcomes are often not achieved. As the findings show, the lack of established organisational procedures within NIMC is leading to an unstructured implementation with poor communication amongst project members. Also, the organizational conflicts between Sagem and NIMC indicate that the latter will have to rebuild the national identity database from scratch - leading to disruptions in social benefit programmes¹⁹, and other government services as will be further explained later in this chapter. These issues have caused a rethink of NIMC's plan and contributed to the apparent delays with the deployment of the NIM system and consequently, people's access to secure and cost effective means of identification. In Sen's terms, this means that individuals are being denied their capabilities to achieve desired development outcomes i.e. access to secure and reliable means of identification.

Similarly, the societal issues concerning political interference, tribalism inclined quota system, scepticism and bureaucracy can be considered as conversion factors, as they have resulted in intermittent delays to the full implementation of the NIM system. Respectively, these have led to disruptions in project operations; liability of unskilled staff with ensuing training responsibilities on NIMC; poor stakeholder buy-in; and late procurement of required equipment. Again in Sen's terms, this means that individuals are being denied their capabilities to achieve the desired development outcomes.

¹⁹ These refer to government initiatives such as the social safety net programme described in the Study Findings chapter, which aimed to provide free health care for pregnant women and children in one of the states in Nigeria

Lastly, the societal infrastructures discussed (i.e. legal and address systems) can be conceived as conversion factors owing to their influence on the achievement of anticipated development outcomes. On one hand, the ineffectiveness of the legal system is delaying a possible resolution of the conflicts between Sagem and NIMC, and hence, the latter’s production of cards using the old identity database. On the other, poor address system compromises NIMC’s capacity to distribute cards effectively to registrants. As such, even those who are registered may face difficulties in receiving their identity cards. In Sen’s terms, this means that the above conversion factors may hinder registrants’ agencies in achieving desired functionings i.e. acquisition of identity cards without hassle.

Commodities	Conversion Factors	Capabilities	Agency Influencing Conversion Factors	Functionings
Service: Provision of ID cards	+ve – Technically competent registration staff	Opportunities to obtain secure and cost effective means of identification	+ve – Adept card distribution network	Hassle free acquisition of identity cards
Goods: Registration Centres, MRWs, and Technological Infrastructure (NID, AFIS) Features: Capture and Storage of individuals’ personal information	-ve – Poor logistics, and planning, Lack of established organisational procedures, Tribalism, Corruption, Organisational conflicts, Political influences, Scepticism, and Bureaucracy		-ve – Lack of established organisational procedures, Poor infrastructure (legal and address systems), Organisational conflicts, Corruption	

Table 8 – Access to Secure and Cost Effective Means of Identification

In this sub-section so far, reasons why the national identity project has often not supported the achievement of development outcomes have been discussed using the framework concepts as theoretical lenses to interpret relevant events. Table 7 (**Access to Secure and Cost Effective Means of Identification**) presents a summary of these, and depicts the relationships relevant for achieving the focal development outcome. To note here is that two implementation efforts of the project (initiated in 2003 and 2007) were explicitly examined whilst extending the analysis to consider the desired development outcome i.e. access to secure and cost effective means of identification.

Also to note is how some conversion factors (corruption and poor infrastructure) hinder registrants' agencies in achieving functionings (acquisition of identity cards without hassle), despite the capabilities available to them (opportunities to obtain secure and cost effective means of identification). Lastly to note is that the exploitative activities observed during the registration exercise (i.e. registrants receiving services at home) and the distribution of cards (i.e. storage centre staff delivering cards to registrants for gratuity) were attributed to both public officials and registrants within the country.

6.3.2. Increased Access to Civic Documents

To reiterate from the study findings (**subsection 5.2.2**), applications and processing of civic documents (e.g. international passports and drivers' licences) are perceived as difficult transactions within Nigeria on grounds of the subjective and inefficient verification exercises that applicants have to undergo. Also, the shortage of breeder documents (i.e. birth certificates) and unreliability of court-issued documents pose undue challenges to applicants having to establish their places of origin and eligibility.

In Sen's terms, the identity cards can be considered commodities since they possess features that can enable doings i.e. applications for civic documents. The specific features of the GMPC commodity that are relevant in processing civic documents are the unique national identification numbers (NIN), fingerprint images, and birth records. Also, the NIM technological infrastructure (i.e. national identity database and automated fingerprint identification system – AFIS) can be considered a commodity as it stores registrants' personal information for verification during applications for civic documents.

The conversion factors could be conceived as the staff of concerned organisations i.e. Nigeria Immigration Service (NIS) and Federal Road Safety Commission (FRSC), in the cases of international passports and drivers' licences respectively. Others would include the official procedures and specific fees for processing applications within each of the organisations. NIMC expects these to facilitate and increase people's access to civic

documents in light of the previously described applications processes. This means that the opportunities to obtain civic documents can be considered as capabilities, while the acquisition of the documents without hassle or exposure to extortion seen as a functioning.

In an ideal scenario, NIMC expects eligible individuals to make applications for civic documents with their identity cards as mandated by the federal government, alongside the official fees specified by the issuing organisations. The required information is then to be validated through card devices which are located at the organisations and interconnected with the national identity database and AFIS. Following this is the processing of each application and issue of civic documents accordingly by the concerned organisation without complexities in operations due to locally established routines and practices, and without applicants facing the hassle of subjective validation exercises and/or providing breeder documents. In the event of these, the development outcomes of increased access to civic documents can be said to have been achieved.

However, the study findings indicate other conversions factors which give insights into why such outcomes may often not be achieved with the NIM project. One concerns the reluctance of partner organisations to modify pre-existing procedures and processes for services provided. Whether this is a result of scepticism of the NIM project or exploitative practices by officials of partner organisations as reported, the efforts at holding on to bureaucratic procedures remains a valid constraint to achieving the anticipated development outcomes. For instance, NIS and FRSC are expected to annul the subjective validation exercises if they are to ease the application process and reduce applicants' exposure to extortion.

A second and related conversion factor concerns the honour-based approach²⁰ adopted by NIMC to register individuals without pre-existing means of identification. As the federal government has mandated the use of GMPCs in applications for civic documents, individuals may still be exposed to hassle from NIMC officials in subjective validation exercises before being registered for identity cards. In Sen's terms, this means that individuals may be denied

²⁰ NIMC plans to register individuals based on whatever origin, birth, and other personal information is declared. Suspicious cases are to be resolved internally by registration officials further questioning concerned individuals about information provided

their capabilities to achieve a development outcome i.e. obtain civic documents without hassle or exposure to extortion.

Commodities	Conversion Factors	Capabilities	Functionings
Service: Provision of civic documents	+ve – Partner organisations’ staff, Organisational procedures, Official application fees -ve – Bureaucracy, Scepticism, Corruption	Opportunities to obtain civic documents	Hassle free acquisition of civic documents
Goods: GMPCs, NIM Infrastructure (NID, AFIS) Features: NIN, Fingerprint and Birth Information storage and verification			

Table 9 – Increased Access to Civic Documents

In this sub-section, reasons why the on-going NIM project may often not support the achievement of development outcomes have been discussed utilising the framework concepts. Table 8 (**Increased Access to Civic Documents**) presents a summary of the analysis, and depicts relationships relevant to achieving the focal development outcome i.e. increased access to civic documents. Worth some commentary in this case are the issues of scepticism and corruption which were explained as the sources of the reluctance of partner organisations to modify pre-existing procedures and processes, and hence the efforts at holding on to old bureaucracies.

6.3.3. Increased Access to Banking Services and Consumer Credit

As earlier discussed in the study findings (**subsection 5.2.3**), banking and consumer credit industries in Nigeria are reported to be operating below optimal levels based on the cumbersome mechanisms introduced to augment the lapses within the existing systems of identification. Under these verification mechanisms, eligible individuals are often excluded from services and transactions that should otherwise be available to them.

In Sen's terms, banking and consumer credit transactions can be considered as commodities as they represent services that are accessible to individuals. Also, identity cards and the NIM technological infrastructure can be considered commodities since they possess features that enable individuals participate in the banking and consumer credit transactions. The specific features of the GMPC and infrastructure that are relevant to banking and consumer credit transactions include the national identification numbers, fingerprint images and records of residential addresses – all of which are to be used in instances of verification.

In this case, the conversion factors can be conceived as the staff of concerned organisations i.e. banks and other financial institutions. Others would include the official processes and regulations for conducting transactions within each of the organisations. NIMC expects these to facilitate and increase people's access to banking and consumer credit services in light of previously discussed situation within the country. This means that the opportunities for individuals to engage in banking and consumer credit transactions can be considered as capabilities, while actual participation in such transactions can be seen as functionings.

Ideally, NIMC expects individuals to present ID cards during relevant transactions, as stipulated by the federal government. These range from opening and operating bank accounts, third party transactions (i.e. receiving payments from others), and applications for loans and other credit facilities. Applicants' information (i.e. NIN, residential address, and fingerprint) is then validated through the card devices which are connected to the national identity database and AFIS. Following which is processing of transactions according to each organisation's internal requirements without complexities in operations due to locally established routines and practices, and without applicants enduring the cumbersome mechanisms i.e. requirements for references or guarantors for transactions. In the event of this, the development outcomes of increased access to banking and consumer credit transactions can be said to have been achieved.

However, the findings of the study showed other conversion factors which help explain why these development outcomes may often not be achieved with the NIM project. One is the lack of standardised address systems within the country. Project sponsors expect banks and other finance institutions to have more confidence in dealing with individuals and do away with the requirements for references and guarantors – thereby increasing access and

tackling exclusion of individuals within the country. However, the poor addressing systems means that concerned institutions may have problems communicating with their customers, leading to a lack of confidence in offering requested services.

This leads to another conversion factor which indicates that the banking and finance institutions may be reluctant to modify their requirements for references and guarantors. As a result of communication problems, the institutions may hold on to their bureaucratic processes, leading to the continued exclusion of eligible individuals. Lastly, the reported scepticism suggests that some institutions may not invest in the card devices and other equipment required to link with NIM infrastructure. The situation earlier discussed regarding Chams Consortium’s (one of NIMC’s front-end partners) inability to secure facilities from banks to procure connectivity equipment, attests to this last point (**See section 5.5**). As a result of these, people may be excluded from banking and consumer credit transactions. In Sen’s terms, these mean that individuals may be denied their capabilities to achieve a development outcome i.e. access to banking services and consumer credit.

Commodities	Conversion Factors	Capabilities	Functionings
Service: Banking and Consumer Credit transactions	+ve – Staff of financial institutions, Organisational procedures and regulations	Opportunities to engage in banking and consumer credit transactions	Inclusion in banking and consumer credit transactions e.g. receiving payments and loan facilities
Goods: GMPCs, NIM infrastructure (NID, AFIS) Features: NIN, Fingerprint and Residential Address Records	-ve – Poor infrastructure (address system), Bureaucracy, Scepticism		

Table 10 – Increased Access to Banking and Consumer Credit Transactions

In this sub-section, reasons why the NIM project may often not support the achievement of development outcomes have been discussed through the framework concepts. Table 9 (**Increased Access to Banking and Consumer Credit Transactions**) presents a summary of the analysis, and depicts relationships relevant to achieving the focal development outcome i.e. increased access to banking and consumer credit transactions. To note in this case are

the additional insights into the sources of the anticipated complexities, and the effects of poor infrastructure. Respectively, the issues of scepticism and poor infrastructure were indicated as the sources of reluctance in finance institutions to modify existing requirements; and the lack of confidence to provide services to individuals.

6.3.4. Increased Access to Government Services and Valued Activities

To reiterate from the study findings (*subsection 5.2.4*), the NIM system is expected to contribute to socio-economic development by improving administrative procedures in government services that rely on identity verification, thereby increasing people's opportunities to benefit from important activities that they may otherwise be excluded from e.g. commerce, travel, and employment. Also, the anticipated improvements are expected to reduce the proliferation of fake documents and people's exposure to fraudulent activities.

In Sen's terms, government services and valued activities can be considered as commodities as they represent transactions that are accessible to individuals. Also, the NIM technical infrastructure (i.e. national identity database and AFIS) can be considered as commodities since they possess features that are to enable individuals participate in the transactions. The specific features of the NIM infrastructure that are relevant in this regard are the storage and validation of individuals' personal information, consisting of data such as NINs, fingerprint images, and residential addresses – all of which are to be used in verification exercises during transactions.

In this case, conversion factors can be conceived as the staff of relevant organisations²¹. Others would include each organisation's processes and regulations, and official fees for participating in desired transactions. NIMC expects these to increase people's access to required services and reduce instances of identity related crimes in light of the lapses with

²¹ Specific organisations discussed in the Case Study Findings chapter include Corporate Affairs Commission (CAC); National Pension Commission (PENCOM); Independent National Electoral Commission (INEC); Federal Inland Revenue Service (FIRS); The Nigeria Police; and foreign missions within Nigeria.

existing means of identification within the country. This means that the opportunities for individuals to access government services and other valued activities can be considered as capabilities, while actual participation in relevant transactions considered as functionings.

Ideally, project sponsors expect individuals to utilize their identity cards in transactions as mandated by the federal government. These include registering businesses, managing pension accounts, voting in elections, paying taxes, and other personal activities such as travelling and applying for visas. Each individual's information is to be validated through the card devices that are connected to the NIM technological infrastructure. Following this will be processing of required services according to each organisation's internal procedures without complexities in operations arising from locally established routines and practices, and without individuals being exposed to exclusion, fraud or extortion. In the event of this, the development outcome of increased access to government services and valued activities can be said to have been achieved.

However, the study findings indicate other conversion factors which explain why these development outcomes may often not be achieved. One is the earlier discussed efforts to hold on to bureaucratic processes within the concerned organisations. The reports from study participants indicate that organisations may be reluctant to modify their procedures to accommodate the NIM system due to self-interests or scepticism of the project. As such, individuals may still be excluded or exposed to extortion from officials in the relevant organisations.

Another is the lack of standardised address systems within the country which is expected to compromise the tracking features of the NIM system. Hence, the non-repudiation of transactions may not function as anticipated. In other words, transactions may not be traceable to specific residential addresses, but limited to cases in which the concerned individuals re-use their identity cards. Other anticipated development outcomes, such as crime control, which are reliant on this feature of the NIM system may also be affected in similar manner. As a result of these conversion factors, people may still be exposed to exclusion, fraud or extortion. This means that individuals may be denied their capabilities to achieve a desired development outcome i.e. access to government services and valued activities.

Commodities	Conversion Factors	Capabilities	Functionings
Services: Government services and valued activities	+ve – Partner organisations' staff, Organisational procedures and regulations, official fees	Opportunities to access government services and valued activities	Inclusion in government services and valued activities (e.g. registering businesses, managing pensions, visa applications); and reduced exposure to fraud and extortion
Goods: NIM infrastructure (NID, AFIS) Features: Storage and validation of personal information	-ve – Bureaucracy, Corruption, Scepticism, Poor infrastructure (address system)		

Table 11 – Increased Access to Government Services and Valued Activities

In this section, reasons why the NIM project may often not support the achievement of development outcomes have been discussed with the framework concepts. Table 10 (*Increased Access to Government Services and Valued Activities*) presents a summary of the section, and depicts relationships relevant to achieving the focal development outcome i.e. increased access to government services and valued activities. To note, as with previous cases, are the insights into issues affecting the deployment of the system - and hence the achievement of development outcomes. The issues of corruption, scepticism and poor infrastructure, were identified as the sources of bureaucratic practices and the anticipated complexities in operations of the system. Also to note are the limitations of the deployed system in achieving anticipated outcomes (i.e. non-repudiation of transactions and crime control) which were noted to be a consequence of poor address infrastructure within the country.

6.4. Discussion

In this section, the implications of these analyses on work in the domain of ICTs and Development are outlined following the approaches favoured in the literature review (*Chapter Two*) to address the research question. These include the comprehensive approach to study both implementation and outcomes of an information system; the ensemble approach to conceptualise the role of technology in development; the

individualistic approach to address development in light of human diversity; the societal perspective to understand failure of information systems; and the non-generalisation of issues affecting IS deployments within developing countries. These are discussed in light of other theoretical standpoints (identified within the literature review chapter) to integrate the findings of this study into the extant literature base. Following this is an appraisal of the framework which is based on Sen's Capability Approach.

6.4.1. Implications of the Analyses

The use of the framework concepts presented a comprehensive approach to examine issues affecting the implementation of the information systems within a developing country. This is contrary to arguments which favour the partitioning of ISDC research into distinct domains i.e. implementation and development impact studies (Brown and Grant 2010). The findings reveal a number of ways in which stakeholders expect the national identity system to improve people's lives (i.e. development outcomes); the potential of the system in supporting the achievement of the development outcomes; and issues which influence the achievement of such outcomes within Nigeria.

The implications of this are as follows. By addressing the developmental aspects of the IS implementation, this study shows that Brown and Grant's proposed domains are indeed not exclusive of each other as the authors suggest. Development expectations are often attached to ICTs by stakeholders within the contexts of deployments as exemplified by this study's findings. It therefore seems logical to address such expectations for a more comprehensive study of an IS deployment. Furthermore, the analysis enriches the marginal body of work which addresses both implementation and usage challenges – including the yet fewer which focus on the developmental aspects of ICTs in Africa (Thompson and Walsham 2010). In line with the tradition of the few that address both (e.g. Avgerou 2009; Silva and Hirschheim 2007), this study has investigated the outcomes of the focal system in terms of its support for achieving locally meaningful development outcomes.

Also, the framework supported the ensemble conception (Orlikowski and Iacono 2001) to study the focal technology in constant interaction with people desiring varied development outcomes. This is in contrast with the dominant conceptualisations i.e. tool and proxy (UNDP 2001; DOT Force 2001; Urquhart et al. 2008; Bollou and Ngwenyama 2008) which imply that economic growth is guaranteed to trail the deployment of ICTs. The findings of this study show a variety of societal influences on the project arising from stakeholders, institutions and infrastructure. Also, the findings reveal some limitations of the deployed system in supporting the achievement of development outcomes. An example is the tracking feature of the National Identity system (in enabling non-repudiation of transactions and crime control), which is expected to be compromised by the country's poor address infrastructure.

The implications of these are as follows. By adopting the ensemble conception, the study reinforces the importance of considering socio-institutional interactions within the dynamics of IS deployments (Avgerou 2003), rather than focusing only on market-inclined strategies (e.g. liberalisation) for improving access and reach of ICTs. Also, the limitations of the system goes further to suggest that technology, by itself, is not as powerful or neutral as often projected within the tool and proxy conceptions.

Subsequently, the framework presented an approach to development which was individualistic in nature, and addressed human diversity within the focal project. This runs contrary to the aggregative approach seen in the publications of development agencies and proponents (UNDP 2001; DOT Force 2001; Cecchini and Scott; Urquhart et al. 2008) which imply that the benefits of economic growth would trickle to the various segments of a society, despite the existence of different forms of inequalities. The findings show various forms of development desired by individuals concerned with the National Identity project, ranging from the development themes of secure and cost effective means of identification, to the valued activities of employment and travel.

The implications of this are as follows. By adopting an individualistic approach to development, this study substantiates the need to consider human diversity within IS deployments (Prakash and De' 2007), rather than assuming an aggregated notion of economic growth. Consequently, this study negates the treatment of developing countries

as homogenous entities upon which a universal approach to development can be imposed. Instead, the study offered an alternative approach to development (i.e. Sen's capability approach) which considered what individuals value and desire in their varied lives.

Also, the framework adopted a societal perspective of failure in which it is defined as the non-realisation of development outcomes from the deployment of information systems (**Section 2.4**). In this way it considered issues of a socio-cultural nature alongside often reported technical and managerial ones. In essence, the framework problematizes the emphasis on technical and managerial issues within IS projects in developing countries. By so doing, the analysis presents a more comprehensive account of the problems faced with the deployment of information systems rather than isolating technical or managerial issues as described in studies within the **Types 1 and 2 Failure Categories** (see **Subsections 2.4.1 and 2.4.2**).

This has implications for the high levels of information systems failures observed in developing countries (Heeks 2002; Avgerou 2008). Often reported issues (**Types 1 and 2 Failure**) such as the shortage of technically competent staff (Adam and Urquhart 2007); limited access to ICT infrastructure (Ndou 2004); inadequate project practices (Bada 2002; Bada et al. 2004); and organisational conflicts (Hosman et al. 2008) can be observed within the analysis. In addition to these however, the findings revealed societal issues of tribalism, corruption, political influences, scepticism and bureaucracy as significant influences on the deployment – to the extent of explaining these as sources of some of the technical and managerial issues observed.

These have further implications for sponsors of such projects, in terms of focusing on techno-managerial issues, at the expense of deep seated societal influences. From **Types 1 and 2 Failure** literature, recommendations to IS project sponsors advocate measures such as providing IT training for systems users (Adam and Urquhart 2007); and adapting global methodical practices to local contexts (Bada 2002; Bada et al. 2004). While these remain valuable measures within IS projects, this study emphasises the need for additional interventions from sponsors to address socio-cultural issues that may be deeply rooted in societies such as those mentioned above i.e. tribalism and corruption.

Subsequently, the framework enabled the exploration of issues that were peculiar to the focal context i.e. Nigeria. This is in contrast to studies which generalise issues (Ndou 2004; Mann 2003), with intent to polarise developing countries against more advanced nations. The findings revealed the issues of corruption, tribalism, scepticism, and bureaucracy as significant influences on the deployment of the National Identity project in Nigeria. The implication of this is as follows. By addressing the focal context as a unique entity, much has been brought to light on salient and relevant issues which hardly appear in the generalised literature on the deployment of IS in developing countries.

This warrants further commentary on the socio-cultural issues identified worthy of particular attention within the Nigerian context i.e. corruption, tribalism, scepticism, and bureaucracy (see **section 2.5** and **subsections 3.3.1 – 3.3.4**). Although some studies have discussed these issues (mostly outside the IS field), they have made little connection with exploitative behaviours of people within the focal contexts. The findings of this study revealed links between these issues and the exploitative practices observed during the registration exercise and card distribution for the national identity project as noted in **subsection 6.3.1**.

Also, in contrast to corruption studies which project government officials as proponents of exploitative practices (World Bank 1997; Bertot et al. 2010; Blackburn et al. 2011; Hellsten and Larbi 2006), this study brings to light the role of citizens within the dynamics of public activities. The findings show how registrants of the national identity project foster exploitative practices within the national identity project (**section 5.5**). Hence, this extends the notions of corruption which suggest that public officials are primarily responsible for exploitative practices. This is a vital point to note if one considers that there may be more instances of such exploitative practices than the embezzlements and misappropriation of funds often indicated in corruption reports.

6.4.2. Appraising the CA Framework

Overall, the framework adopted in this study, which is based on concepts from Sen's capability approach (CA), was useful in interpreting events reported in the findings. It helped to address this study's research question²² by explaining how the National Identity project can support the achievement of locally meaningful development outcomes within Nigeria, and why this is often not the case – to the extent of showing how societal issues may be responsible for the technical and managerial issues affecting the project.

Also, the framework was useful in investigating both the implementation and development aspects of the focal project – in light of previous applications of the CA. Arguments were made in chapter three (*Theoretical Framework*) to the effect that previous applications of the CA were in evaluating impact of IS on societal development (De' 2006; James 2006; Hataka and De' 2011). The contention here is that such studies overlook the implementation process which is a fundamental aspect of the ICTs and Development domain. The application of the CA in this study addresses both aspects, offering a more comprehensive understanding of the challenges to IS deployments.

Lastly, the framework was useful in differentiating between the concepts of capabilities and functionings, in contrast to other studies utilising the Capability Approach. Arguments in chapter three (*Theoretical Framework*) indicated that previous CA studies adapted the concept of functionings as proxy to capabilities (Kivunike et al. 2009; Vaughan 2011; Olatokun 2009), owing to epistemological difficulties in evaluating the latter. The contention here is that conflating both concepts may exclude IS-enabled opportunities that can be conceptualised as development outcomes – as the CA considers the entire set of available opportunities (from which an individual may choose), rather than just the achieved outcomes.

In this study, the concepts were extricated for two main reasons. The first was to offer a more comprehensive view of available opportunities. The findings highlight a number of opportunities which are to be expanded by the national identity project, including those

²² How can information system deployments support the achievement of locally meaningful development outcomes in a developing country, and why is this often not the case?

that are specific to individual applicants e.g. travelling for commerce and education (**subsection 5.2.4**). The second was to enable a better understanding of what conversion factors affect individuals' agencies in realising development outcomes, after efforts have been made to convert opportunities. For example, the analysis shows how tribalism and poor infrastructure (conversion factors) hinders registrants' agencies in acquiring identity cards without hassle (functioning), despite having registered to obtain secure and cost effective means of identification (capability). These have implications for IS project sponsors in terms of expanding opportunities, and tackling issues which constrain the achievement of development outcomes in the face of such opportunities.

Having said all of the above, the framework fell short in explaining an aspect of the enactment of the National Identity project. Arguments in chapter three (**Theoretical Framework**) suggested that the Capability Approach is able to deal with the efforts and activities of individuals and relevant institutions towards improving the quality of lives in societies. Nevertheless, the inactivity of NIMC - towards addressing the scepticism of stakeholders; and the mute approach – in terms of responding to critics with a successful implementation; were issues that could not be adequately explained using the framework concepts. This seems to be a result of the Capability Approach's emphasis on reasoned efforts and activities of institutions and individuals in improving lives. In other words, the Capability Approach deals with deliberate actions, rather than inactivity.

7. Chapter Seven: Conclusions

The aim of this research was to explore how IS deployments can support the achievement of locally meaningful development outcomes in a developing country, and understand why this is often not the case. The approach adopted within the study was to examine the implementation of an information system, whilst investigating reasons why development outcomes are not easily achieved within its context of deployment. The central argument was that these could be investigated from a development perspective that is individualistic in nature, contrary to the aggregative modes observed in other approaches. Hence, Sen's Capability Approach to development was adopted and interpreted to the domain of information systems, as has been done in a few studies.

In the first section of this concluding chapter, a summary of the thesis is presented. In the second section, the research and practical contributions of the study are discussed, while the third section presents limitations of the research approach and theoretical framework. The final section presents suggested areas for further research.

7.1. Summary of the Thesis

The introductory chapter showed the importance of considering development outcomes within the deployment of ICTs in societies of developing countries. It discussed the origin of the notion of ICT for Development, and the dominant forces behind the dependence on ICTs for societal improvements within developing countries. This was useful in introducing the tool view approach commonly adopted across ICT-led development initiatives, and setting the focal research question in context i.e. to study, from a societal point of view, why locally meaningful development outcomes are proving difficult to realise within the deployment of an information system.

The discussion within the chapter suggested that the universal views projected by international development agencies pose problems for such initiatives due to contextual

differences between developing countries; differences between meanings of development amongst concerned stakeholders; and too much emphasis on strategies for achieving ICT-enabled economic growth – despite other valid means of improving the people’s lives which consider individual and societal differences. These criticisms led to the suggestion that the dynamics of the ICT for Development notion would benefit from further research which accounts for how IS deployments can support the achievement of locally meaningful development outcomes in a developing country, and why this is often not the case.

The second chapter (Literature Review) delved deeper into the literature on information systems in developing countries (ISDC) to review the theories that have been used to explain the kinds of challenges often faced with the use of ICTs for development outcomes. This entailed deconstructing the core entities of ICTs and development, and the roles technologies are conceptualised to play in enabling or supporting the achievement of development outcomes. A critique of the main conceptions of the roles of ICTs in development (i.e. tool, proxy, and ensemble views) commonly found within the literature was presented. The discussion favoured the adoption of a mediatory perspective of technology (i.e. ensemble) which also considers the socio-cultural aspects of IS deployments, rather than the prescriptive ones (tool and proxy) that focus mainly on technical and managerial issues concerning the access and reach of ICTs.

Also, the second chapter presents a classification of the literature on public sector information systems within developing countries. These discussed various development outcomes (albeit desired) to show the value of the systems to adopting societies, and the challenges faced with the deployments. Lastly, the chapter compares the IS innovation experiences in different developing countries (i.e. Nigeria, South Africa, and Brazil). On the one hand, the comparisons show different levels of ICT-led progress achieved within each of the countries, further qualifying the arguments against the universal approach (i.e. tool view) adopted within the development community. On the other, it indicated peculiar societal issues that need to be addressed within the focal context of the study i.e. Nigeria. Hence, the issues of corruption, tribalism, scepticism and bureaucracy were identified as socio-cultural aspects of the IS deployment that could be further investigated within the inquiries of the study.

The third chapter (Theoretical Framework) proposed Sen's Capability Approach to development as the most suitable framework for this study. An evaluation of frameworks (from the classification developed in the literature review) is first presented to show their limitations in addressing the research question, and highlight the main themes that are relevant in a study of this kind. The capability approach was then introduced, with a discussion of its theoretical basis. The key concepts from the capability approach adopted in the study were described in light of the limitations of the other frameworks, and their relevance to the research question. Hence, the discussion shows how the framework deals with the main themes identified from the classification developed in the literature review (i.e. IS infrastructure, institutional activities and socio-cultural issues).

Also, the chapter described previous applications of the capability approach within information systems research, to differentiate that of this study and show potential areas for contribution. The discussion highlighted the consideration of an IS implementation process and the concept of agency within this study as potential areas of contribution. Lastly, critiques of the capability approach were discussed in this chapter, to show how the apparent weaknesses of the framework are dealt with in this research. The arguments show that by considering relational features (i.e. interactions with other people and institutions) and recurrent themes amongst individuals (i.e. development themes), the respective concerns on the framework's individualism and operationalization can be sufficiently addressed.

The fourth chapter (Research Methodology and Setting) presents the methodological approach adopted for the study, and describes the context in which the focal system is set. The discussion is explicit on the assumptions that inform the interpretive approach and the research methods selected. It described how these were enacted during the fieldwork visits, including modifications to the approach as a result of emerging issues. The chapter also introduced the national identity project, including its organisational background and aspects of the Nigerian society that are relevant to the project. In the discussion, previous and current efforts at implementing the project were described with much focus on the latest two i.e. National Identity Card (NIC) and National Identity Management (NIM). Lastly, the details of the methodological approach and setting were brought together to describe the experiences with data collection and analysis.

The fifth chapter (Case Study Findings) presents the findings from the field visits and document analyses. The findings are discussed within themes which represent the results of the coding exercise of the data gathered from the above sources. The first set of themes (meanings of development²³ and potential of the system) represent the data that is relevant in addressing the initial part of the research question i.e. how can IS deployments support the achievement of locally meaningful development outcomes in a developing country? The second set of themes (project management issues and societal issues) represent data which is relevant in addressing the latter part of the research question i.e. why is this often not the case? The findings are extensively discussed to set the data in context for the analyses that follow in the next chapter.

The sixth chapter (Analysis and Discussion) interpreted the findings of the study in light of the concepts from the adopted framework. For the analyses, the concepts of commodities, conversion factors, capabilities, agency, and functionings drawn from Sen's Capability Approach were used to interpret the events reported within each of the development themes discussed in the previous chapter (Case Study Findings). These themes were used as sub-units of the analyses to make sense of how the deployed system can support the achievement of each of the discussed development outcomes, and why this has often not been the case with the national identity project.

Also, within each of the sub-analyses, the discussions reflect on what the national identity case reveals and make comparisons with previous work in the ICTs and Development domain. Significant aspects of the discussions are the explanations of how the technical and managerial issues came to be within the different deployments efforts of the project. Lastly, the chapter discusses how the use of the framework helped make sense of the enactment of the national identity project over the years since its 2003 implementation effort. Alongside this, the study makes claims to other contributions which are all discussed in more detail in the sections that follow. The contributions are categorised into three parts i.e. theoretical, methodological, and practical. Within each part, the implications of the

²³ The meanings of development consist of the themes secure and cost effective means of identification; increased access to civic documents; increased access to banking services and consumer credit; and increased access to government services and valued activities

study on work in ICTs and Development domain are discussed. These are summarised in Table 12 (*Summary of Contributions*).

7.2. Theoretical Contributions

The theoretical contributions of this study can be categorised into two areas as follows. One is in the unique application of Sen's Capability Approach (CA) to the field of information systems, while the other is in enriching the body of work in the ICTs and Development domain. Both the theoretical framework and findings of the study make claims in advancing the current understandings of the dynamics of ICTs and Development, as discussed in this section.

In the first area, the thesis contributes to the empirical examination of information systems deployments. It applies the CA for a comprehensive study of both implementation and development outcomes of the focal system. Arguments in the theoretical framework chapter (*Section 3.6*) showed that previous applications of the CA were in evaluating impact of deployed systems (De' 2006; Olatokun; Hataka and De' 2011; Kivunike et al. 2011), while overlooking the implementation aspects. This study uses the CA in addressing both aspects to offer a more comprehensive understanding of the challenges to IS deployments. While this represents a distinct approach to applying the CA, a key essence of this is to enrich the marginal body of work which addresses development impact of ICTs (Thompson and Walsham 2010; Brown and Grant 2010) – as will be further discussed in the second area of contribution.

Also, the study extricates the concepts of capabilities and functionings. Arguments in the theoretical framework chapter (*Section 3.6*) indicated that previous CA studies adapted the concept of functionings as proxy to capabilities (Kivunike et al. 2009; Vaughan 2011; Olatokun 2009), potentially excluding relevant opportunities that could also be conceptualised as development outcomes. As previously discussed, the concepts were extricated within this study to give a more comprehensive view of opportunities available

from the deployed system – including expectations that are more specific to individual NIC applicants (**Sections 6.4.2 and 5.2.4**). Furthermore, this enabled some commentary on agency, which is an aspect of the CA that has received little attention in research (Zheng 2009). Beyond a more comprehensive view of ICT's potential contributions to development, the essence of this was to understand issues which influence individuals' decisions to act in the face of opportunities.

In the second area, the thesis contributes by enriching the body of work in the ICTs and Development domain. It gave insights into how information systems deployments can support the achievement of locally meaningful development outcomes in a developing country. Two implementation efforts of the national identity project were explicitly examined (i.e. 2003 and 2007), whilst the analyses were extended to consider the broader socio-economic context of Nigeria (**section 6.3**). This substantiates earlier arguments (in **Chapter Two**) against Brown and Grant's proposal to split ISDC research into two distinct domains²⁴. This study shows that the proposed domains are indeed not exclusive of each other - as ICTs have prospects (amidst expectations) in supporting societal development. Also, the study enriches the marginal body of work which addresses both IS implementation and usage challenges, including the particular shortage of those that focus on the developmental aspects of ICTs in Africa (Thompson and Walsham 2010).

Also, the study helped explain why development outcomes are often not achieved with such deployments. The study revealed a variety of influences on the National Identity project, to the extent of explaining why some individuals may be excluded from development outcomes. Arguments in the literature review chapter (**section 2.3**) suggested that the instrumental views of technology (i.e. tool and proxy) focused mainly on strategies to increase widespread uptake of ICTs as a way of expediting aggregate economic growth (UNDP 2001; DOT Force 2001; Cecchini and Scott 2003; Urquhart et al. 2008; Bollou and Ngenyama 2008). This is despite the socio-cultural aspects involved in accommodating ICTs within societies, and the varied perceptions of development amongst individuals.

²⁴ Brown and Grant (2010) propose splitting the ICT and Development research agenda into two distinct domains i.e. research for understanding technology "in developing countries", and research for understanding technology "for development"

This study adopted a mediatory view (i.e. ensemble) which revealed various societal issues ranging from political interference and poor infrastructure, to cultural elements of concerned actors i.e. corruption, tribalism, scepticism, and bureaucracy (**subsections 6.3.1 – 6.3.4**). In essence, this study reinforces the importance of considering socio-institutional interactions within the dynamics of IS deployments (Avgerou 2003), beyond issues with access and operations in market regimes. It also underscores the need to consider human diversity within the deployment of IS in developing countries (Prakash and De' 2007).

Lastly, the study addressed the issue of failure as the non-realisation of development outcomes within the wider societal context of deployed systems. Arguments in the Literature Review Chapter (**section 2.4**) suggested that much emphasis was often placed on technical and managerial issues within IS projects (Adam and Urquhart 2007; Ndou 2004; Bada 2002; Hosman et al 2008), with less attention to salient socio-cultural aspects of deployment contexts. This study adopted a societal perspective on failure which revealed additional influences on the focal system, some of which are hardly seen in IS literature (i.e. corruption and tribalism). This also highlighted some links between the societal influences and the technical/managerial problems that have affected the national identity project over the years (**subsections 6.3.1 – 6.3.4**).

In essence, this study suggests that often taken-for-granted socio-cultural aspects of societies have a lot to offer in explaining the origins of commonly reported issues affecting IS deployments within organisations. Subsequently, this reinforces the importance of examining beyond organisational settings, to the wider contexts in which IS are embedded (Mitev 2005; Mitev and Bartis 2008). More specifically, the socio-cultural element of corruption observed in this study implicates both public officials and citizens alike. This broadens the notions which portray corruption and exploitative practices as activities enacted primarily by government officials (Blackburn et al. 2011; Bertot et al. 2010; Hellsten and Larbi 2006; World Bank 1997).

7.3. Methodological Contributions

This study also makes two methodological contributions as follows. Both contributions lay claims to enriching research practice of eliciting and analysing information in challenging situations. These are outlined and discussed in more detail below.

Firstly, it illustrates a methodological application of concepts from a normative approach within an interpretive framework. In light of the criticisms of the CA which point to epistemological difficulties as discussed in Chapter Three (*section 3.6*), this contribution concerns the conceptualization of development outcomes. Bearing in mind that development is a construct with different and evolving meanings amongst people, the challenge here is the study of a construct which requires an interpretive approach utilizing concepts from the CA i.e. an approach to development that is considered normative in nature (Zheng 2009; Robeyns 2005).

This is important if one is to consider different meanings of the development construct given by individuals (Heeks and Bailur 2007). This study elicited different interpretations from individuals involved in the project with the interpretive approach and a variety of data collection techniques described in **Chapter Four** (also see *Interview Guides – Appendices 1 and 2*). In essence, the framework gives an example on how to apply concepts from a normative approach for an interpretive study.

Secondly, it demonstrates how one may elicit relevant information from respondents on culturally sensitive issues. In light of the periods of unrest within which the study was conducted (see *Section 4.2.2*) and the sensitive nature of the discussions, it was particularly important to draw on prior experiences as an indigene of the focal context. While English remains the official language in Nigeria, knowledge of the local dialect and its native slangs and nuances are vital to research of this nature i.e. sensitive issues of corruption and tribalism. While a researcher may not always be indigenous to the focal context, it would be of immense benefit to sensitize one's self to native issues. This is necessary not only to prevent guarded responses from participants who have become ill at ease, but to avoid aggravating volatile situations.

7.4. Practical Contributions

This study contributes to two areas of practice which are useful to policy makers and other practitioners involved in the ICT and Development agenda.

Firstly, the findings suggest that the policies and strategies adopted by governments and international development agencies in developing countries should be more focused on developmental contexts prior to the deployment of information systems. It is necessary for project sponsors to appreciate locally meaningful development outcomes, rather than imposing narrow - and sometimes foreign - conceptions of what constitutes good standards of living (Prakash and De' 2007). This study gave various insights into how the national identity project can improve the lives of individuals in Nigeria (**section 5.2**). Hence, projects with similarities in context may benefit from alternate conceptualisations which consider what is locally meaningful to individuals in the focal societies.

It is also necessary for project sponsors to recognise other socio-institutional actions that are implicated within efforts to accommodate ICTs, beyond strategies to increase access widespread access (Avgerou 2003). Past recommendations to governments and other sponsors have been to liberalise or subsidize ICT sectors (Cecchini and Scott 2003; Kenny 2000); make complementary investments in ICT-related sectors e.g. education and telecommunications (Bollou and Ngwenyama 2008; Ndou 2004); and appropriate supportive policies for ICT penetration (Adam and Urquhart 2007; Al-Jaghoub and Westrup 2003). While these may remain valid, this study identified deep seated socio-cultural influences that may not be easily addressed with the deployment of information systems i.e. corruption, tribalism, scepticism and bureaucracy (**section 5.5**). This leads to the second practical implication, as will be discussed in the following paragraph.

Secondly, the findings highlight the need to go beyond traditional prescriptions to higher level interventions within IS deployments. Previous measures that have been proposed to project sponsors have indicated the need to provide IT training for systems users (Ndou 2004; Adam and Urquhart 2007); appoint professional consultants and highly skilled technical support within IS projects (Sahay and Walsham 2006); use IT-proficient intermediaries within rural areas (James 2004; Mann 2003); and increase end-user

participation in design of systems (De' and Ratan 2009; Byrne and Sahay 2007). While these remain valuable measures within IS projects, the socio-cultural issues observed in the national identity scheme suggest that sponsors of similar projects would have to address them alongside technical and managerial ones. In other words, while appointing professional consultants and highly skilled support within projects for example, sponsors have to develop measures to tackle the exploitative behaviours of project members.

Furthermore, the findings of this study implicated members of the general public in the exploitative behaviours observed (**sections 5.5 and 6.4.1**). This suggests that project sponsors would have to embark on nationwide sensitization programs to educate the public on the adverse effects of corruption, however acceptable it seems within the country. Walsham and Sahay (1999) have proposed such a program to culturally educate the Indian users of a geographical information system, who otherwise were not map-oriented in their daily lives. Lastly, project sponsors may be more mindful of the use of government policies (e.g. the federal quota system) within projects of this kind. Speculations on this issue amongst project members indicate that NIMC may rely on their private sector partners to appoint project staff when full operations commence to circumvent the government's quota system policy.

Contribution	Area of Contribution	Justification
Theoretical	Empirical examination of information systems deployments	Unique application of Sen’s Capability Approach
		Extricating the concepts of capabilities and functionings
	Enriching the body of work in ICTs and Development domain	Provides insights to how IS can support locally meaningful development outcomes
		Explains why development outcomes are often not achieved in IS deployments
	Addressed failure from a wider societal perspective	
Methodological	Enriching research practice on eliciting and analysing information in challenging situations	Applies normative concepts for an interpretive inquiry
		Exemplifies how to elicit information on culturally sensitive issues
Practical	Advice on expanding ICT policies and strategies	Identifies the need for project sponsors to appreciate locally meaningful development outcomes
		Identifies the need for project sponsors to recognise socio-institutional actions that influence IS deployments
	Advice on high level interventions within IS deployments	Identifies the need for project sponsors to address socio-cultural influences alongside techno-managerial issues
		Identifies the need for nationwide sensitization programs on corruption and other exploitative behaviours
		Suggests a careful adoption of government policies in light of exploitation

Table 122 – Summary of Contributions

7.5. Limitations of the Study

A major contribution of this research lies in its unique application of the capability approach to study the implementation and outcomes of information systems. The study showed how the capability approach can shed light on the dynamics of development and ICTs, and various issues which constrain the achievement of the former within developing countries. However, the findings from the case study do not allow the generation of new theories on the deployment of ICTs in developing countries. The purpose of the case study was to show

how information systems can support the achievement of locally meaningful development outcomes in a developing country, and why this is often not the case. As such, the study is limited in terms of generalising to other settings. Instead, insights have been provided which can be extended to other settings that have similarities in social context – as there is no claim to proposing a theory that is universally applicable to all settings.

In Chapter Four (***Methodology and Setting***), detailed arguments for adopting the interpretive approach and data collection techniques were made. The attraction for the approach was to gain an in-depth understanding of the enactment of the systems being deployed. As earlier noted, this study cannot be generalised in the statistical sense to other projects and developing countries. Having said, the study has made claims to contributing to research by using techniques which show how one may study the notion of development in light of its different meanings. The interviews, observations, and document analyses gave opportunities to understand various interpretations of the development objectives of the national identity project – a feat that may have been more difficult using other research techniques e.g. surveys and questionnaires. Nevertheless, a challenge in conducting a study of this kind was not necessarily the choice of research techniques, but gaining access to an organisation in ways that allowed members openly discuss their opinions on issues which explain the shortcomings of the project.

Another challenge concerns the issue of a researcher's bias – in light of personal experiences that may influence a research inquiry and process (Denzin and Lincoln 2005). In this study, one may argue that the researcher's experiences from being an indigene of the focal context (i.e. Nigeria) may have influenced the research process. However, the empirical data was gathered from a variety of sources and integrated into the study to counter this argument. Also, considering that gaining access was earlier highlighted as a challenge faced in conducting the study (i.e. in getting participants to openly discuss project shortcomings), being an indigene was useful in terms of developing a good rapport with interview respondents and obtaining official documents within the organisation. Overall, the risks of bias were largely compensated with the benefits of gaining access to NIMC and partner organisations, staff and official documents.

Lastly, the theoretical framework presented its own challenges within this study. Sen's Capability Approach was adopted for this study owing to his detailed and insightful critiques of earlier theories on development. The capability approach offered a comprehensive perspective of development that considered human diversity and its ramifications, beyond economic growth. However, the major problem with the capability approach is that Sen does little in explaining how to operationalize it in research. This limitation has been discussed by various critics (Heeks and Molla 2009; Corbridge 2002; Navarro 2000), who point out a lack of attention to groups and social structures, and the absence of a consistent and prioritised list of capabilities. The ensuing epistemological difficulties were respectively addressed in this study by considering the individual as a social entity that constitutes interactions with others and institutions that operate within a society and allowing the emergence of recurrent development themes from participants respectively (See **Theoretical Framework** chapter).

Nevertheless, the framework presented a challenge that can generate a genuine criticism. The study showed that the capability approach can indeed address the aspect of institutions alongside its emphasis on individuals. However, the capability approach focuses on existing structures and social arrangements, with little attention to their origins and the decision making processes that may explain how they (i.e. structures and arrangements) came to be. Hence, the analysis focused on the deliberate activities of individuals and efforts of institutions in improving the former's lives. The aspects that are sufficiently addressed are the decision making processes that informed the introduction of the National Identity system, and the power dynamics underlying such decisions. These shed some light on the framework's shortcoming in explaining NIMC's inactivity and muteness towards addressing the scepticism of stakeholders (as discussed in the **Case Study Findings and Analysis** chapters)

7.6. Areas for Further Research

In this study, the Capability Approach was applied to make sense of the deployment of information systems within a developing country. It enabled the examination of issues affecting the implementation of the system and constraining the achievement of development outcomes within the focal context. Nevertheless, the investigation of the agency aspect of the Capability Approach was limited within the study. This was a result of the current stage in which the latest implementation effort was in. At the time of the study, a pilot exercise was being conducted for the new system. This meant that inquiries on achieved development outcomes (i.e. functionings) were somewhat restricted to past implementation efforts. This explains the limited commentary on the agency aspect of the Capability Approach. Hence, further research could be conducted in the near future when the system is fully operational

Also, earlier discussion (**Section 7.4**) noted the limitations of the theoretical framework in addressing the decision making processes which informed the introduction of the National Identity system, the power dynamics that underlie such decisions, and the inactivity and muteness of NIMC in addressing the scepticism of stakeholders towards the on-going implementation. These were attributed to the Capability Approach's emphasis on existing structures and social arrangements, and deliberate activities of institutions and concerned individuals towards better lives for the latter. To address such aspects (i.e. power and decision making), further research may draw on frameworks on power to complement the Capability Approach. A conceptual example is provided by Zheng and Stahl (2011), where suggestions are made to supplement the CA with the Critical Theory of ICT to address the underlying values and interests of social groups which spearhead the choices and introduction of technologies within development initiatives.

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9. Appendices

9.1. Appendix 1 – Interview Guide and Questions (Initial)

The focus of my inquiries in the interviews (with sample questions) and the range of participants are presented below. These are categorized by organizational departments and roles within the NIM project.

National Identity Database Department: The NIDD is in charge of the technical implementation of the NIM project and liaises with NIMC’s private technical partners i.e. Chams, Iris One, and Nadra. The discussions in this category will be on the features of the NIC system. These are relevant for evaluating NICs as a commodity that enhances people’s capabilities. Also, issues with IS-related infrastructure will be discussed to understand the merits and limitations to the NI project. These are relevant for understanding the conversion factors which enable or hinder people’s abilities to achieve development outcomes from the NICs. Some of the questions to be posed to participants are as follows:

- What goals is NIMC trying to achieve by implementing the new system? And how is it different from the old system?
- What are the specific features of the NIC and other components of the NIM system i.e. database, card issue and acceptance devices?
- How will these contribute to achieving the goals?
- How do these goals improve the lives of the card owners?
- What improvements in people’s lives have been reported?

Legal Services Department: The LSD handles legal issues regarding the procurement of equipment and software. The discussions here will be centred on NIMC’s arrangements with partner agencies and technical consultants. These are relevant for understanding institutional activities as conversion factors. Also, there is an opportunity to explore organisational conflicts and any effects on the NI project. Some of the questions to be posed to participants are as follows:

- What are the main highlights of NIMC’s arrangements with partnering organisations?
- How will these contribute to achieving the project goals?
- Are there disputes between NIMC and any of the organisations? And what is the nature of the disputes if any?
- How are these affecting the operations of NIMC?
- What is being done to resolve issues? And what can be done to check the recurrence of such situations?

Information Technology Department: ITD provides technical support for the organization, including field operations during the mass registration period. The discussions in this category will be about the technical system and related infrastructure. This is to evaluate the system as a commodity which facilitates people's capabilities. Also, there is an opportunity to explore the NIC registration experience. Some of the questions to be posed to participants are as follows:

- What are the technical features of the NI system?
- How do these contribute in achieving NIMC's goals?
- How was the mass registration exercise conducted?
- What problems were encountered during the exercise? And what were the sources of such problems?
- How did the problems affect the operations of the project?

Process and State Coordination Department: PSCD coordinates project issues at NIMCs offices at the state and local government areas, and supervises the activities of the customer care unit. The discussions here will be focused on the dealings with registrants in regards to the registration, collection and use of the NICs. These are relevant for evaluating the range of development outcomes, and understanding what capabilities and functionings are promoted by the NICs. Also, there is an opportunity to investigate what societal issues constrain the achievement of development outcomes. Some of the questions to be posed to participants are as follows:

- What kinds of enquiries are often made by registrants and the members of general public?
- What do they state as reasons for wanting the NICs?
- What arrangements does NIMC have for responding to the queries?
- What complaints have been made in regards to obtaining or using the identity cards?
- How does NIMC respond to the complaints? And what can people do if not satisfied with the responses?

Harmonization Committee: The harmonization committee comprises of members which represent government agencies with existing databases which are to be integrated with the NIM project. The discussions in this category will be about what services are to be improved with the deployment of the NIM project. These are relevant for investigating capabilities and understanding what development outcomes can be achieved through the project. Also, there is an opportunity to explore institutional activities and societal issues which influence the NI project. Some of the questions to be posed to participants are as follows:

- What are the main services of the partner organization?
- What identity-related problems do they face? And how can the NIM project improve the services?
- How would they confirm improvements in relation to previous services and performance?
- What arrangements are being made by the partner organization to support the implementation of the NIM project?
- What conflicts are encountered between the organizational practices of NIMC and the partner agency?

NIMC's Technical Partners: The technical partners refer to the local technology firms (Chams and Iris One) and international identity management firm (Nadra) who are involved with implementing the NIM project. The discussions in this category will be about the project implementation experience. These are relevant for exploring institutional activities as conversion factors which affect project outcomes. Some of the questions to be posed to participants are as follows:

- What stage of the implementation has been achieved?
- What is currently delaying the full implementation of the NIM system?
- How can this be facilitated?
- How are the relations with NIMC? And do these affect project operations?
- What can be done to enhance relations with NIMC?

NIC Applicants: NIC applicants refer to residents of the country who present at NIMC offices to register for identity cards. The inquiries here will be on their reasons for wanting the identity cards, and any identity-related experiences they may have had in the past. These are relevant for evaluating development outcomes from individual perspectives, and also corroborating the responses of NIMC staff. Some of the questions to be posed are as follows:

- Why do you need the national ID card?
- How do you cope in transactions without the ID card?
- Have you missed any important transactions by not having the card?
- How do you think the ID card will help you?
- How was the registration process for you?

9.2. Appendix 2 – Interview Guide and Questions (Revised)

The focus of my inquiries in the interviews (with sample questions) and the range of participants are presented below. These are categorized by organizational departments and roles within the NIM project.

National Identity Database Department: The NIDD is in charge of the technical implementation of the NIM project and liaises with NIMC's private technical partners i.e. Chams, Iris One, and Nadra. The discussions in this category will be focused on the features of the NIC. These are relevant for understanding the NICs as a commodity that can enhance people's capabilities. Also, issues with IS-related infrastructure will be discussed to understand the merits and limitations to the NIM project. Select themes and sub-themes from the *Literature Review's* type 1 failure (e.g. IT policies and access to infrastructure) will be considered to understand the problems with application and assimilation of technology. These are relevant for understanding the conversion factors which enable or hinder people's abilities to achieve development outcomes from the NICs. Some of the questions to be posed to participants are as follows:

- What goals is NIMC trying to achieve by implementing the new system? And how is it different from the old system?
- What are the specific features of the NIC and other components of the NIM system i.e. database, card issue and acceptance devices?
- How will these contribute to achieving the goals?
- How do these goals improve the lives of the card owners?
- What public infrastructure is needed to support in achieving the goals? And how have these affected the implementation of the system?

Legal Services Department: The LSD handles legal issues regarding the procurement of equipment and software, including negotiations with the 2003 project's consultants Sagem. The discussions here will be centred on NIMC's arrangements with partner agencies and technical consultants, including disputes with the 2003 project consultants Sagem. These are relevant for understanding institutional activities as conversion factors. Select themes and sub-themes from type 2 failure (e.g. organisational conflicts and insufficient political support) will be considered to understand problems with managing projects. Also, there is an opportunity to explore societal values (e.g. corruption) and its effect on the conversion of the NIM project to relevant capabilities. Some of the questions to be posed to participants are as follows:

- What are the main highlights of DNCR's agreements with partnering organisations?
- Are there disputes between NIMC and any of the organisations? And what is the nature of the disputes?
- Why have the disputes not been resolved in light of the agreements in place?
- How are these affecting the current operations of NIMC?

- What can be done to check the recurrence of such situations?

Information Technology Department: ITD provides technical support for the organization, including field operations during the mass registration period. The discussions in this category will be about IS-related infrastructure with select themes from type 1 failure (e.g. shortage of IT-skills and ineffective participatory approaches) to understand the problems with application and assimilation of technology. These are relevant for understanding the conversion factors which affect people's capabilities. Also, issues with bureaucracy and tribalism within the organisation will be discussed. These are relevant for understanding the elements of societal values that serve as conversion factors for the NIM project. Some of the questions to be posed to participants are as follows:

- How was the mass registration exercise conducted?
- What problems were encountered during the exercise? And what were the sources of such problems?
- How did the problems affect the operations of the project?
- What arrangements are being made for the launch of the new registration centres?
- How will these prevent the recurrence of previously encountered problems?

Process and State Coordination Department: PSCD coordinates project issues at NIMCs offices at the state and local government areas, and supervises the activities of the customer care unit. The discussions here will be focused on the dealings with registrants in regards to the registration, collection and use of the NICs. These are relevant for exploring the range of development outcomes anticipated amongst citizens of the country, and understanding what capabilities and functionings can be promoted by the NICs. Also, there is an opportunity to investigate societal values (e.g. corruption and scepticism) as conversion factors which affect the achievement of development outcomes. Some of the questions to be posed to participants are as follows:

- What kinds of enquiries are often made by registrants and the members of general public?
- What do they state as reasons for wanting the NICs?
- What arrangements does NIMC have for responding to the queries?
- What complaints have been made in regards to obtaining or using the identity cards?
- How does NIMC respond to the complaints? And what can people do if not satisfied with the responses?

Harmonization Committee: The harmonization committee comprises of members which represent government agencies with existing databases which are to be integrated with the NIM project. The discussions in this category will be about what services can be improved with the deployment of the NIM project. These are relevant for investigating capabilities and understanding what development outcomes can be achieved through the project. Also, some of the discussions in this category will be on institutional activities and societal values. These are relevant for exploring type 3 failure (e.g. government's commitment to reforms and investments in supportive interventions) and type 2 failure (e.g. compatibility issues and established practices) towards understanding problems with socio-institutional conditions and managing IS projects respectively. Lastly, there is an opportunity to investigate what bureaucratic practices affect the achievement of development outcomes. Some of the questions to be posed to participants are as follows:

- What are the main services of the partner organization?
- What identity-related problems do they face? And how can the NIM project improve the services?
- How would they confirm improvements in relation to previous services and performance?
- What arrangements are being made by the partner organization to support the implementation of the NIM project?
- What conflicts are encountered between the organizational practices of NIMC and the partner agency?

NIMC's Technical Partners: The technical partners refer to the local technology firms (Chams and Iris One) and international identity management firm (Nadra) who are involved with implementing the NIM project. The discussions in this category will be on issues with the project implementation, with select themes from type 2 failure (e.g. operational funding and methodological practices) to understand problems with managing IS projects. These are relevant for exploring institutional activities as conversion factors which affect project outcomes. Some of the questions to be posed to participants are as follows:

- What stage of the implementation has been achieved?
- What is currently delaying the full implementation of the NIM system?
- How can this be facilitated?
- How are the relations with NIMC? And do these affect project operations?
- What can be done to enhance relations with NIMC?

NIC Applicants: NIC applicants refer to residents of the country who present at NIMC offices to register for identity cards. The inquiries here will be on their reasons for wanting the identity cards, and any identity-related experiences they may have had in the past. These

are relevant for understanding anticipated development outcomes from individual perspectives, and also corroborating the responses of NIMC staff. Some of the questions to be posed are as follows:


- Why do you need the national ID card?
- How do you cope in transactions without the ID card?
- Have you missed any important transactions by not having the card?
- How do you think the ID card will help you?
- How was the registration process for you?

9.3. Appendix 3 – NIN Registration



National Identity Management System
Federal Republic of Nigeria
National Identity Number Slip (NINS)



Transaction Number	CHQ00512E310975	Surname	MAIYE	Address: 449 NOUKCHOTT STREET ZONE 1 ZONE 1 FCT Abuja	
NIN	61534476655	FirstName	ARIYO		
Registration Date	31/05/2012	Middlename			
		Gender	M		

Note: The transaction slip does not confer the right to the **General Multipurpose Card** (For any enquiry please contact)

 helpdesk@nimc.gov.ng	 www.nimc.gov.ng	 08059489097	 National Identity Management Commission 11, Sokode Crescent, Off Dalaba Street, Zone 5 Wuse, Abuja Nigeria
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