# Information and Transparency:
# Learning from Recovery Act Reporting Experiences

Natalie Helbig, Evgeny Styrin, Donna Canestraro, and Theresa Pardo

Center for Technology in Government
University at Albany/SUNY

{nhelbig, estyrin, dcanestr, tpardo}@ctg.albany.edu

## ABSTRACT

The American Recovery and Reinvestment Act (2009) promised strict accounting of all funds spent and the publication of that information to the public in relative real-time. The federal requirements for reporting Recovery Act funds relied heavily on the ability of recipients, primarily state governments, to capture, manage, and deliver the data required. This paper presents the experience of one state agency, in particular how they leveraged the reporting mandate to improve real-time informational capability for transparency and openness. The case, together with insights from a Recovery Act Knowledge Network, provides five recommendations to guide decision makers who seek to increase the capability of government to use information to further transparency agendas.

## Categories and Subject Descriptors

K.4.1 [COMPUTERS AND SOCIETY]: Public Policy Issues

## General Terms

Management, Public Administration

## Keywords

Government Information Policy, Transparency, Capability, E-governance, Information sharing

## 1. INTRODUCTION

The U.S. government passed the American Recovery and Reinvestment Act in February 2009 (Recovery Act). In addition to its primary goal of distributing billions of dollars to stimulate the economy, the Recovery Act promised a strict accounting of all funds spent and the publication of that information to the public. The three main goals of the Recovery Act as stated on the White House Recovery Web site are to: 1) create new jobs as well as save existing ones; 2) spur economic activity and invest in long-term economic growth; and 3) foster unprecedented levels of accountability and transparency in government spending [10].

The level of information collection and reporting mandated by the Recovery Act is not unprecedented; the federal government has requested various types of information from agencies receiving federal money for decades. However, what is novel

about the Recovery Act is 1) the coordination of information collection from multiple levels of government and across multiple programmatic areas, 2) the creation of a federal-level, government-wide central data repository, corresponding standards, and processes for both data capture and dissemination, and 3) the speed at which information on financials and performance metrics was collected and made available to the public. The challenge to make government more transparent through real-time, comprehensive, information about government activities is a laudable goal, but it remains wed to the equally great challenges of collecting, sharing, and using information.

This paper describes the processes, data, and technologies used and created to execute recipient reporting across levels of government. In particular, we present a case example of one state agency and their efforts to leverage Recovery Act reporting requirements to improve their own real-time informational capability for transparency and openness. Five recommendations for decision makers who seek to increase the capability of government to use information in support of transparency agendas are drawn from the case and the experiences shared through a set forums convened to enable the sharing of best practices in Recovery Act reporting in New York State agencies.

## 2. A KNOWLEDGE SHARING NETWORK: LEVERAGING TECHNOLOGY & THE RECOVERY ACT

The federal requirements for reporting Recovery Act funds relied heavily on state governments' ability to capture, manage, and deliver the data required. In New York State, a range of efforts were underway to support state agencies in this work. To help support this work, the Center for Technology in Government (CTG) offered to host a series of forums for New York state agencies to share best practices on effective technology-based Recovery Act reporting strategies. The goal of these forums was to exchange information and knowledge concerning implementation of Recovery Act reporting requirements.

Between September and November 2009, CTG hosted two forums centered on the theme of leveraging technology to support the Recovery Act. The first forum highlighted the efforts by one large state agency in their quest to create an information technology solution to manage Recovery Act reporting. The second forum convened two panels comprised of practitioners from a diverse cross section of state agencies to

share their experiences in meeting the first Recovery Act reporting deadline (October 10th) and the issues and challenges related to sub recipient reporting. A third and final forum is planned for March 2010 concerning the issues and challenges related to data quality and data governance, which participants at both forums raised as important challenges to be addressed.

## 3. RECOVERY ACT REPORTING

Recovery Act reporting requires the collection and sharing of information between multiple entities—federal, state, and local governments, as well as vendors, and the public. The next sections describe the players, processes, data, and technologies used and created to execute recipient reporting across levels of government.

### 3.1 Players and resources

A variety of actors with various roles and responsibilities were tasked and in some cases created to carry out these efforts; a number of the key entities are described below. The Recovery Accountability and Transparency Board (Recovery Board), along with Federal Office of Management and Budget (OMB), were responsible for the oversight and management of the Recovery Act itself and the reporting of funds.

- **The Recovery Accountability and Transparency Board (Recovery Board)**. This Board consists of a Chairman and 12 federal Inspectors General. Their main focus was on ensuring transparency in relation to the use of Recovery-related funds, to prevent and detect fraud, waste, and mismanagement, and to maintain FederalReporting.gov and Recovery.gov Web sites.

- **Federal Office of Management and Budget (OMB)**. Charged with supporting the Board in oversight activities and for establishing and disseminating reporting guidance (including data standards and controls) to federal agencies. In addition, OMB provides education, review, and oversight with respect to reporting requirements, data, and process. Starting in February 2009, OMB issued over a dozen government-wide guidance memos designed to instruct federal agencies on how to carry-out Recovery Act activities. The memos included initial guidance, revised guidance, lessons learned, and tips for success [10].

- **Federal Executive Agencies.** Must follow OMB's direction and have been prescribed numerous roles and duties as outlined in the various guidance documents issued by OMB. Primarily, federal agencies must implement and comply with reporting standards, provide education and guidance to recipients, review recipient reports for data quality and request corrections where applicable.

State governments are generally prime-recipients of the funding in addition to acting as a pass through mechanism to local governments and vendors (who are designated sub-recipients).

- **States, local governments, and vendors.** State and local governments and non-government vendors are the recipients (prime- or sub-recipients) of Recovery Act funds. Prime-recipients are required to report on those

funds received including key data on projects, grants, and jobs. In all cases, prime-recipients are the only ones required and responsible for collecting data from all sub-recipients and ensuring data quality.

The federal government was the lead entity and relied on existing resources, relationships, and processes to disburse the funds. The Recovery Board created an infrastructure at the federal level to collect, manage, and disseminate Recovery Act information through Recovery.gov. State governments were not provided with funds to create or support the administrative and technical tasks related to reporting. A May 2009 OMB guidance memo addressed the role of states in recovery reporting, stating:
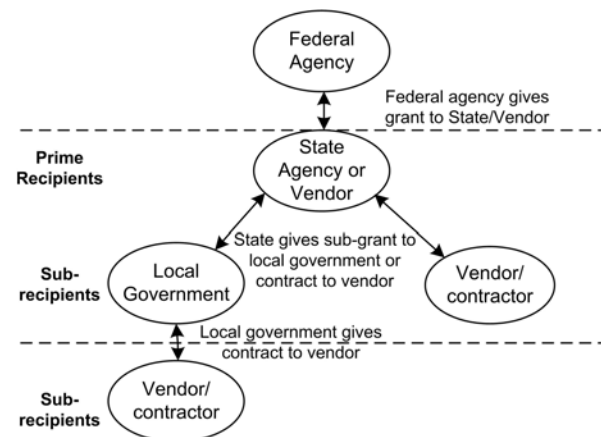
> "A majority of Recovery Act dollars are disbursed by the States, who thus play a central role in the prudent, timely, and transparent expenditure of Recovery funds. It is therefore critical that state governments quickly and effectively build the necessary administrative capacities to meet their reporting and other responsibilities under the Act" [7].

New York specifically, had to rely on existing resources, relationships, and processes to meet the requirements. Many agencies had to leverage existing IT solutions in order to comply with the Recovery Act's reporting requirements.

### 3.2 Reporting flow and requirements

Figure 1 diagrams reporting relationships between federal agencies, prime-recipients, and sub-recipients.

**Figure 1. Recipients and 1512 reporting**



The Recovery Act used many different types of funding mechanisms (e.g., grants, contracts, and reimbursements) and not all funds were accounted for or reported in the same way. For example, as described, prime-recipients must report data on Recovery fund funds used for projects, whereas federal agencies must provide information on compliance, communications, formula block grants, and other information detailed in weekly updates. The reporting required by prime-recipients is detailed in Section 1512 of the Act, and is often referred to as "1512 reporting." The next sections specifically discuss the requirements for 1512 reporting.

### 3.2.1 Data

The Recovery Act reporting effort is the first of its kind to collect relatively real-time data on all tiers of awards and sub-awards provided by the federal government (e.g., state, local government, and vendors). This authority is given to the Director of the OMB under the Federal Funding Accountability and Transparency Act of 2006 (the Transparency Act) [7, p. 25]. The Act stipulates that prime-recipients of Recovery Act funds must report on over 90 key data elements (when applicable). All data elements are described in a uniform data dictionary that is standard for all programs. Federal agencies do maintain discretion over the data they choose to collect for their programs; all of the information required for Recovery.gov is standardized [7].

The data required falls into two main categories: 1) contracts, grants, and loans, and 3) jobs and examples of data elements required are described below:

- **Contracts, grants and loan data** includes agency name, agency code, sub-recipient name, financing used, address information, status, purpose, planned activities, date of completion, dollars spent, and the five most highly compensated employees during the project.

- **Jobs data** includes the number of newly created jobs and the description of the job. OMB has issued guidance on how to calculate and interpret what information is required for jobs data.

### 3.2.2 Timing

Starting in July 2009, prime-recipients must report Recovery Act data 10 days after the end of each calendar quarter. During days 1-10, prime-recipients must upload data to FederalReporting.gov. During days 11-21, prime-recipients have an opportunity to review data and make corrections. During days 22-29, the federal agencies responsible have an opportunity to review the data and request necessary changes. Recent changes to the guidelines allow recipients to correct data in each quarter.

### 3.2.3 Technology

The Recovery Board, with the aid of the OMB, created a back-end and front-end system for reporting. FederalReporting.gov is the back-end, central, government-wide data collection system for federal agencies and recipients of Recovery Act funds. Recovery.gov is the front-end Web page and system created by the Recovery Board with the expressed purpose of allowing "taxpayers to see precisely what entities receive Recovery money in addition to how and where the money is spent." [10].

FederalReporting.gov provides three ways to submit Recovery Act information: 1) a data entry form 2) an Excel® spreadsheet template which can be downloaded and then uploaded and 3) a custom system extract in Extensible Markup Language (XML) in the properly formatted file [6].

Regardless of the approach taken, a common data dictionary supports the publishing of information on Recovery.gov. Recovery.gov integrates geo-data from U.S. maps, Recovery Act projects and spending. Search tools and a variety of visualization options are available (e.g., graphs, table, and figures) to conduct comparative analysis. The charts, tables, graphs, money flows are designed to help the public understand ARRA related activities.

### 3.2.4 Transparency

As noted previously, one of the three main goals of the Recovery Act is to foster unprecedented levels of accountability and transparency in government spending. An OMB memo issued in June of 2009 stated:

> "When published on www.Recovery.gov, these reports will provide the public with an unprecedented level of transparency into how Federal dollars are being spent and will help drive accountability for the timely, prudent, and effective spending of recovery dollars." [6]

Transparency, as defined by the White House, involves the publication of information (in as real-time as possible) that demonstrates fiscal accountability in how, where, when, and by whom, the money is spent. According to the White House, 1512 reporting requirements will answer important questions, such as:

- "Who is receiving Recovery Act dollars and in what amounts?

- What projects or activities are being funded with Recovery Act dollars?

- What is the completion status of such projects or activities and what impact have they had on job creation and retention?" [6]

Federal agencies were not required to develop new Web sites dedicated to recovery efforts but were required to dedicate a section on their Web site to Recovery Act efforts and link to Recovery.gov. The creation of Recovery.gov was designed to create one portal where the public could find and analyze information pertaining to the Recovery Act [7].

While not required, many states also implemented their own versions of transparency. For example, in New York State the Governor's Recovery Cabinet commissioner issued the following requirements for transparency,

> "the relevant State agencies or public authorities shall publish on their public Web site a memoranda describing and detailing: selection criteria, policy goals, and the performance measures that will be used to track outcomes" [3].

In a review of several NYS' agencies with Recovery Act reporting responsibilities we found a variety of interpretations of these transparency goals including 1) dynamic Web pages with interactive features including the use of Geographical Information System (GIS) layers, different ways to visual results, and enhanced search options; 2) web pages describing Recovery Act activities such as news or Frequently Asked Questions (FAQ) about the reporting progress, and 3) links to Web pages that open a file for downloading (e.g., PDF and Excel). Each approach provided a varying level of detail. .

A recent study evaluated the reporting of Recovery Act funds through state Web sites as of July 2009 [11]. The study found that all states had a portion of their main site devoted to displaying Recovery Act information and concluded that each state did a fairly good job of representing the categories of Recovery Act spending in total amounts. However, most state

Web sites were found to be less successful in providing more detailed information such as geographic breakdowns of spending (such as spending in local government jurisdictions or congressional districts) or descriptive information on projects (such as length of project or vendor/contractor information).

## 4. AN IMPLEMENTATION EXAMPLE

The Recovery Act provided over $45 billion for transportation projects, including $27 billion for highway and bridge construction and repair, over $11 billion for mass transit and rail projects, and several more billion for other transportation-related activities [8].
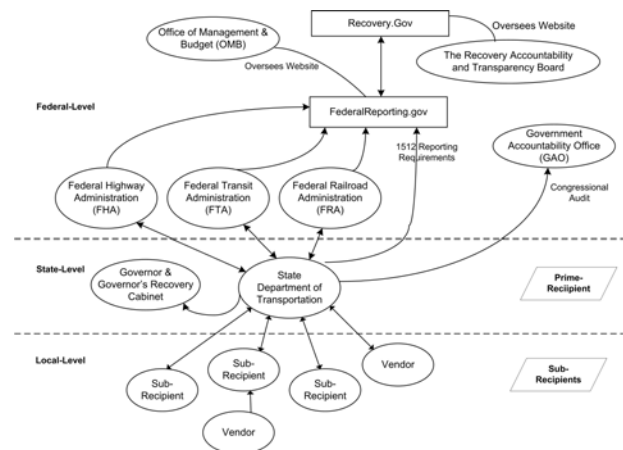
The New York State Department of Transportation (NYS DOT) received $1.12 billion in highway and bridge Recovery Act funds, approximately $25 billion in transit funding, and has applied for $5 billion in railroad funding. NYS DOT was responsible for identifying projects in conjunction with its role in overseeing local government projects across the state. In total, NYS DOT identified over 400 highway and bridge projects and over 70 transit projects.

The agency's 10,000 employees are divided among 11 regions. Collectively they are responsible for overseeing construction, maintenance, and inspection of tens of thousands of highway lane-miles, bridges, rail, and aviation.

As a prime-recipient, NYS DOT is responsible for the 1512 reporting requirements of all Recovery Act funds received for these projects and for gathering information from sub-recipients. Figure 2 represents transportation-related Recovery Act reporting. The agency must report Recovery Act information on a monthly basis to federal counterparts [Federal Highway Administration (FHA), Federal Transit Administration (FTA), and Federal Railroad Administration (FRA)], each of which have different reporting needs and issued additional guidance based on their own reporting requirements. NYS DOT was also one of sixteen states agencies selected to be audited by the federal Government Accountability Office (GAO).

In order to comply with the range of reporting requirements, NYS DOT worked with their IT department and created a data warehouse and launched a proof of concept project to explore new enterprise-wide business intelligence tools.

**Figure 2. Transportation-related Recovery Act reporting**



### 4.1 State agency response

Transportation Recovery Act funding was a major priority for the State of New York [9]. In order to receive the funding, NY had to demonstrate it had the capability to not only disseminate the funds appropriately and effectively, but also to track funds.

In February, when the Recovery Act was first passed, NYS DOT was using the spreadsheet templates provided by FederalReporting.gov to track its 470 projects, but soon realized that the requirement to provide one spreadsheet per Recovery Act award was not feasible. By May 2009, the agency made a strategic move to back away from the use of spreadsheets and to develop a data warehouse that utilized XML for reporting purposes and enterprise-wide business intelligence tools.

The data warehouse was designed to support NYS DOT efforts to respond to the reporting requirements without overhauling existing systems or processes. The time pressure made a massive redesign of business processes difficult and as noted by one participant, "the underlying principle was that we have a process in place that handles infrastructure project lifecycles and we were not going to be able to overhaul that and the systems that support it in order to serve up Recovery Act reporting." The infrastructure project life cycle at NYS DOT is complicated. For example, the number of projects the agency identified was over 400, these projects would be broken down among multiple sub-recipient awards. According to Recovery Act guidelines for reporting, each sub-recipient needed to report on spending. Therefore, NYS DOT needed a way to synchronize and track all these different components.

NYS DOT focused their efforts on identifying and aggregating the data from existing legacy systems and bringing it into their data warehouse to meet reporting needs. To do this, they mapped all critical reporting data to existing components and business processes and as a result, the data warehouse pulled from 13 operational systems from different functional areas within the agency. In such a large agency, the greatest challenge was completing this effort within the compressed timeframe (i.e., between February 2009 and the first reporting deadline of October 10th, 2009) and with limited resources.

Compounding the challenge of coordination across these systems was the many changes in the reporting guidelines themselves being handed down by the federal agencies. Further, while OMB was the primary issuer of guidance, individual federal agencies issued additional guidance. This reality impacted the ability of NYS DOT to design and fully execute its data warehouse in support of reporting efforts. One participant recalled how when the guidance was changed, individuals would have to go through hundreds of pages handed down from the federal government to figure out what had changed, and if and how it affected NYS DOT; confusion and many hours of work and rework was the result.

NYS DOT also needed to coordinate gathering information from sub-recipients. Transportation projects are often complex, and require multiple parties to execute the work. NYS DOT is responsible for only part of the lifecycle of a project (primarily the contracting piece). Therefore, they needed to figure out how to gather information from sub-recipients who did not have access to the agency source systems to enter data directly. Approximately 50 percent of the $1.12 billion was locally disbursed to sub-recipients, primarily local governments and

contractors who were unfamiliar with federal reporting in general. NYS DOT had to work with many to figure out what information they needed to report in order to comply. NYS DOT is in the process of figuring out how to provide sub-recipients with access to agency systems in order to report on Recovery Act funds. However, in the meantime, they continue to accept spreadsheets and faxed forms from the sub-recipients.

The high profile nature of transportation funding in NYS resulted in the agency receiving many requests for data on Recovery Act funding. Information about how many awards had been given, how many projects are underway, and the level of expenditures was sought by the NYS Governor's office as well as many other elected officials throughout the state.

From the beginning, NYS DOT focused on transparency as a goal in complying with the Recovery Act mandate. The ultimate goal was to provide all the Recovery Act information on the agency Web site. However, NYS DOT did not have the necessary technologies to migrate the data from the data warehouse or to present the data in visually meaningful ways (e.g., graphs) on the Web site. While NYS DOT had some business objects and metric tools, they did not have robust visualization and connector tools to publish directly from the warehouse to the external Web site. According to one participant, "we've wanted to do that for a long time."

Part of the solution was to enter into a proof of concept with a local vendor (which took about six months) and to test their enterprise business intelligence tools. These tools provided the mechanisms to utilize the data warehouse. The visualization tools gave the agency new data views, dashboards, and ways of consuming the information.

The process of developing the visualization tools took a long time. According to participants, the first five months of the proof of concept project revolved around a discussion of the potential uses of the information and on requirements gathering. Likewise, the proof of concept focused on furthering the transparency agenda of the agency; providing DOT stakeholder and citizens with access to information on Recovery Act funds, and less on accomplishing Recovery Act reporting (reporting was being addressed through the data warehouse). NYS DOT used various tools to create ad hoc business intelligence reports, but noted they still needed to develop the team and skill sets to really take advantage of this kind of application.

The NYS DOT Recovery Act team was created to address the specific reporting requirements outlined in Section 1512. Their data warehouse contains the latest information about projects, grants, loans, and number of jobs created as it relates to the projects funded through recovery dollars. However, the business of transportation is much larger and the agency deals with numerous types of funding mechanism.

The overall reporting experience has gained the attention of agency leaders and prompted them to ask the question, "How do we apply Recovery Act successes to other areas of NYS DOT?" NYS DOT's next step is to vet this question through the agency's IT governance process. One challenge in migrating Recovery Act reporting processes to an enterprise approach is that there is no formal team in place to manage the project across different areas of the agency or possibly resources to expand the data warehouse or the business intelligence tools outside of the Recovery Act mandate.

## 5. DISCUSSION

Reporting on the use of Recovery Act funds is recognized as a strategy for furthering the transparency agenda being embraced at all levels of government. The experience in NYS, both at DOT and as shared through the Knowledge Exchange Forums; provide an important set of observations and recommendations to guide future similar reporting initiatives.

**Establishing standards for coordinated, multi-jurisdictional, multi-initiative reporting processes must take into account inherent complexities of implementation.** Developing and adopting core data standards are important for system development as well as data governance. This basic principle, however, continues to be a challenging area, especially when working across multiple jurisdictions and policy areas.

For example, the Federal OMB identified meaningful data elements and created a data dictionary. The data standards were developed specifically for reporting purposes and it is unclear with the data we have, to what extent the standards were developed with implementation in mind and the challenges the standards themselves create in terms of that implementation.

The challenge for NYS DOT was to map the reporting data standards to the agencies own core data elements. NYS DOT needed to rely on the institutional knowledge and experience of staff at different levels and functional areas to fully understand the different data elements and their semantic meaning. Most operational systems at the agency are legacy, and designed for a specific business purposes. The data elements do not necessarily transfer to other uses or architectures easily and determining the "right source data" to feed the reporting needs of the Recovery Act was time consuming and challenging. In addition, the NYS DOT needed to determine at what point in the project life cycle the various systems held the most current data.

Data standards for performance metrics presented another challenge. The most regularly expressed frustration was about the definition of metrics about impact (such as 'jobs created or saved'). Educating sub-recipients on the meaning of different data elements and metrics caused confusion about data quality and delays in reporting.

**Develop feedback mechanisms that connect data users to data sources for ongoing data improvement.** OMB created a series of Recovery Act feedback mechanisms at the federal, and prime-recipient level (e.g., mostly state level). At the federal level, the role of OMB was to make sure state governments were submitting usable data. The rolling reporting periods to correct data quality issues provided a valuable capability for quality improvement.

Technical mechanisms to check for data quality were effectively employed at the federal and state level as were mechanisms for responding to calls from citizens. When something was amiss, OMB contacted the source at the state level. To effectively respond, NYS DOT found that additional mechanisms at the state level were necessary. For example, when issues of accuracy or discrepancies were identified by OMB, someone from NYS DOT needed to first diagnose the issue and then determine the source of the discrepancy—whether it was internal or external to the agency. If external, they had to reach out to sub-recipients, typically unfamiliar with data reporting, and resolve the problem.

NYS DOT put together a team with deep institutional knowledge to solve problems with data owners. The team established regular meetings focusing on the reporting requirements (e.g., how to identify the right information, how to avoid controversies, how to be sure all the required data were fully described). The team also identified ways to streamline existing business process, identify data quality issues, and improve data collection and accuracy.

NYS DOT collected data from sub-recipients who did not have access to the NYS DOT source systems. Thus, new feedback mechanisms needed to be put in place in order to ensure quality data. Staff at the NYS DOT needed to educate and build relationships with sub-recipients and deal with specific process and technology capability issues. For example, some sub-recipients were able to report in a timely manner and address data quality concerns, others were not. Processes had to be put in place to aid in the collection of data and to increase accuracy.

**Invest beyond access in efforts to increase usability and use of information**. The Recovery.gov site is the first to make financial and programmatic information available to the general public through a central portal. This type of real-time reporting has been used in program specific areas, such as environmental protection, but the relatively real-time reporting of financial and spending information at a federal level, broken down by state and local government, and by project with the citizen in mind is unprecedented. To do this, the Web site uses a host of advanced technical and visual tools to display information and the information is updated, in relatively real-time (quarterly).

Likewise, the NYS DOT through its proof of concept effort, explored ways to maximize the value of the data to citizens and other key stakeholders. The agency created additional visual tools, such as interactive maps, for searching and displaying information. They also invested in ways to describe to laypersons the meaning and relevance of the information being provided.

While the development of Recovery.gov and the NYS DOT site are laudable, questions still remain as to the value of the information to citizens and other stakeholders and to what extent access influences actions on the part of citizens or government.

**Develop mechanisms for identifying and acknowledging the authoritative source.** The federal effort to create an integrated repository and a single front-end to report and track Recovery Act data was important for several reasons, including economies of scale, coordination, and control. However, many of the entities with reporting responsibility were also interested in providing access to the data in support of their own transparency agendas. The consequence of this is that data about Recovery Act projects can be found all over the Web. The impact of these multiple "authoritative" sources is still unknown, but the potential for confusion is gaining the attention of government watchers and making its way to the news.

NYS DOT recognized the need to create one source at the state level and opted for a solution that would synchronize its data warehouse with its Web site reporting. This allows them to point constituents to the public Web site and to be confident that the information is as up-to-date as their internal operational systems. However, this process was made more complex by the need to sync certain data elements with the NYS Office of the State Comptroller (OSC). OSC must approve all contracts for the state

and has its own "authoritative source" for contract information called "OpenBook New York." Therefore, NYS DOT and OSC needed to partner to make sure that these two systems were in sync at all times to avoid having different information on funding and contracts displayed on multiple NYS Web sites.

**Allow flexibility in reporting strategies.** Recovery Act reporting is an unfunded mandate, meaning states will not recoup compliance costs from the federal government. Guidance from OMB stated that federal agencies were to provide the necessary resources as an in-kind contribution of effort rather than in dollars. Determining the right balance between compliance and cost, therefore, became an important consideration for states.

At the federal level, the OMB described the rationale for creating a single reporting repository and front-end system was to lower system development costs across federal agencies, reduce redundant data entry, improve the consistency of data collected, and improve access to information by the public [7]. The federal act, however, did not dictate the strategy states should take with respect to reporting. Instead, they issued 'guidance' suggesting a state either creates a single system for reporting to FederalReporting.gov or allow individual prime recipients (e.g., individual state agencies) to collect and upload their own data. New York State opted for the second approach. This approach allowed those agencies with the capability and the greater burden of reporting, such at NYS DOT, to leverage existing and new resources in unique and effective ways, relative to other agencies with both a lighter burden of reporting and less relevant capability. Using spreadsheets as a reporting tool, for example, was not realistic at NYS DOT; however, it was a highly rational and effective strategy for other NYS agencies.

## 6. CONCLUSION
The mandate to make Recovery Act information available and recently passed transparency legislation (2008) are important steps toward creating a more transparent government. Equally important is the realization of the driving goals behind these steps is the capability of government at all levels to effectively manage information resources. As part of the Knowledge Sharing Network, we heard how different agencies worked to achieve compliance as well as enhance transparency. Among these experiences, the NYS DOT provides an instructive story of how one agency, with hundreds of grants and too few resources leveraged the situation to change the way the agency thinks about how information is collected, managed, used, and disseminated. Most agencies did not improve or change their capability for dealing with information in the wake of Recovery Act reporting. The NYS DOT case, together with insights from the Knowledge Sharing Network, provide five recommendations to guide decision makers who seek to increase the capability of government to use information to further transparency agendas.

## 7. REFERENCES
[1] Florini, A. (2007). *The right to know: Transparency for an open world*. New York: Columbia University Press.

[2] Miller, E. (2009). Envisioning a Real-Time Government. Retrieved January 2010 from

http://www.huffingtonpost.com/ellen-miller/envisioning-a-real-time-g_b_347004.html.

[3] New York State Recovery Cabinet Web site. Memorandum for heads of executive agencies. Retrieved January 11, 2010 from http://www.recovery.ny.gov/assets/pdf/Recovery_Act_Policy_Goals_20090610.pdf.

[4] O'Connell, L., Yusuf, J., & Hackbart, M. (2009). Transportation commissions as accountability structures: A review of their statutory roles and other attributes. The *American Review of Public Administration*, 39(4), 409-424.

[5] Office of Management and Budget (OMB) Web site. Memorandum for the heads of executive departments and agencies. Retrieved January 11, 2010 from http://www.recovery.gov/FAQ/recipient/Documents/m10-08%20Updated%20Guidance%2012182009.pdf.

[6] Office of Management and Budget (OMB) Web site. Memorandum for the heads of executive departments and agencies. Retrieved from: http://www.whitehouse.gov/omb/assets/memoranda_fy2009/m09-21.pdf.

[7] Office of Management and Budget (OMB) Web site. Memorandum for the heads of executive departments and agencies. Retrieved from: http://www.recovery.gov/About/Documents/m09-15_April3.pdf

[8] Press Release. Federal Department of Transportation. Retrieved January 2010 from http://www.dot.gov/affairs/dot1709.htm.

[9] Press Release. New York State Governor's Office. Retrieved January 2010 from http://www.state.ny.us/governor/press/press_0724094.html.

[10] Recovery.Gov Web site. Retrieved January 11, 2010 from: http://www.recovery.gov/About/Pages/The_Act.aspx.

[11] Mattera, P. McIIvaine, L., Lacy, C., Lee, M., & Cafcas, T. (2009). Show us the stimulus: An evaluation of state government Recovery Act Web sites. Retrieved January 2010 from: http://www.goodjobsfirst.org/pdf/ARRAwebtables.pdf.