The Future of e-Government:
Technology-Fueled Management Tools

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Have you ever considered exactly how U.S. Federal Reserve Chairman Alan Greenspan keeps his finger on the pulse of the global economy? The complexity of his job must be mind-boggling. One can envision on his desk a computer screen displaying a collection of charts, graphs, tickers, and blinking icons fed by instantaneous data and in a constant state of movement, like gauges in a fighter jet's cockpit. There, he monitors the worldwide flow of funds, economic indicators, and market-moving news events. He then takes a sip of coffee and flips to a second screen, which compares these metrics with the financial targets and strategic objectives developed by the Federal Reserve Board with which to conduct monetary policy.

This real-time display of self-aggregating information and analysis enables the Fed chairman to prepare diligently to make the closely watched decisions on interest rates that will affect our mortgages and car payments. With this powerful electronic dashboard, he has at his fingertips the sharpest knowledge available to do his job, which is to ably steer the ship of U.S. monetary policy.

Now, this may not be exactly what sits on Mr. Greenspan's desktop right now, but the plausibility of this picture is growing each day as ongoing innovations are bringing new precision to the technological tools of public management.

So, where could a local government manager get one of these fancy electronic dashboards? Well, it's not all ready to plug in yet, but the next generation of e-governance tools may be closer than you think.

Laptop as Dashboard

We are at an important point in time in electronic government. E-governance is composed of technology, people, and local governments. It involves not only managing technology but also managing organizational change. Right now, there are cities, counties, and towns creating a presence on the Internet, distributing information and communicating with their citizens and business partners, delivering services online and conducting online financial transactions, and managing the business-process changes that e-government brings.

There remains a wide variance in the stages of e-government implementation among localities around the world. These stages include getting online with an Internet Web site, providing electronic content distribution (news, directories, documents), enabling such financial transactions as tax or license payments, and, eventually, engaging the public-service delivery and citizen participation processes through a fully evolved, technologically advanced governmental enterprise.

Many governments have begun the initial stages, with the last stage—transformation of government business processes and citizen interaction—as a long-term objective. In any case, these e-government developments are changing the way in which local governments do business with citizens and with partners, and how they manage the work of government employees.

Through the continued implementation of computer networks, powerful software and databases, and easy-to-use Web browsers for customer contact or internal portals for employees, a jurisdiction's enterprise-wide information portfolio can be poised to become more timely and competitive than ever before. As computer systems and applications become more interoperable, they are fostering more seamless information transfer, and as computing platforms become more open and less proprietary or restricted, the ability to obtain and share real-time data and information will improve dramatically.

As a result, local governments will be able to increase the strength of their knowledge chains: the information exchange links that connect each party to an information transaction, and what the parties know about that communication. Thus, the knowledge chain will include what the citizen knows, what the counter employee knows, what the department director knows, and what the chief executive knows about an information exchange or financial transaction. Throughout the chain, IT advances will make the flow of information from each participant more transparent and complete.

Elements of the Possible

With these ongoing developments in government information technology, a promising future lies ahead: new management tools for the desktop that will be powered by the continuing digitization of the public-service delivery process, both inside the enterprise and outside, with citizen/customers and partners.

This next level of value will enable the design of online performance management systems that will prove critical to engaging the new challenges awaiting managers. Human resource trends will include a demographics-led retirement wave of experienced government executives, an increasingly mobile and distributed workforce, and a greater focus on business continuity in a more security-minded world.

Local government managers will be navigating a fully networked economy that moves at the speed of "now." They will need next-generation e-government tools that are just as nimble, namely, the online management systems that will bring them current information about the performance of the enterprise. This online management system would be "always on," providing real-time updates rather than refreshing information and reports at more distant intervals.

It is clear that the Web is becoming ubiquitous as a user's tool for businesses, educators, governments, and consumers. This interface enables the open access needed for reaching stakeholders and capturing data for analysis, and it is easy to use, which lowers the training hurdles, from the service counter to the manager's desk.

Slowly but surely, more data are becoming accessible through IT integration efforts and new technology standards, such as XML (Extensible Markup Language), a computing convention that interprets different data structures, links information, and adapts to varying IT platforms. Continued progress will promote further gains in the information compatibility needed for knowledge sharing.

Inside local government, intranets are becoming employee portals rich in resources, with the more sophisticated ones capturing workflow processes and project collaboration data to share knowledge across departments and foster collaboration. Wireless technologies for handheld devices and mobile transponders are making possible the instant collection of information on government services and activities from the field.

All of these developments, if they continue to bear fruit, are laying a foundation for a new technology capability that could bring to the marketplace an online performance management solution that will transform a CEO's or CIO's computer screen into an electronic cockpit, with mission-critical governmental performance and management indicators.

Show Me the Benefits

Imagine an online management solution that enables managers and assistants to get an instant snapshot of the

flow of work, both inside the enterprise and outside, to its partners; real-time overviews of budget and investment accounts; and first alerts on new peaks or valleys in the jurisdiction's performance indicators. What possibilities could all this bring?

For a start, there will be new ways to obtain detailed information and give rapid answers to councilmembers' questions about operations across a wide range of departments or projects under way in the community. For example:

- An electronic dashboard for human resources could be powered by feeding current and past data from payroll, benefits, hiring, and retirements, to pinpoint emerging human capital issues and give a manager the time to address them.
- A public works dashboard could display current updates on all road maintenance and construction projects within the city or county limits, or projections for how many reported potholes will be filled by the time of the next council meeting. Advanced GIS tools could then assimilate real-time data and map out the new conditions.
- Online management tools can show the manager the number of citizen calls for service, the primary request categories, the length of response times, the locations of bottlenecks, and the events that may be affecting workloads, such as weather conditions or special events. In this way, managers will be able to anticipate and redistribute assets as needed.

A customized electronic dashboard will equip local governments with tools for proactive decision making, enhanced management effectiveness and responsiveness, and a stronger business knowledge base. We can envision myriad other ways in which real-time information flows and in which analytics could help to save time, reduce costs, and mitigate risks.

Some of the possibilities of new on-line management devices already are beginning to emerge in the corporate world. The U.S.-based multinational corporation General Electric, for example, is embarking on a real-time business intelligence and performance monitoring strategy for its business divisions. Former GE Chairman Jack Welch discussed it in his autobiography, published in 2001 and titled *Jack: Straight from the Gut*. On page 350, Welch writes:

"Our e-business initiative led to many new ways of doing business. Plastics [division] put electronic sensors in the storage silos of some of its major customers. They automatically alert GE warehouses when materials levels drop, triggering a new order via the Internet to replenish the product. GE Capital is using the 'Net to monitor the daily flow of cash in and out of a loan customer's income statement. The business knows instantly when the customer might be short, reducing the potential for losses. Most GE business leaders now have digital cockpits on their computer screens that update in real time all the important data to help them manage their businesses."

GE divisions also publish weekly reports on Fridays with the latest digitally gathered data from 22 business lines—data that are then shared throughout management. Welch continued, "By being so visible, these weekly numbers energize everyone to do more."

What GE's former CEO is referring to goes above and beyond customized reports that can be called up from databases. This is about running an electronic conduit throughout the enterprise that provides a "live feed" into business operations and performance. It will not be so much a telecom wire as a knowledge wire, allowing managers to interpret "on the fly" and to obtain a sense of where objectives stand at almost any given point. Such an online management system would enable local government managers to evaluate, fine-tune, receive alerts, respond, and optimize resources based on changing business conditions.

Technology research firm Gartner, Inc., and other industry consultants refer to the interpretation of this continuous flow of information on business operations as "Web analytics." Gartner also foresees "the real-time enterprise" emerging from trends now under way. According to Gartner analyst Frank Buytendijk in the February 2002 issue of *Customer Relationship Management* magazine, a real-time business is able to collect nearly instantaneous feedback on business processes and take the right adaptive, corrective, or preventive action on mission-critical objectives.

As local government enterprises begin to see more alignment of business objectives with their IT infrastructure and a growing reliance on technology to conduct government operations, the evolution of database and Web applications into a real-time chief administrator's monitoring system seems a natural outcome.

Just in Time for Megatrends

By now, many stories have been printed on the "graying" of the baby boom generation, the largest generation now in the workforce, who will begin retiring in a few years. In government, however, this retirement wave could come crashing ashore much sooner than is commonly believed.

For example, in the federal government, a congressional study estimates that fully 50 percent of government technology workers will be eligible to retire by 2005, just three years from now. The situation is similar at the local and state government levels. This eventuality will bring new attention to the crucial factors of business continuity and institutional knowledge, both in business and government.

Other growing workplace trends include flexible work arrangements, such as telecommuting, in which employees may work nontraditional schedules from remote or mobile locations. In

addition, the new emphasis on counterterrorism and emergency preparedness may prompt reviews and changes in government-facility sites or staffing locations.

The increased flexibility, mobility, and distribution of local government assets and personnel will make a fully networked enterprise the key to maintaining business continuity in the years ahead. Leaders and managers will need responsive, technology-fueled management tools to operative effectively in this environment. Online management systems will assist by pulling together disparate information quickly and getting it to management decisionmakers.

The virtual dashboard, backed by strategic information management strategies, will help a manager to navigate in a networked economy, to monitor operations throughout the enterprise, and to adapt to changing demographics, economic conditions, and workplace security environments over the next decade.

Does this mean you can just pack your laptop and swim trunks and manage the organization from the beach? Not likely, but with the real time enterprise intelligence available to public managers within the next few years, you will have a better sense of governmental performance on a daily and weekly basis—even if by then there are significant changes in the local community landscape: fewer veteran employees, a mobile workforce, more outsourcing of public services, and/or a tighter overall budget than your local government has now.

Certainly, better and faster online management tools like virtual dashboards won't diminish the need for effective management or effective managers. In fact, solid management practices in a fully networked local government enterprise will be as vital as ever. At the same time, the electronic dashboard systems of the near future will deliver to you useful management information and analytics in a vastly quicker and more focused approach, so you can steer your ship steadily toward the horizon.

Promise and Reality

Of course, to make this futuristic vision work, the technology industry innovators promising to provide the software, applications, and standards must deliver functional products that do what they are intended to do. Local governments will want to make use of existing investments in IT infrastructure, and in order to get there, various proprietary systems will have to talk a shared language with other systems to make interoperability real.

Internal processes also must be reengineered, and employees must be trained to use the devices that will collect and analyze the pertinent customer and operational data feeding the online management systems. While clearly there are challenges in crafting this vision into a practical application that managers can use, still, if these technology and workforce trends continue, get ready for shift-on-the-fly governing through real-time performance monitoring!

As local governments continue to roll out and expand their electronic government efforts, greater connectivity between citizen and government will be encouraged. This will result in improved accountability and transparency, convenient customer service, and firmer trust in representative government in local communities. The technology-fueled management tools of the future will help you to attain these objectives. **PM**

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