

e-Government: Five Key Challenges for Management

Kim Viborg Andersen

Department of Informatics, Copenhagen Business School, Denmark

andersen@cbs.dk

Abstract. e-Government holds the potential to facilitate the complementary use of information systems in government comprising both operational and strategic use. This paper argues that if this metamorphosis is to occur, managers are facing five key strategic challenges: 1) Assessing the demand paradox of e-government. 2) Ensuring that gate-keeping mechanisms of the street-level bureaucrats are not eroding the dynamics of e-government. 3) Use of IT to decrease the high labour intensity in public service provision. 4) Revisiting the employees' readiness for e-government. 5) Building competences within government to ensure dynamic use of IT.

Keywords: e-government, strategy, management, demand, entities, gate-keeping mechanisms, labour intensity, readiness, competence

1. Introduction

The quest to implement e-government is motivated by policy goals of increased effectiveness, efficiency, and information quality, improved interaction mechanisms, and in turn better governance tools (Grant 2005; Gronlund 2005). In this paper we address the role of management in achieving these goals within the realms of public administration by discussing what are the key challenges management faces beyond providing the technical infrastructure and facilitating the standardization procedures. Although interoperability and data integration are vital elements for implementing e-government, there is a danger in focusing on digitalization of the governmental organization. In this paper we argue that there is need to view the users of the public services as digital entities rather than physical entities and consequently align their e-government application towards the external users rather than the in-house needs. If this view is adopted, there are surfacing five key strategic challenges discussed and exemplified in this paper: 1) The demand paradox of e-government. 2) Gate-keeping mechanisms of the street-level bureaucrats. 3) High labour intensity in public service provision. 4) The employees' readiness for e-government. 5) Building competences within government. In the paper, we explore and make management propositions for each of these challenges. The e-government wave with extensive use of URLs, virtual workspaces, e-mail, instant messaging, SMS and blogging might not bring about any fundamental new mechanisms in government (Bretschneider 2003; King 2003). Yet, it is our proposition that management is challenged to move away from a transactional view of IT to a more strategic view of IT adoption in government (Stamoulis 2001; Affisco 2006). Although strategic challenges for e-government share many challenges with the diverse set of e-business challenges facing the

private sector, there are at least three reasons to be concerned with e-government per se.

Firstly, IT in government follows essentially a budget driven approach and is by most means facing demands of a much faster pay-back time than the private sector. Government will often have to finance its spending on IT on current accounts and not be able to argue that investment in IT will lead to reductions in transaction costs etc. on the longer term.

Secondly, in the private sector, the business-led approach to identify useful and strategic vital technology argues that IT can be a strategic weapon in the competitive market against intruding companies and substituting products, strengthening the supply chain power, and enhancing markets (Willcocks 1997; Porter 2001). It is our proposition that government is yet to adopt a market strategic use of IT.

The third reason to address e-government management challenges is the societal importance of IT in government. Strategic use of IT in government can have a critical impact on the private sector, for example, the ability to communicate electronically with import/export licensing boards, as in the Singapore tails (Neo 1995; Ke 2004). The citizens could be impacted by government strategic moves to eliminate physical communication channels in government, allowing only online communication.

2. From cultivation to penetration

The vast investments and implementation of fiscal impact budgeting systems in local government and macro-economic models during the 1970s and early 1980s did break new grounds in the operation of government. The expert operated technology (often remote mainframes and terminals) gained quick momentum due to its number crushing capability. Studies surfaced on

the social analysis of computing and the role of computing in political decision-making and management challenges. It was seen as a tool that could lead to experts or politicians gaining power and could increase consensus building or be part of partisan politics, and lead to centralization or decentralization of government (Dutton 1985). The shift in technology by gradually replacing terminals with PCs during the mid 1980s to mid 1990s, brought about a new group of users, namely the non-IT expert users. Parallel to this diffusion, research issues surfacing on issues, such as automating democracy and the policy segments, are concerned with the changed pattern of discretion within areas such as police reinforcement and social welfare workers. While IT was still used in-house during this period, it was the first step in the gradual shift towards IT-use in the citizen and company oriented communication, steering away from a pure policy input and planning mode (Snellen 1994; Ingelstam 1991).

During the mid 1990s and until the early stages of the new century when e-mails and URLs became an inherent part of the modernization of government, the government applied IT to increase effectiveness and efficiency and information quality. Despite the technological advances in government, there is great uncertainty as to what type of services are in demand for online services, the extent to which IT is transforming public administration and politics and who is benefiting from the changes that are occurring. Indeed, in contrast to those who proclaim that IT has transformed government, there are counterclaims that IT has largely been adapted to and reinforced by existing behaviors and practices. In this view, IT is merely one more resource for managers (Danziger 2002; Andersen 1998). Although we agree with this position, management of e-government faces, if not new, then a more diverse set of challenges of record keeping and in-house rational decision-making control; additionally, it enables an anarchic flow of information and decision-making within virtual organizational forms.

Table 1: Major shifts in use of IT in government

Label	Period	Key technology	Use of technology
Cultivation	1970s-early 1980s	Terminals Centralized solutions	Experts Segmented use In-house use
Seeding	Early/mid 1980s-early 1990s	Micro-computers Distributed computing EDI	Desk-top use Administrative systems diffused General use
Extension	Mid 1990s-	Internet	Transactional view

	early 2000		Predefined and standardized services
Penetration	Present	Mobile computing WIFI Access points	Shifting ownership to external users Digital entities

In Figure 1 we have pictured the move from the closed and in-house communication patterns towards penetration of the organizational membrane through shifting ownership to external users and viewing the users of the public services as digital entities. At the organizational level, we find various indicators of blurring organizational boundaries. Situation C captures that various IT applications, including mobile technologies, are already part of the process penetrating the organizational membrane of the public sector. Yet, IT follows predictable and controllable patterns with regards to the access and transparency of the decisions and the service development. The captivating situation is when organizational actors use IT to support work processes in rather random ways. Also, the nature of the work processes that are supported, enabled and created by IT, changes from following a known and controllable pattern to a diverse, chaotic, and uncontrollable pattern, and the demand side communicates in an incremental and ad hoc fashion rather than in a constant and planned manner. This development is illustrated in D.

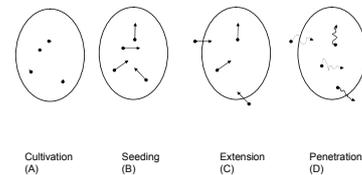


Figure 1: IT in government: from cultivation to penetration?

Source: Adopted and modified after Andersen, Upkar and Fogelgren-Pedersen Anderson (2003).

The penetration phase challenges those who advocate that e-government is all about law and building information systems along the formal organizational structures. Situation D replaces the formal view of government with a set of dynamic and modularized digital devices for recording, accessing, and exchange of data, information, and knowledge across distances. Furthermore, situation C assumes that there is free entry, exit, and voice for the users and the marginal transaction costs for the services approach to

zero. Abandoning the intranet could be one consequence of this line of strategic thinking on IT in government. We do not argue that the intranet cannot serve rational objectives. Indeed the sharing of data within government and the ability to transform data from one person to another in a digital format and keeping these in digital format once stored is a key feature and advantage using the intranet, data bases, and various ERP-systems. The danger is that the focus is being attributed to maintaining the intranet, that more energy is spent on defining boundaries than delivering services, and that the orientation of the activities is being instrumentalized in self-assuring routines that hardly, if ever, are transparent or involve external users of the public services.

Penetration of the organizational membrane is hardly a valid description of how e-government is structured today and may not be a representative picture of what all governmental organizations may look like in the near future. Yet, we do claim that the marginal changes in e-government will be more correlated with penetration of the organizational membrane than strengthening intra- and intergovernmental standards and network. The possible biggest misperception about e-government is the image that e-government is an end in itself and that the objectives are globally applicable, in a uniform manner. In the work with management training, such a proposition is of little use.

3. Digital entities

The normative implication of the shift in e-government outlined in the previous section is that the IT-adaptation strategies will be more, but not exclusively, demand oriented in the sense that it is the customers that direct the activities and the way technologies are used in e-government. Using IT in government as an in-house and intergovernmental venture encourages enabling direct and real-time interaction with users. A fraction of this communication will be highly structured, predictable and essentially controlled by the supply side, such as building permits and car registration renewal forms. The major portion of e-government communication will not be within government and will be hard to predict when and where it will come from. Standard protocol for answering correspondence and archives for storing communication is under pressure. The new generation of applications, such as SMS, chat, and virtual collaboration technologies, alters the way communication takes place.

The external user orientation has met objections by, for example, Fountain (2001) who argues that adoption of a customer service view might lead to

increased political inequality by bucketing resources to the services in marked demand. While we acknowledge that this argument can hold validity, there might be a need to examine whether this argument is proposed more as a projection of the public sectors' inability to adopt and perform in the new media environment. The transition to viewing users as digital entities is not only a management challenge. Also, major challenges will occur for the technical development. Government will need to rethink new applications and to consider the out-phasing of existing applications towards the external users. Also, radical initiatives such as substituting intranet and physical communication channels with Internet applications will require assessment of the employees' readiness and the ability to reduce the high labour intensity in the public service provision.

The external user orientation will imply that government formulates visions for online communication as the norm and the keystone in government, and not as the exception. Although countries as Singapore has infused government with IT and by most measurements more advances than many other countries, creation of digital profiling for the citizens is yet to occur. The strategic thinking of e-government is still by far an institutionalized project. We propose that a trigger for changing this could be to adopt the view proposed by Yang (2003):

"To achieve the great transformation made possible by IT, public administrators' strategic choice, initiative, and entrepreneurship are necessary...public administrators must have faith, be optimistic, and act strategically."

One implication for public managers of adopting this proposition is to focus decision-makers and customers by perceiving them as digital entities with a physical presence, rather than the reverse. In an executive training session for executives from the social welfare area taught by the author of this paper, the participants had substantial objections to the proposed digital view of users. Their view was that certain groups of society (the disadvantaged) and certain public services were not suitable for digitalization and would in the end do more harm than good to the policy objectives of the area. Clearly this argument has political merit and has been addressed in several national policy plans as well as in the international debate forums such as the World Summit of Information Society. To counterbalance the argument, we asked the participants in the session to reflect on the fundamental difference between the process and activities involved in the social welfare services and, for example, home banking, book ordering, and travel booking.

4. Strategic challenges and actions

Viewing the users and employees as digital entities has, as acknowledged above, substantial political and ethical challenges. Leaving this aside here, we concentrate on the management challenges related to the implementation of this view. We propose five key challenges facing e-government management: 1) confronting organizational activities with the fundamental demand paradox of government, 2) accessing the mechanisms of gate-keeping within the organization to help reduce the new generation of digital gate-keeping, 3) use of IT to reduce labour intensity in service production, not increasing it, 4) critical assessment of employees' readiness for e-government, and 5) enabling and renewing competence building mechanisms for the new media use.

Table 2: Strategic challenges for e-government

Strategic key challenge	Proposition
Demand paradox	Costs for online presence and explicit visions for whether the associated costs should be seen as operating costs and a need for centralization in decisions on how and where IT is being adopted
Gate-keeping	Implementing e-government visions with respect to queuing, routines, time allocation, and psychological barriers.
Reduction of high labour intensity in service provision	Complementing the digital wheelbarrow view of IT with a vision on how to reduce the labour intensity in service provision.
Assessment of employees' readiness	Reorganizing the division of labour from the individual cases solved rather than simply following the existing organizational conventions.
Competence building mechanisms	Envisioning how competence building for government workers should evolve. Piloting of reward mechanisms for competence building using IT

4.1 Confronting the demand paradox

The first strategic challenge concerns the costs for online presence and the associated demand paradox. Contrasting the private sector, government in general cannot use IT to expand its sources for revenue or shift to more profitable products/customer segments. As accessibility to

the Internet is approaching 100% at both the supply side (the government) and demand side (the citizens and companies), there needs to be more explicit direction for whether the associated costs should be seen as operating costs only and if so, whether they should be taken from other areas. Will this reinforce a need for centralization in decisions on how and where IT is being adopted? Government has, intentionally or not, created the expectations that through the online universe, citizens can expect the same service mentality from the public sector as from the private sector. Prompt replies, traceability, etc., are key expectations being raised: where does this begin and end? From one perspective, one could fear an endless demand of governmental services in the online universe with no transaction costs from the citizens' point of view.

In its transformation to being online, government has not been clear about how it is going to handle the success. At a workshop in Europe, one of the presenters from the Ministry of Finance in a country considered to be among the worldwide leaders of IT-adoption reported:

“When we designed this website for the citizens we downplayed the usability part not because we couldn't do better or were not aware of this. We were exactly aware [of] that a too good design would cost money on two ends: we would have to pay the consultants and software company more and we would end up having increased workload.”

The lack of budget line for increasing expenditures by going online and higher requirements for instant payoff of IT expenditures in the public sector than in the private sector are issues that will accompany the concerns raised by the manager from the Ministry of Finance and will be increasingly relevant to address the more the organizational membrane is penetrated.

4.2 Gate-keeping

Janus, the Roman God of doors and gates, had two faces, one looking ahead and one looking back, representing that a door can let you in or let you out. In the era of e-government, Janus-mechanisms can be positive through top-down policy formulation helping set principles and taking action that helps ensure that government does service those in need (and not just the people asking). e-Government could be viewed as part of the new public management wave seeking to

“emphasize efficient, instrumental implementation of policies, removing substantive policy questions from the administrative realm. This revival of the politics-administration dichotomy threatens

core public-sector values of citizen self governance and the administrator as servant of the public interest” Box (1999).

Formulating policies for access control is a key strategic challenge. Equally crucial is the need to be aware of the bottom-up evolving gate-keeping mechanisms for queuing, routines, time allocation, and psychological barriers that end-users and managers face when attempting to have street-level bureaucrats implement e-government visions. While the gate-keeping literature has addressed gate-keeping in the realms of advocating an understanding of implementation of policies from the “bottom-up” of the public sector organizations rather than from top-down (Lipsky 1980), gate-keeping is a strategic challenge here and is viewed as an area to address from a source that could hinder implementation of the overall policy goals.

To illustrate this point, we asked a class of students enrolled in the Executive Masters Program of Public Administration at Copenhagen Business School to write a list of ways of avoiding work using IT (see Table 3). The students, all having management or staff positions in the public administration, saw e-mail as the key information technology to avoid or help getting work done. There were only sporadic talks about instant messaging and blogging. The students showed great creativity suggesting using incompatible software and having the mail client crash. Also, having automated reply, forwarding to office mates and using quick and short replies. The managers, however, showed also great creativity in using IT to help them getting others attention to their work and ensure that their piece is processed. The managers would use BCC and CC of e-mail as tactical weapon and pressure the colleague or citizens to respond. How to use IT to avoid work

- Standard reply form/ Vacation/ out of office message such as “Do not disturb me now, please. I am working on a serious task that allow no disturbance or interference by any digital means”
- Chose special software and hardware
- Forward mail (and ask for additional work) or circulate advanced spread sheets asking colleagues to key in information
- Mail program crashed – no back up. A virus program hit my e-mail program.
- All incoming mails were automatically marked as read
- I got your message, but my inbox was floated
- Quick, but short, reply (just in header)

- Cancel participation in the meeting and ask the organizers for a written summary/minutes of the meeting
- Sorry, I was at my MSN...Have at least five digital connection points and your clients/ customers will trace you from one point to another.
- Send the message: Thank you for your e-mail. Since I am not in office at the moment, I kindly ask you to consider the necessity and urgency of the mail. If you are able to complete the task without my assistance/approval, it would ease my workload substantially. Thank you in advance

4.3 Reduction of high labour intensity in service provision

The third strategic vision we propose is to complement the “digital wheelbarrow” view of IT with a vision of how to reduce the labour intensity in service provision. Applying IT in the public sector is about reducing costs of sending, storage and retrieval of information. The strategic challenge is finding ways of exploiting IT to reduce the high labour intensity in service production. Self-service through the Internet has been a key initiative to achieve this, but the reality is that most governments are looking for users in areas where they are not most likely to be. Clearly government has been successful in areas such as internet based tax forms. Online visa forms are another example as in the case of Australia and are currently being prepared in Bhutan. By reducing the cost of the visa processing, resources could be reallocated to other parts of the public sector.

As appealing as this argument might be, the downside has been that digitalization has been approached as relevant for the support activities only. Instead, we argue that attention should be directed to all parts of the public sector activities and, in particular, to the core activities since they have been left out of digitalization. The next strategic wave will have to examine visions for how government workers can benefit from IT. This will mean adoption of a complementary view of what we have labeled the digital wheelbarrow perception of IT. Government has been focusing almost exclusively on the administrative costs of government, or what Porter labels supporting activities. The challenge identifying the potential for reduction in labour input in service production is that the end users are intertwined in both design, processing and use of the service (Fountain 2001). Areas such as education and social counseling are profound examples of the inherent problems in reduction of labour input without doing serious damage to the core service. The argument often put forward is that as

appealing as technologic centric charts of e-government might be (and there is a need for better technology training of the governmental work force), there is a danger that neither government users nor researchers are benefiting when focusing exclusively on the technology component. Clearly, there is a danger in focusing on technology and throwing out the research insight on the interplay between technology and organizations provided continuously throughout the 1970s, 1980s, and 1990s.

Yet, it is an even bigger strategic mistake to stop searching for information that can be digitized. In management training we have gained some success by rephrasing the question. Instead of asking the participants what can be digitized, we ask them to address the question of what cannot be digitized. This rhetoric trick helped the public managers to start looking at the least likely areas, such as education, social counseling, and law enforcement, rather than focusing only on the most-likely cases of computerization of administrative areas.

4.4 Employees’ readiness for e-government

The fourth strategic vision reorganizes the division of labour from the individual cases solved rather than simply following the existing organizational conventions. There is a need to carefully address how we envision case workers communicating with citizens and companies. By going online, government has, by and large, replicated the existing division of labour. From a strategic point of view, there is a need to refine the online presence by outlining what competences, data, etc., are necessary in order to solve the problem/issues at stake from the customer’s point of view. We propose that having a spectral strategic analysis ranging from viewing public employees being pro-active and eager to implement IT as a mean to substitute routines and jobs and moving towards viewing public employees from an obstructionist viewpoint. The latter will represent a picture of the public sector as a unity of workers that will use any means to prevent direct digital contact with users and citizens. The spectral analysis will help to “...balance between agent and institution, between strategic choice and institutional constraints” (Yang 2003).

In executive training we have asked participants to express their view of the organizational readiness for e-government service provision through the lenses of the Ackoff (1974) (see Table 5 below). There was systematic positive bias on the managers’ assessment on their employees’

readiness by viewing them as being proactive and interactive, rather than inactive and reactive. The findings of the employees were the direct opposite. While most of the employees viewed themselves as having a high ability to adopt to changed situations and needs, none of them viewed themselves or their colleagues as being interactive.

Table 3: Managers assessment of employees’ readiness for e-government

Change	Passive	Active
Planned change	Inactive “management by crisis”	Proactive “imitator”
Situated change	Reactive “dynamic conservative”	Interactive “visionary”

4.5 Competence building mechanisms

The fifth strategic element is a critical re-visit of the patterns of competence building and the role that IT plays in this. If communication patterns with the external users are to become multi-application based, employees will then face the challenge of mastering multiple applications as a dynamic condition. There is a strategic implication for formulating views on how competence building for government workers should evolve. The management jargon insisting that IT is 80% organization and 20% technology has –in our view– unfortunately had devastating impacts on technological qualifications. Endless numbers of seminars on strategy, organizational strategy, organizational learning, and total quality management seminars have been attended by the public sector.

As much as we support the value of such seminars, governmental workers are in general left on their own with regards to technology adoption. Most workers haven’t been systematically trained since the days of WordPerfect 6.1, Lotus 1-2-3 and DOS - at best since the introduction of Windows 3.2. Qualification schemes have been individualized due to plug and play programs, straightforward user interfaces and data and document sharing servers and folders. This is contrasted by, for example, the financial sector, where training is performed through the application of IT in what has now been labeled e-learning environments. With respect to the public sector’s use of IT for enhancing their core capabilities, examples are scarce and rarely to a level where, for example, case work is accessed in digital format for learning purposes.

We suggest short upgrade modules of, for example, two hours and, most importantly, to

abandon all training during the day-time for public servants and replacing it with after-hours training, predominately through digital media. This would help increase time spent on core-activities and help increase the overall IT-competence level. Clearly this shift should be accompanied by appropriate pay schemes for increased competencies. Assuming 10% of the work time is spent on training, transferring this to after work hours would free financial resources that could be used to increase salaries. This would link the increase closely to increases in productivity that occurs as a result of the increased training after work hours.

In an experiment we carried out, we asked public managers to undertake a chat session addressing the up-take of the Internet in their work activities. The most striking thing was that the managers started by defining what they should deliver and in what format. There quickly emerged a "leader" of the discussion, and throughout the session they had a stick-to-the-point argumentation style. Tragically, the session did not come up with any usable input that is, input that could not be readily found at any standard consultancy report. This chat behavior is contrasted by the younger generation that does not stick to the point, does not have a leader of the pack, but is creative and less concerned about the writing style and the output documentation. We believe that this will set the standard for communication between the coming users of the public sector services.

5. Conclusion

The management transition from the operational view of IT to a strategic vision for e-government is discussed in this paper in terms of the penetration of the organizational membrane. The strategic visions were anchored with respect to challenges within coordination, interaction, and organizational control for e-government. Asking managers to formulate visions for how to solve the demand

paradox can end up being cost drivers if the costs for ensuring full IT integration and one stop services are not accompanied by reduction in other costs. We highlighted the need to be aware of "digital" gate-keeping mechanisms and take actions that help realize the visions of e-government by viewing the implementation more as a bottom-up implementation. The implication of this would be to critically assess the mechanisms of gate keeping and network-mechanisms. There has been almost no attention placed on the use of IT not only as substitutional technology, but also as a complementary means to competence building. Managers need to critically assess their employees IT competences and consider whether the existing mechanisms of adopting new technologies are likely to ensure adoption of technologies such as SMS, chat, blogging, etc.

Clearly there are areas beyond the challenges discussed in this paper that need further attention. A key concern in moving towards penetration of the organizational membrane is security with regards to securing wireless e-mail, minimizing loss of data, securing handheld access to the government network, and deploying and managing security policies for many devices. Although each of these concerns has merit in most government management boardrooms, they could also reflect a convenient scapegoat for not focusing on the e-government opportunities and the associated management initiatives.

Government is at a crossroads whether to enforce control of information access and processing. While the Ministry of Finance, in general, takes the position of controlling not only information access and processing in order to avoid demand driven budget increases, it also advocates outsourcing to third-parties. This leads to policy challenges such as accepting that social security payment processing for citizens of Oklahoma is done in India.

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