Center for
Technology in Government

09
ANNUAL
REPORT

Knowledge for Government Transformation

The mission of the Center for Technology in Government at the University at Albany is to foster public sector **innovation**, enhance **capability**, generate **public value**, and support good **governance**.

We carry out this mission through applied research, knowledge sharing, and collaborative problem solving at the intersection of policy, management, and technology.

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ANTHONY CRESSWELL HONORED BY THE NYS FORUM AND UALBANY

Anthony Cresswell, deputy director at the Center for Technology in Government (CTG), was honored in 2009 by both The NYS Forum and the University at Albany.

The NYS Forum honored Cresswell with its 2009 Award for Excellence, which annually recognizes an individual whose work has definitively contributed to the overall improvement of government information services in New York State. Cresswell was chosen by The NYS Forum for "readily identifiable contributions and achievements beyond his peers."

The University recognized Cresswell for his role as interim director of CTG, contributing essential continuity of leadership for CTG as it went through the process of transition from founding director Sharon Dawes to recently appointed director Theresa Pardo.

Cresswell served as interim director from September 2007 to May 2009. In presenting a gift of appreciation to Cresswell at a reception in the Atrium at University Hall, Susan D. Phillips, UAlbany's provost and vice president for academic affairs, said, "During this time, Tony lead CTG through an extensive self-study and external review, as well as continued to build its reputation as a global leader in digital government research."

Mark Schmidt

University Hall at the University at Albany

From the Director

In 2009 the work of the Center for Technology in Government was about transitions. One transition was in the leadership here at CTG. In June, I was appointed director and given the opportunity to carry on the innovative work started 15 years ago by founding director Dr. Sharon Dawes and continued over the last two years by interim director Dr. Anthony Cresswell. Through their visionary leadership and commitment to excellence they have set CTG apart as a global leader in digital government research and practice. We are grateful to them both.

We are also now in the midst of significant societal transitions; drastic changes in the economy and shifting priorities for governments at all levels have required a new attention to the promise of technology as a tool for creating greater efficiencies in the daily operations of government. A new vision has been set forth by leaders such as President Barack Obama, who has called for a "commitment to creating unprecedented levels of openness in government." Leaders from government, civil society, and the private sector have begun to shape this new vision into a reality that leverages technology toward a more transparent, collaborative, and participatory government.

We have spent the year collaborating with many of these visionaries, exploring opportunities to transform government and the citizen experience, and investigating how best to implement these ideas. Together we have recognized that the new emphasis on openness, governance, collaboration, performance, and citizen engagement represents both great opportunity as well as significant challenges. What is clear from these early efforts is that to deliver this "new normal" will require governments, citizens, civil society, academia, and the private sector to work together in new ways.

CTG projects have always been about examining these complex public problems through a unique lens. With a focus on the intersections of policy, management, and technology, CTG provides thought leadership, new knowledge and practical guidance for practitioners. Our work in 2009 drew on this focus to begin to provide researchers and practitioners new ways of thinking about creating this new normal. Our annual report highlights these efforts and the partnerships that made them possible.

We look forward to 2010 as we continue our work through projects with the US General Services Administration and their responsibilities related to President Obama's Open Government Directive; with the New York State's Office of Cyber Security and Critical Infrastructure Coordination on statewide broadband mapping; and with the Port Authority of New York and New Jersey on information sharing in emergency response, among others. Our commitment to building a global digital government research and practice community continues as we form new partnerships with groups such as the United Nations University International Institute for Software Technology, the University at Albany's National Center for Security Preparedness, and Rensselaer Polytechnic Institute's World Tetherless Center.

A special thank you to new and old partners alike. The work we do together would not be possible without your commitment to collaboration and innovation.

Sincerely,

Theresa A. Pardo

Theresa A. Pardo

Opening government with information

Sharon Dawes, Senior Fellow, and Natalie Helbig, Program Associate

Open government is grounded in the belief that access to government information is essential to the functioning of democracy.

In the United States, information-based strategies to promote open government began with the Constitutional rights to free speech and a free press, and later extended to public meetings laws that require government to conduct its business in open venues. In the 1960s, information-based strategies such as freedom of information laws further established the public's right to know and set the rules for gaining access to most government records. Efforts to broadly open government information began in the 1990s with the introduction of electronic government initiatives that turned the focus toward creating electronic access programs, electronic records programs, and thousands of government Web sites. Two major outcomes of these initiatives include the federal Web sites Fedstats.gov and Regulations.gov (see side box).

EARLY EXAMPLES OF GOVERNMENT ELECTRONIC ACCESS PROGRAMS

Fedstats.gov

A decade ago, the federal statistical agencies joined together to improve their data products and provide ancillary information and tools to help users take advantage of them. The result? *Fedstats.gov*, which provides access to thousands of data sources and reports on 400 topics provided by more than 100 organizations, including units of the Departments of Commerce, Labor, Justice, and Agriculture.

Geospatial Data Repositories

The collection and digitization of land records and associated geospatial data organized in state- and national-level data repositories such as the National Spatial Data Infrastructure and the New York State GIS Clearinghouse provide access to standardized spatial data for a variety of uses. Planners, police, emergency services, assessors, school officials, real estate professionals, and many others take advantage of this information in different ways to do their work.

Regulations.gov

Information-intensive processes have also contributed to open government. In the early 2000s, *Regulations.gov* started as part of an extensive electronic rulemaking initiative intended to provide citizens, businesses, advocacy groups, researchers, and lawyers with electronic information and tools to find proposed regulations, submit comments, do independent analysis, and track the progress of rule development. Extensive back office changes in the rulemaking process, still in progress, are an essential part of this effort.

In 2006, new efforts to package information content for public use in order to answer a fundamental public accountability question—where do federal dollars go? started with *USAspending.gov*. The Web site is a single, searchable repository for all federal spending and was intended to organize government data from many different sources. The site is frequently updated and summarizes federal spending in major categories, provides an IT dashboard for major technology projects, identifies the top government contractors and assistance recipients, and links to procurement information and related resources.

Most recently, the Obama Administration has combined and augmented these approaches with additional information-based efforts to make government more transparent. The administration's Open Government Directive requires federal agencies to post previously internal electronic datasets for public use on a new government-wide site, *Data.gov*. The Directive also requires every executive branch agency to create an Open Government page on its site that makes its mission, activities, and results more visible and understandable to the public. These pages often provide reports, service summaries, links to major programs, downloadable datasets, and online public dialogs. These initiatives do more than open government to public scrutiny; they actively encourage businesses, civic organizations, and individuals to make innovative use of government information for their own purposes.

Additionally, spending associated with the $787 billion American Reinvestment and Recovery Act (Recovery Act) has been made available through a single Web site. *Recovery.gov* is designed to collect and display to the public frequently updated data; it is the first effort of its kind to collect spending and performance information across a variety of program areas and levels of government, including the private sector.

While traditional Web sites play an essential role, many

government organizations are also experimenting with and adopting blogs, wikis, and other Web 2.0 tools to encourage public engagement. Moreover, while only federal-level executive branch agencies are required to provide data sets to Data.gov, participate in e-rulemaking, and follow the Open Government Directive, the effect reaches much further. States and municipalities are creating similar data dissemination and access programs, and are participating in real time reporting and data coordination roles that show up, for example, in quarterly updates about state, municipal, and contractor spending on *Recovery.gov*.

Renewed emphasis on opening information to the public, plus the evolving capability of the technological tools for doing so, offer many opportunities to contribute to the goals of open government. Past experience and research findings tell us these initiatives are fraught with challenges, but they also offer useful lessons for this new phase of information-based transparency. Research at CTG has been addressing these challenges since the early 1990s (see side box).

This body of research emphasizes three factors that are necessary for using information to help achieve open government. First, information presented to the public needs to take a variety of forms so that all kinds of potential users are served. Second, regardless of form, the information must be both useful and usable to deliver its intended value. And third, the production and release of meaningful and usable public information must become ingrained in the regular operations of government organizations.

INFORMATION NEEDS TO TAKE A VARIETY OF FORMS

Different stakeholders need and want a range of information in a variety of forms to suit their own purposes. Statistics, machine readable datasets, clearinghouses, official reports, and program evaluations all have their role and value in information-based strategies. A citizen may want to quickly review the total spending of a program or want access to the voting records of elected representatives. A think tank might want large digital datasets for policy analysis in its area of expertise. An entrepreneur could want real time data feeds to incorporate into a new commercial information service. Advocacy organizations may need reports and analysis prepared by government experts to help them persuade others to support their views.

Clearly, these different kinds of uses and users cannot all be served by the same kind of information. Sites like *Recovery.gov* use sophisticated search capabilities and graphics to display the information content. The site caters more to those who want summary-level information quickly than to those who want to analyze the data themselves. Agency-specific open government pages provide many different kinds of information in the context of agency missions. *Fedstats.gov* and *Data.gov* are more focused on quantitative data, although both also offer some analysis and narrative information.

INFORMATION MUST BE USEFUL AND USEABLE

Providing useful and useable data to the public means paying attention to users' needs and understanding the challenges of 'fitness for use.' The current emphasis on electronic access through *Data.gov* focuses especially on raw, machine-readable information about government finances, program performance, and decisions. The goal is to allow people and organizations outside government to find, download, analyze, compare, integrate, and combine these datasets with other information so that they provide greater value to the public.

However, it is important to remember that many government datasets are defined and collected in different ways by different government programs and agencies. They come from a variety of different systems and processes and represent different time frames and other essential characteristics. While quickly getting data out in the open is an important goal, the value, or 'fitness,' of the data for any particular use depends on making these characteristics easy to find and understand. Whether in machine-readable formats, statistical summaries, graphical representations, or

analytical reports, users need to know the context of the information provided. This includes providing data definitions, advice about how to use the data, and descriptions of its limitations. The information also needs to be organized by topic, time period, or other useful schema that allow users to find it and then share, use, and manipulate it in valid ways.

MAKE INFORMATION-BASED STRATEGIES A ROUTINE PART OF THE JOB

For most government agencies, providing information for public use is an extra responsibility that may compete for resources with the demands of mission-focused operations. While vast amounts of useful information are contained in government data systems, the systems themselves were seldom designed for use beyond the agency's own needs. The exceptions are the agencies whose mission is information collection and analysis, such as the US Census Bureau or the US Bureau of Labor Statistics, or those with responsibilities to maintain the authentic historical record of government such as the National Archives and Records Administration. Permanent birth, death, and land records are maintained in their counterpart organizations in state and local governments. But for the great majority of government agencies, making data holdings available to the public in a meaningful and useable way is a new responsibility that will often need thoughtful investments in skills, tools, and policies, as well as some changes in processes and practices.

Understanding the public value proposition of information-based strategies to open government requires us to look at them from multiple perspectives. Open government is more than opening information, it is about opening the information about what government does and how it does it to the citizens and stakeholders that need and want it. Information access and dissemination are necessary to transparency and public accountability. They are also complex and dynamic responsibilities that demand supporting policies, tools, and skills for success.

ESSENTIAL READING FOR DESIGNING INFORMATION STRATEGIES

New York State Geographic Information System Coordination

CTG's development of a spatial data clearinghouse prototype revealed the critical importance of standards and metadata, search capabilities, and cross-boundary collaboration, as well as the essential value of designating authoritative sources for key datasets.

Kids Well-Being Indicator Clearinghouse

This project highlighted the challenges associated with a shift from providing the public with reports and statistical summaries about the status of children to providing the actual data that underlies them. Making the data available brought with it the need to understand the processes that produce the data and the development of new skills and services to support data users.

Use of Parcel Data in New York State: A Reconnaissance Study

CTG's analysis of the production and use of parcel data demonstrated the need for coordinated policies across different levels of government as well as appreciation for the ways in which a broad range of users created many different applications with value for public, private, and civic purposes.

Opening Gateways: A Practical Guide for Designing Electronic Records Access Programs

All of CTG's findings from designing public access programs were pulled together into a toolkit that helps government organizations understand the complex, multi-dimensional nature of information access. CTG's *Gateways Guide* leads access providers through a process of assessment and design that focuses on uses, users, policies, data characteristics, and organizational factors to define and build successful programs.

All of these resources can be found on CTG's Web site at: www.ctg.albany.edu

Governance:
The value of a custom fit

Theresa Pardo, Director; Donna Canestraro, Program Manager; and Anna Raup-Kounovsky, Program Staff Assistant

Reduce costs, increase transparency and improve service quality: these goals are on the minds of chief information officers (CIOs) everywhere. Consolidation, centralization, and integration are recognized as strategies for achieving these goals, but these strategies require new information technology (IT) governance capability for making state-wide coordinated information technology decisions.

A governance structure answers the following questions: what decisions must be made; who should make these decisions; how will decisions be made; and how do you monitor results to make sure you are achieving your goals[1]? While these questions seem relatively straight forward, ensuring effective use of technology across state government has proven to be a formidable challenge for most states. Advice is abundant, but finding the right fit takes time and often requires a custom approach.

IT governance in state government, according to the National Association of State Chief Information Officers (NASCIO), should not only ensure effective use of information technology to increase inter-organizational interoperability, but also minimize redundant investments within the limitations imposed by existing statutory constraints.

PULLING TOGETHER USEFUL IDEAS

In their efforts to design appropriate IT governance structures, many state CIOs have drawn on well-known governance frameworks such as COBIT[2] and ITIL[3], as well as the experiences of other public and private sector organizations. Throughout this process, they have discovered that private sector IT governance practices and frameworks are not directly applicable to the context of state government. These frameworks, according to a number of CIOs, emphasize functions, such as what structures should be in place, without indicating how to make them functional or offering a how-to-guide for building effective IT governance within a particular set of organizational features or a specific cultural context.

These CIOs have also found that the experiences of other states have limited value beyond identifying some potentially useful ideas. By observing the efforts of others, CIOs are benefiting from insights about what works and why in certain conditions. However, it has become increasingly clear that no single state or other governmental entity can simply adopt the structure of another state. The combination of conditions that make a particular IT governance design work in one state can rarely be found in another. Differences such as the size of government, institutional structures, and political priorities impact the form of enterprise IT governance that is appropriate for each state. In other words, what matters is not so much the governance design itself, but rather how well any specific design fits with the relevant aspects of the environment. For example, a highly centralized IT governance design where most decisions are made by the central IT office on behalf of state agencies might work well in a small state with a relatively homogenous political structure. That same design might be highly problematic in a large state with heterogeneous political institutions and decentralized power bases. Thus, while states are benefitting from ideas and design characteristics found in other places, those having success in their efforts are investing in customized designs that reflect well understood characteristics of their environment.

CHANGE: CHALLENGE AND OPPORTUNITY

To a casual observer, government policy priorities and operations change slowly. Often this slow rate of change is considered a good thing. CIOs seem to agree, for example, that designing and building IT governance structures takes time and requires a consistent long-term vision. Sometimes, much to the chagrin of CIOs, government does not seem to change slowly enough. Regular turnover in elected and appointed officials and constantly shifting policy frameworks and associated business processes—whether triggered by new economic realities, technological innovations, or political priorities—challenge CIO efforts to create consistent and reliable information technology governance structures. CIOs and others face three parallel challenges: making statewide IT investment decisions, redesigning the existing structures to ensure that those decisions are in line with the strategic priorities of decision makers, and trying to depoliticize the IT investment process.

Navigating through these challenges requires good management choices, but also sound support systems. In CTG's recent project on IT governance, state CIOs identified four actions as critical to their efforts to leverage changes in governance into new opportunities for the state: 1) choosing the right governance implementation strategy to ensure buy in from your customers, 2) securing strong support for creating new governance capability from your governor, 3) motivating staff, in the CIOs office and program areas through the transition period, and 4) building and maintaining trust with stakeholders, whether in the legislature, in the individual agencies, or elsewhere in government.

BUILDING A BUSINESS CASE FOR CHANGE

The current intense focus on IT governance makes it seem like a new idea, but in reality states have been governing IT resources for many years. What's new is the explicit recognition that IT governance has a powerful impact on the state's overall operational capability and needs to be designed in a comprehensive and well-grounded way. Although CIOs often describe themselves as the primary facilitator for this process, the most successful initiatives focus on the importance of bringing together a broad set of government stakeholders to design a framework that supports policy and programmatic priorities.

In 2008, CTG carried out an IT governance project that focused on how enhanced IT governance could bring additional value to the State of New York (see sidebox for more details about the project). The focus on value creation

[1] Weill, P. & Ross, J.W. *IT governance: How top performers manage it decision rights for superior results* (Boston: Harvard Business School Press, 2004), 10.
[2] www.isaca.org/cobit/
[3] http://www.itil-officialsite.com

CASE STUDY: A FOCUS ON VALUE CREATION FOR NEW YORK STATE

In 2008-09, New York State (NYS) officials began to ask questions about the state's existing enterprise IT governance capabilities and to consider what additional value could be created through enhancements to these capabilities. CTG facilitated a collaborative and consensus-driven process to help NYS identify value propositions for an enhanced enterprise IT governance structure and characteristics of a governance design that achieve the state's objective of an "inclusive and collaborative decision-making process for future IT investments."

Participants in this process included CIOs and technology staff from state agencies, public authorities, local governments, control agencies and the NYS Legislature. Three questions were posed throughout this project:

1. What value must be created to make the enhancement of enterprise IT governance in New York State worthwhile?
2. What changes have to occur for that value to be created?
3. Does New York State have the capability to make and sustain the necessary changes?

The CTG team returned to these questions repeatedly throughout the project to ensure that our attention would remain on value creation. The focus on value also helped maintain awareness of the technical and political context of IT governance and avoid simplistic generic strategies that did not take the New York State context into account.

Drawing on the principles of the public value framework, a set of five value propositions for enhanced enterprise IT governance emerged:

1. Reduce redundancy and establish prioritization mechanisms.
2. Reduce political directions and swings.
3. Establish standards.
4. Foster sharing of services and information through agency collaboration.
5. Align IT with the business of the state government

Together the value propositions provided the rationale for pursuing enhanced enterprise IT governance in NYS and the basis for evaluating any enterprise IT governance strategy the state pursues.

To view the complete report and the recommendations put forth to NYS by CTG, go to: http://www.ctg.albany.edu/publications/reports/itgov_recommendations

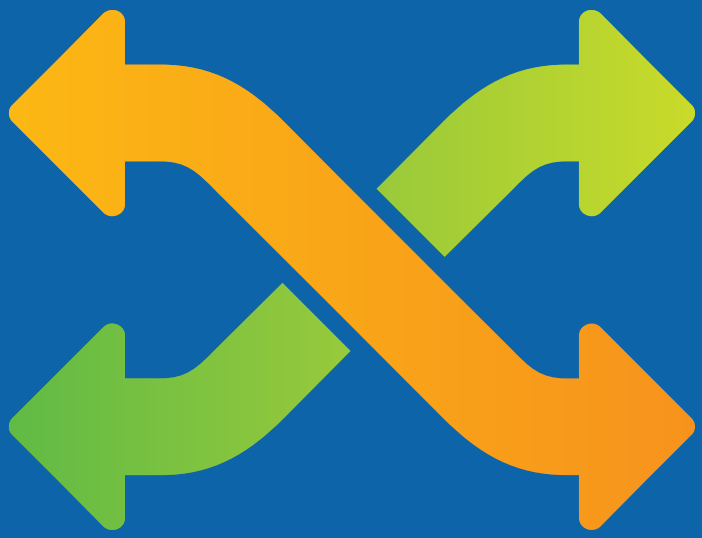
in this effort distinguishes the CTG approach from many existing IT governance development efforts. This approach rests in CTG's public value framework. In this framework, public return on investment (ROI) is defined as a measure of the delivery of specific value to key stakeholders and the improvement of the value of government as a public asset. The framework identifies five types of public value: *financial, political, social, strategic, ideological, and stewardship*. For each type of value, there are three possible value-generating mechanisms: increases in efficiency and/or effectiveness, enabling of otherwise infeasible but desirable activities, and intrinsic enhancements to the stakeholders, such as improved transparency.

The benefit of building a governance framework around a clear set of value propositions is that you can choose structures that align with your goals and values. For example, a governance framework built to achieve greater citizen participation might include an external committee with community representatives, while another framework with the goal of better business-to-government interactions might rely on a private sector advisory board.

Before state governments begin reconsidering how IT decisions occur, they need to know why they are changing current practices—what is the desired outcome. In describing the IT governance design process, one state CIO affirmed, "It was the value propositions that enabled us to judge our IT decision-making needs. Then we were able to design a framework that ensures we're using technology to drive the service objective of state government." IT governance frameworks allow technology and public programs to converge so that government delivers on its promise to efficiently and effectively serve the public—an invaluable outcome.

No loss in translation:

Using XML databases to simplify and streamline processes



Jim Costello, Web Application Developer

For over a decade, the simplicity, portability, and flexibility of XML have made it the accepted standard for formatting and sharing data via web services and service-oriented architecture (SOA). However, XML data that is easily transferred across machines and applications is not as easily stored and processed within those same machines and applications. As a result, the XML data is typically transformed into non-XML formats better suited for use within databases and applications. This transformation step adds a layer of complexity to the process.

But what if the transformations were not necessary? What if XML data could be stored and delivered in a way that functions similar to relational databases? And what if this XML capability were robust enough to handle real-world demands such as the multitude of tax filings processed by the New York State Department of Taxation & Finance (NYS DTF)? The result would likely be quicker delivery of product, fewer errors, a streamlined development and testing cycle, and reduced maintenance demands to keep disparate formats synchronized. And that's exactly what NYS DTF experienced by implementing an XML database as part of improvements to its overall tax processing.

What is XML?

XML is a flexible text format used to create structured documents. Both the format and the data can be shared across the Web and elsewhere. An example of XML is seen in Figure 2.

What is an XML Database?

An XML database is a data storage format that allows data to be maintained in an XML format. The data can then be queried and processed as XML without transforming it into a relational schema.

What is XQuery and SQL?

XQuery is a language to extract and manipulate data from XML documents or databases. Its syntax resembles SQL, which is the language to extract and manipulate data from relational tables. XQuery provides a bridge between the XML and database worlds.

But what are XML databases? Simply put, XML databases store data in an XML format. *Why are they important now?* Two recent developments in particular are significant. One is the gradual maturity of XQuery and the extensions for it that bring SQL-like querying capabilities to XML. One of the main objections to XML databases up to this point has been the lack of robust query and index functions to rival what's available in relational databases. But that gulf is narrowing. The second, more significant development is the maturing of XML databases such as Mark Logic Server and eXist and the incorporation of XML-database features into the major relational database products such as Oracle, SQLServer, and IBM DB2.

A closer look at the differences between maintaining the data's original XML format as opposed to transforming XML data into relational data will demonstrate the benefits inherent in XML databases.

EFFECTIVE, BUT NOT SIMPLE

What characterizes most Web applications is a multi-tier approach that separates the process into different components. Typically, the approach has three layers:

- Web page (presentation layer) on which a user enters data,
- code (processing layer) often written in Java, PHP, C# or similar languages, and
- relational database (data layer) that stores the data and makes it available for queries and further processing.

This structure works well because the separation of layers allows upgrades or changes to one layer to occur independently of the other layers. For example, the processing code can be modified or completely migrated from one language to another without impacting the Web page form that collects the data or the relational database that stores it. Development and design can proceed in a modular fashion with each layer dedicated to what it does best.

However, complications arise in transporting the data between these multiple layers. Data on a Web form is structured much differently than data stored in a database. Furthermore, a relational database (which is most often used in business applications) possesses a unique structure based on the relations among the various pieces of data in the dataset. The data itself is maintained within rows and columns of tables that are joined (related) by key fields. This architecture is very efficient for storage and retrieval within the database, but the data itself must undergo significant and complicated processing to ensure efficiency across the multiple layers.

Even a simple example, such as the class registration form shown below, demonstrates the manipulations required to move data through a process. In this example, the data from the ten fields in a form are extracted and stored across four distinct, but related tables in the database (a process known as "shredding"). When it's necessary to retrieve the original form, the data must be extracted from the tables in the database and reassembled for the form.

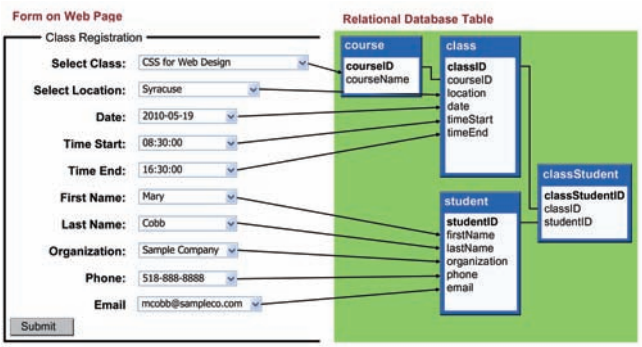


Figure 1. Shredding XML Data into Relational Tables.

For complex environments, such as the Department of Taxation & Finance, these transformations can be monumental. There are over 3,600 forms at NYS DTF. With a relational database, these forms translate to thousands of tables. Although the *forms* are essential to processing the data, what really matters to the agency is the *tax filing*, which is the combination of forms submitted by individual taxpayers.

In a "data shredding" environment, the filing context is dispersed among numerous tables and must be maintained and reconstructed as needed. The data itself can be stored, queried, and processed but it is far from a simple activity.

SIMPLE AND EFFECTIVE

While the multi-tier architecture can get complicated in matching the business model (e.g., tax filing) with the system design (e.g., relational table), its components are based on mature, proven, and widespread technologies that make it an efficient, reliable approach. But what if the data shredding and reassembling steps were not necessary? What if the data contained its own structure that could be maintained and carried through the entire process, without abandoning storage and query capabilities? What if the business model closely mirrored the system design? Well, that's exactly what XML databases make possible. The example of the class registration demonstrates how this is achievable.

The form that a student submits from a Web page to register for a class can have a built-in XML format. In an XML database, that XML form can be processed and stored as XML exactly as it appears on the Web page—without "shredding" the data into multiple tables. The three layers of the multi-tier architecture described above for the relational database are flattened into one uniform process. Indexes can be set and queries performed (using XQuery) within the XML database just as they are done for relational databases (using SQL). This approach couples the advantages of XML and its simple, open, portable data format with the advantages of databases and their storage, querying, and processing capabilities. The XML format carries throughout the entire process—from structuring the Web page form to being stored as is in the XML database. The example in Figure 2 shows the nearly one-to-one correspondence between the data in the form and the data in database. Of course, a database alone is not the solution. At the Department of Taxation & Finance, for example, many other factors such as improved workflow engines and integrated applications also came into play. But the presence of a ubiquitous data structure supported by the XML database facilitated an effective and simpler approach.

BUT IS IT PRACTICAL?

The example of the Department of Taxation & Finance illustrates that XML database usage on a meaningful scale within a government setting already exists. In 2009, the NYS DTF processed 11 million personal income tax returns along with thousands of corporate, sales, and withholding tax

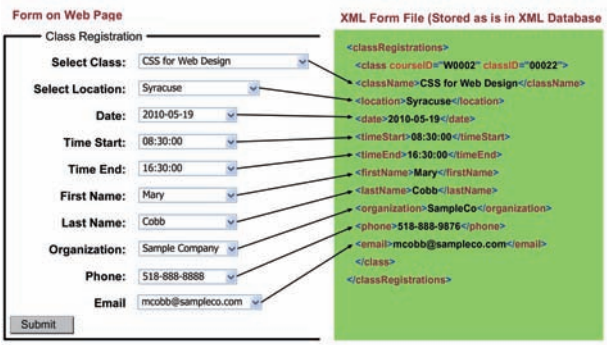


Figure 2. Aligning XML Data with XML Database.

filings. As noted by James Lieb, director of Architecture and Web Solutions at NYS DTF, they have also delivered over 20 new Web applications in the last year and implemented two entirely new systems with backend XML databases. Lieb said, "Each has gone up quicker and with fewer problems than if we had tried to do them relationally."

Likewise, the Center for Technology in Government has migrated all of its Web site material (including nearly 500 reports, news releases, and project descriptions) to an XML database to open new query and processing capabilities. Duplication of content has been eliminated, leading to better consistency of information; text searching has been enhanced, leading to more robust information retrieval; and new capabilities are possible for creating user-defined subsets of information.

At the federal level, the Office of the Historian at the Department of State (http://history.state.gov/) is using XML databases to prepare and publish its *Foreign Relations of the United States* (FRUS) series, the official historical documentary record of U.S. foreign policy. It also makes XML datasets available at DATA.gov (http://www.data.gov/raw/1431).

Other examples throughout the public and private sectors exist as well. And, although the use of XML databases is only at the beginning now, the trend should continue to grow as awareness spreads and capabilities increase. The benefits of minimizing the complexity of translating data, as found by NYS DTF, will begin to cascade into a myriad of new applications that can allow government to focus on better serving its citizens.

Exploring value in social media

In President Barack Obama's first day in office he issued a memorandum to federal agencies calling for the development of an Open Government Directive that focused on increasing transparency, collaboration, and participation. The directive requires agencies to take actions to expand access to government information, improve the quality of government information, create a culture of open government, and evolve policy in this direction. The directive points to "the use of new technologies," many of which are based on social media platforms, "to promote greater openness in government." Most recently, the administration issued a memorandum further encouraging the use of social media by clarifying that the Paper Reduction Act of 1995 "does not apply to many uses of such media and technologies."

However, even with endorsement from the highest level, there is no official national blueprint for government to follow in adopting social media-based open government strategies. The extent and sophistication of use varies across levels of government. According to a 2009 survey by the Human Capital Institute and Saba, Inc., 66 percent of federal, state, and local government workplaces are using social networking tools. Governments are gravitating toward publicly available Web-based solutions such as microblogs (e.g., Twitter™), social network sites (e.g., Facebook©), videocasting (e.g., YouTube©) and photo-streaming (e.g., Flickr®). At the moment, the most popular are Facebook, Twitter, and LinkedIn.

Natalie Helbig, Program Asociate and
Jana Hrdinová, Program Associate

It is clear that social media tools offer many potential benefits, but government agencies are struggling to understand the best way to incorporate and take advantage of the new capabilities these tools offer in the everyday work of government and to identify the public value derived from such investments.

EXPERIMENTING WITH USE IN THE CONTEXT OF GOVERNMENT WORK

Many governments see social media, first and foremost, as a new channel for delivering information and services. Social media channels offer more control over the type and timing of government-issued messages, provide a new platform to reach different audiences, and direct citizens to agencies' Web sites in new ways.

Social media tools are shifting perceptions about how to best convey information. As a result, many agencies are re-packaging their existing content or creating content in new ways. The New York State Office for Children and Family Services (OCFS) explains its comprehensive community care program for foster children through a series of videos on its YouTube channel, *Bridges to Health*. The State of California turned its driver's manual into a video, downloadable from iTunes® and accessible by mobile technology. The goal is to reach young drivers and offer a different way of learning to drive. The US Center for Disease Control (CDC) holds health fairs in Second Life©, a Web-based virtual world. Participants in this virtual space can go to the CDC virtual facility and ask questions, discuss relevant topics, and learn about important health issues. The space also features streaming video and numerous links to information on the CDC's main Web site.

Interacting with citizens is another area where governments are exploring the potential of social media. Interaction can mean different things ranging from simply allowing "comments" on a Web site, to organizing contests that engage citizens in problem solving to spur innovation, to more sophisticated crowdsourcing approaches where citizens might help analyze large amounts of data.

The US Transportation Security Administration (TSA) uses "The TSA Blog" to communicate innovations in security, technology, and the checkpoint screening process. By allowing comments, the TSA can respond to misconceptions,

"Our Web sites are like the stores on Main Street. Nobody visits our Web sites. We need to go to the mall. So Facebook is appealing, it's like the mall."

Eddie Borges, Public Information Officer, NYS Office of Children and Family Services

customer service issues, and provide information on changes in regulations. The State of California Office of the Chief Information Officer is piloting IdeaScale to ask citizens and information technology (IT) professionals how to best use IT. Tools like IdeaScale allow government to solicit ideas from citizens who also rank them in order of importance through a voting system. The ideas that rise to the top can then be refined by California, fit in to the state context, and implemented. Despite its growing use, some government agencies remain uneasy about allowing comments on these different platforms, either because they do not have the processes or staff in place to be able to respond to the anticipated volume of comments, or have not settled on strategies to handle comments that are deemed inappropriate.

WHAT DO CITIZENS WANT?

In the new social media landscape, governments are struggling to know "what do citizens want?" and "what do citizens expect?" Figuring out how citizens want government to communicate with them is not straight-forward. Governments walk a fine line between being where citizens are (i.e., Facebook) and avoiding the appearance of infringing on their private lives. Likewise, the style of communication associated with social media is informal and instantaneous, which sometimes presents a challenge for governments used to formalized communication involving layers of approvals and paper documents.

"When we started using Twitter we thought this was going to be a great way to push out information. But very quickly, within a day or two, we started getting comments like, 'don't do it this way,' 'this is boring,' 'just talk to us.' So, we did. We didn't know what was going to happen."

Brad Blake, Director of New Media, State of Massachusetts, Office of the Governor

Governments are learning how to respond to these challenges and adjust their practices accordingly. For example, when the State of Massachusetts Governor's Office experimented with Twitter, their initial postings were mainly "links" to press releases. The feedback they received via Twitter indicated that citizens using this platform were not interested in formal interaction, which prompted the state to quickly adjust to a more informal style of "Twittering."

Managing citizen expectations is also complicated. Government must balance the expectations of "on demand" government with potential public backlash. To manage users' expectations, the US Environmental Protection Agency posts a standard disclaimer that informs citizens that the comments posted after regular business hours will be responded to during the next business day. The disclaimer solved several concerns: it made it clear that employees were not expected and would not be paid overtime to log-on during non-work hours to answer comments and it tempered citizen expectations of receiving an immediate response.

DESIGNING POLICY

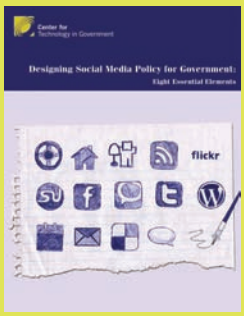
As governments across the US embrace social media, the need for social media policies has become apparent. Yet the details of what a social media policy should encompass and convey is not clear, and examples of such policies are far and few between. According to Gary Quinn, the CIO from Suffolk County in New York, "The issues connected with the use of social media tools are not necessarily new, but they do have to be reinterpreted for the social media context."

The concerns that need to be addressed within a policy framework range from ensuring technical security to encouraging proper conduct of citizens and employees. A CTG review of social media policies across local, state, and federal agencies in the US revealed eight important social media-related concerns: employee access, account management, acceptable use, employee conduct, content, security, legal issues, and citizen conduct. Not all policies cover all eight concerns and not all concerns are covered to the same level of detail [see side box].

GETTING STARTED: JUST DO IT OR PILOTS

Some governments across the US are "jumping in," while others are taking more measured approaches to social media, such as pilot testing. Usually, a jumping in effort starts because a leader or practitioner is enthusiastic about social media fulfilling a particular business need or function. These initiatives are generally small and limited in scope, allowing the originators an opportunity to evaluate potential

EIGHT ESSENTIAL ELEMENTS FOR GOVERNMENT SOCIAL MEDIA POLICY



Developing a social media policy can be an important first step for government agencies considering using social media and can ultimately serve as a key enabler for responsibly and effectively leveraging social media tools. Yet, many governments are struggling with what such a policy should encompass and convey and are looking to their peers for examples and best practices.

CTG developed the first guide for government on designing social media policy. The guide identifies eight essential elements for a social media policy that address many of the concerns surrounding government's use of social media. Along with detailed descriptions and numerous examples of the eight essential elements, the guide also includes an overview of the three types of social media use that fall within the domain of government social media policy and brief guidance on strategies for getting started.

The eight essential elements identified by CTG include: 1) employee access, 2) account management, 3) acceptable use, 4) employee conduct, 5) content, 6) security, 7) legal issues, and 8) citizen conduct.

Designing Social Media Policy for Government: Eight Essential Elements is available for download at: http://www.ctg.albany.edu/publications/guides/social_media_policy.

"It was very clear we were already putting ourselves in much greater risk by having program offices use these tools without a policy or framework in place. So, we wrapped our arms around what was already happening, added several new ones, and created a pilot project to help us develop agency-wide governance, policies, and procedures."

Kathleen Moorhead, Project Manager, State of New York Education Department

issues and adjust their practices as necessary.

Other initiatives begin as more formal pilot projects. Pilot projects are usually more structured, with the objective of creating formal social media strategies, best practices, and policies that can then be widely implemented. The New York State Education Department initiated a pilot consisting of eight department-level social media projects with a goal of learning enough to inform future agency-wide decisions on adoption.

Governments are also getting creative with resources. Several agencies are employing existing studio cameras, many of which were not being used to capacity, to make videos or are using off-the-shelf commercial software to edit pictures and movies. Many noted that this type of use requires a set of skills not always readily available.

LEGAL, SECURITY, AND PERFORMANCE ISSUES

Publicly available social media platforms are popular, but they raise specific concerns for government agencies. Challenges yet to be resolved include Terms of Service agreements, performance and reliability, privacy, records retention, and security threats. Governments are tackling these issues as they emerge and looking to each other for guidance and best practices. In April 2008, the US General Services Administration (GSA) successfully re-negotiated the Terms of Service agreements for federal agencies for sites such as Facebook, Flickr, and YouTube to account for liability limitations, privacy, and freedom of information laws. Similar efforts on behalf of the states are being spearheaded by the National Association of State Chief Information Officers (NASCIO).

Liability. Liability limitations hinder government's ability to hold third-party vendors accountable. As a result, government professionals are raising questions about the consequences of relying too heavily or solely on third party providers for dissemination of vital government information such as emergency alerts.

Privacy. The potential impact on privacy remains an important, yet somewhat downplayed, consideration. The Privacy Act of 1974 assures American citizens the ability to gain access to and amend records the federal government maintains about them and constrains government's use of citizens' personally identifiable information. According to analyses by the Electronic Privacy Information Center (EPIC), not all of the contracts negotiated by GSA explicitly reference the vendor's obligation to comply with existing privacy and freedom of information laws. The inconsistent treatment of privacy laws requires further understanding, given the obligation of the federal government to ensure that all data collection practices comply with these laws.

Records Retention. Concerns about records retention are moving away from "do we classify social media content as a record?" to "what is the best strategy for making sure we retain the records we are legally obliged to retain?" But the definition of what constitutes a record varies from state to state. In New York, a record is defined as "any information kept, held, filed, produced or reproduced by, with or for an agency or the state legislature, in any physical form whatsoever." Governments are erring on the side of caution and many consider all communication on social media sites to be a record.

Archiving such records and devising a process for retaining only those records an agency is legally obliged to retain is complex and archiving social media content is a relatively new issue. Some governments address retention issues by referencing existing records retention schedules or e-discovery guidelines in their social media policies. Under this approach, existing schedules apply to social media content, just as they apply to emails or feedback received via a comment box on an agency Web site. Some agencies are archiving content by simply cutting and pasting from very low volume social media sites; others are turning to new tools and services. For example, the US National Aeronautics and Space Administration (NASA) is using Archive-IT to

INNOVATION IN COLLABORATION

Social media is also being used to strengthen government collaboration and information sharing. Two examples are:

MuniGov2.0 is an online community of practice for government officials at all levels, focused on exploring the use of social media and Web 2.0. The site is a clearinghouse for definitions, best practices, examples, and discussions from around the US.

GovLoop was started in 2008 by Steve Ressler, at the time a federal employee, who created a social networking site specifically for government professionals, contractors, and students to connect and share information. Today the site has over 25,000 members.

"There is an inherent level of trust built into social media tools. Because these tools were built for collaboration and cooperation on a personal level and not with security in mind, their users are more susceptible to attack."

Information Security Officer, State Agency

archive all its social media interactions, including Facebook, Twitter, YouTube, and Flickr. In August 2009, the Executive Office of the President issued a Request for Proposals (RFP) for an automated process to capture, extract, and store information posted by White House employees on publicly accessible Web sites, including Facebook and Twitter.

Security. The Federal CIO Council recently issued a security white paper outlining three main security risks associated with social media use—spear phishing, social engineering attacks, and Web application attacks—and provided mitigation strategies. State governments are also creating their own security policies and mitigation strategies. There is broad agreement that security threats with respect to social media, similar to email, are largely behavioral in nature. Governments are examining mitigation strategies that closely mirror strategies for safeguarding email use, such as user training, anti-virus software, robust patch management systems, and standard network security infrastructure solutions including firewalls and intrusion detection.

MOVING FROM EXPERIMENTATION TO VALUE CREATION

Governments are engaged in ongoing efforts to define success and to assess value from social media initiatives. The difficulty in doing so arises from two factors: first, the tools are relatively new and many agencies are still in an experimenting phase, and second, social media initiatives are only one component of a broader communication strategy for the agency.

Frameworks for judging the success of social media use in government are still being developed. Many governments are relying on monitoring popular Web metrics such as "number of views," site specific analytics such as "number of fans," free diagnostic tools (e.g., Google Analytics), or sporadic citizen-feedback received through various channels to make these judgments. However, using these measures or creating new ones requires a greater understanding about how social media can and does work in government and how common concepts such as "transparency," "collaboration," and "citizen services" must be reinterpreted.

It is clear that governments will continue to experiment with social media tools at a rapid pace in hopes of reaping the many potential benefits. The challenge for government officials and citizens alike is systematically answering the question, "Does social media use in government create new value for citizens?"

"Have we changed government by virtue of having that communication? It's great to get all this feedback, but have we [government] changed the way we behave because of that? I don't have a good answer for that yet."

Teri Takai, Chief Information Officer, State of California

"Within the last year, we've moved from just experimenting and piloting to really asking the tough questions. How much business value is it creating? And why are we spending public money on it?"

P.K. Agarwal, Officer of Technology Services, State of California

Projects

Creating an Enterprise IT Governance Framework for New York State Government

The purpose of this project was to generate a set of recommendations for enterprise IT governance in NYS government. The recommendations are based on a framework that was collaboratively developed with key stakeholders within NYS, including state CIOs, state control agencies, and the Office of the Chief Information Officer and Office for Technology (CIO/OFT).

Key challenges highlighted in the final report are the lack of clarity of roles and responsibilities and the absence of adequate checks and balances. The governance structure recommended in the report includes several oversight bodies that clarify the locations for decision making and information sharing. A structure based on checks and balances is suggested to allow all stakeholders to have an appropriate role in the process. This structure has a workable arrangement of roles and responsibilities to resolve many of the current issues of authority and enterprise identity in New York State.

The April/May 2009 issue of *Public CIO* magazine, featured an article by Theresa Pardo, director, and Jana Hrdinová, program associate, on IT governance in the context of state government. *Couture Governance* focused on the challenges faced by state CIOs in implementing new IT governance structures that allow for coordinated action across organizations' boundaries.

CTG Testifies at New York State Assembly Hearing on State IT Governance and Procurement

The New York State Assembly Standing Committee on Governmental Operations held a hearing on November 10, 2009 to examine New York's information technology structures regarding purchasing and managing technology products and services. CTG deputy director, Anthony Cresswell, presented testimony based on lessons learned from CTG's IT Governance project. In the testimony, Cresswell pointed to the project report recommendations for a structure that clarifies roles and responsibilities in resolving issues of enterprise boundaries and that sets responsibility for sorting issues and strategy questions to the appropriate venue.

Assessing Mobile Technologies in Child Protective Services

The NYS Mobile Technology Demonstration Project is a multi-year initiative to assess the use of mobile technologies in child protective services (CPS) work in NYS. Starting in 2006, a team from the NYS Office of Children and Family Services (OCFS), NYS County Departments of Social Services (DSS or local district), and CTG conducted three successive assessments of mobile technology deployments and one in-depth business analysis.

In 2009, the assessment focused on twenty-six districts that received over 500 laptops and tablets for caseworkers, supervisors, and managers. CTG's report was given to the Commissioner of OCFS to assist in decision making and planning for possible further deployment of these technologies. The overall assessment is scheduled to continue in 2010.

"Both the Office for Technology and UAlbany's Center for Technology in Government have come forward in the past year with well-researched and well-reasoned governance models for New York State, and I commend both bodies for their significant contributions to our understanding of how the State can improve technology policy and decision-making, resulting in improved services and financial savings. It is important that we follow the advice of both of the reports and ensure that centralization does not become command-and-control, but rather collaborate and listen. Most importantly, it is clear to me is that there is an imperative need to formalize New York's IT Governance structure."
—Assemblywoman RoAnn Destito, Chair, New York State Assembly Committee on Governmental Operations

Over 60 New York state and local government professionals attended two CTG workshops to share their insights on the value they seek in their use of social media, as well as their most pressing questions and concerns. Pictured is Moses Kamya, CIO of NYS Governor's Office of Employee Relations.

Exploring the Use of Social Media in Government

Over the last several years, the emergence of social media has offered the possibility of transforming the way government agencies communicate and cooperate not only among themselves, but also with the public. Although the potential benefits of social media use by government agencies are considerable, the number of issues connected with such use and the number of potential pitfalls are substantial as well. Agencies are looking for guidance on how to achieve a balance in their use of social media.

In 2009, CTG released a report identifying the benefits and concerns surrounding the use of social media in government. The report was based on two workshops facilitated by CTG to collect input from government professionals in NYS. In 2010, CTG will conduct interviews with professionals from different levels of government to provide practical examples of how agencies manage social media use. Based on this information, CTG will produce a guide that offers practical advice on policy and regulatory issues associated with the use of social media by government agencies, guidance on resolving some of the most pressing concerns identified, and suggestions on tools that can help agencies efficiently achieve their organizational objectives through social media.

Leveraging Technology for ARRA Reporting: A Best Practices and Knowledge Sharing Forum

CTG, with the support of Governor Paterson's Economic Recovery and Reinvestment Cabinet, initiated a series of forums for NYS agencies to share best practices on effective technology-based American Recovery and Reinvestment Act (ARRA) reporting strategies. The goal of the forums is to support the exchange of information about reporting and to leverage existing best and current practices in this area.

The federal requirements for reporting on the use of ARRA funds rely on the ability of state agencies to leverage current and new technology resources to capture, manage, and deliver the necessary data. This mandate provides an opportunity for cross-agency knowledge sharing on effective technology-based reporting and public dissemination strategies.

In 2009, CTG hosted two of these forums. The first forum included a presentation by the NYS Department of Transportation on information technology solutions developed to manage ARRA reporting leading up to first reporting deadline on October 10, 2009. At the second forum, CTG moderated two panels of representatives from a diverse cross section of six state agencies. The first panel shared their experiences from the October 10, 2009 ARRA reporting process. The second panel focused on the issues and challenges related to subrecipient reporting. CTG will host one additional forum in 2010 and then prepare a lessons learned report.

From left to right: Scott Edwards and Richard Umholtz, NYS Office of Temporary and Disability Assistance, Philip Bell, NYS Department of Transportation, and Robert Martin, NYS Division of Military and Navel Affairs participated in a panel at CTG's second ARRA forum to share lessons learned while meeting the October 2009 reporting requirement.

Mitigating Cross-Border Air Pollution

The Air Policy Forum oversees the ten-year Border 2012 program, which takes a bottom-up, regional approach and relies heavily on local input, decision making, priority setting, and project implementation to best address environmental issues in the US-Mexico border region. The program brings together a wide variety of stakeholders to prioritize sustainable actions that consider the environmental needs of the different border communities. At the request of the US and Mexican co-chairs of the Air Policy Forum, a team of researchers from CTG and California State University, Dominguez Hills developed a case study on the Joint Advisory Committee (JAC) for Air Quality Improvement in the Cuidad Juárez, Mexico/El Paso, Texas/Doña Ana County, New Mexico Air Basin.

As part of the study, the research team traveled to El Paso, Texas and La Cruces, New Mexico to meet with and interview US and Mexican members of the JAC. The resulting case study, *Mitigating Cross-Border Air Pollution: The Power of A Network*, focuses on how this collaboration between two countries, three states, multiple levels of government, and industry, government, and academic organizations was formed and able to facilitate the improvement of air quality in this particular US and Mexican border region.

Building a Sustainable International Digital Government Research Community

This project is a multi-year effort to develop a sustainable global community of digital government researchers and research sponsors funded by the National Science Foundation (NSF). It includes an international reconnaissance study, an annual research institute, and a framework for supporting three international working groups.

Working Groups

For the past three years, three international working groups have been exploring distinct areas of digital government, which are evaluating the impacts of online citizen consultation initiatives, developing a comparative and transnational digital government research agenda for North America, and developing a prototype geoinformatic hotspot surveillance system. In 2009, CTG organized a workshop of key members from all three groups to share insights and expertise on conducting international research and cultivating international research partnerships. Their insights and recommendations for similar future efforts will be part of a report to NSF and others on strategies for supporting future international research relationships.

UAlbany's President George M. Philip (center) welcomed 15 international scholars to a workshop hosted by CTG to gather key members from all three international digital government working groups to share their insights and expertise on conducting international research and cultivating international research partnerships.

iGov Research Institute

iGov brings twenty doctoral students from around the world together in a unique intensive residential program to evaluate the impact of information and communication technologies on the public sector and to understand the value of doing research in an international and multi-cultural context. In 2009, the third annual Institute was held in Seattle, WA, hosted by The Information School, University of Washington.

Students from Canada, China, Croatia, Denmark, France, India, Lithuania, the Netherlands, the Philippines, Saudi Arabia, Thailand, Turkey, and the United States attended, representing multiple academic disciplines and 14 different universities in the US, Europe, and Asia.

Throughout the week, students engaged with leading scholars in the field. Lectures and in-depth discussions

Doctoral students from around the world attended the 2009 iGov Research Institute in Seattle, WA.

covered cutting edge topical areas, methodologies, and theories, as well as relating research to practice and sharing first-hand experience in doing international research. Students interacted directly with public and private sector leaders through a series of field activities to several Seattle city and nonprofit agencies and Microsoft's headquarters.

Students also had the opportunity to present their own developing research ideas and proposals to their peers and faculty for feedback and discussion, and to participate in a small group project on an international digital government research question designed to explore ways to work in multi-disciplinary and multi-cultural research teams. These targeted activities help iGov students develop personal and professional relationships that will continue throughout their careers.

Reconnaissance Study

The reconnaissance study, initially completed in 2007, was updated in 2009. It takes a broad look at the state of international digital government (DG) research. International DG research focuses on questions, topics, and problems that are relevant beyond the borders of a single country or culture. A set of 276 English-language articles, found in 40 journals, proceedings of thirteen conferences, and the Web sites of twelve research-oriented organizations between 1994 and 2008 are categorized into six areas encompassing various elements of international research: benchmark, comparative, transnational, fundamental issue, regional, and best practice studies. The report also highlights publishing trends and research and topical patterns.

North American Digital Government Working Group

CTG is co-chair of the North American Digital Government Working Group (NADGWG), which was formed by researchers and practitioners from a variety of institutions and disciplines in Canada, the United States, and Mexico to advance electronic government research across geographic and political boundaries in the region. This group was formed with the support of the National Science Foundation Digital Government Research Program and the home institutions of the members.

Together, the group is producing a series of deliverables for academics and practitioners as they work to enhance capability within multi-jurisdictional policy domains. The working group members are developing a transnational research agenda targeted at questions about intergovernmental digital government initiatives in North America. The diversity present in the three North American countries enables the group to develop lessons not only for the region, but also for developing and developed countries facing similar policy issues around the world.

Members of the North American Digital Government Working Group (NADGWG) met in Washington, DC to continue their work on the development of a comparative transnational research agenda.

NADGWG also includes two subgroups. The Border Region subgroup is examining the issues and challenges facing government organizations in the border regions of North America in terms of information sharing and interoperability. The Full Information Product Pricing (FIPP) project aims to develop positive incentives for companies to produce worker and environment friendly products in the NAFTA region.

Modeling Interorganizational Information Integration

Integrating and sharing information in multi-organizational government settings involves complex interactions within social and technological contexts. Since 2002, through a multi-year NSF grant, CTG has been developing and testing dynamic models of information integration in these settings. The research has concentrated on integration activities in two critical policy areas—justice and public health—that include a wide range of information sharing functions across all three levels of government.

In 2009, CTG completed the final data collection phase of the project and released a report summarizing the results of a national survey of cross-boundary information (CBI) sharing in the public sector. The model on which the survey is based is a new theoretical representation of the individual and organization-level factors that influence interorganizational relationships and organizational change. That model was developed through rigorous qualitative analysis of eight cases of government cross-boundary information sharing using grounded theory techniques. The resulting integrative model shows how a diversity of factors interact and influence the

success of cross-boundary information sharing efforts.

The national survey involved over 700 government professionals from criminal justice and public health agencies at the local and state levels from across the 50 states. The survey data provide for examining how a consistent set of factors interact to influence CBI initiatives. These results provide practitioners from around the world with important knowledge about how to increase government's performance, accountability, and transparency. CTG will continue to analyze project data to test the weight of each of the factors as compared to their overall influence, and making further results available in both academic and practitioner publications.

Analyzing the University at Albany's Human Resource Processes

CTG worked with the University at Albany's Division of Finance and Business to help them better understand the core processes and information flow among the departments of Financial Management and Budget, Human Resources Management (including Payroll and Benefits), and the Office of Diversity and Affirmative Action.

Through a series of facilitated workshops, individual interviews, and document analysis, CTG developed a set of process models defining the University's appointment process and set forth recommendations to move to a more automated workflow. The value added from this work was a detailed enterprise information flow for the University's critical human resource processes. This analysis was a critical first step in understanding the current human resources environment before strategic and tactical investments are made.

Meghan Cook, program manager, facilitating a group exercise on core processes and information flow with UAlbany departments of Financial Management and Budget, Human Resources Management and the Office of Diversity and Affirmative Action.

Transferring Innovation

Transferring formalized knowledge and developing practical tools is a primary focus of CTG. CTG's Advanced Web Technologies (AWT) program has transferred the results of our XML research and development into a training curriculum delivered by a commercial partner.

In 2009, CTG completed the first full year of its technology transfer program with very positive results. The current program is a licensure training partnership with MicroKnowledge, which has enabled the training of IT professionals from government and the private sector on the use of XML for Web site management. The program reached a broad audience and increased the knowledge and application of its tools to practical users. Due to the success of these classes, in 2010 CTG will continue its partnership with MicroKnowledge to deliver a more advanced class on using XML databases.

TRAINING ON XML DATABASES AND XQUERY

In late summer of 2010, CTG, in collaboration with its training partner, MicroKnowledge, Inc., will be offering an introductory class on *XML Databases and XQuery* as part of its ongoing Advanced Web Technologies program.

This course is both a conceptual and hands-on class that explains XML databases, how they differ from relational databases, and when to consider using XML databases along with examples and exercises for making connections to XML databases and using XQuery.

This class is the second in a series of XML-related trainings and a follow-up to the well-received *Using XML for Web Site Management* class that has been offered on a regular basis since 2009.

For details and announcements of class listings, visit the CTG Web Site at http://www.ctg.albany.edu and the MicroKnowledge site at http://www.microknowledge.com.

Providing Thought Leadership

The people at CTG are recognized authorities on digital government and frequently invited to participate in local, national, and international academic and professional conferences and workshops. Our expert analysis is based on original research and partnerships with government agencies that contributes innovative ideas to the global conversation on digital government. CTG has taken a leading role in building a community of practice for researchers and managers to advance knowledge about information technology innovation in government. We are also actively involved in panels and advisory boards at all levels of government and around the world to explore and advise on key issues related to digital government.

CONFERENCES

International

3rd International Conference on Theory and Practice of Electronic Governance (ICEGOV2009)
Bogotá, Colombia

42nd Hawaii International Conference on System Sciences (HICSS42)
Big Island, Hawaii

5th International Conference on e-Government (ICEG 2009)
Boston, Massachusetts

5th Ministerial eGovernment Conference
Malmo, Sweden

8th International Conference on Electronic Government/ DEXA
Linz, Austria

Academy of Management Annual Meeting
Chicago, Illinois

International Council for Information Technology in Government Administration (ICA)
Brussels, Belgium

National New Professionals Conference
Institute of Public Administration of Canada (IPAC)
Halifax, Canada

World Congress on Privacy, Security, Trust and Management of eBusiness
New Brunswick, Canada

National

GIS 3.0: Geospatial Intelligence, Social Data, and the Future of Public Health Preparedness and Response
National Center for Disaster Preparedness, Columbia University
New York, New York

New York State

Digital Towpath Annual Meeting
Utica, New York

E-Foil 2009: Issues of Access in the Digital Age
Albany Law School, Institute of Legal Studies
Albany, New York

GTC East: New York Digital Government Summit
Albany, New York

3RD INTERNATIONAL CONFERENCE ON THEORY AND PRACTICE OF ELECTRONIC GOVERNANCE (ICEGOV2009)

Bogotá, Colombia

ICEGOV is an international forum for practitioners, developers, and researchers from government, academia, industry, and non-governmental organizations. The goal of ICEGOV is to share the latest findings in the theory and practice of electronic governance from a multi-disciplinary, multi-stakeholder, and community-oriented approach. Theresa Pardo (pictured above), director, served on the Advisory Board and conducted a workshop. Sharon Dawes, senior fellow, sat on the Awards Committee and led a tutorial session. In addition, a CTG-authored paper, *Public Sector IT Governance: From Frameworks to Action*, was presented by Anna Raup-Kounvosky, program staff assistant.

NYS Local Government IT Directors Association Fall Conference
Syracuse, New York

WORKSHOPS/SEMINARS/ FORUMS

eGovernment Forum
China National School of Administration
Beijing, China

Research Translation Workshop
National Institute of Environmental Health Sciences Superfund Basic Research Program (SBRP)
Center for International Earth Science Information Network (CIESIN)
Columbia University
New York, New York

Social Media and Government: Sharing Cutting-Edge Practice and Research
Digital Government Society of North America & US General Services Administration
Washington, DC

Framing a Public Management Research Agenda: Examining the Obama Administration

SOCIAL MEDIA AND GOVERNMENT: SHARING CUTTING-EDGE PRACTICE AND RESEARCH

Digital Government Society of North America & US General Services Administration Washington, DC

As a board member of the Digital Government Society of North America, Theresa Pardo was one of the organizing team chairs of *Social Media and Government: Sharing Cutting-Edge Practice and Research* held in Washington, DC. The event was co-hosted by the United States General Services Administration (GSA) and attended by researchers and federal government practitioners who engaged in discussions surrounding the use of social media in the public sector. Anthony Cresswell, deputy director, presented CTG's current research in the area of citizen participation.

Kay Morrison, senior advisor to the director of Web communications in the Environmental Protection Agency Office of Public Affairs, shared how the EPA has used various forms of social media as part of its overall community outreach programs.

Themes for a High-Performing Government
IBM Center for the Business of Government
Washington, DC

Transformative Government Training Seminar
New York State Chapter International City/County Management Association (ICMA)
Albany, New York

Sixteenth Regular Session of the Commission for Environmental Cooperation (CEC) of North America
Joint Public Advisory Committee (JPAC)
Denver, Colorado

Standards Interoperability and Government Technology Frameworks Workshop
Microsoft Corporation
New York, New York

Developing the CIO Council 2010 Strategic Roadmap
New York State CIO Council
Albany, New York

Annual Strategic Meeting
The NYS Forum
Albany, New York

Seventh Annual Meeting of the Air Policy Forum US-Mexico Border 2012 Program
US Environmental Protection Agency
Monterrey, Mexico

Border 2012 Air Policy Forum
US Environmental Protection Agency
San Diego, California

IT Week 2009
US Government Accountability Office (GAO)
Washington, DC

Data Centric Workflow Workshop
US National Science Foundation
Arlington, Virginia

United Nations Department of Economic and Social Affairs (UNDESA) Expert Group Meeting
World Summit on the Information Society Forum 2009
Geneva, Switzerland

Harmonious Cities Working Session
United Nations
New York, New York

STUDY PANELS, ADVISORY COMMITTEES, AND WORKING GROUPS

Committee on Electronic Rulemaking
American Bar Association

Advisory Board
Data Center for Applied Research in Social Sciences (BIIACS)
Centro de Investigación y Docencia Económicas, A.C. (CIDE)

Senior Overseas Advisors
China State Information Center

Nominations and Election Committee
European eGovernment Society

Advisory Committee
Government Technology Conference (GTC East)

Advisory Panel
Your Voice Matters: A Dialog on USA.gov
National Academy of Public Administration

Advisory Committee on Electronic Records Archive
National Archives and Records Administration

Government Performance and Results Act Advisory Committee
National Science Foundation

Proposal Review Panel on Information Security
National Science Foundation

Strategic Alliance Action Team
New York State CIO Council

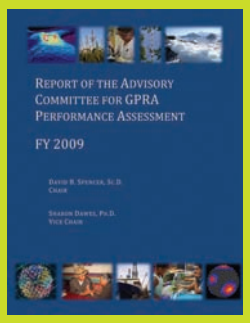
Enterprise Architecture Action Team
New York State CIO Council

Academic Advisory Group
New York State Commission on Local Government Efficiency and Competitiveness

Task Force
New York State Electronic Records Committee

GOVERNMENT PERFORMANCE AND RESULTS ACT ADVISORY COMMITTEE

National Science Foundation



Sharon Dawes, senior fellow, served as vice chair of the National Science Foundation (NSF) Advisory Committee on Government Performance Assessment (AC/GPA). She led a Future Assessment Task Group that explored a holistic, long-term view of the value of NSF investments in science and engineering research and education. Based on the Task Group findings, the AC/GPA recommended that NSF consider multiple assessment methods and time frames, as well as assessment partnerships with the scientific community and ways to incorporate assessment into its organizational and program infrastructure. The full 2009 committee report is available at http://www.nsf.gov/publications/pub_summ.jsp?ods_key=nsf09068.

Project Management Steering Committee
The NYS Forum

Small/Medium/Local Government Agency Special Interest Group
The NYS Forum

Local Government Committee
New York State Office of Cyber Security and Critical Infrastructure Coordination

Academic Advisory Committee
Financial Markets Regulation Program

Advisory Group
National Center for Security and Preparedness

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University Selective Investment Committee
University at Albany, State University of New York

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University of Michigan

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United Nations University

Executive IT Management Advisory Committee
U.S. Government Accountability Office (GAO)

ELECTED POSITIONS

Board Members
Digital Government Society of North America

Corporate Board
The NYS Forum

Government Co-Chair
IT Skills Development Work Group
The NYS Forum

Government Co-Chair
Webmasters' Guild
The NYS Forum

EDITORIAL BOARDS

Government Information Quarterly (GIQ)

IGI Editorial Board: Interoperability Book

International Journal of Electronic Governance (IJEG)

International Journal of Social and Organizational Dynamics in Information Technology (IJSODIT)

Information and Communication Technologies for Human Development

Journal of Information Technology and Politics

Transforming Government: People, Policies and Practices

CONFERENCE LEADERSHIP

Program Committee and Sponsorship Chair
10th International Conference on Digital Government Research (dg.o2009)
Digital Government Society of North America
Puebla, Mexico

Advisory, Program, and Awards Committees
3rd International Conference on Theory and Practice of Electronic Governance (ICEGOV2009)
Bogotá, Columbia

Mini-Track Co-Chairs
- Emerging Topics in E-Government
- E-Government Organization and Management

42nd Hawaii International Conference on System Sciences (HICSS)
Big Island, Hawaii

E-Government Theme Program Committee
World Congress on Privacy, Security, Trust and Management of eBusiness
New Brunswick, Canada

Digital Government Scholarship

CTG SCHOLARS RECOGNIZED AS RANKING MEMBERS OF THE DIGITAL GOVERNMENT COMMUNITY

In a 2009 journal article, Theresa Pardo, Anthony Cresswell, Sharon Dawes, and J. Ramon Gil Garcia were ranked in the top ten of scholars in the field of digital government. The area of digital government research is a relatively young field compared to other well established disciplines. Yet according to the article, approximately 300 peer-reviewed articles have been produced per year since 2004. The paper's author is Hans J. (Jochen) Scholl, associate professor, Information Science, University of Washington.

Scholl's article, *Profiling the EG Research Community and Its Core*, identifies eight CTG researchers and alumni as part of a 50-strong core of an international research community of approximately 800 researchers. Among the top ten are Pardo (#2), Cresswell (#7), Dawes (#5), Gil-Garcia (#1), and Scholl (#3). Both Gil-Garcia and Scholl are former CTG graduate assistants. Gil-Garcia stayed on at CTG as a post-doctoral fellow from 2005-2007 and continues his affiliation as a research fellow from his current position as an assistant professor in the Division of Public Administration at Centro de Investigación y Docencia Económicas (CIDE) in Mexico City. In addition, Luis Luna-Reyes (also a former CTG graduate assistant), Enrico Ferro (a 2005 visiting scholar to CTG from Italy), and CTG program associate Natalie Helbig are listed in the top 50.

PhDs EARNED IN 2009

CTG congratulates four of its own for receiving their PhDs in 2009. Three graduate assistants and one full time staff member were awarded their PhDs from the University at Albany/SUNY. CTG's engaged research with government provided these students with unique access and a rich repository of data. They built their study designs on existing CTG projects and then extended the research to produce increased value to the government sponsors and contribute to overall Center research productivity.

Bahadir Akcam, PhD in Information Science

Dissertation title: *Socio-Technical Processes in Interorganizational Emergency Response and Recovery Process at the World Trade Center*

Bahadir's research explores the socio-technical processes in interorganizational collaboration in responses to the World Trade Center attacks by extending and elaborating a generic dynamic theory. The research analyzes the interview data collected by CTG in 29 interviews of responders during the response and recovery process following the attacks on September 11, 2001. The interview analysis explored interagency collaboration in the response to the attacks in the context of information, technology, and coordination. The findings suggest that prior social relations and accumulation of social capital were critically important and that emergency conditions affected the ways in which social accumulation changed overtime.

Bahadir is now an assistant professor in the School of Business of Western New England College in Springfield, Massachusetts, where he is teaching business information systems courses.

Natalie Helbig, PhD in Public Administration and Policy

Dissertation title: *Thinking Beyond Performance Indictors: A Holistic Study of Organizational Information Use*

Recipient of Distinguished Doctoral Dissertation Award

Governments around the world have adopted performance-related activities, primarily focused on the development and use of performance measurement as a major way to achieve service delivery improvement. Natalie's dissertation develops a model of the use of organizational performance information to improve service delivery. While measuring performance remains problematic in government organizations, the real value of performance measurement and performance indicators appears to be the discussions enabled by the use of performance information to address questions about performance in general, including what produces, complicates, or limits performance.

Natalie has been a program associate at CTG since 2006, working on a range of projects including the use of mobile technologies in government, information as a public resource, and an IT workforce study for New York State. She will continue to work at CTG in addition to teaching courses as an adjunct professor in Public Administration at Rockefeller College of Public Administration and Policy.

Fawzi Mulki, PhD in Informatics, College of Computing and Information

Dissertation title: *The Effects of Leadership and Authority on Cross-Boundary Information Sharing in Response to Public Health Crises: A Comparative Study between the United States and Jordan*

Regardless of national context, cross-boundary information sharing is inevitably entangled with issues of jurisdiction, leadership, and authority. Fawzi's study adds an international context to existing research by answering the question: "to what extent do officials in the United States and Jordan share key leadership characteristics and how are officials' uses of authority similar or different?" While the study revealed similarities with respect to bureaucratic structures and the existence of charismatic traits, the leadership styles and focus exhibited by Jordanian and American officials were significantly different.

Fawzi returned to Jordan where he is project manager at the Ministry of Information and Communications Technology.

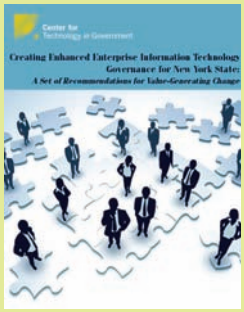
Lei Zheng, PhD in Public Administration and Policy

Dissertation title: *Leadership Behaviors in Cross-Boundary Information Sharing and Integration: Comparing the US and China*

Cultural values can affect and interact with leader traits, power, behaviors, interventions, and success criteria both indirectly and indirectly to explain key differences between leadership in different countries. Lei's dissertation comprises a comparative analysis between the US and China regarding public sector leadership behaviors in the context of cross-boundary information sharing and integration. The study expands the concepts and understanding of boundaries to include a variety of vertical and horizontal factors such as level of development. It also describes how interactions among boundary factors contribute to situational complexity and associated leadership challenges.

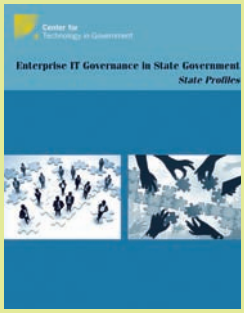
Lei returned to his native China as assistant professor at the Department of Public Administration, School of International Relations and Public Affairs, Fudan University, in Shanghai. He continues to collaborate with CTG as a partner on two projects: Understanding Transnational Public Sector Knowledge Networks and the North American Digital Government Working Group.

Reports



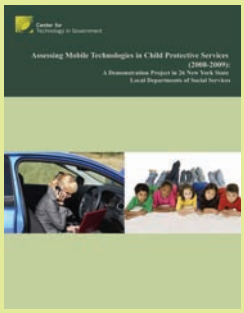
Creating Enhanced Enterprise Information Technology Governance for New York State: A Set of Recommendations for Value-Generating Change

This report outlines five recommendations for change developed through a collaborative, consensus-driven process conducted by CTG on behalf of the NYS CIO community. The recommendations are targeted at building new capability for enterprise information technology investment decision making for NYS. They lay out a structure for four entities to form the foundation for enhanced IT governance, along with creating new clarity about the relationships among these entities.



Enterprise IT Governance in State Government: State Profiles

This report reviews the enterprise IT governance arrangements in thirteen states (California, Florida, Georgia, Kansas, Kentucky, Maine, Michigan, Minnesota, New York, North Carolina, Pennsylvania, Texas, and Virginia). The states represent a diverse set of approaches and provide a broad picture of state enterprise IT governance strategies in the United States.

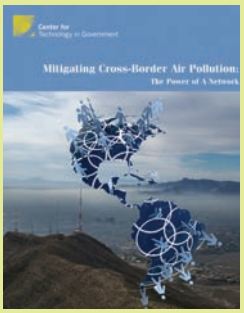


Assessing Mobile Technologies in Child Protective Services (2008-2009): A Demonstration Project in 26 New York State Local Departments of Social Service

This report presents an efficiency assessment of a collaborative effort among the NYS Office of Children and Family Services (OCFS) and county Departments of Social Services to deploy mobile technologies to twenty-six NYS local social service districts for child protective services (CPS) in January 2009. Over 500 mobile devices were deployed to CPS caseworkers, supervisors, and managers. This assessment solely addresses measures of productivity and efficiency, and is one of five produced by CTG over the course of a multi-year initiative to assess the use of mobile technologies in CPS work in NYS as mandated by the NYS Legislature.

Exploratory Social Media Project Phase I: Identifying Benefits and Concerns Surrounding Use of Social Media in Government

This report summarizes results from two workshops held with government professionals from NYS to collect information on the value agencies seek in their current or future use of social media, as well as their most pressing questions and concerns regarding that use. The report summarizes the workshop results, with complete results provided in three appendices, and concludes with a section outlining the next steps in the project.

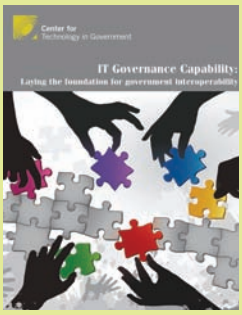


Mitigating Cross-Border Air Pollution: The Power of a Network

This report describes how a diverse mix of individuals and organizations representing two countries, three states, multiple levels of government, private industry, academia, and the public were able to successfully collaborate to improve air quality along the US and Mexican border. The focal point of this study is the Joint Advisory Committee for the Improvement of Air Quality in the Ciudad Juárez, Mexico/El Paso, Texas/Doña Ana County, New Mexico Air Basin.

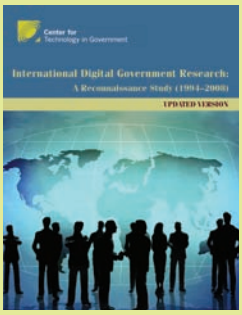
Factors Influencing Government Cross-Boundary Information Sharing: Preliminary Analysis of a National Survey

This report summarizes the results of a national survey of cross-boundary information (CBI) sharing in the public sector conducted by CTG. The study, supported by a grant from the National Science Foundation, was designed to increase understanding about information integration and sharing within and across boundaries of organizations. The identification of a consistent set of factors and the understanding of how they interact to influence CBI initiatives will provide practitioners from around the world with important knowledge necessary to increase government performance, accountability, and transparency.



IT Governance Capability: Laying the Foundation for Government Interoperability

This report is the third in a series focused on helping governments worldwide develop the capabilities necessary for improving interoperability. CTG's research has found that engaging in coordinated action across the boundaries of organizations to create interoperability requires new models of decision making, knowledge sharing, and resource allocation; in essence, new governance capability. The report draws on CTG's comparative case study of IT governance to illustrate that, although effective governance structures include a consistent set of elements or capabilities, a wide range of context specific issues must also be considered in the governance design, development, and implementation processes.



International Digital Government Research: A Reconnaissance Study (1994-2008)—UPDATED

The reconnaissance study, initially completed in 2007, was updated in 2009. It takes a broad look at the state of international digital government research. A set of 276 English-language articles, found in 40 journals, proceedings of thirteen conferences, and the Web sites of twelve research-oriented organizations between 1994 and 2008 are categorized into six areas encompassing various elements of international research: benchmark, comparative, transnational, fundamental issue, regional, and best practice studies. The report also highlights publishing trends and research and topical patterns.

ReFORMing the University at Albany's Human Resource Processes: Moving Toward An Automated Workflow

This report examines the core processes and information flow among the University at Albany's human resource processes within the departments of Financial Management and Budget, Human Resources Management (including Payroll and Benefits), and the Office of Diversity and Affirmative Action. CTG developed a set of process models defining the University's appointment process and set forth recommendations to move to a more automated workflow.

Scholarly Publications

BOOKS AND BOOK CHAPTERS

Overcoming Digital Divides: Constructing and Equitable and Competitive Information Society

F. Enrico, Y.K. Dwivedi, J.R. Gil-Garcia and M. D. Williams (Eds). Hershey, PA: IGI Global.

Information Sharing and Public Health: A Case-Based Look at the ICT Expectations-Reality Gap

T.A. Pardo, J.R. Gil-Garcia, and G.B. Burke. In A. Meijer, K. Boersma & P. Wagenaar (Eds). *ICTs, Citizens & Governance: After the Hype!* Amsterdam, The Netherlands: IOS Press.

Executive Involvement and Formal Authority in Government Information-Sharing Networks: The West Nile Virus Outbreak

J.R. Gil-Garcia, T.A. Pardo, and G.B. Burke. In J.A. Raffel, P. Leisink & A. Middlebrooks (Eds). *Public Sector Leadership: International Challenges and Perspectives.* Edward Elgar Publishing Ltd.

Fostering the Information Society through Collaborative E-Government: Digital Community Centers and the E-Learning Program in Mexico

J.R. Gil-García, and L.F. Luna-Reyes. In A. Meijer, K. Boersma and P. Wagenaar (Eds). *ICTs, Citizens & Governance: After the Hype!* Amsterdam: IOS Press Series 'Innovation and the Public Sector'.

JOURNAL ARTICLES

Governance in the Digital Age: A Research and Action Framework for an Uncertain Future

SS. Dawes. *Government Information Quarterly*, 26(2): 257-264.

From "Need to Know" to "Need to Share": Tangled Problems, Information Boundaries, and the Building of Public Sector Knowledge Networks

S.S. Dawes, A.M. Cresswell, and T.A. Pardo. *Public Administration Review*, 69(3): 392-402.

Regional Telecommunication Incident Coordination: Sharing Information for Rapid Response

D.S. Canestraro, T.A. Pardo, A.N. Raup-Kounovsky, and D. Taratus. *Information Polity: The International Journal of Government & Democracy in the Information Age*, 14(1/2): 113-126.

Interorganizational Collaboration and Community-building for the Preservation of State Government Digital Information: Lessons from NDIIPP State Partnership Initiative

H. Kwon, T.A. Pardo, and G.B. Burke. *Government Information Quarterly*, 26(1): 186-192

Understanding the Complexity of Electronic Government: Implications from the Digital Divide Literature

N. Helbig, J.R. Gil-García, and E. Ferro. *Government Information Quarterly,* 26(1): 89-97.

Towards a Model of the Determinants of Success of the Portals of State Government in Mexico

L.F. Luna-Reyes, J.M. Hernandez, and J.R. Gil-García. *Gestión y Política Pública,* XVIII(2): 307-340.

JOURNAL SPECIAL ISSUES

Government Information Sharing and Integration: Combining the Social and the Technical

J.R. Gil-García, S.A. Chun, and M. Janssen (Eds). *Information Polity,* 14(1/2): 1-10 (Introduction).

Building the Next Generation of Digital Government Infrastructures

M. Janssen, S.A. Chun and J.R. Gil-García (Eds). *Government Information Quarterly*, 26(2): 233-237 (Introduction).

CONFERENCE PAPERS

Clarity of Roles and Responsibilities in Government Cross-Boundary Information Sharing Initiatives: Identifying the Determinants

T.A Pardo, G.B. Burke, J.R. Gil-Garcia, and A. Guler. In M. Lavin (Ed). *Proceedings of 5th International Conference on e-Government:* 148-155. Reading, UK: Academic Publishing Limited.

Enterprise IT Governance at the State Level: An Emerging Picture

N. Helbig, J. Hrdinová, and D.S. Canestraro. *Proceedings of the 10th Annual International Conference on Digital Government Research (dg.o 2009)*: 172-179. [ACM International Conference Proceeding Series; Vol. 390.]

Leadership Behavior in Cross-boundary Information Sharing and Integration: Comparing the US and China

L. Zheng, S. Dawes, and T.A. Pardo. *Proceedings of the 3rd International Conference on Theory and Practice of Electronic Governance (ICEGOV2009)*. Bogotá, Colombia.

Issues and Strategies for Conducting Cross-National e-Government Comparative Research

M.A. Gharawi, T.A. Pardo, and S. Guerrero. *Proceedings of the 3rd International Conference on Theory and Practice of Electronic Governance (ICEGOV2009)*. Bogotá, Colombia.

Information Sharing at National Borders: Extending the Utility of Border Theory

T.A. Pardo, C.A. Navarrete, S. Mellouli, and J.R. Gil-Garcia. *Proceedings of the 42nd Hawaiian International Conference on System Sciences (HICSS-42)*: 1-10. Los Alamitos, CA: IEEE Computer Society.

Conducting Web-Based Surveys of Government Practitioners in Social Sciences: Practical Lessons for E-Government Researchers

J.R. Gil-Garcia, S. Berg, G.B. Burke, and A. Guler. *Proceedings of the 42nd Hawaiian International Conference on System Sciences (HICSS-42)*: 1-10. Los Alamitos, CA: IEEE Computer Society.

Understanding the "Boundary" in Information Sharing and Integration

L. Zheng, T.M. Yang, T.A. Pardo, and Y. Jiang. *Proceedings of the 42nd Hawaiian International Conference on System Sciences (HICSS-42)*: 1-10. Los Alamitos, CA: IEEE Computer Society. [Winner of the Best Paper Award for the Egovernment track.]

Longitudinal Analysis of the Effects of IT Characteristics on Web Site Rankings Across State Governments in the US (2001-2006)

G. Puron Cid, J.R. Gil-Garica, and T.A. Pardo. *Proceedings of the 42nd Hawaiian International Conference on System Sciences (HICSS-42)*: 1-10. Los Alamitos, CA: IEEE Computer Society.

E-Government and Participation in the Mexican State Portals

F. González and J.R. Gil-García. *Proceedings of 8th International Conference on Electronic Government, DEXA*. Linz, Austria.

Implementation of E-government in Mexico: An Analysis of the Factors Underlying INFONAVIT'S Strategy of Alternative Service Delivery Channels (ASDC)

L. Herrera and J.R. Gil-García. *Proceedings of 8th International Conference on Electronic Government, DEXA.* Linz, Austria.

A Preliminary Assessment of a State Legislature Web Site in Mexico

R. Sandoval-Almazan and J.R. Gil-García. *Proceedings of 8th International Conference on Electronic Government, DEXA.* Linz, Austria.

Using Institutional Theory and Dynamic Simulation to Understand Complex E-Government Phenomena

L. F. Luna-Reyes and J.R. Gil-García. *Proceedings of 27th International Conference of the System Dynamics Society*. Albuquerque, New Mexico.

Modelo Multi-Dimensional de Medición del Gobierno Electrónico (Multi-Dimensional Model for Electronic Government Measurement)

L.F. Luna-Reyes, J.R. Gil-García, and G. Romero. *Proceedings of 10th Annual International Conference on Digital Government Research*: 123-133. [ACM International Conference Proceeding Series; Vol. 390.]

The Constitutive Role of Roadmaps and Timelines in Joint Project Development

S. Güney and J. Taylor. *Proceedings of the Annual Meeting of the Academy of Management*. Chicago, Illinois.

CONFERENCE POSTERS

Public Sector IT Governance: From Frameworks to Action

A. Raup-Kounovsky, J. Hrdinová, D.S. Canestraro, and T.A. Pardo. Poster presented at the 3rd International Conference on Theory and Practice of Electronic Governance (ICEGOV2009), Bogotá, Colombia.

Research Group on Digital Government in North America: Developing a Comparative and Transnational Agenda

J.R. Gil-Garcia, L.F. Luna Reyes, S. Mellouli, C. Navarrette, T.A. Pardo, and J. Zhang. Poster in the *Proceedings of the 10th International Digital Government Research Conference* (dg.o 2009).

Integration and Interoperation at the Border States in North America: A Status Report

J.R. Gil-Garcia, S. Mellouli, C. Navarrete, H.J. Scholl, T.A. Pardo, A.M. Cresswell, and J. Zhang. Poster in the *Proceedings of the 10th International Digital Government Research Conference* (dg.o 2009).

Partners

BUILDING ON STRONG FOUNDATIONS AND THE GENEROSITY OF OUR PARTNERS

CTG projects depend on active and ongoing partnerships with government agencies, technology companies, and members of the academic community. We are grateful to the following organizations who partnered with us in 2009:

Government

Broome County, New York State
Hugh L. Carey Battery Park City Authority
Mexico City, Mexico
New York City Department of Information Technology and Telecommunications
New York State Assembly
New York State Board of Elections
New York State Cyber Security & Critical Infrastructure
New York State Department of Agriculture and Markets
New York State Department of Civil Service
New York State Department of Correctional Services
New York State Department of Environmental Conservation
New York State Department of Health
New York State Department of Labor
New York State Department of Motor Vehicles
New York State Department of State
New York State Department of Transportation
New York State Division of the Budget
New York State Division of Criminal Justice Services
New York State Division of Military and Naval Affairs
New York State Division of Parole
New York State Division of Probation & Correctional Alternatives
New York State Division of State Police
New York State Dormitory Authority
New York State Economic Recovery and Reinvestment Cabinet
New York State Education Department
New York State Energy Research and Development Authority
New York State Governor's Office of Employee Relations
New York State Governor's Office of Regulatory Reform
New York State Insurance Department
New York State Metropolitan Transit Authority
New York State Office for the Aging
New York State Office of Alcohol & Substance Abuse Services
New York State Office of Children and Family Services
New York State Office of General Services
New York State Office of Homeland Security

CTG has a strong history of working with New York State's Chief Information Officer community. Pictured: Nancy Mulholland, CIO, NYS Department of Transportation.

New York State Office of the Medicaid Inspector General
New York State Office of Mental Health
New York State Office of Parks, Recreation and Historic Preservation
New York State Office of the State Chief Information Officer and the Office for Technology
New York State Office of the State Comptroller
New York State Office of Temporary and Disability Assistance
New York State Thruway Authority
New York State Workers' Compensation Board
Onondaga County, New York State
Ontario County, New York State
Schoharie County, New York State
The NYS Forum
Washington County, New York State
Westchester County, New York State
US Environmental Protection Agency
US National Science Foundation

Corporate

MicroKnowledge, Inc.
Microsoft Corporation

Universities, Centers, and Institutes

California State University Dominguez Hills
Centro de Investigacion y Docencia Economicas (CIDE), Mexico

Centre Francophone d'informatisation des Organizations, Canada
China National School of Administration, Beijing, China
Claremont Graduate University, US
Clark University, US
Dalhousie University, Canada
Fudan University, Shanghai, China
Instituto Tecnologico y de Estudios Superiores de Monterrey, Mexico
National Chengchi University, Taiwan
Taiwan Governance and Technology Center, Taiwan
United Nations University-International Institute for Software Technology
Universidad de las Americas, Mexico
Université de Laval, Canada
Université de Sherbrooke, Canada
University of Bremen, Germany
University of Massachusetts Amherst, US
University of Salford, Manchester, United Kingdom
University of Washington, US

Nonprofit Associations

National Association of State Chief Information Officers (NASCIO)

A full list of all the partners CTG has worked with over the past 15 years can be found on our Web site at www.ctg.albany.edu/about.

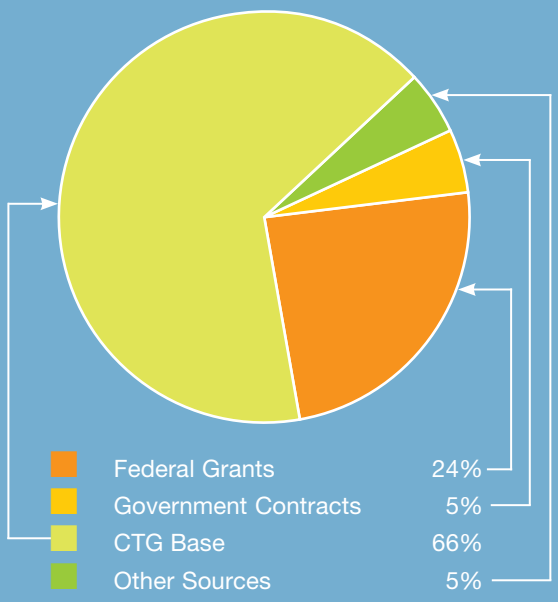
Financial Portfolio

In 2009 CTG maintained its strong record of attracting a diverse mix of funding and other resources. Our funding portfolio continues to provide opportunities to bring together researchers, practitioners, and students from New York State, the US, and around the world.

A solid history of support from the National Science Foundation was evident through CTG's continued work on multi-year projects, including: modeling interorganizational information integration and building a sustainable international digital government research community. In addition, CTG also received NSF funding to work on three new projects with the bulk of work to occur in 2010-11. These projects are 1) understanding transnational public sector knowledge networks, 2) working with leading researchers and practitioners to lay out a grand challenges research agenda on information, technology, and governance, and 3) working with the US General Services Administration on developing a citizen services evaluation framework.

In addition, CTG continued work with a number of NYS agencies. We received funding from the NYS Office of Children and Family Services as part of a multi-phase, multi-year project to assess the use of mobile technologies in child protective service. CTG also used its base funding to work on three separate projects 1) developing recommendations for a statewide information technology governance framework 2) developing guides to inform the use of social media tools in government, and 3) hosting a series of knowledge sharing workshops for state agencies on reporting requirements for the American Reinvestment and Recovery Act.

Overall, CTG's financial portfolio consisted of 24% federal grants, 5% government contracts, 66% base funding, and 5% other resources.



Staff

Director

Theresa Pardo

Professional Staff

G. Brian Burke, Senior Program Associate
Anthony Cresswell, Interim Director/Deputy Director
Donna Canestraro, Program Manager
Meghan Cook, Program Manager
James Costello, Web Application Developer
Sharon Dawes, Senior Fellow
Patti DiMuria, Administrative Assistant
Alison Heaphy, Communication Manager
Natalie Helbig, Program Associate
Jana Hrdinova, Program Associate
Jane Krumm-Schwan, Director of Administration and Outreach
Gloria Lisowski, Administrative Assistant
Anna Raup-Kounovsky, Program Staff Assistant
Paula Rickert, Administrative Coordinator
Evgeny Styrin, Visiting Scholar
Derek Werthmuller, Director of Technology Services
Lin Zhu, Visiting Scholar

Faculty and Research Fellows

David Andersen, Public Administration and Policy and Information Science, UAlbany
Ophelia Eglene, Middlebury College
J. Ramon Gil-Garcia, Division of Public Administration, CIDE, Mexico
Senem Güney, College of Computing and Information, UAlbany
Teresa Harrison, Communication, UAlbany
Jing Zhang, Clark University
George Richardson, Public Administration and Policy and Information Science, UAlbany
Giri Tayi, Management Science and Information Systems, UAlbany

Graduate Assistants

Bahadir Akcam, Information Science
Tuuli Edwards, Public Administration and Policy
Mohammed Gharawi, Information Science
Ahmet Guler, Public Administration and Policy
Akram Mohammed, Computer Science
Fawzi Mulki, Information Science
Taewoo Nam, Public Administration and Policy
Lei Zheng, Public Administration and Policy

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Executive Director
The NYS Forum

JoAnn Bomeisl
Director of Application Services
NYS Office of Mental Retardation and Developmental Disabilities

William Johnson
Assistant Deputy Director and Chief Information Officer
NYS Office of Cyber Security and Critical Infrastructure Coordination

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