Insider's Guide to Using Information in Government

An Overview

The Insider's Guide to Using Information in Government: an overview

---

The *Insider's Guide* is the main product of three years of research by the Center for Technology in Government (CTG). This material came from our work with people in government who faced and solved problems using information. Together we explored the many factors that shape government's ability to get full value out of the information it collects, creates, and maintains.

Problems government managers face in using information

In November 1997 we held an open workshop for New York state and local government managers interested in the problems of using information *inside* government. More than 90 people identified the problems they face when using information to do their jobs.

Strategies and policies

They noted limited understanding and appreciation for the value of information for program planning, monitoring, and evaluation on the part of executives and policy makers. Participants expressed concern that a lack of understanding of the nature and level of financial, technical, and human investments necessary to use information well have resulted in inadequate use of existing information, and lost opportunities to create shared resources that would benefit many.

Information quality and availability

Much of the discussion focused on information itself. A key problem was simply knowing what information already exists. Other problems included concern about sensitive, personal, and confidential information as well as the risk of drawing incorrect conclusions from inaccurate, out-of-date, incompatible, or poorly defined data.

Organizational issues

Data ownership, stewardship, and related organizational issues were also prominent. Turf issues that reflect inter- and intra-organizational competition rather than cooperation were cited by many.

Uncoordinated systems

Inadequate, inappropriate, and stand-alone technologies and systems were also serious problems. Isolated systems mean that merging, comparing, and integrating data for analysis, evaluation, and decision-making are inordinately difficult and expensive, and seldom attempted.

Workforce and skills concerns

A consistent set of concerns had to do with workforce issues. Among them was the increasing difficulty of attracting and retaining IT managers and professionals to government service. Serious concern was also expressed regarding information handling and analytical skills across all kinds of jobs.

Over the ensuing months, we engaged in eight problem-solving projects with a variety of government agencies. *The Insider's Guide to Using Information in Government* presents the learning that took place across the many organizations who participated in these projects.

The big lessons

This overview summarizes the Guide's six main topics--strategy, policy, data, cost, skills, and technology. But sometimes even a summary masks the big picture. Occasionally, it's useful to begin with a handful of big lessons to set the stage. We offer these:

Many points of view are an asset, not a liability

Unless you are the sole designer and sole user of your system or program, other points of view count. It takes time and special skills to draw out the different perspectives that matter in your initiative. Often people will disagree, sometimes strongly, about the nature of the problem, the choice of goals, and the nature of the solution. Get these different ways of looking at the world out in the open as early as possible. Work with people in groups to craft a shared understanding of the effort. Use these different perspectives to describe the big picture that no one can see fully on their own.

Untested assumptions are not a short-cut

Assumptions are inevitable in any complex work. They can be very helpful as long as they are explicit and periodically tested against reality. One commonly untested assumption is that a new system stands on its own. In most cases it is connected in complicated ways to lots of other things. Another problematic assumption is that a system is readily usable. Again, seldom true--especially when it will be used by people in different locations or job types. A third risky assumption is that data integration is a technical problem. It is, but it's also an organizational, political, intellectual, and managerial one.

Data doesn't speak for itself

Not one of the projects we present here could take data at face value. Accessing, managing, sharing and disseminating data poses difficult challenges. Data collected for one purpose may not be suitable for another. Meta data that documents meaning, history and usability may be inadequate or simply missing. Different terms can have the same meaning or the same terms used by different organizations can have different meanings. The list of challenges goes on. Allow plenty of time and resources to tackle them and be judicious about which ones will return the greatest benefits.

Sorry, no silver bullets

The simple fact about information problems is that there are no easy solutions. These problems are tough because they are meaningful and complicated. They take time, money, and effort. No particular method, and certainly no technology, will cut through the maze of complexity in short order. The good news is that there are many useful techniques and tools that can help you manage this kind of work to a successful conclusion.

Good enough is often good enough

Even with the best tools and intentions, it is safe to assume that you will not have enough time, money, or other resources to devise the perfect solution. But if you pay attention first to thorough analysis and then look for reasonable alternatives, you'll be able to make an informed decision about what is really important to do. A "good enough" solution focuses on those "must-have" aspects of the job, and does not divert precious resources into costly, but less valuable "nice-to-have" features.

Main topics covered in the Insider's Guide

Whether you're creating an integrated database, launching a new service project, or evaluating program performance, these six factors'strategy, policy, data, cost, skills, and technology 'will impact your initiative.

Strategy sets the stage

Whether in business or in government, strategic thinking is concerned with mission-critical objectives; it looks outward with an emphasis on customers and stakeholders. Strategies place a high value on human, organizational, and technological resources and seek maximum return on those investments, rather than minimized costs.

The first element of strategy is a clear and agreed upon picture of the business, policy, or program need that is the reason for the effort.

Stakeholders are the second element. We all know that the users or customers of services are stakeholders. But stakeholder considerations don't stop there. You also need to know who else is involved, who pays, who benefits, and who gets hurt.

Third, remember that every new information system goes into some existing situation that includes other, older information systems, existing business processes, standard operating practices that have grown up over time, and many elements of organizational culture.

A sound strategy also looks ahead. You will face the difficult task of choosing technology that meets your needs today but won't limit the choices you can make tomorrow. You must also anticipate future legislation, budget cycles, and regulatory actions.

The final element of strategy is the way you communicate it. The best approaches can be communicated briefly and in plain language. Devise a short, high-level statement that tells people what kind of project to expect.

Examples of these elements of strategy can be found in the following cases:

- The Division of Municipal Affairs chose to limit the scope of its project to one essential business process, technical assistance.
- In a New York City project, the key problem was not a lack of information, but mechanisms and culture for sharing it.
- The Office of the State Comptroller engaged its most powerful stakeholders as "strategic partners."

- The Bureau of Shelter Services turned opponents into partners by acknowledging and dealing directly with their concerns.
- Prototyping was a good strategy for understanding complexity in the Homeless Management Information System (HIMS) and the Kids Well-being Indicator Clearinghouse (KWIC).
- The Department of Information Technology and Telecommunications looked for a technical platform that would build in the future for its new IT knowledge base.
- The Bureau of Shelter Services recognized that related case management systems would affect the future success of HIMS.
- The Department of Transportation took an incremental approach to improving its IT investment process.
- By dividing a huge project into distinct phases, the Office the State Comptroller kept its costs down and its options open.
- The Office of Real Property Services and the Division of Municipal Affairs are making strategic changes in their philosophy of state-local relations.
- Both organizational culture and technical infrastructure will shape a new contact management system at the Divison of Municipal Affairs.

Policies guide action

Policies are one of the basic building blocks of government. Laws, regulations, executive orders, and official statements guide how agencies fulfill their missions. Information policies guide actions and decisions about why, how, when, and who uses information.

Government information policies can serve two different, but complementary, purposes: information stewardship and information use.

If you want to make sure information is well-managed and handled appropriately, you need to devise policies that promote information stewardship. Such policies address:

- confidentiality, privacy, and records management and disposition
- information and system security
- data definition, quality, and integrity
- long-term preservation of information with enduring social, legal, or historical value

To promote your information as a valuable asset, you need policies that advance information use. These policies address:

- interagency and intergovernmental information sharing
- public access
- public-private information partnerships
- reuse of information for new purposes
- information handling skills of public employees
- innovative ways to use information to improve the quality or lower the cost of services, or to create new services or better ways of doing business

Examples of how government agencies handled policy issues can be found in the following cases:

- The Bureau of Shelter Services had to deal with issues of confidential information.
- The Department of Transportation used new information and different people to choose IT investments
- The Council on Children and Families must devise polices to govern a shared information resource about the well-being of children.
- New York City's security policies shaped the way information could be shared.

The devil is in the data

Data quality issues are always present. Whether you are using a single source, reusing information for a new purpose, sharing it with others, or integrating multiple sources, you can expect important challenges.

Data challenges occur when agencies try to identify and address the gap between desired goals and available data. Some challenges include:

- identifying relevant data
- determining its usability
- addressing inaccurate or incomplete data
- dealing with the inability to solve certain data problems
- managing a lack of confidence in the resulting resources

Data quality issues occur in every system. The quality of the data often has to be enhanced to be sure it is "fit for use."

Data standards are necessary for effective information use. They are especially important when projects involve several agencies or organizations.

Meta data is information about the data. It's a crucial piece of the data quality puzzle. You need to know the background and history of the data in order to make decisions about its appropriateness for use.

Contextual knowledge is indispensable to understanding the program environment in which data is collected and used.

Examples of how government agencies are handling these data issues can be found in the following cases:

- The Kid's Well-being Indicator Clearinghouse (KWIC) is an effort to organize multiple data sources into a coordinated clearinghouse.
- The Homeless Information Management System (HIMS) case examines fitness for use and how to understand the context of data.

Underestimating costs proves costly

The costs of information technology initiatives are almost always underestimated. We tend to under-appreciate their complexity and we lack good models or guides for identifying all cost factors. Six factors influence the complexity (and therefore the cost) of projects, but these are generally *not* accounted for in cost traditional models:

- building, maintaining, and managing relationships
- the similarity of existing processes and work to the envisioned ones
- the similarity of existing technologies to desired technologies
- separability of tasks
- intended degree of integration in the final product
- variations in data sources

Complexity and degree of change influence total costs as much or more than any direct expense. The more complex the network of required relationships, the more costly it will be to establish, maintain, and manage. The more data sources and the greater their differences, the more it will cost to make use of them. The more interdependent the

tasks in the workplan, the costlier the work will be and the higher the risk of failure. All of these factors demand serious consideration in up-front analysis and cost estimation. The better we get at accounting for them, the more useful our cost models will become.

Examples of how government agencies are addressing these cost factors can be found in the following cases:

- The Department of Transportation changed practices but not technology when it revised its IT investment process
- The Office of Real Property Services invested in a simulation model to capture and understand the costly complexity of a new way of doing business
- Central New York Psychiatric Center had relatively clear sailing thanks to low levels of complexity and change
- The Bureau of Shelter Services used a prototype to understand the costs of integrating data from multiple sources

Become a skilled information user

Organizations, like people, are information users. Regardless of the size and makeup of your team, you have to do these things well:

- analyze a situation and identify the problems it contains
- find, assess, and use information and technical tools to address the problems
- produce and communicate a usable product
- evaluate the results
- manage a project that probably involves many people from more than one organization

Five categories of skills are therefore necessary in any effort to use information in government:

- analysis and interpretation skills
- information management skills
- technical skills (higher order skills for developers and more basic skills for users)
- communication and presentation skills
- project management skills

No organization has the perfect mix of skills, abilities, and experiences for every situation. Start by giving assignments to people with the proper skills to carry them out. Or assign activities to those who have the aptitude, desire, and responsibility to develop the necessary skills. Skills can be acquired through training, mentoring, brokering, contracting, or outsourcing.

Examples of how government agencies addressed skills issues can be found in the following cases:

- The Department of Transportation required different kinds of analytical skills at different points in its IT investment process.
- In New York City, the Department of Information Technology and Telecommunications employed several methods of information management to create a knowledge base for the City's IT professionals.
- The Kids Well-being Indicators Clearinghouse demanded high-end technical skills to create a web-based information resource.
- For the Homeless Information Management System the basic technical skills of users were a critical success factor.
- The Division of Municipal Affairs communicated its analysis and vision for a new way of working with local governments through a carefully crafted business case.
- The Bureau of Shelter Services and Division of Municipal Affairs both demonstrated expertise in managing critical relationships.
- People with program knowledge and technical skills had to pool their expertise to create the Homeless Management Information System.

Technology choices matter

Technology choices are choices about the present *and* the future. Whatever technology is chosen for your project will have powerful long-term implications throughout your organization. It will undoubtedly influence many aspects of work. Once implemented, technology has a way of cementing things into place. It becomes embedded in virtually every aspect of the organization, affecting the way people work. New technology often comes with new business rules, practices, and processes that are very hard to change. Because of these long-term effects, every initiative needs to pay attention to three things: business processes, user needs, and infrastructure requirements.

Mapping out business processes allows you to identify how well current technologies support them. Process analysis will also help you see how new technologies can be used to best advantage.

Make users an integral part of the problem definition, planning, decision-making, and testing. This not only encourages their support, it makes it much more likely that the work they do will be well-understood and accounted for in a new system.

Technology initiatives must recognize and account for diversity in organizational environments and infrastructures. In some instances, the infrastructure is uniform from place to place. More often, technical and other capabilities vary. New technology choices need to take these variations into account.

Technology can often increase your capacity to use information more effectively or for new purposes. Whether you are considering building a new web service, financial management system, or a new database, look for technology that gives you new capabilities to streamline operations, or improve the quality and availability of services and information.

Stay abreast of cutting-edge technologies as well. Many government organizations are now working with researchers to develop and test technologies that handle very complex problems such as environmental modeling, emergency management and response, and manipulation of huge data sets. These experimental systems may lead to future products that address a wider range of information problems.

- The Division of Municipal Affairs mapped out its technical assistance process in order to understand how technology could help improve it.
- The Office of the State Comptroller engaged in extensive user needs analysis as the first step toward modernizing the state's central accounting system.
- To build KWIC, developers chose technologies the kept their options open for the future.
- The technologies available to users meant re-thinking how they would get access to the Homeless Management Information System.
- Similar user issues shaped technology choices for the contact management system at the Division of Municipal Affairs.
- The Central New York Psychiatric Center took advantage of the agency's intranet to build applications for organization-wide planning, resource allocation, and clinical information.

What now?

If any of the foregoing sounds familiar, the *Insider's Guide* has more to offer you. The site offers more in-depth knowledge about the six main issues. Read the full cases to learn the steps the agencies followed. Visit some of the outside links for other examples and information. And then put this knowledge into play in your own organization.

Overview Table of Topics and Cases

The following Overview Table shows where the topics are represented in each of the eight agency cases.

Insider's Guide to Using Information in Government Overview Table of Topic and Cases							
Agency	**Cases**	**Topics**					
		Policy	**Strategy**	**Data**	**Skills**	**Cost**	**Technology**
NYS Bureau of Shelter Services	***Building Trust Before Building a System: The Making of the Homeless Information Management System***	**X**	**X**	**X**	**X**	**X**	**X**
NYC Department of Information Technology and Telecommunications	***Information Resources for Information Professionals: Creating a Knowledge Bank in New York City Government***	**X**	**X**		**X**		
NYS Office of Real Property Services	***Planning, Listening, and Acting Accordingly: The Collaborative Implementation of an Annual Reassessment Program***		**X**			**X**	
NYS Department of Transportation	***Learning to be "Up-Front" with Information Technology Investment Decisions***	**X**	**X**	**X**	**X**	**X**	
NYS Office of the State Comptroller	***Listen Before You Leap: Revitalizing the New York State Central Accounting System***		**X**		**X**		

Insider's Guide to Using Information in Government Overview Table of Topic and Cases							
Agency	**Cases**	**Topics**					
		Policy	**Strategy**	**Data**	**Skills**	**Cost**	**Technology**
NYS Office of the State Comptroller, Division of Municipal Affairs	***Using Information for Organizational Change: the Transition From Regulation to Service in the Division of Municipal Affairs***		**X**		**X**		**X**
NYS Council on Children and Families	***Moving From Paper to the Web: How the Council on Children and Families is Transforming a Static Information Resource into a Dynamic One***	**X**	**X**	**X**	**X**		**X**
Central New York Psychiatric Center	***Bigger isn't Always Better: Managing with Statistical Data from Forensic Psychiatric Centers***					**X**	**X**