E-government for Uganda: Challenges and Opportunities

Narcis T. Rwangoga*
Department of Computer Science
Faculty of Computing and Information Technology,
Makerere University

Asiime P. Baryayetunga
Department of Women and Gender Studies
Faculty of Social Sciences, Makerere University

The government of Uganda drew an e-government strategy aimed at changing the design operation and culture of the public sector to better respond to the needs of Ugandans. Some flagship programmes were included in the strategy as an opportunity for the Uganda Government to consolidate the position of ICTs in the country. These flagship programmes have been ongoing for long and according to survey reports, some of the programmes have only partially succeeded. Others are reported to have totally failed. This paper looks at what these programmes are and through interaction with personnel in the institutions concerned with the programmes and reviews of documented reports, discusses the underlying challenges faced by ICT initiatives in Uganda. Recommendations that can assist planners when designing ICT programmes are presented. These recommendations are aimed at improving the design of ICT programmes to minimize programme risks. In conclusion, we highlight one of the check tools used in ICT project planning that can be used to identify key factors that e-government project planners must address if ICT projects are to succeed.

Categories and Subject Descriptors: K.4.2. [**Computers and Society**]—Social Issues; K.4.3. [**Computers and Society**]—Organizational Impacts; K.6.1 [**Project and People Management**] - *Life cycle, Systems development;*

General Terms: E-Government, ICT Policies; ICT Project Design

IJCIR Reference Format:
Rwangoga, N.T. & Baryayetunga, A. P**. 2007.** E-government for Uganda: Challenges and Opportunities. International Journal of Computing and ICT Research, Vol. 1, No. 1, pp. 36 - 46. http/www.ijcir.org/volume1-number1/article 5.pdf.

1. INTRODUCTION

The World is experiencing an information knowledge revolution that is fundamentally transforming the way in which businesses, citizens and governments operate and interact. Governments world-wide are adopting e-government as a means of improving their services to businesses and citizens, promoting economic and social development, and enhancing the effectiveness and efficiency of government

* Author's Address: Author's address: Narcis T. Rwangoga, Department of Computer Science, Faculty of Computing and IT, Makerere University, P. O. Box 7062, Kampala, Uganda, ntrwangoga@cit.mak.ac.ug; www.cit.ac.ug.
Asiime P. Baryayetunga, Department of Women and Gender Studies, Faculty of Social Sciences, Makerere University, P. O. Box 7062, Kampala, Uganda, pasiime@ss.mak.ac.ug;

International Journal of Computing and ICT Research, ISSN 1818-1139, Vol.1, No.1, pp.36 - 46, June 2007

operations. According to [Bretschneider, 1990], there is insufficient evidence to suggest a direct link between ICTs and development. [Danziger,2006] argues that recent studies have found a positive correlation between investment in ICTs and economic growth in developed countries, but evidence for developing countries is not as extensive. The Government of Uganda has identified ICTs as a major tool for achieving socio-economic development [TechnoBrain 2004a]. Despite the government's commitments towards advancement of ICTs growth in the country, there are many limiting factors within the environment that have slowed realizations of the good intentions. For instance, lack of adequate funding to invest in ICTs, poor network infrastructure, and unaffordable ICT services for the citizens are among the limitations often cited. This study was conceived in part to look at the existing ICT initiatives in Uganda with a view of identifying areas that require special attention. The paper was prepared mainly from document reviews and interviews conducted with key players in ICT projects in Uganda. The Internet was also used to search for current trends of implementation of ICT projects in governments.

This study was undertaken during 2006 and some of the data and the overall environment regarding the state of ICT in Uganda have undergone substantial changes. We have endeavored to explain where the ICT environment has changed since the last time of review earlier in 2006. Some changes are very positive and demonstrate how the Government of Uganda is committed to fully integrate ICT within all government processes. One such a development is the creation of the Ministry of ICT as a single face for ICT initiatives in Uganda. This is an opportunity for an environment that can be exploited to have the value of ICT enhance service delivery and policy formulation for more efficient citizen services and improved economic development in the country.

Before embarking on a broad strategy for implementing E-government, it is important to identify common practices and their trends in the existing ICT projects. Such trends will assist in identifying critical shortfalls that affect the successful implementation of E-government programmes. Further, this paper is intended to contribute towards the improvement of the processes and procedures employed in government bodies to implement ICT projects, collaborating in the effort to make an impact on service delivery to the citizens. The results of this research will help project planners and policy formulators define the areas into which they are supposed to put more or less effort in a coordinated manner. This will allow them to implement a more productive work strategy whilst trekking on a steady path towards attaining the defined goals. This paper is organized as follows: Section 1 is the introduction. Section 2 presents the approach used in the study. Section 3 describes aspects related to E-government projects implementation. Section 4 presents and analyses the results obtained in field research. Section 5 presents recommendations and conclusions.

2. APPROACH OF THE STUDY

We reviewed literature from several documents related to E-government projects in Uganda. These included the Uganda E-Government Strategy [TechnoBrain, 2004b], Uganda e-Readiness Assessment [TechnoBrain, 2004a].The National ICT Policy for Uganda Implementation Framework Draft Final Report [TechnoBrain, 2005] and East African Community Regional E-Government Framework [Secretariat, 2005]. We also reviewed literature on E-government from other countries to identify any best practices that are applicable in Uganda. From the documents reviewed, we focused on identifying evidence to confirm that the Government of Uganda is committed to a unified, integrated, and comprehensive ICT program to enable Government services to be delivered more efficiently and effectively to every segment of society. We also looked at sample projects that have already been undertaken in a sample of ministries with a focus on identifying challenges and experiences from these flagship projects. Special attention was paid to e-government related projects based on the e-government strategic plan for the country.

3. E-GOGOVERNMENT AND ICT PROJECTS

3.1 Definition of E-Government

There is no one common definition of e-government, although the term is widely used. Some view E-government primarily as E-commerce facilitating government procurements online [Bretschneider 1990]. Others view it as a means of bringing the government closer to the common citizen through provision of public services online [Norris 2005]. Some view e-government as a technology exercise, integrating individual databases and websites of governments [Bretschneider 1990]. Still others regard e-government

as a tool to modernize government and enhance the economic competitiveness of businesses and empower citizens. The reality is that e-government includes most of these aspects and has multiple dimensions. Traditionally, government services have been designed from a provider viewpoint to suit the needs of the organization rather than those of the users of the services. An e-government approach necessitates a fundamental shift in this perspective. International best practices suggest that successful e-government initiatives incorporate two basic principles:

- Client needs at the centre of the system's design
- Government services delivered as a single process, irrespective of which government institutions are involved (removing organizational boundaries) [Caldow, 1999].

In a customer-centric world, e-Government starts with users (citizens, businesses, government entities and government employees), who are the primary stakeholders of e-Government. As the providers and users of e-Government services, Government entities and the e-Government Program are also major stakeholders. Increasingly, private sector partners are becoming more involved in services delivery to users and in providing operational control and infrastructure maintenance services.

Driven by the belief that e-government is one of the key motors for development, governments are taking wide-ranging initiatives to rapidly create knowledge-based economic structures and information societies comprising networks of individuals, firms and countries interlinked electronically through webs of informational relationships. According to[Datanet K. N and Blumler, 1987], the importance of expanding the access of developing countries to information and communication technologies (ICTs) has been recognized by governments and international agencies with increasing consensus that ICT-related technology should be regarded as a strategic national infrastructure. Development, in contemporary times, is characterized by various dimensions, including ICTs. A functional E-government structure is comprised of an ICT infrastructure, different computer applications, and knowledge workers who form the basis of new information societies. While the ICT infrastructure is a visible starting point, it is often very expensive to install but at the same time the easiest to see and verify. When it comes to government programmes, it is more complex to stimulate processes through which individuals, organizations, communities and countries create capacities to use information effectively in their local contexts and for their needs.

3.2 E-government in Uganda

With the vision to offer better services to the citizens and business communities, the government of Uganda formulated the e-government strategy in 2004. This followed many years of government efforts to put e-government in practice through formulation of policies and structures to support its implementation. Literature available shows that Uganda received substantial support from donor agencies in the area of ICT for development. This has translated into a myriad ICT projects being implemented in various sectors of Ugandan society, most notably in rural infrastructure, education, livelihoods and health. The motivation for conducting this study has been accelerated by the need to establish where Uganda as a country has reached on the path to full implementation of E-government, identify any challenges and where possible, focus on identifying strategies to handle the challenges.

The Government of Uganda has recognized the critical importance of ICT in national development, and has started a policy framework to start implementing these technologies throughout the country. This is indicated in several documents covering policies, statutes, and other initiatives in the area of ICTs in Uganda. The most recent documents, among others, include: (i) A National ICT Policy which was approved in 2003 with the aim of promoting the development of ICT infrastructure in the country (ii) A Draft broadcasting policy which is in place; (iii) The Uganda Communications Commission Rural Development Policy; (iv) The new Communications Policy (Draft) that seeks to connect all schools, sub-counties, urban centers, health centers and public libraries by 2010; (v) The Government project for promotion of Public-Private Partnerships to build the requisite backbone infrastructure for telecommunications in Uganda.

Though we find the above documents to propose a unified structure for ICT development, individual Ministries continue to adopt ICT initiatives based on their unique internal factors, especially available opportunities for funding they can access which is often on an ad hoc terms. As a result, ICT development within the Government remains more integrated at the national policy level, than it does with respect to translating that policy to a harmonized ICT implementation and operational guidelines across all Ministries.

Today, the Government of Uganda has a strategic plan for development and implementation of electronic government "e- Government" in Uganda. The Strategy reaffirms e-Government to the goal of delivering high-quality customer-centric and performance-driven services to e-Government customers. The expectation is that e-Government will contribute to Uganda's economic and social development, as well as the transformation into a competitive, innovative knowledge society. In this study, we looked at the role the e-government using lessons learned from flagship projects for e-government in Uganda. Using recommended best practices globally, we identified challenges and opportunities, and made recommendations which can be used by the government and other key stakeholders vital to delivering e-Government services in Uganda.

3.3 E-Government Services

E-government is about the delivery of services to targeted customer segments. These services vary in nature and objectives. Some are forward-facing (*e.g.*, designed for external customers) and some are inward-looking (*e.g.*, aimed at enhancing government efficiency). The delivery of e-government services should be service-oriented, customer-centric, and results driven; it should be supported by modular, interoperable and re-usable ICT components and should leverage multiple access channels. It should be facilitated by an adequate mix of ownership. Ultimately, e-government services should transform the way citizens, businesses, and government entities and employees interact with government. The successful delivery of e-Government services rests on a number of foundations in the areas of institutionalization, laws and regulations, technology, and business factors, identified as the four pillars of e-Government [Caldow, 1999]. The four pillars are briefly described below.

Pillar 1: Institutional Framework

Robust institutional mechanisms are an absolute necessity to manage e-government. Best practices [Caldow, 1999] show that success in e-government requires: (i) effective interagency coordination; (ii) centralized, accountable e-government authorities; and (iii) direct, regular access of e-government authorities to political leaders. The rationale for creation of the Ministry of ICT in Uganda is derived from this need.

Pillar 2: Legal Framework

Development of an effective legal framework for e-government requires close coordination and communication among entities in the drafting and enforcement of laws and regulations. Priority areas include governance (obligations of government entities towards e-government), online transactions (regulations addressing e-commerce needs), information security regulations and establishing an enabling framework for Public-Private-Partnerships.

Pillar 3: ICT Infrastructure

ICT infrastructure is a prerequisite to e-government. Long-term investment in ICT infrastructure is critical to e-government services and Uganda's long term development. At the ICT level, e-government is best served by establishing a common technological direction that applies to all government entities / industry partners and their individual ICT architectures. This enables government entities and their partners to deliver e-government services in an integrated manner. Priorities include: development of guiding principles; establishment of federated enterprise architecture; development of both standards and information security.

Pillar 4: Business Level

For e-government to be truly service-oriented and customer-centric, government must transform the way it conducts its business by becoming more transparent and more accountable. At the business level, e-government requires close attention by the government entities executing projects particularly in the areas of capacity building, change management, project lifecycle management and communications and marketing.

3.4 ICT Programs in Selected Ministries

The following summaries highlight the major findings based on interview meetings of employees in respective government units and documentary reviews. The object of the review was to relate the existing ICT Programs and projects with the four pillars identified by [Caldow, 1999]. The commentary on findings is presented at the end of the table.

Government Entity	Description of Responsibilities	Current and planned ICT Programs
Office of the President	The Office of the President is responsible for monitoring the execution and budgetary expenditures of government programs administered by the various Government Ministries. Additionally, the Office of the President is responsible for the dissemination of Public Affairs information to the citizenry and coordination of Public Affairs with Local Governments.	**Ministry Communications** The current planning priority is to establish an Internet/E-mail System (with services also provided to the State House and the Office of the Prime Minister). The objective is to enhance internal and external communications and data/information sharing and coordination at these key governmental offices. b. **Office of the President Intranet** Another focus is establishing an Intranet linking the Office of the President with the Statehouse. The objective with the Intranet is to provide a protected and secure internal data/information sharing between these physically separated elements of the staffs of the Office of the President.
Ministry of Works, Housing & Communication	The Ministry of Works, Housing & Communication is responsible for all matters pertaining to Postal, Telecommunications and Infrastructure development	**Computerized Driving Permits (CDP)** This *is* an ICT project that is already in the implementation stage and is designed to provide the ministry with the following advantages or functionalities. (i) Production of machine readable driving permits; (ii) Form a CDP regional databank which can as well be used in other government sectors; (iii) Provide a vehicle tracking equipment; (iv) Improve the testing of drivers and (v) Design and enforce a driving curriculum **Vehicle Inspection** This was designed to address the following: (i) Reduction of mechanically unfit vehicles from being registered and licensed; (ii) Formation of regional data banks and (iii) Provision of vehicle tracking equipment. **Vehicle Registration and Licensing** This was designed to address the following: (i) Formation of regional data banks and (ii) Provision of vehicle tracking equipment
Ministry of Education and Sports	The Ministry has the responsibility: "To provide for, support, guide, co-ordinate, regulate and promote quality education and sports to all persons in Uganda for national integration, individual and national development." The strategic vision for ICT policy in education is the mainstreaming of ICT n the Education Sector	**Ministry Network** At the Ministry, all the offices are connected on a network and are able to use the Internet and e-mail services as well as to access resources on the network. Ten districts have been connected on the wide area network as a pilot phase. These districts can send and receive information on that network. **Education Management Information System (EMIS)** Education Management Information System is a component of ICT in the Ministry of Education and Sports; it provides quality education statistics in a timely, cost-effective and sustainable manner. EMIS provides the education statistics and pupil details among others. After the procurement of computers, printers and accessories each district has hardware and software installed and is to carry out data gathering from schools for processing through ED*Assist application Software which is used in EMIS. **ICT Maintenance Facility**

		A project proposal has been completed with assistance from The International Institute for Communication and Development, The Hague, The Netherlands (IICD) for the establishment of a Support Call Centre to repair and maintain ICT equipment and to develop the capacity of users to perform preventive maintenance and basic troubleshooting of their equipment. The Ministry is now soliciting funding for the project proposal. **Workflow Management and Financial Information in Planning and Budgeting** The objective is to improve delivery of services in the Ministry by streamlining the funding cycle, providing for interfaces with external parties, and timely preparation and delivery of work plans enhancing transparency and accountability. **Connect-ED (Connectivity for Educator Development)** The Connect-ED project, initiated in May 2000, is supported by the United States Agency for International Development (USAID) in close cooperation with Uganda's Ministry of Education and Sports and within the framework of the U.S. Education for Development and Democracy Initiative (EDDI). Connect-ED is using technology to enable and enhance learning and teaching for primary educators through the creation of multifaceted approaches to integrating media and computers in the Primary Teacher Colleges (PTC) classrooms.
Ministry of Finance Planning & Economic Development	The Ministry of Finance Planning & Economic Development is the key ministry responsible for all aspects of financial data administration, planning concepts of the government as well as all economic development concepts in Uganda. This includes coordinating budget data for all the ministries within the Ugandan Government.	**Integrated Financial Management System (IFMS)** This project bundles all financial management functions into one suite of applications. The IFMS covers all the major Government business processes including Budgeting, Accounting and Reporting, Purchasing, Payments /Payables, Revenue management, Commitment Accounting, Cash Management, Debt Management, Fixed Assets, Fleet Management, and Inventory/Stock Control. The Integrated Financial Management System assists the GOU entities to initiate, spend and monitor their budgets, initiate and process their payments, and manage report on their financial activities. **Information Sharing System (ISS)** This is another ICT project initiated by the Ministry of Finance Planning & Economic Development to provide a backbone infrastructure for the sharing of information within the MoFPED to ensure its fast and efficient flow together with minimizing the usage of physical paper work therein.
Ministry of Local Government	The Ministry of Local Government (MoLG) is charged with the responsibility of supporting and ensuring the efficient and effective operations of Local Governments (LGs) through proper management and coordination of the Decentralization process.	**Local Government Information Communication System ((LOGICS)** LoGICS was developed under the Local Government Development Program (LGDP I) and is comprised of three integrated parts, namely: (i) Monitoring and Evaluation Sub-system; (ii) Compliance Inspection Sub-system; (iii) Computerized Software Sub-system, which enables the data generated from the M&E sub-system and CI sub-system to be entered, verified, analysed, stored and disseminated to the various stakeholders. LoGICS is a multi-sectoral information system covering all sectors in a Local Government including: Education, Health, Water, Roads, Prisons, Police, Production, Planning, Finance and Administration, Council, Social Services

		etc. **Local Government Financial Information Analysis System (LGFIAS)** This system captures all relevant financial data on revenues and expenditure for all levels of Local Governments. The system has been designed with facilities to analyse and generate in-depth reports on revenue performance, expenditure, donor funds and Central Government transfers to the Local Governments. The reports generated are used by the Local Authorities, Central Government, Development Partners, NGOs and other stakeholders for decentralized fiscal planning, policy formulation and decision making functions. **Performance Monitoring Management Information System (PMMIS)** The Ministry hired a Consultant to develop a Performance Monitoring Management Information System and a Client Feedback System. This reporting framework, when complete, will provide end-users with means of accessing data from both systems, as if it were stored in a single system. It will also provide users with means of drilling down/up and to dynamically generate reports of interest. This reporting framework is currently under-going testing at the ministry.

Table 1: ICT Projects in selected Government Entities

3.5 Key findings and challenges

In general, the development and integration of ICT within the Government is uneven, with the lack of adequate resources to dedicate to ICT programs. Therefore, programs that enlist international donor organizations have been the primary catalyst for ICT penetration into the Government sector. Some ministries i.e. Finance, have substantial electronic records processing, databases and information retrieval systems, internal LANs and external networking to other Ministries. The World Bank provided much of the funding for these initiatives. Many other Ministries are still working to establish internal networking, information exchange, and preliminary planning for database management systems. Efforts are very limited to date in reviewing business processes and realignment of staffs to promote efficient application of electronic Government processes and applications. Specifically, the survey reveals several key factors that must be considered as part of an effective ICT strategy development:

(i) ICT programs must build on the unanimous agreement throughout the Government, and the political will, demonstrated through the expressed commitment of the President, to enable the Government of Uganda through comprehensive implementation of ICT technologies.

(ii) The lessons learned from initiatives sponsored by International Donor Organizations should serve as templates in building a comprehensive implementation strategy

(iii) Expenditure on ICT equipment, as well as training, is not coordinated across the government.

(iv) Although the Ministry of Information and Communication Technology (ICT) is in place, ICT investment still remains an “ad hoc” affair, with each individual Ministry seeking ICT funding to offset the minimal funding available through the governmental budgetary channels.

(v) Most installed systems are not fully being utilized in Ministries where they are. Part of the reason advanced was that there is lack of staff training, connectivity of networks is poor and appreciation of integrated information systems is still low.

(vi) Although the Ministry of ICT has initiated a project to standardize all ICT equipments across Government Sectors, this will take some time to be realized. Currently there are no series of commonly accepted standards for equipment, applications, or connectivity, for current initiatives.

(vii) Despite existence of the Ministry of ICT since 2006, there is still lack of a coordinated ICT investment strategy and a mechanism for tracking ICT investments and performance monitoring within the Government.

E-government should drive a paradigm shift in Uganda by delivering better services and better government. To achieve this, e-government projects in Uganda should have set key, measurable objectives revolving around:

(a) Improved service delivery and the quality and speed of government's interaction with citizens and businesses as well as among government entities.
(b) Improved responsiveness to customer needs by using new modes of contact to provide public sector information and services.
(c) Increased transparency of government by increasing the availability of information and accessibility to services.
(d) Saved time and money by improving efficiency in government processing, in part through use of common technology standards, policies and a federated architecture, as well as contributing to financial reform within the public sector.
(e) Creation of positive, spin-off effects in society through the promotion of ICT skills development within government, businesses and households.

The above stated factors (a – e) are missing in the projects reviewed. A comprehensive ICT implementation strategy, cross-cutting all Ministries with a centralized and coordinated organizational structure to ensure the most rational and cost-effective utilization of scarce resources and fully standardized and inter-operable systems throughout the Government is required. With the creation of a Ministry of ICT, there is anticipation that this challenge will be addressed.

4. THE ICT DIMENSIONS MODEL

According to [Vitalari 1988], there are six components of a complete ICT system. The six components include:

(i) Information: where the Planner should bear in mind the fact that Information is central to system designing. From documents reviewed emphasis is put on creation of formal strategic information as value to government functioning. According to the Model, informal information and gut feelings of decision maker are valuable and should be considered.

(ii) Technology: where the Planner should understand and fix the design reality gap. For instance, from reviewed documents, there is an assumption that all Government offices have access to use of a broad range of software and hardware. In reality, there are many offices where most processes are still manual. There is need to reduce this large design-reality gap when choosing the Technology for Government units.

(iii) Process: According to the Dimensions Model, processes under a computerized system should be closely related to the original processes before computerization. From project documents reviewed, the current system designers assumed that a rational model of structured decision-making exists within the government and computerization would be automatic. However, in some Ministries, some processes are dominated by personalized, even politicized, unstructured decision-makers. This has created a medium design-reality gap on this dimension and planners need to take consideration of this problem.

(iv) Objectives and values: This Dimension seeks to answer the question: is the entity results oriented and objective focused? From the reviewed documents, there are in generalization. What the Model suggests under this dimension is for planners to consider that systems are usually designed within, and reflecting, a scientific environment which has a 'role culture' that values rules and logic. In reality, systems are to be used in a political environment which has a 'power culture' that values self-interest and hidden agendas. Some of the projects do not progress because funds are diverted or equipments are procured wrongly. The design often assumes that the objectives of the project (automation of processes, better decision-making) are shared by all stakeholders.

(v) Management systems and structures: The Model underlines the fact that systems and structures are a required ingredient for ICT projects. From the findings, structures and systems do not exist within the government establishments. However, with creation of the

Ministry of ICT, there is a promise that the management systems and structures will be modified to ensure successful project implementation.

(vi) Staffing and skills: The Model points to the fact that most planners assume two things about staffing and skills: (a) that there is ongoing presence during and after implementation of the ICT projects a cadre of staff with strong IT and information systems skills. (b) that there will be a reduction of staff numbers since human intervention in many data-handling processes would no longer be required. From findings, staffs with relevant skills are not readily available and in most other cases, there is need for addition of new staff with relevant skills, but no other changes in large numbers of jobs within the Service.

The rational for identifying the listed components is based on the significant role of the components will affect the success of the failure of an ICT project, especially in Government systems. It is a model that planners for ICT projects in Government should use to address the challenges faced to exploit opportunities available. Using the Dimension model used in other work by [Vitalari 1988], we describe the key issues Government can consider to address the challenges identified.

5. RECOMMENDATIONS

As in every country, e-government in Uganda will require continued investments in services and technologies whose benefits are not always immediately apparent. As a result, the need for proper identification, evaluation and monitoring of e-government costs / benefits should be more emphasized. Assessing e-government benefits involves systematic pre-investment business cases for identified e-government project as well as sound post-implementation evaluations. Robust evaluation relies on the consistent use of best practices by government entities, for instance in the areas of business case development, performance evaluation, and risk management. Adoption of these practices is largely missing in the present strategy. Examining and evaluating e-government in Uganda will take some time. In the meanwhile, global best practices say that e-government can be expected to engender significant savings and/or cost reduction through effective process streamlining and improvement; the use of multiple access channels to make it easier for users to find and use government services; or the development of shared services, which reduces duplication and generates savings of scale.

Project planners within Ministries need to determine the course of action to address the challenges identified. Using the dimensional approach presented in Table 2, the gap on each dimension in terms of what is and what should be can be reduced. The approach assists planners to take remedial actions before government projects get out of control.

The Government of Uganda has an established Ministry of ICT mandated to promote ICT implementation in Uganda. The Government also has an E-Government Strategic Framework in place that will guide the process of computerization of Government functions. For these opportunities to be exploited, we recommend interventions in each dimension, derived from successful works [Garson, 2004]; Norris, 2005]:

(i) Undertake a professional requirements analysis in order to draw out true information needs of stakeholders.

(ii) Investigate ways in which government reforms could be delivered using the existing ICT infrastructure.

(iii) Avoid leading-edge technologies in initial designs.

(iv) Keep doing things the same way, only with the addition of some new technology.

(v) Avoid business process reengineering; instead, at most, look at optimization or minor modification of existing processes within the E-government application design.

(vi) Consider a two-stage approach: in the first stage, processes are optimised without any change to ICTs; in the second and later stage, new ICTs are brought in.

(vii) Use rewards to alter stakeholder objectives and values (e.g. messages of management support, better pay, better working conditions, career advancement, etc.).

(viii) Use punishments to alter stakeholder objectives and values (e.g. threats, reprimands, transfers, worsened pay and conditions, etc.).

(ix) Communicate with stakeholders about the system: sell the true benefits and address the true negative aspects.

(x) Get key stakeholders (those regarded as key opinion formers or those vociferous in their resistance to the e-government application) to participate in the analysis and/or design of the e-government application.
(xi) Base e-government application design on a consensus view of all main stakeholders.
(xii) If feasible in skill, time and motivational terms, get users to help develop and build the e-government applications.
(xiii) Outsource contracts in order to improve the current reality of available competencies
(xiv) Train staff to improve current reality of competencies.
(xv) Improve recruitment and retention techniques to reduce competency (staff) turnover.
(xvi) Make use of external consultants
(xvii) Hire new staff to expand the volume of current competencies.
(xviii) Use the established structures, especially institutions like Makerere University Faculty of Computing and IT which have specific programmes for ICT innovations and the Ministry of ICT to innovate and implement ICT Projects that hold promise for accelerating ICT development in Uganda
(xix) Prioritise e-government applications that maximise revenue generation for Government (e.g. those dealing with tax, fees, fines, etc).
(xx) Seek additional financing from donor or central government agencies.
(xxi) Get private firms to develop, own and operate the e-government application.
(xxii) Negotiate central/shared agency IT agreements to reduce hardware and software costs.

6. CONCLUSION

Our review of current programs revealed, in general, that the development and integration of ICT within the Government is uneven, with the lack of adequate resources to dedicate to ICT programs. Therefore, programs that enlist international donor organizations have been the primary catalyst for ICT penetration into the Government sector. Important critical success factors for e-Government in Uganda include:

(i) Sponsorship and buy-in from leadership at all levels in government
(ii) Availability of resources to the Ministry of ICT, for example budgetary support and existing ICT assets.
(iii) Availability of ICT and business skills needed to implement and manage e-government.
(iv) Productive cooperation among government entities in decision-making.
(v) Empowerments of the Program to secure “buy in” from other government entities.
(vi) Sustainability of the e-Government Strategy implementation despite political changes.

With the creation and activation of the ICT Ministry provides unified coordination and harmonization of these initiatives within one political and technical leadership will probably avoid the current duplication existing in both the Central and Local Government projects. The structure now in place, given the necessary authority and mandate should be fully capable of coordinating all of the appropriate governmental entities under a unified organizational structure that can effectively address cross cutting issues. To succeed, e-Government requires a major shift in public sector perspectives. Public entities must see citizens, businesses and other government entities as their customers and focus on needs of these customers. In other words, they must become more customer-centric. E-Government can also help change how citizens, businesses and employees see government. However, government must change first. To be truly customer-centric, the cultural and operational practices of government require fundamental transformation. A true service orientation must define everything it does, and it must be constantly results-driven in its execution.

REFERENCES

BRETSCHNEIDER, S. 1990. Management Information Systems in Public and Private Organizations: An Empirical Test. *Public Administration Review,* 50**,** 536 - 545.
CALDOW, J. 1999. The Quest for Electronic Government: A Defining Vision for E-Government. IBM Corporation.
DANZIGER, J. N. KRAEMER, K. L. 2006. *People and Computers*, New York, Columbia University Press.

DATANET K. N AND BLUMLER, J. G. (Ed.) (1987) *Wired Cities: Shaping the Future of Communications*, Boston, G.K. Hall.
GARSON, G. D. 2004. The Promise of Digital Government. *Digital Government Principles and Best Practices,* 2**,** 2-15.
NORRIS, D. F. MOON, M. J. 2005. Advancing E-government at the Grass Roots: Tortoise or Hare? *Public Administration Review,* 65**,** 64-75.
SECRETARIAT, E. 2005. East African Community Regional E-Government Framework. Arusha, East African Community Secretariat.
TECHNOBRAIN. 2004a. E-Readiness Assessment Report. Kampala, Ministry of Works, Housing and Communications.
TECHNOBRAIN. 2004b. The Uganda E-Government Strategy Report. Kampala, Ministry of Works, Housing and Communications.
TECHNOBRAIN. 2005. The National ICT Policy for Uganda: Implementation Framework. Kampala, Ministry of Works, Housing and Communications.
VITALARI, N. 1988. The Impact of Information Technology on Organizational Design and the Emergence of the Distributed Organization. *Public Policy Research Organization.* Irvine, University of California.