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ABSTRACT

Various studies indicate that most e-government projects have failed and there is a gap in Information Systems literature regarding a mechanism to assure their success and sustainability. This is research in-progress that is aimed at developing a framework to assure sustainability of e-government projects. The research will be conducted in Ethiopian context and a case study research design will be used. Qualitative methodology will be employed in the study. The 'Design-Reality gap' model and Institutional Theory (INT) will be used as a theoretical framework to conduct this research. In addition to adding a new sustainability framework to the Information Systems literature by uncovering the determinant factors of sustaining those projects and how those determinants are associated to each other, the outcome of this research can be used by policy makers and practitioners as a tool to assess the success and sustainability of the e-government initiatives.

Key words: E-government, Sustainability, Success, Failure, WoredaNet, Framework

INTRODUCTION

E-government is the short form for electronic government, and it is also referred to as digital government, online government and even transformational government (Al-Busaidy et al, 2009). There is still no standard definition of the e-government concept until today (Harfouche and Kalika, 2009). Accordingly, different scholars defined e-government in different ways as: the use of ICT to promote more efficient and effective government (Kaaya, 2003; Hafkin, 2009); the use of ICT to facilitate the accessibility of government services (Gorla, 2008; Chatfield, 2009; Chen, 2009); the use of ICT to make governments more accountable to citizens (Gorla, 2008); the use of ICT to allow greater public access to information (Muir and Oppenheim, 2002); the use of ICT to deliver improved services to citizens, businesses, and other members of the society through changing the way governments manage information (Coleman, 2006; Kumar et al., 2007). Similarly, it is also defined as the use of ICT to promote more efficient and effective government, facilitate the accessibility of government services, allow greater public access to information, and make governments more accountable to citizens (Kitaw, 2006). It seems that it is one of those concepts that mean a lot of different things to a lot of different groups (Harfouche and Kalika, 2009).

Recognizing such high-flying benefits, the government of Ethiopia has been taking practical steps the last two decades or so. Different enabling activities are being practiced in relation to the ICT sector such as: organizing a government unit that can

look after the sector, devising ICT policy, developing ICT sector Research & Development strategy and guideline, capacity building efforts to facilitate ICT use, etc. in relation to launching ICT-based projects. Strong political will and commitment to support ICT-based initiatives on the side of top political leaders is also worth mentioning. Accordingly, initiatives are already in place to fully leverage the coverage, penetration as well as quality of telecom and ICT services at the national level. As Kitaw (2006) reported, ICT is gaining priority in the government plan and its availability especially in the rural and remote areas of Ethiopia has been given special considerations. Similarly, there are considerable attempts to overcome the human resource problem in the sector as indicators for a promising future. These possible realities regarding ICTs in the country indicate that there is an enabling environment for development, adoption and use of ICTs and applications in different sectors in the near future.

Different ICT-based projects are being implemented in the country in different sectors and the country is benefiting a lot from those initiatives. Among the well-known ICT projects in Ethiopia are WoredaNet (connecting 600+ local administrative districts in the country with broadband Internet access to enhance local administration); SchoolNet (connecting more than 550+ high schools in the country with VSAT based broadband for delivery of video-based distance education); AgriNet (to connect about 26+ agricultural research institutions in the country with broadband Internet access); and RevenueNet (to network the inland revenue and customs offices all over the country to primarily support relevant data exchange) (Kitaw, 2006). The estimated cost for the WoredaNet and SchoolNet projects was about 100 Million USD (EICTDA, 2005). WoredaNet is a platform aimed at serving as a backbone to different e-government initiatives to improve the socio-economic situation and the local governance in the country thereby contributing to its overall growth. The WoredaNet infrastructure at each woreda/district is carbon copy to each other technologically as well as from organization point of view.

The WoredaNet is an E-Government project in Ethiopia conducted under the Ministry of Capacity Building and implemented by the then Ethiopian ICT Development Agency. The project aims to build terrestrial and satellite-based network connecting lowest levels of government. It is an example of a Government-to-Government (G2G) model in an African country (Kitaw, 2005). There are several applications already put in place (and planned to be used) through the Woreda Information Systems (WIS). Some are intended for the use of citizens (e.g. electronic forms through the Internet). A highly visible and effectively used application is the Video Conferencing service for officials at werada, regional and federal level. The Government Video Conferencing solution works over a nation wide IP based video conferencing within Ethiopia between the Federal Government and all 11 regional States and also different regional states and their woredas/districts. More specifically, the Video-Conferencing application for woredas in Ethiopia contributes in increasing the efficiency of the government at the woreda, regional and federal level as it allows effective and frequent communication and collaboration between woreda administrators, region heads and the federal government; improved use of executive time (speed up decision making); provision of timely information to the lowest government institution through the web services (static web pages and archived video sessions); and reduced travel and administrative costs for sharing information (Kitaw, 2006).

Disappointedly, researches indicated that most of such initiatives fail either totally or partially due to 'design-actuality' (Heeks, 2002) or 'design-reality' gaps (Heeks, 2003), long-term sustainability problems (Aichholzer, 2004), or lack of commitment on the part of political leadership and public managers (Bhatnagar, 2000). While various theories have been advanced to help understand these failures, there have been few data-driven studies focused on the impacts and political and institutional sustainability of projects over relatively long periods of time (Kumar, et al, 2006). As boldly mentioned by Kumar, et al (2006), there are relatively few studies that focus on long term sustainability of e-government initiatives (Aichholzer, 2004; Heeks, 2002, 2003). In line with this, Walsham & Sahay (2005) give an overview of the current landscape and future prospects of research on information systems in developing countries. There is an increasing visibility and importance of ICTs in developing countries which is mirrored by a growth in the information system research literature in this area. Their analysis concludes that sustainability is an important but neglected topic. Similarly, Braa et al.(2004) indicated in their study that although there are success stories in Health Information System Projects (eg. in South Africa), scalability and sustainability have been, and continue to be, central challenges. In an e-government assessment case study by Lessa, et al., (2009), it is revealed that all four e-government initiatives in two city administration faced potential of partial of full failure unless immediate correctives measures are taken by concerned government entity. From these discussions, it is clear that unless sustainability of e-government initiatives is treated with the seriousness it deserves and its increase curbed, opportunities that would have otherwise been available for citizens in developing countries will become foreclosed due to failure and/or unsustainability complications. This in the long run will make it difficult for governments in

developing economies to achieve multi-dimensional benefits out of those e-government initiatives. Hence, the current research more specifically questions: How are the e-government services under the WoredaNet being utilized? How can these e-government initiatives be made more successful and sustainable over relatively longer period at the same time being successful?

The current study, thus, is aimed at building on Design-Reality gap model and extends it by incorporating more attributes that can contribute for sustainability of e-government initiatives and will end up with developing a comprehensive success and sustainability framework that can help assure success and sustainability of e-government services. The Design-Reality gap model introduced by Heeks (2002) mainly explains gap that exists between design and reality of an information system project along seven dimensions. ITPOSMO[1] is short for the 7 dimensions in which gaps are likely to cause failure in information system projects: Information, technology, processes, objectives and values, staffing and skills, management systems and structures, and other resources. The model helps to assess only the success or failure of e-development initiatives but not their sustainability. Success and sustainability are not same but sustainability is necessary for success. This in turn shows us that these two issues are inseparable and should be seen together for completeness. Accordingly, the research will have practical implications for policy makers and practitioners in addition to contributing specifically to the discussion on success and sustainability of e-government in developing countries by uncovering factors contributing for e-government sustainability.

LITERATURE REVIEW

E-Government Failure

It is recognized worldwide that the role of ICT for increased efficiency in different sectors such as governance, economy, social affairs, etc. is increasingly becoming a necessity and many activities will practically be impossible to cope with the required development standard with out its use. This in turn urges countries all over the world to do their best in implementing ICTs in different sectors of their economy. In line with this, e-government is increasingly being seen as the answer to several problems that the governments or public agencies in general face in serving their public effectively. This is especially so in developing countries, where generally the public agencies face resource constraints in improving their operations and delivering services to the citizens. In such cases, e-government has been considered as a means to save costs while at the same time improving quality, response times, and access to services; contributes a lot in improving the efficiency and effectiveness of public administration (UN-ECOSOC, 2003; ADB, 2003). It is also seen as a tool to increase transparency in administration, reduce corruption, and increase political participation (Kumar, et al, 2006).

However, failure of Information Systems projects (especially in developing countries) is one of the well addressed topics in Information Systems literature by different scholars (Heeks, 2003). Similarly, failure of the newly introduced E-government initiatives is also reported by different authors (eg. Kumar, 2006; Dada, 2006). Those failures are threatening to add another impediment particularly on development efforts of developing countries in their effort to create long term socio-economic benefits to their citizens. If this trend continues, developing economies would be faced with a major crisis in transforming government services as more projects will not be made practical or last for reasonably long period of time (Dada, 2006). The increase in failure of such e-government initiatives is also critical because the projects are taking the governments large sums of money. This may be money that should have been used on solving socio-economic problems and promoting other developing efforts. On top of that, failure cases among Information systems in general and E-government projects in particular are unlikely to decrease in the near future unless critical measures are taken by governments in order to address the problem.

According to a study curried out by Heeks (2003) (as quoted in Dada, 2006), most implementations of e-government in developing countries fail, with 35% being classified as total failures (e-government was not implemented or was implemented but immediately abandoned), and 50% are partial failures (major goals are not attained and/or there were undesirable outcomes). On the other hand, in a study by Heeks and Stanforth (2007), it is estimated that some US$3 trillion

[1] **I** for Information, **T** for Technology, **P** for Processes, **O** for Objectives and values, **S** for Staffing and skills, **M** for Management systems and structures, **O** for Other resources: time and money

will be spent on information technology (IT) by governments during the decades of the 2000s and much of this investment seems likely to go to waste with estimates of the proportion of e-government projects failing in some way for about 60% or more. This is a disturbing fact, especially as developing countries have limited resources at their disposal, and cannot afford to wastefully spend large amounts of money typical of such projects.

The Concept of Sustainability

It is believed that the word sustainability was used for the first time in 1712 by the German forester and scientist Hans Carl von Gilinscee (Garde, et al, 2007). As indicated by Shriberg (2002), the current usage of "sustainability" is largely restricted to ecological issues (thus neglecting interrelated social and economic issues), and is often controversial and confusing. Sustainability is a term and concept that is much used and much abused. One of the factors that may contribute for such a case may be the fact that there are two distinct views on the evolution of the concept of sustainability, which differ greatly in describing the role of social issues in the concept's development – some are ecological in origin while others are social in origin. These roots include not only many strands of environmentalism – including "limits to growth" and conservationism – but also strands of social activism, such as movements to eliminate poverty (Kidd, 1992). Thus, Kidd concludes that sustainability arose not as a narrow ecological concept, but as a novel, integrated approach to environmental, social and economic progress. This evolutionary path presumes that sustainability is, at its very root, a transcendent concept with the ability, even the responsibility, to become a cross-disciplinary, holistic paradigm and the issue is not whether sustainability should include social and economic issues in its modern conceptualization, but rather how to implement sustainability as an integrated approach.

Overall, 50 years after the roots of the sustainability movement began (Kidd 1992), the concept is still ambiguous and only few philosophical debates have been resolved. The potential for sustainability to cross disciplinary, organizational and cultural *boundaries is well noted in theory, but has often failed in practice. Because of the potential for the concept to be a critical organizing principle* for the 21st century and because of its broad intuitive appeal, many authors have speculated on the possibilities for a trans-boundary emphasis on sustainability in the future (Shriberg, 2002). As pointed by Garde, et al (2007), there exist more than 300 definitions of sustainability according to the Canadian 'Sustainability Now' initiative (http://www.sustainability.ca). The probably best-known definition stems from the World Council on Environment and Development (UN World Commission on Environment and Development, 1987) as quoted in Garde, et al (2007) by which the concept is defined as "meeting the needs of the present generation without compromising the ability of future generations to meet their needs". Thus, sustainability can be considered as the ability to continue a defined behavior indefinitely.

With regard to IT, 'sustainability' implies the ability to identify and manage risks threatening the long-term viability of IT (Korpela et al., 1998). Kimaro (2006) stated sustainable IT as "technology that is capable of being maintained over a long span of time independent of shifts in both hardware and software". Similarly, there are frequent concerns about the sustainability of e-development projects: those using ICTs for socio-economic development. Put simply, a sustainable e-development project is one that endures; continues on without stopping. Sustainability is not the same as success. To understand that, we must see that success for an e-development project means "most stakeholder groups attain their major goals and do not experience significant undesirable outcomes" (Heeks, 2002). It is quite possible, then, for a project to sustain without delivering goals for most stakeholders; i.e. without being successful. But sustainability is still important because unsustainability is a form of failure. So sustainability is not synonymous with success, but it is necessary for success. Only sustainable ICT initiatives can support long-term socio-economic development (Heeks, 2005). For instance, Braa et al.(2004) indicated in their study that although there are success stories regarding Health Information System Projects (eg. in South Africa), scalability and sustainability have been, and continue to be, central challenges.

Sustainability is also considered as context-dependent and related to dynamic situations. In line with this, Farrell and Twining-Ward (2005) pointed that people's lives nowadays are enmeshed in the interactions of mainly complex systems in every spares of activity. These systems are periodically stable, but never permanently so. Events usually triggered by multiple causes have uncertain consequences, and because complex systems operate over a variety of temporal and spatial scales, little is likely to result simultaneously at the time expected or on the scale imagined. This is pivotal to any thoughts

of achieving sustainability. Farrell and Twining-Ward (2005) further state that sustainability concept is forever evolving, adapting to site and regionally specific conditions, and they can never be cast as universal. Because a set of interacting variables behave in a particularly successful way in one place does not mean they will behave similarly elsewhere. Each place or destination is unique in its combination of characteristics and its expressions of self-organization.

Hence, the main advantage of sustainability is the potential for the concept to catalyze individuals and groups to implement needed social and environmental change through promoting integrated, long-term, trans-disciplinary, systemic thinking in people and organizations. Other recent buzzwords have run their course because of their relatively limited aims and abilities. However, the literature ignores the possibility that sustainability has such broad reach and intuitive appeal that it may serve to motivate individuals and organizations in a fundamentally different manner (Shriberg, 2002). As a concluding remark, given that the term itself is being applied to so wide a range of issues that it can no longer retain only a single meaning (Maine, 2003), the need for sustainability analysis and particularly for indicators of sustainability is a key requirement to implement and monitor the development of national sustainable development plans (Garde, et al, 2007).

Theoretical Framework for the Research

As briefly discussed by Heeks and Standforth (2007), e-government researchers have already begun to investigate; typically making use of frameworks from the information systems (IS) literature. Some have adopted a factoral approach related to sets of variables/critical success factors identified in IS projects; where as others have made use of conceptual models applied in Information System such as institutionalism. This study mainly utilizes the 'Design-Reality Gap' Model (Heeks, 2003), combined with institutional theory, as a theoretical framework to explore the success and sustainability challenges of e-government in the country and to determine the antecedents in the process of the implementation and institutionalization of those initiatives.

'Design-Reality' Gap Model

The 'design-reality' gap model developed by (Heeks, 2003a) for assessing failure of e-government projects will be used as the conceptual foundation to analyze the WoredaNet services. According to this model, e-government success and failure can be mainly measured based on the gap between 'where we are now' and 'where the e-government project wants to get us'. 'Where we are now' means the current realities of the situation. 'Where the e-government project wants to get us' means the model or conceptions and assumptions built into the project's design. E-Government success and failure depends on the size of gap that exists between 'current realities' and 'design of the e-government project'.

Kumar, et al (2006) indicated that the seven dimensions - summarized by the ITPOSMO acronym - are necessary and believed to be sufficient to provide an understanding of design-reality gaps to analyze IS projects. The larger this design-reality gap, the greater the risk of e-government failure. Similarly, the smaller the gap, the greater the chance of success will be.

Institutional Theory (INT)

According to Jones and Mathew (2009), Institutional theory studies how organizations can increase their ability to grow and survive in a competitive environment by becoming legitimate, that is, accepted, reliable, and accountable, in the eyes of their stakeholders. The theory argues that it is as important to study how organizations develop skills that increase their legitimacy in stakeholders' eyes as it is to study how they develop skills that increase their technical efficiency. It also argues that to increase their chances of survival, new organizations adopt many of the rules and codes of conduct found in the institutional environments2 surrounding them. Institutional emergence, conformity, conflict, changes, and isomorphism are the key independent variables and the processes which establish schemas, rules, norms and routines are dependent variables.

[2] *The institutional environment is the set of values and norms that govern the behavior of a population of organizations (Jones and Mathew, 2009)*

In a similar token, Scott (2004) stated that Institutional theory attends to the deeper and more resilient aspects of social structure. It considers the processes by which structures; including rules, norms, and routines, become established as authoritative guidelines for social behavior. It inquires into how these elements are created, diffused, adopted, and adapted over space and time; and how they fall into decline and disuse. Institutional theory allows the analysis of the process of organizational change to address the social, cultural, and political characteristics of the environment in which the organization operates (Jennings and Greenwood, 2003). Institutional theory can also be viewed as an extension of open systems theory and the revolution it created in the study of organizations (Bjorck, 2004).

An institution is a social structure that gives organizations or individuals lines of action or orientations, while controlling and constraining them (Scott, 2001). Institutions then "represent constraints on the options that individuals and collectives are likely to exercise". These constraints are also called institutional pressures (Barley and Tolbert, 1997). As to the kinds of processes that are under study in institution theory, (Mignerat and Rivard, 2005) says there are two kinds of processes that are under study: institutional effects and institutional change. Institutional effects pertain to processes wherein institutions affect other institutions, organizations or organizational entities. In such processes, an institution is portrayed as the independent variable. Institutional change processes include the formation of institutions, institutional development, deinstitutionalization, and re-institutionalization. In such processes, an institution is often the dependent variable (Jepperson, 1991).

Institutional theory helps examine how institutions influence and is influenced by organizational actors, provides such a means of analysis (Scott, 2001). In an IT context, institutional analysis has been said to have the potential of helping IS researchers to understand "how institutions influence the design, use, and consequences of technologies, either within or across organizations" (Orlikowski and Barley, 2001). In recent years, a number of studies have adopted an institutionalist perspective to examine IT related phenomena such as IT innovation, IT development and implementation, and IT adoption and use.

RESEARCH METHODOLOGY

The researcher will conduct a case study within the interpretive tradition of information technology studies. The objective is to catch how stakeholders at different levels of government administrative units perceive and interpret e-government implementation and the resulting services in their organizational setup, and in turn, to figure out as to how these can contribute to success and sustainability of such initiatives. The interpretive perspective attempts to understand phenomena through the meanings and interpretations that people assign to them and their understandings of the social and organizational context. It thus has the potential to produce deep insights into a given phenomena, such as the processes of Information System development and management and how these processes influence (and are influenced by) its organizational context. Interpretive research does not predefine dependent and independent variables, but rather focuses on understanding the complexity of human sense making processes in situated contexts. It assumes that the knowledge of reality is gained only through social constructions such as language, shared meanings, tools, documents, and other artifacts (Walsham 1993; Klein & Myers, 1999).

With the assumption of interpretive research, I will be focusing on the subjective description of the stakeholders and their expressed thoughts and feelings about the e-government implementation in their organization. Orlikowski & Baroudi (1991) stated that interpretive research makes the epistemological assumption that reality is subject to multiple interpretations and thus cannot be studied objectively to establish a truth. Interpretive research aims at understanding and analyzing subjective interpretations and their consequences; thus it seeks a relativistic, rather than shared, understanding of phenomena based on the assumption that this understanding and analysis is mediated by the researcher. The interpretive approach will be adopted in this study to help understand the socio-technical processes involved in the introduction of the e-Government services from the perspectives of various actors involved (Walsham, 1993).

As clearly indicated in the aforementioned section, the research being proposed will adopt a case study approach in order to examine the different institutional and other challenges of sustaining e-government services in Ethiopia. Such an approach allows the researcher to investigate systems in particular natural institutional settings in order to understand the nature and complexity of the processes and actions involved (Walsham, 1995b; Dube and Pare, 2003).Yin (1994) states that case

studies are seen as appropriate when investigators either desire or are forced by circumstances to cover contextual and complex conditions and to rely on multiple and not singular sources of evidence. The case study approach provides, at a first level, a descriptive model. Specifically, it can be used to identify the key factors beyond the IT system boundaries, i.e., the antecedent conditions, forces of change, forces of alignment, sequence of events and decisions, and outcomes over the course of the implementation (Montealegre, 1999). At the second level, comparisons can be made by combining literature with own findings. Generalizations can be made from empirical data gathered towards theoretical propositions. This is also true for a single-case study. According to Eisenhardt (1989) case studies can be used to achieve various aims: to provide description, test theory or generate theory. Theory-building from case study research is particularly appropriate when there is still little known about a phenomenon or there is not enough literature to engage in incremental theory building.

Implementation of information systems in general involves various entities and multiple actors with different interests and logics (Suchman, 1987). This is why a case study strategy is going to be adopted to try to understand the research issues from multiple perspectives representing different stakeholders. It is mainly to understand how the institutional context shapes the processes of implementing e-government, and how these play out in the everyday lived experiences of the various actors. It is the researcher's belief that this understanding then provides the basis to frame success and sustainability strategy in addition to plan, implement and evaluate various interventions.

Data Collection and Analysis

Qualitative research technique will be used for the study. Qualitative research seeks to describe and analyze the culture and behavior of humans and their groups. It relies on flexible and interactive research strategy such as interviewing and focus group discussions. It is used for studying selected issues, cases or events in depth and detail (Orodho and Kombo, 2002). Qualitative methods often used in Information Systems research are ethnography, action research, grounded theory and case study. All four qualitative approaches or methods examine phenomena in a natural setting and use similar data collection methods, but they differ in important ways (Dubé & Paré, 2001). As discussed in section 5.2, case study will be used and the framework to be built at the end of the day will mainly base on the results of this approach.

Both primary and secondary data will be collected in relation to the WordaNet project and services in it. The data will be collected during field research for assessing the social, economic, and governance impacts of this project. This data will come from detailed interviews with the government officials involved in the project at different levels of decision making, the project participants, service operators, and the users of the e-government services. Eight government officials will be interviewed, and each official directly involved in the project at the regional, zonal and district levels and two WoredaNet project officials including the project manager and the manager of data center both stationed at state headquarters in Addis Ababa will be considered. Two WoredaNet operators will also be interviewed to understand the entire process behind delivery of e-government services. Similarly, focus group discussion will be made with about ten frequent users (five from each woreda/district) of these services upon the recommendation by the WoredaNet operators in the two districts about their experiences and perception about the e-government services. All interviews will be conducted using semi-structured interview, to be designed separately for the users, operators, and the government and the project officials. The semi-structured in-depth interview will be supplemented by document review such as using memoranda, organizational charts, project documentation, and other documents such as annual reports. The common theme running through the data gathering activities will be the actions (i.e., practices, situations, behaviors or attitudes) of different stakeholders.

To make sure that interviews are in line with the nature and orientation of interpretive studies, a set of seven interrelated principles offered by Klein and Myers (1999) will be used as interviews guidelines. Through the principles of Hermeneutic Circle, Contextualization, and of Abstraction and Generalization, interviews will make sure that data gathered are comprehensive, contextual and theoretically grounded. The Principle of Interaction and Dialogical Reasoning will enable interviews to socially construct data and provide room for sensitivity to allow the possible contradiction between theoretical preconception and actual findings. The principle of multiple interpretations and suspicion will provide framework to manage multiple interpreted and biased data.

There are more than seven hundred woredas/districts in the country of which only two woredas are used for this case study. Theoretical sampling is used to select these two sample woredas. According to Glaser and Strauss (1967), the goal of

theoretical sampling is not the same as with the probabilistic sampling; the researcher's goal is not the representative capture of all possible variations, but to gain a deeper understanding of analyzed cases and facilitate the development of analytic frame and concepts used in the research. Accordingly sample of two typical woredas (Lasta woreda/district/ from Amhara Region and Issara wordea/district/ from Southern Nations Nationalities and Peoples Region) will be considered. Last woreda is selected for its typical success and long-term viability of the e-government services; and Issara woreda is selected for sustainability failure (initial success but not able to continue the required service in an uninterrupted manner) both selected up on the recommendation by the concerned authority in the two regions in the country. This is mainly because theoretical sampling as one type of the qualitative research methodology is largely investigatory and relies more on in-depth data from smaller populations. It involves a process where the representativeness of concepts, not of sample is crucial. The aim is mainly to construct a theoretical explanation by specifying the conditions and processes that give rise to the variations in a phenomenon. That is to say, the units of analysis are concepts, and the representativeness is of the theoretical complexity of the phenomenon being described.

The Qualitative data will be analyzed using the data analysis approach described by Miles and Huberman (1994) in their popular book '*Qualitative Data* Analysis, 2nd *ed*'. This approach defines qualitative data analysis as consisting of three concurrent flows of activity: data reduction, data display, and conclusion drawing/verification. Data reduction refers to the process of selecting, focusing, simplifying, abstracting, and transforming the data that appear in write-up field notes or transcriptions. It occurs continuously throughout the life of qualitatively oriented project. Data reduction is not some thing separate from analysis. It is part of analysis. Data display is an organized, compressed assembly of information that permits conclusion drawing and action. As with data reduction, the creation and use of displays is not separate from analysis, it is part of analysis. The third stream of analysis activity is conclusion drawing and verification. From the very beginning of the data collection task, the qualitative analyst is beginning to decide what things mean - is noting regularities, patterns, explanations, possible configurations, causal flows, and propositions. Final conclusions may not appear until data collection is over. Conclusions are also verified as the analyst proceeds. The meanings emerging from the data have to be tested for their plausibility, their sturdiness, their "conformability" – that is, their validity.

Accordingly, thematic analysis will be used in this research to analyze the qualitative data. Themes refer to topics or major subjects that come up in discussions. In using this form of analysis, major concepts or themes are identified (Orodho and Kombo, 2002). In this form of data analysis, the researcher scrutinizes the collected data and identifies information that is relevant to the research questions and objectives; develops a coding system based on samples of collected data; classifies major issues or topics covered; develops a summary report identifying major themes and the associations between them; uses direct quotations to present the findings; and and then classify each piece of data accordingly with the objective of getting a general sense of patterns – a sense of what the data mean. Finally, the data will be integrated and summarized for the readers.

Hence, the starting point for my analysis of the empirical data will be to develop deeper insights into the challenges of success and sustainability of e-government initiatives, how success and sustainability could be conceptualized, the conditions that influence sustainability of such e-government initiatives and how existing challenges could be addressed. I will start with the analysis of data related to the design, development and implementation of the existing e-government initiatives. The analysis of the empirical data will also involve identifying various themes. Since interviews are the primary source of data, I will try to link the identified themes with specific responses and quotes from informants. I will further describe the broad categories of themes, and then reassemble material from field notes, reports, etc under each of these categories so that they form coherent topics. I will have some initial concepts from reading relevant literature on aspects of development, implementation, success, and sustainability of e-government in order guide the fieldwork. To that end, I will specifically focus on concepts drawn from institutional theory and information infrastructure perspective, which I feel are relevant to shaping my analysis of the relationship between success and sustainability.

EXPECTED CONTRIBUTIONS

E-government is mainly aimed at transforming traditional government services by improving overall efficiency and effectiveness of government through the use of ICTs. This is why remarkable interest is vested on e-government projects throughout the world and in turn considerable amount of money is being put into making e-government a reality in spite of

the limited financial resource and other constraints. It is, however, boldly mentioned in various studies that most of the services put in place have shown partial or total failures and there is a gap in information systems literature regarding a mechanism to assure their success and sustainability.

This research is aimed at developing a framework to assure success and sustainability of such e-government initiatives. The research, on one hand, aims to contribute to the theoretical domain of information systems in general and e-government in particular by adding a new comprehensive success and sustainability framework to the literature by uncovering determinant factors of sustaining those e-government initiatives. 'Design-Reality Gap' model will be extend in order to come up with a comprehensive success and sustainability framework that can help assess success and sustainability of e-government initiative at the same time. In doing so, it reduces the uncertainty that exists as to why e-government projects in particular are mainly unsustainable and in turn help visualize the e-government context in a better way. The outcome of this research can also be used as a spring-board for future theoretical deliberation by other researchers engaged in e-government research.

The study is also aimed at developing practical implications for policy makers and practitioners who are engaged in introduction, implementation, management as well as on-going assessment of e-government initiatives in Ethiopian context. Since the technology is considered as a promise and a major enabler for rapid development in a country, the output of this research can be used as important input to the policy makers and other concerned government bodies in their effort to make the existing services of WoredaNet more efficient and effective. It can be used by those practitioners as a spring-board to evaluate success and long-term survivability of the e-government initiatives. It can also be used as valuable input to devise the way how future expansion efforts and promotion of existing as well as future services on WoredaNet can be approached.

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