States and Open Data:
From Museum to Marketplace — *What's Next?*

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NASCIO recommends states continue to advance their open data initiatives and begin moving to a next level of maturity. In September of 2009 NASCIO issued a call to action to states and territories to

> "…make data available to the public through a single portal. Further, this is data in its most elemental form – unabridged, unsummarized – which allows secondary use and repurposing."[1]

NASCIO went on to publish an issue brief on data transparency which presents on the value, principles, and necessary metadata regarding state government published data.

Necessary Policy Level Support

Making data available and continuing down the path of *data democracy* requires necessary executive support and authority at the policy level. This support often leads to formalized policy through ordinance, executive order and legislation. In many cases, state and local governments have passed resolutions around open data to encourage progress. See the appendix for a comprehensive list of supporting state legislation.

Open Data Maturity – Where are we now?

As with any complex transition, there are levels of learning – *levels of maturity*. We've seen some type of maturity curve with every new technology, every new business idea, and virtually any new concept. Our first level of maturity in open data might be termed an *ideation state* - recognizing the worthiness of open data initiatives, responding to citizens' demands for openness and transparency of government decisions, influencers and operations. That phase has stimulated the initiation of open data policies and the offering of data online for consumption. That has led to what might be termed a *proliferation stage* which can be described using a recommendation now well known from Sir

State CIOs should be the champion and evangelist for promoting the concept of a state data.gov portal. State CIOs should partner with agency executives, records managers, librarians, archivists, data architects and others to create appropriate leadership, visioning, and governance. Transparency must be understood as a state enterprise initiative that is enabled by state agencies in partnership with the state CIO, and the Governor.[2]

Tim Berners-Lee – *to make data available as soon as possible*.[3] That phase has been happening for some time and is continuing. So, there was a push across the states to get more and more data on government websites for consumption with not much more strategy other than to publish unless there is a good reason not to publish certain datasets.

States and local governments have put a vast amount of raw data out on the web for consumption. One of the primary producers and consumers of this data is state government. Open data initiatives have achieved something that has historically been rather challenging – the sharing of information across agencies and across jurisdictions. That significant contribution deserves recognition. States are closer to a true "enterprise wide" perspective thanks to these open data initiatives. A new term coming into vogue is a higher abstraction than *enterprise* or even *federation* – that is, *ecosystem*. *Ecosystem* refers to a system of systems, an organization of organizations – essentially a "global" view of circumstances, relationships, opportunities for collaborative approaches, and obligations to citizens. As states continue to mature in that arena, citizens benefit, money is saved. This ecosystem is made a reality through the federal open data initiative, data.gov, but also through various state to state, and state to local government open data sites that present links to other jurisdictions. For the purposes of this issue brief we'll use the term *enterprise-wide* to refer to cross-agency collaboration and orchestration within a state government. The term *ecosystem* will refer to cross-jurisdictional collaboration and orchestration. The benefits related to *enterprise* and *ecosystem* thinking include moving toward or actually achieving:

- a single source of the validated information. An established *single authoritative source* for data that is stored once and shared across the state enterprise or ecosystem.
- common terms and common definitions. This contributes to the language and common lexicon of government and proper interpretation and use of data.
- common business rules. This contributes to optimizing government processes – possibly leading to and supporting establishing single authoritative data and process owners in government.
- a comprehensive view of the citizen from the citizens' perspective rather than an organizational view based on agency functions. This may eventually lead to an organizational emphasis based on citizen life events.[4]
- a regional and national perspective on issues encouraged by the new availability of data from a vast population of federal, state and local government agencies. Access points include data resources such as data.gov and the dataZoa Data Index which provides access to over 200 million data series.[5]
- an ability to share and analyze data at a regional or national level leading to better decision making, best practices, consistent methods and procedures, and better results.
- cost savings. Information shared enterprise-wide and throughout an ecosystem allows for data to be gathered, created and stored once.

In parallel and in support of these benefits are the following concepts:
- *data ownership* - Government data is a critical asset as described in NASCIO's series on data governance and its series on records management.[6]
- *enterprise portfolio management* - Establishing an information asset portfolio for managing information assets.

- *cross-jurisdictional collaboration* - More and more emphasis on joining up of governments, and partnering with citizens and industry. Forming collaborative relationships for addressing issues and harvesting opportunities.
- *records management* – Following records management principles and practices will provide better storage and retention of data.

Access and use of open data and the ability to further mature such initiatives is bounded by:[7]
- capabilities of dataset owners to publish and maintain datasets
- capabilities of government, citizens and industry to consume and exploit datasets
- maturity and efficacy of data management operating discipline
- data quality
- the dynamics of the relationships across the various stakeholders
- funding
- enterprise data governance
- FOIA laws, regulations, and policies

The ability to recognize and deal with these constraints will determine progress and maturity of open data initiatives.

Open Data Does Not Ensure Open Government or Even Good Government

As more data resources are made available through the open data movement, there is the potential for "over hyping" what this means for open government or even good government. Certainly open data initiatives at the national, state, tribal, and local levels contribute to a "citizen window" into government. Citizens and open government public interest groups can certainly use that open data resource to see the results of what government has done, creating online archives that document past government functions, actions, and procedures. Such resources do not necessarily provide information on what government is *going to do*. Attempts by government to actually engage citizens into the process of determining what government is going to do have been rather limited. There have been town hall meetings across the country. But historically the primary communication has been from government to citizens. This one way communication leaves little opportunity for engaging citizens in meaningful collaborative dialogue. Open data initiatives have great potential for getting closer to the intent and requirement, "government for the people and by the people." Open data initiatives do not ensure that happens. Nor do they guarantee good government or "best government." Open data initiatives will mature in capabilities but that will require well planned governance and strategy that includes input from citizens.

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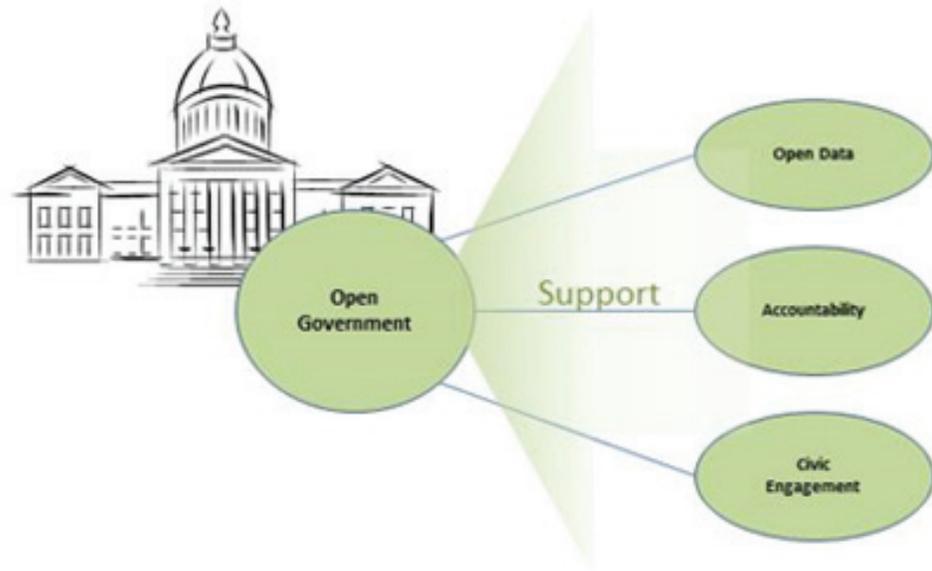
Open Data Contributes Toward But Does Not Guarantee Open Government, Good Government or Best Government

Vivek Kundra served as the Federal CIO leaving that office for a fellowship at Harvard's Kennedy School of Government. While at Harvard Kundra wrote and published *Digital Fuel of the 21st Century: Innovation through Open Data and the Network Effect*. In this paper Kundra makes a strong case for open data *in support of* open government.[8]

"In today's world, open data leveraged by networks is the fuel that powers important decisions at each level of society—from government, to business, to community, to households—but it is also a product of our every activity at every level of our existence," Kundra explains. He outlines four ways of channeling this open data through networks:

1. Fight government corruption, improve accountability and enhance government services
2. Change the default setting of government to open, transparent and participatory
3. Create new models of journalism to separate signal from noise to provide meaningful insights
4. Launch multi-billion dollar businesses based on public sector data

"The biggest threat to the open data movement is the desire for governments to operate in a closed, secretive and opaque manner and to create a mirage of openness by releasing low value datasets," Kundra warns.

The primary enabler of open government is civic engagement and an important enabler of civic engagement are open data initiatives that provide for citizen involvement in the governance of open data. However, as Kundra warns, those open data initiatives must be sincere comprehensive efforts, not window dressing. In order to achieve that true intent we need proper governance.

Open Data Governance

The next stage of maturity, where governments should move next, might be termed a strategic phase. At this stage, at least at its beginnings, states are already thinking about how to exploit open data for creating better government performance and how to sustain the effort. In this phase establishing proper governance is essential for developing enterprise strategy for open data. Some of the activities that will be guided through governance include:

1. Creating formal vision and strategic intent working in consultation with:
   ☐ governor's office
   ☐ agencies
   ☐ portfolio management
   ☐ digital government
   ☐ state enterprise architecture
   ☐ data management
   ☐ state archives
   ☐ records management
   ☐ citizens
   ☐ industry
2. Establishing formal support
   ☐ supported by executive order
   ☐ supported by statute
   ☐ supported by regulation
3. Development of organizational structure complete with defined roles
   ☐ establishing ownership of data resources
   ☐ establishing stewardship
   ☐ determining decision rights – *what participants on what decisions*?
   ☐ creating roles such as chief data officer and data stewards
   ☐ including dotted lines to allied disciplines such as security, privacy, data management, records management, state archives
4. Valuation of data and information assets
5. Evaluation of supply and demand; anticipating future need and opportunities
   ☐ in collaboration with citizens, private industry, non-profits, open government public interest groups, education, FOIA groups
   ☐ in collaboration with other states through NASCIO
6. Establishing or validating authoritative sources for data and information
7. Determining policies, methods and procedures for refreshing, archiving and records management
8. Establishing and managing data portfolios
   ☐ in coordination with state enterprise portfolio management
   ☐ managing the data portfolio from an asset diversity perspective
      ☐ *evaluate, "does that diversity map to and support the state's strategic plan?"*
   ☐ maintaining quality of data
      ☐ ensuring all of the applicable dimensions of data quality[9]
      ☐ commitments to refresh
         • *data publishing and maintenance plan*
      ☐ potential for real-time data feeds; cost versus utility
   ☐ resolving data confliction through establishing authoritative sources

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9. Selection and assessment of candidate datasets
    ☐ conducted in coordination with data portfolio management
    ☐ benefit analysis
        ▫ what is the real or potential utility of a dataset
            • *who is the anticipated consumer? government, citizens, industry*
            • experimentation to determine demand
            • feedback loops on consumption to measure open data program efficacy
    ☐ risk assessment
        ▫ evaluating for personally identifiable information, or the potential for assembling identities from published data
10. Establishing meaningful metrics
    ☐ evaluating the overall open data program
    ☐ evaluating demand
    ☐ evaluating the processes of the open data program
    ☐ sharing of best practices through NASCIO
11. Looking ahead to the next level of maturity and a supporting migration plan
    ☐ in collaboration with other states through NASCIO
    ☐ continual vigilance on open data dynamics
        ▫ new demand driven by mashups of primary data with secondary data
        ▫ publishing of new data created by consumers of primary data
        ▫ understanding consumer learning and new expectations
        ▫ new demand development
        ▫ new technical development
    ☐ establishing the science of data with attention to
        ▫ what contributes to information, knowledge and decision making
        ▫ what constitutes *data noise*
        ▫ proper consumption, analysis of data
        ▫ how much reliance can be attributed to data, how accurate is it
            • confidence in the data reflected in decision making
        ▫ new visual tools and techniques for evaluating vast amounts of data[10]

The state of Minnesota is moving into its next level of maturity with the leadership of state CIO Carolyn Parnell.

> *"An essential starting point for Minnesota Open Data Strategy is what we call Public Data Governance. We consider that to be a key to efficient and effective government. We're not pursuing open data as much as we're pursuing the outcomes open data strategy can bring to Minnesotans."*

State CIO Parnell has assembled a commissioner level governance board with representatives from the Department of Administration, State IT Services, Minnesota Housing, Legislative branch, Geospatial Services, the Department of Education, the State Archivist and the State Demographer. This board is promoting a state enterprise perspective in viewing its information assets. State CIO Parnell believes that an enterprise approach to the management and governance of state data could yield substantial value for the State in terms of *enhanced data sharing, improved program effectiveness and performance management, citizen engagement and more informed policymaking*.[11]

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Much of the challenge for Minnesota and other states and local governments stems from the development of applications and data bases that was done independently within each line of business to support business processes that were also developed independently. Over the past 60 or more years systems were built without consideration for intra-governmental integration or inter-governmental coordination or interoperability. The result is an existing portfolio of diverse solutions based on a diverse set of data and process models. We say "models" but that does not mean such models were actually formally documented or mapped out. In parallel with this development enterprise architecture and data management operating discipline have also matured. Such operating discipline arrived too late to provide the necessary governance and management for many of the solutions that were built as "one-offs" within line of business silos. The result is that today many enterprises within the public as well as private sectors are now trying to reconcile this diversity in design and implementation as they pursue new thinking – *enterprise thinking and ecosystem thinking*. Some of these current state issues resultant from multiple independent un-orchestrated initiatives are a myriad of data approaches, inconsistent and even incorrect logical data models, non-uniform naming conventions, formats, tools, staff expertise, and policies and governance approaches.

Everything Needs a Supporting Business Case

As with any project, program and management initiative, resources will be expended in reaching a target outcome. The economic view must ask, "what are the outcomes for citizens?"; "what will it cost?"; "what are the benefits?"; "do the outcomes justify the cost?"

A business case or a more complete enterprise economic evaluation must include evaluation of the outcomes or benefits sought. As stated, at this point in time, many states have already made available the most easily identified datasets for publishing – i.e., data that is already published on individual agency websites or that is categorized as "public data." A lot of this activity was in response to what many now consider the hype around open data. We're fairly past that initial hype. Now arrive the harder decisions regarding what to publish, how often to refresh what has been published, how to continue to measure the efficacy of the open data initiative, and what data does not warrant continued publishing. Data that does not prove to be useful, particularly if there is a significant number of such datasets, should be removed from open data sites. One question is, "will it have value in future?" Over time we may learn that there is a dynamic of over publishing that creates unnecessary data "noise" which has to be filtered out of any meaningful searches and analysis. The challenge here is determining what constitutes data noise and what is information and in what context.

The rationale for open data must be clearly established and communicated. That rationale may be different for publishing different kinds of data, different information assets. Notwithstanding, some of this activity is a bit experimental. State government may publish data to see if it has citizen value. This of course requires the definition of meaningful metrics to properly judge and substantiate that value.

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In a next level of maturity a more deliberate approach to selecting data sets or information assets should involve more discipline and business acumen. One approach might be the development of methods and procedures for evaluating datasets against some set of selection criteria that are relevant to citizens and/ or government, and driven by some specific strategy for achieving a specific outcome. The following approach is presented as one example. We're not emphasizing these particular matrices or criteria. More important is accepting the notion that it is important at this phase to establish relevant criteria for a cost / benefit analysis related to selecting and publishing datasets. These criteria then become part of a dataset profile for describing a dataset within a *data or information asset portfolio*. There may be value in incorporating certain criteria into the meta model of a dataset that then persist with that dataset through second generation publishing. It is feasible to conceive the idea of removing datasets that provide no value to consumers of open data based on the performance metrics for those datasets.

In regard to a more deliberate process for selection of certain datasets, a primary reason for publishing data may be to feed an analytics engine. We can term this *analytical intent*. That engine also has a purpose and an underlying economic justification. Rationale for an open data initiative, a data management capability or the selection of a set of data could include any of the following purposes or intent.

Sense making: a process for consuming or referencing information, engaging in dialogue or other means in order to achieve complete and objective understanding of an issue; the intent is to remove uncertainty and to have a complete view of the facts within an environmental context.

Predicting: the notion of forecasting; anticipating future events and conditions; understanding the probability and magnitude of possible outcomes. Predictions feed the decision-making process.

Evaluating: a systematic collection, analysis and interpretation of information required to identify the alternatives or some combination of alternatives. SWOT analysis is an example of evaluating, identifying and understanding alternatives. Analysis of economic, social, and political impacts associated with alternative courses of action.

Decision-making: determining current or future actions based on evaluation of alternatives and within the context of pre-determined mission, vision, goals and objectives. Decisions may include do nothing, or to expend resources to prepare for, exploit, prevent or mitigate a potential circumstance.

That analytical intent can be graphed against another dimension, *enterprise intent*.

Enterprise Intent				
Productivity				
Agility				
Innovation				
Reputation				
Analytical Intent	*sense making*	*predicting*	*evaluating*	*decision making*

Matrix for Describing the Purpose or Use of a Particular Information Asset[12]

The outcome sought by state government, a state agency, a citizen, a business within a state could include gaining productivity, establishing or sustaining agility, discovering or employing innovation, or protecting or maintaining reputation. The cells can be filled in with simply a check mark, or some scheme for weighting or scoring the strength of the relationship.

Other candidate evaluation matrices are presented in the appendix of this report.

Selection of Data Sets

A move up the maturity curve will involve a more proactive selection of data sets for publishing. Selection includes a number of criteria related not only to the initial presentation of data, but also the maintenance and sustainability of a dataset. It is recommended by NASCIO that data be managed within the state government enterprise portfolio within a sub-portfolio for data and information assets in consultation with records management and records retention schedule requirements.

As data sets are inventoried there is necessary metadata that must be collected. Some of this metadata must persist with the dataset as it is distributed. In NASCIO's first report on open data a candidate list of metadata for data sets was presented.[13] That

Identification
- Program/Data Owners
- Legal Counsel
- Data Stewards / IT
- Agency Executive
- FOIL Officers
- Security & Privacy Officers
- Public Information officer

Assessment / Prioritization
- High Value
- High Quality
- Complete
- Trusted
- Accessible, Machine-Readable, Reusable
- Meets legal standards for publishable state data

Pre-Publication
- Quality Assurance Validation
- Format
- Metadata
- Data Dictionary
- Timeliness
- Overview documents
- Potential research questions

New York State Dataset Identification Process

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metadata list references data.gov and Dublin Core. Some states have in place metadata that is a much reduced list as compared with that set of attributes. At minimum datasets should have the following per Socrata's Open Data Field Guide as presented in the Data Inventory Spreadsheet[14]:

- Dataset Name
- Dataset Owner
- Current Location of Dataset
- Update Frequency
- Licensing Model
- Privacy Concerns

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The Socrata field guide goes further in describing how to establish a proactive open data discipline including strategy, policy, creating a data plan, implementation steps, a target list of priority datasets, and engaging the community of data consumers.[15] New York State has adopted components of the Dublin Core metadata standard. The full list of metadata elements are presented in the New York State Open Data Handbook, Appendix B. This list of 15 elements includes eight elements that are not part of the current Dublin Core standard.[16]

Other analysis regarding dataset evaluation should focus on proactively identifying datasets and moving beyond publishing data that is either already "public" data or already published on state agency websites. Various two dimensional tables can be developed as evaluation tools as described previously in this report.

Governor Cuomo of New York State kicked off an impressive open data initiative in his state of the address on January 9, 2013.

New York State Questions for Identifying Publishable Data
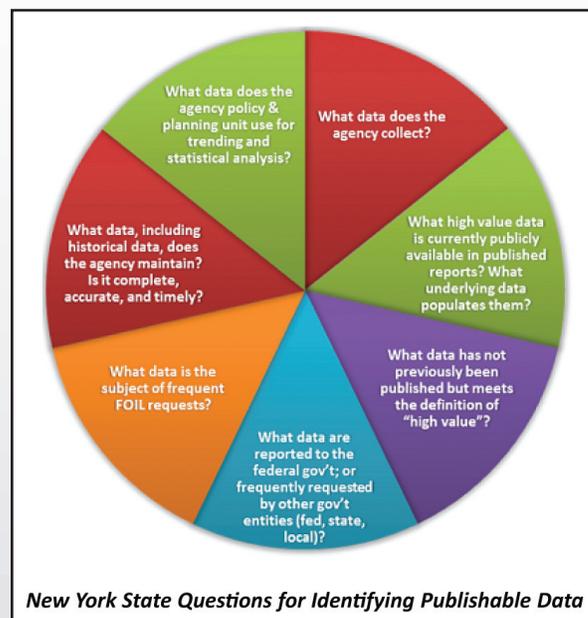
The state of New York has published a very comprehensive handbook on open data that should be in the reference library for any open data initiative. This handbook presents a collaborative multi-step agency process for selecting data to be published. The process for identifying and vetting data sets involves many roles in the evaluation process including: executive and program staff, data coordinators, FOIA officers, data stewards/IT, public information officers, security and privacy officers, and legal counsel.[17]

New York State presents a series of questions state agencies can use to assist in identifying appropriate dataset targets for publishing.

Given the volumes of data that can be published, selecting what data would be most useful and "best" early targets can be daunting. Again, New York State has done an impressive job with their Open Data Handbook in providing some very necessary guidance.[18]
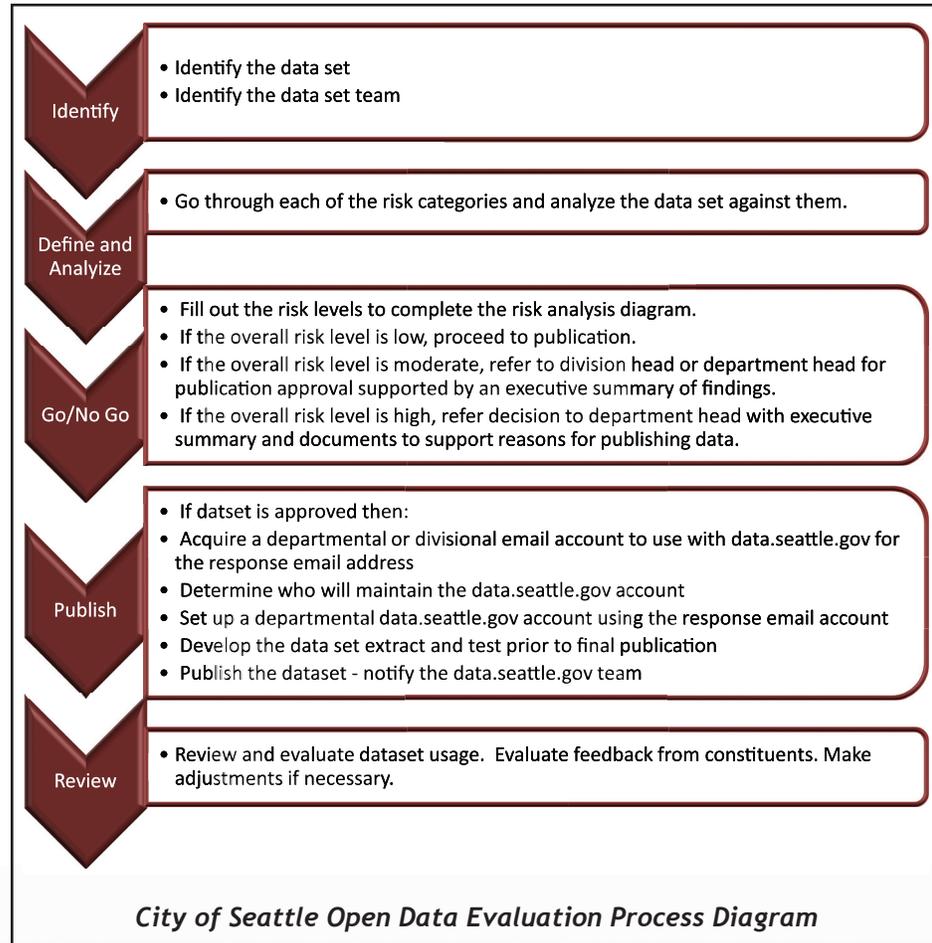
● **Risk Assessment**
Appropriate risk analysis should be applied to any candidate datasets. Risk management related to open data should hold privacy as a priority. As stated in NASCIO 2009 report on open data , open data initiatives should maintain compliance with applicable security, confidentiality and privacy requirements.

High Value	• Increases accountability & responsiveness • Improves public knowledge of agency & its operations • Furthers the mission of the agency • Creates economic opportunity • Responds to a need or demand identified after public consultation
High Quality	• Completeness • Accuracy • Granularity • Timeliness • Consistency • Comprehensive metadata, data dictionary, and other explanatory documentation
Readiness/ Availability	• Pre-publication review & approval; • Accessible format (machine-readable) • Quality Validation Checks

New York State Consideration for Prioritization of Publishing Data Sets

King County Washington's Election Office has responded to voter demand for election results. That information is provided as requested but with careful evaluation of the process and timing to ensure the results protect voter anonymity and do not introduce bias into the voting process.

The city of Seattle has developed an Open Data Risk Analysis as part of its overall open data strategy.[20] The open data strategy provides processes for suggesting datasets and then processing suggestions and requests through a formal risk analysis to judge the readiness and appropriateness of a dataset for publishing.

Successful open data initiatives actively involve citizens through various means to explore what data is of interest and to experiment with what can be done with data.

Identify
- Identify the data set
- Identify the data set team

Define and Analyze
- Go through each of the risk categories and analyze the data set against them.

Go/No Go
- Fill out the risk levels to complete the risk analysis diagram.
- If the overall risk level is low, proceed to publication.
- If the overall risk level is moderate, refer to division head or department head for publication approval supported by an executive summary of findings.
- If the overall risk level is high, refer decision to department head with executive summary and documents to support reasons for publishing data.

Publish
- If datset is approved then:
- Acquire a departmental or divisional email account to use with data.seattle.gov for the response email address
- Determine who will maintain the data.seattle.gov account
- Set up a departmental data.seattle.gov account using the response email account
- Develop the data set extract and test prior to final publication
- Publish the dataset - notify the data.seattle.gov team

Review
- Review and evaluate dataset usage. Evaluate feedback from constituents. Make adjustments if necessary.

City of Seattle Open Data Evaluation Process Diagram

Engage Citizens and Industry

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On March 19th, 2014 Colorado kicked off the Go Code Colorado (http://gocode.colorado.gov/) civic app challenge. Go Code Colorado is an apps challenge designed to make public data more accessible and user-friendly. Teams of developers and entrepreneurs across the state competed to solve business problems and explore potential opportunities to grow the state economy by building apps that will help Colorado companies thrive. The Colorado Information Marketplace is the data repository for this event.

Go Code Colorado is a bipartisan initiative of Colorado's Secretary of State's Business Intelligence Center (BIC), the Governor's Office, the Office of Information Technology, the Office of Economic Development and the Statewide Internet Portal Authority. Go Code Colorado is the first competition of its kind in the United States that uses public data to build business tools and grow commerce.

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"IT of the people, by the people, and for the people" is a daunting feat. Dr. Steve Hodgkinson is research director for Public Sector Technology at Ovum, an analyst firm that provides insight into client business requirements and the technologies they must support. He spells out the challenge this way: "A citizen-centric focus is increasing pressure for government as an organization to operate with greater coherence and coordination across the whole."[21]

Engaging citizens in initiatives similar to the Go Code Colorado will create a perspective and relationship with citizens that will pay big dividends over time in not only uncovering innovative ideas, but in creating a habit and an expectation regarding civic engagement going forward to encompass many other aspects of government beyond open data initiatives.

Real time data capabilities enable access to data as soon as it is published via dynamic links that not only update websites but also applications including desktop created spreadsheets.

Consumption of government data is climbing and that consumption is driving demand for more data. King County, Washington, has found that over 50% of the access to its open data portal is from mobile devices. King County teamed up with the City of Seattle and the state of Washington in 2012 to sponsor a developer's weekend to look at existing available data and experiment to learn what value there is in current data, what additional data would be useful, what apps would be useful to citizens and what efficiencies could be garnered for government services. Hackathons are becoming common place across local government and provide a test bed for evaluating the efficacy of the data already published and for uncovering new opportunities for improving the lives of citizens.

Further, state government should be the primary promoter of open data and not acquiesce this role to an advocacy group or the press. States should properly assume their authoritative posture as *the source* for government data. Therefore open data should be seen as a strategic capability for state government.

Real Time Data Feeds

An important aspect of open data is the notion of data currency - that is, how old is it? Open data initiatives are moving to a next level of sophistication and are able to automatically link to data sources using software such as Socrata and DataZoa. Montana, Tennessee and Massachusetts are among a cohort of states that are employing these real-time update capabilities.

Today, Montana's Census and Economic Information Center (CEIC) is able to present data in real-time dashboards. The dashboards featured on CEIC's website (http://www.ceic.mt.gov) include real time statistics on the economy, industry performance and output, as well agriculture commodity production figures. Through a partnership with the Montana Department of Labor and Industry, the dashboards also provide select labor force statistics. This capability enables investors and businesses to be able to retrieve this data and information without the need to call or e-mail a special request to CEIC. CEIC has historically received upwards of 1,000 requests for information per year - many for general statistics that had to be handled individually. Now, citizens and others can access much of the information they are looking for on CEIC's website without the need for a specialized request. Staff no longer have to continually monitor the release date for commodity data to ensure they are presenting the most current information, and their time is freed up to answer more complex questions.

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These real-time dashboards are just one of the initiatives underway in Montana to provide more transparency and access to data. Under the vision and direction of state Chief Information Officer (CIO) Ron Baldwin, Montana plans to integrate individual government data portals in an effort to make more comprehensive data available to the public for informational and decision making purposes.

Real time data capabilities enable access to data as soon as it is published via dynamic links that not only update websites but also applications including desktop created spreadsheets. Real-time dynamic links provide:[22]

- the ability to follow individual data series from published tables
- easily created dashboards that can be accessed on the desktop or mobile device
- live-mirroring of dynamic data tables in desktop spreadsheets
- employment of visual techniques for quickly spotting trends and correlations

Tie to Analytics

State CIOs are looking at open data and asking for the intent or desired outcome in requesting and consuming state data and information. This is where analytics come into play. Analyzing data for patterns in order to develop insight into circumstances leading to better, more informed decision making. NASCIO had presented the concepts of data strategy in its data governance series and its issue brief on big data.[23] The emphasis is on selecting data in order to support analytics based on the decisions that need to be made. There is a learning loop associated with analytics. Often it is not known what data will prove to be valuable in developing insight and uncovering patterns. So there is necessary experimentation that must occur in order to learn what data proves relevant. Nevertheless, the primary direction is from desired outcomes to decision making to supporting analytics to identification of necessary data and information. Open data governance must provide the mechanisms for decision makers to influence what data is published. Decision makers include government policy makers, agency executives, citizens and industry. Therefore it is necessary to engage these stakeholders in dialogue to learn what government data would be valuable for publishing.

There has been visualization technology available for more than a decade that are now becoming available to state government. These capabilities allow decision makers to create data visualizations that are increasingly easier to employ, they move beyond static presentation of data to interactive tools that allow experimentation. These tools also present a more meaningful view of the data to the general end user with added comparative analysis and the ability to ask questions of the data. Visualizations include bubble charts, heat maps, and pie charts that allow for drilling down into more details.

Most of the activity related to open data is at the local level. States can learn much from visiting open data sites for local government to see how they are using visual techniques for presenting data. For example, San Francisco; Seattle, WA; New York City; Raleigh, NC; and King County, WA, are among the local governments moving forward up the maturity curve.

These new techniques have the potential for uncovering new kinds of data relationships, cause and effect relationships, and correlations. This can lead to

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new kinds of insights and unexpected results. There may be observations from citizens that government hadn't uncovered previously which can contribute toward the move forward in open data. State government needs to be prepared to begin to manage the potential for a burst in demand for certain kinds of data and analytical capabilities. This future must be anticipated in any open data initiative.

Anticipate that the way forward will be a continued demand for more visualization techniques for quickly and easily evaluating data on the browser without the necessity of installing sophisticated analytical tools. The sky is the limit on the variety and velocity of data mashups. Consumers will create data mashups and will want to save them for running again at some future date in order to *track change*.

Analytics presents a two edge sword. On the one hand, consumers will move up the curve in their capabilities to consume data – find it; pull it; evaluate it; run experiments; and use the learnings from that data in their decision making and communications with policy makers. Decision making will include risk management – both probability and magnitude. It will involve economic analysis to judge the best course of action taking into account financial and nonfinancial costs and benefits. The other side of this is, consumers of state data will hold policy makers and government executives accountable for conducting the same or higher level analysis in their policy and operational decisions. Further, there will be a "right now" dynamic in decision making that rely upon real time data feeds. That dynamic can lead to more active "right now" citizen participation and expectation during any phase of the policy making process including floor debate, legislative hearings, court cases, political campaigns, potential immediate citizen and special interest response to executive orders.

Effective use of visual analytical tools is demonstrated on the Texas Comptroller of Public Accounts' Texas Transparency website. Clicking on the "tools" button on www.texastransparency.org, the user is presented with various interactive dashboard tools for viewing and analyzing state and local data dealing with:

- debt statistics on Texas cities, counties, school districts and special purpose districts
- financial and program performance of school districts and campuses and student achievement
- weekly updates on statewide economic indicators including the consumer price index, the consumer confidence index, the unemployment rate, nonfarm employment, retail sales tax collections, home sales, housing permits, industrial production, mortgage foreclosures and leading economic indicators

www.texastransparency.org

The state of Texas is moving forward with a broader open data strategy providing all state agencies the capability to publish and analyze state data. Through a collaborative Texas.gov effort, the Texas Department of Information Resources has partnered with Texas NICUSA and Socrata to pilot data.texas.gov, an open data portal that will provide Texas agencies with a self-service capability to easily and quickly post data online and allow the public as well as government the opportunity to extract value from the data through a full-featured set of tools that allow searching, sorting, filtering, visualizations and mapping. The planned launch date for Data.texas.gov is June 2014.
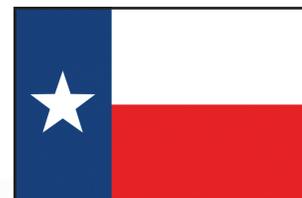
In August 2010, Oregon was the first state in the nation to provide public access to government data using an innovative SaaS cloud service located at data.oregon.gov. This online system enables interested constituents to seamlessly socialize, interact with and create new ways of viewing government datasets. Data consumers can create a personal account on data.oregon.gov to:[24]

- create filtered views of large government datasets to target information they are interested in, or roll-ups to summarize data or to drill down to the details.
- create visualizations of the data using charts, maps, and calendars.
- access datasets via their mobile device and utilize geo-location features within data.oregon.gov in combination with the GPS capabilities of their mobile device to locate items of interest within those datasets near their current location.
- directly save new views they create, making them available for others.
- share any view of live data in any website or blog using standard embedding features.

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States need to be prepared to begin to manage a potential burst in demand for certain kinds of data and analytical capabilities.

- have a collaborative conversation about any dataset using commenting.
- suggest a new dataset or vote on someone else's suggestion and receive a follow-up.
- download any dataset in one of eight data formats including csv, xls, xlsx, pdf, and xml.
- receive RSS notifications of any changes to the data.
- develop custom applications leveraging live data using standardized programming interfaces and web services.
- seamlessly access federal data within the Oregon data.oregon.gov catalog.
- watch training videos *to learn* how to use the capabilities listed above.

At data.oregon.gov, decision-makers, researchers, journalists, developers, citizens, and government entities can find, consume and share information quickly. This enterprise service has exceeded all expectations in the two most critical areas to agencies: resource commitment and costs. data.oregon.gov makes state data accessible, increases government transparency, encourages public participation and collaboration with Oregon government, and *imparts* data consumption skills to its citizens.

Analytics will more and more entail visual techniques beyond mapping. The Pacific Northwest National Laboratory (PNNL) has been leading the research and development agenda for visual analytics. As data analysis matures, the skills and demand for visual tools will increase. What started as a call to action regarding homeland security has grown into the development of an impressive suite of tools for use across all government lines of business. PNNL has consulted with states and local governments on visual analytics and is one of the best resources for governments interested in advancing their capabilities in business intelligence and business analytics.

Pacific Northwest National Labs is continually inventing new approaches to analytics[25]

Expect Surprises

As stated in the NASCIO 2009 report on open data, with more application of analytical tools, collisions will occur. Some of these collisions will involve data conflicts. Citizens and others consuming government data should expect to encounter these collisions. This issue is related to data quality, establishing a single authoritative source, and the historical nature of system development in state government. States must be prepared for the eventuality of data collisions discovered by data consumers. Consumers may be citizens, non-profits, industry and government itself. As well, consumers of state government data must understand and accept that data being published is less than perfect. They can also expect open data capabilities will continue to improve based on discovery of data quality issues. Open data initiatives provide an important feedback loop to internal operations that can lead to improvements in processes, data quality controls, and fewer data conflicts over time.

States need to be prepared to begin to manage a potential burst in demand for certain kinds of data and analytical capabilities. Demand for certain data may be correlated to specific events happening across the state or the country. Open data initiatives will eventually need to be coordinated with formal state government communications and the public information office. This future must be anticipated in any state open data initiative.

The Gap in Data Literacy

Open data initiatives must address the "digital divide" that exists across the diverse populations of government employees, citizens, and industry.[26] With the proliferation of dataset publication we must ask:

- what is the cost benefit balance with open data initiatives – or what is the real business case?
- who is paying for these resources versus who is benefiting?
- who is actually consuming this data?
- are citizens benefiting from this data and information?
- what outcomes of consequence are being achieved?
- how ready are government employees, citizens, and industry to actually exploit this data?
- what changes or advances in decision making, civic engagement, accountability, and creation of new information and knowledge are really possible?

However, today there are only a relative minority of people and organizations that can consume this data and put it to meaningful use. In order to reach some level of parity across citizenry, industry and even government, open data initiatives must include strategies for imparting the necessary analytical skills to properly evaluate, select, and analyze data. Analytical tools include statistical analysis, heuristics, visual analytics and GIS. Further, the currency of the data and its context must be understood as part of that analysis.

The challenges to effective open data initiatives include the notion of *literacy* related to information, analytics and technology. Unless there is a strategy for bridging the gap in *digital literacy*, open data initiatives will not reach the full

In order to reach some level of parity across citizenry, industry and even government, open data initiatives must include strategies for imparting the necessary analytical skills to properly evaluate, select, and analyze data.

potential. In fact, the digital divide will only increase making those without the necessary skills even more distant from their government.

If state government open data strategy does not address this related issue it is possible relatively few will harvest the potential benefits of open data resources. Populations that are currently underserved can potentially be further separated due to the disparity, or possible chasm, in skills, knowledge and experience related to:

- information literacy
- analysis literacy
- decision making literacy
- opportunity literacy

Those who have had access to training and education, as well as the ability to effectively employ data skills will be able to exploit the opportunities that now arrive with open data - pull data together, analyze it, uncover patterns, make decisions, predict future circumstances, create new information, and create new demand for additional datasets. These consumers will improve their own circumstances and potentially improve the circumstances for society by offering new insights, new knowledge, innovation, and new services. Those without such skills will see no improvement in their circumstances.

Going forward, open data initiatives must engage citizens, government employees and industry to explore the possibilities of open data, learn what data is useful, and how to put in their hands the necessary understanding and capabilities to make meaningful use of government data.

Legislation

States are pursuing open data and supporting it with legislative authority. The State of Montana Census & Economic Information Center (C&EIC) was highlighted earlier in this report. Montana C&EIC is fulfilling its role under state statute via the following language:

The department of commerce shall, in cooperation with other state, federal, and local agencies, establish and maintain a central depository of information, including computer-retrievable files, concerning the significant characteristics of the state, its people, economy, land, and physical characteristics. The department shall analyze and disseminate such information to state, federal, and local agencies and to the general public.[28]

The state of Utah recently passed Senate Bill 70 which provides a pattern for open data legislation.[29] That legislation has some key provisions as highlighted here.

- • Evaluate Relevancy to Citizens

- • Identify and Prioritize Information

- • Create a Single Point of Access

- • Include Education and Local Government

- • Include Links to Existing Data

- • Establish a Transparency Advisory Board

- • Establish Guiding Principles

- • Publish with Proper Consideration for:
  - • privacy, security, cost effectiveness, search metadata, accountability

General Outline of Provisions of State of Utah Senate Bill 70

A summary of legislation related to open government and open data is presented in the appendix of this report.

Funding – *Can we sustain a move up the maturity curve in open data?*

At this point, the reader may be convinced that in fact open data has tremendous potential, it is gradually and deliberately moving up some maturity curve, and as a result, state government is going to get better and better. A critical element necessary for continued movement up the maturity curve is funding. Given the amount of interest, energy and progress made in open data thus far, state budgets allocated for open data initiatives are not substantial. Much of the work in open data has been volunteer work on the part of state employees motivated to see its success. One issue that may become critical is the sustainability of open data initiatives without a funding source. What is required within the business case for open data is a viable economic model for supporting it. The state CIO is not the custodian of all of this data. The individual state agencies are in that role. There will need to be a careful analysis of who is consuming this data. That analysis must be redone periodically to uncover changes in consumers and consumer behavior to understand the demand. Such analysis may help uncover how to fund the supply of data.

Given the amount of interest, energy and progress made in open data thus far, state budgets allocated for open data initiatives are not substantial.

Analysis of consumption and/or demand for data can help surface process friction that is currently prevalent in data requests such as FOIA requests. Further, that analysis may uncover what data to publish and thus bypass a resource intensive response process. One way to state this is, "provide the data before the request is made."

What to do next

Define Governance - The model from the state of Minnesota presents a proactive approach to open data by establishing necessary governance with representation from the various communities of interest.

- Define Governance
- Seek Input
- Start Small
- Manage Data as an Asset
- Publish Data in Context
- Anticipate Future Dynamics
- Address the Digital Divide
- Think Open From the Beginning
- Get Recognition

Seek Input - Open data strategy should support open government initiatives. It is a supportive resource. Engage citizens, industry and government employees in dialogue to learn what data is of interest, what understanding would improve decision making, what the gap is in analytical capabilities and how best to bridge that gap. An example is the state of Colorado Open Data initiative.[30] This site enables sharing of data across agencies.

Start small - Early projects should be small manageable projects. Get the process right. The city of Seattle provides the necessary guidance for selecting and evaluating datasets for publishing. Adopt a risk management approach to judging what data should be included in the open data portfolio.

Manage Data as An Asset - As with everything, there must be an enterprise strategy. Begin to develop an enterprise strategy for managing data as a state asset. Build a culture within state government that views information in that way. State employees with that perspective will complete the risk assessment with the attitude of a steward of citizen data and information.

Publish Data in Context - Publish data with the necessary related contextual information to assist consumers in properly interpreting the data.

Anticipate Future Dynamics – a lot of changes will develop as open data initiatives mature. Consumers of that data will explore and find ways of combining various data from government, industry, and academia. Dynamics will evolve in secondary use of data driving previously unanticipated demand for generating new types of data from government as well as other sources. This demand will need to be evaluated to ensure there is an appropriate justification for providing that data. Open data governance will become a necessity in managing this demand. Consider the use of APIs for dynamically presenting the most current data.
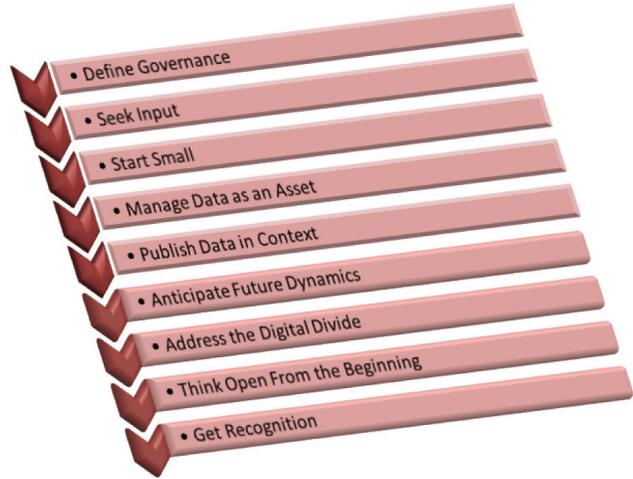
Address the Digital Divide – Develop strategy for building a minimal set of data management and analytical skills in staff and citizens that dovetails with the state's open data initiative.

Think open from the beginning – bake it into the data management strategy on any new initiative. That is, evaluate the appropriateness of publishing the data that is created from any new application. Anticipate potential open data factors with any government program. Noteworthy, New York state has a target objective to fully incorporate open data into state covered entities' on-going core business planning and strategies by 2019.[31]

Get Recognition – Connect with NASCIO and other channels to highlight your progress – In 2010 NASCIO created a new category within its State IT Recognition Award Program. Use this channel to promote state open data initiatives and to learn from what other states have accomplished.

Open Government Initiatives
OVERVIEW: This category addresses efforts to make government more transparent and accountable and to stimulate civic engagement. Submissions can include any type of electronic interface and may demonstrate unilateral initiatives as well as two-way communication capabilities.

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Appendix I – Evaluation Matrices

The following are candidate evaluation matrices for describing datasets or information resources.

- For evaluating the *Supply Side Viability* of a particular dataset or information resource:

Data Owner Interest and Commitment				
High				
Casual				
Low				
None				
Maturity of Data Management	None	Low	Medium	High

- For evaluating the *Demand Side Viability* of a particular dataset or information resource:

Data Consumer Interest, Commitment, AND Participation				
High				
Casual				
Low				
None				
Potential Productivity Gains or Economic Value Created	None	Low	Medium	High

● For evaluating *Fitness for Reuse*:

Quality			
High			
Medium			
Low			
non existent			
Ease of Publishing	Low	Medium	High

Frequency of Update			
Real Time			
Hours			
Days			
Months			
Quarterly			
Ease of Publishing	Low	Medium	High

Appendix II – References

A Call to Action for State Government: Guidance for Opening the Doors to State Data
September 2009
Transparency initiatives and websites are proliferating across government and industry globally. One aspect of the transparency trend is broader access to government data. NASCIO has published this report as initial guidance and recommendations to help state governments get started with data transparency portals. This guidance presents the value proposition along with principles and guidance on how states should move forward.
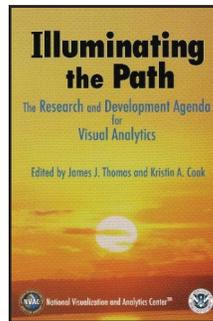
Illuminating the Path: The Research and Development Agenda for Visual Analytics
James J. Thomas and Kristin A. Cook
In 2004, DHS commissioned Pacific Northwest National Laboratory (PNNL) to create the National Visualization and Analytics Center (NVAC) as a resource for visual analytics technology and tools. NVAC gathered experts in the field from government, industry, and academia, and wrote a research agenda (PDF) to guide the new field of visual analytics. Since then, NVAC has expanded the focus beyond the needs of DHS and formed the Visual Analytics Community. Find out more at http://vacommunity.org.
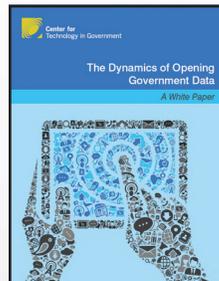
The Dynamics of Opening Government Data
Fri, 30 Nov 2012
Natalie C. Helbig, Anthony M. Cresswell, G. Brian Burke, and Luis Luna-Reyes
The information polity perspective described in this paper provides government a way to identify the various stakeholders and their patterns of interaction that influence or control the generation, flows, and uses of enhanced information resources in open data initiatives. The dynamic modeling techniques used highlight the ways different constraints can impact the system as a whole and affect value creation. These tools support planners' ability to generate informed hypotheses about changing patterns of interaction among existing and potential new stakeholders. In this way, governments can better evaluate the costs, risks, and benefits of a wide variety of open data initiatives.
http://www.ctg.albany.edu/publications/reports/opendata

The New York State - Open Data Handbook
This Open Data Handbook is intended as a general guide for government entities participating in data.ny.gov1, as well as the general public. The Handbook provides guidelines for identifying, reviewing, and prioritizing publishable state data for publication – with a foundational emphasis on high quality, and metadata and documentation requirements. These guidelines are intended for use by both covered state entities and other government entities not covered by the Governor's Executive Order 95 (including localities). These guidelines are also intended for use by the public in order to understand how New York State makes its publishable data sets available.
http://nys-its.github.io/open-data-handbook/OpenDataHandbook.pdf

Open data: Unlocking innovation and performance with liquid information
October 2013
James Manyika, Michael Chui, Diana Farrell, Steve Van Kuiken, Peter Groves, and Elizabeth Almasi Doshi
Open data—machine-readable information, particularly government data, that's made available to others—has generated a great deal of excitement around the world for its potential to empower citizens, change how government works, and improve the delivery of public services. It may also generate significant economic value, according to a new McKinsey report.1 Our research suggests that seven sectors alone could generate more than $3 trillion a year in additional value as a result of open data, which is already giving rise to hundreds of entrepreneurial businesses and helping established companies to segment markets, define new products and services, and improve the efficiency and effectiveness of operations.
http://www.mckinsey.com/insights/business_technology/open_data_unlocking_innovation_and_performance_with_liquid_information

Socrata Open Data Field Guide
A comprehensive guide for planning, initiating and sustaining an open data initiative.
http://www.socrata.com/open-data-field-guide/

Appendix III – Summary of Legislation Related to Open Government and Open Data 2012-2014

Provided by National Conference of State Legislatures – www.ncsl.org.

Enacted state legislation as of April 2, 2014

*Note: This list covers only open data/open source legislation and not FOIA or open records/public records or meetings legislation or legislation related to transparency websites. For enacted legislation related to statewide transparency websites, see www.ncsl.org/default.aspx?tabid=23205.

Source: NCSL 50-state searches of State Net, Lexis/Nexis.

For further updates on enacted legislation related to open data and open government visit:
www.ncsl.org/research/telecommunications-and-information-technology/statewide-transparency-spending-websites-and-legis.aspx

—2014 Legislation—

Summary: Legislation introduced in at least 12 states as of April 2, 2014. Legislation enacted in Illinois and Utah.

CALIFORNIA
A.B. 292
STATUS: Feb. 3, 2014; From Committee: Filed with the Chief Clerk pursuant to JR 56.
Provides that the full text of the Code of Regulations shall bear an open access creative commons attribution license, allowing any individual, at no cost, to use, distribute, and create derivative works based on the material for either commercial or noncommercial purposes.

ILLINOIS
H.B. 1040
STATUS: **March 7, 2014; Signed by Governor. Act 627**
Creates the Open Operating Standard Act; provides for the establishment of an open operating standard, to be known as Illinois Open Data, for the state; provides that each agency of state government under the jurisdiction of the Governor shall make available, via a single state web portal, public data sets of public information.

MARYLAND
H.B. 1260
STATUS: March 18, 2014; To Senate Committee on Education, Health and Environmental Affairs.
Relates to state government; relates to open data policy; relates to council on open data; relates to website; relates to local government.

S.B. 644
STATUS: March 18, 2014; To House Committee on Health and Government Operations.
Establishes a state policy that open data be machine readable and released to the public in specified ways; establishes a Council on Open Data; provides

for the composition, appointment, terms, chairs, and staffing of the Council; requires the Council to promote the policy on open data by providing specified guidance and policy recommendations, coordinating specified staff, identifying specified costs and funding mechanisms and advising the Governor and General Assembly on specified budget matters.

MINNESOTA
H.B. 2611
STATUS: March 3, 2014; To House Committee on State Government Finance & Veterans Affairs.
Relates to state government; appropriates money for a grant for open government, civic technology, and open data.

S.B. 2238
STATUS: March 3, 2014; To Senate Committee on Judiciary.
Relates to state government; appropriates money for a grant for open government, civic technology, and open data.

NEBRASKA
L.B. 919
STATUS: Jan. 16, 2014; To Legislative Committee on Government, Military and Veterans Affairs.
Creates the Open Data Advisory Board.

NEW JERSEY
A.B. 2071
STATUS: Jan. 16, 2014; To Assembly Committee on State and Local Government.
Relates to the New Jersey Open Data Initiative; requires certain information be made available on Internet by state departments and agencies.

NEW YORK
A.B. 4364
STATUS: Jan. 8, 2014; To Assembly Committee on Governmental Operations.
Authorizes and directs the committee on open government to study proactive disclosure as a means of increasing transparency and access to government information.

A.B. 8197
STATUS: Jan. 8, 2014; To Assembly Committee on Governmental Operations.
Establishes the open data law requiring the office of information technology services to establish an open data website and requiring covered state entities to publish certain data on such website; relates to negotiating positions, future procurements or pending or reasonably anticipated legal or administrative proceedings; includes materials subject to copyright, patent, trademark, confidentiality agreements or trade secret protection; includes employment records.

S.B. 236
STATUS: Jan. 8, 2014; To Senate Committee on Investigations and Government Operations.
Authorizes and directs the committee on open government to study proactive disclosure as a means of increasing transparency and access to government information.

OHIO
H.B. 321
STATUS: Oct. 30, 2013; To House Committee on State and Local Government.
Creates the DataOhio Board; specifies requirements for posting public records online; relates to medical records and school district information; provides exceptions; requires an open format.

OKLAHOMA
H.B. 1888
STATUS: Feb. 11, 2013; From House Committee on Government Modernization. Relates to public finance; establishes the Oklahoma State Government Open Records One-Stop Initiative; imposes duties on the Chief Information Officer; provides for delivery of certain documents; requires electronic delivery; requires certain documents be made available to the public; provides for statutory construction; provides for codification; provides an effective date.

S.B. 242
STATUS: Feb. 5, 2013, To Senate Committee on Rules.
Relates to state government documents; relates to the Oklahoma State Government Open Documents Initiative; clarifies language; provides an effective date.

VIRGINIA
H.B. 916
STATUS: Feb. 10, 2014; In House Committee on Science and Technology.
Relates to access to records; requires the Information Technology Advisory Council (ITAC), with input from the Health Information Technology Standards Advisory Committee, to adopt standards that allow consumers to have safe, secure, machine-readable access to their data held by a government agency, including health claims data held by the Department of Medical Assistance Services, Standards-of-Learning data held by the Department of Education, and tax records held by the Department of Taxation.

UTAH
S.B. 70
STATUS: March 27, 2014 Signed by Governor.
Directs the Department of Administrative Services to modify the public information website to include links to already existing public information, provide multiple download options, including nonproprietary, open formats where possible, and other provisions.

WASHINGTON
H.B. 2202
STATUS: Feb. 10, 2014; From House Committee on Appropriations: Do pass as substituted.
Concerns the establishment of an open data policy to facilitate sharing and publication of government data.

CALIFORNIA
S.C.R. 10
STATUS: 8/5/2013 To Assembly Committee on Rules.
Proclaims February 23, 2013 as Open-Data Day in the State. Defines Open Data as referring to information generated by public sector entities that is legally accessible and made available to the public electronically.

HAWAII
H.B. 632
STATUS: July 3, 2013, Signed by Governor, Act No. 2013-263
Requires executive departments, boards, commissions, and agencies to make data available to the public; absolves the state for liability for deficiencies or incomplete data; requires the Chief Information Officer to enact rules to address making electronic data sets available to the public; provides for confidentiality of proprietary data.

S.B. 448
STATUS: March 7, 2013, Failed First Crossover Deadline - First Year of Biennium.
Requires executive departments, boards, commissions, and agencies to make data available to the public; absolves State for liability for deficiencies or incomplete data; requires the Chief Information Officer to enact rules to address making data sets available to the public.

ILLINOIS
H.B. 1040
STATUS: May 31, 2013, In House. Placed on Calendar Order of Concurrence - Amendment No. 3.
Creates the Open Operating Standard Act; provides for the establishment of an open operating standard, to be known as Illinois Open Data, for the State; provides that each agency of State government under the jurisdiction of the Governor shall make available, via a single state web portal, public data sets of public information.

NEBRASKA
L.R. 223
STATUS: Sept. 12, 2013, To Legislative Committee on Government, Military and Veterans Affairs. Notice of hearing for November 01, 2013
Relates to an interim study to examine issues surrounding open data policies.

NEW HAMPSHIRE
H.B. 155
STATUS: June 27, 2013, Signed by Governor, Chapter No. 2013-0118
Revises standards encouraging the use of open source software and open data formats by state agencies; includes the Department of Information Technology in the Uniform Electronic Transactions Act; repeals the Information Practices Act; provides for the right to modify software; relates to electronic records.

NEW JERSEY

A.B. 3712/
STATUS: Jan. 28, 2013, To Assembly Committee on State Government.
Makes certain access changes to open public records act; establishes State public finance website and creates program for development of local websites; makes appropriation.

S.B. 2512
STATUS: May 30, 2013 Senate Amendment. (See also Fiscal estimate.)
Makes certain access changes to open public records act; establishes State public finance website and creates program for development of local websites; makes appropriation.

NEW YORK

A.B. 4364
STATUS: Feb. 4, 2013, Introduced.
Authorizes and directs the committee on open government to study proactive disclosure as a means of increasing transparency and access to government information.

S.B. 236
STATUS: Jan. 9, 2013, To Senate Committee on Investigations and Government Operations.
Authorizes and directs the committee on open government to study proactive disclosure as a means of increasing transparency and access to government information.

OKLAHOMA

S.B. 242
STATUS: Feb. 5, 2013, To Senate Committee on Rules.
Relates to state government documents; relates to the Oklahoma State Government Open Documents Initiative; clarifies language; provides an effective date.

OREGON

H.B. 2370
STATUS: July 25, 2013, Chaptered. Chapter No. 645. (See also summary and impact statements.)
Requires that additional information be posted on the State transparency website; requires posting of link to the State agency website where minutes or summaries of public meetings are made available by state agency; requires posting of certain links relating to rules of a state agency; requires posting of additional information relating to state contracts; requires postings of links to local government for revenue transparency and enterprise zones; requires information on specified tax expenditures.

TEXAS

S.B. 279
STATUS: July 8, 2013, Filed with Secretary of State. Chapter No. 740 (See also fiscal estimate.)
Relates to certain information about high-value data sets provided by state agencies to the Department of Information Resources; provides that a state agency that posts a high-value data set on the Internet website maintained by or for the agency shall provide the department with a brief description of the data set and a link to the data set.

NEW HAMPSHIRE
H.B. 310
STATUS: January 4, 2012; Failed to pass House.
Relates to the use of open data formats and the adoption of a statewide policy regarding open government data standards.

H.B. 418
STATUS: March 12, 2012; Chapter No. 2012-5
Requires state agencies to consider open source software and open data formats when acquiring new software; relates to adoption of a statewide information policy regarding open government data standards.

NEW YORK
A.B. 2251
STATUS: May 22, 2012; Amended in Assembly Committee on Governmental Operations.
Authorizes and directs the committee on open government to study proactive disclosure as a means of increasing transparency and access to government information.

S.B. 88
STATUS: May 31, 2012; From Senate Committee on Investigations and Government Operations.
Authorizes and directs the Committee on Open Government to study proactive disclosure as a means of increasing transparency and access to government information.

S.B. 4706
STATUS: March 13, 2012; To Assembly Committee on Governmental Operations.
Requires the committee on open government to provide guidance to agencies on the development and maintenance of subject matter lists.

DISTRICT OF COLUMBIA
B. 736
STATUS: June 19, 2012; Withdrawn from further consideration., (Permanent Law)
Enhances the District of Columbia Open Government Office; amends the District of Columbia Administrative Procedure Act to streamline the process by which a Freedom of Information Act request may be made and responded to, to require posting of letters of denial on the public body's websites, to modify the exemptions from disclosure, and to provide stronger enforcement mechanisms including penalties for violations of the law.

B. 776
STATUS: June 22, 2012; Introduced Bill Printed., (Permanent Law)
Amends the Administrative Procedure Act; provides that a government agency responding to a request under the Freedom of Information Act has a number of days in which to respond; broadens the exemption from disclosure for documents related to ongoing law enforcement investigations; substitutes disciplinary action for criminal penalties for agency employees for certain actions; empowers the Open Government Office to conduct training on the FOIA; offers informal dispute resolution services.

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NASCIO makes no endorsement, express or implied, of any products, services, or websites contained herein, nor is NASCIO responsible for the content or the activities of any linked websites. Any questions should be directed to the administrators of the specific sites to which this publication provides links. All critical information should be independently verified.

[1] NASCIO Press Release, *NASCIO Recommends State Data Transparency Sites*, September 30, 2009. www.nascio.org/newsroom/pressRelease.cfm?id=46

[2] NASCIO, *A Call to Action for State Government: Guidance for Opening the Doors to State Data*, p. 8. September 2009. www.nascio.org/publications.

[3] "'Get the raw data out there ASAP': Berners-Lee" by Tom Espiner, Public Sector News. Retrieved on August 22, 2009, from http://www.silicon.com/publicsector/0,3800010403,39445943,00.htm.

[4] "Life Events" is a foundational concept driving the recommendations presented in the Smart Lean Government initiative and is described in the Smart Lean Government Practical Guide. More information and access to Smart Lean Government Practical Guide Vol 1, 2 and 3 at www.actiac.org.

[5] See data.gov and the dataZoa Data Index at www.datazoa.com/publish/gettingdatatop.asp?uid=dzadmin.

[6] These series are available at www.nascio.org/publications.

[7] Helbig, N., Cresswell, A., Burke, B., Luna-Reyes, L., The Dynamics of Opening Government Data, December 2012. Center for Technology in Government (CTG). Retrieved 1/28/2014 from www.ctg.albany.edu/publications/reports/opendata.

[8] Kundra, V., *Digital Fuel of the 21st Century: Innovation through Open Data and the Network Effect*, Joan Shorenstein Center on the Press, Politics and Public Policy, Discussion Paper Series, #D-70, January 2012. http://www.hks.harvard.edu/presspol/publications/papers/discussion_papers/d70_kundra.pdf.

[9] See NASCIO series on *data governance*. www.nascio.org/publications.

[10] In 2004, DHS commissioned PNNL to create the National Visualization and Analytics Center (NVAC) as a resource for visual analytics technology and tools. NVAC gathered experts in the field from government, industry, and academia, and wrote a research agenda (PDF) to guide the new field of visual analytics. More information at vis.pnnl.gov/.

[11] The state of Minnesota Open Data Portal - www.state.mn.us/opendata/index.html.

[12] This evaluation table was developed in collaboration with Dr. Clyde Holsapple and Samantha Wenger. Additional tables were developed and reviewed with the NASCIO Enterprise Architecture & Governance Committee.

[13] NASCIO, *A Call to Action for State Government: Guidance for Opening the Doors to State Data*, p. 8. September 2009. www.nascio.org/publications.

[14] The Data Inventory Spreadsheet is presented in Socrata's Field Kit which is a companion kit linked within the Field Guide. Retrieved from www.socrata.com/open-data-field-guide/field-kit-landing-page/.

[15] Socrata's Open Data Field Guide and related resources are available at www.socrata.com/.

[16] *New York State Open Data Handbook*, November 6, 2013. New York State Office of Information Technology Services (ITS). p. 31, 32. Available at http://nys-its.github.io/open-data-handbook/OpenDataHandbook.pdf

[17] *New York State Open Data Handbook*, November 6, 2013. New York State Office of Information Technology Services (ITS). p. 13. Available at http://nys-its.github.io/open-data-handbook/OpenDataHandbook.pdf

[18] *New York State Open Data Handbook*, November 6, 2013. New York State Office of Information Technology Services (ITS). p. 18-20. Available at http://nys-its.github.io/open-data-handbook/OpenDataHandbook.pdf

[19] NASCIO Press Release, *NASCIO Recommends State Data Transparency Sites*, September 30, 2009. www.nascio.org/newsroom/pressRelease.cfm?id=46

[20] See Seattle Open Data Resources at www.seattle.gov/html/citizen/opendata.htm.

[21] *IT in the Service of the Citizen* CIO Digest July 2013 http://www.symantec.com/content/en/us/enterprise/articles/b_ciodigest_IT_In_the_Service_of_the_Citizen_en_us.pdf

[22] "The Productivity Perspective: Delivering valuable and timely decision support data to Businesses & Government Agencies", *dataZOA Government & NGA Newsletter*, February 2014. www.datazoa.com/about/about.asp

[23] See NASCIO's series on data governance, series on analytics and report on big data at www.nascio.org/publications.

[24] *Data.Oregon.gov -The First Citizen Social Interactive State Data Portal - The first citizen social interactive state data portal*, NASCIO Technology Award Recipient, 2011, Category: *Open Government Initiatives*. www.nascio.org/awards/2011awards/opengovt.cfm

[25] Pacific Northwest National Laboratory (PNNL) employs interdisciplinary teams to research and develop solutions to many of America's most pressing issues in energy, the environment and national security through advances in basic and applied science. PNNL employs 4,600 staff, has an annual budget of nearly $1 billion, and has been managed for the U.S. Department of Energy by Ohio-based Battelle since the laboratory's inception in 1965. www.pnnl.gov

[26] Ingam, M., *When It Comes to Open Data, Is Transparency Enough?*, May 28, 2010. Retrieved on November 22, 2013 from http://gigaom.com/2010/05/28/open-data-transparency-is-not-enough-boyd-says/

[27] For a list of current state legislation either already passed or under consideration see scout.sunlightfoundation.com/user/rebeccawilliams/state-open-data-bills.

[28] Retrieved on March 3, 2014, from leg.mt.gov/bills/mca/90/1/90-1-109.htm. State of Montana, Title 90, Chapter 1, Part 1, Section 109.

[29] State of Utah Senate Bill 70 available at le.utah.gov/~2014/bills/static/SB0070.html.

[30] The Colorado Information Marketplace (CIM) - data.colorado.gov/. A description of this initiative is provided at www.youtube.com/watch?v=yD_gEx-F434.

[31] *New York State Open Data Handbook*, November 6, 2013. New York State Office of Information Technology Services (ITS). p. 6. Available at http://nys-its.github.io/open-data-handbook/OpenDataHandbook.pdf