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Recommended Citation

Letch, Nick, "Engagement in e-Government Business Case Justification? : A Case for Constructive Technology Assessment" (2010).
AMCIS 2010 Proceedings. 499.
<http://aisel.aisnet.org/amcis2010/499>

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Engagement in e-Government Business Case Justification? : A Case for Constructive Technology Assessment

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ABSTRACT

Although there have been many grand visions for the transformative capacity of e-Government initiatives, the actual realization of these visions has met with mixed results. This paper argues that current approaches to appraising the benefits and consequences of e-government initiatives are constrained by a narrow technologically determinist perspective focused on ICT investment rather than policy and service outcomes. An analysis of the Australian Federal Government's approach to justifying e-Government initiatives provides the basis for recommending an alternative, complementary approach based on Constructive Technology Assessment which provides stakeholders with opportunities through which they can influence the shaping of the infrastructure.

Keywords

e-Government, business case justification, constructive technology assessment

INTRODUCTION

The promises of transformed government and public sector service and relationships with the community have been widely touted over the past decade. While the successes of e-Government initiatives have been reportedly mixed (Bekkers and Homburg 2007), the visions of revolutionized government activity and public service continue on the back of integrated service delivery platforms enabled through service oriented architecture (SOA). Even though the progress toward such visions could be considered to be slow and patchy, investment in ICTs by government agencies continues and is increasingly guided by the principles espoused in e-Government strategy documents.

In this paper an argument for an alternative framework for justifying and evaluating e-Government initiatives is presented. The argument is based on the following assertions. Firstly, e-Government initiatives are not solely ICT projects but also encompass process analysis, business process re-engineering, policy prioritization, democratic and citizen-oriented value assessment, and much more. Because they are large, complex projects involving many stakeholder groups and their associated interests, the transformation of government services and service delivery has the potential to have negative impacts as well as unintended consequences - which may have both positive and negative outcomes. Secondly, while there is significant body of research into IT assessment and evaluation which contributes to our understanding of the evaluation process and technique, in the e-government arena, there is little research that addresses impacts beyond the IT development aspects of e-Government projects and examines consequences for business process and outcomes for various stakeholder groups. The practice of justifying e-Government expenditure and evaluating the benefits of e-Government initiatives is driven by a rational, technologically determinist perspective which consequently constrains full analysis of the impacts and emerging outcomes of e-Government initiatives.

Following a discussion of the literature which addresses the underlying assertions of the argument, a brief analysis of the ICT investment framework of the Australian Federal government is presented to demonstrate a disconnect between investment appraisal and benefit and impact analysis. The paper concludes with the proposal that the rational investment appraisal frameworks promulgated under the New Public Management paradigm can be complemented by incorporating principles of Constructive Technology Assessment (CTA).

E-GOVERNMENT VISIONS AND RHETORIC

Usually accompanying the visions of e-Government are the principles of interoperability between government agencies and a standardised approach to government business processes. The term "joined-up government" was coined in the UK as a way of providing a simple explanation of how government services that are provided to the public should be seen as a seamless, single business process, even though multiple agencies, systems and data may be involved. There is an overriding premise that integrated or "joined-up" services across multiple agencies will deliver the visions of restructured government institutions.

In practice however, in many countries the joining of services encounters multiple integration and coordination barriers. Bekkers and Homburg (2007) argue that despite the claims that information and communication and technologies can help to restructure public administration enabling more responsive, efficient and democratic institutions, the realistic outcomes of many e-government initiatives is less than the rhetoric that surrounds them. They subsequently identify four myths that are promulgated through E-Government initiatives. Underlying the myths that they identify, Bekkers and Homburg highlight that social and context dependent factors play a significant role in obstructing the visions of various initiatives. Specifically, the belief that a rational, planned approach to the implementation of standardized ICT-based systems will deliver the predicted outcomes is questioned. *“Dominant in these policies is an inescapable telos suggesting that technology by itself enables or even causes public sector agencies to transform themselves from self-centred conglomerates to citizen-oriented administrative apparatuses”* (Bekkers and Homberg 2007:380).

Henriksen and Damsgaard (2007) focus on the broader conception of e-Government which identifies the importance of the (hidden) internal information processing of government which underpins the more visible aspects of Government, citizen and business relations. Their analysis of the Danish experience over a decade of initiatives demonstrates “mixed results” because of the difficulties encountered in developing common standards across agencies which subsequently inhibits seamless interactions between agencies, citizens and the business community.

The use of ICT in public administration and e-Government initiatives in particular, will undoubtedly provide many long-term benefits for the community at large and over time will transform relationships between citizens and government. However, several reports note that many e-Government initiatives have not delivered expected cost savings and have not generally improved social inclusion, innovation or participation (Taylor 2004). One comprehensive analysis of the impacts of ICTs in public administration shows that of nineteen studies of ICT impacts in public administration, in half the impacts have been positive while one-third report negative impacts (Danziger & Andersen, 2002). Positive impacts largely relate to improved service delivery while negative impacts tend to be associated with a reduction in the level of flexibility available to “street-level” bureaucrats when dealing with citizens. These findings reflect the inherent tension in service delivery initiatives where the efficiency benefits that accrue from the standardization of processes across agencies must be balanced against local knowledge and expertise that individual providers have when dealing with their constituent citizen clients (Ellingsen et al. 2007). It is apparent that care must be taken when integrating ICTs into transformed government business processes.

In examining the mixed results of e-Government projects Heeks and Stanforth (2007) draw on Actor-Network Theory to understand the politicking of stakeholders and their consequent impact on the trajectory of e-Government projects. Their broader conclusions is that we should not characterise the trajectory of e-Government in terms of success or failure. Rather, the trajectory of e-Government projects are a *“long and ever-winding journey”*. Their ANT account is a refreshing counter to the technological determinist perspective which underpins much of the e-Government rhetoric. They note that while arguments against technological determinism have been espoused for the past 30 years, in the practice of e-Government, there is a denial of the limitations this approach. They propose that the focus of e-Government researchers should be how stakeholders form networks of influence and exercise power within them. What is apparent from both the rhetoric and the reported successes and failures of e-Government, is that eGovernment initiatives are not solely ICT projects. They encompass process analysis, process reengineering, policy prioritisation, democratic and citizen-oriented value assessment, and much more. They are large, complex projects involving many stakeholder groups and their associated interests. Furthermore, - and a point that does not appear to be widely acknowledged in the literature, the transformation of government services and service delivery has the potential to have unintended consequences for various stakeholder - which may have both positive and negative outcomes.

Furthermore, it is important that the socially disadvantaged are not neglected in the transformation of government business processes. For instance while much of the emphasis of e-government initiatives is on access to internet and broadband services, the socially disadvantaged members of the community who most require government services are also those least likely to have access to the internet and ICT resources (Dugdale et al. 2005). Consequently, a challenge for e-Government is to find ways of integrating ICTs into communities in ways that strengthen social inclusion and counter the emergence and deepening of social and economic divides. Questions about the relationship between ICTs and the delivery of services to the community are therefore not merely questions of access to technology during service delivery. They are part of a larger picture including public policy planning and program delivery.

In light of the visions for transforming government relationships with the community (as well as significant expenditure), it is imperative that sound approaches to assessing the outcomes and impacts of e-Government are adopted. e-Government initiatives sink ICTs into the infrastructure of government service delivery. Infrastructures become difficult to shift – they become fixed – reinforcing structures – and therefore we must understand the impacts of this new infrastructure. While there

are cases of both successful and unsuccessful e-Government implementations, there appears to be little sustained effort to understand the longer-term impacts of e-Government initiatives.

INFORMATION SYSTEMS ASSESSMENT

Given that e-Government investments involve significant public expenditure, considerable effort is directed toward appraising proposed investments in IT infrastructure. This is essential in public administration so that public funds are not wasted but depending on the investment appraisal techniques adopted, the processes of ICT appraisal have the potential to be flawed. Irani and Love (2002) note that given the possible “pass or fail” verdict that is the outcome of investment appraisal, the process can be viewed as a financial hurdle rather than an evaluation of project worth. Given a potentially negative outcome, decision makers become focused on technical aspects and their attention turns to “*trying to identify and estimate significant business benefits from investing in an IT/IS infrastructure at the expense of overlooking the full cost and risk implications of the investment*” (Irani and Love 2002:76).

IS evaluation practice has been dominated by rational, positivistic approaches focused on formal quantitative measures of costs and benefits (Serefeimidis and Smithson 2000; Walsham 1999). Furthermore, IS evaluation often focuses on technical rather than social aspects (Hirschheim and Smithson 1999) and it is argued that such technically-oriented approaches cannot demonstrate that IS implementations deliver benefits (Jones and Hughes 2001). It is however, these methods based on rational, mechanistic processes driven by quantification and technical criteria predominantly have legitimacy in many organizations –including public administration. The downfall of these approaches may lay with a failure to rigorously apply them (Willcocks and Lester 1999; Jones and Hughes 2001) but, Bannister (2001) notes that even when formal methods are rigorously applied, they are not necessarily relevant to the public sector domain. These shortcomings are attributed to the differences in organisational context between the private and public sectors.

There is a growing argument that IS evaluation is a socially embedded process in which formal procedures entwine with informal assessments by which actors make sense of their situation. This leads to the view that it is social actors are in the best position to assess IS, offer opinion and persuade senior executives of the value of IS” (Jones and Hughes 2001). In synthesizing a framework for e-Government evaluation Jones et al. (2007) note that although e-Government should be evaluated with respect to its impact on service delivery – this was not being done.

CASE EXAMPLE – AGIMO TWO PASS INVESTMENT FRAMEWORK

To draw out the argument that public sector agencies treat the justification and evaluation of e-Government projects narrowly, a brief analysis of the context of e-Government assessment in the Australian Federal Government is provided. This analysis is based on publicly available documentation published on the website of the Australian Government Information Management Office (AGIMO) which is an arm of the Department of Finance located in Canberra. AGIMO aims to develop “*the efficient and effective use of information and communications technology (ICT) by Australian government departments and agencies by providing advice, tools, information and services to help Australian government departments and agencies use ICT to improve administration and service delivery.*” (Department of Finance website, 2010).

The approach adopted for this analysis is in line with Jensen and Lauritsen (2005) who identify two ways of reading e-Government texts. Firstly “reading against the text” as a critical analysis aimed at drawing out hidden, and secondly, “reading with the text” which assumes that texts are not static artifacts but “always on the move” influencing the environment in which they are produced and read. The “texts” that inform our analysis are described in table 1.

In 2008, the newly elected federal government in Australia appointed Sir Peter Gershon to review the Australian government’s use of ICTs. This wide ranging review drew submissions from government agencies, key stakeholders and industry and extensively consulted with senior public servants. The review made extensive recommendations in relation to ICT governance, agency capabilities to leverage benefits from ICTs, ICT spending, skills, sustainability and future requirements. Fourteen submissions to the review suggested that the government did not measure the benefits obtained from ICT investments well and that there is no clearly defined, rigorous or consistent approach across agencies. Therefore, demonstrating the value that ICT investments deliver is difficult. A significant proportion of the agencies surveyed reported that they used metrics such as availability, outage reporting, completed client requests, and customer satisfaction surveys. Others reported using qualitative rather than quantitative measures or indicators of efficiency and effectiveness such as adherence to frameworks such as ITIL or project methodologies such as PRINCE2. Of 193 completed projects submitted to the Review only 5% of projects reported actual measurement of benefits and compared anticipated benefits with actual benefits realized.

One of the key recommendations subsequently made in the Gershon Review was that a central agency should develop common metrics and conduct benchmarking to improve the practice and rigor in monitoring the effectiveness of IT investments. (Gershon 2008:69).

Text Title	Date	Description
Demand and Value Assessment Methodology	2004	A guide for agencies for the application of the DVAM methodology
DAM and VAM Excel Model	2004	Spreadsheet model which calculates project benefits based on DVAM methodology
Responsive Government: A New Service Agenda. 2006 e-Government Strategy	March 2006	The overarching statement of the Australian Federal Government's e-Government strategy
ICT Investment Framework	August 2006	The recommended framework through which agencies need to justify the costing of large-scale ICT investments
ICT Business Case Guide: A Guide to Developing ICT Business Cases with comprehensive planning and analysis of the project's demand, value and costs	September 2006	An early version of a guide for agencies in preparing business cases. The DVAM methodology is embedded in the guide.
Performance Indicator Resource Catalogue	2006	Introduction to the use of performance indicators to manage government ICT projects and agency ICT operations
ICT Business Case Guide Development and Review (public version)	November 2008	Revised business case guide which is more flexible in approach to business case preparation but based around the "two-pass" approach to investment appraisal
ICT Costing Spreadsheet	July 2008	Revised model for justifying business cases. Supersedes DVAM model
The Australian Government Business Process Interoperability Framework: Enabling Seamless Service Delivery	July 2007	Guide and tools to assist agencies moving toward connected and shared modes of operation. Outlines whole of government ICT architecture
ICT Business Case Template	November 2008	Required pro-forma for agencies submitting business cases in the two pass process
Review of the Australian Government's use of Information and Communication Technology	August 2008	Report of the comprehensive review of Australian Federal Government ICT with in excess of 50 recommendations impacting government ICT activities

Table 1. AGIMO "Texts" Analyzed

One of the key recommendations subsequently made in the Gershon Review was that a central agency should develop common metrics and conduct benchmarking to improve the practice and rigor in monitoring the effectiveness of IT investments. (Gershon 2008:69).

The Australian strategic e-Government directions are framed by the "Responsive Government: A New Service Agenda" report which provides broad directions for strategic priorities such as online engagement, connected service delivery, public sector capabilities, and the development of an SOA-based government architecture. The report also suggests broad strategies for implementing strategic directions including a framework for managing ICT investments.

The ICT investment framework was intended to “*guide agencies on business case development*” and to “*encourage good practice and consistency in ICT planning, by providing access to tools and methodologies.*” One tool in early versions of the ICT investment framework was the “Demand and Value Assessment Methodology (DVAM).” The DVAM included a set of procedures for applying a spreadsheet based assessment model which measured the demand for services (in terms of estimated volumes of transactions); the social value of the proposed service (an estimate of reach and consequence of the proposed service for identified social groups); agency costs and benefits (capital expenditure; cash flow, ROI, etc); agency value (agency specific strategic alignment); and risk analysis. The model provided the essential components to be included in the business cases for budget discussions.

The annual budgeting timetable is critical in Australian e-Government initiatives. In 2008 a “two-pass review process” was introduced for policy or service delivery proposals which are highly dependent on ICT and have an ICT component of \$AUD 10 million. Under the Two Pass process, agencies prepare an initial business case to be considered as part of government’s budget deliberations for that year. If the proposal is approved in principle, the sponsoring agency then prepares a detailed business case which is then submitted for a second pass review. The DVAM methodology outlined above was superseded in the 2008 ICT Investment framework which included more a more flexible Business Case Template and costing spreadsheet (purely for hardware and software item costing). The new business case template requires that the proposal considers project objectives, synergies with other programs, costs, statements of scope, infrastructure requirements, risk analysis, ICT personnel, and develop a project schedule. It is advised that presentation of the business case items should pay particular attention to the project management principles of time, cost, quality, scope, risk, and benefit (plus or minus degrees off an improvement goal such as cost reduction).

Analysis

The ICT Investment framework that is currently in place in the Australian Federal sphere is comprehensive and certainly adheres to international “best practice”. For instance, recommendations of the Gershon Review to implement a common methodology for assessing agency capability to manage ICT investments and to include independently validated capability assessments when assessing major ICT proposals, have been endorsed. AGIMO is currently piloting the use of the UK Government’s Office of Government Commerce (OGC) portfolio, programme and project management capability assessment model (P3M3) and also encouraging the use of standards such as the PRINCE2 project management methodology and the ITIL. It is also clear that within the business case template and especially within the superseded DVAM methodology, there is a strong emphasis on financial viability and ensuring that there will be a “public value payoff” from investments in ICT projects. The embedding of investment appraisal within the budget cycle timeframe is indicative of the concern that the Government has for ICT expenditure.

In terms of impact and value for different social groups within the community, the framework does provide scope for agencies to at least consider the impact on sections of the community identified as being affected by the introduction of the service. This is explicit in the DVAM model but more open to interpretation in the more recent business case template. However, there is an overriding emphasis on measureable costs and benefits and qualitative indicators would appear to take a secondary position. Furthermore, the DVAM model explicitly defined “program target groups” along generic lines such as “Citizens/general public; businesses; Community Organisations; Rural; Internal to government”. While this approach did give agencies the opportunity to consider these stakeholder groups from the perspective of the agency programs, the consideration of the impact of services was in terms of measures of reach (the percentage of the identified social group impacted by the service) and consequence (a five point scale from minimal to significant to measure the impact of a program item on an identified group). The guide accompanying the DVAM model suggested that social value is in terms of *social benefit* to the stakeholder group. There is no explicit mention or allowance for negative consequences on groups. It is interesting that the explicit measure of social benefit included in the DVAM model – while restrictive in its definition, is dropped completely from the revised Business Case template.

It is quite striking that the business case template makes a strong link between benefits realization and published performance indicators. Prefaced with the credo “if it can’t be measured, it can’t be managed” the emphasis on project success is related almost entirely to IT-oriented performance drawing on ITIL, COBiT, PRINCE2, etc but makes no explicit link with the policy or service that the project is proposed to support. This disconnect between what is considered to be an ICT development project and the actual government service delivery activities within which the project will be integrated, leaves little scope for engaging stakeholders or for addressing potential impacts on policies and services. The emphasis on deriving best value for ICT investments pushes the use of ICT to improve policy outcomes into the background.

A COMPLEMENTARY FRAMEWORK - CONSTRUCTIVE TECHNOLOGY ASSESSMENT

Two shortcomings of the Australian approach to developing-Government business cases can be identified in the foregoing analysis. Firstly, it is clear that a technologically determinist perspective pervades the guides and techniques suggested by AGIMO. Secondly, the link between the ICT business case development and the public policy, stakeholders and program delivery mechanisms within which the ICT will be embedded, appears cursory. When the development ICTs in support of service delivery is performed in relative isolation from the formulation of the public policy outcomes that those services are designed to deliver, it is less likely that the processes for assessing the potential payoff and consequences will take full account of the impact of the ICT investments on policy outcomes. We suggest a complementary perspective to e-Government project appraisal and evaluation based on principles embodied within an approach known as Constructive Technology Assessment (CTA).

Constructive Technology Assessment emerged in The Netherlands in the mid 1980s as a response to perceived shortcomings in traditional approaches to technology assessment which tended to take a linear view of the trajectory of technology projects. CTA attempts to anticipate effects or impacts of new technologies or projects with a strong technological component (Schot & Rip 1996). The approach explicitly recognizes that technology projects are shaped by actor interests throughout the life of the project. Therefore, rather than viewing the assessment of technology as a post-hoc product of implemented systems, the assessment itself is viewed as a process which can be guided in a “constructive” way. Drawing on the social shaping approaches and principles of Actor-Network Theory, CTA provides a framework for assessing technologies based on principles which include : integrating the anticipation of future effects and the introduction of the technology; including a wide range of social actors during development and introduction; viewing change processes as ongoing; promoting learning by stakeholders about aspects of the political and social acceptability of technology and its linkages to broader cultural values in society; and recognising that actors should be reflexive about the processes of co-evolution of technology and society, of technology and its impacts’ (Genus 2005). Such an approach is vastly different to the linear, technologically determinist view which is apparent in the preceding analysis.

CTA was initially applied as an approach to understanding and shaping the impact of large scale technology innovations (eg biotechnologies, waste disposal plants, “green” technologies). In relation to ICTs, CTA has not been widely applied although the assessment of IT in healthcare (Douma et al. 2007) as well as analyses of ICT policy and planning in developing countries (Moens et al. 2009) have used the approach. The principles and techniques of CTA however, are well suited to analyses of large-scale ICT initiatives such as e-Government projects. The CTA framework promotes the engagement of stakeholders, facilitating a participatory role in the design and construction of technologies, as well as processes to integrate designed innovations within context. They therefore have the potential to address the weak connection between ICT business case analysis and policy implementation identified above. By broadening the view of ICT investment in public administration to consider its role in delivering wider public sector infrastructure, the activities involved in investment appraisal and assessment of IT payoff is extended to pay greater attention to e-Government initiatives in terms of their technology impact. That is, in addition to investment appraisal, it is possible to take account of wider impacts on public policy outcomes – both positive and negative. A CTA approach to justifying and assessing e-Government initiatives extends the focus of evaluation from simple counting of channel take-up and costings to address actual service and policy outcomes.

The Australian Government’s approach to business case justification is typical of the New Public Management paradigm which dominates e-Government initiatives in most Western countries. Adopting the principles of CTA would require a significant shift in thinking about e-Government initiatives and the culture and process of business case development. It is however unlikely that this will readily occur. The financial aspects of e-Government initiatives are clearly the overriding concern and therefore any changes to current practice would need to maintain this financial emphasis. Within this current framework however, it is possible for agencies to develop closer ties between what is seen as largely IT development and the network of stakeholders involved in policy development and service delivery. A closer link between IT development and policy development could be forged using CTA-based techniques such as the ICT roundtable process (Moens et al. 2009) which is a long-term set of activities designed to guide the trajectory of ICT developments. Involving policy stakeholders in the process of business case justification and explicitly recognizing that e-Government initiatives become embedded in programs that are designed to deliver public policy is unlikely to compromise the current “two pass” investment appraisal process. It may well enhance the process by contributing to the identification of unintended impacts as well as supporting data for use in the investment appraisal.

While it is believed that CTA principles and techniques have much to offer the design and development of e-Government initiatives even within the current culture and structures of public administration, much further research into how CTA can be adapted and applied within the e-Government context is necessary. Although beyond the scope of this paper, there are two likely objects of this research. The first would involve investigations and applications of CTA in agencies in developing e-

Government business cases and the second would aim to integrate CTA principles into the guides and tools of central coordinating e-Government agencies (such as AGIMO)

CONCLUSIONS

Despite arguments and research evidence to the contrary, e-Government projects are frequently justified and evaluated as if they follow a linear trajectory and that their outcomes are readily measurable in terms of costs and benefits directly attributable to ICT investments. This paper examined the Australian Government's approach to e-Government business case justification and found this style of rhetoric pervasive in the process, guides and techniques provided to agencies in developing their e-Government initiatives. Furthermore, there is an apparent disconnect between the process of justifying and developing e-Government initiatives and the policy networks and service delivery infrastructure within which e-government initiatives are ultimately embedded.

To counter this perspective, the principles and techniques of CTA are proposed as a potential framework to complement the existing investment appraisal processes. Rather than viewing e-Government initiatives as projects following a linear trajectory, recognition is afforded to co-construction of outcomes by policy and ICT infrastructure actors. CTA-based approaches would encourage active and ongoing engagement of stakeholders and strengthen the link between networks of actors involved in ICT development, policy development and service delivery.

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