E-government Implementation in Zambia: Contributing factors

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Abstract
Most developing countries in Africa are at the emerging stage of e-government development and lag far behind developed nations despite having had national e-government strategies in place for a considerable period of time. This research argues that although Zambia has recognised the importance of e-government through their national ICT policy as a means to increase opportunities for wealth and create active participation in poverty reduction, the benefits of e-government are yet to be realised. The research explores the reality of e-government implementation in Zambia from the government’s perspective by identifying the challenges of e-government using survey research that combines both qualitative and quantitative data. The authors found that whilst challenges such as environmental issues, leadership, change management, human capital, funding and infrastructure are critical to the successful implementation of e-government in Zambia, there is little evidence to suggest that effort is being applied to counteract these challenges. The lack of context specific e-government programs since the approval of the national ICT policy in 2005 and the absence of marketing to promote e-government amongst policy-makers and government workers have rendered minimal awareness on the importance and value of e-government to Zambia.

Keywords: ICT, e-government, Zambia, implementation, challenges, stages

1 Introduction
The application of information and communications technologies (ICTs) is changing the way individuals, businesses and governments work and interact. Today governments worldwide are embracing ICTs particularly the internet, to streamline public sector structures and processes in order to provide citizens and businesses with better and easier access to government services (Weerakkody et al., 2007; UNPAN, 2004). While ICT has continued to have a direct influence in the area of decision support for public administration (Bhatnagar, 2000), with the introduction of e-government ICT is often seen as a benchmark for achieving efficiency and effectiveness in the public sector (Siau and Yuan, 2005; Fang, 2002). Within developing countries in particular, e-government has the potential to build stronger institutional capacity, offer a better service to citizens and businesses and decrease corruption by increasing transparency (Banerjee and Chau, 2004).

The challenge for governments however, has been to constantly embrace the opportunities that ICTs present and to meet the public needs and expectations whilst being cost
effective (Bertucci, 2006). Whereas the private sector has harnessed the internet to transform its value-chain, governments have not exploited the opportunities at the same rate due to implementation challenges and inflexible structures that are not ready to accommodate the change (Montagna, 2005; Weerakkody et al., 2006). E-government challenges have been discussed by many researchers (UNPAN and ASPA, 2001; Chen and Knepper, 2005; Banerjee and Chau, 2004; Chen et al., 2005; Weerakkody and Choudrie, 2005; Weerakkody and Karunananda, 2006). The findings in these studies show that the degree to which governments offer online services differ across regions in the world depending on the country’s social, political and economic composition.

In developing countries, the implementation of public information systems has encountered numerous challenges resulting in a poor success record (Qureshi, 2005; Karunananda and Weerakkody, 2006). This suggests that a problem exists which needs attention by key stakeholders and other interested parties, whether from academic or professional viewpoint, in the application of information technology (IT) in the public sector.

Like most developing countries, Zambia has devised plans to implement e-government on a full scale; from a practical and critical viewpoint these plans can be viewed as rather ambitious. The e-government drive in Zambia began with the approval of the National ICT Policy by the Cabinet in 2005. The Policy document outlines the e-government vision and strategy. Although the drive to implement e-government differs from country to country, the stages of e-government development (see for instance Layne and Lee, 2001) and some implementation challenges that have been encountered in developed countries could be similar to those faced by developing countries (Karunananda and Weerakkody, 2006) and Zambia is no exception. It is this focus of identifying e-government implementation challenges already experienced by other developing countries and those that may be specific to the Zambian context which has motivated the authors to undertake this research, with the view of replicating some good practices thereby contributing to the e-government knowledge and development efforts in Zambia and the wider African region.

A common argument that surfaces from this discussion is that e-government can potentially avail opportunities to developing countries (Ndou, 2004; Karunananda and Weerakkody, 2006) by providing basic information through websites to a level of enabling web-based interaction and even permitting citizens and businesses to participate in formulation of government policies, and regulations using the internet (Banerjee and Chau, 2004; Layne and Lee, 2001). However, considering that Zambia is a poor country with limited financial resources, undertaking transformational projects like e-government would then require a strategic approach so that the investments in e-government projects are not under utilised but rather fully exploited to assist government in presenting these opportunities. This debate then guides us to a question; what e-government implementation challenges does Zambia face and what lessons can it learn from other pioneering developing countries’ experiences of successfully implementing e-government initiatives? Why has it taken Zambia so long to implement e-government despite a national e-government strategy being in place?

Keeping the aforementioned discussion in mind, the aim of this research therefore is to examine the stages of e-government development and key implementation challenges that may influence the successful implementation of e-government in Zambia. In order to achieve the above aim, the following objectives were undertaken: a) conduct a literature
review on the stages of e-government development and implementation challenges in developing countries with a view of identifying appropriate practices for the successful implementation of e-government in Zambia – the results of this activity is outlined in the next section; b) explore issues relating to e-government implementation by administering survey questionnaires to the policy-makers and government workers in Zambia – the results of this exercise is presented in section 4 of the paper; and c) develop a framework with a set of guidelines suggesting strategies that support e-government development in Zambia – this is discussed in section 5 of the paper. The method of research used for this study is outlined in section 3 of the paper while the final section (6) summarised the main research findings, contributions and future research directions.

2. Research Context: E-Government Implementation Efforts in Developing Countries

The focus on e-government today has shifted from the technical aspect of IT to strategy, process change, organisational adaptability, political leadership and support and more importantly, the ability for citizens to access government services; the success factors that frequently lacked in earlier projects (Grönlund et al., 2005). Yet despite focusing on these themes and accompanying heavy investment in e-government projects, most developing countries, including Zambia, lag far behind their counterparts in developed nations. Regrettably, research has shown that most IT innovations in government take place on the surface of operations and processes that are straightforward and tend to leave ineffective organisational structures intact (Fountain, 2001; Weerakkody et al., 2007). The underlying reason is that most change in e-government initiatives has been approached from technical and economical perspective rather than a socio-technical one (Karunananda and Weerakkody, 2006, Choudry and Weerakkody, 2007). This approach to e-government may succeed in creating the appropriate systems but often lacks the motivational and knowledge state which otherwise enables users to fully exploit the technical capabilities (Beynon-Davies, 2002). E-government is more than the IT technical aspect; governments should create significant transformation taking into consideration the limitations and difficulties from organisational, institutional, political, cultural and required resources point of view (Gil-García and Pardo 2005; Weerakoddy and Choudrie, 2005; Montagna, 2005; Ndou, 2004; and Fang, 2002).

The Zambian Government approved its national ICT Policy in which the e-government strategy is incorporated; this hopes to integrate the solutions of developmental challenges within an overall national ICT vision (National ICT policy, 2005). Despite the well outlined e-government strategy, Zambia has not progressed much in its e-government efforts. More specifically, the UNPAN, (2004); UNPAN, (2005); and West, (2004) survey reports rated Zambia as “no online presence”, meaning that there is no specific national e-government website in Zambia. Current research suggest that e-government can facilitate change and make administrative processes more efficient, thereby improving access to useful information, government services and presenting new openings to participate in political process by citizens and businesses (Yittersad and Watson, 1996; Weerakkody et al., 2007; infoDEV and CDT, 2002). Therefore, by understanding what is involved in e-government implementation and taking necessary steps (Grönlund et al., 2005), the impact of successful e-government implementation from a Zambian perspective would be the reduction of developmental divide and consequently increasing the chances of improving the quality of life for Zambian citizens. Therefore, the overall aim of this research is to explore how e-government programs can be successfully implemented from the government’s side, by examining the stages of development and identifying the main
challenges involved in e-government implementation particularly in a Zambian context.

Like most IT projects, e-government initiatives do not only require time (Grönlund et al., 2005) but more importantly, they need to deal with numerous issues related to implementation challenges such as strategy formulation, political, social, economical, organizational change management, legal framework, skills and technical infrastructure (Heeks, 2003; Fountain, 2001; Gil-García and Pardo 2005; Bhatnagar, 2004; Fang, 2002; Ndou, 2004; and Weerakkody and Choudrie, 2005). Based on previous work in this field and on empirical findings, this research not only identifies the challenges that obstruct e-government implementation, but also examines case examples of successful e-government from pioneering developing countries such as Brazil, Guatemala, Argentina, Philippines and India. The rationale for doing this is because Zambia faces similar geographical and socio-economic diversity like these countries. The Commonwealth Centre for Electronic Governance (CCEG, 2002) argued that countries implementing e-governments can only know what is feasible not only through their own internal experiences but also by looking out for examples of both successes and failures from other experiences so that good practices as well as bad practices could be identified. Zambia can draw lessons from these experiences and avoid failures that cost money, time and resources. Therefore, as outlined before this research focuses on the stages of development and the core challenges to e-government implementation from the Zambian government’s perspective.

2.1 A Conceptual Model for Examining the Implementation Challenges of E-Government

Although in the confines of this paper it is futile to attempt the formulation of a detailed conceptual model of e-government implementation challenges, this section nevertheless aims to outline some key challenges to e-government implementation from a developing country’s government perspective. We cite some case examples from developing countries to illustrate how these countries counteracted key challenges in their e-government implementation efforts. Table 1 is adopted from the work of Gil-García and Pardo (2005) and outlines the key challenge category and description of the associated challenges facing e-government implementation in developing countries.

The literature in particular suggests that in order to successfully implement e-government, a systematic and well defined approach is needed for e-government projects to impact positively on the beneficiaries; successful e-government is more than choosing the right technology but also taking into account, the organisational capability, institutional, regulatory constraints, political, social, environmental cultural challenges as well as the required human resources (Gil-García and Pardo 2005; Montagna, 2005; and Banerjee and Chau, 2004; Weerakkody and Choudrie, 2005).

Despite the numerous challenges discussed above, a few pioneering developing countries have shown that some e-government services can be successfully implemented and Zambia can emulate some of these countries (CCEG, 2002). A selected number of successful e-government implementation case studies indicating the application, the focus, accrued benefits and how the challenges were counteracted were reviewed and are presented in table 2. The cited examples are from developing countries and therefore relevant to Zambia in that lessons can be learned by examining some cases in detail and good practices replicated. For instance, the examples of CARD in India and Online Tax Administration in Guatemala (in table 2) can further be explored by the Zambia government to implement fully fledged land and deeds registration and revenue
administration e-government systems to benefit both the citizens and the government itself.
### Table 1: Conceptual Framework for E-Government Implementation Challenges in Developing Countries

<table>
<thead>
<tr>
<th>Challenge category</th>
<th>Challenges</th>
<th>Literature</th>
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<tbody>
<tr>
<td>Technological Infrastructure</td>
<td>Issues of use and ease of use are vital factors to consider; Technological incompatibility, complexity, newness of technology; Lack of IT technical skills and experience and security issues are some challenges that can potentially affect e-government development.</td>
<td>Beynon-Davis, 2002; Chen and Knepper, 2005; Gil-Garcia and Pardo (2005); Basu, 2004</td>
</tr>
<tr>
<td>Partnership and collaboration</td>
<td>Lack of sense of ownership by partners and misunderstandings between the needs of government and capability of private sector to deliver may sometimes lead to e-government project failures.</td>
<td>Holmes, 2003; InfoDEV and CDT, 2002.</td>
</tr>
<tr>
<td>Strategy</td>
<td>Lack of strategic e-business plan for government to factor in the internet integration of services across agencies; Lack of explicit context e-government strategy specific to a country; Project over scoping and unrealistic goals; Lack of alignment of organizational goals and the project; Lack of prioritising and incorporating citizens’ pressing needs in e-government strategy; Lack of rationale on which application is built.</td>
<td>Holmes, 2003; Ndou, 2004; Bertucci, 2004; UNPAN, 2004; Bhatnagar, 2004; PCIP, 2002; Heeks, 2003; Weerakkody et al., 2007b</td>
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<tr>
<td>Institutional and environmental</td>
<td>Belief that failure to achieve intended change reflects a failure in technology; The issue of independency and autonomy units can hinder efforts to use technology to integrate or share information across multiple agencies; External pressure including policies and politics can also affect outcomes of e-government initiatives</td>
<td>Brown and Brudney, 2003; Edmiston, 2003; Dawes and Pardo, 2002 and Banerjee and Chau, 2004</td>
</tr>
<tr>
<td>Human capital development</td>
<td>Lack of skills and in-house expertise necessary not only to understand e-government strategies but to maintain the new electronic services; Lack of hybrid human capacities needed in e-government initiatives: technological, management and commercial.</td>
<td>Grönlund et al., 2005; and Ndou, 2004.</td>
</tr>
<tr>
<td>Change management</td>
<td>Diversity of users in organisations involved pose huge challenges; Changing employees’ attitudes and behavior towards citizens; Resistance to change; Internal conflicts; Hierarchical bureaucratic structures; E-government systems are viewed as threats to jobs; Lack of marketing e-government to public employees</td>
<td>Brown and Brudney, 2003; Kaaya, 2004; Heeks, 2003 Edmiston, 2003 and Scholl, 2005; Weerakkody et al., 2006</td>
</tr>
<tr>
<td>Leadership role</td>
<td>Lack of long term commitment and strong political leadership to champion change in e-government; Lack of understanding of technology by the elected leaders of a country; Lack of appointed leaders with private sector experience to lead e-government initiatives.</td>
<td>Grönlund et al., 2005; InfoDEV and CDT, 2002; Jupp, 2003; Edmiston, 2003; Weerakkody et al., 2007b</td>
</tr>
<tr>
<td>Legal/Legislation framework</td>
<td>Absence of e-government legal framework; Restrictive laws are obstacles to e-government implementation; Security and privacy related issues need to be sufficiently addressed to permit online transactions; One year budget by most governments is not adequate to support long-term e-government projects and this can be a threat to the initiative.</td>
<td>Brown and Brudney, 2003 and Edmiston, 2003; West, 2004; PCIP, 2002; Warkentin, 2002; Dawes and Pardo, 2002; Hilier and Bélanger, 2001</td>
</tr>
</tbody>
</table>
Table 2 Examples of Successful E-government Projects from Pioneering Developing Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Application</th>
<th>Examples and focus</th>
<th>Benefits</th>
<th>Strategy to overcome implementation challenges</th>
<th>Source</th>
</tr>
</thead>
</table>
| India   | Transparency and efficiency      | VOICE: (Vijaywada Online Information Centre). VOICE is a joint venture between federal and Andhra Pradesh state government agencies, the municipal government and a software development company. It delivers municipal services such as construction approvals, property taxes, birth and death certificates using kiosks stationed closer to citizens. Demonstrates how partnership can assist in e-government programs. | ➢ Convenient access to services;  
➢ Reduced corruption;  
➢ Efficient services: municipal is more responsive;  
➢ Transparency (citizens can view municipal budget provision online) | ➢ Resistance to change was reduced by holding regular performance review meetings to make officers accountable.  
➢ Systems requirements gap between the users and developers was minimised by a number of meetings during the development phase;  
➢ Data entry for database creation which was found to be huge task by internal staff was outsourced, but monitored very closely;  
➢ Training was provided to staff that would interact with different modules of the system after implementation. | Veldanda, 2004 |
| India   | Transparency and efficiency      | CARD: (Computer aided Registration of Deeds) Land registration computerisation in Andhra Pradesh. Demonstrates the importance of focusing on measurable goals. | ➢ Reduced land registration processing time to ten minutes;  
➢Introduced transparency;  
➢ Revenue generation to most rural farming community.  
➢ Public pressure on government to replicate similar transformations to other areas. | ➢ Project was divided into nine major tasks and sixty-four sub-tasks to carry out extensive re-engineering process for the amended Registration Act;  
➢ Employee training conducted by a private sector company in different categories to use new technologies effectively;  
➢ Staff motivation increased through workshops and special training camps, no external technical personnel recruited;  
➢ Change management;  
➢ Entering of complex encumbrance certificates (ECs) data to clear huge backlog was outsourced to five companies. | Bhatnagar, 2004 |
| Guatemala| Online Tax Administration        | Guatemala’s BancaSAT system – is an online tax filing and payment system which accounts for over 90 per cent tax revenues. | ➢ Increased tax revenue collected through BancaSAT  
➢ Reduced transaction costs for both citizens and government  
➢ Enhanced efficiency of administration processes  
➢ Improved quality of the data handled.  
➢ Provides convenient access to services. | ➢ The banks resolved the challenge of lack of internet connections by individuals by deploying computers in all their branches to allow individuals to file tax online.  
➢ To avoid sustainability problems as well as encourage knowledge transfer, a project team comprising national and international staff was formed.  
➢ To overcome resistance to change from public administration and tax payers, all stakeholders were involved through series of meetings to explain the objectives and benefits of the new online system.  
➢ In order to obtain approval of the new legal framework for electronic tax filing, | Bhatnagar 2004 |
transactions filing and overcome resistance, intensive consultations, including presentations of how these systems worked in other countries, between SAT and Ministry of Finance.

<table>
<thead>
<tr>
<th>Country</th>
<th>Key Points</th>
<th>Notes</th>
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<tbody>
<tr>
<td><strong>Columbia</strong></td>
<td>Empowerment through information</td>
<td>Columbia’s government portal – the gateway presents public information more readily to citizens making government more accountable. This case demonstrates how strong leadership can help achieve results in e-government initiatives.</td>
</tr>
<tr>
<td><strong>Argentina</strong></td>
<td>Transparency and corruption</td>
<td>CRISTAL: a tool for transparent government in Argentina – Government’s initiative to disseminate information online on the usage and management of public funds.</td>
</tr>
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</table>

Table 2 Examples of Successful E-government Projects from Pioneering Developing Countries.
3. Research Design

The research approach used in this study was based on collecting both primary and secondary data. The secondary data was gathered through a literature review of key challenges that affect e-government development in developing countries and also from documented publications on e-government trends in Zambia. The primary data was collected through a survey based questionnaire of policy-makers in senior and middle level rankings as well as operational level government workers at different ministries in Zambia. As Cooper and Schindler (2001) suggest primary sources of data are original sources of raw data without verdict that represent an official opinion or position; this was particularly vital for this research as there is little published research on e-government efforts in Zambia. The research also combined both qualitative and quantitative data (Creswell, 1994; Yinn, 2001; Saunders et al., 2002; Neuman, 2003) as sections of the questionnaire used were open ended and was focused on gathering qualitative data. However, because of the relatively small number of questionnaires administered any formal hypothesis testing was not feasible. Yet, the issues covered in the questionnaires were based on literature and provided the basis on which to propose a framework, make conclusions and suggest future work.

3.1 Development and Validation of Survey Questionnaire

As stated above, the questionnaire included a combination of open-ended and closed questions to allow gathering of qualitative and quantitative data. Open-ended questions do not restrict the respondent’s opinions to predetermined categories (Wilson, 1996) whilst closed questions offer a number of optional answers from which a respondent is requested to select and are often quicker and easier to answer (Saunders et al., 2002). The questionnaire for professionals working on e-government consisted of 15 questions, whilst a modified version with nine questions was used for general public sector workers. The questions covered issues ranging from strategy approach, challenges being encountered, programs already in place and the current development stages of e-government among others. The themes in the questionnaires were drawn from review of literature and government documents to provide inputs necessary to answer the research question and infer conclusions and suggest future direction for e-government development in Zambia.

After the questionnaires were designed a pilot testing was done using two e-government researchers to establish the face validity, improve questions, scales and to test respondents’ comprehension and clarity (Creswell, 1994; Punch, 2003; Saunders et al., 2002). After the pilot test and minor changes to the questionnaires, the process of administering the questionnaire commenced.

To maximum responses and obtain credible data for this research, initial contacts with the policy-makers of e-government in Zambian was made through e-mail and telephone and followed up with a letter of introduction to the Permanent Secretary, Management Development Division at the Cabinet Office in Zambia. This was vital to facilitate with the identification of ministries or agencies actively involved in e-government implementation in Zambia. The letter also explained who the researchers were, the purpose of the research and why it was important to identify the respondents for this research.
3.2 Administering and Follow-up of Questionnaires

A total of 12 questionnaires were administered to a cross section of officials working on e-government projects and identified through the office mentioned above. A three-step procedure i.e. initial mailing to contact government officials, delivering of questionnaires to respondents and follow ups as reminders to complete and collect the questionnaires, was taken in the process of data collection as suggested by Creswell (1994) and Saunders et al., (2002).

Only ten completed responses were received. Four of these questionnaires were completed by policy-makers in senior and middle management rankings from two different Ministries and one local government authority and the remaining six were completed by operational level government workers from six Ministries.

The use of ten completed questionnaires in this research was adequate since e-government is only embryonic and currently on a pilot basis in Zambia. Also, the focus of questionnaire administration was on a selected number of ministries actively involved in e-government and the questionnaires used qualitative data to reveal deeper issues and understand and explain phenomenon (Creswell, 1994; Saunders et al., 2002 and Neuman 2003). Therefore, the data collected represents a realistic picture of the current state of e-government in Zambia.

4. Research Findings

This section describes the research findings; i.e. the scenario and challenges of e-government development in the Zambian context from an e-government policy makers as well as public sector workers’ perspective.

4.1 Policy-Makers’ E-government Perspective

Out of the total of ten survey respondents, four were policy-makers. The responses in the questionnaires from the ministries/agencies disclosed different views on key e-government themes and the extent of impact each challenge obstructing e-government development had in Zambia. The key issues of interest are summarised below.

E-government Strategy Approach and Priority

Three respondents stated that government was taking a decentralised approach to e-government strategy as outlined in the National ICT Policy and that government-to-citizen (G2C) service delivery was the highest priority for Zambia. Interestingly one responded that government was taking a centralised approach to strategy and the priority for e-government was government-to-business (G2B) service delivery.

Incorporation of E-government Strategy in the National ICT Policy

Three ministries stated that by incorporating e-government strategy in the national ICT policy, it would help the government to implement several initiatives aimed at improving public service management and enhance efficiency, transparency and accountability in the service delivery process to Zambian citizens. One stated that: “E-government has been identified as a key strategy that would help government to enhance efficiency and effectiveness.” One policy-maker however mentioned that the basis of e-government was the availability of ICTs and hence it needed more support through the national ICT policy.
E-government Implementation Teams

On the subject of e-government implementation teams, one respondent mentioned that a team has been instituted and coordinated by a Special e-government unit, whilst one stated that it is being implemented by the Ministry of Communications and Transport. Surprisingly, two respondents from the same ministry gave different data: “E-government implementation was being implemented by Cabinet office through the deputy secretary to the cabinet (Finance and Economic Development)” whilst the other stated that “The project is still at pilot inception stage with a committee to steer its implementation under the Management Development Division.”

Funding Constraints and Existence of Intranets

All four respondents acknowledged that there was limited funding coming from central government and acknowledged that other support was provided by donors. On the existence of an official national e-government website, three respondents confirmed its non-existence but one stated otherwise and referred to www.statehouse.gov.zm. Two ministries mentioned that their departments have intranets while the others stated that work was under progress and nothing existed (at the time of this research in June 06). Of the four respondents, only one indicated that their ministry was interconnected with other ministries over a Wide Area Network (WAN).

E-government Programs and Progress Made

Three respondents stated that government has not yet put e-government programs in place because the e-government implementation technical team has just been instituted (at the time of this research in June 06). “Zambia is still grappling with introducing an ICT policy. Any programs that may exist now are at most artificial due to lack of guiding policy.” However, one respondent mentioned that government has made progress in computerising the Zambia Revenue Authority (ZRA) responsible for tax and duty collection.

Measures to Encourage Citizens to Access Online Government Services

All the respondents stated that no specific measures have been instituted yet to encourage the public to access government services using the internet and also no deliberate initiatives are currently in place to broaden internet access. One of the respondents revealed that government recently lowered excise duty on computers and related accessories. This respondent stated that “there are plans to establish a rural ICT fund with awareness programmes being undertaken to reach the citizens through the media and educational institutions and programs.”

E-government Stage and Benefits to Citizens and Government

Three respondents acknowledged that e-government in Zambia has not yet benefited the citizens for simple reason that it is still in its very early stages. However, one official stated that some websites implemented by government agencies do provide online information to the public, for instance, ZRA on tax and duty regulations, Times of Zambia on news pertaining to the nation, and that citizens can also access their digitalised land applications for planning permissions at the council. On the benefits of e-government to government, three officials mentioned that the few computerisations that have taken place in certain agencies have improved efficiency and is helping government to clear the mistrust perception by communities. Nevertheless all four respondents stated that e-government in Zambia is at a cataloguing (static web pages) stage (see Layne and Lee,
2001 for stages of e-government growth).

Each official surveyed gave a different opinion on the impact of the e-government challenges identified in table 1 in the Zambian context as depicted in figure 1. As outlined in table 1 the challenges spanned wider themes from leadership, coordination, technological infrastructure, change management, human capital to legal framework.

4.2 Government Workers’ Perspective of E-government in Zambia

Out of the six questionnaires that were distributed to government workers potentially affected by the status of e-government implementation in their respective ministries, all were usable. The key themes from the findings are summarised in the following sections.

Priority of E-government Implementation and Existence of Intranets

Interestingly, all six workers responded that government priority should be government-to-citizen service delivery. They all stated that Zambia does not have a national e-government website. Five of the six respondents mentioned that their departments have Local Area Networks (LANs). Where the LANs existed, two pointed that they were linked to other towns over a WAN due to the nature of their work whilst the other three LANs were not interlinked. As one respondent stated:

Marketing of the E-government Concept Among Government Employees

Although the two ministries connected over the WAN stated that they benefited from a practical point of view, the concept of e-government was through self-marketing and they could not remember any manager explicitly mentioning the topic to them. Unsurprisingly, the other four respondents also mentioned that they have only just read about e-
government in the electronic and print media and have no knowledge of it. One of the
respondents did even mention that: “the people entrusted with this responsibility of
implementing e-government projects are not working on it.” Other remarks commonly
made were lack of communication between the IT managers and other workers.

E-government Programs and Measures taken to Encourage the Public to Access Online
Government Services and Benefits

Five respondents showed ignorance on e-government programs that have been put in
place, and one mentioned the computerisation of national traffic records as being one of
the programs. All six respondents stated that government has done little to encourage
citizens to access government services using the internet. On whether citizens have
benefited from e-government, five respondents mentioned that in Zambia, the benefits of
e-government have never been enjoyed by citizens because in the first place there are no
services offered on this basis. However, one respondent stated that citizens can access
their motor vehicle details from any local centre as opposed to travelling to the central
registrar of motor vehicles. The six were not aware of any benefits accrued to
government considering that they have never been communicated to regarding the e-
government initiative in Zambia. Nevertheless, one stated that: “government may have
benefited from e-government in one way or another but this is not known to employees.”

Impact of Challenges Obstructing E-government Development

All six respondents gave varying opinions on what challenges had greater impact on e-
government development in Zambia. However, what is surprising is that what they
perceived as more critical to e-government implementation was almost consistent as
opposed to the policy-makers. For instance, their responses show that environmental
issues were of low impact compared to leadership, change management and the need for a
legal framework. Figure 2 shows the responses from the government workers’ perspective.

Figure 2: Impact of e-government Challenges from Government Workers’ Perspective

(Scale: 1 = Low impact 6 = High impact)
5. A Framework for E-government Implementation in the Zambian Context

In this section we summarise the survey findings and present a high level categorisation of the key issues influencing e-government implementation in Zambia from a literature (conceptual) as well as empirical perspective.

For e-government to be successful, policy-makers and practitioners need to be aware of the development stages and challenges earlier discussed and apply suitable strategies to cope with them. A set of issues derived from themes in literature (Chen et al., 2006; Banerjee and Chau, 2004; Bhatnagar, 2004; Weerakkody and Karunananda, 2006) and empirical findings were identified and categorised among others as factors influencing successful e-government implementation in Zambia. These are synthesised to suggest a set of guidelines in the form of a framework. The guidelines suggested for the framework are plans to counteract the complex challenges that prevail and obstruct the implementation process of e-government in Zambia.

The purpose of this framework is to present simple but concrete guidelines that would enable policy-makers in Zambia to successfully implement e-government initiatives by taking into account factors such as environment, culture, resources and infrastructure. The framework will provide an opportunity to apply appropriate solutions to a particular e-government initiative thereby facilitating a consistent and methodical e-government development.

The factors are construed by leadership and featured into the implementation process of e-government strategies and the implementation outcome of e-government strategies evaluated by balancing the risk and value in selecting projects (see figure 3). This framework implies that in Zambia, the environmental factors may influence the availability of resources and this will have a direct effect on the infrastructure availability. When these factors are present, in whatever form, consideration of cultural factors such as organisational culture and social norms within government will be critical since these are key to sustaining long-term success of e-government systems. The following section describes the components of the proposed framework.

5.1 Leadership

What is apparent in this research is that strong leadership (Grönlund et al., 2005; Jupp, 2003; Edmiston, 2003; Weerakkody et al., 2006a) in e-government is the driving force to addressing most challenges and as the framework depicts, it permeates in all the factors influencing e-government implementation. Leadership provided by a senior political figurehead or groups with a strong mandate and power to commit the required resources would to a large extent support e-government implementation as opposed to support from a single Ministry. For example, strong leadership will ensure policies that accelerate e-government implementation such as government-private sector partnership, government employee incentives and sponsorships from external sources.

5.2 Environmental factors

Zambia is a developing country with limited resources, and therefore environmental factors such as political, social and economic issues become very critical when allocating
resources for the e-government initiatives.

**Political**

Generally, political influence in developing countries can have a serious effect on the development of e-government and should be given due consideration when formulating e-government strategies (West, 2004; Weerakkody and Choudrie, 2005). For example, Zambia is a multi-party democracy state with many opposition parties being key stakeholders of e-government. Therefore, their involvement in e-government plans and projects would make it easier when allocating resources and developing the related e-government infrastructure.

![Diagram of Framework for E-government Implementation in the Zambia Context](image)

**Social**

The social structure in Zambia should determine how the e-government is implemented by allowing participation of the public to guide the process so that priorities are identified and relevant programs undertaken. In Zambia, the social gap between the few elite and the poor majority is large and these few may influence the direction of e-government as they have the means to participate in the process within the stipulated time frame. Government should institute deliberate programs that would allow even the underserved areas to provide inputs to revised e-government strategies. For example, conducting citizens’ surveys, extensive educational campaigns in schools, hospitals and public places would be one way of addressing this social imbalance when considering e-government.
The economic status of Zambia is poor and as such government has prioritised G2B projects that generate revenue. For example, the Zambia Revenue Authority and Traffic Record and licensing systems have been considered for e-government at the expense of other services which may be perceived as low risk-low value such as the national e-government website for dissemination of basic information to citizens. When undertaking e-government initiatives, the outcome however should not necessarily depend on the calculated economic value to be realised because doing so will potentially be defeating the national development and poverty reduction agenda through the use of e-government as stated in the national e-government policy. For example, by encouraging e-government projects that help farmers will implicitly be contributing to economic wellbeing of citizens and the country at large.

5.3 Resource Factors

Being a developing country, the level of financial as well as human capital related resources that can be afforded for e-government related work in Zambia is limited.

Funding

Funding of e-government projects would therefore need justification and approval on annual basis since the Zambian government operates on a budget that is allocated annually mostly for short term projects. As a result, e-government will be competing with other services related to development such health, education, housing and so forth. However, the premise of e-government is that it supports governments to minimise operational expenditure and efficiently deliver services in cheaper ways (Siau and Yuan, 2005; Fang, 2002; Weerakkody et al., 2006b). Therefore, it is important to establish a consistent funding mechanism from the Zambian government perspective as donor funding can only supplement government efforts.

Human Capital

Human capital with the skills and capability to interpret, plan, install, and maintain e-government is critical for its success as it is largely an ICT driven concept. However, the temptation for skilled manpower to shift from public sector to highly paying private companies is already prevalent in Zambia and has resulted in a void in the public sector IT human capital. Since this is a persistent problem in Zambia, government needs to focus on how to recruit and retain personnel with skills to support e-government. For example, by rewarding workers and providing incentives to ministries/agencies that successfully accomplishes e-government projects and encouraging those willing to pursue their careers for new skills would be one way of retaining this critical factor.

HIV and AIDS Epidemic

This natural calamity has not spared any part of the Zambian society and the public sector is no exemption. The Zambian government needs to step up the already existing awareness campaigns in workplaces to educate staff on the effects of HIV and AIDS so that it does not naturally present a problem to the few skilled manpower needed to successfully implement e-government in Zambia. E-government can be an efficient medium for reaching out to those who have access to computers, such as public sector
workers.

5.4 Infrastructure Factors

Economic constraints are a naturally impeding factor on a developing country’s infrastructure capabilities (Weerakkody and Karunananda, 2006). In Zambia it was found that e-government was impeded by lack of ICT connectivity and software services which were a direct result of poor infrastructure capabilities.

Connectivity

Today, the ubiquitous of modern computing equipment in government departments or agencies is apparent, though in most cases these operate in stand-alone modes. The Zambian governments needs to focus on building Local Area Networks (LANs) which in recent years have become cheaper to connect adjacent government departments. Government can utilise semi-automated systems to disseminate information such as extensive usage of radio and television network as a starting point especially to benefit the rural areas.

Partnership

Private companies such as banks, mobile and internet providers particularly in Zambia have built telecommunications infrastructure and penetrated even the remotest areas, previously underserved by government telecommunication companies using WANs. Working in partnership with private sector would not only aid in enabling the sharing of basic information among different public agencies but is also one way government can quickly learn how to apply e-business principles in e-government projects.

Software services

This aspect relates to the online services offered in the G2C, G2B and G2G scenarios. The services could range from government-citizen relationship improvement, to reducing transactional costs, improving internal efficiency and enhancing cooperation and collaboration between various government levels. Strategically identified locations can use kiosks (Veldanda, 2004) where local communities, especially the rural areas of Zambia, could be assisted by trained government officials to obtain basic services on these interactive software service machines.

5.5 Cultural Factors

Cultural issues are a strong influence on any organisational change related initiative (Avgerou, 1993; Walsham, 1988) and e-government efforts in Zambia was no exception.

Organisation change

Essentially, e-government systems will enable a cultural change in government where data would be available across departmental boundaries in all government ministries and agencies. As noted in literature, an organisation culture with bureaucratic practices learned through interaction at workplace and deeply rooted due to long years of certain working habits, needs to change because they can potentially frustrate e-government implementation in Zambia.

National Culture

In order to promote a culture that recognises e-government as a developmental tool,
Zambia needs to identify itself with a national working culture which can be traced back to values and attitudes learned in early youth, family relationship and neighbourhood interaction (for instance see Hofstede et al., 1990), all of which encourage working towards one goal for the benefit of the community. A national culture of this nature, if observed at work places, would override the organisational bureaucratic culture which is mostly firmed by hierarchy and professional identification that in most cases suppress progress (Avgerou 1993; Weerakkody 2002).

**Resistance to Change**

The implementation of e-government systems may frequently be met with resistance in government, especially to individuals or subcultures that perceive it as a threat rather than a challenge. Learning new ways of working demands patience and strategy as most workers are used to conventional methods of working deeply rooted over a period of time (Avgerou 1993; Weerakkody, 2002). To deal with this common problem, staff training and education to explain why e-government is critical should be primary concern of the policy-makers in Zambia at every level of government.

**5.6 Implementation Outcome of E-government Strategies: Balancing Risk and Value when Selecting Projects**

The outcome of the implementation processes of e-government strategies would be the balancing of risks and value in the projects to be implemented. Bhatnagar, (2004) proposed that prioritising projects has been good practice by early adopters of e-government. These range from low-risk low-value, for example, publishing e-government information on websites, to low-risk high-value, for example, providing services and forms online and high-risk high-value, for instance, full implementation of the public key infrastructure which can support online transactions projects as depicted in the framework. Therefore, practitioners must be aware that the Risk/Value relationship tends to obey Layne and Lee (2001) stages of e-government development.

Although the priorities of e-government strategy differ from each country, starting with low-risk low-value, that is establishing a national e-government website where the public can be informed of government services, similar to the cataloguing stage [suggested by Layne and Lee (2001)] could be good practice in the Zambian context before moving to more complex strategies. Therefore, undertaking high-risk low-value projects should be avoided at all costs in developing economies such as Zambia.

**6. CONCLUSIONS**

This research was aimed at understanding the reality of e-government implementation in Zambia by focusing on the development stages and key challenges of e-government from the government’s side as a starting point. Literature review and review of published documents that examined the stages of e-government development, types and challenges faced by developing countries was conducted. Previous studies in developing countries on how they resolved e-government challenges were also studied to draw lessons from their experiences. Despite e-government being a new concept in Zambia however, the e-government situation in Zambia was presented by using the few documented articles and publications currently available. Questionnaires were used to gather both qualitative and quantitative data from the government ministries/agencies and policy-makers currently involved in e-government activities as well as government workers involved in e-
government in Zambia.

In Zambia, the national ICT strategy recognises e-government as one of the methods that government can utilise to help alleviate poverty and enhance national development; however, the empirical finding in this research does not reflect this aspect at present. This research found that despite the existence of the e-government strategy in the national ICT policy in Zambia, this is not being enforced and little has been done to embark on e-government implementation due to inadequate steps taken by government since its inception in 2005. The research findings also suggest that the major contributing factors are lack of coordination and awareness of e-government among policy-makers as well as unreliable funding from government. It was found that the few isolated computerisations that have taken place are at most donor funded and this is what is being referred to as e-government in Zambia. As suggested from the case examples from other developing countries (table 2), the policy-makers critically need to embark on marketing the concept and importance of e-government to government workers at all levels so that there is a common understanding to pursue the national vision for e-government. All the successful examples of e-government presented in table 2 show that the role of government employees was critical to their success and Zambia can learn some lessons in this regard.

Despite e-government status in Zambia being “no online presence” (UNPAN, 2005; West, 2004) and confirmed by empirical findings, indications to realise the potential benefits of e-government and the commitment of resources in order for e-government to be of developmental value to Zambia is still lacking. However, the two programs, tax collection and road traffic records implemented in Zambia and the case examples from other developing countries, should provide learning experience for Zambia since lessons of failures and successes in their implementation efforts could be learned for good practices (Lilrank, 1995; Karunanada and Weerakkody, 2006). It can further be stated that the practitioners of e-government in Zambia would need to understand the stages of e-government development models similar to one proposed by Layne and Lee (2001) to effectively and successfully implement e-government. Although the policy-makers stated that Zambia is in cataloguing stage (as in Layne and Lee, 2001), evidence does not support this considering that even the negligible e-government programs currently in place are operating in isolation and worse still the country does not have a national e-government website.

Furthermore, although the e-government strategy has been made public through the national ICT policy, there is serious lack of awareness among policy-makers and government officials. This could easily be inferred from the degree of variations in the data that was gathered on certain themes and challenges; the critically needed coordination among policy-makers and practitioners appeared lacking.

6.1 Research Contributions

The contribution from this research is to help future research on e-government projects to substantiate the implementation challenges so that appropriate strategies could be applied in Zambia. It should be noted however that the strategies stated here can be improved on as challenges and demands on e-government change with time.

This research argued that the challenges of e-government were a complex nature of social, economic, leadership and resources rather than technology. The proposed framework in
section 5 has been derived from elements of previous research work and empirical findings to practically assist those implementing e-government or those interested in understanding how e-government factors can be interpreted by leadership to seek appropriate solutions. The strategies in the framework are not exhaustive but only provide guidance on how to balance risk and value when deciding on e-government initiatives. For instance, since the strategy in Zambia supports a decentralised approach to e-government implementation, depending on the commitment, availability of resources and immediate e-government needs, a particular government agency can take up any project initiative but adhering to the common stipulated standards and of course avoiding the high-risk low-value projects. This way the chances of providing relevant services to local communities using e-government may be a reality, as currently, the promised benefits of e-government are far from being a reality in Zambia.

6.2 Future Research Directions

There is no doubt that more research related to e-government development would need to be pursued considering that the e-government concept is relatively new and hence any credible academic or professional work will positively contribute to the success of e-government initiatives in Zambia. Further, this research can be pursued even more effectively by focusing on detailed studies of strategies for each e-government type, i.e. G2E, G2G, G2C and G2B so that these strategies can be applied where they have immediate and high impact in the Zambian context. Also, future researchers would need to work closely with the e-government practitioners in Zambia so that real problems can be exploited and solutions sought through information sharing. This is one area that needs improvement from the government’s perspective. This area which was a limitation to this research must in future provide a basis of selecting useful information for implementing policy and delivering government services to the public through e-government.

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