SEVEN E-GOVERNMENT LEADERSHIP MILESTONES

Janet Caldow
Institute for Electronic Government, IBM Corporation

Abstract:

As electronic government comes of age around the world, leadership remains at the core of success, beginning with the definition of e-government itself. Leaders who define e-government in a narrow sense — simply moving services online — miss larger opportunities which will determine competitive advantage in the long run. By the end of the decade, what will constitute competitive advantage? A broader grasp of e-government is imperative for leaders to position their governments, citizens, businesses and communities for sustainable strategic advantage. Seven leadership milestones are integral to both becoming an e-government and running an e-government.

Izvleček

Ko se v svetu elektronska uprava razvija na stopnjo zrelosti, je njena uspešnost še vedno odvisna od vodenja, predvsem razumevanja, kaj e-uprava sploh je. Vodje, ki gledajo na e-upravo ozko – da se storitve prenesejo v spletno izvajanje – zamujajo pomembne priložnosti, ki bodo v dolgem roku odločale o konkurenčni prednosti uprave. Kakšna bo ta prednost čez deset let? E-upravo je treba razumeti širše, če naj vodje ustrezno opredelijo vloge vlade, državljanov, podjetij in skupnosti pri izvajanju prednostne strategije. Za oblikovanje e-uprave in njeno poslovanje je nujnih sedem mejnikov vodenja.

■■■

As electronic government comes of age around the world, leadership remains at the core of success, beginning with the definition of e-government itself. Leaders who define e-government in a narrow sense — simply moving services online — miss larger opportunities which will determine competitive advantage in the long run. By the end of the decade, what will constitute competitive advantage? Certainly not renewing a license online. By then, online government services will be as commonplace as ATM machines are today. Online services will no longer be noteworthy, distinguishing one government from another, but will have become part of a baseline expectation of service delivery. Given that, governments today have no choice but to aggressively pursue an all-encompassing shift from traditional to online service delivery. To do otherwise places them in jeopardy of falling below minimally acceptable standards of service.

However, if online service delivery is only the ante to get into e-government, what then will set governments apart, elevating e-government as a competitive advantage? What are leaders to do? A broader grasp of e-government is imperative for leaders to position their governments, citizens, businesses and communities for sustainable strategic advantage. Seven leadership milestones are integral to both becoming an e-government and running an e-government. Achieving these milestones creates competitive advantage in both instances:

Milestone One:	Integration
Milestone Two:	Economic development
Milestone Three:	E-democracy
Milestone Four:	E-communities
Milestone Five:	Intergovernmental
Milestone Six:	Policy environment
Milestone Seven:	Next Generation Internet

The milestones are neither discrete nor sequential in nature. Each milestone has equal priority, contributing to the cumulative attainment of the others. Concurrent activity among the seven areas are required from the beginning. Collectively, these milestones require a common underlying management foundation and investment — strategy, collaboration, governance structures, financial investment, human resources, and partnerships. Without this leadership foundation, progress will be limited in overall impact and fragmented at best.

Milestone One: Integration

Process integration and technology integration mark achievement of Milestone One. Most governments have already recognized the fact that effective citizen services are delivered independently of organizational structure. Some call it one-stop shopping, one window, or a portal. This approach is designed to let citizens access services without having to know which department handles the service. Simply, instead of

a list of departments to click, citizens find a list of services to click. However, in the background, most services still have a one-to-one relationship with the department that offers it - reserve a tennis court, renew a realtor's license, pay a fine, file taxes.

The Texas Comptroller of Public Accounts office established the e-Texas Commission to find ways to reduce the number of touch points required to establish a business in Texas. They found to open a dry cleaning shop in Texas requires interaction with five state agencies - Department of Licensing and Regulation, the Texas Natural Resource Conservation Commission, the Comptroller of Public Accounts, the Texas Workforce Commission and the Texas Department of Transportation. Authorization from each department is required to do business in Texas. In addition, the dry cleaner must comply with regulations at the Federal level - Environmental Protection Agency, Department of Labor and Department of Transportation. A food retailer is subject to nine state regulatory agencies, seventeen different types of state licenses, and various statewide inspection processes.

Why is it so difficult to conduct simple business? This happens because cross-boundary operations, organizational structures, and information technology systems are not integrated. Integration is core to running either a business or a government in today's digital environment. E-business is a business model focusing on business relationships at the enterprise level powered by electronic interfaces among internal divisions, business partners, employees and customers. The combination of interfaces among individual legacy systems, enterprise level applications, and breakthrough Internet-based technologies for external customer and supplier use make e-business achievable, affordable, and mandatory for competitiveness. To achieve Milestone One, governments need to learn to use the Internet to run the government.

Commit to moving the bulk of services online within a challenging time frame. But, don't stop there. Demand that each functional area develop the discipline to look at interactions from a 'total customer experience' perspective. You'll soon discover a networked organization that should have work flow linkages with other departments and information technology systems.

Underneath process integration one must also have an integrated technical infrastructure. Your data center is likely professionally staffed, follows disciplined operating procedures around security, availability, reliability, scaleability and performance standards. Web servers throughout your organization probably do not. Today's infrastructure is not up to the task of the tremendous growth that's coming soon — ten times the number of people connected to the Internet; 100 times the current network speed; 1000 times the number of connected devices; and a million times the data. Calculate those numbers just for your jurisdiction. Can your technical infrastructure handle it? Not only do your databases and applications need to talk to each other, now the engines that drive them - the PCs, web servers, LANs, networks have to attain a new level of standards.

Today, most e-businesses are planning 99.9999% availability. That means systems are guaranteed to be up and handle the load 99.9999% all the time. When e-government comes of age, you cannot afford to have 90% availability. That's the equivalent of closing all your government offices a half day per week during normal business hours. What's more, in the e-government world, the workweek isn't 40 hours anymore. It's 168 hours -- 24 hours a day, seven days a week. Surveys show most e-government services are accessed between the hours of 8:00 PM and 2:00 AM. Your data center may be open and staffed all night, but the web masters from the recreation or licensing department are probably home in bed asleep. E-government is a complete mindset change about how you run things.

Within the next 5 years, bandwidth will increase 150 times. When high speed access is commonplace the "Internet" won't be to blame for slow response or crashes because of seasonal peaks, uneven traffic, and increasing demand. All the stress will be transferred to your servers and your network. Now, think about the portal and all those transaction services pushed out to separate web sites, and the technical challenges become clear. The more agencies and servers involved, the less reliability you'll have if they are not part of a displined management structure. If just one server goes down in any one of the agencies at any step along the process, you can't complete that business permit application. It shouldn't be left up to the guy in the cubicle running today's web server. Hackers can find their way to any individual agency web server hosting a web site. Each web server needs to be integrated into the same standard IT operating procedures that you expect from the IT shop for security, availability, reliability and performance.

Expect to invest significant funding for integration. Hardware, software, security, scaleability, reliability, skilled personnel, integration of process and technical infrastructure — that's what it takes to run an e-government. You can't get there with today's environment built for a physical government. We spent decades establishing processes and procedures to operate physical governments. Now we are shifting to a brand new paradigm. The good news is that the savings, rewards, and returns far outstrip the investment required.

Milestone Two: Economic Development

On the road to e-government, Digital Age economic development generally has five dimensions — leveraging small and medium-sized businesses, education, attracting high tech industry, access to technology infrastructure, and a business-friendly government.

Economic development used to focus on attracting a few large corporations to build plants and bring jobs to a jurisdiction. Although still a building block, the tide has turned toward small and medium-sized businesses - the fastest growing economic sector worldwide. Jurisdictions may have from hundreds to potentially tens of thousands of small businesses within their boundaries. If each one has the opportunity to grow into a "clicks and mortar" enterprise, and adds just one new job per year, the result is overall healthy economic growth.

What do these small businesses need and how can government leaders help? To transform into e-business, small and medium sized companies need affordable expertise and technology - web development, e-commerce applications, hosting, and high-speed Internet access. Individually, small companies have little bargaining power. But together, through organized aggregation of demand, negotiated affordable packages for these capabilities can become a reality - perhaps a citywide or statewide services contract for small businesses. Governments, in collaboration or working through private and nonprofit sectors can facilitate such bargaining power.

Helping small and medium sized companies become e-businesses is one thing. Establishing brand recognition is quite another. In the economic shift to e-business, small and medium businesses are losing customers to big, heavily-advertised Internet brands. Search engines are still primitive and frustrating. Chances are the local resident will go directly to a known Internet brand instead of searching for local e-businesses. When an out-of-state online transaction occurs, lost sales taxes are only one part of the problem. Those companies are also not paying state income taxes or business license fees. They don't employ your resident citizens. Their employees aren't shopping at your local malls. There is a lot of economic growth (or loss thereof) associated with an online purchase. The solution is not simply changing sales tax laws. It's helping businesses get online and then getting them connected with your citizens. One way to do this is building upon Milestone One - integrate from your citizens' perspectives. Provide easy citizen access from the government portal to reach local businesses. Feature a "small e-business of the week" on the website. Have a robust enough portal, and these small businesses will enjoy not only brand awareness of residents, but will enjoy access to new customers and business partners outside the jurisdiction. This effectively bridges "local" to "global" for business development and economic growth.

Building a competitive workforce to fill newly created jobs is the companion strategy to leveraging small businesses and attracting industry. People no longer have to work where they live. A digital workforce is emerging where jobs can be filled anywhere in the world. The dramatic and growing shortage of skills affects every country, every state, every city. Jobs displaced in the digital economy are being replaced with new Internet-related jobs at much higher pay. Education, of course, is key and why it has become a number one priority of government leaders everywhere. An education system that produces a competitive workforce is undeniably core to economic growth. For example, governments are rethinking degree program caps to encourage more science, math, engineering, and technology graduates.

Governments also need strategies to attract new knowledge workers and high-tech businesses into their jurisdictions. The Commonwealth of Virginia has been particularly successful in attracting and growing a high-tech industry base. Today, nearly 50% of the world's Internet traffic flows through Northern Virginia. The area is home to America Online and thousands of other high-tech companies. Fortune magazine referred to Virginia's "netplex as a dense pattern of interaction and partnering among firms in a highly dynamic telecommunications industry, a rapidly emerging Internet industry and what is probably the most highly developed concentration of systems engineering capabilities in the world."

Leadership for this strategy has spanned nearly two decades and several governors' administrations. In 1984, the Center for Innovative Technology was established as a nonprofit organization designed to enhance the research and development capability of the state's major research universities. By 1998 Virginia businesses had created 9864 new jobs, 354 new companies and $1.9B in competitiveness. Virginia has become a hot spot of technology because of its relentless focus on developing the workforce, creating the infrastructure, maintaining an entrepreneurial climate, and deploying technology. In 1997, the governor issued an executive order creating the nation's first Secretary of Technology, responsible for coordinating public sector information technology resources while also working with Virginia's fast growing information technology private sector. In 1999, the state's Internet Policy Act was signed into law, becoming a model for other states.

By 2003, Virginia is expected to have nearly 423,000 technology workers, earning $26.4 billion. Leadership is clearly working in Virginia.

Milestone Three: E-Democracy

No e-government vision is complete without attention to digital democracy. The spectrum of democratic process ranges from voter registration, voting, public opinion polling, communication among elected representatives and their constituencies, universal access to technology, wired legislative bodies, and legislative processes that encourage greater citizen participation. Online hearings, submitting expert testimony online, opinion polling and open communication and information provide opportunities for real-time participation throughout the democratic process - not simply disseminating information after the fact. There's a big difference.

From John Locke to Thomas Jefferson, the foundation of democracy is an informed and engaged citizenry. Governments receive high marks for making information accessible online. But, much more needs to be done. Improved two-way communication between constituents and representatives and better ways for citizens to engage in legislative process are part of becoming an e-government.

Legislative bodies are beginning to understand how technology can transform themselves as members gather to debate and vote in floor sessions. In most cases, the predominant use of any technology inside legislative bodies is limited to electronic systems to tabulate floor votes. Even then, output from these aging systems many times must be manually entered into other systems for reporting purposes and then translated into a different format for posting to websites. New technologies allow legislators - during formal sessions - to communicate silently with staff back in their offices, conduct real-time research on issues on the Internet, negotiate terms with members of their own or opposing parties while debate continues. Wisconsin and other governments have begun to outfit all legislators with laptop computers.

Components of the electoral process - campaigning, communication with constituents and the media, coordination of volunteers, solicitation and collection of campaign contributions, voter registration and voting — are also facets of the e-democracy milestone. The collection and counting of votes is only one part of the challenge. Many times, changes made to traditional voter registration systems (such as address changes) are not processed in time for election day. Redundant voter data may exist in several locations within a state (if voter moves). These are straightforward database design and integration issues, relatively easy and inexpensive to correct. Many jurisdictions also overlook the importance of human interface design. This step is critical whether the interface is between a voter and a paper ballot, a machine, or a computer screen.

Milestone Four: E-Communities

Government is intrinsic to community in fundamental ways. Public safety, public health, parks and recreation, elderly and youth services are tangible examples. But, government is also integral to the very basic quality of life including equal opportunity, education, diversity, and even seasonal celebrations. Who doesn't appreciate the community camaraderie of a "Fall Festival" and its social importance? Any commitment to e-government should extend to enriching the communities government serves. People are not just citizens of a government. They are parents, families, volunteers, neighbors, consumers, students, sports enthusiasts, senior citizens, children, and members of religious and social institutions - forming communities of interest within a geographic community. Together they weave the rich tapestry of geo-community, the cornerstone of society. The definition of community at the local government level is different from a state, provincial or national community, but each has important sociological implications. Regardless of government level, facilitating e-communities is a strategic ingredient of e-government.

Internet technologies offer unparalleled opportunities for government to enhance communities. Once the e-government technology infrastructure is in place to offer online services through a website portal, the marginal cost of adding additional components becomes very small.

In February, 1999, the Government of Canada announced a nationwide Smart Communities initiative. Sixty million dollars over three years are earmarked for one Smart Community demonstration project in each province, one in the North, and one in an Aboriginal community. These projects are designed to pilot how information and communication technologies can be harnessed by communities across Canada to support economic development and to enrich community life for Canadians.

Since 1992, Naestved, Denmark has launched an impressive series of integrated e-community initiatives — spanning government, private, and commercial interests — to would attract investment, bring the information society one step closer to reality, and plug into the heart of the emerging digital economy. Beginning in 1992, with a new mayor and a new vision, an e-community groundwork was laid with an intranet. A Lotus Notes platform (collaboration software) for employees citywide was installed in 1994. In 1995, CityNet was created — a joint venture with Naestved, Cable TV, TeleDenmark — which provided cheap, high-speed Internet access to any household or business within city limits. In 1996, NaestvedNet (a semi-private 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 offering education, technical support, and affordable web services for small and medium buisnesses to get online. In 1997, the city website (www.naeskom.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 an 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.

Access or "digital divide" issues are paramount issues for government leaders. The digital divide has many facets. There are geographical, income, social, age, language, and gender aspects to the digital divide. Governments need to understand the manifestations and implications of each within their particular jurisdictions and take corrective measures.

Infrastructure is perhaps the single most important overall e-community enabler for residents, businesses, healthcare facilities and educational institutions to thrive in a digital economy and society. Like their small business counterparts, individual rural communities with small populations have little bargaining power with high-speed providers. Governments are exploring ways to facilitate aggregation of demand by region to attract providers. Canada's Alberta Province has embarked on a SuperNet project, a public/private partnership to extend high-speed access to the far corners of the province — part of a larger community and economic development strategy.

Milestone Five: Intergovernmental

The intergovernmental phenomenon is just beginning and is a core ingredient of e-government. As boundaries of all sorts blur, those between and among governments are perhaps the fuzziest. Physical world problems of disease, insects, global warming, terrorism, and pollution know no boundaries. Couple that with technology that knows no boundaries and the effect on governance is profound.

At the global level, quasi-governmental bodies are emerging to pool knowledge and resources to combat global problems. Within countries, there are growing needs to integrate national, state/provincial and local

government operations, services and technologies. Citizens and businesses need to interact with all levels of government. Therefore, any robust e-government agenda must address intergovernmental linkages.

Now is the time to launch the first pilots and begin meaningful intergovernmental deliberations around common processes and services. Within numerous states in the United States, such dialogue has already begun in the form of intergovernmental committees that meet to identify e-government opportunities, and address issues, infrastructure and integration. Some states offer city services on their websites. Others help the citizen or business navigate to the right place through personalization techniques such as zip code identifiers. Intergovernmental topics are on the conference agendas of nearly every national association.

Milestone Six: Policy Environment

Creating the legal framework is another pillar of e-government success. Old laws have to change. New laws are needed. And perhaps, more importantly, legislative restraint is sometimes the best course of action in these still-early stages of a global networked economy. Members of oversight bodies need education and guidance on Internet-related policy issues. A flurry of fundamental issues, including taxation, digital signatures, authentication, privacy, the digital divide, international trade, consumer protection, intellectual property rights, and telecommunications deregulation have appeared on the legislative agenda of virtually every country, state/province and local governing body. Yet, a 1996 study commissioned by IBM's Institute for Electronic Government and conducted by the Strategic Computing and Telecommunications in the Public Sector program at Harvard's John F. Kennedy School of Government found that fewer than seven percent of legislators felt personally knowledgeable to consider such decisions. Although this figure has likely improved since 1996, it remains a challenge and, in many cases, a barrier to progress.

National associations, public/private institutions, public policy organizations, and think tanks have become core resources studying and advising lawmakers on policy issues. One successful model is the public-private United States Internet Council (USIC) initiative. Funded by the private sector, the nonprofit USIC not only educates elected officials, but forms a network of legislators among the fifty U.S. states to share model legislation and best practices. Specific committees and caucuses were established in state legislatures to be the center of gravity for all Internet related bills. Technology is no longer subjugated as an afterthought to a standing committee whose main purpose and member expertise is in some other domain.

The USIC also bridges state legislatures with the United States Congress for intergovernmental coordination of Internet-related legislation.

Milestone Seven: Next Generation Internet

Milestone Seven is the capstone of a competitive e-government strategy. It not only depends on progress toward other milestones, it's the one that will set governments apart in the future. Keep an eye on the horizon. If you define e-government in today's environment, your government will never be a leader. High-speed connectivity is opening wide the doors to the next generation Internet. Imagine a billion people connected to the Internet - all by dozens of devices and video as ubiquitous as the fax is today. Satellites and wireless interconnecting everyone and everything.

In this new environment, imagine a road crew in the field linked by video conference - on the screen of a handheld wireless device - both with the supervisor back in the government office and the contractor two states away. By streaming live video of the construction site, and sharing engineering drawings, on-the-spot design changes can be made. Citizens will no longer just click on a form. They'll click an icon and a live government service representative will appear on the screen to help. That's the future of e-government.

Today, 95% of people view the Web through their PC browsers. That will drop to 40% in five years. Japan is the first country to have broken through that barrier. By March, 2000, more than 50% of Internet access in Japan was through devices other than the PC. Pagers, TVs, personal data assistants, and phones are now browsers.

It took roughly 15 years to increase bandwidth 10 times. Within the next 5 years, bandwidth will increase 150 times. The quality of video over the Internet will increase commensurately. Content management and distribution will be forever changed. When video over the Internet is as common a email and as crisp as TV reception is today, a major shift in applications will occur. Nearly every agency of the City of Vancouver already has an impressive archive of video stored on their website - even pets up for adoption at the animal shelter! From our studio in Washington, DC, the Institute for Electronic Government website features an array of video talk shows, speakers and panels at national conferences, and mini-series on a variety of e-government topics.

Pervasive and mobile computing, are game-changing developments. Computer scientists see it approaching a kind of mathematical extreme in which Internet-connected, microscopic chips will literally disappear into all the things around us. The signs are already here. Today, the electronics of a car cost more that the mechanical parts. And its growing.

Historically, at least 30% of government workforces have always been "mobile," even before high tech — police, fire fighters, parole officers, traffic enforcement, health inspectors, building inspectors, transportation inspectors, fire inspectors, facilities management employees, fleet management personnel, internal mail carriers, social services case workers, transportation officials, parks & recreation employees, maintenance employees, and the list goes on. These employees, by the very nature of their job responsibilities, are immediate candidates for wireless. Throw in another 25% of office workers who are projected to become mobile and that's almost 50% of all governments' workforces! Governments need to extend their infrastructures so that wireless devices can interact with existing backend, mission-critical systems.

A wireless workforce strategy covers a variety of government-to-employee (G2E) applications sharing common core technologies. All these employees have similar requirements in their jobs - both mobile and/or wireless. Their needs range from messaging (email), Internet connectivity, mobile incident or status reporting that can be uploaded or transmitted, query of backend databases, alerts, personalized workflow management, updates, scheduling, dispatch, and access to their respective mission-critical applications.

Wireless allows employees to be mobile while still having the ability to access core applications. This frees them of the constraint of only having critical information while they are sitting at their desks. Mobile employees can get to information when and where they need it the most with levels of security directly proportionate to the nature of the transaction.

The value in transforming field services employees into a mobile, wireless workforce includes exceptional improvements in productivity, effectiveness and efficiencies, reduced costs, decreased paperwork, auditability, elimination of redundant data entry, reduced cycle times, secure information available immediately - anyplace, anytime - improved employee safety, accelerated report preparation, and simplified review and approval workflow processes.

The New York State Division of Parole is already there. Using a small handheld device, parole officers can soon take pertinent information with them out into the field, and process information remotely. The information is accessible to the officers when and where they need it most, delivered in a way that is safe and convenient. Their hands are free. If you are a parole office, that's important. And, there is no laptop to lug around.

Human interactions, that have largely been missing from technology, will start to emerge. E-meetings, in which people communicate and share information through real-time video connections on the Internet, are a good example. E-meetings are becoming more and more frequent where employees can interact live, face-to-face with colleagues from around the world, and even share content — documents, spreadsheets, web-pages — in real time, while still honoring the very real need for security and privacy.

Conclusion

These seven milestones will deliver e-government. But, make no mistake. It will take nothing less than enormous leadership effort. Consider the Commonwealth of Virginia and Naestved examples. Their successes resulted from sustained leadership over a decade, spanning different political party administrations, and substantial financial investments. Based upon the returns and rewards they are reaping today, it was a very small price to pay. Be wary of shortcuts and detours. New entrants into the public sector marketplace will come and go over the long run. While trendy quick-fixes may be enticing, nothing replaces taking the future into your own hands with steadfast

determination and specific goals. How fast you progress toward e-government is directly proportionate to funding. Solid business cases can be made for that investment. And, finding the right partner is critical. Governments face an almost insurmountable resource gap. Even the private sector faces a critical worldwide shortage of skilled resources. To expect to affordably "own" the skilled resources needed to meet the coming challenges is unrealistic. In addition, governments cannot effectively keep pace with technological change and meet those challenges alone. Therefore, solid technology partners are essential - those who can best help navigate unknown challenges ahead.

These are exciting times. With a little foresight, an aggressive approach toward each milestone, the right partner — and maybe a little luck — e-government is within grasp.

References:

Clift, Steven, www.e-democracy.org

"Smart Communities: Report of the National Selection Committee," Industry Canada, 2000 http://smartcommunities.ic.gc.ca

"E-govt: The Next American Revolution," Jan. 2001, Council for Excellence in Government, www.excelgov.org.

◆

Ms. Caldow is Director of IBM's Institute for Electronic Government (www.ieg.ibm.com). Located in Washington, DC, the Institute is a global leadership resource in governance, economic development, citizen services, technology, education, and healthcare for the digital society. Ms. Caldow directs a robust research agenda with renowned academic and practitioner partners. In the Center's cybercast studio, she oversees a variety of TV programs delivered over the Web. Formerly the Director of Strategic Management for the County of Fairfax, Virginia, her innovations in government won national recognition at Harvard's Kennedy School of Government. Ms. Caldow serves on the Harvard Policy Group, the Congressional Management Foundation's Expert Panel on Congress Online, the Advisory Board for the Global Development Gateway, The World Bank, and Governor Gilmore's e-Communities Task Force. An author, researcher, frequent speaker and Lacrosse mom, she holds an MBA, and a BA in sociology. Ms. Caldow resides in Vienna, Virginia, and Nantucket, Massachusetts.

◆