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Delivering professional projects

The effectiveness of project management in transformational e-government initiatives

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Received 7 September 2009
Revised 10 November 2009,
18 November 2009
Accepted 4 December 2009

Abstract

Purpose – Owing to inadequate implementations of project management (PM) procedures and processes, many large information technology systems (ITS) projects failed to deliver its promises. Also, many of the failures in the implementation of large ITS projects around the world have been attributed to inadequate PM action. This criticism encompasses e-government project initiatives which have attempted ambitious program change, major innovations, large transformations, enterprise wide solutions, collaboration across organisations, governments and private sectors, and the implementation of unprecedented (or ambitious) solutions. The purpose of this paper is to examine these issues.

Design/methodology/approach – This paper forms part of an ongoing research of a PhD degree to describe, critically evaluate and examine the underlying barriers and challenges in large e-government initiatives. Also, this paper examines change in organisations due to the change in the global economy and global information society as new technology is changing the nature of work. It identifies and examines the current and foreseeing problems with large e-government projects and describes how a sociotechnical approach which takes into account, technical, business, citizen, economic needs in the creation of a sociotechnical ITS for future citizens. In addition, the paper offers a technology-enabled enhancement to the project-initiation phase, the area identified as being particularly weak and inadequate in addressing initial requirements of e-government initiatives.

Findings – The paper proposes that technology can be incorporated into the professional practice of PM. It can also be a part of a passable solution as opposed to being distinct and separate from it. The PM supporting tools, as opposed to merely reporting actual versus plans have to increase the novelty (art and science) of PM through human interaction, empower the project manager and in aiding his capacity in delivering the expected outcomes.

Social implications – The paper demonstrates the value of effective project managers within the wider context of PM in transformational e-government initiatives. It believes that this research will have an impact on three important areas, namely project management practice (PMC), e-government projects and the transformation process of large projects in the public sector. This paper is about changing culture and practice of PMC in handling and managing large projects when different parties involve including outsourcing. This paper investigates and addresses, not only the transformation process of e-government projects, but also, the transformation of PM professional culture (i.e. PMC) that delivers and works.

Originality/value – This research paper contributes to the existing literature of PM of large e-government transformational processes. The paper addresses a number of e-government challenges, by critically analysing and summarising a list of e-government challenges and barriers arising from an e-government survey administered on behalf of the World Information Technology and Services Alliance which represents the national technology associations in 70 countries. It compares these challenges to the project management body of knowledge (PMBOK), which is the North American standard in PM methodology. Also, it highlights the weaknesses in PMBOK to address these challenges and offers a technology-enabled enhancement to the project-initiation phase. This is the strength of this paper.

Keywords Government policy, Citizens, Project management, Communication technologies

Paper type Research paper

Transforming Government: People, Process and Policy
Vol. 4 No. 1, 2010
pp. 73-94

1750-6166
DOI 10.1108/17506161011028812

1. Introduction

The areas of project management (PM) and e-government are gathering momentum for the last ten years. The adoption of information technology (IT)/information systems (IS) and managing the implementation of such technologies in the public sector provide opportunities to exploit the professionalism of the people involved in managing such large projects, the PM process and the philosophy behind it. Effective project management practice (PMC) is the main pillar in the success of e-government initiatives. Professional project managers play a major role in ensuring that large projects are delivered on time and on budget (Ebrahim and Irani, 2005). Such projects have a big impact on society. Governments are adopting new technologies to enhance service delivery to their citizens, and hence improving citizen-state relations. The aim of such large e-government project is to cater for different and reliable services and not profit (Irani *et al.*, 2005, 2008).

This contribution is based on an-going PhD research and related to the degree of public policy on the effectiveness of PM in the transformation process of e-government challenges, and barriers arising from an e-government survey administered on behalf of the World Information Technology and Services Alliance (WITSA). E-government has been defined as:

> [...] a transformation of public-sector internal and external relationships through use of information and communication technology (ICT) to promote greater accountability of the Government, increase efficiency and cost-effectiveness and create a greater constituency participation (UN, 2004).

According to this definition, e-government covers a wide range of activities and can embrace local, national and international government and agencies.

The last decade has seen an increase derive in bolstering e-government projects and the focus on utilising and the integration of IT/IS in such projects. Apart from the Canadian e-government transformation initiatives, there are many local authority initiatives with the UK e-government initiatives (Pearce, 2003). Also, many European e-government (Irani *et al.*, 2007; Virili, 2001) and worldwide e-government transformation projects initiatives (UN, 2005). Many e-government projects concentrate on the expenditure and saving cost as the main aim of such projects, rather than on the delivery, functionality, effective communication amongst the project teams, effective project practice and bridging communication among the different parties involved including outsourcing teams.

PM, is two sides of the coin (Gray and Larson, 2003; Heeks and Stanforth, 2007). PM is about managing technology, but more importantly is about managing people to deliver the tasks agreed upon on time and on budget. The success of the transformational e-government projects should be measured by what works and not by how much saving has been achieved in cost.

Also, this research paper examines why e-government initiatives and transformations have not progressed around the world to the degree originally anticipated? Nor have it been the driving force hoped for to revitalise and modernise the public service? (BCS Thought Leadership, 2005; Roy, 2006; Bélanger and Carter, 2006; Bélanger and Hiller, 2006). Though some countries, especially Canada (Desautel, 2005; Jorgenson and Cable, 2002; Fraser, 2006) have been extremely successful having been recognised internationally as number one in the world by Accenture for five years in a row. Though, the public service, in some ways, remains pretty much the same as it was almost nine years ago when e-government (or government on-line (GOL)) was first initiated in Canada in 1999 (Furlong, 2008). Because of this, and an international push for e-government developments,

there has been much analysis as to why it has or has not maturely developed, both in Canada and around the world, and how the experiences of those "who have gone before" can be shared with those approaching the starting line (Aldrich *et al.*, 2002; Elliman and Irani, 2007).

This paper does not claim that it will cover all the issues led to e-government projects failure. But it addresses lessons and insight to practical applications of some e-government transformations and will provide direction for future e-government transformations in managing large projects effectively.

1.1 Background to the problem

Following from above, investigating the effectiveness of PMC in e-government project initiatives is of interest to academics, practitioners, and public policy makers. A report released in October 2006 by the WITSA web site (www.witsa.org), acknowledges that the WITSA members (representing 67 countries) and their Washington, DC, Secretariat recognise that e-government developments are vital to each country's progress in revitalizing their public sector institutions and practices to compete and survive in the twenty-first century. Around the world, almost all public sector institutions are struggling with either entering the e-government market, or advancing and realizing its success. Regardless of your position on the e-government continuum, all can benefit from having access to the experiences and knowledge already gained from international colleagues, and in a deeper understanding of the barriers and challenges that impact the successful implementation and progress of e-government initiatives. Based upon this insight, in November 2005, the WITSA Secretariat initiated the development of an e-government survey that would serve to collect, and act as the medium to share e-government knowledge. In May 2006, the survey was launched in Austin, Texas at the WITSA Public Policy Committee Meeting, and the results released in Athens, Greece in October 2006.

Based upon an analysis of the survey results supported by a number of intense conversations and follow-up analysis with individual countries, a second survey was conducted in October 2007 to seek agreement that a revamped PM methodology and the use of technology within the PM field itself could be developed as one solution to potentially address some of the challenges and barriers identified as hindering success and international progress within the e-government field. The results of this second phase of the e-government project were reported in Cairo, Egypt in November 2007. A number of the WITSA countries will be involved in the testing a revised PM methodology designed to address more directly the need of e-government projects (Bertot, 2003; Carter and Belanger, 2005).

1.2 PM: purpose, aim, and objectives

The purpose of this paper is to assess the feasibility of incorporating a technology enabled PM framework to assist in managing e-government projects. The attached framework (see the Appendix) of the "PMBOK Plus Initiation Template" is the proposed framework front-end addition to the project management body of knowledge (PMBOK). The objective of this framework is to highlight and address the weaknesses identified in managing e-government projects. Also, to provide the project manager with improved technology and "human computer interaction" in delivering on his responsibilities (Weerakkody *et al.*, 2006). This template will be reviewed and hypothetically tested by a number of (WITSA) countries over the next couple of months.

2. Literature review

This section provides a review of e-government transformation projects. It is worthwhile mentioning that, according to Weerakkody *et al.*(2006), there is a great need for harmonisation of such large e-government projects during the transformational process between IS, citizens' needs, and PM. An e-government survey was administered to WITSA in May 2006 to determine the key problems and challenges inhibiting the success of e-government around the world. The results of this survey were delivered to WITSA in Athens, October 2006. Based upon an interest to provide practical solutions to advance the success of e-government, a series of observations and follow-up one-on-one consultations were held with a number of WITSA countries.

The results of the WITSA study produced ten e-government challenges. Each of these challenges is corroborated by other literature that is reflected here which affirms that none of these barriers are new – all have been examined before but nowhere does the literature specifically identify the relevance and interference in successfully managing and implementing e-government applications.

The first e-government challenge identified was the requirement to manage diverse and conflicting stakeholder interests, culture, and mandates within an enterprise-wide governance framework. This was clearly stated by Al-Karaghouli *et al.*(2000), and as far back as Mumford (1985). The second challenge to blend changing technology, a mobile workforce and increasingly bureaucratic work processes was reported by Carr and Gannon-Leary (2007), Andersen (2001) and Anttiroiko (2002). The third challenge raised was the weakness in the application of traditional business models that rewarded outdated government transactional-based work routines and supporting applications as acknowledged by Ward and Peppard (2002) and Atkins and Leigh (2003) as opposed to the e-government innovative and transformational applications and solutions. The fourth challenge highlighted was the problem in the "start and stop" mentality of most system development models and the continuation and project approval subject to political and executive whims and priorities. The issue of system development models affected by political realities including a heavy reliance on private sector resources and skill sets was examined by Ward and Peppard (2002), Bentley (2002) and Avison and Fitzgerald (2003). Lack of legislative requirements to incorporate lessons learned from a body of knowledge for government wide projects, as indicated by Elliman and Irani (2007), and Bentley (2002) respond to the fifth challenge and the corresponding disinterest and continuity and value in doing so. Promises of cost effective enhanced functionality because of system interoperability and work processes integration, and resource and cost savings as discussed by Brown (2000) hinder the focus and value of l as the information age exponentially explodes and the relevant bits lost in a wave of "noise" in this seventh challenge. The eighth challenge and the lack of results driven comprehensive holistic PM approach and methodology that is grounded on e-government objectives as the driving force was raised by Gray and Larson (2003). The penultimate challenge of scarce vital subject matter expertise within government organisations and limited access to private sector expertise was discussed in the CITU (2000), and the last and final tenth challenge of organisational environment not presupposed to enterprise wide transformation was identified by Council for Excellence in Government (CEG) and Cok (2003).

In addition to the North American e-government projects and despite the different PM methodologies, the UK was not immune. The rate of e-government teething and failures in

the UK for the last five years is high too (Gubbins, 2002). For example, prior to Christmas 2003, thousands of cash-strapped families were left out of pocket after another glitch by the Inland Revenue (IR) system. The IR has admitted that some claimants went for nine days at the end of December 2003 without their benefits because of a glitch. This finding emerged recently as the problem was caused by an automated bank transfer that went wrong which resulted in several thousand families did not receive the tax credit as expected on 29 December 2003. The problem with the bank-automated payments to number of recipients was resolved and everyone received their money by 6 January 2004. This IR glitch led to many families racked up by bank charges on overdrafts. December's glitch was just the latest in a long line of problems by the IR in paying the Child Tax Credit since its launch in April 2003.

At the beginning of its launch, almost a million families out of 5.75 million eligible did not receive payments in the first month. Two months later, half a million were still waiting. In addition, 1,000 did not receive the correct amount. Also, the IR was the latest to react to what it says are unwarranted claims of IT glitches (Parliamentary Correspondent, 2005). In the IR case, the media and politicians blamed a software problem for a five-year delay in issuing reminders about topping up National Insurance contributions. But the IR insists that the real cause is a policy decision by the former Benefit Agency. The claims that the backlogged tax credits system was having further problems because it was incompatible with core IR systems have been dismissed by both the department and end-users. The IR stories seem to reflect a growing trend. It is too convenient to blame technology. E-government projects are not done in isolation, they are apart of wider business and organisation transformation projects with political deadlines as well as project deadline to be met.

PM in the public sector spell out the danger of loss of public confidence, as public sector IT/IS is not just about technology, but about convincing the people on the ground that it is worth them changing the way they work to fit in with it. In another case, Saran (2004) reported that the termination of £90m of EDS contract to develop a national e-mail system for 1.2 million NHS has hit the national and professional newspapers. This coincides with the Home Office – Prison Service system problems resulted in £7m salary error (Arnott, 2003).

Glick (2005) reported some of the event in 2004 including the foolish mistakes of the Child Support Agency system and the department for Work and Pension PC network crash. The e-university system is another spectacular example of PM failure in the public sector (Green, 2005), most of the failures in the public information technology systems (ITS) projects can be avoided if more thinking, better planning and rigorous PM put in it (Pellerin, 2009; Oates, 2005; Spiegel, 2004).

3. Research method: discussion and analysis

The research study investigates the e-government challenges and barriers arising from an e-government survey administered on behalf of the WITSA which represents the national technology associations in 70 countries. It compares these challenges to the PMBOK, which is the North American standard in PM methodology. An exploratory case study methodology was adopted. Yin (2003) and Eisenhardt (1989) agree that case studies are appropriate for exploratory research. Also, Eisenhardt supports their use for new topics in the absence of theory, where measurement is unclear, or when changes need to be tracked in large and complex projects; all of which applied to this study. This

research study combined multiple qualitative data-collection techniques. Data were collected through survey, observation, semi-structured interviews and document analysis. A total of 22 participant countries took part in the study (Section 3.2).

In the sections below, the process, the procedure of data collection, and data analysis are discussed to highlight prospective factors related to the effective management of e-government transformational projects.

3.1 Data collection

In order to identify such instances and to explore the arguments set out in this paper in depth and meaningful manner, a qualitative study was performed comparing e-government challenges and approaches between a numbers of countries. This comparison was conducted through the use of a survey administered in 2006 to the WISTA, which is an organisation representing the National Technology Associations in 67 countries.

3.2 Participants

The WITSA representative, who represented the National Technology Associations in each of the countries responded to the survey. The survey results posted in the WITSA web site (www.witsa.org) are based upon 22 participating countries plus follow-up in-depth interviews to determine the challenges and barriers identified for the lack of e-government success. The countries who responded are Bermuda (two submissions), Canada, Costa Rica, Finland, Guatemala, Japan, Hong Kong, Hungary, Macedonia, Norway, Netherlands Antilles, South Africa, South Korea, Singapore, Spain, Thailand, Trinidad & Tobago, Ukraine, UK, Venezuela, and Vietnam. The Phase I report, completed in October 2006 summarises the first phase of this study and is posted on the WITSA web site (www.witsa.org). The responses ranged from the unanticipated organisational opposition to difficulties in communicating requirements and obtaining information from different organisations.

3.3 Data analysis

Based upon Chris Johnson's work at Glasgow University (Johnson, 2007), in order to provide a good understanding of the data collected (Sections 3.1 and 3.2) and to determine the most effective research method to evaluate the potential improvements of a technology-enabled PM methodology. The following research methods were reviewed and dismissed as being too abstract and too removed from the problem of managing e-government systems to be applied or validated.

The "implementation driven research" methodology has been applied in this study. This approach is based upon iteratively building better systems but it was not considered since this is not the focus of this research. It is also considered less than optimal as if system fails; the analysis will not uncover any insights into the research question since the failure could be due to operational and implementation issues. In addition, it does not necessarily support that experiences and observations from a specific system be generalized to generic principles. But, the mathematical proof techniques, is another approach could be considered. This approach uses formal mathematical proofs to reason the validity of a hypothesis. The limitation of this approach is that the mathematical abstractions used in a proof can be too abstract or generic so that they ignore issues that should be considered during implementation.

The empiricism approach, lays out a sequence of steps; hypothesis, methods, results, and conclusion and requires a carefully controlled environment if the results of the

evaluation are to be accepted. In addition to the empiricism approach mentioned above, the "observational studies" are needed to assess the utility of a system in use, it is too upon the individual analyst and subject to operational variances including time constraints and resource availability.

Finally, action research is adopted as it is based upon a review of these potential research approaches, the most appropriate one to meet the criteria of this research was action research because it engaged the author as the action researcher. According to O'Brien (1998), action research is also called participatory research, collaborative inquiry, action learning, and contextual action research. This approach allows the researcher to engage a group of people involved managing e-government system to assess and test a solution to address the limitation in PM and provide recommendations. It allows for the members to study a system and problem and concurrently collaborate in influencing its change. This twin goal requires the active collaboration of the researcher to study the problem systematically in a practical "real" environment and ensure the analysis is informed by theoretical considerations, where appropriate. This approach also allows the researcher to participate, and not remain objective since the researcher (in this case) is a long-term, experienced public sector executive.

The action research model will be based upon an approach to amalgamate the members, review the problem definition, assess the feasibility of incorporating an enhanced PM methodology considering the use of technology-enabled attributes, assessing its effectiveness in a theoretical environment and making recommendations. The action research model, and most particularly the traditional action research approach is recommended as it is particularly relevant in real situations since its primary focus is on solving real problems – and based upon the knowledge of the researcher and access to senior level executive personnel was determined to be the best approach. Finally, the model to be used will be based upon Baskerville's (1996) approach.

4. Main findings and discussion: e-government evaluation model

Stemming from the literature review in Section 2 and according to the WITSA survey, this research study has highlighted ten e-government challenges which are not adequately covered in the PMBOK methodology and specifically not addressed within the project-initiation phase (Section 2). This research activity is premised upon the position that the project initiation analysis (PIA) conducted as part of the PMBOK methodology is not always adequate nor relevant to the needs of systems development projects for e-government projects – those applications that use technology to drive and service the "business" of government. Along with designing input, output and analysis routines to address the key e-government PM challenges, this research documents the need to maintain a technology-supported description and requirements of the project in order to improve the management of the project as it unfolds.

The model used to evaluate this approach which is shown in Figure 1 is based upon the design of a technology-enabled framework to collect and report upon additional information. The analysis conducted to produce additional project initiation information required to more effectively manage and implement a successful project. The results should be available by early 2010:

- *Step 1.* Identify the e-government challenges to be addressed by an improved project initiation management methodology.
- *Step 2.* Identify the framework to be used to collect the additional information and outputs required to improve PM through a more fulsome PIA:

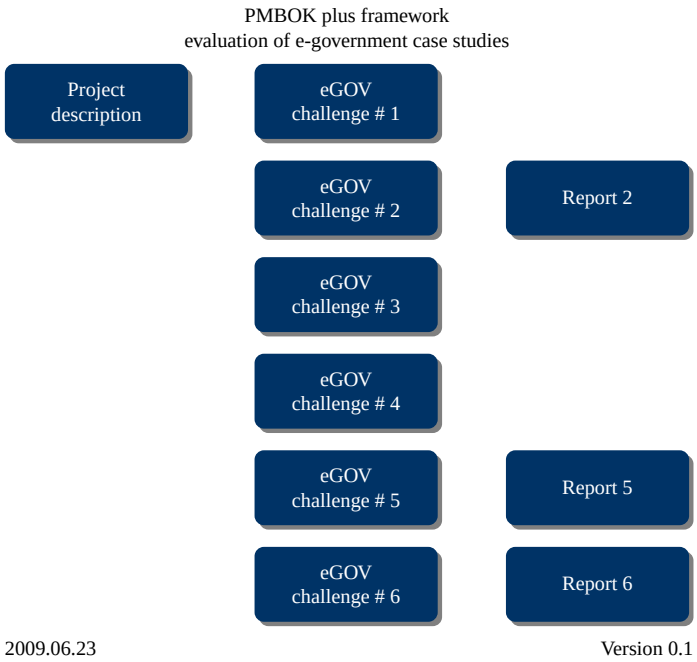

Figure 1.
E-government evaluation model

  - current PMBOK project-initiation approach;
  - proposed additions to the PMBOK project-initiation approach; and
  - framework – inputs and outputs.
- *Step 3.* Identify a group of experienced e-government and IS personnel involved in managing and delivering upon major, complex, government wide e-government applications.
- *Step 4.* Identify three Government of Canada e-government test cases.
- *Step 5.* Populate the framework with the input and output information for the three Government of Canada e-government test cases.
- *Step 6.* Assess the impact with each e-government executive of the "before and hypothetical after" analysis from their perspective and improved project success had the framework been applied.
- *Step 7.* Summarise feedback.
- *Step 8.* Document findings and develop recommendations.

4.1 The need for effective PM: major e-government challenges

This section will show justification of the need for an effective PM. To support this argument, an e-government survey was administered to WITSA in May 2006 to determine the key problems and challenges inhibiting the success of e-government around the world (CEG, 2000). In October 2006, the results of this survey were delivered to WITSA in Athens. Based upon an interest to provide practical solutions to advance the success of e-government, a series

of observations and follow-up one-to-one consultations were held with a number of WITSA countries. This resulted in the development of a list of ten e-government challenges that could potentially be addressed through improved PMCs.

As mentioned above that there are ten e-government challenges which will be briefly addressed through PM as follows.

The first challenge, is to identify functional (smart requirements). It is very crucial to identify, to elicit and to manage requirements of such diverse and large e-government projects. As the requirements of different stakeholders are so diverse and conflicting stakeholder interests, culture, and mandates within an enterprise-wide governance framework. This is clearly stated by Al-Karaghouli *et al.*(2000) and Mumford (1985).

Second, as reported by Carr and Gannon-Leary (2007), Andersen (2001) and Anttiroiko (2002), that there is a need to continuously adapt and to blend changing technology, a mobile workforce and increasingly bureaucratic work processes including outsourcing parties, which is the normal practice in large e-government transformational projects. Third, according to Ward and Peppard (2002) and Atkins and Leigh (2003), there should be traditional business models that reward outdated government transactional-based work routines and supporting applications. Fourth, Ward and Peppard (2002), Bentley (2002), and Avison and Fitzgerald (2003) emphasise clearly on system development models that affected by political realities. Public decision makers place a heavy reliance on private sector resources and skill sets. Fifth, is the lack of legislative requirements to incorporate lessons learned from a body of knowledge for government wide projects, as indicated by Elliman and Irani (2007) and Bentley (2002).

Sixth, this is related to the promises of cost effective enhanced functionality because of system interoperability and work processes integration, and resource and cost savings (Brown, 2000). Seventh, to judiciously collect a range and access the enormous and increasing volume and fluidity of structured information and to derive an effective information-driven management regime (BVPL, 2003; Bygrave, 2003). The eighth challenge according to Gray and Larson (2003), is the lack of results driven comprehensive holistic PM approach and methodology that is grounded on e-government objectives as the driving force. Ninth, as reported by CITU (2000), that scarce vital subject matter expertise within government organisation and limited access to private sector expertise do exist, which hinders the running and managing of e-government transformation projects. Tenth, both CEG and Cok (2003), indicate that the organisational environment is not presupposed to enterprise wide transformation. This is due to the professional culture of which certain public organisations function in their approaches to large public projects, which is different from the approach adopted by the private sector.

The identification of these ten challenges is professed in this paper as the underlying challenges and barriers that inhibit PM success in these types of complex, government wide e-government projects and the challenges that current PM methodologies and software do not address (Ebrahim and Irani, 2005).

It is worthwhile noting that none of these factors identified are recognised by the international institutions that assess progress in e-government around the world. Over the last decade, there have been a number of institutions who measured e-government success and progress around the world. They apply similar criteria focusing primarily on the transactional capability and access to service transformation. Below is a summary of the three main contenders including their approach, criteria and international ranking, and it

is notable to highlight that there is no relationship between the underlying problems as identified in this research that preclude project success.

The last Accenture (2006) report which included an international ranking was entitled "Leadership in customer service: new expectations, new experiences". The international rankings are Canada first, followed by the USA, Denmark, Singapore, and Australia. The report's research methodology was based upon the quantitative assessment of the quality and maturity of services for both citizens and businesses covering 177 services in 22 countries. Accenture's approach was to engage researchers to behave as citizens and businesses for one week in January 2005, and as such attempt to fulfil service needs that typically might be provided by a national government. They assessed web sites of national government agencies to determine the breadth of services and the level at which citizens could relate with their governments.

The criteria used to rank e-government performance were based upon two elements; service maturity and customer service maturity. Service maturity is the level to which a government has developed an online presence (number of services and completeness). The customer service maturity measures the extent to which government agencies manage interactions with their customers (citizens and businesses) and deliver services in an integrated way. The score is based upon an overall maturity percentage and categorised as being a trendsetter, challenger, follower or being in the formative stage.

The purpose of the Accenture report is to help governments identify the value of putting services on-line and embrace a vision of leadership in customer service and service delivery, because in their opinion, sweeping transformation of government service will lead to high performance by making them more citizen centered, outcome oriented, and cost effective.

The e-government Readiness Survey 2005 assessed more than 50,000 features of the e-government web sites of the 191 UN members states in order to determine their state of readiness in employing ICT to provide basic social services. Employing a statistical model for the measurement of digitized services, the UN e-Government Survey 2005 assessed the e-government initiatives according to a weighted average composite index of e-readiness based on web site assessment, telecommunications infrastructure, and human resource capabilities (UN, 2005).

The results categorise the country as being an emerging presence, enhanced presence, interactive presence, transaction presence or networked presence. The 2005 results were based upon a two-month analysis in July-August 2005. The purpose of the UN survey is to explore the linkages between e-government and human development and to allow policy makers to make an international comparison.

The report stated that the most developed countries are promoting citizen awareness about policies and programs, approaches and strategies on their web sites, and are making an effort to engage multi-stakeholders in participatory decision making. It stated that e-government approaches differed from country to country and for effective e-government to develop there must be access, political commitment to the use of ICTs, a well thought out vision and practical objectives. The rankings placed the USA as the world leader (0.9062), followed by Denmark (0.9058), Sweden (0.8983), and the UK (0.8777).

This report by West (2006) reviewed 1,782 national government web sites for the 198 nations around the world based upon information availability, service delivery and public access. Each country was rated on a 0-100 scale. This research was conducted

during the summer of 2006 and in general, analysed particular features and rated countries for overall e-government performance.

The objective of the above report was to measure and compare e-government or the online delivery of information and services. The world leader is South Korea, followed by Taiwan, Singapore, the USA, and Canada.

This list of e-government challenges along with assessments of their treatments within the current PMBOK methodology were presented to WISTA in Cairo in November 2007 where they confirmed their support and interests in modernising PMCs to better-support an e-government environment.

Based upon the support of the WISTA members in enhancing PMBOK as a potential solution to improve the management and delivery on e-government projects, an analysis was completed using the PMBOK guide to identify specific improvements that could be suggested in each of the processes and knowledge areas to address the e-government weaknesses. This analysis resulted in the creation of the following "PMBOK Plus Initiation Template" as the project-initiation process appeared particularly weak in addressing the e-government challenges.

5. Current PMBOK approach

In order to introduce some improvements to the PMBOK methodology, it is important to describe its current approach. It is based upon a traditional industrial and manufacturing approach to managing projects. This includes a linear and iterative approach to following a "how to" guide that is based upon five process groups, nine knowledge areas, and 44 processes further broken down by inputs, tools, and outputs for each process activity. The process groups and knowledge areas are outlined below. The five process groups are initiating, planning, executing, controlling and monitoring, and closing. The nine knowledge areas are project integration, scope, time, cost, quality, human resource, communications, risk, and procurement (Hiller and Belanger, 2001).

Creating citizen-centric solutions requires managing and using technology to blend the legacy structures, achieving any cost and time savings, responding to the citizenry demands, recognizing the lack of tools and skilled resources, and evolving governments from paternalistic and hierarchical structures and servitude exchange relationships to collaborative and networked hybrids. But, one theme that seemed to override all others was a missing technology-based PM methodology that could address the cultural dimensions and contribute to the design and implementation of the e-government solutions.

5.1 Initiation framework for major projects

The following nine signposts below, briefly explain the proposed outputs through enhancements to the project-initiation phase in addressing and identifying the ten e-government challenges mentioned previously in Section 5.1. The proposed framework and the different stages of enhancements lead to the PM initiation phase, are briefly addressed in the Appendix. Below is a brief description of each of the stages of the framework.

This stage of "leadership and stakeholders management" aims at preparing a "signed off" stakeholder accountability and sponsorship report that outlines and weighs stakeholder interests, influence, impact, and responsibility with respect to the project planning, building, and operations (Al-Karaghouli *et al.*, 2003; Macaulay, 1996). Also, to

design a stakeholder governance structure that reflects stakeholders' contributions and accountability to the PM.

The stage with regard to "blend technology, people and processes" will involve the development of a model to design appropriate balance of resources and impacted processes, and update through out life of project. Also, to complete an assessment of existing and emerging technology. In addition, to review the government and private sectors workforce and implement a best practice evaluation.

The aim of "outdated business models" stage is to develop a citizen-centric business model that accommodates intragovernmental legislative mandates and societal goals, and recognises e-government environment of horizontal, transformational and unprecedented requirements (Al-Karaghouli *et al.*, 2003, 2005). Also, to ensure that the model reflects central agency policies and standards, a central service for IT infrastructure and a departmental commitment to delivery on-time and on-budget.

This stage is important in any framework and practice, "lessons learned." The aim of this stage is to establishing a governance regime in order to identify, assess, and incorporate lessons learned (Ho and Ni, 2004).

The "unreasonable promises" stage is a practical phase to assess promises of cost effective enhanced functionality and develop discounted delivery strategy (promise low, deliver high). An urgency to establishing a stakeholder participation framework to validate key expectations through requirements identification, traceability matrices, proof of concepts, pilots, and operational readiness reviews.

This stage, "unwieldy information" aims at developing a governance framework to oversee and direct project customer relationship management, product direction and project service implications.

Lack of holistic approach to PM: transform organisation to integrally imbed PM into its identity (similar to financial management practices); organisational reform gives project manager credibility to step between boundaries.

This stage, "access to subject matter expertise" is to develop a framework to incorporate subject matter expertise relative to client demand and satisfaction, technology directives, project performance and manageability, policies and standards, and governance.

Finally, the "government as single enterprise" stage aims at developing a governance framework to assist with increasing ministerial accountability, public concern with government services and products, and increased need to homogenise government wide activities conducted by individual ministries.

5.2 Deliverable clarity and next steps

Does PM nurture the business transformation environment? If business transformation is at the heart of e-government as a key component to apply technology to government practices and operations; and if PM via PMBOK as the conduit to implement e-government does not mitigate the e-government challenges, then how will this degree of transformation ever occur?

These findings conclude that based upon this review and analysis, the e-government challenges are not adequately met by the PMBOK methodology. Additional analysis is planned to conduct a similar analysis using PRINCE2 project methodology (Bentley, 2002; Gray and Larson, 2003). A number of enhancements were proposed to use technology and broaden the application of the PM discipline through an invigorated

PMBOK to more comprehensively manage the "inception to fruition" phases of an e-government project.

The next step in this critical analysis is to examine the feasibility within the public sector of incorporating any required enhancements within the PMBOK methodology to strengthen the use of PM to support e-governments' applications and contribute to the transformation and modernisation of the public sector environment within the twenty-first century.

The "project initiation framework" (the Appendix) is still under development and will be finalized over the next couple of months. It was determined that in the design of the framework, the replication of the above PMBOK process groups and knowledge areas created unnecessary duplication. Also, it did not lend itself to specifically focusing on the e-government PM and project manager weaknesses. Therefore, the categories below summarise the PMBOK categories into the following PM domains:

- integration and governance;
- delivery quadrant (scope, time, cost and quality);
- risk and uncertainties; and
- corporate support (human resources, communications, and procurement).

Once the framework and evaluation criteria are finalized through workshops, they will be submitted to a group of e-government executives to obtain their assessment of its capacity to improve upon the management and delivery of e-government projects, as well to determine the effectiveness of an enhanced PM methodology in serving the progress of transformational e-government.

6. Conclusion

This research has been motivated by the desire to gain deeper understanding of e-government large projects and the assessment of PM process adopted in such projects. The preliminary conclusion from this research is that current PM methodologies, designed to address the industrial and manufacturing age. These methodologies do not adequately respond to the needs of today's discipline, various organisational and cultural environments, and the pervasive information age. Along with the specific demands of e-government and horizontal and collaborative working relationships, projects now pervade and change the business rules, organisations, policies, governance, regulations, privacy and security arrangements. The need to work across organisations and jurisdictions and create solutions that are a product of progressive elaboration and negotiation is a new dimension to PM. PM has not yet evolved to a state where it can become part of the solution. It does not bring value from technology and does not facilitate organisational, business process or human resource change.

Our findings provide some evidence that can be used to support our hypothesis that e-government projects with their government-wide integration, Internet and client driven, and unprecedented and transformative elements are different across organisational environments and cultures, and require a revitalised approach to manage such large public projects. The value of laying the usefulness of the PMBOK PM methodology, specifically during the project-initiation phase against the implementation of complex government wide transformational system development projects highlights the weakness

of PMBOK to contribute to e-government project success – the tool does not adequately support nor drive the project to its successful implementation.

According to the survey results and interviews (Section 3), there should be a shifting in the relationships between governments, business, communities, citizens, and other stakeholders in prompting the thinking of what government and project managers are supposed to deliver and the know how. Also, in the transformational process of e-government, it is becoming increasingly clear that the old way of doing things, i.e. an outdated e-government 1.0 will gradually evolve towards a somewhat more transparent stage of leadership known as e-government 2.0. Successful implementation of e-government 2.0 demands a fundamentally new professional culture of collaboration and partnership of all stakeholders in which responsibilities should be shared (Al-Karaghouli *et al.*, 2000).

Despite these challenges, this change is both inevitable and necessary in a similar way in the evolvement of web 2.0.

This paper presented a contribution of theory backed up by a practical framework. This illustrative case study gives a brief but concrete practitioner feel and experience the wide potential factors and challenges transformational e-government projects have encountered.

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(The Appendix follows overleaf.)

Appendix. PMBOK plus – project-initiation framework

E-government challenges	
Stakeholders	*a. Integration and governance* Prepare a "signed off" stakeholder accountability and sponsorship report that outlines and weighs stakeholder interests, influence, impact and responsibility with respect to the project planning, building and operations Design a stakeholder governance structure that reflects stakeholder contribution and accountability *b. Delivery quadrant (time, cost, scope, and quality)* Identify specific stakeholder commitments to monitor the project quadrant (time, cost, scope, and quality) *c. Risk and uncertainties* Establish risk tolerances for stakeholders interests and impact and identify the preferred risk management approaches *d. Corporate support (human resources, communications, and procurement)* Prioritize and classify individual stakeholder interests and reporting requirements (human resources, communications, and procurement)
Challenge to blend technology, people, and processes	*a. Integration and governance* Develop model to design appropriate balance of resources and impacted processes, and update through out life of project Complete an assessment of existing and emerging technology Review the government and private sector workforce and complete a best practices evaluation *b. Delivery quadrant (time, cost, scope, and quality)* Devise a project delivery model that integrates and coordinates through technology, people and processes the projects interdependability requirements *c. Risk and uncertainties* Develop a government wide framework to integrate technology (desktop, service centers, and networks), government wide processes (information management (IM), human resources, finance, and procurement), program delivery processes, and the public and private sector resource bases Identify the risks associated with the government wide framework *d. Corporate support (human resources, communications, and procurement)* Classify corporate constraints and ways in which the organisation can contribute to balance of technology, people and processes through financial and resource planning legislative and mandate constraints and project product programs Identify corporate capacity with respect to human resources, financial management and procurement vehicles
Outdated business models	*a. Integration and governance* Develop a citizen-centric business model that accommodates intragovernmental legislative mandates and societal goals, and recognises e-government environment of horizontal, transformational and unprecedented requirements

(*continued*)

Table AI.

E-government challenges	
	Ensure that the model reflects central agency policies and standards, a central service for IT infrastructure and a departmental commitment to application delivery
	b. Delivery quadrant (time, cost, scope, and quality)
	Recognise the circumstances and environment of an e-government project that is more organic and fluid, and requires the research and validation of the funding and approval criteria within the business model
	Create a business models that consolidates network, desktops and data centers
	Shift the Internet from publishing environment to a community participating environment
	c. Risk and uncertainties
	Identify specific e-government risk management approaches by considering government wide activities with citizens, businesses and employees that are conducted within a government policy and legislative framework
	d. Corporate support (human resources, communications, and procurement)
	Identify corporate processes to ensure communications, human resources, and procurement processes are addressed
System development models	*a. Integration and governance*
	Develop a model framework that incorporates intergovernmental vertical legislative mandates, enterprise wide objectives, and business product requirements
	b. Delivery quadrant (time, cost, scope, and quality)
	Work to integrate and technology-enable systems development and PM methodologies to allow for flexibility in evolving requirements, and termination of separation of requirements identification by internal/employee group and construction by external/private sector group
	Create technology-enabled governance oversight mechanism by stakeholders community to report upon cost, scope, schedule/time, and quality
	c. Risk and uncertainties
	Identify risk management practices for consideration within systems development and PM frameworks
	d. Corporate support (human resources, communications, and procurement)
	Identify potential impact on the corporate work load to ensure mechanisms are in place to proceed with systems development activity including developing contracting mechanisms to recruit personnel and purchase technology
Lessons learned	*a. Integration and governance*
	Establish a governance regime to identify, assess and incorporate lessons learned
	b. Delivery quadrant (time, cost, scope, and quality)
	Conduct review of best practices from other projects (literature review of lessons learned) to establish benchmarks to guide how project is managed and effectively implemented

(*continued*)

Table AI.

E-government challenges	
	c. Risk and uncertainties Highlight comparable historical risks that have occurred and examine associated mitigating measures *d. Corporate support (human resources, communications, and procurement)* Review best practices from previous project-based human resources, communications, and procurement experiences
Unreasonable promises	*a. Integration and governance* Assess promises of cost-effective enhanced functionality and develop discounted delivery strategy (promise low and deliver high) Establish a stakeholder participation framework to validate key expectations through requirements traceability matrices, proof of concepts, pilots and operational readiness reviews *b. Delivery quadrant (time, cost, scope, and quality)* Develop value-based promises and expectations (modernisation and technology enabled) as opposed to performance measures *c. Risk and uncertainties* Establish risk review program and relate to project value/ modernisation/societal objectives Conduct review of mispromised objectives and assess impact of overpromising/underdelivering *d. Corporate support (human resources, communications, and procurement)* N/A
Unwieldy information	*a. Integration and governance* Develop a governance framework to oversee and direct project customer relationship management, product direction, and project service implications *b. Delivery quadrant (time, cost, scope, and quality)* N/A *c. Risk and uncertainties* N/A *d. Corporate support (human resources, communications, and procurement)* N/A
Lack of holistic approach to PM	*a. Integration and governance* Transform organisation to integrally imbed PM into its identity (similar to financial management practices); organisational reform gives project manager credibility to step between boundaries *b. Delivery quadrant (time, cost, scope, and quality)* Implement PM indoctrination across business lines to encourage acceptability, growth and maturity of PM discipline, arbitrator and delivery agent role *c. Risk and uncertainties* Identification of risk areas up development stream and along implementation process to assess risk areas at the boundaries and peripherals of the project *d. Corporate support (human resources, communications, and procurement)* Assess the impact on resource sharing (people) and procurement

Table AI.

(*continued*)

E-government challenges	
Access to subject matter expertise	*a. Integration and governance* Develop framework to incorporate subject matter expertise relative to client demand and satisfaction, technology directives, project performance and manageability, policies and standards and governance *b. Delivery quadrant (time, cost, scope, and quality)* Identify quality requirements from subject matter experts to guide and develop project scope and quality parameters *c. Risk and uncertainties* Projected risk areas shared from experience of subject matter experts *d. Corporate support (human resources, communications, and procurement)* N/A
Government as single enterprise	*a. Integration and governance* Develop a governance framework to assist with increasing ministerial accountability, public concern with government services and products, and increased need to homogenise government wide activities conducted by individual ministries *b. Delivery quadrant (time, cost, scope, and quality)* Identify links to corporate systems and objectives Commit to modernise e-government by acting as a single enterprise using approaches and shared internal services, wherever possible *c. Risk and uncertainties* Identify breath of project as it affects the enterprise wide application, identify key areas to make it work and common enterprise wide processes that could be impacted by the project (like financial and personnel activities) *d. Corporate support (human resources, communications, and procurement)* Incorporate government functional communities (chief information offices, IM leaders, service leaders, and security domain leaders)

Table AI.

About the authors

Shauneen Furlong has a BA in Philosophy, an MSc in Business Administration Economics, and an MSc in Project Management. She is currently doing a PhD at John Moores Liverpool University, UK. She was awarded the 2007 IBM Fellowship and is a project manager professional (PMP). Shauneen is an independent consultant who lectures on e-government and PM at the University of Toronto, University of Ottawa, and around the world. Over the last couple of years, she has presented and worked in the UK, Middle East, Europe, East Africa, Egypt, and Turkey; the Conference Board of Canada, the Canadian Information Processing Society, and the World Bank in Washington. Her areas of interest are in international e-government and the digital imperative, PM, public sector transformation and modernisation. Over a period of 20 years, Shauneen has a senior executive level and management experience in a number of Government of Canada central agencies and departments, most recently Executive Director, GOL, Government of Canada. She is one of the handful of Canadian executives who were part of the policy development and implementation team in the Treasury Board Secretariat that initiated the GOL initiative across the

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Wafi Al-Karaghouli has a BA in Statistics, MPhil, University of London and a PhD from Brunel University. He is a member of the Heathrow Sector Steering Group, BCS-Elite, BCS-Requirements Engineering Group, BCS-Project Management and BCS- Sociotechnical. He is the Founder and Chair of the Middle East and Sustainable Developments Focus Group. Wafi gained extensive experience with multinational companies. A total of 12 years industrial experience of which one was a Blue-Chip and 20 years in Higher Education. A qualified practitioner in total quality management (TQM) and in PM methodology PRINCE2. The synergy between past industrial experience and academic interests enables him to attempt to "bridge the gap" between theory and practice. Hence, his research tends to take the form of participatory action research and has embraced topics such as IS failure in business, systems thinking, problem solving, evaluation methodologies, organisational learning and knowledge management. His areas of interest and research revolve around ITS failures, requirements engineering, IS in organisations especially in retail, PM, operations management, TQM, civil aviation, healthcare, Islamic banking, and business quantitative methods. Prior to Brunel, Wafi was a Senior Lecturer in Quantitative Methods and Information Technology at the University of Westminster, Westminster Business School, Marylebone Campus. Wafi has published extensively on the subject of IS failure in the retail sector and has contributed to the developments of the Wyatts Dealer Board System at Reuters in London, a Knowledge Management System at Merrill Lynch HSBC, Implementation and Use of Blackberry at Sage Publishing Company, and SITE a Training Programme for new recruits at CACI Limited in London. Wafi has also contributed to the development of BAA's fast-track check-in desks at Heathrow Airport and the Iris Recognition Immigration System. He is on the editorial board of a number of international journals. Wafi Al-Karaghouli is the corresponding author and can be contacted at: wafi.al-karaghouli@brunel.ac.uk