

CUSTOMER NEEDS AND STRATEGIES

Technology Solutions and Citizen Services: Three Local Government Success Stories

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IDC OPINION

The ability of local governments to fulfill public service delivery mandates and service improvement objectives hinges to a large extent on information technology capabilities. IT serves that ability in two important ways: for efficient internal processes and for the quality of citizen interaction with government. This study explores the issues driving adoption of technology solutions to improve service delivery, the technical and organizational issues encountered, and the ways local governments handled those challenges. IDC recommends the following for local governments:

- Consider an identity management solution as a key piece of service provision solution development.
 - Pay special attention to IT governance issues affecting implementation.
 - Make steady progress through a series of short wins that build credibility and client buy-in.
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IN THIS STUDY

This IDC study discusses the experiences of three large U.S. local government jurisdictions in implementing technology solutions to improve citizen services. It explores the issues driving adoption of technology solutions, the technical and organizational issues encountered, and each government's handling of challenges.

The solutions, the approach, and the stage of development are different in each case, providing an interesting spectrum of conditions and execution. The study provides recommendations drawn from the local governments' successes.

Executive Summary

The ability of governments to fulfill public service delivery mandates and service improvement objectives hinges to a large extent on information technology capabilities. IT serves that ability in two important ways: for efficient internal processes and for the quality of citizen interaction with government.

A number of factors are pushing governments at all levels to assess the effectiveness and the cost-effectiveness of providing services to the constituents they serve. These include the complexity of service delivery and the corresponding complexity of IT capabilities required to enable it. Local governments collectively face the particular challenges of managing complexity, costs, and security in their operations. This study discusses three examples of technology solution implementations that were adopted in three large, densely populated local government jurisdictions in the United States to advance and improve citizen services.

City of Los Angeles

The city's Information Technology Agency (ITA) wanted to identify a technology solution to unify its account directories for easier administration, specifically to:

- Manage access effectively
- Increase infrastructure security
- Rapidly deploy Web-based applications to streamline processes/decrease costs

The ITA chose Novell to implement a unified directory and secure employee portal. The solution included Novell eDirectory, DirXML, iChain, GroupWise, and Novell Portal Services. The ITA has been able to develop a flexible architecture, including projects to date and ongoing work, by using 95% off-the-shelf software; according to ITA estimates, the new software cost per user is \$13.

The ITA has continued to build on the improved infrastructure since it became operational. Specific achievements, in addition to improved customer service, include:

- ☒ Low-cost implementation and maintenance
- ☒ Significantly improved and simplified security of city resources
- ☒ Reusable design — high transferability of specific projects to many departments

City of Philadelphia

The city wanted to build an e-government strategy serving city departments, residents, businesses, and visitors, which would leverage technology to enhance technology and workforce resources, increase interdepartmental collaboration, and improve overall delivery of city services.

The city of Philadelphia developed an e-government strategy as a basis for using various technology solutions to progress steadily toward achieving objectives. Planning teams consulted constituent groups and identified 104 e-government initiatives worth pursuing. Then they addressed the issue of what technologies were required to support the greatest number of these initiatives. A particularly challenging issue was to determine what alterations in (IT) governance would be most beneficial to the greatest number of users.

Some of the electronic services implemented to date include identity management, workflow, electronic payments, document imaging, and GIS capabilities for various uses. The results benefit both departments (better management of resources) and constituents (better service and information delivery). The e-government strategy became the city's approach to managing technology. The city changed from using diverse and costly technology solutions for conducting city business to practicing business management of technology.

County of Palm Beach, Florida

The county of Palm Beach, Florida, is an interesting example of a local government organization at the early stages of consolidating technology capabilities where appropriate, and enlarging others, to improve citizen services delivery. The county has 10,000 employees, and the county administration is made up of approximately 30 departments and agencies and 10,000 employees, which include a mix of elected officials, civil servants, and "constitutional officers."

The county supports systems from both Novell and Microsoft. This situation is reflected in multiple systems, administrative/governance practices, and IT capabilities across county departments. Currently, the county administration prefers "grandfathering" existing systems rather than forcing consolidation. The county's objective is to integrate multiple directories and applications using a metadirectory approach in which all county accounts are stored in an identity vault. The county intends to explore the development of an enterprise portal for identity-based access to county IT-enabled services.

The county is continuing to develop a strategic plan for metadirectory development through two department-head-level committees, an architecture committee to consider a solutions set and a policy committee to consider strategy requirements. Novell is now setting up the framework for integrating Active Directory, eDirectory, GroupWise, and the Remedy help desk solution into the metadirectory.

The county's challenge is to find the "balance between centralized and decentralized administration and execution of the IT environment," to provision and manage the metadirectory, and to secure identity management environments while department directors retain autonomy and authority for matters they wish to keep.

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SITUATION OVERVIEW

Introduction

All elected governments have the mandate to provide expected services to their public constituents. They must provide these services effectively to fulfill their mandates, and cost-effectively to use taxpayers' money well. If funds are not well spent, citizens can exact consequences, as some governments learn.

The ability of governments to fulfill public service delivery mandates and service improvement objectives hinges to a large extent on information technology capabilities. IT serves that ability in two important ways: for efficient internal processes and for the quality of citizen interaction with government.

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Few could disagree that IT has the potential to streamline internal processes, and thereby reduce inefficiencies, improve productivity, reduce costs, and deliver better services in better ways. As for the quality of interactions, there is a "pull" effect exerted by citizens themselves, who are now becoming more accustomed to — and demanding — top-quality consumer experiences from businesses, institutions, and governments.

Citizen Services: Online, But with Reservations

Citizens are becoming accustomed to conducting business online. They expect high-quality service, convenience, and satisfactory experiences online, delivered by the provider's internal operations excellence. Some call this heightened public expectation of excellence the "FedEx effect," born in the bloom of Web-based transactions and now firmly established as a way of conducting any kind of business. If FedEx can get a package delivered "absolutely, positively the next day" and clients can track its every point of progress, then people expect the same degree of excellence in all electronic transactions.

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Although citizens may be able to engage their governments online, there are some caveats. According to survey results released in early 2003 by the Council for Excellence in Government and Accenture, although more than 60% of those surveyed who use the Internet are interested in using e-government for conducting routine activities (e.g., renewing a driver's license, obtaining a birth certificate or marriage license), nearly 45% are concerned that e-government transactions may compromise the security and privacy of their personal information. Governments' online services challenge is to balance convenience with security.

For the council's study, *The New e-Government Equation: Ease, Engagement, Privacy and Protection*, 1,023 U.S. adults, including an oversample of 202 government site users and 400 government decision makers (200 at the federal level, 100 in state government, and 100 in local government), were surveyed. A survey of 2,000 Internet users in Australia, Canada, Singapore, Spain, and the United Kingdom was also conducted. The Council for Excellence in Government is a nonprofit organization of leaders in the private and nonprofit sectors committed to improving the performance of government at all levels, and government's place in the lives and esteem of American citizens.

Patricia McGovern, the council's CEO and president, summarized the study's findings in this way: "Americans want easy, efficient, effective e-government. Just as important, they want their privacy protected." McGovern went on to highlight the key challenge for governments: "Striking that balance is the most important evolution in the e-government revolution and will require the efforts of both governments and the technology community to apply the appropriate safeguards and build trust in using government services online."

According to Accenture USA Government managing partner Stanley J. Gutkowski, "There is clearly a high level of interest by citizens to conduct more transactions with governments online. If governments can demonstrate that such interactions with (private) and personal information will be protected, e-government has a chance to flourish and really take off in the next several years." (Accenture press release, Washington, April 14, 2004)

The Need to Address Service Effectiveness and Cost-Effectiveness

All governments must deliver services effectively to constituents and serve key relationships, for example, citizens (the primary set of constituents), other governments (meeting responsibilities to senior levels and cooperating with peer-level agencies), business (constituents requiring services, suppliers/partners delivering products/services), and employees (the power behind service quality).

A number of factors are pushing governments at all levels to assess the effectiveness and the cost-effectiveness of providing services to the constituents they serve. These include the complexity of service delivery and the corresponding complexity of IT capabilities required to enable it. Telecommuting, remote offices, and mobile employees are driving a need to revisit how service fulfillment is managed and how IT plays into this challenge. Other factors driving that need include the current demands for information security and the struggle for funding and containing costs.

The state of California has just embarked on such a project to reduce complexity and improve processes. As the sixth-largest economy in the world, the state has a \$4.5 billion IT budget, which is roughly 7% of its overall budget. Therefore, California has a lot at stake in improving how it manages responsibilities and serves citizens.

The state has completed a review of all its services. The California Performance Review was established to fix state financial and administrative problems in four areas: executive branch reorganization, program performance assessment and budgeting, improved services and productivity, and acquisition reform. The completed report was issued in early August 2004 (California Performance Review, cpr.ca.gov).

About IT in government, the report states, "There's no overall coordination of the state's use of technology, resulting in functions that are poorly organized, duplicative, and inefficient." It notes that California has no common technology standards and "cannot exchange information reliably between — or even within — its 79 departments," and its technology programs lack strategic direction or alignment with state government objectives. The report observes, "Technology is now available to truly integrate government's many enterprises and enable real-time, dynamic interactions between California state government and the Californians it serves."

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Key Challenges for Local Governments

Local governments face many of the same challenges as higher-level jurisdictions, but their local challenges are uniquely demanding. Local governments bear the brunt of immediacy; their constituents feel the effects of service levels in their daily lives.

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Local governments must operate in a government hierarchical context, the nature of which depends on their jurisdictional arrangements, and they must meet various regulatory requirements of those higher-level governments (e.g., environmental quality and safety, public health). They must also manage cross-jurisdictional responsibilities with peer-level governments and nongovernmental organizations whose work is pertinent to theirs.

In their own right, western-style local governments face the particular challenges of their status as relatively small entities that nevertheless operate in a democratic political context. Fragmentation of service and infrastructure is often the result of the small scale of their operations, which does not facilitate capital investment and the creation of critical mass needed for process modernization.

Discontinuity of leadership and associated personnel can also hamper progress in improving IT-enabled citizen service provision. Because of the limited terms of elected officials, there can be lukewarm commitment to long-term projects, however beneficial they may be for the constituents they serve.

Local governments face three other major common challenges: managing complexity, costs, and security in their operations.

Complexity

Local governments are called on to provide more citizen services, collaborate with more third-party providers and contractors, respond to breaking issues, and meet the changing requirements of other governments. In many cases, this is the result of devolution of responsibilities from central authorities to local agencies on the premise that those agencies are closer to the citizens to which services must be provided.

This level of complexity is reflected in the continually changing technology infrastructure needed to support this work. Local governments need efficient back-office operations and administrative processes, convenient client-facing services, and productive service workers. They face added challenges in providing services online. What services should be put online? What other local citizen services should be connected? What services of other governments should be accessible? How easy is it to search for, find, and use these?

Costs

Most local governments, large and small, are between some kind of rock and hard place when it comes to financial matters. All face some variation of a fiscal crunch — caught between funding shortfalls from senior governments for meeting mandated local government responsibilities and citizens who don't want and are often prepared to fight local tax hikes to meet those costs.

In their general responsibilities toward citizens, local governments are constantly wrestling with swelling costs and shrinking funds. How to ensure the quality of many citizen services is a huge challenge, but how to pay for them is a bigger one. Often the devolution of responsibilities cited earlier is not accompanied by a corresponding devolution of fiscal responsibilities; operational responsibilities may be going "local," but lower governments still depend largely on money transferred from higher levels.

Local officials need to provide the right IT infrastructure/capabilities to support service delivery, but they also have to keep a tight rein on operational costs. For example, help desk costs arising from forgotten passwords or other access issues can balloon into huge hard-dollar costs. If a call to the help desk costs \$40, say, and an organization has 10,000 users, each with about 10 passwords, help desk time can drain a great deal from an operating budget. Without a systematic practice to streamline and secure this process, users can consume this resource with impunity.

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Security

The current heightened attention to security issues across the public and private sectors requires a higher level of internal controls over data resources. This is now a security-aware climate in which nightly updates are no longer acceptable and giant private networks are not cost-effective.

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Protecting the privacy of citizen information is a particularly acute challenge for local officials. How can proof of identity be assured over networks the organization does not control? How can the confidential information pertaining to citizens and patients be secured? How can credential data be secure against after-the-fact changes to access (nonrepudiation)?

Addressing these issues requires an appropriate level of authentication, verification, and standardization to provide the security of information required for business, regulatory, and civil purposes. Respondents to IDC's 1Q04 *Executive Market Watch Survey* cited security as the top IT priority and the top area for an increase in IT spending; governments at all levels are feeling the same pressure to secure data.

Business Strategies — Citizen Services

The following sections provide examples of technology solution implementations that were adopted in three large, densely populated local government jurisdictions in the United States to advance and improve citizen services. In all these examples, identity management figured prominently in the solutions implemented or being developed.

The experiences of these local governments can help customers, technology partners, and professional services firms better understand user issues that led to the adoption of technology solutions selected as well as enhancements developed on this basis and the benefits these have achieved.

City of Los Angeles — Information Technology Agency

Challenges and Objectives

The Information Technology Agency is Los Angeles' technology arm and standards-making body, researching, testing, and implementing new technologies. It serves more than 40 city agencies and departments, comprising 42,000 employees — including the police department (LAPD) — who serve the city's 3.7 million residents. The city was facing a disjointed administrative situation because each of its 40 departments and agencies was running on separate departmental directory trees.

The ITA wanted to identify a technology solution that would unify these directories into a central source to streamline administration and authentication, and specifically do the following:

- Manage access effectively
 - Grant access to new employees and revoke access from terminated employees to its network and business-related resources
 - Offer secure and simple access to the remote workforce (mobile employees, remote offices, and telecommuters)
- Increase infrastructure security
- Rapidly deploy Web-based applications (and email, file services, and management tools) to streamline processes and decrease costs
- Leverage existing token-based authentication through open standards

The objective from the outset was to approach the issue from an enterprisewide perspective, to fully leverage any solution to meet future needs as well as to take advantage of legacy systems.

Solution

The Los Angeles ITA chose Novell to implement a unified directory and secure employee portal. The solution included Novell eDirectory, DirXML, iChain, GroupWise, and Novell Portal Services. The whole solution started with development of an identity management component to automate and simplify the processes of activating and deactivating user accounts, access rights, policies, and other privileges across the organization. (The LAPD is not included in these projects.)

Identity Management

Beginning in 2001, the ITA began implementing a citywide directory for authentication, authorization, and access control, using eDirectory. DirXML integrated data from departmental trees to the unified directory, streamlining user authentication. The ITA saw this as a "key piece to making everything work" because it would be "highly reusable for every department."

Security

The ITA used iChain security provisions to create a common security gateway for use both internally and externally for pushing services out in a protected manner, enforcing security policies, and creating an infrastructure for e-government, including employees, government partners, business, citizens, and visitors. The gateway accommodated RSA and token authentication and removed the need for developers to build separate security functions into each application. The ITA's security group became involved early in the implementation of iChain, and became the people "governing that box" of the solution. They used it as the hub for:

- Enterprise portal (NetStorage, GroupWise, and Dynamic Communities) and Web services (UDDI; homegrown applications)
- IBM Host on Demand (remote versus internal access) and Citrix (Host on Demand and Remote Server Administration)

Employee Portal

The ITA has also developed an employee portal that now offers employees anytime, anywhere access to all the corporate resources available on the portal to which they are entitled. These include personalized access to email and network files, secure remote access to the portal via the Internet without special browser software, and reduced sign-on to other systems. The portal offers support for 32-bit applications through Citrix and for host-on-demand services. It provides remote access using a zero-footprint virtual private network (VPN) and offers a range of access points, including PCs and PDAs. This portal is "inward facing" for the benefit of the city's employees.

One of the earliest successes in capitalizing on portal technology is "Eye in the Sky," a wireless capability for the city's fire department. Eye in the Sky uses a wireless network through iChain that allows helicopters assessing forest fires to use GPS and wireless transmission to send information about the size and location of the fire to department colleagues on the ground so they can mobilize responses better and faster. The system was set up in about a week and a half.

Implementation Features

First, the ITA was able to develop a flexible architecture, including projects to date and ongoing work, by using 95% off-the-shelf software. The start-up costs were, in the ITA's view, "extremely small" and included some new technology training, licenses for new software, and some new security appliances. According to ITA estimates, the new software cost per user is \$13.

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Second, the other 5% of software is new software designed, developed, and deployed by city staff: a customer single sign-on tag, which uses an intelligent agent that supports multiple authentication models (Radius, LDAP) and uses Secure Sockets Layer (SSL) encryption. The technology is source-code encrypted, password salted (passwords cannot be decrypted), and application sandboxed. It uses digital signature technologies and no browser cookies and provides security inside the firewall.

The third key feature of this implementation has been the use of a matrix organization to execute all the various projects in this initiative. In each case, working groups have been established for the work required on special parts of the whole solution (e.g., GroupWise software development and support, host services, portal services). In this way, the resources required for particular projects have been assembled as needed in the context of the overall plan for implementation.

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Leveraging the Directory — Ongoing Developments

Bob Gillette, ITA's manager of Internet applications, is pleased with the simplification of access and authentication achieved to date, but he is most enthused about what account provisioning has enabled the ITA to go on to develop. "Everything else comes really easily after that," he said in a recent interview (September 22, 2004). The ITA has continued to build on the improved infrastructure since it became operational in 2002, as the following initiatives indicate.

Citywide Services Tree

The ITA is currently developing a second, citywide services tree that provides more granular searching capability in terms of services to internal clients, based on the original authentication tree. It will include file and print services, document management, and application development management. This enhancement will make it easier to develop and introduce applications "on the fly" to populate any directory-enabled application. The ITA will be able to quickly deploy new services and centrally monitor and deploy service resources.

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Liberty Alliance

The ITA is currently developing enhancements that will allow eDirectory to support the Liberty Alliance, a federated security protocol among public- and private-sector members. This involves creating a fast, solid authentication link between trusted partners and secure networks, and between providers and users. The city's iChain security provisions support Secure Assertion Markup Language (SAML), and with single sign-on, users can "e-authenticate" to federal government sites that currently support the alliance.

The Liberty Alliance is now fairly widespread across the United States, and widely supported by third-party vendors. According to Gillette, it is starting to "seep into" state governments as well, and the city of Los Angeles is the first municipal constituency to come onboard. That is useful for Los Angeles because it gives the ITA another way to leverage single sign-on from its infrastructure.

New Portal

The city is building a new portal that will be outward facing for the benefit of the public and partners. It will be organized somewhat differently than the employee portal and will have its own directory tree. This framework will make it easier for city departments to push vertical services specific to their department through the new portal. The Bureau of Street Lighting, for example, is now interested in a project similar to Eye in the Sky to be added to its executive management oversight dashboard. The ITA is working with departments to help them prepare for using the portal and customizing their personal portal experience; it is also training support staff.

Community Workspaces

The current portal provides the capability for collaboration afforded by what Gillette calls "dynamic communities," but the ITA is currently upgrading it with additional functionality. A dynamic community of related users is able to work more closely together with their own directory, own files, and own lists. Managers can determine the composition of communities on the basis of attributes. This functionality, said Gillette, allows the system to be governor of associations. "The more we can provision on the fly, the less people have to 'touch' the system, making governance easier," he said.

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Email Consolidation

The ITA is currently engaged in an initiative to consolidate more than 150 "post offices" onto two servers. It is a three-year project exploiting the capabilities of GroupWise. According to Gillette, this consolidation will "save a lot of man power." The ITA is now collecting data on usage and labor distributions to be used in the future for a "phone bill" type of report on email usage, providing user-managers with clear indications of how they have consumed these resources.

Call Center Initiative: 311, Service Requests, IP Telephony

The city is aggressively developing its call center capabilities. It is instituting a "311" city services key number for city services on a 24 x 7 basis, and the ITA has written the software. One of the pilot projects, the Citywide Nuisance Abatement Project, directed calls asking for removal of neighborhood graffiti to the appropriate business partners for this issue (e.g., "graffiti cleaners"). Those partners can log in to the portal to see requests and respond to them. In one case, the nuisance in question was cleaned up within 24 hours, giving an excellent impression of city response to problems.

In fact, the ITA is extending this success with an initiative to consolidate all requests to the city into a common service request system, through the call center. There has been a "great response" to this idea from both city agencies and the public, said Gillette, because all departments have access to the parts of the request spectrum in their area of responsibility. They have their own users, their own directory trees, and specialized information, all of which can be replicated to the central tree.

To make the call center even more cost effective, the ITA is building out the call center system on IP telephony, an effort that benefits from external funding sources, including the federal government. With the city averaging about 90,000 incoming calls a day, this project leverages the eDirectory to its fullest, most cost-saving extent.

Results

The entire city government has experienced operational improvements, cost savings, and efficient use of resources on an unexpected scale. The ITA has accomplished these successes by actively leveraging use of the existing infrastructure. As the burden of maintenance decreases with centralization, the ITA can focus on development projects. Specific achievements, in addition to improved customer service, include:

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- Staff efficiencies (email and support staff now core portal support staff; current department administrators use existing skills with minimum training)
- Low-cost implementation and maintenance (95% off-the-shelf software, highly automated, easy to support with current resources)
- Significantly improved and simplified security of city resources
- Reusable design (high transferability of specific projects to many departments [e.g., city attorney: Citywide Nuisance Abatement Project])
- Provision of entirely new tools for city workers (e.g., community work spaces)
- Fast track new applications through security review process
- Administration improved by citywide standards and policy-based management
- Dynamic groups reduced time to implement changes and manage administration
- All user accounts being scrutinized (ITA will be able to *reduce* the number of NetWare and GroupWise licenses.)
- Identity management practices acting as a blue print and best practices for other parts of the organization needing improvements to identity management

"It's one of the best things we've ever done," said Gillette of the combined identity management, security, and portal initiative. "The more we implement, the more we save." Even the implementation was accomplished cost-effectively, as the ITA noted in its productivity awards submission: "We installed it, configured it, customized it, and support it with minimum staff." The results achieved to date from the project buildout are getting the attention of the city's executive and departments.

Recognition

In 2003, the ITA won a Mayor's Productivity Award from among a few dozen winners and hundreds of submissions. The productivity award provided recognition for the many ways the initial project — eDirectory, iChain, and city portal — leveraged the infrastructure and spread benefits progressively to more and more city services. It provided, in summary, "less governance and more services."

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Interest from Other Departments

Gillette acknowledged that largely since that positive visibility of its success, the ITA has seen a great deal of interest about new services from many city departments, literally "coming out of the woodwork." The ITA has also conducted briefings on the city's technology capabilities for various departments. Gillette attributed the interest from citywide agencies largely to word-of-mouth recognition of benefits, which has developed from the demonstration of value from implemented capabilities and services (e.g., Eye in the Sky, remote access, graffiti project). When ITA presented the project at a recent vendor conference, the greatest interest came from healthcare organizations and universities.

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Not Much Money, But a Good Model

Gillette noted that the city now has a streamlined and secure infrastructure to push more services out through the portal, but the budget to do so aggressively is not available, so it will need to progress at a more steady pace. In fact, the "head of steam" from other departments is providing the impetus for whatever expansion does occur. He also acknowledged that the city's experience with services based on identity management and security can provide a model for state governments. For example, the city's ethics commission can make records of donations to local politicians public within 24 hours, and the project has sparked the interest of the state government. "The state knows we're here," observed Gillette.

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City of Philadelphia

Challenges and Objectives

The city of Philadelphia serves 1.5 million residents over a 3.8-mile metro area and administers a \$3.4 billion budget. The IT group consists of approximately 140 people, with a budget of about \$90 million to \$100 million per year. The city wanted to build an e-government strategy on the basis of four constituent pillars (city departments, residents, businesses, and visitors), which would leverage technology to do the following:

- Enhance technology and workforce resources
- Increase interdepartmental collaboration
- Improve overall delivery of city services

The city also wanted a repeatable methodology that could be applied across departments and used to analyze new programs. The strategy would have to serve the city's previously defined core objectives:

- ☒ Implement neighborhood transformation and blight elimination
- ☒ Promote economic development (e.g., emphasis on IT and telecommunications)
- ☒ Maintain fiscal health and steadily reduce taxes
- ☒ Provide high-quality public education and social services
- ☒ Enhance public safety and quality-of-life standards

Before embarking on this initiative, the city operated in a redundant fashion, with duplicated IT services throughout its departments. For example, there were four different antivirus software programs being used, supporting multiple technologies, so updates had to be conducted across four platforms; the bagel worm, for example, had to be eradicated four separate times.

Solution

The city of Philadelphia developed an e-government strategy as a basis for using various technology solutions to progress steadily toward achieving many of its objectives. The city selected Novell Ngage to assist in assessing and planning the initial stages of its e-government strategy. The city and consulting teams undertook an organizational assessment and used the findings as the basis for a high-level organizational and technological road map. This work began in mid-2001.

About the same time, Michael Dean, now Philadelphia's deputy director of technology services, was retained as Philadelphia's director of e-government and facing, as he said in a recent interview (October 6, 2004), a "greenfield of possibilities." There were hundreds of opportunities to "embed e-government across city operations."

At the outset, Dean was the sole e-government-focused official in the city. A former management consultant, he was initially given a budget of \$140,000, which in weeks was revoked to nothing. He persisted in consulting city departments about how the administration could help them, and met skepticism in most places ("The last MIS project failed; it failed every year. What makes this different?") Dean explained that this time there would be managed expectations, a clear plan, and adequate, well-managed resources.

One department agreed to let Dean have a Web site built — for \$10,000. He took on the job as a loss leader and hired a Web firm eager to get in the government door to do it. It was a smash success. The department head then offered Dean \$10,000 and challenged him to create a useful product. The result was improved transactional functionality on the Web site, which won two federal awards for e-government for the tax assessment department.

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Most city officers agreed that e-government was a good strategy to pursue, driven by constituents' demands for government services delivered through Web-based service channels, but they needed to understand its scope and implications. With the consulting team, Dean met with all city departments, constituent groups, business groups, visitors, and representatives of peer and other levels of government. He asked in surveys, phone interviews, and focus groups, "What would you like to see Philadelphia do for you?" He considered several related questions:

- What could we do (to achieve objectives)?
- How hard would it be to do?
- How could we leverage what we do?

City officials considered the degree of alignment of potential initiatives with the mayor's objectives and, importantly, the risks of implementation (costs, difficulty, and capability for leverage across the city administration). As Dean explained, they had to understand potential benefits, key projects required, the technologies needed to support them, and what IT governance model to put in place.

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They identified 104 e-government initiatives worth pursuing. Then they addressed the issue of what technologies were required to support the greatest number of these initiatives. For example, eight required imaging porting to the Web, and 32 required support for electronic payments. Then they had to consider implementation issues:

- In what order do we undertake these?
- What budget is required to support them?
- How many people/what skills are needed to support successful implementation?

A particularly challenging issue was to determine what alterations in (IT) governance would be most beneficial to the greatest number of users. Would centralized or decentralized IT services be the best for a particular e-government initiative? For example, if many user groups wanted a capability for processing credit cards, the IT group wanted that to be a one-time implementation of shared services, which may have required a shift in existing governance practices.

A particularly challenging issue was to determine what alterations in (IT) governance would be most beneficial to the greatest number of users.

Results

The city of Philadelphia has significantly transformed the way it does business as a result of its e-government initiatives combined with technology solution implementation. "The biggest skeptics said we couldn't pull it off, but we did," said Dean. In many cases, those successes were achieved through enterprise capabilities to which departments contributed dollars and effort. If they had to pay only \$0.20 on the dollar they would have had to spend to get the same service, the attraction for client groups to support a particular e-government project became fairly compelling.

Some of the electronic services implemented to date include the following:

- ☒ Identity management
- ☒ Workflow
- ☒ Electronic payments
- ☒ Document imaging
- ☒ GIS capabilities for various uses

The advantages from these services extend to a wide range of city services, including streets, sewer and water services, fire services, economic development, city planning, and health services. For example, if departments have datasets tied to geospatial points, the city can produce maps for their purposes and serve them on the Internet. GIS capabilities have also benefited city services crews by enabling the "smart routing" of trash trucks and snowplows. Now, snowplowing gets done faster, with less overtime (cost savings), and constituents are happier with the service.

The city has realized great cost savings and, at the same time, is "doing a lot more things," according to Dean. Operations run more efficiently and reliably, and service delivery has significantly improved. The results benefit both departments (better management of resources) and constituents (better service and information delivery).

The greatest benefit has been the attention to IT governance, which makes service delivery to clients and constituents more streamlined and consistent. IT standards mandate the establishment of processes that allow services to be shared in certain ways, according to results-based policies. As Dean explained, "It may be a challenge to get through the resistance, but what we're doing is demonstrating value."

According to Dean, what really happened in the three years since the e-government initiative began was that the government strategy became the city's approach to managing technology. In effect, the city changed from using diverse and costly technology solutions for conducting city business to practicing business management of technology.

Now, core IT services are managed according to citywide IT governance protocols. These include shared enterprise services such as email, servers, desktops, software, and help desk support. "We're living the strategy now," said Dean. The achievements to date, according to Dean, came from the governance model and early "wins" in e-government development.

Now, the IT group has \$5 million from the same city official who got the first Web site to "reinvent our whole department." He wants the IT group to "look at how we do things," including business processes and skill sets. "We're doing it right now," said Dean, "moving from mainframe services to Oracle Web services." He cited the example of one departmental unit "stuck in a rut with green screens" that was transformed by its new IT capabilities. Web services improved morale, spurred development of new service offerings for constituents, and boosted branding and marketing efforts.

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What Now?

Like Los Angeles, the possibilities for development far outstrip Philadelphia's ability to pursue them. For example, the city's move from mainframe to Oracle Business Suite has hundreds of potential applications, but departments must be ready and willing to proceed and capable of undertaking the changes. There are a limited number of project managers, business leaders, and programmers to do the work.

Like Los Angeles, the possibilities for development far outstrip the city's ability to pursue them.

The city has many initiatives under way in the "next wave" of its e-government services/IT capabilities development, as the initiatives discussed in the following sections indicate.

eDirectory

The city is building out its identity management solution with a new Microsoft Active Directory; the company, says Dean, is "making an investment in us, and is willing to work on that piece of a solution that suits us." The city is also implementing Novell's ZenWorks to complement its identity management development, as well as Metastorm e-works for business process automation.

Work Order Management

Several work order systems for city services (e.g., lights, potholes, guardrails) are ready for upgrade. Currently, there is no central intake for on-ground conditions, and no metrics by which to assess improvements. A joint requirements committee is now exploring ways to implement a single solution for service requests, called the Constituent Relationship Management System. Officials are looking at financial and human costs in relation to benefits, including call takers, scripts, and union issues.

Portal Upgrade

The city is evaluating various portal technologies to improve its current capabilities. Because technology and needs are constantly changing, everyone has to refresh technology from time to time, said Dean, and this job is "never done — it's like painting the Golden Gate Bridge."

Sharing Experience

The governance model and "small wins" philosophy propelling Philadelphia's e-government successes, however, are having effects on an ever-widening range of both elected and public service city, state, and federal officials. As a result, more departments want more (IT) capabilities to save more money and still offer great services. "A rising tide lifts all boats," according to Dean.

Now state and federal officials, responsive to constituent perceptions, are taking Philadelphia's example to pursue similar ends. The commonwealth of Pennsylvania wants to adopt the model for IT governance (developed by the city) for rolling out IT capabilities serving e-government, and for developing capability clusters for like business functions. Dean, not surprisingly, has been asked to help with this project. He has also had inquiries for similar projects from federal officials.

Palm Beach County, Florida

Challenges and Objectives

The county of Palm Beach, Florida, is an interesting example of a local government organization at the early stages of consolidating technology capabilities where appropriate, and enlarging others, to improve citizen services delivery.

The county has 10,000 employees, 230 of whom are part of the Information Systems and Services (ISS) department. In ISS, 16 server administrators manage the county's 280 servers, which include Sun, Microsoft, and NetWare groups. Eleven people manage 3,000 of the county's 8,000 desktops and printers, 14 maintain the network, 14 manage the phone system, and 27 are in the datacenter.

"The county is not a homogeneous environment," said Steve Bordelon, director of Information Systems Services for Palm Beach County, in a recent interview (September 23, 2004). He explained there is a mix of elected officials, civil servants, and constitutional officers served by ISS, and a range of different IT products and platforms being used throughout county offices.

The county administration is made up of about 30 agencies and departments. These include elected officials whose participation in administrative initiatives is voluntary and agencies under the County Board of Commissioners that are required to participate. The bulk of the county operates in a Novell eDirectory and GroupWise environment, but five departments adopted a Microsoft environment as a standard some years ago.

As a result, the county supports systems from both Novell and Microsoft. This situation is reflected in multiple systems, administrative/governance practices, and IT capabilities across county departments. Currently, the county administration prefers grandfathering existing systems, rather than forcing consolidation among many different systems (e.g., Novell, MS, Corel). The county has therefore adopted an integration approach to the issue.

To meet constituent demands, the county now has a home page that is managed through links to various departments. There are currently up to 30 Web applications on the home page. ISS is selecting help desk software to support a central county services 311 number, and it hopes to implement that this year.

Currently, the county enterprise services operate using Novell eDirectory and GroupWise, while the public safety department at the Emergency Operations Center (EOC) operates on Microsoft. In the county's recent experience with a series of hurricanes in September/October 2004, this situation impeded the ability of administrative officials, such as the county administrator, working remotely at the EOC, to access files and email.

The Plan for Identity Management and a Portal

The county's objective is to integrate multiple directories and applications using a metadirectory approach in which all county accounts are stored in an identity vault. A roles-based management scheme is used to securely delegate management of accounts. Enterprise applications can then be deployed on the basis of user profiles

The county of Palm Beach, Florida, is an interesting example of a local government organization at the early stages of consolidating technology capabilities where appropriate, and enlarging others, to improve citizen services delivery.

existing in the common directory. The county intends to explore the development of an enterprise portal for identity-based access to county IT-enabled services. The plan encompasses three stages.

Phase 1: Directory Integration

This is a project to integrate the two enterprise directories (Novell and Microsoft based) into a single metadirectory. "We have to have a metadirectory to maintain the accuracy of data, and for cost savings," said Robert Zelazny, the county's technical operations officer, in a recent telephone interview (October 5, 2004). Department administrators are currently inputting profile data, which has been verified against the county's Human Resources Information System (HRIS).

Phase 2: Integrating the Human Resources Information System

The HRIS is being upgraded to a new Web-based application with better functionality. It will be the authoritative source for most of the data for the metadirectory. HRIS data will compose 90% of the data in the metadirectory. Directories from remaining agencies will be integrated next. ISS plans to have the metadirectory and secure identity management active by December 6, 2004, for most (but not all) county departments/agencies, and then to continue integrating directories as required.

Phase 3: Implementation of Portal Strategy

According to Zelazny, there is a "real need for a portal" to channel the information people need to do their work. In this phase, the county will assess requirements for a portal against the option of maintaining the status quo of a home page, the feasibility and timing of any future portal development, and options for how to proceed.

Current Activities

Activities in developing the metadirectory and portal are moving at a slow but steady pace. As in Philadelphia's case, the issue of governance takes a prominent role in progressing toward the metadirectory goal.

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There is still no consensus from customers on the parameters for GroupWise and Exchange interaction. This limits the county's ability to move forward with a comprehensive, approved plan of work. ISS has submitted a package of proposed governance policies to the county administrator, under the County Board of Commissioners.

The county is continuing to develop a strategic plan for metadirectory development through two department-head-level committees. The architecture committee is considering the solutions set, and the policy committee is considering strategy requirements. Novell is now setting up the framework for integrating Active Directory, eDirectory, GroupWise, and the Remedy help desk solution into the metadirectory. The project includes Nsure for password synchronization, single sign-on, auditing, and LDAP services. iChain provides single sign-on and remote-access components.

As for the portal project, a good deal of research has already been done into how other jurisdictions have implemented and now use their portals. The county has looked at the federal government portal for its 1,000 parks and consulted neighboring

jurisdictions such as Hillsborough County for its experiences. Zelazny said there is money in the budget and a systematic plan in place to move on the portal project over the next several years, and integrate it into the metadirectory.

The benefits of these initiatives, he said, "will have to prove themselves out," but the departments agree on the need for a metadirectory. The challenge is to find the "balance between centralized and decentralized administration and execution of the IT environment," according to Zelazny. ISS must fulfill its mandate to provision and manage the metadirectory and secure identity management environments while department directors retain autonomy and authority for matters they wish to keep.

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FUTURE OUTLOOK

The Business of Service

The preceding examples have highlighted some practical responses to the management and service delivery challenges facing local governments, as well as key motivators for adopting identity management and other related technology solutions as a basis for IT-supported services.

IDC forecasts a 46% year-over-year growth in sales of identity management solutions, a rate that far outpaces the software market overall. Key advantages of deploying identity management solutions include the following:

- ☒ Reduced organizational complexity (consolidating and connecting identity information [attributes, access rights, preferences])
- ☒ Improved security (reduced inappropriate exposure of credentials [access])
- ☒ Compliance with regulations (tight controls for access, clear record of access by whom to what resources)
- ☒ Reduced cost (lower employee/contractor churn costs, lower help desk costs)
- ☒ Increased productivity (quicker access to resources required, right information to right people, greater potential for productivity through self-service)
- ☒ An "operational spine" that can be leveraged for further IT enhancements, to streamline operations, and increase security and productivity

Future Trends Driving Drivers

The challenges cited for local governments, we believe, will continue to grow in an increasingly IT-dominated business and social climate. The need for technology solutions for better service provision will become more urgent as a result of certain forces acting on local governments. We see the additional challenges discussed in the following sections.

More People, More Challenges

Larger jurisdictions in particular will continue to experience population growth from the twin pressures of relocation in search of work and immigration. A recent Statistics Canada study, for example, confirmed that the largest stream of immigrants to Canada head for Toronto, already Canada's largest city and one in which 190 nationalities are represented. In some densely populated areas, this migration represents an added challenge for regional and municipal local governments.

Beyond those demographic trends, the growing demand for services will mean a growing reach of IT systems to support those services — better IT capabilities to service more people accessing digital resources, and to provision and manage broader and deeper municipal services. As more people become more comfortable with services online, and as more services are offered online, the demands on IT will continue to grow in scope, complexity, and urgency.

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Sharing Solutions, Saving Money

A particular challenge for local government organizations is to make the most of their own technology resources — leverage existing investments, make the best use of data available, and best support the processes through which services are delivered. The pressure to do so will increase with growing service demands and the growing importance of IT capabilities associated with them.

An effective way to improve services and save money is to capitalize on successful solutions developed by other government jurisdictions and the technology associated with them. Local governments, for example, can tap into the efforts of higher jurisdictions (county, state, federal; region, province, federal) that serve their common purposes (e.g., projects such as permitting, law enforcement, service requests).

They can also do the same with other local governments, or collaborate with those neighboring jurisdictions to solve common problems. Local governments in Europe, for example, either prompted by central ministries or through peer initiatives, are pulling together management and financial resources and reusing IT solutions to avoid duplication of costs, facilitate interoperability, and take advantage of economies of scale. Some examples of this trend include the following initiatives:

- ☒ A group of borough councils in London created a common eprocurement platform.
- ☒ The Italian Ministry for Innovation and Technologies used "reuse and sharing of solutions" as one of the selection criteria for awarding central government funds to local government projects.

Readiness for the Future

Perhaps the greatest challenge that faces local governments, and all organizations, is to ensure that, in adopting new technologies, they maintain the flexibility to accommodate future business changes and technology developments and requirements. Decision makers should consider ways that technology solution selections can serve more than one business driver, for example, or serve multiple purposes, or expand in response to changing circumstances.

One of those developments may well be a move in many places of the world to open source software solutions. In China, for example, government agencies were advised that their use of Microsoft's proprietary software was illegal. Their solution was to develop their own software — Red Flag — on homegrown Linux. Government initiatives using open source software are currently under way in Spain, Chile, Thailand, and Singapore, according to Novell Canada's CTO Ross Chevalier.

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David Senf, IDC Canada's manager of IT/business enablement, has commented:

The potential of OSS to change the IT market landscape is driving increasing numbers of IT vendors to contribute to the OSS development process, especially in markets where they believe it can generate opportunities for them to cross-sell hardware, services, and, ironically, proprietary software ... IDC sees building momentum for OSS as a natural evolution of IT markets. ("IDC Perspectives on Open Source," *The Globe and Mail*, October 4, 2004, Information Feature)

The Ultimate Benefit

The smart use of IT in local governments allows for process improvements that can reduce operating costs. These cost savings or freed-up resources, in turn, can be reinvested in activities with greater potential impact and benefit, such as program development and improvement. Ultimately, progressive improvements can enable local law makers to incorporate improvements into legislative or regulatory form.

This is the level where changes are most potent and visible — at the level of policy. That's what people see, and vote for. Improving service delivery, increasing citizen touch points, and better responsiveness to citizen requests and concerns can all improve the effectiveness of local governments. That goal is the original driver for finding IT solutions that meet the challenges of local governments everywhere.

ESSENTIAL GUIDANCE

Actions to Consider

IDC recommends the following for local governments pursuing IT solutions for service provision improvements:

- Consider an identity management solution as a key piece of service provision solution development.
- Pay special attention to IT governance issues affecting implementation.
- Keep costs down with off-the-shelf software; maximize the use of legacy systems integrated with new IT capabilities.
- Implement new IT capacities with good project management practices, executive support, the right amount and kinds of resources, and realistic scheduling.

- ☒ Execute projects with ad hoc project teams appropriate to project needs in the context of the large implementation plan.
- ☒ Make steady progress through a series of short wins that build credibility and client buy-in.
- ☒ Be persistent in moving toward goals, and in the face of obstacles, consider new ways of going ahead.
- ☒ Take advantage of vendor expertise and assistance to best suit your needs.

LEARN MORE

Related Research

- ☒ *Double Impact: The CIO, the CFO, and IT Value* (IDC #32138, October 2004)
- ☒ *Who's on First? Factors in IT Supplier Selection* (IDC #31824, September 2004)
- ☒ *Super Service: Boosting IT Value in the Public Sector* (IDC #31802, August 2004)
- ☒ *Follow the Money: IT Investment Decisions in Canada* (IDC #31736, August 2004)
- ☒ *Managing IT: Decisions, Spending, and Challenges in Canada and Australia/New Zealand* (IDC #31735, August 2004)
- ☒ *The Enduring Challenge: Calculating IT Value in Business Terms* (IDC #31342, May 2004)
- ☒ *More than a Business Face: IT Supplier-Client Relationships and IT Value* (IDC #31086, April 2004)
- ☒ *Accounting for IT Value: The Double Helix of Cost and Business Performance* (IDC #30960, March 2004)

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