

## Insider's Guide to Using Information in Government



Strategy



Policy



Data



Cost



Skills



Technology

# Case

## Information resources for information professionals:

*creating a knowledge bank in New York City government*

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# Information resources for information professionals: creating a knowledge bank in New York City government

*Who better to lead the way in breaking down information stovepipes than the IT profession itself? Read how a vision for knowledge sharing is coming to fruition in the Big Apple.*

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## Introduction

Information Technology (IT) is a crucial factor in the New York City's operations. Forty-three mayoral agencies operate numerous information systems that support the City's administrative and service programs. These programs and agencies employ over 130,000 people and are worth about \$35 billion a year—a city budget that is larger than the budgets of many countries.

Until recently, the City's IT-related work was very decentralized. Each agency figured out how to meet its own needs. Today, the City's technology policies and strategies are set by a Technology Steering Committee (TSC) established in 1998 by Executive Order. The Steering Committee is charged with "coordinating and integrating information technology systems among City agencies" and with "effective implementation of automated solutions at all levels of City government." The Steering Committee members are the Commissioner of the Department of Information Technology and Telecommunications (DOITT), who is the CIO for the City and serves as the TSC's Chair, and the Directors of the Mayor's Office of Operations (MOO) and Office of Management and Budget (OMB).

The TSC is responsible for developing and implementing a city-wide technology strategy, overseeing the creation of annual agency IT plans and budgets, approving

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senior IT staff hires and promotions, coordinating IT initiatives, and setting city-wide technology standards.

The Office of Technology was set up within DOITT as the staff arm of the Steering Committee. Among its responsibilities are the identification of best practices in IT use and management, and serving as a clearinghouse for information to agencies. Its major challenge is the collection, categorization, analysis, coordination, and dissemination of a vast amount of information regarding NYC's current and future information technology resources and needs, including:

- progress made by the City and individual agencies in implementing the IT Strategy
- existing databases listing all city-wide applications
- best practices reports
- IT Standards
- policies and procedures, both existing and new
- financial information
- project management information
- asset management information
- information on the status and potential future benefits of new technologies
- project specific information
- useful descriptions of agencies and their programs
- information about which agencies are good at certain tasks
- information about which individuals are good at certain tasks

Much of this information is already available, but resides in various locations throughout the City government. Traditionally, some of that information was brought together on an ad hoc basis to be used to make decisions about a particular project. One example is information collected as part of the budgeting process. Information concerning costs, benefits, project scheduling, and so on would be collected by an analyst for the purpose of making funding decisions during the budget cycle. Once decisions are made, the detailed information would be normally put away in a paper file, possibly not to be seen again until the next budget cycle. The keeper of the information is usually a staff analyst, and as analysts come and go, so did the information that was collected. Similar procedures were used to manage information about the City's IT resources. This information was collected by the Mayor's Office of Operations or by DOITT. Each agency would keep the information in a manner designed to fit its own processes and priorities.

### Addressing the core issue

The Executive Order mandated a new structure that centralizes IT decision making in the Technology Steering Committee (TSC). The goal is to ensure that IT decisions take advantage of the expertise of staff from all three agencies. Information that in the past

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was used only by one agency must now be shared. While the paper file system might have worked in one agency working in isolation, it does not support collegial decision making or city-wide planning.



Within the operating agencies, IT directors and their staff have a similar challenge. They often make decisions without knowing what is taking place in other agencies or in other organizations that may face (or have solved) similar problems. In addition, they collect and report information to multiple levels of management and a number of oversight agencies whose operations are usually not coordinated.

These "overhead" activities take a considerable amount of effort that diverts energy away from core operations.

Even outside organizations, like federal and state agencies, contractors, and nonprofit service providers, are affected by these conditions. Multiple contacts, handoffs, and interpretations add time and cost to these relationships on all sides.

NYC Department of Information Technology and Telecommunication's (DOITT) Office of Technology set about to change this situation and to replace it with a knowledge management program in which:

- numerous and varied types of information about the City's IT resources are electronically collected, analyzed, categorized, and disseminated
- information is easily and widely accessible, searchable, and possibly even "pushed" to those individuals who can most benefit from it
- information exchange is a two way activity providing continuous feedback on the available information and allowing requests for more specific information
- information is analyzed using state-of-the-art expert decision systems and data mining techniques

DOITT joined the *Using Information in Government Program* at the Center for Technology in Government to pursue these goals. The City project leaders expressed his philosophy in this way:

The best way to break the information stovepipes is to give people access to each other across the board. You can do this not only for IT but for other professions within the City—for the lawyers, the fleet managers, the human resource managers, and so on."

By starting with the IT community itself, DOITT hoped to demonstrate that knowledge could be organized, shared, and maintained across time. The time dimension of the idea is of growing interest and importance as New York City joins the ranks of

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jurisdictions with term limits for its elected officials. (The Mayor, City Comptroller, Public Advocate, and most of the City Council will be leaving office on 1/1/2002.)

The partnership project with CTG engaged the Technology Steering Committee and the City operating agencies in an exploration of the information needs of the City's IT professionals, a search for models and best practices that would guide them to create new information resources, and initial work on intranet applications that would bring these resources to the desktops of City employees.

### **Organizational history and culture are part of the strategy for change**

From the earliest planning, it was clear that organizational history and culture would be as important as the ability to create and share new knowledge resources. At the outset, the TSC leaders needed to make a strategic choice. While OMB and MOO are clearly oversight organizations, DOITT has a dual mission in NYC. It is both an oversight agency and a service provider. The IT planning and budgeting process (in which DOITT plays an oversight role) is a primary source of information about the City's IT infrastructure, experience, and applications.

That information is used to make executive decisions and city-wide resource allocations. Yet, that same information could be used in new ways to serve the needs of the agencies. Because DOITT was the lead agency in this project, it could have followed either an oversight strategy or a service strategy. The operating agencies initially expected an oversight frame of reference would predominate, but in fact DOITT pursued the project as a service to agencies. Early discussions and workshops were critical points for clarification about DOITT's motivation and intentions.

### **Finding out what IT professionals need to know**

Leaders and staff from the Technology Steering Committee participated in the kickoff event, a half day workshop, facilitated by CTG staff, to identify both their goals and barriers they thought might stand in the way. Similar, but more detailed, full-day workshops were then held with the operating agencies. In all 40 agencies were represented in these sessions. The participants individually answered the following question:

*"What important questions did you need answered during your most recent IT project?"*

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They then clustered their answers into like groups such as questions about procurement administration, IT expertise, and getting internal buy-in. Small groups then identified the kind of information needed to answer these questions.

Following a similar process, the participants also answered:

*"What would be the characteristics of an ideal IT planning and approval process?"*

*"What are your worst fears about the IT planning and approval process?"*

*"What can you do, and what do you suggest others do to achieve these ideals and prevent these fears from being realized?"*

The results of all sessions were compiled, analyzed, and presented by CTG first to the TSC agencies and then to the operating agencies in three additional half-day meetings.

Throughout the needs identification process, DOITT was careful to stay "out of sight" at the agency meetings. The staff believed that agencies would be more forthcoming with their needs and criticisms if DOITT staff were not in the room. The agencies did indeed speak freely at every session producing a detailed list of information needs that applies to any IT organization. The list included detailed information needs for nine topics:



- **IT project approval process and funding decisions** including explicit rules for preparing, reviewing, and acting on proposals; status tracking; and information about available funding sources
- **procurement and contracting information** such as policies and procedures, information about various acquisition vehicles, and status tracking
- **project management guidance** including education programs, project management software recommendations, and standards of practice
- **information about proposed and existing systems** comprising descriptions, status reports, and updates on city-wide infrastructure improvements
- **best practices and peer-to-peer information sharing**, drawn from experiences within the City and elsewhere, providing lessons learned and an ongoing discussion and support forum
- **IT staffing assistance** including job postings, skill standards for various job types, a skills inventory, and advice on recruitment and retention strategies
- **information about technology products and services** such as city-wide standards, unbiased research, manuals and reference books, and a list of user groups and how to join them
- **support for system users** in the form of help desks, on-line manuals, and access to contracts for multi-agency training on commonly used technologies

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- **access to the data resources of city and state agencies** such as a catalog of data sources, a city-wide system inventory, and advice about data quality and integrity issues

Staff from both operating and oversight agencies worked together for the first time in a subsequent one-day workshop to identify priority issues and to establish work groups to formulate action items that address them. As the project made the transition to this "best practices" or solutions finding phase, the oversight and operating agencies began working together in joint working meetings. In some areas, oversight agencies took the lead, in others staff from the operating agencies played central roles.

Several weeks later, each work group presented the results of its research and made recommendations for next steps. They particularly identified the recommendations on their lists that they felt were immediately achievable. These were the items that were within the purview and authority of the participants. They did not need to wait for any outside approvals, changes in regulations, or other time-consuming externally-controlled steps. The full group then selected from that subset of "doable" items the ones that seemed to be the best place to start to build prototypes for gathering and sharing information. They included staffing, procurement, planning and budgeting, best practices, IT products and services, data resources, and planning and budgeting.

The TSC had already established formal subcommittees in several of these areas, but agency IT people had been unaware of them or reluctant to participate. Agency experience in these more informal workshops, especially the clear evidence that DOITT was listening and acting on their concerns, encouraged more agency participation in these groups. That engagement allowed the existing subcommittees on procurement and staffing to pick up the recommendations and move forward more quickly and with more comprehensive information than they would otherwise have done.

### **Technology choices are shaped by both policy and infrastructure**

Throughout the effort to create the content of these knowledge resources, DOITT also considered the technologies that might be used to create, maintain, and disseminate them. The City's existing and planned infrastructure and IT policies played a large role in these discussions. A very stringent security policy prohibited most City employees from ready access to the Internet. Internet-connected workstations in the agencies were generally not connected to the City's internal communications networks to prevent both external hacking and internal misuse. Only when an agency is able to demonstrate high security capabilities can it connect directly to the Internet.

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While Web sites would be useful solutions for some topics, such as information about IT products and services, they were simply not feasible. As in many large governments, more than one e-mail system was in use so no agency could communicate readily with all other agencies. That made e-mail a poor choice for sharing information. Because the procurement process is often lengthy, DOITT also knew that these new resources would come faster if existing contracts could be used to acquire the development tools and applications software.

One of the City's foremost infrastructure investments is an internal network called CityNet which was being deployed during this period of time. CityNet offered a looming ability to connect all the agencies. Further, DOITT staff discovered that suitable knowledge management software was indeed available from one of the City's main IT vendor partners. The best choice in terms of access and sustainability, then, was to develop these as intranet applications. Today, the CityNet infrastructure backbone is in place for all agencies. While full deployment is not yet complete, it will eventually be available to all participants. Building applications that run over this network also assures that they will rest on a critical, high-priority infrastructure for years to come. In addition, the chosen development tools allow for a very modular approach to developing the knowledge resources themselves.

### **A modular approach in a complex political and organizational culture**

By spring 2000, four intranet applications were under development: IT recruitment and retention, IT planning and budgeting, GIS resources (a first focus for the data resources topic), and e-procurement. The very different goals of these efforts means they are proceeding at different rates and encountering different issues. The technology platform and tools that the City has chosen allow them to develop at their own pace, but within a larger knowledge management framework.

The GIS resource is by far the furthest along. It benefits from a long history of knowledge and information sharing among GIS users in the City. Cooperative efforts to create a city-wide base map, for example, have been under way for some time. The leader of the GIS knowledge resource is also an acknowledged and respected leader in the GIS community.

By contrast, the budgeting and planning resource will take more time to develop. The effort encompasses not only the collection and organization of complex information, but serious consideration of the need to revamp the policies and processes that underlie it. Moreover, legal responsibilities and long-standing institutional roles and relationships between OMB and the other agencies limit the nature and rate of change.

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The procurement and IT staffing resources are in the middle range of development but for different reasons. E-procurement has become a focus not only for IT professionals, but also for political leaders. The City's ambitious e-government agenda means that procurements must be streamlined in order for elected leaders to meet their commitments to make City services widely accessible over the Web. In the case of IT recruitment and retention, the need to find and keep well-skilled staff is a very serious problem shared across all agencies, operating and oversight alike. Despite their different roles, there is much common interest in finding solutions.

### What next?

Recently, organizational changes have become part of the evolution. Two offices have been merged with the Office of Technology under DOITT's stewardship: the E-Government Office from the Mayor's Office of Operations (which oversees and facilitates the migration of City services to the Web) and the separate Office of New Media (which is responsible for administering NYC.GOV, the official website for the City of New York). This merger allows the City to plan, execute, and manage all its technology initiatives from an enterprise perspective. The City is also formalizing its intranet strategy and will launch several pilot sites for its first phase. Thanks to the groundwork already laid, E-procurement is likely to be among them.

In 2001, New York City residents will elect a new mayor, who, like Mayor Giuliani, will be limited to two four-year terms. Consequently, the knowledge resources that are being developed in this project are more than meets the eye. They are certainly innovations in the management of IT. They may also be exemplars for accumulating and transferring solid knowledge about the City's operations from one administration to the next.