

Lessons from Around the World

By Janet Caldwell

"I'm amused when I read the sometimes narrow definitions of "electronic government" – citizen services, re-engineering with technology, or procurement over the Internet. In fact, electronic government is nothing short of a fundamental transformation of government and governance at a scale we have not witnessed since the beginning of the industrial era. Asking the question "What does it take to become an e-government?" would be like asking the question in the early 1950s, "What does it take to become an industrial state?" The answer is not simple. And, those who attempt to simplify its meaning may create enduring setbacks in the race for competitive advantages in a digital age and society." (Caldow, 1997)

In 1962, John F. Kennedy challenged American scientists to "put a man on the moon within the decade." Consider for a moment the enormity of that one statement. He didn't identify software or hardware; he didn't specify the physics, aerodynamics, jet propulsion, or weather conditions for lift-off. No question that technology was the enabler. But it wasn't the mission. He effectively inspired and mobilized every single person in the NASA space program to collectively apply individual talents and know-how toward one common goal. That goal was met in seven short years. Many of the technologies actually used for the moon landing in 1969 didn't even exist in 1962. The innovative and entrepreneurial spirit of the men and women in the space program created the future. The same is true if we want to achieve "e-government." Until leaders are willing to inspire fundamental reform, e-government will remain unfulfilled -- an elusive concept.

We all have a tendency to define the world by what we understand. Over the last six years many people have done just that. To them, e-government meant putting citizen services online. Make no mistake. Enormous and important progress has been made in this area. But, like the child who has opened the last present, leaders are now asking, "Is that all there is?" No, that isn't all there is. We haven't even scratched the surface of what e-government means – technology-enabled transformation of government. E-government, in its broadest sense, is institutional reform -- governments' best hope to reduce costs, achieve cross-boundary integration, implement better controls over fraud and abuse, increase the capacity for innovation,

improve transparency and accountability, promote economic development and democracy, simplify services, and provide better security for citizens.

Transformation is hard. It takes strong and sustained leadership to reshape institutions. Great leaders know that the future can be enacted -- sometimes with one sentence. Once given the direction, it will take every single person -- every minister, every CIO, every agency head, every program manager, every supervisor, every field worker, every police officer, every office worker -- to collectively transform the inner workings of an Industrial Age bureaucracy into a 21st century e-government. Too often, technology has been misconstrued as the driver and the results are self-limiting. Only those closest to task understand best what changes need to be made in the way government operates. And, once those needed changes are presented to technology specialists, the possibilities are virtually endless, especially considering the fact that technology has advanced another thirty-four years since man walked on the moon.

To date, we have accomplished better accessibility on a program-by-program basis by moving citizen services online -- filing taxes, renewing permits and so forth. However, the greater challenge cuts across government boundaries -- between and among agencies, between and among different levels of government, between and among public and private sectors, and between and among governments themselves. To a technologist, this means an enterprise-wide, open information technology infrastructure of shared networks, data, standards, and applications. An enterprise architecture forms the foundation for collaboration, integration and communications across boundaries.

The case studies accompanying this chapter illustrate three early transformation initiatives -- not simply web-enabling an existing service transaction. The challenge now is to envision fundamental reform, motivate the institution, and apply lessons learned from early successes to larger-scale technology-enabled transformation where the full benefit of e-government can be realised.

Case Study: Denmark's Model of e-Government

The city of Naestved, located in Denmark, has a population of over 45,000 people. In 1992, Naestved embarked on an impressive series of integrated e-community initiatives to attract investment, bring the information society one step closer to reality, and plug into the heart of the emerging digital economy. A citywide intranet with a Lotus Notes platform for employees was installed in 1994. In 1995, CityNet was created -- a joint venture with Naestved, Cable TV, and TeleDenmark -- which provided cheap, high-speed Internet access to any household or business within city limits. In 1996, NaestvedNet (a semiprivate company owned by the regional newspaper, telecompany and municipality) drove the creation of the NaestvedNet Business Council to stimulate growth of local businesses. The Business Council offers education, technical support, and affordable web services for small and medium businesses. In 1997, the city website (www.naekom.dk) was designed to provide self-services. "New Pathway" centers were established to serve the physically impaired, senior citizens and the unemployed. PCs were installed in all libraries and youth data centers opened. In 1999, Naestved was approved as a EU pilot -- Open Digital Administration -- to implement digital signatures using Tivoli public key infrastructure giving citizens secure access to case processing applications, including intelligent forms (data automatically filled in). In 2000, Naestved created interactive virtual classrooms using Learning Village technology offering distance learning to technical, trade and business schools in surrounding cities. With sustained leadership over nearly a decade, Naestved has become a model e-government.

According to Hermann Weidemann, Naestved's CEO, the 'goal was to create a system that would deliver a fully secured set of personalized services that would be easy for citizens to access.' At the time, there was no secure way to store and re-use citizen information. One particular challenge was the Illness Reimbursement Program with procedures associated with sick day benefit forms. This form was notoriously difficult to fill out, with errors in more than 40% of applications. This led to lengthy delays before citizens received reimbursement.

To fulfill its technology plan, the Open Digital Administration (ODA) initiative was co-funded by the European Union as a preparatory action for the e-Content program aimed at providing secure, on-line self-service opportunities for citizens. To roll out this project, Naestved established alliances with Skurup, Sweden, the National Association of Danish Municipalities, the Hugvit / GoPro Organization and IBM to coordinate the project, and deliver and install the infrastructure. Each alliance brought a different skill to the project.

Weidemann indicates Naestved selected IBM as its technology partner based on its long prior relationship with the company. "IBM has been a trusted development partner for a few years. The company offers a wide range of competencies that we thought were necessary to assist in our complex development project."

The user interface for the sick day benefit form is designed to guide the user through the form and only asks relevant questions. The system reuses already stored information from a number of national or local databases. On-line help and field validation is always available. Weidemann explains "It's so much easier to receive applications on-line than it was previously on paper. Applicants are able to get forms 24 hours a day, seven days a week" and "Both internally and externally, the case handling is much smoother. The new method has eliminated errors and enabled process time and costs associated with case processing to be reduced."

Case Study: The Emergence of Today's eCop

The Toronto Police Service (TPS) knew technology could be a potent weapon in its crime-fighting arsenal. Prior to 2002, they had separate databases for case files, criminal proceedings, and criminal records; administrative staff members maintained databases separately without sharing information; and overlapping databases that contained duplicate as well as inconsistent information. To meet the increasing demands from officers for higher quantity and quality of information, the records management system required extensive transformation.

The solution, called eCops (Enterprise Case and Occurrence Processing System) integrates 450 patrol cars and provides "one-stop shopping" for all information concerning cases, occurrences, arrests, warrants and other police information. Before eCops, officers on patrol had limited access to crime data using radio communication. Now, with the use of mobile technology they can connect to information wherever they are. Using an intelligent client design (a hybrid Java client and Web browser), officers can query the core database from a laptop and immediately access data such as the history of occurrences at a particular address or past records of individuals.

eCops also enables officers to enter arrest information on a laptop in the patrol car. Formerly, officers on patrol had to bring a suspect into the Police Station to fill out paperwork. By shifting the data entry points from administrative staff to the officers on the beat, TPS will save about U.S. \$2.9 million every year.

Commenting on the decision to choose IBM, TPS inspector Mike Farrar said, "We were looking for a company with a technology vision bringing all the pieces together, from the database all the way out to the patrol car. IBM was the clear winner in that respect."

A critical success factor for eCops was the collaborative tone of the relationship between IBM & TPS. For example, IBM Global Services and IBM Toronto Labs worked with TPS and Pentleton Consulting using IBM VisualAge for Java to develop the EJB technology for eCops. "These have been very important relationships because we're on the leading edge," says Farrar. "IBM and Pentleton Consulting give us direction and technical advice and help us create a productive and effective team."

Future enhancements of eCops may include moving its PeopleSoft payroll and human resources applications to DB2. Comments Farrar, "We're looking to leverage our investment in IBM and DB2 Universal Database. Our approach to this technology is anyplace, anytime, any content and any device. I believe that's IBM's strategy, too."

Case Study: The Institutionalisation of e-Government

According to the 2002 Digital State Report, Arizona leads the United States in applying advanced technology to government operations. "Since 1992, Arizona has been building the governance structure, the technical infrastructure and enterprise view to support electronic government," said Cathilea Robinett. "It's a gradual process, and they've worked steadily to put all the right pieces in place. Now, Arizona has essentially institutionalized e-government."

In 1998, the State of Arizona wanted to ensure that its citizens, businesses and visitors reaped the benefits of its culture and diversity by enhancing the sense of community and unity among its constituents. In searching for the solution to enable these benefits, representatives faced a critical question: How do you support and maintain unity and keep businesses, agencies and constituents abreast of all that is going on in the State of Arizona?

Craig Stender, Director of the Government Information Technology Agency (ITA) and Chief Information Officer for the State of Arizona, believed one of the ways to keep the State connected was through the adoption of a portal. "Our goal is to use the portal to [ensure that] every citizen has access to the government over the Internet ..." Today, the portal, Arizona @Your Service, is at the centre of Arizona State Governor Jane Dee Hull's "e-government" initiative.

"What we really wanted to do in 1998 was look at self-funded portal models," said Gene Martel, the State Web portal manager, responsible for the delivery of all contracted services. This decision was sparked by increasingly tight information technology budgets. The optimal funding model was determined based on initial benchmarking efforts of other state portals and funding methods, which enabled Arizona to draw on countrywide experiences, and channel them with local discretion.

Based on these results, Arizona needed to develop a long-term relationship, with a partner who would share the implementation costs and risks as well as post-implementation benefits. IBM mitigated upfront costs by providing and supporting the enterprise portal infrastructure and application development resources. In exchange, IBM accepts transaction fees for "e-government" services provided through the portal.

Arizona @Your Service does more than provide information about the state on a Web site. Providing transaction services through the portal, as Martel stated, "gives agencies an opportunity to realize process improvement. We look at the benefit of providing the service over the Internet and the process improvements needed to determine how their back-end processes would be impacted. All of a sudden, [the portal] serves as an opportunity to clean things up."

To ensure future development activities meet the changing needs of the customers *and* result in financial support for the portal, Arizona takes a methodical approach to application and service development conducts an ongoing strategic assessment of its customers, its strategy, and portal funding needs.

Like most states, Arizona focused more attention on security and business continuity following the terrorist attacks on the World Trade Center and the Pentagon. The tragic event also helped fuel a drive to strengthen Arizona's decision-support systems and improve information sharing among public organizations. Creating a statewide enterprise IT architecture is key to that effort, Stender said. The state defined a comprehensive technology framework covering networks, computing platforms, security, data and applications over the past year. As Arizona continues to refine the concept, Stender expects the enterprise architecture to deliver a series of benefits. "It prepares us for better data integration projects, which is the real golden nugget in all of this, because that's where true efficiencies come in. When you talk about really saving money, it's going to be on business re-engineering because of data sharing."

The Naestved case study from Denmark demonstrates how the Open Digital Administration (ODA) project met the changing demands of citizens. On the one hand, the “sick day” form initiative enabled virtual collaboration between citizens and government departments through shared information access. On the other hand, citizens were able to control the progress of the own benefit claim cases.

The eCops project in Toronto is an example of how wireless technology fundamentally changes how government employees work. When mobile workers can interface with mission-critical systems remotely out on the job, the results are impressive. Wireless access can reduce costs, speed up work processes and reporting, improve productivity, decrease paperwork, eliminate redundant data entry and improve employee safety. E-government in this sense is about extending the infrastructure for wireless access.

The Arizona case study demonstrates how the development of the portal provided innovative ways to engage citizens in dialogue and the development of policy. The customer feedback area proved to be an excellent source to gauge what citizens want. A recent survey amongst Arizona citizens showed an increased interest in taxation and security issues. In response, the portal was used to address taxation and homeland security. Arizona also has a digital government survey where individuals can actually vote online, which helps to confirm that current policy is matching public demand.

Surveys and polls have shown that a major cause of public concern over e-government focused on issues of security and privacy. Speed of delivery is not a top priority for citizens, who primarily want to feel any electronic transactions and personal data will be secure. Governments must gain citizen confidence by addressing privacy perceptions and ensuring that security, privacy, and trust are core attributes of the government brand.

Financing and pricing of e-government initiatives are major challenges. Arizona and IBM created a long-term relationship, which shared the implementation costs, the risks and the rewards of the portal. When Strategic funding models are adopted, it is partnership

and innovation, rather than pure economic strength, which becomes the critical success factors in e0government projects. With a shrinking public sector workforce under continuous pressure to improve, an undercurrent running through UK e-government projects is how to achieve more with fewer resources. The benchmark study, which was undertaken by Arizona prior to the implementation of the portal, highlighted the key benefits of adopting a transaction fee-based approach to meet this challenge.

The Toronto and Naestved case studies also illustrate the benefit of not going it along. For example, the relationship TPS fostered with IBM enabled them to harness IBM's large-scale technology expertise for their own objectives. In house development is wasteful, except in the case of the most specialized technologies. Not only does it reinvent existing technology, but it also fails to capitalize on significant advancements in technology that are readily available on the open market.

Hence, to achieve the delivery of open, collaborative services, UK public sector leaders will need to encourage suppliers to work together in ways so far unparalleled, sharing risk and rewards. The benefits which will accrue are high and will be important to achieving modernisation.

The measurement and analysis of this process is another important dimension. Market research, testing, experimenting, and measurement are invaluable to implementation of e-government initiatives. Most government functions are not unique, so it is often possible to learn important lessons by comparing and learning from others. Arizona recognizes this. Their funding strategy was chosen based on a benchmarking study that analysed other state portals. The analysis showed that many other state and local governments were adopting transaction fee-based approaches to funding models, and clearly highlighted the benefits. Measurement continues to be a fundamental part of Naestved's approach. The ODA project saves approximately "60 to 80 percent of the resources" previously used to process the same sick-day reimbursement form. This was primarily because the use of intelligent forms and pre-checking/re-use of existing data has almost eliminated the 40% error rate, and thus reduced both the case processing

costs and the process time. These figures clearly demonstrate the return on investment for the ODA project.

Toronto, Arizona and Denmark, along with other success stories around the world demonstrate what can be achieved with the right framework in place. E-government is not about automating existing processes and settling for incremental change. It is about challenging the current culture, starting with how business is conducted all the way down to how government departments interface with citizens. Transformation on this scale is hard, but change has to start somewhere. At Present, government services reflect few of the attributes that modernization will require. Currently these services are often centralized with in departmental organizations. They are complex to administer and difficult to understand. Frequently, they are inaccessible to many, either through user ignorance or because of the wide range of conflicting services apparently on offer, or a lack of understanding as to how to enter the business process surrounding the service. Homogeneity – the- “one size fits all” approach – is another grave error. The services may be remote in both point of access and in understanding citizens’ needs. Little or no choice may be offered to the user. The services are usually not joined up across agencies. They are not carefully targeted to ensure uptake or relevance. Finally, they frequently fail to engage an often apathetic citizen.

While technology is not the panacea, harnessing new technology as a “white heat” catalyst for change will provide world-class public services to all stakeholders. The benefits are seen as addressing the current ills found in the delivery of public services and allowing change to happen rapidly.

So what are the attributes of the new services which technology will deliver? We would suggest they are the following:

- Accessible to all irrespective of the citizen’s ability to use technology
- Personalized and relevant to a diverse community
- Transparent and simple to use
- Delivered by clearly accountable bodies responsive to that community

- Joined up, allowing citizens to engage with government once and once only for each transaction
- Better targeted through feedback from recipients.

The new services would thus engage the citizen and encourage the individual to participate in the delivery of services, at least through the ballot box. In addition, the private sector will share risk, delivery and reward with the public sector to ensure the adoption of best practice in service delivery.

This is a mighty agenda for change and one that currently is being pursued through many programmes managed under the strategy manifesto published by Sir Andre Turnbull, the new head of the Home Civil Service, for the modernization of public service.

IBM has been through a similar transformation to that which the public sector now faces. In partnership with Cable & Wireless, IBM helped create the Whitehall Knowledge Network. This system "joins up" government, and enables officials in all departments and associated bodies to communicate with each other and share common secure access to databases, discussion forums, web-based community sites and "knowledge pools." Change does not happen in isolation. A number of inter-departmental communities of officials have begun to emerge, who recognise the Knowledge Network as a first step to transform the way they are able to work together and collaborate.

Work is also underway elsewhere in the UK. For example, the NHS modernisation programme is a prime example of moving change forward through the use of technology, with a strong claim to putting the patient and front line practitioner at the heart of the service. The Criminal Justice IT group is looking to improve the Criminal Justice Process to redress the balance of justice in favour of the victim and the witness. Joining up technology systems is key to enabling these changes.

Yet a recent government online study from Taylor Nelson Sofres, found that while the number of users accessing e-government services worldwide has increased from 15 percent to 30 percent over the past 12 months, the UK has the worst next to Japan, with only a 13 percent rate of adoption of e-government services. This implies that the UK is only at the beginning of the e-revolution in government, and can therefore build upon the striking experiences in the public sector from around the world.

So what are the steps required for the UK and its international counterparts to move forward? One key to enabling e-government is the adoption of open and flexible solutions that do not inhibit the massive change programmes. The development of flexible administrative processes, sharing delivery across multiple organisations and bodies, deploying intelligent infrastructures and sharing processes among organisations are all essential if the information currently held in multiple places is to be freed up and used to deliver holistic services to meet the needs of all stakeholders.

Governments around the world are moving to the forefront of globalization in unprecedented ways. Frederick Taylor's bureaucratic management model in both government and business has served many generations well since the Industrial Revolution. But, times have changed. Leadership has never been more important to transform sluggish, aging institutions into dynamic, flexible institutions that can respond and adapt instantly. Capturing the hearts and minds of government officials may sound foreign, but good generals never underestimate their troops. Given direction and leveraged with technology, the men and women who serve in government today have the capacity to fundamentally transform government and governance for generations to come. It bears repeating. Technology is not the issue. If it took just seven short years to send man on a 480,000-mile roundtrip journey to the moon using 1969 technology, then the vision of a modernised e-government for the future is certainly attainable within this decade.

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