



Enhancement of Project Management to Support and Drive Transformational eGovernment

Shauneen Furlong

*Professor, University of Ottawa
Managing Consultant, Territorial Communications Ltd*

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Abstract: While eGovernment's first decade has been much more transactional than transformational, radical changes affecting eGovernment are needed in this decade: culture, different services, and relationships with all stakeholders; organizational arrangements; business processes; and resource management. The project failure rate is so high that transformational eGovernment progress is stalling.

This paper identifies a synergistic holistic compendium of ten key challenges and barriers that prevent progress in the project management of transformational eGovernment projects and recommends that project management methodologies be enhanced to respond and cope with that compendium.

Keywords: eGovernment, Transformational eGovernment, Public Sector Reform/Modernization, Project Management, Challenges, Barriers.



Introduction

Transformational eGovernment is the continuous innovation in the delivery of services, citizen participation, and governance through the transformation of external and internal relationships by the use of technology, especially on the Internet. When introduced, it offered the hope and promise to revitalize and modernize public services; reinvigorate and improve services to citizens, business, and governments; and create an exciting environment for employees to work and contribute. Countries world-wide are inexorably engaged and urged forward by both push-and-pull motivational pressures to use technology to improve democratic participation, social harmony, and economic sustainability.

Transformational eGovernment has not been the success hoped for around the world, and a number of the barriers preventing success have been identified and analyzed (Dawes, 2009; Nordfors, Ericson, Lindell and Lapidus, 2009; Oxford Institute, 2007; Sharif and Irani, 2010; United Nations, 2008; United Nations, 2010; Weerakkody, Janssen, and Dwivedi, 2011; World Bank, 2002; Ziemann and Loos, 2009). It has been harder, slower, and more complicated to deliver than what was originally expected, specifically from a business transformational agenda (BCS Thought Leadership, 2005; Roy, 2006). Transformational eGovernment promised hope for government transformation, public sector renewal, and revitalization of the role of bureaucracies in the 21st century. eGovernment delivered primarily on the transactional success of using the Internet to allow citizens closer and more direct access to government programs (Weerakkody, Janssen and Dwivedi, 2011); important and valuable, but not of the significance and benefit that was predicted. Transformational eGovernment remains slow and halting (Aikins, 2012) and shackled to the time-honored approaches of managing existing organizational assets rather than reaching out to create new management capacities that business transformation demands and technology affords.

Even in Canada, where eGovernment was rated by Accenture number one in the world for five years in a row (Accenture, 2005, 2006, 2007; Government of Canada Foreign Affairs and International Trade, 2006), it is seen as being primarily a transactional success as opposed to a transformational one (Roy, 2006). Internationally there has been a high and critical failure rate related to IT solutions (Aikins, 2012; Fraser, 2006). More recently, the failure in IT solutions that was the bane of transactional processing is now appearing in eGovernment initiatives (Aikins, 2012; Arif, 2008; Heeks, 2008; Janowski, Estevez and Ojo, 2007). eGovernment failures are often hushed up (Heeks, 2003) and as Misuraca (2009) points out, the majority of eGovernment projects are failures as high as 70-80% and are not meeting the “messianic” expectations. Failures are costly; as per Irani, Al-Sebie, and Elliman (2006), the United Kingdom Parliamentary Office of Science and Technology reported that cancelled or over-budgeted eGovernment projects were greater than 1.5 billion British pounds.

There are a number of reasons for the lack of transformational eGovernment success, including unanticipated organizational opposition, difficulties in communicating requirements, and obstacles to obtaining information from different government departments and agencies (Kamal, Weerakkody and Irani, 2011). However, there is some support for the belief that one of the most significant reasons for transformational eGovernment failure is ineffective project management (Aikins, 2012; Misuraca, 2009). The literature and this paper refer to the dearth of peer-reviewed information on the effective role of project management and its



impact on transformational eGovernment project success even though there are non-peer-reviewed business publications and country audits (British Computer Society, 2004; Fraser, 2006) that identify ineffective project management as an important cause of ICT failure that impedes transformational eGovernment progress.

Project management, as derived from generic project management methodologies, is a systems approach to planning, scheduling, and controlling project activities; it began its modern accelerated growth in the 1960s (Kerzner, 2001). The systems approach creates a project management framework that is constructed from process groupings and knowledge areas. The implementation of this approach ensures that the work of project management activities is performed efficiently and effectively and is measured by such features as planning, cost, schedule management, scope control, and communications.

In transformational eGovernment, the project management systems approach is not enough. Instead, in transformational eGovernment, project management must discover the interrelated sets of challenges and barriers that impede transformational eGovernment project success and respond to and cope with them from a “results achieved” perspective. The project management systems approach must become a basic entry level to the transformational eGovernment project management regime, and project results must be the project drivers that are measured by the effective management of objectives, stakeholders, clients, technical and subject matter experts, resources, and functional support services (Kerzner, 2001).

There are many reasons cited for project management failure and many of them are attributed to one or more breakdowns in the traditional project management systems approach (Aikins, 2012). But when a project meets key stakeholder (user) requirements, many other project shortcomings are overlooked, such as cost overruns, late schedules, and scope creep. However, in the author’s opinion, transformational eGovernment project management must result in success by ensuring that project management evolves from a system activity approach to a system results approach that starts with identifying an interrelated set of transformational eGovernment project barriers and challenges. This research is focused on informationally enhancing the project management process in order to upgrade the traditional systems activities approach and support the project results orientation.

To address the difficulties currently experienced specifically in eGovernment projects, it can be argued that the modern project management growth that began in the 1960s (Kerzner, 2001) now needs to be radically accelerated, become less process bound, and more results driven. Transformational eGovernment project management could take on the functions and features of other management professions similar to the example of accounting and finance. By comparison, accounting equates to enhanced project processes and finance equates to project results. Processes supporting results should far outweigh processes supporting activities.

Transformational eGovernment project management should ensure that information management and information technology (IT) that has long been relied upon to assist governments in carrying out their mandates (Movahedi, Tan and Lavassani, 2010) deliver on the demand for “faster, better, cheaper” IT solutions. These demands are not abating as governments evolve from transactional management to eGovernment transformation.



Creating transformational eGovernment citizen-centric solutions and organizations requires (Elliman and Irani, 2007; Schwester, 2009):

- focusing on and targeting citizen-centric requirements, cultures, and mores;
- responding to a broad and deep plethora of citizen demands;
- using technology as an agent to integrate technical architectures, information structures, and information from subject matter experts;
- managing technology to blend new and legacy systems, redesigned processes, and differently motivated human resources, while supposedly achieving cost and time savings;
- recognizing the lack of tools and skilled resources; and
- evolving governments from paternalistic and hierarchical structures to collaborative and networked organizations.

The findings below stress the importance of managing diverse and conflicting stakeholder interests through the fluidity of incorporating technology to address business reengineered processes within organizational requirements that judiciously manage information within an enterprise-wide transformation.

Research Aim

The aim of this research was to consider the feasibility of advancing transformational eGovernment by discovering and mitigating key challenges and barriers, and by focusing on one of the eGovernment's missing tools - an informational-enhanced project management methodology that could more effectively participate in the design and drive the implementation of the transformational eGovernment outcomes.

Project management has been named as a major culprit for the underwhelming success of eGovernment; it has contributed to limiting eGovernment transactional initiatives instead of transformational developments. Project management has been named a key factor in the failure in both delivering IT solutions and transforming government (BSC Thought Leadership, 2005; Fraser, 2006). Project management limits change instead of promoting it, and it could have unwittingly locked down the status quo.

Therefore, the research objectives are to:

1. explore the reasons for the ineffective project management contribution to the lack of progress in transformational eGovernment; and,
2. study the feasibility of designing an informationally enhanced project management methodology that takes into account the impact of a holistic and synergistic compendium of specific challenges and barriers to transformational eGovernment that are not effectively addressed by existing generic project management methodologies.

This problem is exacerbated by the need to address the unique conflicting aspects of transformational eGovernment where departments and agencies act in the interest of the Ministries without addressing the needs of the "whole of government" (Anthopoulos, Siozos and Tsoukalas, 2007).



Research Approach

Around the world, almost all public sector institutions are struggling with either entering the eGovernment market or advancing and realizing its success (United Nations, 2008; United Nations, 2010). They are moving from the use of ICTs and the Internet for simple transactional activities to the provision of information and public services for the people (Bouaziz, 2008). Regardless of any country's position on the eGovernment progress continuum, all can benefit from having access to the experiences and knowledge already gained from international colleagues. This experience provides a deeper understanding of the challenges and barriers and the role of project management that impacts the successful implementation and progress of transformational eGovernment initiatives.

Based upon this insight, this author approached the World Information Technology Services Alliance (WITSA) Secretariat, an organization representing national technology associations around the world, to arrange for access to their international members to administer an eGovernment survey that would serve to collect information for this research, and act as a medium to share eGovernment knowledge for the international members. It was intended and anticipated to deliver quantitative as well as qualitative data on the underlying causes behind slow eGovernment progress and on the feasibility of enhancing project management methodologies to address the causes.

The research used the mixed-method research approach that included the design and implementation of a piloted and structured survey, data collection and analysis, and examination and testing of potential enhanced project management solutions. The focus of this research is on international transformational eGovernment activity and problems in project management, the transformation of public service and its organizational and operational arrangements, and international strategies for transformational eGovernment uptake.

The surveys conducted in this research identified a synergistic compendium of ten key challenges and barriers that prevent progress in the project management of transformational eGovernment projects. As a way forward in addressing these challenges, this paper recommends that project management methodologies be enhanced to cope with that compendium.

The following diagram (Figure 1 – Research Design Process) provides an overall summary and timeline of the steps involved in conducting this research and in developing, testing, and implementing the eGovernment survey.

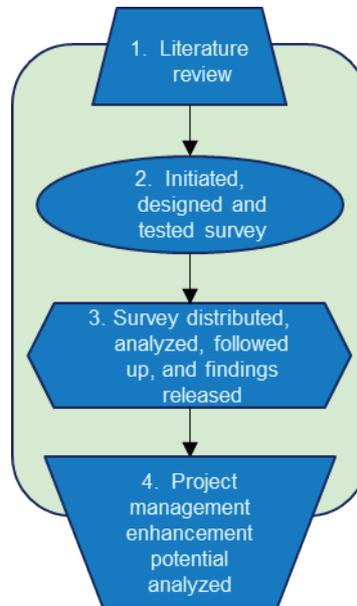


Figure (1) Research Design Process

Step 1 Literature review

2006-2011

Initiated and reviewed literature on eGovernment project management and eGovernment success, failure, and international progress.

Step 2 Initiated, designed, and piloted the survey

2006

In order to have access to research data, the author approached the executive and secretariat staff of the World Information Technology and Services Alliance (WITSA) in Washington, D.C., USA, to obtain permission to survey its members to examine international transformational eGovernment issues. The WITSA represents the national information and communications technology (ICT) industry associations in 80 countries. (At the time of the survey, WITSA represented 67 countries and 90% of the world ICT market.) The author had been a delegate at the WITSA conferences and used this opportunity and relationship to approach the WITSA personnel to propose to design, administer, and implement a transformational eGovernment survey for the educational use of the researcher in understanding international eGovernment barriers to success, and to share the results with the WITSA members.

The author created a WITSA Advisory Committee made up of 15 countries to review and accept the survey drafts that were to be administered to the WITSA members. The countries represented on the WITSA Advisory Committee were Argentina, Australia, Canada, Ecuador, Kenya, Macedonia, Malaysia, Morocco, Nepal, Philippines, Singapore,



South Africa, Uganda, the United Kingdom, and the United States.

The information survey questions were developed to contribute to the main research objective of this paper (which is to determine how project management could be informationally enhanced to address problems in transformational eGovernment) by identifying the impact of project management on the failure of international transformational eGovernment initiatives.

The survey questions focused on the following four areas impacting transformational eGovernment:

- the countries' approach to transformational eGovernment;
- access and management of strategic transformational eGovernment information;
- the degree of experience with transformational eGovernment progress; and
- the role and impact of project management on the success or failure of transformational eGovernment.

The detailed and specific survey questions and their anticipated outcomes addressed a number of data requirements in the four areas outlined above. These data requirements included: summarizing information per country on its eGovernment status and approach, interests, priorities, experiences, reasons for successes, reasons that inhibited progress, lessons learned, advice to other countries, and case information if applicable.

The author worked through the Advisory Committee mentioned above (15 countries) by creating survey question drafts and by projecting potential outcomes. Also, the author conducted a pilot with the Advisory Committee to test and assess the survey questionnaire, the data follow-up, and the analysis process—with specific attention to the validity of the collection and management of the (anticipated) quantitative and qualitative data.

The survey began with an introduction, purpose, and explanation that the survey was divided into two parts:

- Part I, with three sections addressed the basic elements of each country's transformational eGovernment approach, experiences and progress; and
- Part II invited case study information with the intent to develop a case study transformational eGovernment database that could be shared with other countries.

The information to be collected in Part I was intended to be a combination of quantitative and qualitative information, and, as such, the mixed-methods research method, after having been compared to other research methods, was found to yield the most appropriate, valid, and useful findings. In addition, follow-up conversations and interviews to validate the data input provided additional and, to some degree, more relevant information on the individual country experiences and challenges in implementing transformational eGovernment.

Subjective information was also sought on some individual questions, and this invited more general comments and feedback. The seeking of subjective information also elicited more data to provide transformational eGovernment case study input which was to be used to create a case study repository to be shared among other respondents.

The individual survey questions and anticipated outcome are outlined in the following paragraphs, starting with Part I which focused on “eGovernment Experiences and Country



Approach” and consisted of three sections: Section 1 – Contact information, Section 2 – Strategic Information, and Section 3 – Experience with eGovernment.

Part I, Section 1 included the survey contact information of the respondent, including country name, respondent name, respondent title/role, phone number, and contact email address.

Part I, Section 2 on “eGovernment Strategic Information” was made up of nine survey questions, with some questions subdivided so that responses to 58 data points were requested.

The first question in Section 2 asked if the country had an eGovernment policy (none, limited, or fully developed), if there were substantial (measurable) improvements as result of eGovernment, and a scale as to the importance of one to nine reasons for his/her country’s motivation in pursuing eGovernment. The reasons included the following: reduce costs and number of personnel, improve government efficiencies, provide citizen-centric services, proceed with public sector modernization, offer promises of interoperability and integration, take advantage of technology advancements, demand for 24/7 services through the Internet, shared infrastructure and security between programs and departments; and other.

This question was followed by requested “yes or no” and a description if the country had a definition of eGovernment, a strategic approach for eGovernment applications, and if the national technology association (the responder) was involved with the eGovernment in any federal/national department. The next set of questions were on the eGovernment priority or area most important to the country strategy and requested the respondent to select a “none, medium or high” rating on the following categories: citizen information or business information and transactional capacity; a particular sector including, but not limited to, health, employment, education, tourism, financing, benefits, administration, transportation, taxation, voting, eCommerce, or another domain; issuance of certificates and permits; or any other motivation. The section concluded with a question on the year the respondent’s country initiated eGovernment and why, and the respondent’s assessment of where his/her country was on the eGovernment continuum (planning, initiating, emerging, implementing, or transforming).

Part I, Section 3 on “Experience with eGovernment” included questions on successes in, and barriers to, eGovernment starting with requesting a description on positive or most rewarding results with eGovernment, followed by a similar request to describe negative experiences or more unsatisfactory results with eGovernment. The next question asked for a rating from one to eight on the order of importance for successes in advancing eGovernment, and the options included, but were not limited to: visible political support; bureaucratic support and dedicated funding; government interest to address citizen’s requirements; government interest to modernize and transform the public service; government interest to take advantage of Internet technologies; promises of cost savings, interoperability, efficiencies, and 24/7 service; horizontal governance structures; and other.

Part I, Section 3 also included a rating of importance from one to thirteen on the reasons that inhibited the progress of eGovernment; namely, complexity of transformative and innovative solutions, lack of skilled technological staff and leadership qualifications, outdated business and financing models, outdated systems development methodologies,



significant organizational or bureaucratic opposition, focus on technological drivers instead of business drivers, extent of government interdependencies and collaborative partnerships, expectations for public service reform and modernization, relationship with private sector and numerous stakeholders, movement to citizen-centric applications, lack of political support and adequate funding, lack of professional management resources, and other. The next set of questions sought input on lessons learned, the hardest part of implementing eGovernment, the advice to member colleagues, and his/her approach to assessing or quantifying eGovernment success.

The next question in Part I, Section 3 asked the respondent to agree or disagree that the following eleven factors created additional challenges in implementing eGovernment solutions: complicated working environment, partnerships, and governance structures; requirements for a holistic approach across agencies and jurisdictions; outdated business models and system development methodologies that didn't recognize progressive elaboration and negotiation elements; pressure to over-promise savings, efficiencies, and interoperability benefits; lack of single organizational driver or accountability point; requirement for employee and citizen participation; importance of executive and political support and champions; issues of citizen access and security; expectations to modernize and streamline bureaucracy, interest in applying enterprise resource planning technologies, and shared services; and other. The last question invited recommendations to facilitate the progress of eGovernment in his/her own environment.

Part II of the survey focused on "Case Study Information and Government Contacts," and it asked for input on eGovernment success stories and applications, experience with eGovernment research, interest in working to further examine underlying barriers to eGovernment, and questions on the use of the online service.

This survey was administered to 67 countries and invited commentary on the major challenges and barriers that impeded eGovernment success with the intent to offer and share information to facilitate the advancement of all countries in the eGovernment objective.

The research survey was the principle source of the intended quantitative research data (but morphed into qualitative data as a result of the respondent input, and follow-up calls and inquiries). Clarifications of the survey answers by the follow-up interviews, interpretations of the survey responses, and assessments from the Advisory Committee were the principle sources of qualitative data.

In addition to this survey focus, findings in the literature review, advice from the Advisory Committee, and early discussions with potential eGovernment survey members about their challenges and barriers to eGovernment progress provided the scope and specificity for the survey questions.

The review of the proposed survey was conducted via email and conference calls, and, in response to the interests of the WITSA Advisory Committee and Secretariat, included an invitation to submit case study information for the creation of an international repository and knowledge sharing centre.

The author arranged for the survey to be tested and piloted by Advisory Committee members before being administered to all members.



Step 3 Survey distributed, data collected, analyzed, followed up, and findings released

2006

The survey was launched at a WITSA meeting in Texas inviting 67 countries to participate and complete online. The author followed up with all participants and the Secretariat through email and/or conference calls to confirm input and learn more about the individual country's experiences and concerns. The follow-up conversations often provided more insight to the author than the survey input as a more "unstructured" less formal approach engendered more conversation and more effectively bridged the cultural barriers and digital-divide differences. It also allowed more discussion on potential solutions and a general education on country specific eGovernment concerns. The follow-up was a significant source of qualitative data.

The author released the survey findings report at a WITSA meeting in Athens, Greece in October, 2006. This report was provided to all WITSA members. The release of these findings was supported and complemented by presentation delivered by the author at the WITSA meeting at the same time. The report and presentation summarized the WITSA input on the following survey questions:

- evidence of improvements due to eGovernment actions;
- each country's place along the eGovernment continuum;
- positive experiences and motivations;
- recommendations to facilitate progress;
- lessons learned;
- negative experiences and barriers;
- reasons that inhibited eGovernment progress;
- hardest part of using eGovernment;
- factors that created additional challenges in eGovernment;
- countries interested in case studies;
- advice offered to WITSA colleagues; and
- WITSA suggestions to advance eGovernment.

Sixty-seven countries were invited to participate in the survey; 36 countries (54%) responded (some in complete form, some only partially completed; though all countries that responded received follow-up clarification and confirmation correspondence from the author to strengthen the survey findings).

According to the author, the most important findings delivered to the WITSA members were as follows (these findings were used to consult with the eGovernment Consultation Committee to develop the project management enabled solution and compendium of 10 challenges):

1. All countries face similar problems, irrespective of their position on the eGovernment continuum; this applies to the distribution of countries in the initial emerging stages (40%) versus those implementing or transforming their governments (60%).
2. Both developed and underdeveloped countries face similar challenges in managing cultural change within their organizations, implementing citizen-centric solutions, and adequately modernizing and transforming their public-sector institutions.



3. Benefits from eGovernment are not automatic; it depends upon how the initiative is implemented and incorporated into the government infrastructure and blended with government priorities. (Five respondents categorically stated there were no substantial improvements from eGovernment.)
4. Most countries approached eGovernment in the same manner and implemented comparable applications; but none expressed success in transformational change from within the public service itself.
5. Most countries had similar problems with change management, organizational opposition, the inadequacy of skilled labour, developing supporting infrastructure, encouraging citizen take-up and citizen-centric solutions, and dealing with the complexity of the government-wide interdependent solutions.
6. There are lessons and knowledge to be learned and shared between one another – what is missing is the mechanism to make the connections for collaboration.
7. Most of the positive experiences in eGovernment were limited to the transactional domain: call centres, websites for citizens, Internet access, filing taxes, finding information, paying fines, and registering vehicles.
8. Most of the negative experiences were in inadequate infrastructure, keeping content relevant, lack of citizen take-up, and delay of implementation.
9. The reasons that inhibited eGovernment progress were the complexity of transformative and innovative solutions, lack of skilled staff, organizational opposition, and government interdependencies.
10. The lessons learned ranged from the need to keep projects small, the importance of moving quickly, offering value, having a national plan, and skilled people.
11. The hardest part of eGovernment was the culture change, availability of funding, creating trust between government and solutions providers, the lack of legal framework implementing portals, and maintaining the content, breaking down the silos, and satisfying users.
12. The additional factors that challenge eGovernment are complicated work environments, outdated business models and systems development methodologies, lack of single organizational driver, the need for a holistic approach, and the requirement to engage citizens and address security needs.
13. The recommendations to facilitate progress were to ensure political support, develop cluster groups, break down silos and administrative resistance, ensure availability of qualified personnel, and to develop a well thought out plan to be communicated to all stakeholders.
14. These findings constituted matters of most interest to the members and, in terms of this research, highlighted and supported the literature review in the consistency of the barriers and challenges that inhibited eGovernment success.

These survey findings were summarized and released in 2006. The survey findings were also presented to the eGovernment Consultation Group and other key survey stakeholders for review, analysis, feedback, and corroboration. The author led an interactive, iterative



review and analysis of the survey and follow-up information with the objective of providing a well-articulated and valid record; the paper created a compendium of 10 transformational eGovernment challenges and barriers. This consultation activity to consolidate and validate the information from the survey findings was conducted through meetings, telephone discussions, email correspondence, and presentations to clarify, elaborate, consolidate, compare, and contrast the findings with the literature review. In this way, the author and consulted colleagues were able to develop a more in-depth appreciation and understanding of the actual “show stopping” barriers that impede the progress of the success of eGovernment.

Through this research and follow-up consultation and analysis, a holistic, synergistic compendium of “transformational eGovernment challenges and barriers” was created, and each item in the compendium is supported by relevant literature, albeit in some cases the description and intent of the challenge is not precisely but rather only tangentially recognized. The examination of how project management could address these challenges was based upon the development of the compendium described below.

Step 4 Project management enhancement potential analyzed

2007 - 2008

The author followed up with a number of countries and the Advisory Committee to examine the feasibility of developing case studies to be shared and the feasibility of a examining a solution to the barriers and challenges. Project Management was identified as a major barrier, and the author undertook to assess project management as a potential facilitator to improve the management and successful implementation of eGovernment projects.

Based upon the initial survey and follow-up discussions, as well as on-going international discussions with colleagues and the eGovernment Consultation Committee, the field of project management was determined to be lacking in adequately supporting eGovernment success and an area ripe for enhancement to more fully address transformational eGovernment needs.

This research was based upon the hypothesis that the project management discipline does not effectively manage the delivery of eGovernment projects because it does not address the most critical challenges in managing eGovernment projects (Aikins, 2012).

Findings

As stated earlier, based upon an interest to uncover the challenges and barriers that impede eGovernment success, an eGovernment survey was developed and administered by this author with the World Information Technology and Services Alliance (WITSA), the national technology associations in 67 countries. The purpose of the survey was to determine the key problems and challenges inhibiting the success of eGovernment around the world and how project management could be enhanced to remedy them.

It was also intended to summarize eGovernment information by country and include successful case studies that could be used as a learning tool and shared with other countries. Based upon these findings and extensive follow-up consultation with the survey members, the lack of modern project management tools to aid in the design and delivery of eGovernment across countries was highlighted as an inhibitor that could be examined as a potential application ripe for informational improvements.



The following eGovernment challenges were identified that could potentially be addressed through a revamped, technology-enabled project management methodology (a summary of each challenge is provided along with a short description). In addition, enhancements to the project management process to address these limitations in an eGovernment environment are also introduced.

a. Definition of the compendium of 10 international challenges to transformational eGovernment success

1. Requirement to manage diverse and conflicting stakeholder interests within a governance framework

Stakeholder interests are usually conflicting because eGovernment applications are regularly developed with one or more departments and central agencies. Each of these departments and agencies has a unique legislative mandate; accountability regime; culture; history and background; and, more recently, security requirements.

2. Challenge to continuously adapt to and blend technology, people, and processes

Today's system environment is more organic than it was in the past; previously, system solutions were applied to a corporate service environment. Today's systems are at the core of company performance, not on the periphery. They are significantly affected by evolving priorities and circumstances and are more integrated with the operational environment, including technological developments, the capacity of the resource experts, and constantly changing and evolving business processes.

15. Outdated business models that reward traditional applications

Most business models do not recognize that collaborative and unprecedented solutions do not conform to the criteria for performance measurement targets, accurate costing and resource utilization, and work plan deliverables whose solutions are not known until they are negotiated and well into the implementation stage. Promises of cost and resource reductions, along with improved efficiency and effectiveness, gain the funder's attention more than promises of transformation and innovation.

16. System development models affected by political realities and a new relationship with the private sector

Most system development models do not recognize the "stop and start" reality of projects affected by political cycles and funding priorities, and the need for system development fragments to be reused instead of continuously "starting over." Though cancelling projects is generally due to changing systems objectives, it is critical to recognize the waste of precious resources and time and the inability to recover and reuse these efforts. However, public service has been impacted significantly through private sector contracting and outsourcing arrangements. The integration of private and public sector resources is now mandatory.

17. Lack of access to lessons learned and a body of knowledge for government-wide projects

Project managers are designing and implementing system solutions that are often unprecedented and government-wide, and yet they have no facility to access the



knowledge or benefit from the experience gained from other project managers in similar circumstances. The problem is that there is no way to harness previous experience and no demand to conduct and access lessons learned.

18. Promises of interoperability, integration, and cost and resource savings

The eGovernment environment is predicated upon a collaborative and partnership-based environment that requires sharing both work and accountability responsibilities, and it is usually argued (and ultimately funded) under a banner of promised cost savings and resource reductions.

19. Proliferation of information and the challenge to judiciously access and manage information

The information age exacerbates project management problems because of the massive and exponentially produced data that must be sorted out to effectively implement system solutions. The interconnectedness of information and system requirements is so overwhelming that projects suffer from the weight of information. Mining through this data to retrieve the relevant information produces a “spin and churn” that can be counter-productive; and this, along with the lack of authoritative control to wind through the layers of information, can derail the project.

20. Lack of a comprehensive holistic approach to project management as the driving force

Project management often plays the role of arbitrator, as it is often the agent that brings the disparate parties together to deliver a solution that was not driven by either party. This is usually the case with citizen-centric applications as they cross the program interests of each of the contributing organizations. Project management needs to drive the solution to change the business processes of the affected departments and turn the solution into a government-wide enterprise.

21. Limited access to vital subject matter expertise

Within governments, knowledge is either so vastly spread or not available that it is difficult for the project manager to understand the implications of systems design. The knowledgeable personnel are difficult to locate and approach given the hierarchical and organizational limitations, and are frequently reassigned and no longer accessible.

22. Organizational environment not presupposed to enterprise-wide transformation

Departments do not necessarily act as units of a government enterprise; they are vertically based with individual objectives and resource reward mechanisms. Accountability of each department is to its Minister and senior officials, and to the government acts for which it was created.

b. Description of the potential project management improvements to address the compendium of 10 international challenges to transformational eGovernment success

The following discusses the key enhancements required to project management methodologies to transform them from administrative and compliance processes to results and accountability driven mechanisms.



1. Requirement to manage diverse and conflicting stakeholder interests within a governance framework

Project management within transformational eGovernment is currently a staff function that incorporates the established project management methodologies that are in use throughout the government project centers of excellence or other such government management control units. However, this staff function must integrate with the work standards and processes applicable to particular governmental operating units. The interaction of the project staff function and the operating unit line function is a key stakeholder requirement, particularly when the situation is complicated by conflicting stakeholder interests.

The existing methodologies handle this requirement by leaving the project manager and team to sort out the procedures for working amid the danger of duplicate activities; unclear or vague responsibilities; and confused reporting lines. They do little to ensure that senior and other appropriate levels of management effectively participate in the development, delivery, and operations of transformational eGovernment portfolios of programs and projects. Rating and weighting the impact of stakeholders throughout the life of the project is key to project management success.

The project initiating and planning processes described in the project management methodologies do not effectively lay out how the project team can gain a complete understanding of the existing transformational eGovernment processes and how the stakeholders interact externally and internally. The process of collecting requirements and creating a project scope document and a work breakdown structure does not sufficiently take into account the impact that stakeholders have throughout the life of the project. The scope of the business changes and the associated use of ICTs change.

An information enhanced project management aid could categorize and 'weigh' the stakeholders influence. It could relate their interests to reporting requirements. It could monitor and incorporate changes to their interests and changing degree of influence. It could provide 'intelligence' to the project manager on the implications of accommodating changing interests; i.e. impact on other interests and additional time, cost, and reporting requirements. It could highlight to the governance committees the complexities and interdependence of stakeholder interests and the impact on project success and accountability without impeding development. It could highlight, for example, the gap between the interest in considering a government as a single enterprise versus the reality of managing different and competing departmental or ministerial interests and accountabilities. It could also relate interests of the delivery agent (responsible department) with the product – for example, to highlight the inappropriate assignment of accountability to a third party not directly involved in the product line.

2. Challenge to continuously adapt to and blend technology, people and processes

Transformational eGovernment projects are dependent upon robust and flexible ICTs; therefore, transformational eGovernment project management methodologies should include specific procedures to reflect this reality. The procedures should ensure that project managers consult with industry to test the viability of the proposed ICT enabled change; outline the need for a comprehensive and well-evidenced examination of the use of applications for meeting requirements of proposed transformational changes; and include an open and constructive relationship with ICT suppliers and providers. ICTs need to remain aligned with eGovernment technology, people and processes.



An informationally enhanced project management methodology could highlight the impact of systems and projects on organizational business processes and the issues associated with personnel revising their workplace practices. It could assist in mapping and managing the business process changes resulting from the implementation and evolution of the project. It could also relate the organizational objectives to those particular practices, and identify potential technology enabled support; for example, offer an automated checklist to the project manager to recognize the organizational and personnel impact. It could revisit the changes and implications along the project implementation process as they are not static and are adjusted as the project evolves. Ultimately, technology could be designed to contribute to the core performance as these systems form the new basis of the organization's capacity to meet its mandate.

3. Outdated business models that reward traditional applications

Transformational eGovernment business models must incorporate the decision-making structure that ensures strong and effective leadership of the ICT effort in support of the business change. Current practices too often reward applications that are easier to measure or understand or cost; not necessarily criteria that leads to complicated innovative changes for a transformational objective.

If the feasibility analysis and project approval process could become part of the overall project management methodology, technological improvements could be developed to help support a shift in the business model criteria to fund the more controversial eGovernment projects. This could involve changing the criteria from performance specificity and delivery measures to rewarding more innovative and transformational based applications.

4. System development models affected by political realities and a new relationship with the private sector

Key project stakeholders are interested in a project's results and products rather than the procedures that were used to carry out the project. Project delivery is a product that enables sponsors to assess the rate and quality of progress; and it permits the users to ascertain that their original request represents their actual needs, and reflective improvements.

The project management methodology could be expanded to subsume system development approaches that meet partnership and transformational solutions. Technology could be provided to assist the management of information based projects, which would address the system elements and project management environment, and contribute to the negotiated effort of finding and delivering a project based solution.

System development and the identification of requirements has become a more 'moving target'. The relationship between government officials who express their requirements and the private sector capacity to lock them down is strained. The scope and requirements shift is due to changing political interests, funding levels, relationships, accountability regimes, resource availability, and individual influences just to name a few, and this is becoming increasingly difficult for the private sector to carry the cost of chasing requirements.

5. Lack of access to lessons learned and a body of knowledge for government wide projects

There are many reasons why lessons learned are not a factor: lack of time; incentives; resources; management support; the capacity and knowledge to collect store and access



the information. Useful lessons learned often focus around risks, issues, change requests, and ICT provider concerns. But just as importantly, methods of ensuring that project managers see the value in applying lessons learned to the uniqueness of their specific project. They must include their evaluation in the scope of 'getting things done'. Analyzing lessons learned, in the form of a formal literature review, for example often results in getting things right the first time.

Recent popular language discusses a 'wicked problem' to describe a problem that is difficult or impossible to solve because of incomplete, contradictory, and changing requirements that are often difficult to recognize. The term 'wicked' is used, not in the sense of evil but rather its resistance to resolution. Moreover, because of complex interdependencies, the effort to solve one aspect of a wicked problem may reveal or create other problems.

Project managers are rewarded for getting things done, and in this current regime action is better than thought or discussion – the perceived error of focusing on doing as being more important than reflecting. But lessons learned can lead to correct action and contribute to getting these things done and they can avoid the cost and effort of project rework through planning, training, and communicating.

Lessons learned are not just theories; they can achieve results and cannot be ignored as they have in the past. The new methodology would ensure that the reflection on lessons learned would become inherent.

A key feature where additional information could benefit the project manager is in having access to the experience and knowledge attained from actual 'on-the-ground' applications. The project management methodology could be expanded to support the overall project management and implementation of new solutions, and contributing to building a repository of experience could be of immense value towards the successful implementation of future projects. This approach could encompass the need to access and document experiences from individual projects for a historical database but more importantly, targeted as the agent to influence the design and implementation of future projects.

6. Promises of interoperability, integration, and cost and resource savings;

Interoperability, integration, and cost and resource savings in transformational eGovernment requires a multi-layered multi-faceted backroom technology that is required to participate in a technology-driven public sector economy, and yet delivering upon pre-established savings or systemic approaches before deliverables are available often leads to inaccurate estimating that damages the transformational agenda.

The project management methodology could be strengthened to provide project managers and governments the tools to achieve interoperability and integration. (Focusing on achieving cost savings is another matter, and perhaps not reasonable in the short term due to the high costs required to design and implement new systems.) Using technology to have access to the information required to deliver on interoperability and integration would be extremely helpful to the project manager. Having automated access to an understanding of the systems and processes required to accomplish interoperability and their interrelationships, as well as the business processes and systems to achieve integration would contribute greatly to eGovernment progress and ultimate success.



7. Proliferation of information and the challenge to judiciously access and manage information

The transformational eGovernment project manager faces, from the project outset, the onerous task of compiling indigenous information associated with managing a project. The project manager has to develop and manage all the detail associated with the processes, dates, tasks, costs, and people. He spends his time addressing these requirements and serving another master rather than 'getting the job done' and driving the project to success. However, these labours apply to both internal and external activities constantly focusing on administration and chasing estimates and managing relationships with the governance committees instead of being the prime user of this information. He collects and reports and becomes subservient to information management. This has been a traditional onerous effort by the project manager and he becomes mired in the numbers and irrelevant measures by running to placate the bookkeepers and governance players who usually are not wedded to the product output. (Hence the interest in the tiresome, nagging detail, and not necessarily relevant administrivia.)

The transformational eGovernment project manager, in order to focus on project results, must optimize the use of available Internet tools to manage the collection, access, and storage of project information. But the transformational eGovernment project manager can no longer be the focus of the management of information; no longer be the omnipotent information manager. He must become the sage in receipt of this data, assembled by others so that he can effectively analyze project process and results. The project manager must 'stop rowing and start steering' or risk being swamped by the ubiquitous proliferation of project management information. He suffers from the ease to follow the bureaucratic requirements instead of challenging them in the name of product success and outcome. He unwittingly becomes the bottleneck of information – in and out; a key stakeholder who needs it most. Other people must assemble and manage the changing and interdependent data, so that the project manager as prime user may read and analyze the information, and no longer 'feed the beast'.

The management of transformational eGovernment information must use Internet based and technological tools to harness the power collective intelligence requires. Rather than being a handler of information the transformational eGovernment project manager must become a key intelligent user that understands the social, cultural, economic information environment in which transformational eGovernment operates. The transformational eGovernment project manager must prioritize results over processes, and be resolved to use the project information to detect and solidify unstated assumptions and 'blind alleys' and interfering governance committee members not committed to the final product.

A broader project management methodology could benefit from the aid of better information and support in managing the interrelationships, location and access of information as it pertains to all facets of project management; this includes the horizontal and user related content information as well as the process related information required to manage the project itself. Content information would also assist in assessing the implications of changing and evolving requirements, users and stakeholder and governance committee reporting requirements.



8. Lack of a comprehensive holistic approach to project management as the driving force

In the management of transformational eGovernment projects there are very few material individual or group incentives for performance albeit there is a long established commitment to public service. The individual driving criteria may erroneously be to the mechanistic project management reporting scheme and not to the project success; reporting successfully on measures such as timing or cost controls rather than on results.

Concomitantly, few government organizations have created a 'risk culture' that rewards well-managed risk taking within the domain of transformational eGovernment project management. As a result the project manager tends to operate in a cocoon of project methodology processes that demonstrate performance and afford protection against possible criticism; the propensity to hide behind governance committees and their announced performance measures.

Transformational eGovernment project managers and those organizations with related responsibilities for project contracting and associated decision-making often become entangled in project management methodology processes such as 'earned value management' (EVM) –esoteric to all except some specialists. Yet, there is no process dedicated to the realization of project results by the transformational eGovernment project manager.

Furthermore, in enterprise wide government applications, when the project spans numerous departments and agencies each having varying degrees of interest and accountability, the project manager is often left to be the 'driver' and 'prime user'; an unnatural occurrence yet imperative for project success. This situation is exacerbated when central agencies or special programmes fund the government wide initiative instead of the participating funders.

The project management scope and tools for overall responsibility for project success could be expanded to recognize the project manager as the holistic driver, negotiator and consensus builder. In this capacity, he needs authority and information on the delicate interests both overt and unarticulated on the issues and complications that could derail or promote project success. Technology support and an expansion to and recognition of the scope and responsibilities of project management could contribute to project success.

9. Limited access to vital subject matter expertise

There is likely no factor that contributes more to the success of any transformational eGovernment project than having an in-depth and complete definition of the project's scope of work and, as importantly, having the ability to identify and measure the inevitable scope changes that occur during the life of the project.

Project management methodologies rely heavily on scope processes and this includes the use of subject matter expertise. But the methodologies do not recognize the need to build capacity and capability within the project to develop scope and deliver project results based upon pragmatic subject matter expertise.

Instead transformational eGovernment project management methodologies often look to 'historical organizations assets' that contain subject matter expertise, rather than having direct interaction with subject matter experts.



To be effective in the development and delivery of transformational eGovernment project management, methodologies must incorporate procedures that broaden and deepen project management skills in managing ICT programs, as demanded by the information and digital age. This includes an adoption of subject matter expertise.

During the management of transformational eGovernment projects, subject matter expertise is often developed by and inculcated into third-party consultants; because of this, they often become *de facto* project managers that hoard critical corporate knowledge. This becomes an issue that must be addressed by transformational eGovernment methodologies.

The project management scope could be expanded to recognize the importance and difficulties in having access to the subject matter expertise within the client area for the project team when and as required. Though these personnel do not form part of the project team, they do influence the success of the project, and in an informationally enhanced environment, a project management methodology could include the facility to identify, manage, and have access to this expertise as required.

10. Organizational environment not presupposed to enterprise wide transformation

In transformational eGovernment there are usually a number of groups with a divergence in attitudes that are involved. And so there is the potential for problems caused by disparate vested interests. Power struggles can arise from: conservative versus risk-adverse approaches to project management; personal and organizational fear of the loss of power, authority, and influence; and ineffective communications around the boundaries and interfaces of impacted organizations. In some cases organizations are dedicated to maintaining existing parochial organizational arrangements and they are diametrically opposed to operational change.

The project management scope could be expanded to recognize the interdependencies and breadth of a government enterprise, and could use technology to help tag and identify the relationships and associated transformational eGovernment activities.

Relevance As Emerging Topic

Over the past two decades as a transformational eGovernment practitioner in the Government of Canada Federal Government, Independent eGovernment Consultation, and as a professor at the University of Ottawa, Canada, the author has experienced the operational practice and the academic theory (OECD, 2001; Oxford Institute, 2007; Roy, 2006) surrounding eGovernment. Academic theory has long promised that harnessing information and communications technology to the business of government would resolve many of its social, economic, and even political problems. And operational practice is now accepting the practicality of moving ICT beyond customer-facing processes to back office structures and practices as the appropriate approach to achieve that promise (Weerakkody, et al., 2011).

However, progress remains slow and halting and this directly affected hands-on interface with the eGovernment theory and practice (Aikins, 2012; Roy, 2006). It highlighted many of the eGovernment issues and challenges and it crystallized many of the disparities between eGovernment theory and practice. It led to the author's research into eGovernment.



This embryonic research effort began with information sharing and collaboration with fellow eGovernment practitioners, vendors and consortiums, special interest groups, and international organizations. This collaboration was focused on identifying and documenting a holistic assessment of the challenges and complexities impeding the operational implementation of eGovernment. This research work was enhanced by receiving an IBM student fellowship in 2007/2008 and the expression of intent by IBM in building a solution commensurate with problems and complexities. This initial research turned to in-depth eGovernment collaboration with international organizations such as the World Bank, the United Nations, and the World Information Technology and Services Alliance (WITSA).

This research purports, as an original contribution, that a synergistic compendium of individual transformational eGovernment challenges and barriers has prohibited transformational eGovernment success. This has not heretofore been articulated or their individual and collective impact and significance documented in the literature. The literature does not provide a comprehensive understanding of each of the transformational eGovernment challenges and barriers that are identified in this paper. Kamal, Weerakkody, and Irani (2011) confirm that there is a dearth of literature on the role of stakeholders, and this supports that transformational eGovernment challenges and barriers have not been articulated to this degree in the literature.

Transformational eGovernment barriers are discussed in the literature. But there is little evidence, recognition, or documentation of a holistic and interrelated set of transformational eGovernment related challenges beyond the list of “usual barriers suspects” cited as the common list that impede eGovernment adoption and systems development. There is no sense of the synergistic aspect of the impact of a compendium being greater than the sum of the individual challenges and barriers.

The list of ten transformational eGovernment challenges is offered as barriers beyond the “usual suspects” cited as the common factors that impede eGovernment adoption and systems development. Dawes (2009) offers the following as the most common barriers: the purpose and role of government, societal trends, changing technologies, information management, human elements, and interaction and complexity; Ebrahim and Irani (2005) offer IT infrastructure, security and privacy, IT skills, organizational issues, and operational cost.

In addition to addressing the ten individual challenges, this research addressed the need and importance to recognize the devastating and crushing impact of the compendium itself as a holistic and interrelated set that also needs to be addressed to manage not only the individual “parts,” but the “whole” as well.

The result of this research was the recognition that sustainable transformational eGovernment is an ideals concept: a concept that has yet to holistically and comprehensively master the challenges and complexities that thread throughout eGovernment.



Conclusion

eGovernment has not been the success originally envisioned around the world when initiated over ten years ago (Aikins, 2012; Roy, 2006). Even in Canada, where eGovernment was rated number one in the world for five years (Accenture, 2005), the revolutionary changes to Government administration and democracy have not materialized. Many champions of technology in government and industry alike are convinced that we have only begun to scratch the surface of digital innovation (Roy, 2006). eGovernment's first decade has arguably been much more transitional than transformational (Roy, 2006); and around the world progress has been even less (Aikins, 2012). Why has eGovernment not attained the promised success?

This research analyzes the challenges and barriers to advancing transformational eGovernment around the world and explores the feasibility of improved project management. It uncovers impediments not previously documented, provides a holistic synergistic compendium of ten challenges that impede eGovernment success, and assesses the feasibility of using project management to address some of these impediments and advance eGovernment progress.

References

- Accenture (2005) *Leadership in Customer Service: New Expectations, New Experiences*. http://www.accenture.com/Countries/Canada/Services/By_Subject/Customer_Relationship_Management/R_and_I/LeadershipNewExperiences.htm.
- Accenture (2006) *Leadership in Customer Service: Building the Trust*. http://www.accenture.com/Global/Services/By_Industry/Government_and_Public_Service/PS_Global/R_and_I/BuildingtheTrustES.htm.
- Accenture (2007) *Leadership in Customer Service: Delivering on the Promise*. http://nstore.accenture.com/acn_com/PDF/2007LCSDelivPromiseFinal.pdf.
- Aikins, S. (2012) Improving E-Government Project Management: Best Practices and Critical Success Factors. *Managing E-Government Projects: Concepts, Issues, and Best Practices*, Information Science Reference (IGI Global), Hershey, Pennsylvania, USA.
- Anthopoulos, L., Siozos, P. and Tsoukalas, I. (2007) Applying participatory design and collaboration in digital public services for discovering and re-designing e-Government services. *Science Direct*, Government Information Quarterly 24, pp. 353-376.
- Arif, M. (2008) Customer Orientation in eGovernment Project Management: A Case Study. *The Electronic Journal of eGovernment*, 6 (1): 1-10.
- Bouaziz, F. (2008) Public Administration Presence on the Web: a Cultural Explanation. *The Electronic Journal of e-Government*, 6 (1): 11-22.
- British Computer Society (2004) *Parliamentary Report on IT Project Waste Management of IT Projects: Making IT Deliver for Department of Work and Pension Customers*. <http://www.bcs.org/content/conWebDoc/1762>, August 26, 2004.
- Dawes, S. (2009) Governance in the digital age: A research and action framework for an uncertain future. *Government Information Quarterly* 26: 257-264.



- Ebrahim, Z. and Irani, Z. (2005) E-Government Adoption: Architecture and Barriers. *Business Process Management Journal*, 11 (5): 589-611.
- Elliman, T. and Irani, Z. (2007) Establishing a framework for eGovernment research: project VIEGO. *Transforming Government: People, Process and Policy*, 1 (4): 364.
- Fraser, S. (2006) Report of the Auditor General of Canada to the House of Commons. *Chapter 3, Large Information Technology Projects*, http://www.oag-bvg.gc.ca/internet/English/parl_oag_200611_03_e_14971.html, November 2006.
- Government of Canada Foreign Affairs and International Trade Canada (2006) *Government On-Line Final Report*. <http://www.dfait-maeci.gc.ca/departement/gol-annual-report-en.asp>, August 30, 2006.
- Heeks, R. (2003) Most eGovernment-for-development projects fail: how can risks be reduced? *iGovernment Working Paper Series*, Institute for Development Policy and Management, Manchester, UK, pp. 1-19.
- Heeks, R. (2008) eGovernment for Development – Success and Failure in eGovernment Projects. *eGovernment for Development Information Exchange*, coordinated by the University of Manchester's Institute for Development Policy and Management, <http://www.egov4dev.org/success/sfrates.shtml>.
- Janowski, T., Estevez, E. and Ojo, A. (2007) A Project Framework for e-Government. *United Nations International Institute for Software Technology*, UNU-IIST Report No. 359, April 2007.
- Kamal, M., Weerakkody, V. and Irani, Z. (2011) Analyzing the role of stakeholders in the adoption of technology integration solutions in UK local government: An exploratory study. *Government Information Quarterly* 28: 200-210.
- Kerzner, H. (2001) *Project Management: A Systems Approach to Planning, Scheduling and Controlling*. Seventh Edition, John Wiley and Sons Inc., USA.
- Misuraca, G. (2009) e-Government 2015: exploring m-government scenarios, between ICT-driven experiments and citizen-centric implications. *Technology Analysis & Strategic Management*, 21 (3): 407-424.
- Movahedi, B. and Lavassani, K. (2010) Organizational Development in Electronic Government Adoption: A Process Development Perspective. *International Journal of Electronic Government Research* 7 (1): 51-63.
- Nordfors, L., Ericson, B., Lindell, H. and Lapidus, J. (2009) *eGovernment of Tomorrow – Future Scenarios for 2020*. Gullers Group, Sweden.
- Organisation for Economic Cooperation and Development (OECD) (2001) *The Hidden Threat to E-Government: Avoiding large government IT failures*. Public Management website, Paris, France, <http://www.oecd.org/puma>, March 2001.
- Oxford Institute (2007) *Breaking Barriers to eGovernment: Overcoming obstacles to improving European public services*. eGovernment Unit, DG Information Society and Media, European Commission, December 23, 2007, http://www.egovbarriers.org/downloads/deliverables/solutions_report/Solutions_for_eGovernment.pdf.



Roy, J. (2006) *E-Government in Canada: Transformation for the Digital Age*. University of Ottawa Press.

Schwester, R. (2009) Examining the Barriers to e-Government Adoption. *Electronic Journal of e-Government*, 7 (1): 113-122.

Sharif, A. and Irani, Z. (2010) The logistics of information management within an eGovernment context. *Journal of Enterprise Information Management*, Emerald Group Publisher, 23 (6): 694-723.

United Nations (2008) *UN E-Government Survey 2008 From E-Government to Connected Governance*. Department of Economic and Social Affairs, Division for Public Administration and Development Management, United Nations, New York.

United Nations (2010) *E-Government Survey 2010 – Leveraging e-government at a time of financial and economic crisis*. United Nations Department of Economic and Social Affairs, United Nations, New York, http://www2.unpan.org/egovkb/global_reports/10report.htm.

Weerakkody, V., Janssen, M., and Dwivedi, Y. (2011) Transformational change and business process reengineering (BPR): Lessons from the British and Dutch public sector. *Government Information Quarterly*, 28: 320-328.

World Bank (2002) *The E-Government Handbook for Developing Countries*. Centre for Democracy and Technology, Washington, USA.

Ziemann, J. and Loos, P. (2009) Transforming Cross-Organisational Processes between European Administrations: Towards a Comprehensive Business Interoperability Interface. *Handbook of Research on ICT-Enabled Transformational Government: A Global Perspective*, Information Science Reference, London, UK, 2009, pp. 93 -116.