Statewide Assessment of Local Government Technology and Data Management Capabilities

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Introduction & Background

To address data management needs in the State of New York, the Office of Local Government (OLG) at the Department of State (DOS) conducted a statewide survey as the first step of assessing local government technology capabilities. OLG partnered with Maxwell School of Citizenship and Public Affairs to form a project team consisting of Holy Ampaguey, Alan Lorenzo Contreras, Yan Gao, Michelle Herr, Jared Shepard (collectively referred to as Project Team) to conduct the next steps of a statewide assessment of local government data management practices.

The Project Team supplemented the survey by conducting 31 follow-up interviews to collect additional, detailed information about the municipalities' technology and data management capabilities. The Project Team found clear trends in local governments' data management needs and recommended actions to improve technical and data management capabilities. This report includes the methodology, analysis, key findings, and policy recommendations. The appendix includes a list of 94 municipalities surveyed, a copy of the online survey, inventories of data management policies, partnership organizations, profiles of existing data management programs in New York, additional charts, and a detailed breakdown of interview data by population size.

The study found insufficient funding, concerns regarding workplace culture and expertise and inconsistent stakeholder buy-in as key barriers for local governments in addressing their data and technology needs. Policy recommendations to provide state-approved solutions and open source options, fund data management pilot programs and establish a statewide data management fellowship can help New York State achieve long term money savings, establish consistent practices and cultivate 21st century data workforce to spearhead technological innovations.

Methodology

Online Survey

In April 2018, the Office of Local Government electronically distributed a comprehensive Local Government Information Practices Study survey to 220 municipalities[1] and received 96 responses from 94 municipalities across New York State.

The online survey contains six parts. Part A collects basic information about the municipality and the survey respondent by asking for name of municipality, name of the respondent, respondent's role in government, email, phone number, interests to receive follow up, years in role, and years in government. Part B asks the respondent to rank different ways of using data on a scale of 1 to 5 based on importance and ease. Part C aims to find out how the municipality manages and uses its data by asking a series of yes or no questions with optional open-ended response sections. The questions in Part C are adapted from the Bloomberg Philanthropies "What Works Cities" Standard, which is one popular model for data-driven government that incorporates 50 suggested practices. Part D aims to understand local government's information needs through a mixture of yes or no questions and open-ended questions. The questions in Part D are based on an exercise conducted by the Center for Technology in Government at the 2017 Local Government Innovation Conference. Part E asks the respondent to rank the level of interest of different data and information management ideas on a scale of 1 to 5 (5 being "Most Interested"). The last part of the survey contains open-ended responses for other data and information management ideas and feedback on the online survey.

Phone Interviews

From May 29 to June 8, 2018, the Project Team conducted 31 phone and face-to-face interviews from the online survey respondents who indicated an interest in participating in a follow-up interview.

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[1] The survey population encompasses the 220 county, town, village, and city governments in the state with populations exceeding 15,000 people.

The respondents of the survey are the same participants in the interviews with an open invitation to other individuals from their municipality's program executive oversight or information technology team, depending upon the position of the survey respondent. The following questions were asked of each interviewee:

1. The following goals require data to achieve. Which are your top priorities?
    a. Saving money
    b. Eliminating ineffective practices
    c. Building support for what works
    d. Modernizing business practices
    e. Growing the economy and providing equal opportunity
    f. Protecting public welfare
    g. Meeting political demands
2. Can you tell me more about the services and programs that come to mind when you consider the priorities you just ranked?
3. In your opinion, what steps need to be taken to achieve this goal of [name goal] for this area of operation?
4. What steps have you taken to address these issues so far?
5. What barriers need to be dealt with?
6. Is there support for these efforts from individuals or organizations inside or outside your municipality? What is the nature of this support?
7. What does the effort need at this point that you don't have or cannot get?
8. How can the state help?

Another series of questions were asked if the interviewee is in a director position for data management (e.g. Chief Information Officer, Information Technology Director, and Chief Data Officer) or if the interviewee responded "yes" to having a data management program on the initial survey:

1. A data management program is an executive-level office that is responsible for managing the data assets at a high level. Such programs involve one or more dedicated staff whose sole responsibility is to assure all departments and divisions have access to information of a quality and format they need to fulfill their mission. Does your local government have a data management program?
2. Is there an office or person designated in your local government to maintain up-to-date answers to these questions?

3. How did your data management program come about?
   When was it created? Who was responsible for establishing it? What actions were taken to set it up? Where any outside organizations involved in building the program?
4. Which of the following authorities does your data management program have?
     a. Policy/strategy
     b. Governance
     c. Investment
     d. Data inventory
     e. Security
5. How do you implement the data management authorities you have?
6. What policies govern your local government's data management activities?
7. Are there any models or frameworks you are following to guide your management and development of your data management program?
8. What advice do you have for a municipality considering launching its own data management program?

The phone interviews generally lasted no more than an hour. After completing each interview, the interviewer immediately transcribed responses into a repository of notes from all interviews.

Analysis

Methodology

The quantitative results from the online survey were analyzed using descriptive statistical summaries utilizing Excel and R package. The qualitative data from the follow up phone interviews were analyzed in several steps[2]. First, the Project Team collectively brainstormed ideas and generated the coding schema. The coding schema were generated by narratives from the interviews, key words that have consistently come up from the interviews and common themes that captures the sentiment of the interviews. Second, the Project Team compiled a set of master interview notes for two interviews. The Project Team selected two specific interviews because the entire team sat in on those interviews and therefore can generate the most comprehensive set of notes. Third, each member of the Project Team coded the two interview

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[2] This method is suggested by Public Administration and International Affairs Associate Professor Tina Nabatchi at the Maxwell School of Citizenship and Public Affairs at Syracuse University.

results independently using the same coding schema developed from step 1. Finally, the Project Team calculated the inter-coder percent agreement among all members, discussed disagreements in the coding and revised the coding schema until 80%[3] or higher inter-coder agreement is reached. The rest of the interviews were then coded based on the revised coding schema in pairs with 80% or higher inter-coder agreement.

Table A shows the coding scheme for the standard interview questions with keywords extracted from the data gathered that supports the code.

Table A: Coding Scheme for Standard Interview Questions

1. The following goals require data to achieve. Which are your top priorities?	
Saving money	
Eliminating ineffective practices	
Building support for what works	
Modernizing business practices	
Growing the economy and providing equal opportunity	
Protecting public welfare	
Meeting political demands	
2. Can you tell me more about the services and program that come to mind when you consider the priorities you just ranked?	
Public safety and welfare	Police, fire, emergency services, poverty, transportation, bike sharing
Capital assets	Infrastructure
IT infrastructure	Shut down data center and put in cloud, modernize data storage, enterprise solutions, management system software, integration of

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[3] Customary practice for inter-coder reliability using Cohen's Kappa:
http://methods.sagepub.com/reference/encyclopedia-of-survey-research-methods/n228.xml

	software, modernizing GIS, enterprise resource plan, modernize procurement process
General IT improvements	Online payments, digitization, ADA compliance, ancillary point to point wireless system, problem-driven software/system purchases, development of software
Streamlining of services	Streamline online forms, billing, permitting, shared services, outsourcing, contracting
Workplace culture and expertise	Internal dialogue, culture, managing time, scheduling
Technical training	Training on software
Open data	Open government, open government standard
Data analysis	Dark data, benchmark, data visualization, monitor/track data, data-driven decision making, performance management, measuring, prioritization

3. In your opinion, what steps need to be taken to achieve this goal of [name goal] for this area of operation?	
Funding	Resources to gather data
Best practices	Access to statewide information, access to what other municipalities have done, access to plans/strategies/implementation steps
IT infrastructure	Software integration, system integration, standardization, data warehouse, investment in core database, virtual desktops, automation, inventory assets
Workplace culture and expertise	Staff, consultants, workplace culture, new positions, data integration, competent management, staff to provide services, department structure, data culture
Open data	Share with public
Data analysis	Data availability, data collection, data-driven decision making, identify root cause, questions that demand data, identify what information will be used for, process analysis

Stakeholder buy-in	Business leaders, executive buy-in, political support, public-private partnerships, legislation

4. What actions have been taken so far?

Funding	Grant applications, vetting software, communicating with other municipalities, communicating with vendor
Best practices	Create policy, discussing best practices
IT infrastructure	software purchasing/implementation, software integration, interactive systems across departments, digitization, automate paper process, accounts management, move services to cloud, carry out data inventory, streamlining servers, management software
General IT improvements	In-house applications, utilizing new technologies
Workplace culture and expertise	Break down data silos
Streamlining of services	Shared services, shared service agreements
Technical training	Keep staff up to date
Open data	Open datasets to public
Data analysis	Track performances, department assessments, data mining, improving hours worked by using data, dashboard creation, tracking
Stakeholder buy-in	Public outreach, conferences, form governance committee, active counsel of government, building relationships, conversations

5. What barriers need to be dealt with?

Funding	Tax cap, resources, money, funding for hardware/software
IT infrastructure	Systems integration, untangling systems, ensuring security of data, storage environment, outdated IT infrastructure,

	risking of losing data, missing the right tools
General IT improvements	Case/document management, digitization, changing software programs
Workplace culture and expertise	Staff, resistance to change, lack of IT support/department, time, hire more staff, defining importance of data, establish forward-thinking, change workflows, culture, staffing
Streamlining of services	create online services
Technical training	training
Open data	accessible, data sharing
Data analysis	Prioritization, data analytics, missing analytical tools, performance management
Stakeholder buy-in	local climate, politics, coordination among departments, executive support, availability of department heads, executive support, legislative barriers, union negotiations, initial investments

6. Is there support for these efforts from individuals or organizations inside or outside your municipality? What is the nature of this support?

Professional organizations	NYS Financial Officers Association, NYCOM, Association of Towns, NYSLGITDA, Association of Counties, New York State Town Clerks Association, Joint Powers Alliance, BOCES
Academic institutions	Information Studies School at Syracuse University, Center for Technology and Government at University of Albany, Harvard Performance Lab
Community resources	Bloomberg Philanthropies What Works Cities, ISC2, local civic tech community, local businesses, citizen support
Regional associations	Warwick Coalition, Regional Economic Development Council, CNY Community Foundation, shared services panel

Government	NYS Legislature, local government associations, other governments outside NY
Individuals/consultants	Gartner consulting firm, internal staff, internal support

7. What does the effort need at this point that you don't have or cannot get?	
Funding	Funding, funding, tax cap, daily projections on budget availability, money
IT infrastructure	Centralized systems, mapping/GIS mapping, upgrade systems, cloud based, infrastructure, cybersecurity
General IT improvements	Digitization, access to internet, internet service
Workplace culture and expertise	Staff, lack of policy/procedures, cultural change
Technical training	training, training staff
Open data	State database information, state's open data guidelines too strict, data sharing
Data analysis	Data analysis tools, data visualization, real-time budget
Stakeholder buy-in	Political support, more buy-in, political buy-in

8. How can the state help?	
Funding	Funding, resources, elimination of tax cap, state-aid
Best practices	Best practices
IT infrastructure	Centralize data center
Workplace culture and expertise	policy guidelines, eliminate civil service exam, state provided solutions, contact for referrals, guidelines
Technical training	training, cybersecurity training
Open data	statewide statistics/data, data sharing

For municipalities who answered yes to "does your local government have a data management program," a specialized set of data management questions were asked. Table B shows the coding scheme for the specialized data management questions with evidence from the data supporting the code.

Table B: Coding Scheme for Specialized Data Management Questions

1. Does your local government have a data management program?	
Yes	
No	
2. Which of the following authorities does your data management program have?	
Policy/strategy	
Data inventory	
Governance	
Investment	
Security	
3. How do you implement the data management authorities you have?	
Informal authorities	Collaboration, buy in from departments
Formal authorities	Point or lead person, directive management, federal and state compliance, data inventory authority, department database, centralized IT
Tools	General network application, software, data visualization, information systems
Open Data Policy	Executive order for open data policy, open data policy homepage
4. What policies govern your local government's data management activities?	

None	No policy, no formal policy
Needs improvement	Policy needs work, need more policy, policy specific to software/discipline, project-driven based implementation
Open data policy	Executive order for open data policy, open data policy homepage
Need for state policy	State draft policies

5. Are there any models or frameworks you are following to guide your management and development of your data management program?

Private sector models	Business process analysis, Bloomberg Philanthropies What Works Cities, Private sector/vendors (Maximo, PeopleSoft, Socrata, open source)
Government models	Cincinnati (City/County Government), Western Pennsylvania Regional Data Center, State GIS Clearinghouse, County purchasing department, state and federal standards/guidelines, BOCES
Academic models	Professor of business, Harvard Government Performance Lab

6. What advice do you have for a municipality considering launching its own data management program?

Inventory	Start with inventory (big picture)
Thoughtful planning	Start simple, early victories, use cases, be extremely careful, begin with questions and look for data after, start small, form policy committee, familiarize with laws, thoughtful software purchase, focus on what you want to achieve
Form partnerships	Partnerships with outside agencies
Executive/staff support	Executive buy in, dedicate staff, department buy in and implementation
Best practices	Reach out to other best practices, vet software and IT options

Key Findings

The interviewees provided a wealth of data and ideas as to how to improve data management capabilities across New York State. The key findings have been analyzed based on questions that stem from the follow-up interview questions and synthesized with the initial results from the online survey and an additional section broken down by population size.

Survey and Interview Key Findings

Part B of the online survey asks the respondent to rank different ways of using data on a scale of 1 to 5 based on importance and feasibility (5 being the most important and most feasible.)

Table C shows the top three goals that municipalities identified to be most important on average. Table D shows the top three goals that municipalities identified to be least feasible.

Table C: Online Survey Part B Top 3 Most Important Rankings

PART B
How important do you think this way of using information is to achieving your local government's goals?

Online Survey Question Number	B7	B8	B2
Goal	cyber attacks	data misuse	costing capital assets
Large (> 300,000)	4.9	4.6	4.3
Medium (50,000 – 300,000)	4.9	4.9	4.3
Small (< 50,000)	4.8	4.5	4
All municipalities	**4.8**	**4.6**	**4.2**

Table D: Online Survey Part B Top 3 Least Feasible Rankings

PART B
How easy it is for your local government to use information in his manner today?

Online Survey Question Number	B11	B6	B10
Goal	citizen engagement	compare with others	GIS
Large (> 300,000)	2.9	3.1	2.9
Medium (50,000 - 300,000)	3.1	2.5	3
Small (< 50,000)	2.6	2.9	2.9
All municipalities	**2.7**	**2.9**	**2.9**

Based on the results, municipalities on average identified preventing, detecting, and mitigating the risk of cyber-attacks, assuring data shared is not misused, and cost accounting to maintain capital assets are the most important ways of using information. Furthermore, GIS, comparing with others, and citizen engagement are the least feasible ways of using information to achieve local government goals.

What are local governments' most pressing information needs?
Local governments' most pressing information needs are centered around streamlining services. 50% of municipalities indicated that streamlining services as a program comes to mind when ranking their priorities. 13 of 16 municipalities within this category stated that their information needs were centered around the elimination of paper forms by digitizing records and having bills and forms online as well having shared/consolidated services between counties and other cities, villages and towns. There was also a stated need for contracting with planning agencies to obtain technical expertise and outsourcing staff for code enforcement. Streamlining services ultimately allows for municipalities to be more cost effective, which 75% of local governments interviewed consider to be a top priority.

The data showed that the needs of local governments go beyond funding to more action-based solutions. For example, 21 of the 31 municipalities interviewed stated that the State should assume a more active and formalized role in making data and information more available. The comments ranged from the State centralizing its data resources, providing best IT practices and online solutions as well as a statewide portal that municipalities can use to improve their operations. In regards to the statewide portal, it should be noted that the state currently offers this service. However, this indicates that certain local governments are not aware of its existence.

Additionally, municipalities indicated that their IT staff are focusing on systems integration to connect all departments under one system. Municipalities stated that not only does having many systems increase administering difficulties among IT personnel, but data entry can become redundant and error-prone when multiple systems are involved.

The interviews also yielded the need for vetted consultants and software programs among municipalities. 17 of the 31 local governments interviewed expressed a need for state-provided information on vetted consultants and software programs. Vetted software mentioned by local governments touched upon mainly accounting and financial management software while the need for vetted consultants addressed having best practice solutions and workshop trainings as well the state negotiating prices for consultant services.

What are top priorities for governments that require data to achieve?

Graph 1: Top Priorities That Can Be Achieved By Data

What are your top priorities that require data to achieve?

% of interview responses
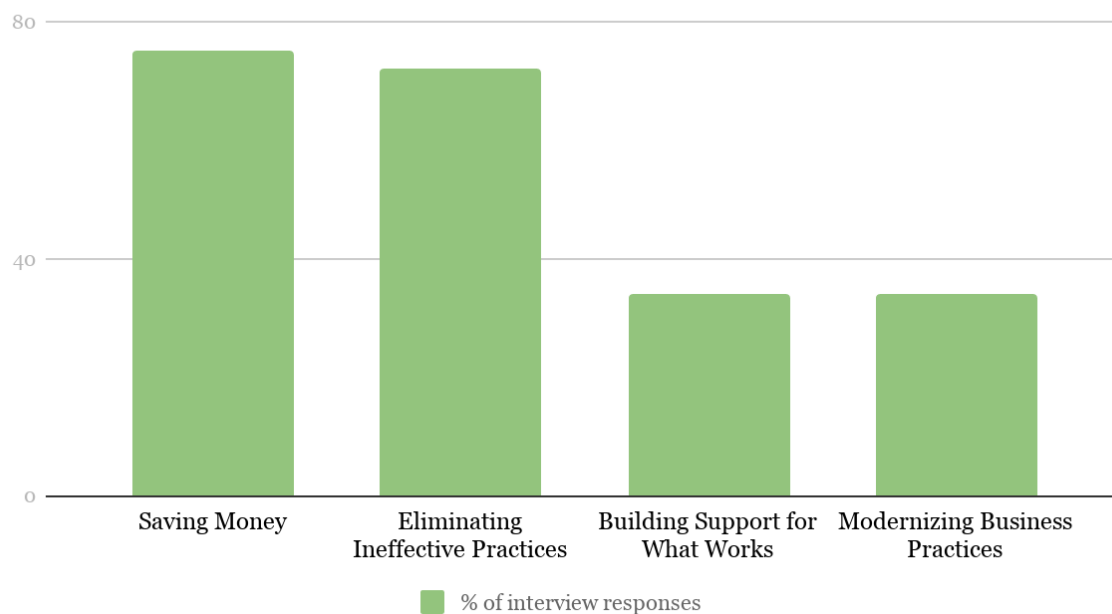
The top priorities for governments indicated that can be achieved through data were saving money followed by eliminating ineffective practices, building support for what works, and modernizing business practices. The graph above shows that saving money and the elimination of ineffective practices were indicated as the two largest priorities for municipalities interviewed,

with 75% and 72%, respectively. Modernizing business practices and growing the economy and providing equal opportunity were both indicated by 34% of municipalities as a top priority.

Graph 2: Steps Need To Be Taken to Achieve Priority Goals

What steps need to be taken to achieve your priority goal?

% of interview responses
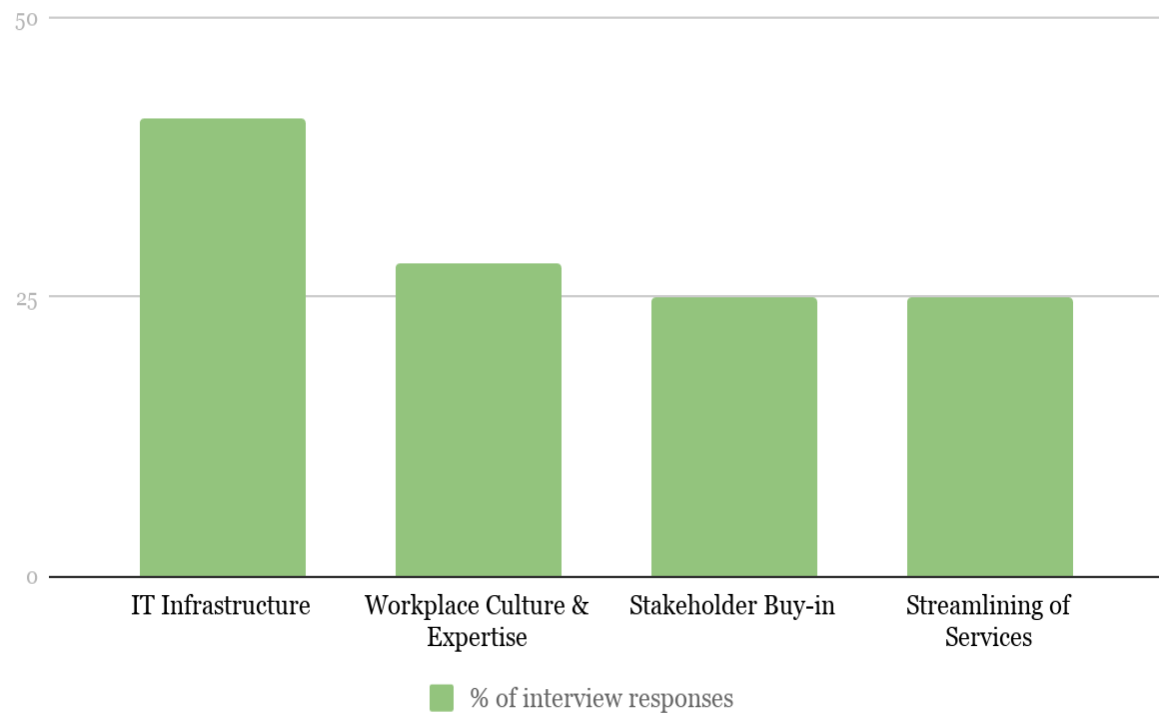
The question of, "what steps need to be taken to achieve this goal?" was used to identify four main steps that municipalities felt are necessary to achieve their respective priority goals. In the graph above, 41% municipalities stated that investing more in their IT infrastructures as a necessary step to reaching their goals, while 28% expressed that changing workplace culture and acquiring expertise are essential, followed by 25% for both streamlining services and obtaining stakeholder buy-in are necessary.

What information is most valuable?
Municipalities stated that financial, health, and per unit cost of services are of the most value data. Programs and policies mentioned by local governments that could assist in providing analysis on this information were GIS and open data within governments and for the public.

What barriers hinder municipalities from obtaining that information?

What barriers hinder municipalities from obtaining that information?

% of interview responses

The graph above shows the most common barriers municipalities cited by municipalities that impede their top data priorities. Funding constraints were indicated by 78% of municipalities as a barrier. Lack of funding was stated as directly contributing to municipalities reducing both IT budget and staff. Lack of funding is a critical barrier considering that, as indicated above in graph 1, the majority of municipalities stated that saving money was the top priority in which can be realized through data. This is a difficult task when dedicated IT staff is a necessary component to saving money through operational efficiencies and data use.

Workplace culture and expertise was indicated by 72% of municipalities as a barrier. 14 of the 23 municipalities that indicated culture as a barrier stated that employees' attitudes towards new and innovative technologies and processes was the main impasse, with interviewees stating that employees are "not forward thinking" and are "resistant to change". For example, one county indicated that employees are unfamiliar with utilizing scanners to carry out administrative tasks. There was also a cited lack of knowledgeable and experienced IT staff within municipalities' organizations. However, this is not to imply that IT staff is not knowledgeable or experienced. Rather, it indicates that IT staff and resources may be stretched thin and cannot be utilized optimally across departments. For example, 5 of the 23 municipalities within this category stated that cutting IT staff as a result of budget cuts was a crucial barrier that they need to overcome.

Stakeholder buy-in was indicated by 25% of municipalities as a barrier. Within this category, 6

out of 8 municipalities indicated a combination of their local legislature, department heads, and town supervisors as barriers that need to be addressed. This is indicative of an absence of individuals that champion policy addressing IT and data management issues. In regards to stakeholder buy-in that is external, the 2 remaining municipalities indicated that having more support from the State would be more beneficial to their capabilities. For example, one county stated that the State should lead by example and help modernize local governments' data management capabilities by providing a model so there are consistent practices across municipalities.

IT infrastructure was indicated by 22% of municipalities as being a barrier. Many municipalities considered their infrastructure to be outdated and unable to reach its greatest possible potential. For example, one county stated that they are currently operating with a small IT staff which reflects by a decades-long trend of the public sector regularly allotting a smaller amount of its revenue to IT when compared to the private sector.

What are local governments doing to meet information needs and adapt to technological evolution?
There are three main efforts municipalities have employed to adapt to technological advancements to meet their information needs. 34% of municipalities invested in their IT infrastructure, 31% have carried out general IT improvements, and 28% are obtaining stakeholder buy-in.

Most municipalities have carried out general IT improvements including digitization of paper-based data, setting up online services and payments, and creating custom-built applications. Another major effort of municipalities is investment in IT infrastructure. This includes upgrading system software, integrating systems to make them more interactive across municipalities, and using cloud storage. Other municipalities are collaborating with other local governments, academic institutions and IT experts to improve their current IT infrastructure. Some municipalities are in the process of obtaining executive and legislative support to implement IT improvements.

What tools do they use today?
Municipalities utilize different software programs to cater to different department needs. An example of software programs that municipalities use are PeopleSoft, Laserfiche, Crystal Reports, VMware, OpenGov, and Tyler Technologies. Some municipalities use mobile apps and tablets to increase employee mobility and productivity. One large town, for example, uses ACCELA for their land management system which comes with a mobile application. This mobile application enables inspectors to log in details of inspection on the spot to facilitate

processing and issuance of permits.

Most municipalities with GPS capabilities have used it for public safety monitoring. Two large upstate cities use GPS for their day-to-day operations like refuse collection and road maintenance. Some municipalities employ GIS to map their administrative data. One upstate city, for example, uses GIS to map snow plow routes and code-enforcement violations. They also use GIS to overlay administrative data with demographic data and map vacant properties to address local property blight.

What processes/policies do they have in place today?
Municipalities have mentioned FOIL and federal standards as the overarching standards in crafting their own open data policy. Many policies are the result of collaborative efforts with different departments within the municipality that are not codified and are therefore informal policies. Among the municipalities interviewed, only the cities of Albany, Buffalo, and Syracuse have a formal open data policy. For full details on each of these local governments' open data policy, please refer to Appendix C.

Municipalities with formal or informal data management policies have indicated authorities on the subject of governance, security, strategy, data inventory, or a combination of any/all of these areas. No municipality indicated authority to invest in data management.

What models are they striving for?
Some local governments are aware of models such as Gartner, Bloomberg Philanthropies, "What Works Cities," and other private sector models to consider for data management practices. A few municipalities have indicated the West Pennsylvania Regional Data Center model where similar services needed by municipalities are met by a shared program established on a regional level. This will help municipalities save money by pooling resources and share costs. Progress of cities like Cincinnati, OH and Scottsdale, AZ who employ comprehensive data management programs are being monitored as well.

How do they distribute responsibility for information needs in the organization?
Among the municipalities interviewed, data management needs are generally considered the responsibility of the IT department. IT departments in small municipalities are often run by one or two staff members. Interviewees report that IT directors are responsible for new initiatives. For municipalities without an IT department, responsibility is held informally among a small

group of people. The most common mentioned are the chief executive, comptroller, or clerk's office.

What partners, allies, and assistance are they pursuing?
Municipalities rely on a variety of partners to strategize and inform policies for their information needs. They partner with academic institutions for solutions on services (e.g. road maintenance solution program with Cornell University) and for internships with local universities. Community resources are a vital tool for keeping municipalities up-to-date with the latest development in different data management areas and technical training. They also rely on region-wide associations to find information and best practices for data management. Municipalities utilize other government associations to be informed of other information practices. In addition, individuals that have expertise in different aspects of data management are consulted. For the detailed list of partner organizations and individual contacts, please refer to Appendix E.

What state actions are most helpful to local governments' efforts to adapt?
The three top responses for state actions can be categorized under funding, workplace culture and expertise, and stakeholder buy-in. The survey and interview results heavily indicated that actions to increase funding for local governments would be most valuable and help address the concerns of workplace culture and expertise and the lack of stakeholder buy-in.

In the initial survey, 66% of survey respondents answered Part D, question 6 with a breakdown of funding, DOS-provided training, and DOS-provided standards.

Graph 4: Assistance from New York State

What assistance would you welcome from New York State to help your local government meet its information needs?

% of Survey Responses   % of Interview Responses

The above graph shows the comparison between survey and interview answers. When surveyed, 49% of respondents answered that they would welcome funding from the state, 16% of respondents stated that training from the state would be welcomed, and 30% responded that they would like to see standards implemented by the state. When asked "How can the state help?" during the interview process, 48% of respondents listed funding as a priority, 13% listed staff training, and 16% believed standards would help municipalities execute their data management priorities. Respondents suggested standards for how local governments can create policies, permissions within municipalities and/or between municipality types regarding data sharing, and the types of software that should be used for reporting requirements.

In particular, municipalities suggested that funding could go to a variety of solutions such as pilot projects, increased utilization of GIS/mapping, grant programs and DOS-led implementation/mandates for training regarding organizational culture and software use.

For help with workplace culture and expertise, municipalities indicated that the state could assist with building vetted solutions to fix data management challenges such as a centralized list of software programs that are compatible with state reporting requirements. One municipality proposes modifying requirements for the civil service exam for IT professionals by shortening the turnaround time for results or eliminating the exam for these professionals altogether in order to hire new talent more quickly and compete in the IT market for expertise. Lastly, the majority of respondents brought up having the state offer trainings for data management to address organizational culture and staff training concerns.

For help with stakeholder buy-in, municipalities responded with ideas that range from small solutions to statewide strategy. Respondents reported that guidance from the state in the form of newsletters or in-person training would provide support for information management. Other respondents recommended utilizing pilot programs by population size to test new ideas utilizing data in order to solve public problems. One local government suggested a pilot program to begin improving public infrastructure issues like road maintenance by hiring staff to collect information on road conditions and using the data to analyze needs and make data-driven decisions. Relatedly, municipalities brought up data-sharing between the state and local governments. This will help local governments have access to more data and can see what other municipalities are doing. Lastly, local governments brought up having a statewide strategy for data management so all local governments are on the same page.

By having a state-led effort in enacting policies and implementing new programs, municipalities could see that data management is a priority for the entire state. This can help municipalities effectively manage their data and achieve their top priorities along with changing the organizational culture to embrace data management methods.

What key steps and actions are they unable to take on their own?
In answering this question, the municipalities interviewed responded that they need assistance with efforts for funding (55%), workplace culture and expertise (39%), and stakeholder buy-in (35%), demonstrated in Graph 5 below.

Graph 5: Steps and Actions Needed by Local Governments

What key steps and actions are they unable to take on their own?
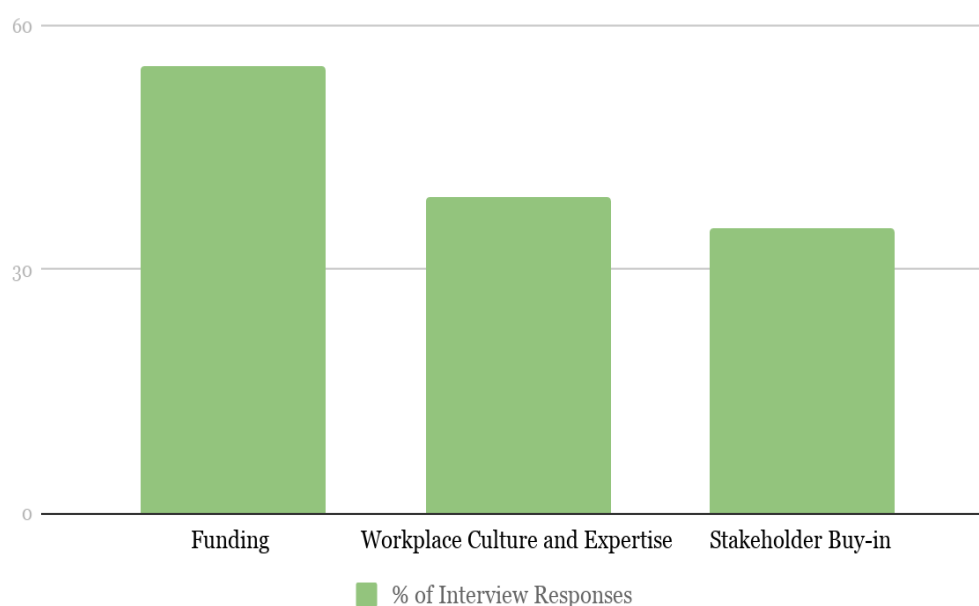
Local governments believe that actions and steps for funding are needed for consulting services, planning, and staffing. Second, to address workplace culture and expertise, local governments need to be able to forge cooperation/collaboration among staff, top-level management buy-in, adequate training across all levels, and hiring knowledgeable staff. Last, municipalities are seeking steps from the state in the form of state guidelines or framework, support from state leaders, and solutions at the individual level to address challenges surrounding stakeholder buy-in for steps they are unable to take on their own.

In summation, many of the key actions and steps brought up in the interviews come from a need to have buy-in at the top level of a municipality and support from the state. Buy-in and guidelines from the state would influence the way in which departments at the municipality level implement data management strategies.

Feedback on additional ideas that arise from the survey?
When asked about additional ideas in Part E of the survey, the respondents indicated that "Want it!" ideas of state-provided solutions and trainings would be the most valuable to their local government, as recorded in Graph 6.

Graph 6: Online Survey Part E "Want It!" Ideas

Online survey Part E "Want it!" ideas
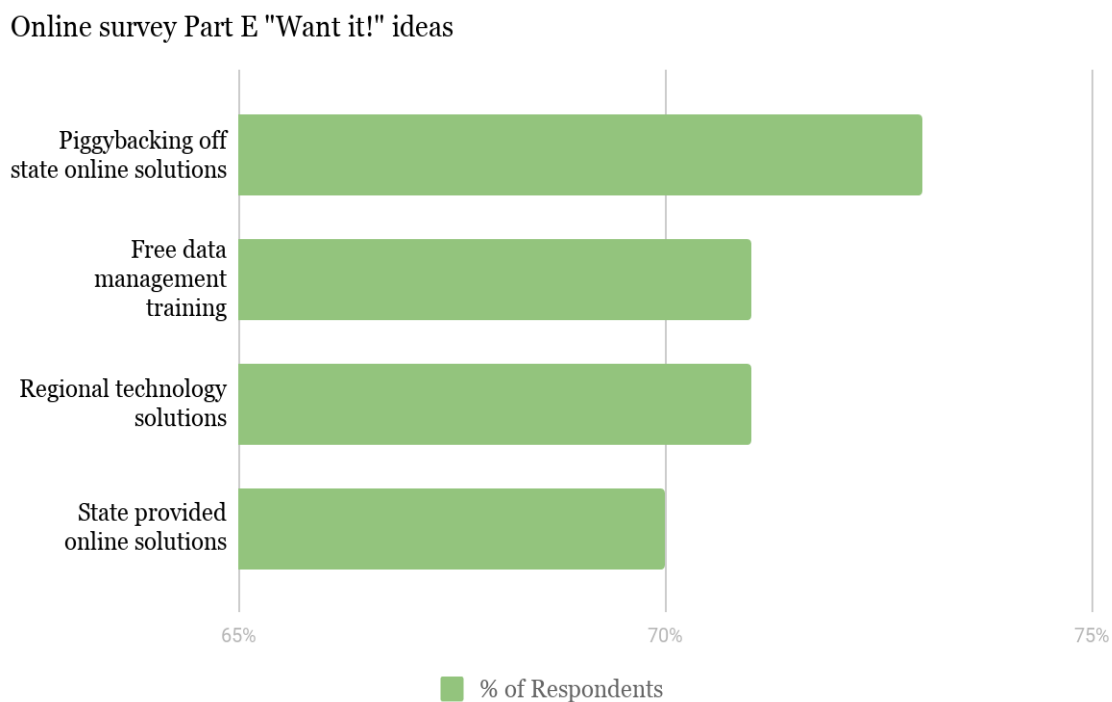
Respondents in the survey indicated overwhelmingly that some form of state-provided solution(s) would be most valuable to their efforts. In the interviews, respondents indicated the same sentiment, stating that they need specific actions like training (webinars and workshops), state-approved solutions (consultants and software systems), centralization of systems (help with streamlining), and state mandates, policies, or guidelines for data management.

These actions require funding to be allotted at either the municipality level, through a grant program, or through actions like training or systems integration. Actions without funding, such

as a vetted list of software systems (to help with streamlining and centralization) and the creation of a mandate, policy, or guideline for municipalities to follow would be initial steps in the right direction to give municipalities some guidance until a funding scheme can be created.

Interview Key Findings by Population Size

The interview responses were further analyzed by population size to identify any similarities or differences between small, medium and large municipalities by population size. The population categories were rescaled as only 31 out of 94 municipalities were interviewed. Small municipalities were coded as up to 50,000 population, medium municipalities were coded as more than 50,000 and up to 100,000 population and large municipalities were coded as more than 100,000 population. These categories allowed for a similar distribution of respondents in each category, as well as the ability to capture those municipalities from the "Big Five" represented in the study — Buffalo, Syracuse, Rochester, and Yonkers — in a single group.

Interview Question 1: The following goals require data to achieve. Which are your top priorities?
When it comes to the question of top priorities, the percentage of all respondents who reported saving money was 77%, followed by eliminating ineffective practices at 74%. Both small and medium municipalities felt that saving money was comparatively more important than eliminating ineffective practices. In contrast, large municipalities felt that eliminating ineffective practices were more of a priority than saving money as shown in Graph 7.

Graph 7: Top Priorities by Population Size

Which are your top priorities?

Small: A. Saving money 83%, B. Eliminating ineffective practices 67%
Medium: A. Saving money 89%, B. Eliminating ineffective practices 78%
Large: A. Saving money 60%, B. Eliminating ineffective practices 80%

■ A. Saving money   ■ B. Eliminating ineffective practices
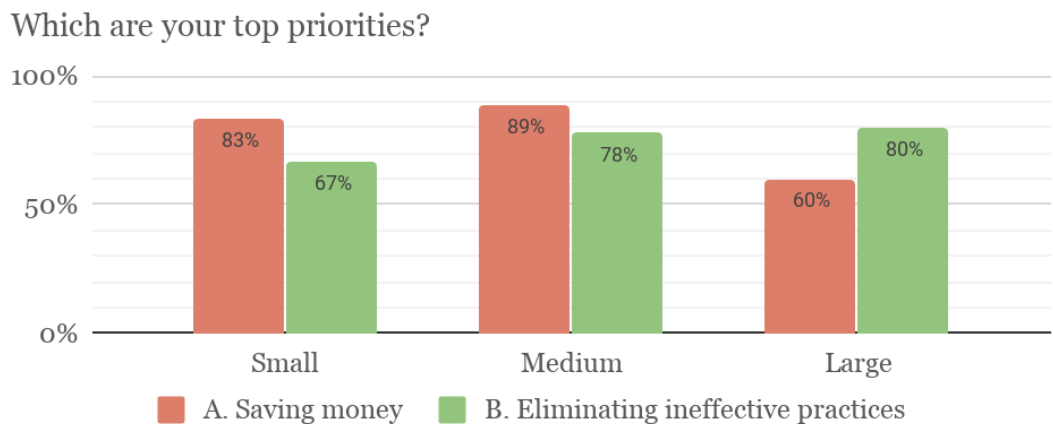
Interview Question 2: Can you tell me more about the services and programs that come to mind when you consider the priorities you just ranked?

Respondents were generally consistent across different municipality sizes when it came to the most frequent responses of IT infrastructure, general IT improvements, and public safety and welfare. However, large municipalities responded at a much higher rate (70%) under streamlining of services compared to a 42% and 44% response rate for small and medium, respectively, demonstrated in Table E.

Table E: Services and Programs for Top Priorities by Population Size

Response	Small	Medium	Large	All
Public safety and welfare	33%	22%	50%	35%
Capital assets	17%	11%	0%	10%
IT infrastructure	33%	44%	50%	42%
General IT improvements	42%	44%	30%	39%
Streamlining of services	42%	44%	70%	52%
Workplace culture and expertise	8%	22%	20%	16%
Technical Training	8%	0%	10%	6%
Open Data	8%	0%	20%	10%
Data Analysis	17%	11%	10%	13%

This finding is significant because it indicates that larger municipalities with larger population size see streamlining of service as more of a priority than small and medium size municipalities. This discrepancy may be because large municipalities have to provide services to a larger population, therefore streamlining of services are harder to manage compared to smaller municipalities. Other responses regarding services and programs are fairly consistent among different municipalities with different population sizes.

Interview Question 3: In your opinion, what steps need to be taken to achieve this goal of [named goal] for this area of operation?

When respondents were asked the above question, 41% gave the response of IT infrastructure. This response was given at similar rates across municipality sizes with 50% in small municipalities, 44% in medium municipalities and 40% in large municipalities.

Responses on workplace culture & expertise, and stakeholder buy-in varied markedly by municipality size. In particular, 50% of large municipalities responded they need to cultivate a data-driven workplace culture and have expertise compared to only 8% for small municipalities and 33% for medium municipalities. For stakeholder buy-in, small municipalities (42%) have a

much higher need for external and internal espousal of a data-driven organization compared to medium (22%) and large (10%) municipalities. This trend indicates that the importance of workplace culture & expertise and stakeholder buy-in are associated with the size of a municipality as shown in Graph 8.

Graph 8: Steps that Need to be Taken by Population Size
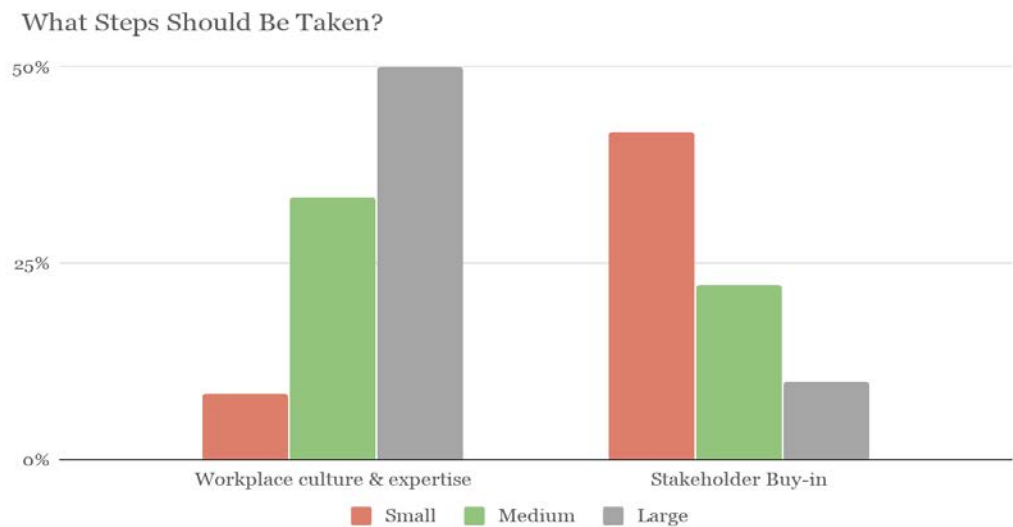
This inverse relationship of municipality size and the need for stakeholder buy-in suggests that smaller municipalities do not have data management high on their priority list. This detail is also a common theme among small municipalities in the interview. This will explain why smaller municipalities have a need for a data-driven culture and having expertise at a lesser degree because they do not have organizational espousal in the first place.

Interview Question 4 - What steps have you taken to address these issues so far?
The highest ranking responses were IT infrastructure, general IT improvements, and stakeholder buy-in. Responses were generally consistent for IT infrastructure and general IT improvements with no striking variation. This is in contrast with stakeholder buy-in. While overall rate of response for this code was 29% in the general population, small municipalities had a significantly higher rate of response under this code at 42%. Large municipalities had a lower rate of response to this code at only 10% as shown in Table G.

Table G: Steps Taken by Population Size

Response	Small	Medium	Large	All

IT infrastructure	42%	33%	30%	35%
General IT improvements	25%	33%	40%	32%
Stakeholder buy-in	42%	33%	10%	29%

Interview Question 5 - What barriers need to be dealt with?

Both funding and workplace culture & expertise received an overall response at 81% and 72%, respectively. In terms of funding, large municipalities responded at a lower rate of 60% which is lower than small municipalities at 83%. 100% of all medium-sized municipalities responded that funding was a barrier. There were high amounts of variability by municipality size in other responses, in particular stakeholder buy-in and IT infrastructure.

Table H: Barriers by Population Size

Response	Small	Medium	Large	All
Funding	83%	100%	60%	81%
IT Infrastructure	42%	0%	20%	23%
Workplace Culture & Expertise	67%	78%	80%	74%
Data Analysis	17%	0%	0%	6%
Stakeholder Buy-in	25%	56%	0%	26%

The consistent trend in funding and workplace culture & expertise suggests these are common barriers to municipalities regardless of size. The striking variability in IT infrastructure and stakeholder buy-in are areas in the study of barriers which should be further inquired into.

Interview Question 6 - Is there support for these efforts from individuals or organizations inside or outside your municipality? What is the nature of this support?

Regardless of municipality size, municipalities consistently utilize different categories of resources. The notable exception is in the category of academic institutions, where large municipalities responded at a much higher rate. This is somewhat expected due to a concentration of colleges and universities near the major population centers in New York State.

Table I: Organizations, Resources and Support by Population Size

Response	Small	Medium	Large	All

Professional Organizations	58%	56%	60%	58%
Academic Institutions	17%	11%	50%	26%
Government	42%	44%	60%	48%
Individuals/Consultant	50%	33%	20%	35%

Interview Question 7 - What does the effort need at this point that you don't have or cannot get?
The highest rates of response is funding, workplace culture & expertise, IT infrastructure, and stakeholder buy-in. The top barriers in Table H and the needs of municipalities in Table J are consistent as to be expected.

Table J: Needs by Population Size

Response	Small	Medium	Large	All
Funding	25%	78%	70%	55%
IT infrastructure	33%	11%	10%	19%
Workplace culture & expertise	25%	56%	40%	39%
Stakeholder Buy-in	33%	44%	30%	35%

There are striking inconsistencies, however, in the breakdown of barriers and needs by municipality size. This is an area in the study that should be further inquired into to understand these notable inconsistencies.

Interview Question 8 - How can the state help?
The highest rates of response are funding, and workplace culture & expertise. Response rates were driven by medium sized municipalities, who responded at over 25 percentage points higher than both small and large municipalities in both categories. Interestingly, this pattern is exactly reversed for the coded responses of best practices, and stakeholder buy-in, where medium sized municipalities responded in much lower rates than either small or large municipalities, as well as lower rates than all municipalities combined.

How can the State help?

Graph 9.1 legend: Small, Medium, Large

How Can The State Help?
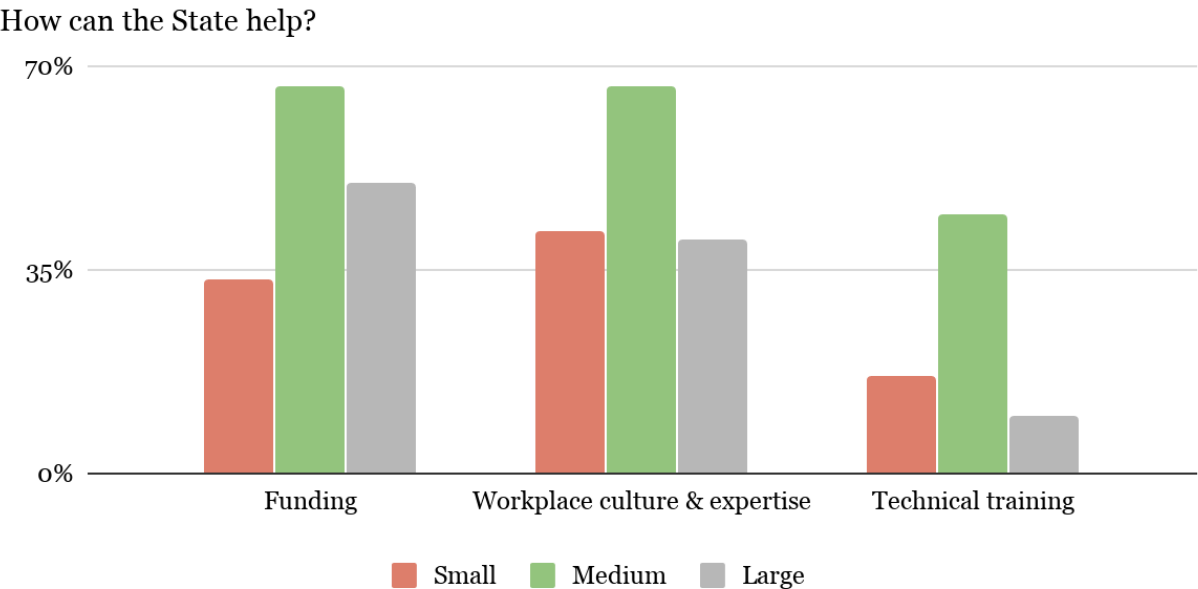
Graph 9.2 legend: Small, Medium, Large
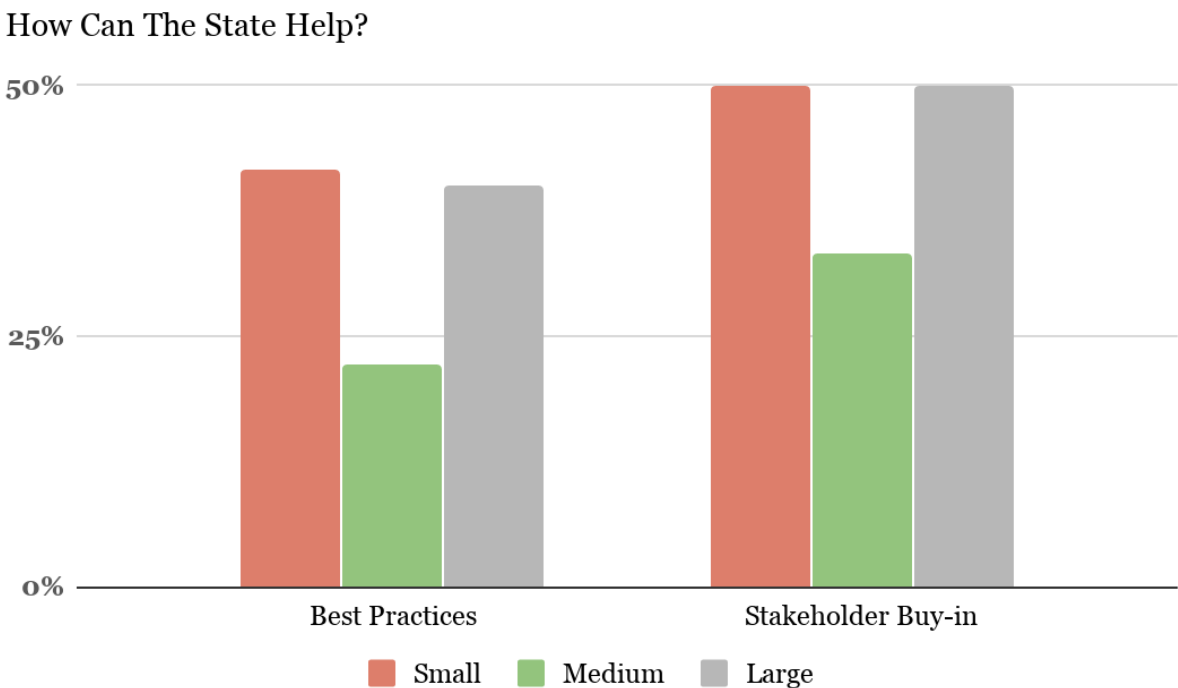
In summary, all municipalities want funding for technology improvements. Both medium and large municipalities want to improve the workplace culture and receive guidance and standards from the state for data management expertise. Small and large municipalities need stakeholder buy-in as part of their barriers to achieving better data management capabilities. The difference

between small and medium municipalities is that small municipalities are looking for best practices whereas medium municipalities need technical training on software. Diagram 1 shows the similarities and differences between municipalities by population size.

Diagram 1: Similarities and Differences of Municipalities by Population Size

Small municipalities

Best Practices

Stakeholder Buy-in

Funding

Technical Training

Medium municipalities

Workplace Culture & Expertise

Large municipalities
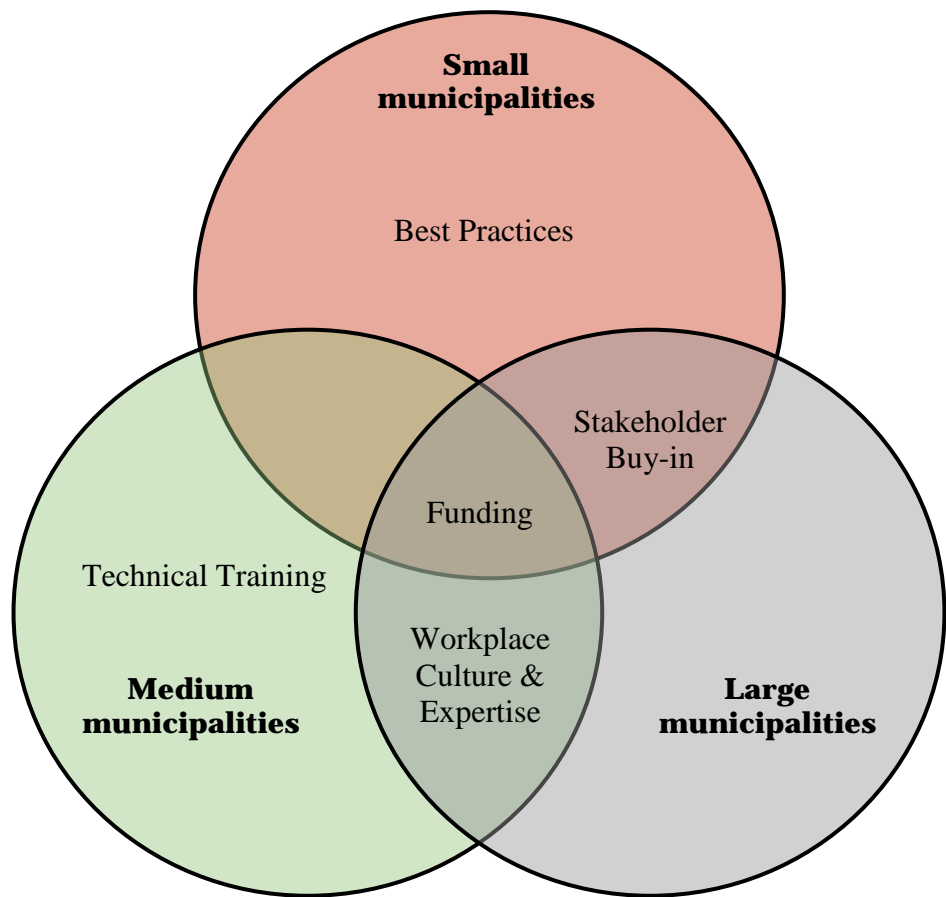
Policy Recommendations

The following recommendations are based on ideas and suggestions from the interview data. The policy recommendations address three key barriers revealed by the interview data: insufficient funding, concern with workplace culture and expertise and inconsistent stakeholder buy-in.

Diagram 2 illustrates the relationship in which the proposed three policy recommendations work together to move the gear into better data management capabilities across New York State.

Diagram 2: Policy Recommendations At-A-Glance
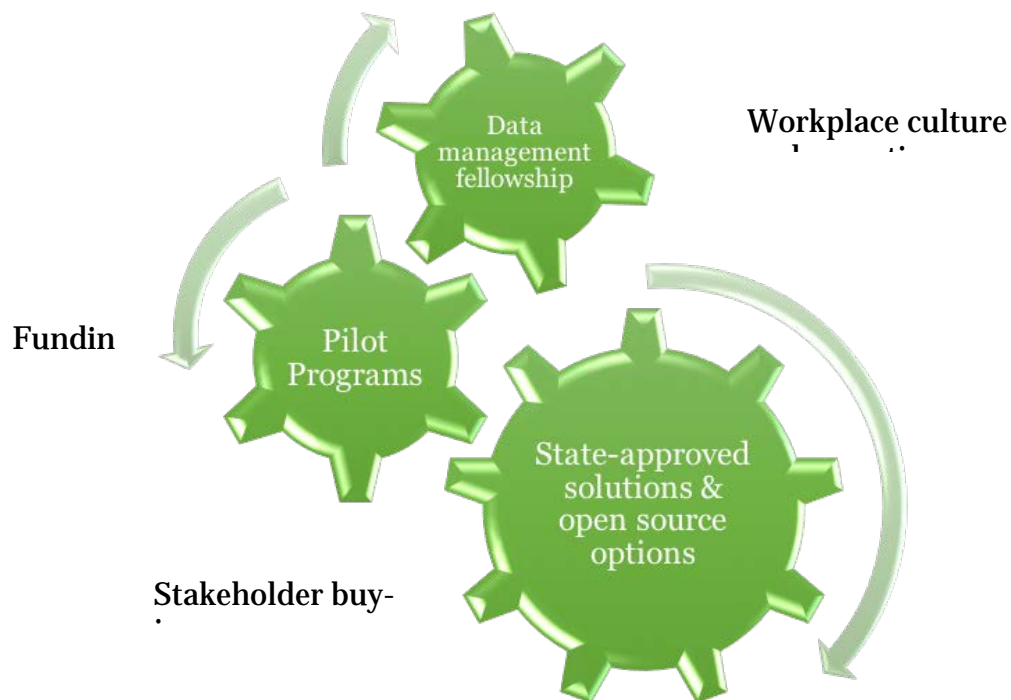
Policy Recommendation 1: State-approved solutions and open-source software options

"Build a list of vetted consultants, negotiate a price for consultants." — County official

"If state vetted all (accounting) system software and did the troubleshooting as well." — Town official

"OpenStack is better than VMWare in many ways, but we don't have the expertise to use open source without training" — City official

"Create a framework to streamline data entries and eliminate redundancies by inputting the same information into multiple systems." — Town official

"The City can buy and procure all the technology they want, but the workforce needs to be trained and training costs money." — City official

Interviewees reported that difficulties in sourcing vetted software, vendor, and consulting solutions was a limiting factor in their ability to use data to address priorities. Moreover,

municipalities faced barriers to their use of data because of a lack of streamlined data services both in inter-municipal and intra-municipal contexts. State-approved standards and vetted solutions for software and training could aid the development of data management practice that is consistent across and within municipalities. Municipalities believe that there is no authoritative source for seeking solutions for data management regarding software purchasing and consulting contracts. Local government officials feel that they or their staff do not have enough access to training (webinars, workshops, etc.) and specialized training is needed for rural municipalities. Vendor-licensed software is expensive and requires the purchase of licenses. The training for these programs is included in the higher systems but the training is not always effective. Although open source software is free, users must have developed expertise and training is not commercially available.

A vetted solution policy would provide municipalities with the resources they need to not only procure data management resources that meet their needs in a cost effective manner, but also better develop consistent statewide data management practices that aid in streamlining. By vetting software and consulting vendors at the state level, smaller municipalities in particular would benefit from saving money, time, and staff on researching potential solutions.

An even bolder move in this direction would see New York State adopting a policy of implementing open-source software use throughout the state. Open-source software is a less expensive, even free, software solution that has capabilities equal to or even exceeding vendor-licensed software in some cases. Unlike vendor-licensed software, open-source software does not include professional training and support. In this scenario, New York State could develop a training and support staff that would make it feasible for municipalities to adopt open-source software for use.

Policy Recommendation 2: Support data management pilot programs
"Comprehensive Plan at the county level, help counties modernize, implement a pilot program to demonstrate progress, demonstrate need." — County official

"Organization needs to be restructured, the roles have to change to address culture shifts, mayoral buy-in (crucial!), citywide projects that do not have immediate benefit, leadership." — City official

Both executives and IT leaders in the municipalities interviewed expressed a strong need to change the workplace culture as it relates to data management. One of the most consistent

barriers cited among the respondents was workplace culture and resistance to change. These were consistently cited barriers across municipal size. Interviewees also consistently reported that a lack of successful models in New York State limited their ability to influence others and drive change through referencing established successes that underscore the value of data management in government. Interviewees generally felt that New York State could 'show the way' to many municipalities by providing tangible results that make the value of data management perceptible to smaller local governments.

One recommendation for how New York State provide leadership in data management would be to administer a grant for pilot programs. In concert with the findings of this report, the State can utilize pilot programs as a way to stimulate a data culture by motivating local governments to assess their specific data management needs and generate ideas for potential solutions through a pilot program. The purpose of supporting pilot programs in local governments is to achieve small victories with concrete results to fuel further investments and innovations to better make decisions using data.

Policy Recommendation 3: Statewide data management fellowship
"Eliminate the civil service exam for IT and tech related roles - this would shorten timelines for hiring and help deal with the competitive hiring market for IT expertise." — City official

Interviewees repeatedly articulated struggling to attract a workforce, citing limited funding as a barrier for attracting talented workers in a competitive market. The private labor market generally offers higher salaries than comparable government jobs in the tech sector. Government hiring practices, including civil service exams, cause comparatively long hiring turnaround times that further disadvantage New York State as a competitor in the labor market for talent.

A state-funded data management fellowship program can address municipalities' need for talented staff in a cost-effective manner. The program will offer the opportunity for interested applicants to participate in a statewide project to overhaul and develop the data management capabilities of municipalities across the state. This can attract recent graduates in the field interested with the experience and generate a pool of talented staff at lesser cost. This will benefit local governments in two ways. In the short term, local governments will get talented individuals with innovative ideas to spearhead pilot programs. In the long term, the State will create a new generation of data workforce that will contribute to more efficient data management.

Summary and Conclusion

To summarize, the study found insufficient funding, concerns regarding workplace culture and expertise and inconsistent stakeholder buy-in as key barriers for local governments in addressing their data and technology needs. Findings from the online survey and follow up phone interviews also indicated that saving money and eliminating ineffective practices are top two priorities for municipalities. Local governments have expressed needs to streamline services via online payments, automation and elimination of paper forms. Currently, municipalities are working to overcome these barrier by investing in IT infrastructure and general IT improvements such as centralizing data management systems, purchasing vendor-licensed software and utilizing virtual desktops. Across the board, many municipalities have indicated the interest for the State to provide policies, guidelines and standards for data management.

Therefore, this study recommends the State to provide state-approved software solutions and open source options, provide funding to support pilot programs in municipalities and establish a statewide data management fellowship. These actions can help New York State achieve long term cost savings, establish consistent practices across different levels of government and cultivate 21st century data workforce to spearhead data and technological improvements.

In conclusion, this study serves as a first step to a larger process of understanding local government data and technology needs. Further inquiries are needed to better understand the nuances and complexities of this subject. Some of these questions include:

- How do the barriers identified in this study work to interfere with local governments' ability to use data to meet goals?
- What specific skills and knowledge do local governments need to begin addressing their data management challenges?
- What are the most commonly used tools and software in local governments throughout New York State?
- What is the level of awareness among different municipalities when it comes to existing data management frameworks and models?
- Local governments have asked for standards, but what specific standards would be most helpful?
- What are some pilot program ideas?

Appendices

Appendix A: List of 94 Municipalities Surveyed

Municipality

City of Auburn

City of Beacon

City of Binghamton

City of Buffalo

City of Cohoes

City of Cortland

City of Gloversville

City of Jamestown

City of Kingston

City of Lackawanna

City of Lockport

City of Mt Vernon

City of New Rochelle

City of Niagara Falls

City of Peekskill

City of Plattsburgh

City of Poughkeepsie

City of Rochester

City of Rome

City of Rye

City of Syracuse

City of White Plains

City of Yonkers

County of Allegany

County of Allegany

County of Broome

County of Cattaraugus

County of Cayuga

County of Chautauqua

County of Chemung

County of Clinton

County of Cortland

County of Dutchess

County of Franklin

County of Genesee

County of Herkimer

County of Lewis

County of Livingston

County of Madison

County of Montgomery

County of Montgomery

County of Nassau

County of Orleans

County of Oswego

County of Putnam

County of Schuyler

County of Steuben

County of Sullivan

County of Tioga

County of Tompkins

County of Warren

County of Washington

County of Westchester

County of Wyoming

Town of Babylon

Town of Bethlehem

Town of Brookhaven

Town of Camillus

Town of Chili

Town of Cicero

Town of Clarkstown

Town of Colonie

Town of East Hampton

Town of Evans

Town of Fishkill

Town of Grand Island

Town of Hamburg

Town of Hempstead

Town of Henrietta

Town of Irondequoit

Town of Le Ray

Town of Mamaroneck

Town of Manlius

Town of Milton

Town of Mount Pleasant

Town of New Windsor

Town of Newburgh

Town of North Hempstead

Town of Orchard Park

Town of Ossining

Town of Pittsford

Town of Potsdam

Town of Poughkeepsie

Town of Riverhead

Town of Rotterdam

Town of Saugerties

Town of Smithtown

Town of Union

Town of Vestal

Town of Warwick

Town of Wilton

Village of Kiryas Joel

Village of Massapequa Park

Village of Ossining

Village of Rockville Centre

Village of Scarsdale

Appendix B: Online Survey

Local Government Information Practices Study

Part A. Who are you?

WE RECOMMEND USING GOOGLE CHROME TO FILL OUT THIS FORM

*We strongly recommend that you use **Google Chrome** or **Mozilla Firefox** web browser to submit your response online.*

INSTRUCTIONS

The purpose of this survey is to understand the current state of local government information management practices and inform the Department of State's efforts to improve the local government information ecosystem. Survey data will be shared with a research team at the Maxwell School of Citizenship and Public Affairs at Syracuse University. The final report of the team will be shared with you and with all survey respondents. We estimate this survey will take 10-15 minutes to complete. We recommend that a chief or senior executive officer of the municipality completes this survey with the official who manages your information systems.

Please complete the pages in order. Please note that some questions will be displayed only if they are pertinent based on your previous answers. If you have technical difficulty, you may call the Division of Local Government Services by phone at (518) 473-3355 or email General.Div.LocGovernment@dos.ny.gov.

We will not retain survey results after analysis is completed, and expect to dispose of survey data by December 31, 2018.

NAME OF MUNICIPALITY *

Provide the full name of the municipality (e.g. "County of Albany" or "City of Albany").

▼

YOUR NAME *

YOUR ROLE IN THE LOCAL GOVERNMENT *

○ Chief Executive - Elected (mayor, supervisor, executive)

○ Chief Executive - Appointed (manager, administrator)

○ Legislative Board Member (legislator, trustee, councilmember)

○ Information Technology Officer (CIO or similar)

○ Data Officer (CDO or similar)

○ Senior Executive (deputy, commissioner not specifically for IT or data)

○ Other

SPECIFY OTHER.

YOUR EMAIL *

YOUR PHONE

ARE YOU INTERESTED TO RECEIVE INFORMATION ABOUT FOLLOWUP ACTIVITIES RELATED TO THIS SURVEY? *

Followup communications may include reports regarding the results of the survey or of meetings or conferences where the topics addressed in this survey may be discussed further.

◉ Yes

○ No

HOW MANY YEARS HAVE YOU HAD THIS ROLE IN THE LOCAL GOVERNMENT? *

Round to the nearest whole year

HOW MANY YEARS HAVE YOU BEEN EMPLOYED BY THE LOCAL GOVERNMENT? *

Include total years of service in your current role and any other roles in which you have been employed by the local government.

Part B. What information practices are important to your local government?

THE PURPOSE OF THIS SECTION IS TO UNDERSTAND HOW FEASIBLE AND RELEVANT TO YOUR LOCAL GOVERNMENT ARE SEVERAL DIFFERENT WAYS OF USING ITS INFORMATION. EACH OF THE FOLLOWING TASKS ARE REPRESENTATIVE OF A RANGE OF INFORMATION MANAGEMENT CAPABILITIES OTHER LOCAL GOVERNMENTS HAVE EXPRESSED INTEREST TO HAVE. FOR EACH, PLEASE TELL US:

HOW IMPORTANT DO YOU THINK THIS WAY OF USING INFORMATION IS TO ACHIEVING YOUR LOCAL GOVERNMENT'S GOALS?

HOW EASY IS IT FOR YOUR LOCAL GOVERNMENT TO USE INFORMATION IN THIS MANNER TODAY?

B1. FIGURE WHAT IT COSTS FOR THE LOCAL GOVERNMENT TO DELIVER A PARTICULAR LEVEL OF SERVICE IN EACH PROGRAM. *For example, you determine what it costs to achieve a certain response time in a neighborhood.*	HOW IMPORTANT? ○ Not Important ○ Helpful ○ Somewhat Important ○ Important ○ Necessary	HOW EASY? ○ Impossible ○ Rarely Feasible ○ Sometimes Feasible ○ Often Feasible ○ Easy
B2. FIGURE WHAT IT COSTS YOUR LOCAL GOVERNMENT TO MAINTAIN A CAPITAL ASSET (LIKE A BUILDING, STREET, BRIDGE, FLEET). *For example, you determine what it costs to maintain a new building over its expected life.*	HOW IMPORTANT? ○ Not Important ○ Helpful ○ Somewhat Important ○ Important ○ Necessary	HOW EASY? ○ Impossible ○ Rarely Feasible ○ Sometimes Feasible ○ Often Feasible ○ Easy
B3. CONFIRM OR RULE OUT A SUSPECTED CAUSE OF CHRONIC PROBLEMS OR COMPLAINTS WITHIN YOUR LOCAL GOVERNMENT'S PROGRAMS. *For example, you determine whether it is a staffing issue or equipment failure that is driving complaints about garbage delivery in a neighborhood.*	HOW IMPORTANT? ○ Not Important ○ Helpful ○ Somewhat Important ○ Important ○ Necessary	HOW EASY? ○ Impossible ○ Rarely Feasible ○ Sometimes Feasible ○ Often Feasible ○ Easy

	HOW IMPORTANT?	HOW EASY?
B4. UNDERSTAND PAST INTERACTIONS AND PENDING BUSINESS A PERSON, ORGANIZATION, OR PROPERTY HAS WITH YOUR LOCAL GOVERNMENT. *For example, you identify building permits, crime issues, and health complaints associated with properties belonging to a person or company.*	◯ Not Important ◯ Helpful ◯ Somewhat Important ◯ Important ◯ Necessary	◯ Impossible ◯ Rarely Feasible ◯ Sometimes Feasible ◯ Often Feasible ◯ Easy
B5. CONDUCT ROUTINE LOCAL GOVERNMENT BUSINESS WITH CITIZENS ONLINE. *For example, citizens can submit a building permit application and pay associated fees online.*	◯ Not Important ◯ Helpful ◯ Somewhat Important ◯ Important ◯ Necessary	◯ Impossible ◯ Rarely Feasible ◯ Sometimes Feasible ◯ Often Feasible ◯ Easy
B6. COMPARE YOUR LOCAL GOVERNMENT'S PERFORMANCE IN ONE PROGRAM OR KIND OF OPERATION WITH OTHERS IN THE REGION IN MEANINGFUL, APPLES-TO-APPLES TERMS. *For example you can compare what your local government spends per lane mile on snow removal with other similarly situated local governments.*	◯ Not Important ◯ Helpful ◯ Somewhat Important ◯ Important ◯ Necessary	◯ Impossible ◯ Rarely Feasible ◯ Sometimes Feasible ◯ Often Feasible ◯ Easy
B7. PREVENT, DETECT, AND MITIGATE THE RISK OF CYBERATTACKS ON YOUR LOCAL GOVERNMENT'S SYSTEMS. *For example, you stop a ransomware attack before it compromises systems or recover quickly because all systems are backed up routinely. A ransomware attack is where hackers infiltrate a key system, lock out the local government, and demand a payment (the "ransom") to restore access.*	◯ Not Important ◯ Helpful ◯ Somewhat Important ◯ Important ◯ Necessary	◯ Impossible ◯ Rarely Feasible ◯ Sometimes Feasible ◯ Often Feasible ◯ Easy

B8. ASSURE PROTECTED INFORMATION SHARED WITH YOUR LOCAL GOVERNMENT BY OTHER GOVERNMENTS AND ORGANIZATIONS IS NOT MIS-USED. *For example, you can assure that all staff using a particular dataset understand and follow the terms of use attached to it.*	HOW IMPORTANT? ◯ Not Important ◯ Helpful ◯ Somewhat Important ◯ Important ◯ Necessary	HOW EASY? ◯ Impossible ◯ Rarely Feasible ◯ Sometimes Feasible ◯ Often Feasible ◯ Easy
B9. COMPARE ACTIONS AND RESULTS YOUR LOCAL GOVERNMENT TOOK IN A PARTICULAR PROGRAM YEAR-OVER-YEAR TO MONITOR TRENDS OVER TIME. *For example, you see that the condition of your local government's highway network deteriorated over the last five years at the same time that preventative maintenance work was scaled back.*	HOW IMPORTANT? ◯ Not Important ◯ Helpful ◯ Somewhat Important ◯ Important ◯ Necessary	HOW EASY? ◯ Impossible ◯ Rarely Feasible ◯ Sometimes Feasible ◯ Often Feasible ◯ Easy
B10. PLOT INFORMATION FROM DIFFERENT PROGRAMS IN YOUR LOCAL GOVERNMENT AND OVERLAY WITH DATA FROM OTHER AGENCIES OR ORGANIZATIONS ON MAPS TO IDENTIFY PLACE-BASED RELATIONSHIPS. *For example, you create a dashboard with a map showing relationship between blight issues and opioid abuse incidents.*	HOW IMPORTANT? ◯ Not Important ◯ Helpful ◯ Somewhat Important ◯ Important ◯ Necessary	HOW EASY? ◯ Impossible ◯ Rarely Feasible ◯ Sometimes Feasible ◯ Often Feasible ◯ Easy
B11. MAINTAIN INTERACTIVE TOOLS FOR CITIZENS TO VISUALIZE DATA IN GRAPHS OR MAPS THAT ILLUSTRATE KEY INSIGHTS GLEANED FROM YOUR LOCAL GOVERNMENT'S DATA. *For example, you provide an interactive, online map that shows how quickly streets are plowed after a snow storm.*	HOW IMPORTANT? ◯ Not Important ◯ Helpful ◯ Somewhat Important ◯ Important ◯ Necessary	HOW EASY? ◯ Impossible ◯ Rarely Feasible ◯ Sometimes Feasible ◯ Often Feasible ◯ Easy

Part C. How does the manage and use its data today?

WE WANT TO UNDERSTAND HOW YOU MANAGE AND USE YOUR DATA TODAY. THE QUESTIONS IN THIS SECTION ARE ADAPTED FROM THE WHAT WORKS CITIES STANDARD, WHICH IS ONE POPULAR MODEL FOR DATA-DRIVEN GOVERNMENT THAT INCORPORATES 50 SUGGESTED PRACTICES. OUR QUESTIONS ADDRESS A SUBSET OF THE LARGER STANDARD.

C1. DOES YOUR LOCAL GOVERNMENT HAVE AN OPEN DATA POLICY?

The policy might take the form of a regulation, executive order, ordinance, local law, etc. For example, New York State's Open Data Policy is an Executive Order.

◯ Yes

◯ No

C1.1. WHERE CAN WE FIND YOUR OPEN DATA POLICY?

Please provide a URL, local law number, or other identifier we can use to look it up.

C1.2. DOES YOUR LOCAL GOVERNMENT'S OPEN DATA POLICY CALL FOR REGULAR MAINTENANCE AND AT LEAST AN ANNUAL PROACTIVE RELEASE OF GOVERNMENT DATA ONLINE?

◯ Yes

◯ No

C1.3. DOES YOUR LOCAL GOVERNMENT'S OPEN DATA POLICY REQUIRE A PROCESS TO ENSURE DATA QUALITY AND USABILITY?

For example, quality assurance process, publication of metadata, searchable catalog.

◯ Yes

◯ No

C1.4. DOES YOUR LOCAL GOVERNMENT'S OPEN DATA POLICY ESTABLISH A GOVERNANCE STRUCTURE THAT CALLS FOR ACTIONABLE STEPS FOR YOUR STAFF AND OVERSIGHT AUTHORITIES TO FOLLOW TO SEE THE POLICY THROUGH TO IMPLEMENTATION?

◯ Yes

◯ No

C1.5. DOES YOUR LOCAL GOVERNMENT'S OPEN DATA POLICY REQUIRE PERIODIC REVIEW FOR POTENTIAL CHANGES TO THE OPEN DATA POLICY AND PROGRAM?

◯ Yes

◯ No

DOES YOUR LOCAL GOVERNMENT HAVE A DATA GOVERNANCE PRACTICE TO ENSURE DATA QUALITY AND USABILITY?

For example, quality assurance process, documentation of metadata.

◯ Yes

◯ No

DOES YOUR LOCAL GOVERNMENT CLASSIFY DATA ACCORDING TO SENSITIVITY AND NEED FOR PROTECTION?

For example, by attaching metadata or annotations to indicate specific protections/restrictions that apply to each data set.

◯ Yes

◯ No

C2. HAS YOUR LOCAL GOVERNMENT DEFINED AND MADE PUBLICLY AVAILABLE TIME-BOUND, MEASURABLE STRATEGIC GOALS ACROSS DEPARTMENTS?

For illustration, an example of such a goal would be a public pledge "to reduce homicide by 20% in three years".

○ Yes

○ No

C2.1. DOES YOUR MAYOR OR CHIEF EXECUTIVE PUBLICLY COMMIT TO THESE STRATEGIC GOALS AND PROGRESS TOWARD THEM?

○ Yes

○ No

C3. DOES YOUR LOCAL GOVERNMENT HAVE A POLICY THAT ESTABLISHES PERFORMANCE MANAGEMENT OR IMPROVEMENT PROGRAM FOR THE MUNICIPALITY?

*Performance measurement is an ongoing process that monitors and reports on a program's progress and accomplishments by using **pre-selected performance measures**. For illustration, examples of such programs include Stat, performance management, and Lean Six Sigma. The policy might take the form of a regulation, executive order, ordinance, local law, etc.*

○ Yes

○ No

C3.1. WHERE CAN THE THIS POLICY THAT ESTABLISHES A PERFORMANCE MANAGEMENT OR IMPROVEMENT PROGRAM FOR THE LOCAL GOVERNMENT BE FOUND?

Please provide a URL, local law number, or other identifier we can use to look it up.

C4. DOES YOUR LOCAL GOVERNMENT HAVE A POLICY REQUIRING EMPIRICAL EVALUATION OF THE PROGRAMS AND PRACTICES?

Program evaluation uses measurement and analysis to answer specific questions about how well a program is achieving its outcomes and why. The policy might take the form of a regulation, executive order, ordinance, local law, etc.

○ Yes

○ No

C4.1. WHERE CAN WE FIND THIS POLICY THAT REQUIRES EVALUATION OF YOUR LOCAL GOVERNMENT'S PROGRAMS AND PRACTICES?

Please provide a URL, local law number, or other identifier we can use to look it up.

DOES YOUR LOCAL GOVERNMENT'S POLICY REQUIRE AT LEAST AN ANNUAL EVALUATION FOR ITS NEWEST INITIATIVES, PROGRAMS AND POLICIES?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT'S POLICY REQUIRE AN EVALUATION SET-ASIDE FOR BUDGETARY INVESTMENTS?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT HAVE A POLICY OR ORDINANCE REQUIRING THE MODIFICATION OF PRACTICES, PROGRAMS, AND/OR POLICIES THAT HAVE CONSISTENTLY FAILED TO ACHIEVE DESIRED OUTCOMES?

○ Yes

○ No

C5. DOES YOUR LOCAL GOVERNMENT HAVE AN OPEN DATA PORTAL?

An open data portal is a website for making electronic data records accessible in whole or in part to the public in machine-readible formats. For examples, see Syracuse's open data portal, New York State's open data portal, and United States open data portal.

○ Yes

○ No

C5.1. DOES YOUR LOCAL GOVERNMENT HAVE A WRITTEN AND ROUTINE PROCESS TO DETERMINE THE RELEASE OF OPEN DATA?

○ Yes

○ No

C5.1.1. WHERE CAN WE FIND A COPY OF THIS PROCESS?

Please specify a URL or other location or other point of contact where we can obtain a copy of the process.

C5.2. DOES YOUR LOCAL GOVERNMENT USE ANY COMMON CIVIC OR INDUSTRY STANDARD STRUCTURES FOR THE INFORMATION IT PUBLISHES AS OPEN DATA?

Data standards specify how data are formatted, what elements (fields, columns, etc.) they contain, and how those elements should be interpreted. Examples of common data standards used by local governments may be found in the Open Data Standards Library, maintained by the Center for Government Excellence at Johns Hopkins University.

○ Yes

○ No

LIST STANDARD STRUCTURES YOUR LOCAL GOVERNMENT USES IN ITS OPEN DATA. USE THE PLUS (+) AND MINUS (-) BUTTONS TO ADD OR REMOVE OPTIONS RESPECTIVELY.

NAME OF STANDARD

What is the name by which the standard is recognized?

WHAT PROGRAM OR GOVERNMENT FUNCTION DOES THE STANDARD APPLY TO?

URL (IF APPLICABLE)

Specify the URL where the standard specified by the authority that issues it, if it is available online.

C6. DOES YOUR LOCAL GOVERNMENT MAINTAIN A COMPREHENSIVE INVENTORY OF ITS DATA?

A comprehensive inventory would be a data catalog, database, or similar record of electronic records systems, description of specific information tracked in each system, and other metadata relevant to their management. For example, it might track who is responsible for each data set, who uses it, or how it used.

○ Yes

○ No

HAS YOUR LOCAL GOVERNMENT ESTABLISHED OR ADOPTED STANDARD FORMATS FORMATS FOR CERTAIN TYPES OF INFORMATION IT COLLECTS?

Data standards specify how data are formatted, what elements (fields, columns, etc.) they contain, and how those elements should be interpreted. Standards might for example, specify how addresses and dates are recorded. Examples of common data standards used by local governments may be found in the Open Data Standards Library, maintained by the Center for Government Excellence at Johns Hopkins University.

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT PUBLISH PROGRESS ON ITS GOALS ON AT LEAST A QUARTERLY BASIS?

For example, via a dashboard, update to city's strategic plan, etc.

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT DEFINE STRATEGIC OBJECTIVES AND DESIRED OUTCOMES FOR EACH KEY PROCUREMENT?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT MEASURE OUTCOMES, IMPACTS, AND/OR COST-EFFECTIVENESS OF AT LEAST FIVE KEY PROCUREMENTS, CONTRACTS, AND/OR GRANTS?

For example, by monitoring performance data in real-time and troubleshooting with contractors to achieve the goals of the contract and/or grant.

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT HAVE AN EVALUATION SYSTEM OR SCORECARD FOR KEY PROCUREMENTS, CONTRACTS, AND/OR GRANTS THAT FACILITATE COMPARISON OF OUTCOMES ACROSS CONTRACTORS TO DETERMINE WHICH CONTRACTORS ARE MOST EFFECTIVE?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT HAVE PUBLICLY AVAILABLE BASELINE EVALUATION STANDARDS OR EVALUATION PROTOCOLS TO PROTECT RIGOR OF THE EVALUATIONS IT FUNDS?

○ Yes

○ No

C7. DOES YOUR LOCAL GOVERNMENT HAVE A DESIGNATED PERSON OR TEAM RESPONSIBLE FOR MANAGING DATA ACROSS DEPARTMENTS?

○ Yes

○ No

C8. DOES YOUR LOCAL GOVERNMENT HAVE A DESIGNATED PERSON OR TEAM RESPONSIBLE FOR PERFORMANCE MANAGEMENT OR IMPROVEMENT?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT CONVENE A PERFORMANCE MANAGEMENT PROGRAM?

For example, Stat meetings.

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT HAVE A SET SCHEDULE FOR PERFORMANCE MANAGEMENT OR STAT MEETINGS?

○ Yes

○ No

DO YOUR CHIEF EXECUTIVE AND DIRECT REPORTS REGULARLY ATTENDE PERFORMANCE MANAGEMENT OR STAT MEETINGS?

○ Yes

○ No

DOES A SENIOR OFFICIAL WITH BUDGET AND DECISION-MAKING AUTHORITY LEAD THESE MEETINGS?

○ Yes

○ No

HAS YOUR LOCAL GOVERNMENT SELECTED SPECIFIC PERORMANCE MEASURERS AS KEY INDICATORS TO HIGHLIGHT AND VISIT ON A QUARTERLY BASIS?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT'S PERFORMANCE MANAGEMENT PROGRAM COLLECT AND STORE OUTCOMES AND PERFORMANCE DATA ON ITS CONTRACTS?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT HAVE A DEDICATED PERSON OR TEAM RESPONSIBLE FOR STRATEGICALLY MANAGING ITS MOST IMPORTANT PROCUREMENTS THAT ARE DUE IN THE UPCOMING YEAR?

○ Yes

○ No

IS THE PROCUREMENT AND CONTRACTS FUNCTION ORGANIZATIONALLY DIRECTLY BELOW YOUR LOCAL GOVERNMENT'S CHIEF EXECUTIVE?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT STRUCTURE THE PROCUREMENT AND CONTRACT PROCESS TO INCORPORATE INCENTIVES AND ALIGN TO STRATEGIC GOALS?

This would include the type of contract selected.

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT ACTIVELY MANAGE ONGOING KEY CONTRACTS AND GRANTS?

In other words, does your local government use performance data in real time and troubleshoot with contractors to achieve the goals of the contract or grant as needed?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT HAVE A DESIGNATED PERSON OR TEAM RESPONSIBLE FOR MANAGING EVALUATIONS?

○ Yes

○ No

C9. DOES YOUR LOCAL GOVERNMENT HAVE A PROTOCOL FOR CONDUCTING EXTERNAL RESEARCH AND EVALUATION PROJECTS?

For illustration, examples of such protocols would include data sharing agreements, an internal review process like an academic institutional review board (IRB). The policy might take the form of a regulation, executive order, ordinance, local law, guidance document, etc.

● Yes

● No

C9.1. WHERE CAN WE FIND A COPY OF THIS PROTOCOL?

Please specify a URL or other location or other point of contact where we can obtain a copy of the protocol.

DOES YOUR LOCAL GOVERNMENT HAVE SENIOR-LEVEL MANAGERS EMPOWERED TO REPURPOSE FUNDS FROM PRACTICES, PROGRAMS, AND/OR POLICIES THAT, THROUGH RIGOROUS DATA ANALYSIS AND EVALUATION, HAVE CONSISTENTLY FAILED TO ACHIEVE DESIRED OUTCOMES?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT HAVE A WRITTEN PROCESS FOR DETERMINING WHAT ACTION SHOULD BE TAKEN WHEN A PRACTICE, PROGRAM, OR POLICY HAS CONSISTENTLY FAILED TO ACHIEVE ITS ESTABLISHED OUTCOME-BASED PERFORMANCE TARGETS?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT HAVE A WRITTEN PROCESS THAT CALLS FOR THE PUBLIC RELEASE OF DATA THAT IS RELEVANT TO STATED GOALS AND OBJECTIVES, FUNDAMENTAL SERVICES, OR CORE MISSION?

○ Yes

○ No

C10. DOES YOUR LOCAL GOVERNMENT HAVE A PROCESSS TO RECEIVE PUBLIC DATA REQUESTS AND TO RELEASE DATA THAT IS RESPONSIVE TO THOSE REQUESTS?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT MAKE FUTURE CONTRACTING DECISIONS BASED ON A CONTRACTOR'S PAST PERFORMANCE?

○ Yes

○ No

DOES YOUR LOCAL GOVERNMENT APPLY RESUTLS-DRIVEN CONTRACTING STRATEGIES FOR YOUR FIVE MOST IMPORTANT (EITHER TYING TO HIGHER PRIORITY GOALS OR REPRESENTING LARGE DOLLAR AMOUNTS) CONTRACTS OR PROCUREMENTS?

◯ Yes

◯ No

IN THE LAST 12 MONTHS, HAS YOUR LOCAL GOVERNMENT INITIATED LOW COST OR RANDOMIZED EVALUATION OF PRIORITY PROGRAMS OR SERVICES IN FIVE OF ITS LARGEST DEPARTMENTS OR PROGRAMS?

◯ Yes

◯ No

IN THE LAST 12 MONTHS, HAS YOUR LOCAL GOVERNMENT ALLOCATED BUDGET SPECIFICALLY DESIGNATED FOR EVALUATION AS A CONDITION OF SIGN-OFF FOR NEW PROJECTS?

◯ Yes

◯ No

IN THE LAST 12 MONTHS, HAS YOUR LOCAL GOVERNMENT USED THE RESULTS FROM LOW COST OR RANDOMIZED EVALUATIONS TO MAKE OPERATIONAL OR POLICY CHANGES?

◯ Yes

◯ No

IN THE LAST 12 MONTHS, HAS YOUR LOCAL GOVERNMENT USED RIGOROUS DATA ANLAYSIS AND EVALUATION TO PUBLICLY IDENTIFY PRACTICES, PROGRAMS, AND/OR POLICIES THAT HAVE CONSISTENTLY FAILED TO ACHIEVE DESIRED OUTCOMES?

◯ Yes

◯ No

IN THE LAST 12 MONTHS, HAS YOUR LOCAL GOVERNMENT SHIFTED FUDNS AWAY FROM A PRACTICES, PROGRAM, OR POLICY THAT THROUGH RIGOROUS DATA ANALYSIS AND EVALUATION, HAS CONSISTENTLY FAILED TO ACHIEVE DESIRED OUTCOMES TOWARD A MORE EFFECTIVE AND EFFICIENT PRACTICE, PROGRAM OR POLICY?

◯ Yes

◯ No

HAS YOUR LOCAL GOVERNMENT COMMUNICATED THE DECISION TO SHIFT FUNDING BASED ON PRACTICES, POLICIES, AND/OR PROGRAMS THAT, THROUGH RIGOROUS DATA ANALYSIS AND EVALUATIONS ARE CONSISTENTLY FAILING TO ACHIEVE DESIRED OUTCOMES TO THE PUBLIC?

For example, communicated to residents, customers, and elected officials.

◯ Yes

◯ No

Part D. What are your information needs?

WE WANT TO UNDERSTAND YOUR LOCAL GOVERNMENT'S INFORMATION NEEDS FROM YOUR PERSPECTIVE. THE QUESTIONS BELOW ARE BASED ON AN EXERCISE CONDUCTED BY THE CENTER FOR TECHNOLOGY IN GOVERNMENT AT OUR 2017 LOCAL GOVERNMENT INNOVATION CONFERENCE. YOU MAY BE INTERESTED TO REVIEW THE KEYNOTE PRESENTATION "DATA IS THE NEW OIL: HOW TO MINE LOCAL GOVERNMENT'S LARGEST UNTAPPED RESOURCE" VIDEO FROM THIS CONFERENCE.

D1. ARE YOU SATISFIED WITH YOUR LOCAL GOVERNMENT'S CAPACITY TO INCORPORATE NEW TECHNOLOGY INTO ITS OPERATIONS? *

○ Yes

○ No

D1.1. DO THE LIMITATIONS YOU PERCEIVE IN YOUR LOCAL GOVERNMENT'S ABILITY TO MANAGE ITS INFORMATION ASSETS AND TECHNOLOGY IMPEDE YOUR ABILITY TO DELIVER ADEQUATE SERVICES TO CONSTITUENTS? *

○ Yes

○ No

D2. WHAT INFORMATION DO YOU WISH YOU HAD AVAILABLE ABOUT YOUR LOCAL GOVERNMENT THAT YOU DO NOT HAVE NOW?

D3. WHAT PREVENTS YOUR LOCAL GOVERNMENT FROM USING DATA TO INFORM DECISIONS AND POLICIES?

D4. WHAT TOOLS OR CAPABILITIES DOES YOUR LOCAL GOVERNMENT NEED TO USE DATA EFFECTIVELY?

D5. WHAT POLICIES, PROGRAMS, OR PLANS MUST YOUR LOCAL GOVERNMENT PUT IN PLACE TO UNDERSTAND AND ADDRESS ITS INFORMATION NEEDS?

D6. WHAT ASSISTANCE WOULD YOU WELCOME FROM NEW YORK STATE TO HELP YOUR LOCAL GOVERNMENT MEET ITS INFORMATION NEEDS?

Part E. What do you think about...

WE HAVE CONSIDERED SEVERAL WAYS NEW YORK STATE COULD HELP THE AND OTHER LOCAL GOVERNMENTS STATEWIDE TO MANAGE AND USE DATA MORE EFFECTIVELY. PLEASE LET US KNOW YOUR LEVEL OF INTEREST IN EACH OF THE IDEAS BELOW.

	No Way!	Probably Not	Maybe	Interested	Want It!
E1. PURSUING CERTIFICATION AS A WHAT WORKS CITY? *What Works Cities is an initiative supported by Bloomberg Philanthropies that promotes data driven government. Certification requires participating governments to commit to the organization's standard, which defines 50 characteristics particpants must strive for. Pursuing certification would entail committing to achieving these practices for your local government.*	○	○	○	○	○
E2. PURSUE CERTIFICATION AS A WHAT WORKS CITY WITH STATE FINANCIAL INCENTIVE FOR STARTUP COSTS? *What level of interest would you have in certification under such a program if a state financial incentive such as a matching grant were available to support implementation.*	○	○	○	○	○
E1 AND E2 OMITTED, NOT PERTINENT TO COUNTIES.					
E3. FREE DATA MANAGEMENT TRAINING? *Data management training would entail workshops taught by state-provided instructors in topics such as how to implement an open data program, how to manage data sets over their lifecycle, etc.*	○	○	○	○	○
E4. STATE-PROVIDED ONLINE SOLUTIONS? *The state would designate a team to develop online systems to support common local government tasks. The state would be responsible for long term support of these systems but would allow governments to opt into using them to support their own programs and maintain records in certain program areas.*	○	○	○	○	○
E5. PIGGYBACKING OFF ONLINE SOLUTIONS PURCHASED BY THE STATE? *The state would procure online software-as-a-service solutions to support common local government tasks. The contracts would allow local governments to purchase these services at a group-discounted per-seat price. The state would work with vendors and local governments to develop commonly needed integrations with other local systems and with any associated state systems.*	○	○	○	○	○

E6. CAREER PIPELINE PROGRAMS TO HIRE RECENT GRADUATES OF INFORMATION MANAGEMENT PROGRAMS AT LOCAL COLLEGES AND UNIVERSITIES? *Through SUNY and/or incentives to private higher education institutions the state would develop uniform training and certification programs for common data management roles. Local governments could integrate associated certifications into job titles associated with data management, retraining existing staff or recruiting new staff who meet certification standards.*	○	○	○	○	○
E7. HIRING INFORMATION SCIENCE STUDENTS FROM LOCAL COLLEGES AND UNIVERSITIES TO EVALUATE AND CATALOG YOUR INFORMATION SYSTEMS? *Local governments would partner with local SUNY or other higher education institutions and hire interns from information management programs to catalog their data assets and assess their data management capabilities. The state would provide matching financial support up to a certain amount to cover local government costs.*	○	○	○	○	○
E8. STATE-PROVIDED OPEN-DATA-AS-A-SERVICE? *The state would provide a software-as-a-service solution and technical assistance for participating local governments to stand up their own open data portals. The cost of the service would be minimized by group discount incentives and/or state subsidies.*	○	○	○	○	○
E9. STATE-PROVIDED DATA CATALOG-AS-A-SERVICE? *The state would provide a software-as-a-service solution and technical assistance for participating local governments to stand up their own comprehensive data catalog they can use to support data management needs. Costs would be minimized through a group discount incentive and/or state subsidy. Data catalogs would enable local officials to locate relevant information cataloged by any participating municipal government as well as any data maintained by the state.*	○	○	○	○	○
E10. ADOPTING A STATE-AUTHORED MODEL OPEN DATA POLICY? *The state would produce a model open data policy for local governments to consider implementing, along with guidance, training, and consulting services for municipalities wanting to adopt such a policy.*	○	○	○	○	○

E11. STATE REGULATIONS ESTABLISHING STANDARDS FOR PRIVATE AND PUBLIC DATA MANAGEMENT?	○	○	○	○	○

The state would establish uniform regulations regarding data management addressing obligations of public and private institutions to protect data. Regulations might follow existing models from other jurisdictions such as the European Union's General Data Protection Regulation (GDPR) or California's proposed Consumer Privacy Act, both of which which establish basic rights for users of online systems to be able to control how their personal information is shared.

E12. DEVELOPING REGIONAL, MULTI-JURISDICTIONAL TECHNOLOGY SOLUTIONS WITH STATE GRANTS?	○	○	○	○	○

The state would provide matching grants to local governments seeking to create shared data using common systems and standards. Such cooperatives would either produce or procure software-as-a-service solutions and high-quality, comparable shared data among participating municipalities.

E13. PLEASE SHARE ANY ADDITIONAL FEEDBACK YOU HAVE REGARDING THESE IDEAS

» Any ideas to add?

YOUR IDEA

Briefly describe your idea for how New York State can help your local government manage and use its data. Use the plus (+) button to the right to add more ideas.

DETAILS

Describe your idea in detail, if needed.

» Share your feedback

DO YOU HAVE ANY FEEDBACK REGARDING YOUR EXPERIENCE WITH THIS SURVEY?

Please share any thoughts, questions, concerns, etc. that come to mind as you have completed this survey.

Appendix C: Inventory of Data Management Policies

City of Albany Open Data Policy

What is openAlbany?

Open data is the process of making data that belongs to the public broadly accessible and usable by humans and machines, free of any constraints. The most important aspects of open data are as follows:

Availability and Access: The data must be available as a whole and at no more than a reasonable reproduction cost, preferably by downloading over the internet. The data must also be available in a convenient and modifiable form.

Reuse and Redistribution: The data must be provided under terms that permit reuse and redistribution including intermixing with other datasets.

Universal Participation: Everyone must be able to use, reuse and redistribute the data, free of restrictions.

Connecting People with Data
Leading public sector innovators are leveraging cloud, platform and social technologies to deliver better citizen access to information, modernize online service delivery and improve internal efficiencies. The goal is to transform data assets into productive information resources that people can easily access, share and reuse. By sharing our data in an open and transparent means, we empower our citizens and ourselves to access information anywhere, anytime.

In an effort to continue this collaborative effort we invite you to participate by suggesting a dataset to include and share some of the ways in which you use are currently provided data sets.

City of Buffalo Open Data Policy

WHEREAS, the City of Buffalo (the "City") is committed to fostering an open, efficient, accountable, and accessible government; and

WHEREAS, timely and consistent publication of open data is an essential component of such governance; and

WHEREAS, the adoption of an Open Data Policy will improve the provision of citizen services, enhance coordination and efficiency among and between City departments, divisions, and partner organizations, and increase opportunities for civic engagement and economic development; and

WHEREAS, making open data available online for reuse and consumption creates value for residents, government leaders, businesses, researchers, and the media, and facilitates the proactive provision of information currently sought through Freedom of Information Law requests; and

WHEREAS, an Open Data Program is crucial to providing opportunity for all and improving the City's relationship within the various communities; and

WHEREAS, information technologies, including web-based and other internet applications and services, are an essential means for open government, and good governance generally; and

WHEREAS, the protection of privacy, confidentiality and security will be maintained as a paramount priority while also advancing the government's transparency and accountability through open data.

NOW, THEREFORE, I, Byron W. Brown, Mayor of the City of Buffalo, New York, by virtue of the executive and administrative authority vested in me by the Charter and Code of the City of Buffalo and the statutes and laws of the State of New York, do hereby direct and order as follows:

DEFINITIONS
"Data" means statistical, factual, quantitative, or qualitative information that is maintained or created by or on behalf of a City department.

"Open data" means publishable City data and datasets that are available online, in a freely accessible format. Open data is provided in machine-readable format via Application Programming Interfaces (API)

"Open format" means any widely accepted, nonproprietary, platform-independent, machine-readable method for formatting data, which permits automated processing of open data and facilitates search capabilities.

"Data portal" means the internet site established and maintained by or on behalf of the City for the collection and dissemination of publishable City data and datasets.

"Dataset" means a named collection of related records, with the collection containing data organized or formatted in a specific or prescribed way, often in tabular form and which does not contain any protected or sensitive information and which has been prepared for release on the Open Data Portal.

"Protected information" means any dataset or portion thereof to which a City department, office, administrative unit, commission, board, advisory committee or other division/department of the City government including third-party agency contractors that create or acquire information, records, or data on behalf of a City division/department, may deny access pursuant to applicable privileges or confidentiality doctrines and/or any applicable federal laws and/or the laws of the State of New York.

"Publishable City data" means data which does not contain any protected or sensitive information and which has been prepared for release on the Open Data Portal.

"Sensitive information" means any data that is subject to applicable exceptions or exemptions from disclosure pursuant to federal or state law or under such circumstances where, if such data were published on the Open Data Portal, its disclosure could raise privacy, confidentiality, privilege or security concerns or have the potential to jeopardize public health, safety or welfare to an extent that is greater than the potential public benefit of publishing that data.

OPEN DATA PROGRAM
The City is subject to New York State Public Officers Law Article 6 Sections 84-90 more commonly cited as the Freedom of Information Law. The Freedom of Information Law pertains

to the people's right to know the process of governmental decision-making and to review the documents and statistics leading to determinations is basic to our society. The State Legislature declares that government is the public's business and that the public, individually and collectively and represented by a free press, should have access to the records of government in accordance with the provisions of the law.

The City will build on this existing principle by developing and implementing practices that allow it to:

1. Proactively release all open data through a central location, making it freely available and fully accessible to the broadest range of users in readily accessible formats without any licensing fees or restrictions on use or reuse;
2. Publish high quality, updated open data with documentation (metadata) to encourage maximal use;
3. Minimize limitations on the disclosure of public information while appropriately safeguarding protected and sensitive information;
4. Encourage innovative uses of open data by the City's departments/divisions, agencies, boards, commissions, the public, and other partners;
5. Provide a space for showcasing the innovative ways in which open data is used by these various stakeholders;
6. Promote active participation by the community, including civic technologists, civic activists, programmers, and database specialists to develop tools and applications that turn open data into insight;
7. Promote open data that informs increases in government efficiency, improvements in the quality of life of its citizens, and more equal opportunities for all residents;
8. Commit to data-driven decision making by utilizing open data to measure and manage performance; and
9. Create and explore potential partnerships that bolster efforts related to open data release, such as: increasing the availability of open data; identifying citizen priorities for open data release; and connecting government information to open data held by nonprofits, community organizations, academic institutions, think tanks, public benefit corporations, neighboring governments, and other public entities.

The development and implementation of these practices will be overseen by the Open Data Governance Committee, which will report to the Mayor, or the Mayor's designee.

This policy will apply to any City department, office, administrative unit, commission, board, advisory committee or other division/department of the City government.

GOVERNANCE

The Open Data Program will be overseen by the Open Data Governance Committee, comprised of representatives from the Mayor's Office and City departments.

The head of each City Department will designate, from within the department, an open data liaison, who will: be responsible for managing that department's participation in the Open Data Program; identify potential publishable City data or datasets for inclusion in the Open Data Portal; contextualize publishable City data or datasets; explain or cite how the data was created; periodically update the publishable City data or datasets based on internal and external needs; serve on the Open Data Governance Committee; upon request, meet with the Open Data Governance Committee to discuss any matter pertaining to implementation of this policy; and assist in the preparation of the annual Open Data Compliance Report.

The Open Data Governance Committee will:
1. Oversee the creation of a comprehensive inventory of publishable City data and datasets held by each City department. The inventory will be published to the Open Data Portal and regularly updated when new publishable City data or datasets are created or identified;
2. Develop and implement a process for guarding against the publishing of potentially sensitive, protected, privileged and/or confidential information;
3. Develop and implement a process for prioritizing the publishable City data and datasets to the Open Data Portal which takes into account new and existing signals of interest from the public (such as the frequency of FOIL requests), the City's programmatic priorities, existing opportunities for publishable City data and datasets use in the public interest, and cost;
4. Establish processes for dissemination of publishable City data and datasets to the Open Data Portal, including processes for ensuring that datasets are reviewed for use-appropriate formats, quality, timeliness, and exclusion of protected and sensitive information;
5. Develop and oversee a routinely updated, publicly accessible timeline for new dissemination of publishable City data and datasets;
6. Ensure that access to protected and/or sensitive information is blocked, but make it possible to extract non-protected information from restricted sources and remove any data that represents policy concerns for publication, where feasible;
7. Ensure that publishable City data and datasets are available for bulk download on the Open Data Portal;

8. Provide for a future means of digitizing archived material that was in existence prior to the development of the Open Data Program;

9. Actively encourage department and public participation by providing regular opportunities for feedback and collaboration;

10. Ensure sufficient funding for implementation and support of an open data ecosystem by identifying funding sources for potential expenses, such as new staff, new software, training, and server maintenance;

11. Set appropriately ambitious, clear and firm timelines for implementation to provide motivation for action with benchmarks that can be used as metrics to quantify compliance with this policy;

12. Develop contract provisions to promote open data policies in procurements. These provisions will promote the City's Open Data Program, including, when appropriate, requirements to post publishable City data and datasets to the City's Open Data Portal or to make publishable City data and/or datasets data available through other means; and

13. Create a data governance standards document that defines: the vision and daily operation of the Open Data Program; the detailed roles and responsibilities of leadership and data liaisons within the program; a method for the identification and prioritization of datasets for publication and continuous updating; and a means for evaluating successes and failures of the Open Data Program.

ANNUAL OPEN DATA COMPLIANCE REPORT

Within 365 days of the effective date of this policy, the Open Data Governance Committee shall submit an Annual Open Data Compliance Report to the Mayor. The report shall include an assessment of progress toward achievement of the goals of the City's Open Data Program, a list of datasets and publishable City data currently available on the Open Data Portal, and a description and publication timeline for any new datasets and publishable City data envisioned to be published on the portal in the following year. Where possible, the report should include but not be limited to, metrics on each category of the publishable City data and datasets that are being used, by whom, and the manner in which the information is being used. The report should also include suggestions for improving the City's open data management processes in order to ensure that the City continues to move toward the achievement of the policy's goals.

Following the submission of its initial report, the Governance Committee will submit an updated report annually. The annual open data compliance report will be made available on the City's Open Data Portal.

Section 1: Purpose

This policy establishes guidelines for an open data program in the City of Syracuse. The city collects and creates large amounts of valuable information on aspects of life in Syracuse. Through this program, the public as well as internal departments and bureaus, will have faster and easier access to data and information via an online portal. The city recognizes that making data available in this way increases civic engagement, internal efficiencies, and transparency, while also fostering communication. It is also anticipated that this will improve government efficiency for the Freedom of Information Law (FOIL) officer and various staff who must satisfy FOIL requests. Data will be gradually released in a responsible manner, consistent with relevant public records law, and in consultation with the appropriate department heads. The information will be released in machine-readable formats. Finally, the protection of privacy, confidentiality and security will be maintained as a paramount priority while also advancing the government's transparency and accountability through open data.

Section 2: Definitions

"Data" means statistical, factual, quantitative, or qualitative information that is maintained or created by or on behalf of a city agency.

"Open data" means data that is available online, in an open format, with no legal encumbrances on use or reuse, and is available for all to access and download in full without fees.

"Legal encumbrance" includes federal copyright protections and other, non-statutory legal limitations on how or under what conditions a dataset may be used.

"Machine-readable" means data in a format that can be automatically read and processed by a computer, such as CSV, JSON, and XML. Machine-readable data is structured data.

"Dataset" means a named collection of related records, with the collection containing data organized or formatted in a specific or prescribed way, often in tabular form.

"Protected information" means any dataset or portion thereof to which an agency may deny access pursuant to New York State's Freedom of Information Laws or any other law or rule or regulation.

"Sensitive information" means any data which, if published by the city online, could raise privacy, confidentiality or security concerns or have the potential to jeopardize public health, safety or welfare to an extent that is greater than the potential public benefit of publishing that data.

"Publishable data" means data which is not protected or sensitive and which has been prepared for release to the public.

Section 3: Open Data Program
The city commits to develop and implement practices that will allow it to:

Proactively release all publishable city data, making it freely available in open formats, with no restrictions on use or reuse, and fully accessible to the broadest range of users to use for varying purposes;

Publish high quality, updated data with documentation (metadata) and permanence to encourage maximum use;

Provide or support access to free, historical archives of all released city data;

Measure the effectiveness of datasets made available through the Open Data Program by connecting open data efforts to the city's programmatic priorities;

Minimize limitations on the disclosure of public information while appropriately safeguarding protected and sensitive information; and

Support innovative uses of the city's publishable data by agencies, the public, and other partners. The development and implementation of these practices shall be overseen by the Chief Data Officer, reporting to the Chief of Staff.

The requirements of this policy shall apply to any city department, office, administrative unit, commission, board, advisory committee, bureau, or other division of city government, including the records of third party agency contractors that create or acquire information, records, or data on behalf of a city agency.

Priorities for data release will be determined by the Chief Data Officer with guidance from heads

of departments or assigned designees, input from the public, and ultimately approval by the corporation counsel's office and the Mayor or another top-level administration designee.

Section 4: Governance
Implementation of the Open Data Program will be overseen by the Chief Data Officer, who will work with the city's departments to:

Identify and publish appropriate contact information for a lead open data coordinator who will be responsible for managing that agency's participation in the Open Data Program;

Oversee the creation of a comprehensive inventory of datasets held by each city agency which is published to the central open data location and is regularly updated;

Develop and implement a process for determining the relative level of risk and public benefit associated with potentially sensitive, non-protected information so as to make a determination about whether and how to publish it;

Develop and implement a process for prioritizing the release of datasets which takes into account new and existing signals of interest from the public (such as the frequency of public records requests), the city's programmatic priorities, existing opportunities for data use in the public interest, and cost;

Proactively consult with members of the public, agency staff, and other stakeholders to identify the datasets which will have the greatest benefit to city residents if published in a high quality manner;

Establish processes for publishing datasets to the central open data location, including processes for ensuring that datasets are high quality, up-to-date, are in use-appropriate formats, and exclude protected and sensitive information;

Ensure that appropriate metadata is provided for each dataset in order to facilitate its use;
Develop and oversee a routinely updated, public timeline for new dataset publication; and

Ensure that published datasets are available for bulk download without legal encumbrance.

In order to increase and improve use of the city's open data, the [individual or group] will

actively encourage agency and public participation through providing regular opportunities for feedback and collaboration.

Section 5: Central Online Location for Published Data
The city will create and maintain a publicly available location on the city's website or in another suitable online location where the city's published data will be available for download.

Published datasets shall be placed into the public domain. Dedicating datasets to the public domain means that there are no restrictions or requirements placed on use of these datasets.

Each published dataset should be associated with contact information for the appropriate manager of that dataset as well as with a file layout or data dictionary that provides information about field labels and values.

Section 6: Open Data
Within one year of the effective date of this directive, and thereafter no later than December 31 of each year, the Chief Data Officer shall publish an annual Open Data Report. The report shall include an assessment of progress towards achievement of the goals of the city's Open Data Program, an assessment of how the city's open data work has furthered or will further the city's programmatic priorities, and a description and publication timeline for datasets envisioned to be published by the city in the following year.

During the review and reporting period, the Chief Data Officer should also make suggestions for improving the city's open data management processes in order to ensure that the city continues to move towards the achievement of the policy's goals.

Appendix D: Inventory of Partner Organizations

Professional Associations

Association of IT Professionals (AITP)
Website: https://www.aitp.org/
Phone: (630) 687-8300 or (866) 835-8020

_____

New York Association of Towns (AOT)
Website: https://www.nytowns.org/
Phone: (518) 465-7933

_____

Boards of Cooperative Educational Services (BOCES)
Website: http://www.boces.org/
Phone: (845) 291-0118

_____

The International Information System Security Certification Consortium (ISC²)
Website: https://www.isc2.org/
Phone: N/A

_____

National Association of State Chief Information Officers (NASCIO)

Website: https://www.nascio.org/

Phone: (859) 514-9171

_____

National Cooperative Purchasing Alliance (NCPA)
Website: http://www.ncpa.us/

_____

National Joint Powers Alliance (NJPA)
Website: https://sourcewell-mn.gov/
Phone: (877) 585-9706

_____

New York Association of Counties (NYSAC)
Website: http://www.nysac.org/
Phone: (518) 465-1473

_____

New York Association of Towns (AOT)
Website: https://www.nytowns.org/
Phone: (518) 465-7933

_____

New York Council of Mayors (NYCOM)
Website: https://www.nycom.org/
Phone: (518) 463-1185

_____

New York Government Finance Officers' Association (NYGFOA)

Website: https://www.nysgfoa.org/

Phone: (518) 465-1512

_____

New York State Local Government IT Directors Associations (NYSLGITDA)
Website: http://www.nyslgitda.org/
Phone: N/A

Email: stephen.zimmer@co.genesee.ny.us

_____

New York State Town Clerks Association (NYSTCA)
Website: https://www.nystca.com/
Contact Link: https://www.nystca.com/webforms/contact-us

_____

Academic Associations

Center for Technology and Government at University of Albany
Website: https://www.ctg.albany.edu/
Phone: (518) 442-3892

_____

Cornell University
Website: https://www.cornell.edu/
Phone: (607) 254-4636

_____

Harvard Kennedy School of Government
Website: https://www.hks.harvard.edu/
Phone: (617) 495-1100

_____

Hofstra University
Website: https://www.hofstra.edu/home/index.html

Phone: (800) 463-7872

_____

Sacred Heart University
Website: http://www.sacredheart.edu/
Phone: (203) 371-7999

_____

University of Buffalo
Website: http://www.buffalo.edu/
Phone: (716) 645-2000

_____

Community Associations

Bloomberg Philanthropies
Website: https://www.bloomberg.org/
Phone: (212) 205-0100

_____

Central New York Community Foundation, Inc. (CNYCF)
Website: https://cnycf.org/
Email: info@cnycf.org

Phone: (315) 422-9538

_____

Civic Tech and Data Collaborative
Email: N/A
Phone: N/A

_____

Regional Associations

New York State Office of Information Technology Services (ITS)
Website: https://its.ny.gov/
Email: fixit@its.ny.gov
Phone: 844-891-1786

_____

Orange County Citizens Foundation
Website: http://occitizensfoundation.org/
Phone: (845) 469-9459

_____

Regional Economic Development Council (REDC)
Website: https://regionalcouncils.ny.gov/
Phone: (607) 962-3021

_____

Warwick Coalition
Email: N/A
Phone: N/A

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Appendix E: Profiles of Existing Data Management Programs

City of Albany

Basic Information	
Name of Organization	City of Albany - Office of Innovation & Performance
Who runs it?	Ann Marie Salmon - Director of the Office of Innovation & Performance.
How long has it existed?	Since October 2017
Affiliations?	Center for Technology in Government - SUNY Albany NYS Lean Sigma Six Training & Certification Program
Where is data stored?	Cloud-based system
How is data being used?	Performance management in coding, police and fire departments. Improving internal management processes via departmental financial transfers. Utilizing NYS' "building blocks system" to track vacant buildings and absentee landlords.
Staffing	2 FTE - Director and Project manager
Budget	"Essentially the Office's staff salaries"
Links	OpenAlbany: https://data.albanyny.gov/ Open Data Policy: https://www.albanyny.gov/Government/MayorsOffice/OpenAlbany.aspx
Specialized Data Management Questions	
Oversight Authorities?	Informal
Policy/Strategy	No
Governance	No
Investment	Yes
Data Inventory	Yes
Security	Yes

Implementation Strategy	No
Mandates	Executive Order (discretionary)
Model/Frameworks	Six Sigma: https://www.6sigma.us/city/albany-ny/
Advice	1. Never rollout something without speaking with staff - no technology is going to work unless you know how people are going to respond (know your users). 2. Find people in your organization that are receptive to change and get buy-in. 3. Know what issue you wish to address
Additional Links	Center for Technology in Government: https://www.ctg.albany.edu/

Basic Information	
Name of Organization	Open Data Buffalo
Who runs it?	Kirk McLean, Director of Open Data, City of Buffalo, NY
How long has it existed?	Since July 2016
Affiliations?	City of Buffalo
Where is data stored?	SQL Server, Access, Socrata Publica Open Data Cloud
How is data being used?	Open data portal, performance management, civic innovation challenges, data visualization
Staffing	1 FTE, 1 AmeriCorps VISTA
Budget	$150,000
Links	Open Data Portal: https://data.buffalony.gov/ Open Data Policy: https://data.buffalony.gov/stories/s/City-of-Buffalo-Open-Data-Policy/xhgt-q9im/
Specialized Data Management Questions	
Oversight Authorities?	N/A
Policy/Strategy	Yes
Governance	Yes
Investment	No
Data Inventory	Yes
Security	Yes
Implementation Strategy	Garner buy-in and support from departments; partner with IT department to clean and contextualize data; partner with departments to contextualize data

Mandates	Open Data Policy: https://data.buffalony.gov/stories/s/City-of-Buffalo-Open-Data-Policy/xhgt-q9im/
Model/Frameworks	Bloomberg Philanthropies What Works Cities Standard
Advice	1. Have a dedicated staff person focused on initiatives if you can afford it or find someone willing to double up on responsibilities; 2. have executive buy in; 3. form a policy and committee to discuss data management-- Buffalo put their proposed policy online for public comment and used Madison, a free tool, for comments from the public
Additional Links	N/A

City of Rochester

Note: The City of Rochester is in the process of defining its data management program and authorities.

Basic Information	
Name of Organization	Department of Information Technology - City of Rochester
Who runs it?	Lisa Bobo, Chief Information Officer
How long has it existed?	In progress
Affiliations?	In progress
Where is data stored?	In progress
How is data being used?	Police department uses data for crime prevention, predictive analysis, an external open data portal and Mayor's Dashboard
Staffing	IT Department has a Chief Data Officer, a Chief Performance Officer and an Information Services Manager Police Department has five business analysts (full time)
Budget	$8.97 million
Links	Open Data Portal: http://data-rpdny.opendata.arcgis.com/
Specialized Data Management Questions	
Oversight Authorities?	Informal
Policy/Strategy	In progress
Governance	In progress
Investment	In progress
Data Inventory	In progress
Security	In progress
Implementation Strategy	1. Understand the current state 2. Define city priorities, given available resources 3. Change management and sustainability

Mandates	In progress of developing policies
Model/Frameworks	Gartner Consulting Firm Scottsdale, Arizona
Advice	1. Develop a strong strategy and governance around data management. 2. Gartner article: we've been collecting data for many years – we have a wealth – we're just at the point where we see the benefit. 3. Structure and strategy is more important than ever.
Additional Links	N/A

Basic Information	
Name of Organization	City of Syracuse
Who runs it?	Chief Data Officer
How long has it existed?	Since March 2016
Affiliations?	Partnership with Bloomberg Philanthropies' What Works Cities initiative and Syracuse University (Maxwell and ISchool)
Where is data stored?	Open Data Portal
How is data being used?	Drives Innovation Team's initiatives, performance management, budgeting, predictive modeling, prioritization of resources and open data publication
Staffing	Chief Data Officer and IT Department
Budget	$1.62 million
Links	DataCuse: http://data.syrgov.net/ Open Data Policy: http://data.syrgov.net/pages/open-data-policy
Specialized Data Management Questions	
Oversight Authorities?	Informal
Policy/Strategy	Yes
Governance	Yes
Investment	Yes
Data Inventory	No
Security	Yes
Implementation Strategy	Project-driven/need based implementation, collaboration between different departments, executive implementation (i.e.: data-driven budgeting)
Mandates	Executive Order - Open Data Policy
Model/Frameworks	Bloomberg Philanthropies What Works Cities Standard

	West Pennsylvania Regional Data Center City of Cincinnati, Ohio, Data Management Program Central New York Community Foundation Vendors/Developers: OpenGov, CKan, DKan, Socrata, People's Soft, MAXIMO
Advice	1. Hire staff that are dedicated to data management 2. Have use cases (know what you want to do with data management program) 3. Generate Buy-in and implementation, start with something simple and get early victory 4. Partnership with other agencies and organizations (university, foundations)
Additional Links	Bloomberg Philanthropies What Works Cities Standard: https://www.bloomberg.org/program/government-innovation/what-works-cities/ West Pennsylvania Regional Data Center: http://www.wprdc.org/ City of Cincinnati Data Management Program: https://www.cincinnati-oh.gov/manager/opda/ Central New York Community Foundation: https://cnycf.org/

Appendix F: Charts

Full chart of Online Survey Part B "Most Important" Rankings

PART B
How important do you think this way of using information is to achieving your local government's goals?

Online Survey Question Number	B7	B8	B2	B3	B9	B5	B1	B4	B10	B6	B11
Goal	cyber attacks	data misuse	costing capital assets	chronic problems	time trends	online business	cost of service	results-driven contracting	GIS	compare with others	citizen engagement
Large (> 300,000)	4.9	4.6	4.3	3.8	4.1	3.8	4.1	3.7	3.4	3.4	3.1
Medium (50,000 - 300,000)	4.9	4.9	4.3	3.9	3.9	4	3.7	3.9	3.7	2.7	3.3
Small (< 50,000)	4.8	4.5	4	4	3.9	3.9	3.8	3.7	3.3	3	2.8
All municipalities	4.8	4.6	4.2	4.0	4.0	3.9	3.9	3.7	3.4	3.1	3.0

Full Chart of Online Survey Part B "Least Feasible" Rankings

PART B
How easy it is for your local government to use information in his manner today?

Online Survey Question Number	B11	B6	B10	B1	B4	B2	B3	B5	B8	B9	B7
Goal	citizen engagement	compare with others	GIS	cost of service	results-driven contracting	cost capital asset	chronic problems	online business	data misuse	time trends	cyber attacks
Large (> 300,000)	2.9	3.1	2.9	3.4	3.2	3.5	3.3	3.3	3.1	3.2	3.7
Medium (50,000 - 300,000)	3.1	2.5	3	3.1	3.5	3.5	3.5	3.3	3.1	3.2	3.7
Small (< 50,000)	2.6	2.9	2.9	3.3	3.4	3.4	3.4	3.4	3.5	3.5	3.7
All municipalities	2.7	2.9	2.9	3.3	3.3	3.4	3.4	3.4	3.4	3.4	3.7

Appendix G: Detailed Breakdown by Population Size

Interview Question	All	Small	Medium	Large
1. The following goals require data to achieve. Which are your top priorities?				
A. Saving money	77%	83%	89%	60%
B. Eliminating ineffective practices	74%	67%	78%	80%
C. Building support for what works	35%	50%	11%	40%
D. Modernizing business practices	35%	8%	56%	50%
E. Growing the economy and providing equal opportunity	23%	42%	11%	10%
F. Protecting public welfare	19%	42%	0%	10%
G. Meeting political demands	6%	8%	11%	0%
2. Can you tell me more about the services and programs that come to mind when you consider the priorities you just ranked?				
A. Public safety and welfare	35%	33%	22%	50%
B. Capital assets	10%	17%	11%	0%
C. IT infrastructure	42%	33%	44%	50%
D. General IT improvements	39%	42%	44%	30%
E. Streamlining of services	52%	42%	44%	70%

F. Workplace culture and expertise	16%	8%	22%	20%
Technical Training	6%	8%	0%	10%
H. Open Data	10%	8%	0%	20%
I. Data Analysis	13%	17%	11%	10%
3. In your opinion, what steps need to be taken to achieve this goal of name goal for this area of operation?				
A. Funding	13%	25%	11%	0%
B. Best practices	16%	25%	11%	10%
C. IT infrastructure	42%	50%	44%	30%
D. Workplace culture & expertise	29%	8%	33%	50%
F. Open data	13%	25%	0%	10%
G. Data analysis	19%	17%	33%	10%
H. Stakeholder buy-in	26%	42%	22%	10%
I. Streamlining of services	26%	25%	11%	40%
4. What steps have you taken to address these issues so far?				
A. Funding	16%	17%	22%	10%
B. Best practices	26%	25%	22%	30%

C. IT infrastructure	35%	42%	33%	30%
D. General IT improvements	32%	25%	33%	40%
E. Workplace culture & expertise	16%	8%	11%	30%
F. Streamlining of services	13%	8%	11%	20%
G. Technical training	6%	0%	11%	10%
H. Open data	3%	0%	0%	10%
I. Data analysis	3%	8%	0%	0%
J. Stakeholder buy-in	29%	42%	33%	10%
5. What barriers need to be dealt with?				
A. Funding	81%	83%	100%	60%
B. Best Practices	6%	0%	11%	10%
C. IT Infrastructure	23%	42%	0%	20%
D. General IT Improvements	10%	8%	11%	10%
E. Workplace Culture & Expertise	74%	67%	78%	80%
F. Streamlining of Services	3%	8%	0%	0%
G. Technical Training	3%	0%	0%	10%
H. Open Data	3%	8%	0%	0%
I. Data Analysis	6%	17%	0%	0%

J. Stakeholder buy-in	26%	25%	56%	0%
6. Is there support for these efforts from individuals or organizations inside or outside your municipality? What is the nature of this support?				
A. Professional Organizations	58%	58%	56%	60%
B. Academic Institutions	26%	17%	11%	50%
C. Community Resources	10%	8%	11%	10%
D. Regional Associations	13%	25%	0%	10%
E. Government	48%	42%	44%	60%
F. Individuals/Consultant	35%	50%	33%	20%
7. What does the effort need at this point that you don't have or cannot get?				
A. Funding	55%	25%	78%	70%
B. IT infrastructure	19%	33%	11%	10%
C. General IT improvement	10%	0%	11%	20%
D. Workplace culture & expertise	39%	25%	56%	40%
E. Technical training	6%	0%	11%	10%
F. Open data	6%	8%	0%	10%
G. Data analysis	13%	25%	0%	10%

H. Stakeholder buy-in	35%	33%	44%	30%
I. Best practices	10%	17%	0%	10%
J. Streamlining of services	10%	8%	0%	20%
8. How can the state help?				
A. Funding	48%	33%	67%	50%
B. Best Practices	35%	42%	22%	40%
C. IT infrastructure	16%	25%	0%	20%
D. General IT improvement	3%	0%	11%	0%
E. Workplace culture & expertise	48%	42%	67%	40%
F. Technical training	23%	17%	44%	10%
G. Open data	6%	17%	0%	0%
H. Data analysis	3%	8%	0%	0%
I. Stakeholder buy-in	45%	50%	33%	50%
J. Streamlining of Services	10%	17%	0%	10%