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# Sustaining Electronic Governance Programs in Developing Countries

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## Abstract:

This paper focuses on the challenge of sustaining Electronic Governance (EGOV) initiatives in developing countries to ensure their real impact on the society. While the challenge is well-recognized in the international development community, there is little evidence of research that discusses this challenge and how it could be addressed. This paper attempts to fill this gap by presenting a comprehensive approach which directly addresses the sustainability issues as part of the EGOV development lifecycle, and demonstrates how this approach was applied in a real-life project context in Afghanistan, aimed at addressing country-specific EGOV sustainability challenges. In view of this experience, the paper also discusses the adequacy of the approach to meet a range of sustainability challenges, with concluding remarks to guide developing countries in their endeavors to sustain EGOV programs.

**Keywords:** Electronic Governance Program Sustainability, Electronic Governance in Developing Countries, EGOV.\* Framework, National Ownership, Stakeholder Engagement, Institutionalization

## 1. Introduction

Electronic Governance (EGOV) in Developing Countries (DCs) is receiving increased attention given the 'leapfrogging' opportunities available through modern technologies (Basu 2004). As in such countries, governments face resource constraints in improving their operations and delivering services to citizens, EGOV has been touted as a means of saving costs while improving quality, response times, and access to services (Westcott, C., Pizarro, M., Schiavo-Campo 2000). However, EGOV has yet to prove successful in the vast majority of DCs governments (Furuholt & Wahid 2008). Among other factors, the countries struggling with providing basic necessities to their citizens will not have the same priority for EGOV development as the wealthier nations (Evans & Yen 2006), (Backus 2001), (Heeks 2008).

A general problem associated with EGOV in DCs, well recognized in the international development community, is the challenge of sustaining the benefits created by the EGOV programs. Many EGOV initiatives in DCs are supported by donor organizations which are more successful in achieving their initial objectives than in sustaining such initiatives beyond their completion time (Heeks 2003). Unfortunately, few studies focus on the challenges affecting sustainable implementation of EGOV initiatives and how these challenges could be addressed. This paper attempts to fill this gap. It presents an EGOV development framework (EGOV.\*) which directly addresses a number of sustainability challenges as part of the EGOV development life-cycle, and discusses the experience with implementing this framework in a real-life EGOV project in Afghanistan (EGOV.AF).

The remainder of this paper is organized as follows. Section 2 presents a methodology adopted in this research. Related work is reviewed in Section 3, followed by background in Section 4. The definition and major challenges for sustaining EGOV programs in DCs are outlined in Section 5, while the EGOV development framework and the experience of its practical application in Afghanistan are described in Sections 6 and 7 accordingly. Section 8 includes a discussion about the findings of this research, and Section 9 presents concluding remarks and recommendations for future work.

## 2. Methodology

This research was carried out in five steps. First, we conducted an extensive literature review related to EGOV sustainability, with the aim of synthesizing the EGOV sustainability factors. Second, we applied these factors to review an existing EGOV development framework called EGOV.\* (Janowski et al. 2010) to address sustainability issues. Third, we localized the generic EGOV.\* sustainability requirements to the case of Afghanistan. Fourth, we developed and implemented a concrete instance of the EGOV.\* framework in Afghanistan (EGOV.AF) based on the localized requirements which include: collecting readiness assessment data at the national- and agency-levels, conducting interactive visioning and strategy development activities with focused groups, building human capacity in government agencies based on the training needs of the civil servants, etc. Fifth, based on the EGOV.AF experience, we identified certain preconditions for effective utilization of the EGOV.\* framework in other DCs.

## 3. Related Work

The discussion about sustainability of EGOV initiatives in DCs is still in its infancy (Schuppan 2009). A handful of the relevant scholarly articles are reviewed in this section.

(Furuholt & Wahid 2008) indicated that long-term sustainability of the EGOV initiatives in DCs remains a challenge, even after a year of operation, and investigated the reasons. The paper claims that the greatest constraint to EGOV in DCs, and the reason of exposure to sustainability failures, is dependence on the aid agencies. The paper argues that strong political leadership, clear vision, early involvement of stakeholders, regular feedback and partnership are important to sustain progress with limited resources.

Heeks claims that sustainability failures frequently occur because of the design-reality gap (Heeks 2003), lack of national ownership and weaknesses of the central EGOV institutions which fail to balance external and internal interests (Heeks 2001a). He argues that when many EGOV initiatives are donor-driven and key stakeholders are often ignored in planning, this results in insufficient focus on the local context. He highlighted the role of leadership, commitment of public officials, and the presence of institutions able to lead, coordinate and sustain EGOV. He emphasized the importance of strategic thinking, knowledge, and skills and attitudes, especially within the public sector.

(Grönlund et al. 2005) identified the sustainability problem as a critical factor to overcome, claiming that even DCs at an early EGOV development stage require a comprehensive strategy in a country-specific context, with long-term political commitment to avoid dependence on the donor organizations. The paper also argues that sustaining the EGOV effort requires a decision-making system that provides substantial investment in human resources and social embedment to utilize local labor.

(Kumar & Best 2006) examined the sustainability of EGOV projects in DCs and postulated that such projects fail to be politically and institutionally sustainable due to a range of people, management, cultural and structural factors: lack of effective public leadership and sustained commitment, inadequate training of government officials, and lack of performance evaluation and monitoring, and stakeholder involvement.

(Schuppan 2009) analyzed the potentials, opportunities, risks and implications of EGOV development in DCs, and claimed that a simple transfer of EGOV concepts from North to South is not working. The paper makes the case for considering the institutional, cultural, and wider administrative contexts to avoid unintended effects and for focusing on capacity development to build local management competence.

Among the challenges to sustainable EGOV implementation in DCs, (Ali et al. 2009) identified the lack of capacity in government, limited financial and human resources, dependence on donor funding, lack of coordination among isolated projects and between levels of government, and lack of awareness and interest in EGOV from citizens. The paper argues that the reliance on foreign experts leads to little consideration of the cultural and social issues in the national context.

In a summary, the reviewed literature identifies critical factors causing the EGOV sustainability failure in DCs. However, there is little evidence of research on possible ways of addressing such challenges.

### **3. Background**

#### **3.1. EGOV Programs**

The evidence of the benefits and challenges facing EGOV implementations around the world was reported by the UN surveys (UNDESA 2010), OECD studies (OECD 2003b), reports by the World Bank and Asia Development Bank, and discussed in (Heeks 2001b), (Zwahr et al. 2005), (Gilgarcia & Pardo 2005) and (Leitner 2006).

Successful EGOV programs increase citizen satisfaction, improve government efficiency, drive down transaction costs (Jaeger 2003), (Evans & Yen 2006), transforms how citizens interact with government, and influences policy-making processes through e-democracy and e-participation (Stanforth & Flynn 2008). However, the observation of the EGOV programs around the world shows that management-oriented organizational reform creates better conditions to EGOV implementation (Schuppan 2009).

#### **3.2. EGOV Programs in DCs**

Many DCs initiated EGOV strategies and programs with support from donor organizations (Heeks 2001a), (Schuppan 2009), (Grönlund et al. 2005), (Hanna & Qiang 2005), (Bhuiyan 2011) aimed at improving public services and delivering them efficiently and conveniently to customers (Schware & Deane 2003). Experience shows that EGOV can improve transparency and thus reduce corruption and poverty (Bhuiyan 2011). While the benefits of EGOV in DCs and developed countries are the same (Ndou 2004), many benefits remain unrealized in DCs due to their limited use of ICT.

#### **3.3. EGOV Programs in DCs – Implementation Challenges**

As well described in the literature, EGOV initiatives face various challenges for successful implementation in DCs. (Furuholt & Wahid 2008) classified these challenges into: 1) management - strategy, change management, political leadership, institutionalization, and continuous project monitoring and evaluation; 2) infrastructure - ICT infrastructure, legislation and financial resources; and 3) human factors – competence, skills, training and trust. Alternatively, (Backus 2001) classified them into: 1) political - strategy and policy, law and legislation, leadership, decision making, funding, international affairs and political stability; 2) social - people, education, employment, income, digital divide, rural versus urban areas, rich versus poor, literacy and IT skills; 3) economic - funding, cost-savings, business models, e-commerce; and 4) technological - software, hardware, infrastructure, telecom, IT workforce, maintenance, safety and security. (Heeks 2008) identified ten success factors: 1) external pressure, 2) internal political desire, 3) overall vision and strategy, 4) project management, 5) change management, 6) politics and self-interest, 7) design, 8) competencies, 9) technological infrastructure and 10) others. (Grönlund et al. 2005) expressed concern about the lack of long-term political commitment, dependence on donor organizations and weak human capacity. Among EGOV failure factors (Kumar & Best 2006) pointed out the lack of effective public leadership and sustained commitment, inadequate training of government officials, lack of performance evaluation and monitoring, and lack of stakeholder involvement. (Schuppan 2009) postulated considering the institutional, cultural and administrative contexts, with particular focus on building local capacity in the setup of EGOV initiatives. Finally, (Ali et al. 2009) identified the challenges to include lack of government capacity, lack of collaboration and partnership, dependence on external aid, lack of citizen awareness and cultural and social issues.

Table 1 depicts a variety of views on the EGOV implementation challenges in DCs. Despite this variety, a common understanding among development researchers and practitioners is that the biggest concerns are policy, management, capacity, funding, cultural and social issues, not technology.

Table 1: EGOV Programs in DCs – Implementation Challenges

(Furuholt & Wahid 2008)	<ul style="list-style-type: none"> <li>○ Management - strategy, change, leadership, monitoring, evaluation</li> <li>○ Infrastructure - ICT, legislation, financial resources</li> <li>○ Human - competence, skills, training, trust</li> </ul>	
(Backus 2001)	<ul style="list-style-type: none"> <li>○ Political - strategy, policy, legislation, leadership, funding, stability</li> <li>○ Social - education, employment, digital divide, literacy, IT skills</li> <li>○ Economic - funding, business models</li> <li>○ Technological - infrastructure, maintenance, safety/security</li> </ul>	
(Heeks 2008)	<ul style="list-style-type: none"> <li>○ External pressure</li> <li>○ Internal political desire</li> <li>○ Overall vision and strategy</li> <li>○ Project management</li> <li>○ Change management</li> </ul>	<ul style="list-style-type: none"> <li>○ Politics and self-interest</li> <li>○ Design</li> <li>○ Competencies</li> <li>○ Technological infrastructure</li> </ul>
(Grönlund et al. 2005)	<ul style="list-style-type: none"> <li>○ Lack of long-term political commitment</li> <li>○ Dependence on donor organizations</li> <li>○ Lack of focus on the country development context</li> <li>○ Weak human capacity</li> </ul>	
(Kumar & Best 2006)	<ul style="list-style-type: none"> <li>○ Lack of public leadership and sustained commitment</li> <li>○ Weak government capacity</li> <li>○ Lack of evaluation and monitoring</li> <li>○ Lack of stakeholder engagement</li> </ul>	
(Schuppan 2009)	<ul style="list-style-type: none"> <li>○ Lack of focus on institutional, cultural, and administrative contexts</li> <li>○ Lack of focus on local capacity and management competence</li> </ul>	
(Ali et al. 2009)	<ul style="list-style-type: none"> <li>○ Lack of government capacity</li> <li>○ Dependence on donor organizations</li> <li>○ Lack of coordination in government</li> </ul>	<ul style="list-style-type: none"> <li>○ Lack of private sector partnership</li> <li>○ Lack of citizen awareness</li> <li>○ Cultural and social issues</li> </ul>

#### 4. Sustaining EGOV Programs in DCs

In this section, we explain the concept of EGOV program sustainability and determine the major challenges for sustaining EGOV programs in DCs.

##### 4.1. Sustaining EGOV Programs – Concept

Despite the growing interest in EGOV program sustainability, no explicit definition was proposed in the literature. We refer to program sustainability as program continuation (Shediac-Rizkallah & Bone 1998) and particularly how a program can continue creating benefits to the stakeholders (Harvey 2006) through institutionalization (Pluye 2004) and local capacity building (Harvey 2006).

##### 4.2 Sustaining EGOV Programs – Challenges in DCs

From the literature review in Sections 2 and 3, sustainability issues are common reasons for failure of the EGOV initiatives in DCs. Based on this review and our own experience, we identified seven challenges influencing the sustainability of EGOV programs in DCs:

- C1. *Ownership* - Lack of national ownership (Heeks 2001a), (Sarantis et al. 2011) results in the absence of a cohesive EGOV strategy (Ronaghan 2002), little consideration of the local context (Dada 2006) and cultural and social issues (Cloete 2004), (Schuppan 2009), (Bhuiyan 2011), (Kumar & Best 2006), (UNDESA 2008). The reasons are: reliance on external experts (Ali et al. 2009), (Grönlund et al. 2005), (Heeks 2003) and ignoring the main stakeholders in EGOV planning, causing lack of ownership, and dominance of politics and self-interest (Heeks 2001b), (Stanforth & Flynn 2008).

- C2. *Leadership* - Lack of leadership at different levels of government, especially sustained political leadership, (Heeks 2001b), (Grönlund et al. 2005), (Kifle et al. 2009), (Backus 2001), (OECD 2003a), lack of commitment from top management and senior officials, causing resource misallocation and negative message to other groups (Furuholt & Wahid 2008), (UNDESA 2008), (Rose & Grant 2010).
- C3. *Vision and Strategy* - Absence of a long-term vision (Backus 2001) and cohesive implementation strategy (Sarantis et al. 2011) results in the lack of guidance and connection between ends and means (Heeks 2008), uncoordinated and isolated projects, and dispersed responsibilities due to multiple ownership (Cloete 2004), (Ndou 2004).
- C4. *Institutional Capability* - Weak or absent institutions for EGOV policy and coordination (Heeks 2001a), (Schuppan 2009), with low administrative capacity and management liabilities within government (UNDESA 2003), resulting in the lack of coordination among EGOV projects (Dada 2006), and lack of collaboration between different functions and levels of government and between public and private sectors (Heeks 2003). Also, poor project and program management, weakness of controls, ineffective procurement and change management (Ronaghan 2002), (Heeks 2001b), (Jaeger 2003).
- C5. *Design Versus Reality* - Unrealistic expectations (Dada 2006) and poor understanding of the needs of people (UNDESA 2008) resulting in poor design which does not match the local environment including culture, values and needs. This is caused by the lack of inputs from local stakeholders and occurs when foreign donors and consultants drive the EGOV efforts (Cloete 2004), (Heeks 2003).
- C6. *Capacity and Awareness* - A huge gap exists between the capacities required for EGOV and the capacities present in most DCs (Heeks 2001a), with shortage of qualified personnel in government and lack of awareness among officials (Ronaghan 2002) and citizens (Ali et al. 2009). Also the gaps between the educated and uneducated, the rich and poor result in negative attitudes to EGOV, resistance to change, and biased provision of e-services (Basu 2004).
- C7. *Dependence on External Assistance* - Because of limited financial and human resources, many EGOV initiatives in DCs are dependent on the aid agencies, vendors and consultants, making them particularly vulnerable when the outside funding ends (Heeks 2003), (Grönlund et al. 2005), (Furuholt & Wahid 2008). When donors work with different agencies, isolation, fragmentation and duplication of applications may be reinforced (Hanna & Qiang 2005), (Schware & Deane 2003).

To address these factors, there is a need for a comprehensive approach to EGOV design and development which explicitly considers the sustainability issue.

## **5. Sustaining EGOV Program in DCs - The EGOV.\* Framework**

This section presents a holistic approach to EGOV program development in DCs called EGOV.\*. By design, the approach addresses the challenges related to EGOV program sustainability.

### **5.1. EGOV.\* Framework - Overview**

The aim of the EGOV.\* framework is to build the local ownership and capability for establishing and sustaining EGOV development in a given Public Administration (PA), particularly in the DCs context. The framework prescribes a set of six inter-related activities as follows:

- A1. *Assessing EGOV Readiness* – Establishing the state-of-readiness for EGOV development in the PA and identifying potential stakeholders and their interests, willing to provide inputs for developing a realistic strategy for EGOV in the PA and to engage in the implementation of this strategy.
- A2. *Formulating EGOV Vision and Strategy* – Engaging the stakeholders identified in A1 in formulating the long-term vision for EGOV in the PA and the goals, strategies and targets to realize this vision, based on the findings of the activity A1 and lessons learned from other countries.

- A3. *Constructing EGOV Program* – Setting up a whole-of-government program through which the EGOV strategy defined through A2 could be implemented across the PA, engaging the stakeholders.
- A4. *Building Human Capacity* – Raising the capacity of the government workforce in the PA, including leadership, management and technical skills to be able to lead, implement and maintain EGOV operations, and the capacity of citizens to be able to benefit from the EGOV program.
- A5. *Building Institutional Capacity* – Strengthening the organizational capacity in the PA to be able to implement and benefit from the EGOV Program constructed through A3.
- A6. *Building Research Capacity* – Building local EGOV research capacity, including the development and adaptation of methodologies, survey instruments, assessment tools and guidelines, and capacity for strategic planning and program management adapting international best practices to the local context.

Three main actors in the EGOV.\* framework is: government, local stakeholders and external assistance. The government acts in the role of driver, owner and leader. Local stakeholders are the major contributors to the EGOV strategy and its implementation. External assistance acts as a facilitator and mentor. Table 2 shows how the framework ensures a balance between these roles across its six activities.

EGOV.\* promotes the principles of:

- P1. National ownership
- P2. Strong leadership
- P3. Stakeholder engagement
- P4. Balancing internal and external roles

Figure 1 depicts the six activities and four principles of the framework.

Figure 1: EGOV.\* Framework – Principles and Activities

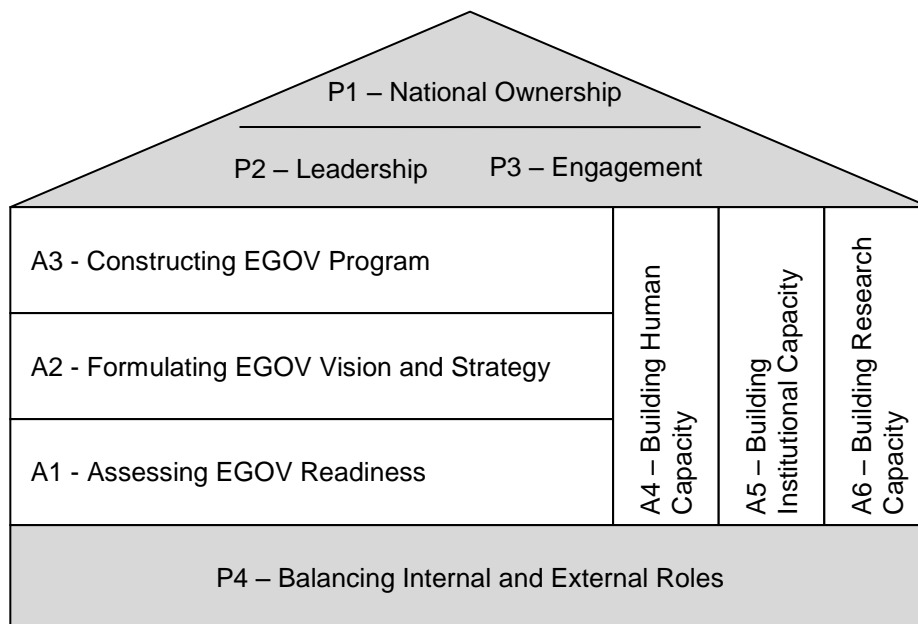


Table 2: EGOV.\* Framework – Actors and Roles

Activities	Actors and Roles		
	Government	Local Stakeholders	External Assistance
A1 - Assessing EGOV Readiness	<ul style="list-style-type: none"> <li>○ Raising awareness</li> <li>○ Building assessment team</li> <li>○ Identifying/analyzing stakeholders</li> <li>○ Communicating with stakeholders</li> <li>○ Defining the scope of assessment</li> <li>○ Organizing the survey</li> <li>○ Gathering data, providing helpdesk</li> </ul>	<ul style="list-style-type: none"> <li>○ Providing information on stakeholder profiles and interests</li> <li>○ Participating in the survey</li> <li>○ Partnering in the assessment exercise</li> <li>○ Advisory and consultancy services</li> <li>○ Providing feedback on assessment</li> </ul>	<ul style="list-style-type: none"> <li>○ Facilitating assessment process</li> <li>○ Providing methodologies and tools</li> <li>○ Building assessment capacity</li> <li>○ Adapting assistance to local conditions</li> <li>○ Designing the assistance process</li> <li>○ Analyzing survey data</li> <li>○ Offering recommendations</li> </ul>
A2 - Formulating EGOV Vision and Strategy	<ul style="list-style-type: none"> <li>○ Organizing visioning/strategy events</li> <li>○ Engaging stakeholders</li> <li>○ Gathering inputs from stakeholders</li> <li>○ Drafting strategy document</li> <li>○ Organizing public consultation</li> <li>○ Driving strategy adoption</li> <li>○ Building a partnership platform</li> </ul>	<ul style="list-style-type: none"> <li>○ Providing inputs for vision, goals, strategies, directions and action lines</li> <li>○ Providing feedback during public consultation</li> <li>○ Partnership for capacity building and strategic planning</li> <li>○ Advisory and consultancy services</li> </ul>	<ul style="list-style-type: none"> <li>○ Facilitating visioning and strategy development process and mentoring</li> <li>○ Providing methodologies and tools</li> <li>○ Building capacity for strategic planning</li> <li>○ Analyzing and summarizing the inputs from major stakeholders</li> <li>○ Offering recommendations</li> </ul>
A3 - Constructing EGOV Program	<ul style="list-style-type: none"> <li>○ Defining program objectives, governance</li> <li>○ Setting up planning, implementation, monitoring and control of projects</li> <li>○ Adopting stakeholder, benefits, portfolio and risk management</li> </ul>	<ul style="list-style-type: none"> <li>○ Providing inputs for program development</li> <li>○ Capacity building for project management</li> <li>○ Partnership in implementation</li> <li>○ Advisory and consultancy services</li> <li>○ Providing feedback on program design</li> </ul>	<ul style="list-style-type: none"> <li>○ Facilitating program development between government and stakeholders</li> <li>○ Providing methodologies and tools</li> <li>○ Building program management capacity</li> <li>○ Offering recommendations</li> </ul>
A4 - Building Human Capacity	<ul style="list-style-type: none"> <li>○ Raising awareness</li> <li>○ Organizing workshops and trainings</li> <li>○ Disseminating training materials</li> </ul>	<ul style="list-style-type: none"> <li>○ Partnership in developing human capacity for EGOV implementation and use</li> <li>○ Proving advisory and consultancy services</li> </ul>	<ul style="list-style-type: none"> <li>○ Facilitating partnership to build human capacity</li> <li>○ Providing methodologies, tools and courses</li> <li>○ Offering recommendations based on international experience</li> </ul>
A5 - Building Institutional Capacity	<ul style="list-style-type: none"> <li>○ Anchoring the culture of capacity building</li> <li>○ Disseminating learning materials</li> <li>○ Defining a platform for long-life learning of government managerial IT staff</li> </ul>	<ul style="list-style-type: none"> <li>○ Partnership in building leadership and management capability in government</li> <li>○ Advisory and consultancy services</li> <li>○ Designing capacity building programs</li> </ul>	<ul style="list-style-type: none"> <li>○ Facilitating partnerships to build leadership and management capability</li> <li>○ Providing methodologies, tools, courses</li> <li>○ Offering recommendations</li> <li>○ Supervising and mentoring staff</li> </ul>
A6 - Building Research Capacity	<ul style="list-style-type: none"> <li>○ Adaptation of methodologies, surveys, tools and guidelines to local conditions</li> <li>○ Benchmarking studies and data analysis</li> </ul>	<ul style="list-style-type: none"> <li>○ Partnership in developing research capacity</li> <li>○ Providing advisory and consultancy services</li> </ul>	<ul style="list-style-type: none"> <li>○ Facilitating partnership for research</li> <li>○ Engaging local staff in adapting instruments and data analysis and benchmark studies</li> <li>○ Providing methodologies, tools, courses, supervision, and mentoring</li> </ul>



## 5.2. EGOV.\* Framework – Addressing Sustainability Challenges

Here is how EGOV.\* addresses the challenges to EGOV sustainability in DCs, identified in Section 4.2:

- C1. *Ownership* - EGOV.\* helps secure the national ownership of the EGOV program by balancing the internal influences from the PA and external influences from the aid agencies, vendors and international consultants, and building leadership at all levels of the PA. Table 2 elaborates how this balance is achieved by all actors involved and across all EGOV.\* activities.
- C2. *Leadership* - In order to build leadership in government, A4 prescribes the organization of schools for policy-makers, decision-makers and public managers to overcome EGOV implementation challenges through new competencies. Moreover, a governance structure defined within A3 aims at political, strategic and managerial leadership and long-term commitment to sustaining the EGOV program.
- C3. *Vision and Strategy* - Based on readiness assessment carried out in A1 and international experiences investigated in A6, A2 defines the vision and strategy for long-term EGOV operation, with concrete benefits created to various stakeholders. The participatory process ensures consensus on the EGOV direction among the key stakeholders and their collaboration in the EGOV implementation.
- C4. *Institutional Capability* - An EGOV program defined in A3 aims at raising the efficiency and assuring the alignment of EGOV initiatives with whole-of-government goals, towards institutionalizing EGOV development and ensuring its sustainable operation. The program facilitates the creation of new capabilities within government and engages various stakeholders in adopting tools to local conditions.
- C5. *Design Versus Reality* – A1 helps address this challenge by assessing the demand, capabilities and environment for EGOV, underpinning the development in A2 of a realistic EGOV strategy that responds to the local needs and context, and establishing within A3 a platform for sustaining EGOV.
- C6. *Capacity and Awareness* – In order to raise awareness of EGOV among the stakeholders and their capacity to contribute and benefit, A5 prescribes workshops on global trends, opportunities and challenges of EGOV in DCs, while A4 provides training to build capacity in the PA to lead, coordinate and implement the EGOV program. In addition, while implementing the EGOV program, a key strategy is building PA's capacity to implement EGOV and citizen awareness to benefit from it.
- C7. *Dependence on External Assistance* - Active engagement of the EGOV stakeholders and building partnership with the private sector, academia and non-government organizations helps address the dependence on external assistance. In addition, balancing internal and external influences by defining the roles of different actors, focusing on building local capability and using local workforce for EGOV program implementation support self-sustained EGOV operation.

## 6. Case Study – EGOV.AF

In this section we present our experience in applying the EGOV.\* framework in Afghanistan and explain how the EGOV sustainability issues were addressed within the EGOV.AF project.

### 6.1. About EGOV.AF Project

One of the poorest countries in the world, affected by long history of war and conflicts, Afghanistan has weak institutions (World Bank 2010) and low human development index (UNDP 2010). At the same time, the government recognizes that good governance, rule of law, human rights and public engagement are imperative for the country, and views the rapidly developing ICT sector as a huge opportunity.

The EGOV.AF project was jointly initiated by the Ministry of Communications and Information Technology (MCIT) and the UNU-IIST Center for Electronic Governance (UNU-IIST-EGOV), aimed at developing the nationally-owned EGOV strategy and program, well-aligned with the national development and public reforms priorities. The authors designed this project and implemented it with MCIT.

## 6.2 Addressing Sustainability Challenges within EGOV.AF

The EGOV.\* framework was utilized in Afghanistan through the project instance called EGOV.AF. Here is how EGOV.AF addressed the sustainability challenges specific to the Afghanistan context:

- C1. *Ownership* - Aiming to secure the local ownership of the EGOV program, the roles of the project partners and local stakeholders were agreed as follows: 1) MCIT, as project owner, coordinated all activities and communicated with internal and external stakeholders; 2) Local stakeholders - agencies, NGOs and international organizations, private sector ICT providers, banks and universities contributed to the assessment, vision, strategy and program design; 3) UNU-IIST-EGOV provided the direction, facilitation, methodological support, training, supervision and mentoring; and 4) program board was recommended to ensure the long-term top-level support to the EGOV program.
- C2. *Leadership* - While strong leadership exists in MCIT to drive EGOV and a few ICT champions are located in different ministries and agencies, the awareness of the role of EGOV is limited and the leadership capacity at different levels of PA to drive EGOV implementation is scarce, leading to isolated and often duplicated initiatives supported by different aid organizations and foreign consultants. In view of this, the project organized a series of schools and workshops for senior officials and managers from the central and provincial governments to build leadership at all levels. Active participation of government leaders from ministries and agencies and collaboration with MCIT during assessment and strategic planning were most useful. To ensure whole-of-government collaboration during program implementation and operation, it was recommended to establish the Government Chief Information Officer structure.
- C3. *Vision and Strategy* - A series of multi-stakeholder workshops were organized by MCIT and facilitated by UNU-IIST-EGOV, using local assessment data and international experiences to produce the whole-of-government EGOV vision, strategic goals and concrete action lines. The vision and strategy will guide MCIT in implementing EGOV to utilize the strengths of various stakeholders and to respond to the needs and development priorities of Afghanistan
- C4. *Institutional Capability* - In order to strengthen government capacity for developing and implementing the EGOV program, UNU-IIST-EGOV provided training, supervision and mentoring across all activities of the project, supplied methodologies and tools for stakeholder analysis, readiness assessment and strategy and program development, and offered fellowships to the staff from MCIT and Kabul University for learning and research. A whole-of-government EGOV program resulting from EGOV.AF will result in the institutionalization of EGOV development in Afghanistan.
- C5. *Design Versus Reality* - UNU-IIST-EGOV provided the assessment methodology and instruments, adapted them to the local context, and trained the local assessment team from MCIT. The team interviewed various stakeholders and reviewed official documents and reports, collecting information on the demand for EGOV, public services, enabling environment, available resources and capacity, perceptions and challenges, and stakeholders and their interests. The assessment helped develop a realistic EGOV strategy and a sustainable program that respond to the needs of Afghanistan.
- C6. *Capacity and Awareness* - A series of awareness-building events were organized by MCIT and UNU-IIST-EGOV to build support for EGOV, targeting representatives from government, private sector, NGOs and universities, while capacity building events developed the skills required for EGOV implementation - leadership, strategic planning, change management, program management and research. Among the key EGOV implementation strategies are: creating the enabling environment; building stakeholder partnership; and raising citizen awareness to be able to benefit from EGOV.
- C7. *Dependence on External Assistance* - This challenge has been addressed by assigning clear roles to major actors - MCIT as project owner, UNU-IIST-EGOV as facilitator and mentor, and local stakeholders as contributors, and using partnership arrangements to engage the stakeholders in implementation. For example, EGOV.AF enabled MCIT to establish the EGOV Competency Center in partnership with academia and international, to act as a source of local expertise.

## 7. Discussion

The sustainability of EGOV initiatives in DCs, characterized by resources constraints, corruption, weak governance and unstable political and economical conditions is a major need and challenge. In this study, based on existing works and our own field experience, we examined the major challenges to EGOV program sustainability in DCs. Our findings identified seven challenges: C1) lack of local ownership; C2) lack of leadership; C3) unrealistic or absent vision and strategy; C4) weak institutional capability; C5) design-reality gap; C6) lack of awareness and capacity; and C7) dependence on external assistance. To address such challenges, we proposed to use a holistic EGOV development framework called EGOV.\*. EGOV.\* prescribes six activities involved in the EGOV design and implementation, and focuses on building human, organizational and institutional capacity to be able to plan, coordinate, implement and sustain EGOV locally. EGOV.\* identifies three main categories of actors and assigns them specific roles in EGOV development: the government leads, coordinates and implements EGOV; local stakeholders contribute to EGOV design, development, implementation and operation through partnerships; and external assistance facilitates the development of the national capacity. In particular, EGOV.\* addresses the sustainability challenges throughout the EGOV program lifecycle, by utilizing strong leadership and stakeholder engagement to build the national ownership of the EGOV efforts, and by carefully balancing the internal and external influences to avoid dependence on external assistance.

From our experience applying the EGOV.\* framework in Afghanistan (EGOV.AF project), we observe that the presence of the following conditions is essential for successful EGOV implementation: 1) A government organization responsible for leading EGOV development, with dedicated staff for planning and coordination; 2) A few EGOV promoters at the political and strategic level, who can mobilize internal and external stakeholders; 3) Understanding of the complexity of EGOV design, development and implementation, at least within the government organization responsible for EGOV, and the recognition of the importance of building partnerships; 4) Some organisations outside government, with sufficient interest and capacity to engage in the partnership for EGOV; 5) A shared understanding within the government of the national development priorities and the potential of EGOV to offer improvements within and outside government; and 6) A critical mass of e-champions present in government ministries and agencies. When these conditions are not met, the effectiveness of the EGOV.\* framework can be limited.

## 8. Conclusions

In this research, we examined the key challenges to sustaining the Electronic Governance (EGOV) programs in Developing Countries (DCs), and presented an approach to overcoming them, based on the EGOV development framework called EGOV.\*. EGOV.\* addresses the sustainability challenges throughout the EGOV program lifecycle by localization - considering the local context, promoting local ownership and developing local capability for leading, implementing and sustaining EGOV initiatives. Based on the EGOV.\* implementation experience in Afghanistan (EGOV.AF), we argue that this approach could guide the development of sustainable EGOV programs in DCs. However, the effective application of this framework requires a number of conditions to be met. At present, the framework is being implemented in another country in Africa and a formal evaluation framework is under development to assess the sustainability of the resulting EGOV programs.

## References

- Ali, M., Weerakkody, V. & El-Haddadeh, R., 2009. The Impact of National Culture on E-Government Implementation : A Comparison Case Study. In *Proceedings of the Fifteenth Americas Conference on Information Systems, San Francisco, California August 6th-9th 2009*. pp. 1-13.
- Backus, M., 2001. *E-governance in Developing Countries*, IICD Research Brief
- Basu, S., 2004. E-government and developing countries: an overview. *International Review of Law, Computers & Technology*, 18(1), pp.109-132.
- Bhuiyan, S.H., 2011. Modernizing Bangladesh public administration through e-governance: Benefits and challenges. *Government Information Quarterly*, 28(1), pp.54-65.

- Cloete, F., 2004. Maximising the potential of transforming policy failure into policy success : E-government , the digital divide and e-development In *Annual Congress of the International Institute of Administrative Sciences (IIAS)*. pp. 14 - 18.
- Dada, D., 2006. The Failure of E-Government In Developing Countries: A Literature Review. *The Electronic Journal on Information Systems in Developing Countries* <http://www.ejisdc.org>, 26(1), pp.1- 10.
- Evans, D. & Yen, D., 2006. E-Government: Evolving Relationship of Citizens and Government, Domestic, and International Development. *Government Information Quarterly*, 23(2), pp.207-235.
- Furuholt, B. & Wahid, F., 2008. E-government Challenges and the Role of Political Leadership in Indonesia : the Case of Sragen. In *Proceedings of the 41st Hawaii International Conference on System Sciences*. pp. 1-10.
- Gilgarcia, J. & Pardo, T., 2005. E-government success factors: Mapping practical tools to theoretical foundations. *Government Information Quarterly*, 22(2), pp.187-216.
- Grönlund, Å., Andersson, A. & Hedström, K., 2005. *NextStep eGovernment in developing countries: Report D1: State-of-the-art in eGovernment in developing countries , including needs , lessons learned , and research findings*,
- Hanna, N.K. & Qiang, C.Z.-wei, 2005. National E-Government Institutions: Functions, Models, and Trends. In *Information and Communications for Development 2009: Extending Reach and Increasing Impact*. World Bank, pp. 83-102.
- Harvey, G., 2006. Exploring Program Sustainability : Identifying Factors in Two Educational Initiatives in Victoria. *Evaluation*, 6(1), pp.36-44.
- Heeks, R., 2001a. Building e-Governance for Development: A Framework for National and Donor Action. *Working Paper Series, I-Government*
- Heeks, R., 2003. Most eGovernment-for- Development Projects Fail: How Can Risks be Reduced? *Working Paper Series, I-Government*
- Heeks, R., 2008. Success and Failure in eGovernment Projects. *Success and Failure in eGovernment Projects*, p.eGovernment for Development. Available at: <http://www.egov4dev.org/success/> [Accessed January 20, 2011].
- Heeks, R., 2001b. Understanding e-Governance for Development. *Working Paper Series, I-Government*
- Jaeger, P., 2003. E-government Around the World: Lessons, Challenges, and Future Directions. *Government Information Quarterly*, 20(4), pp.389-394.
- Janowski, T., Ojo, A. & Estevez, E., 2010. EGOV .\* An Action Framework for Governance 2.0. , (May). Available at: <http://unpan1.un.org/intradoc/groups/public/documents/un-dpadm/unpan039408.pdf>.
- Kifle, H., Low, P. & Cheng, K., 2009. e-Government Implementation and Leadership – the Brunei Case Study. *Electronic Journal of e-Government Volume* [www.ejeg.com](http://www.ejeg.com), 7(3), pp.271 - 282.
- Kumar, R. & Best, M., 2006. Impact and Sustainability of E-Government Services in Developing Countries: Lessons Learned from Tamil Nadu, India. *The Information Society*, 22(1), pp.1-12.
- Leitner, C., 2006. e-Government: People and Skills in Europe's Administrations. *Proceedings of the 39th Annual Hawaii International Conference on System Sciences (HICSS-06)*.
- Ndou, V. (Dardha), 2004. E- government for Developing Countries: Opportunities and Challenges. *The Electronic Journal on Information Systems in Developing Countries*, <http://www.ejisdc.org>, 18(1), pp.1-24.
- OECD, 2003a. *Checklist for e-Government Leaders*, Available at: [www.oecd.org/dataoecd/62/58/11923037.pdf](http://www.oecd.org/dataoecd/62/58/11923037.pdf) .
- OECD, 2003b. *The e-government imperative : main findings*, Available at: [www.oecd.org/dataoecd/60/60/2502539.pdf](http://www.oecd.org/dataoecd/60/60/2502539.pdf).
- Pluye, P., 2004. Making Public Health Programs Last: Conceptualizing Sustainability. *Evaluation and Program Planning*, 27(2), pp.121-133.
- Ronaghan, S.A., 2002. *Benchmarking E-government : A Global Perspective*, New York. Available at: <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan021547.pdf>.
- Rose, W.R. & Grant, G.G., 2010. Critical Issues Pertaining to the Planning and Implementation of E-Government Initiatives. *Government Information Quarterly*, 27(1), pp.26-33.
- Sarantis, D., Charalabidis, Y. & Askounis, D., 2011. A Goal-Driven Management Framework for Electronic Government Transformation Projects Implementation. *Government Information Quarterly*, 28(1), pp.117-128.

- Schuppan, T., 2009. E-Government in developing countries: Experiences from sub-Saharan Africa. *Government Information Quarterly*, 26(1), pp.118-127.
- Schware, R. & Deane, A., 2003. Deploying e-Government Programs: The Strategic Importance of "I" before "E." *Info*, 5(4), pp.10-19.
- Shediac-Rizkallah, M.C. & Bone, L.R., 1998. Planning for the Sustainability of Community-based Health Programs: Conceptual Frameworks and Future Directions for Research, Practice and Policy. *Health education research*, 13(1), pp.87-108.
- Stanforth, C. & Flynn, M.O., 2008. The Promotion of E-Governance in Developing Countries : Reflections on E-Government in Two Asia-Pacific Countries 1 . Introduction : Good Governance and Development. In *Prato CIRN 2008 Community Informatics Conference: ICTs for Social Inclusion: What is the Reality? Refereed Paper*. pp. 1-20.
- UNDESA, 2008. *United Nations e-Government Survey 2008 From e-Government to Connected Governance*, Available at:  
<http://unpan1.un.org/intradoc/groups/public/documents/un/unpan028607.pdf>.
- UNDESA, 2010. *United Nations E-Government Survey 2010 Leveraging e-government at a time of financial and economic crisis*, Available at:  
<http://unpan1.un.org/intradoc/groups/public/documents/un/unpan038851.pdf>.
- UNDESA, 2003. *World Public Sector Report 2003: E-Government at the Crossroads*, New York. Available at: <http://unpan1.un.org/intradoc/groups/public/documents/un/unpan012733.pdf>.
- Wescott, C., Pizarro, M. & Schiavo-Campo, S., 2000. The Role of Information and Communication Technology in Improving Public Administration. In *To Serve And To Preserve: Improving Public Administration In A Competitive World*. Asian Development Bank.
- Zwahr, T., Finger, M. & Mueller, P., 2005. More than Digitisation - The Transformative Potential of E-Governance : An Exploratory Case Study. In *Proceedings of the 38th Hawaii International Conference on System Sciences*. pp. 1-9.
- UNDP 2010, *Human Development Report*, viewed 25 April 2010, <<http://hdr.undp.org/en/statistics/>>.
- World Bank 2010, *Countries and Economies*, viewed 20 April 2010, <<http://data.worldbank.org/country/afghanistan>>.