Innovations in Data Access, Dissemination and Visualization

Association of Public Data Users Conference
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Washington, DC

Sanjeev “Sonny” Bhagowalia
Deputy Associate Administrator
Office of Citizen Services and Innovative Technologies
U.S. General Services Administration
The President’s Innovation Agenda* defines the building blocks of innovation

- Open Government
- Partnerships
- Entrepreneurship
- Prizes, Challenges, and Grants
- Idea Generation
- Innovative Science & Technology
- Creative Funding Strategies
- Promoting Competitive Markets

"...we need to embrace new technologies that are going to change the way we serve our constituents and at the same time ensure that the federal government operates in an efficient way."

— Vivek Kundra
U.S. Chief Information Officer

Mission Statement
Leverage the power of technology to drive transformation, increasing agency effectiveness, efficiency and performance.

ADMINISTRATION GOALS FOR AGENCY CIO

- Goal 1: Effectively Manage IT Investments
- Goal 2: Improve Efficiency and Effectiveness Through Innovation and Information Technology
- Goal 3: Enable Openness, Transparency and Participation
- Goal 4: Advance Information Security Postures
- Goal 5: Develop and Maintain a Skilled Federal IT Workforce

THE CIO'S LEGAL AND POLICY RESPONSIBILITIES

The federal CIO operates under a different environment than their private-sector counterparts and must abide by statutory and regulatory requirements unique to the federal government.

Legal requirements for CIOs address:
- Strategic management;
- Security and privacy; and
- Information policy.

Policy requirements are laid out in public law, Executive Orders, OMB Circulars and other government-wide policy.

Source: http://www.cio.gov
Context: The Industrial Revolution of data is here

“Data is the flint for the next 25 years.”

Ray Ozzie
Chief Software Architect
Microsoft

Volume of digital information increases tenfold every 5 years

Plus: the data is replicated many times over!
Context: Moving information and knowledge to the user

<table>
<thead>
<tr>
<th>Role</th>
<th>Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agency CFO</td>
<td>&quot;I need financial and corporate performance management&quot;</td>
</tr>
<tr>
<td>Program Manager</td>
<td>&quot;I need status reports — and I need them now&quot;</td>
</tr>
<tr>
<td>IT Operations</td>
<td>&quot;I need performance and availability reporting&quot;</td>
</tr>
<tr>
<td>Strategic Planner</td>
<td>&quot;I need analytics and predictive models&quot;</td>
</tr>
<tr>
<td>Customer Relationship Manager</td>
<td>&quot;I need a single constituent view&quot;</td>
</tr>
<tr>
<td>Business Process Analyst</td>
<td>&quot;I need data mining and OLAP&quot;</td>
</tr>
<tr>
<td>Elected Officials</td>
<td>&quot;The media wants to know how our response time has changed&quot;</td>
</tr>
</tbody>
</table>
.... And to the public

Decline of the info producer vs. consumer paradigm
Context: Maximum sharing and flow of information and knowledge

As big an issue outside your organization as within it

- YouTube is now second largest search engine in the world
- 1.5 million pieces of content shared daily on Facebook
- On-line newspaper readers are up 30%
- 250 million visitors each month to Myspace, YouTube, and Facebook (none were around 6 years ago)
- Mobile devices will be world’s primary connection tool to the Internet in 2020
The Open Government Initiative

Transparency promotes accountability

Participation allows people to contribute ideas/expertise; government benefits from broad knowledge sharing

Collaboration encourages cooperation within government and with industry

My Administration is committed to creating an unprecedented level of openness in Government. We will work together to ensure the public trust and establish a system of transparency, public participation, and collaboration. Openness will strengthen our democracy and promote efficiency and effectiveness in Government.

— President Obama, 2010
Leading practices for OGD plans

- Leadership, Governance, & Culture Change
- Transparency
- Participation & Collaboration
- Flagship Initiatives
Data.gov – Think Big, Start Small, Act Quick and Keep Innovating……

<table>
<thead>
<tr>
<th>Data.gov Quick Facts</th>
<th>Launch: May 21, 2009</th>
<th>1 Year Anniversary: May 21, 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total datasets available</td>
<td>47</td>
<td>272,768</td>
</tr>
<tr>
<td>Hits to Data.gov</td>
<td>2.1 million</td>
<td>97.6 million</td>
</tr>
<tr>
<td>Applications and mash-ups developed by citizens</td>
<td>0</td>
<td>237</td>
</tr>
<tr>
<td>RDF triples for semantic applications</td>
<td>0</td>
<td>6.4 billion</td>
</tr>
<tr>
<td>Dataset downloads</td>
<td>0</td>
<td>652,412</td>
</tr>
<tr>
<td>Nations establishing open data sites</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>States offering open data sites</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Cities in North America with open data sites</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>Open data contact in Federal agencies</td>
<td>24</td>
<td>253</td>
</tr>
</tbody>
</table>
Goals of Data.gov

• **Break down stovepipes** to increase access to data

• **Instant access**: downloadable data only one click away

• **Data that can be manipulated and mashed-up**

• **Encourage development of innovative applications**

• **Tools and Widgets that provide access to complex data stores**
NOAA’s data has helped build many weather-related businesses:
- TV and radio weather forecasting
- The Weather Channel
- Weather.com

Data.gov’s opportunities for the private sector are limitless

Together we can provide data to contribute to help rebuild the economy
We Need You!

Tapping the Ingenuity of the American Public

- The Federal Government does not have a monopoly on good ideas
- Access to Information unleashes creativity
- Innovation drives sustainability
When the Department of Defense released its satellite data... the public created affordable GPS devices!
Tapping the Ingenuity of the American Public

**Fly On Time**

- Using Dept. of Transportation data, FlyOnTime.us lets people find the most on-time flights and shortest security-line wait times.
- Integrated to Twitter
Tapping the Ingenuity of the American Public

- Since Data.gov’s launch last year, **237 applications** have been developed by citizens and others to create value from the raw data.

The world is eager for our data!
New Features

New GEO Viewer lets users preview geospatial data.

More User Apps from Agency Data

Expanding the Semantic Web:
Data.gov will allow citizens and developers to work with the government to create a new generation of “linked data” mashups.
Semantic Technologies

- Provides developers the tools and raw data formats they need to develop new capabilities
- Close partnership with Rensselaer Polytechnic Institute
- Connected to other open data efforts across the world
With so much government data to work with, developers are creating a wide variety of applications, mashups, and visualizations. From crime statistics by neighborhood to the best towns to find a job to seeing the environmental health of your community – these applications arm citizens with the information they need to make decisions every day. Enjoy these highlights of the hundreds of applications available.
**State Library Agency Survey: Fiscal Year 2006**
This demonstration displays the ratio of the number of book volumes (available per state and aggregated over all public libraries) to the population of that state. This data comes from [dataset 353](#) released by the Institute of Museum and Library Services.

**Broadband Adoption Urban Vs Rural in 2009**
This demo shows the percentage of households in each state with broadband Internet access, out of the total number of (urban and rural) households with home Internet access. The percentage is computed by urban home broadband + rural home broadband / urban home total + urban home total.

**US Global Aid**
This application presents historical foreign aid data (ranging from 1951 to 2008) from three branches of the US Government: the United States Agency for International Development (USAID), the Department of Agriculture and the Department of State. Users may retrieve foreign aid data for specific countries by clicking on the provided world map (shaded based on total foreign aid received). Upon clicking on a desired country, three kinds of information are presented: Aid Figures, News Articles (retrieved through the New York Times Article Search API), and the CIA World Fact book. This mashup is hosted at RPI.

**White House Visitor Search**
This demonstration lets users search visitors and visitees of the White House. The top 100 most frequently visited people in the White House are listed. This mashup is hosted at RPI.
Data.gov is leading the way in democratizing public sector data and driving innovation. This movement has spread throughout cities, states, and countries.

- Data.gov has launched a global community of nations, states, counties and municipalities that are delivering open data to the public.
- Eight countries have versions of open data platforms and more are coming.
Context: Search analytics is alive!

Less time looking for information and then analyzing it

Structured searches tied to trusted and well-indexed government web sites

**DATA.GOV**

Data exhaust – trail of clicks that users leave behind, where value can be created .... using algorithms that push more relevant search terms to top of lists
Data.gov Datasets by Category

**Raw Data & Tools by Category**
- Geography and Environment: 2,184
- National Security and Veterans Affairs: 212
- Health and Nutrition: 161
- Federal Government Finances and Employment: 141
- Labor Force, Employment, and Earnings: 133
- Information and Communications: 88
- Social Insurance and Human Services: 86
- Science and Technology: 82
- Energy and Utilities: 81
- Business Enterprise: 69
- Others: 513

**GeoData by Category**
- Imagery and Base Maps: 108,109
- Administrative and Political Boundaries: 95,068
- Transportation Networks: 37,101
- Inland Water Resources: 19,389
- Facilities and Structures: 8,838
- Environment and Conservation: 1,471
- Elevation and Derived Products: 1,145
- Oceans and Estuaries: 941
- Atmospheric and Climatic: 991
- Biology and Ecology: 134
- Others: 5,991
### Data Downloads by Data Category (August 2010)

These numbers represent the number of times a user has clicked on the "XML" or "CSV" (for example) links in the Raw Data Catalogs to download datasets and user downloads of tools in the Tool Catalog available in these categories.

<table>
<thead>
<tr>
<th>Data Category</th>
<th>Raw Data Catalog</th>
<th>Tool Catalog</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>567</td>
<td>560</td>
<td>1,127</td>
</tr>
<tr>
<td>Arts, Recreation, and Travel</td>
<td>164</td>
<td>27</td>
<td>191</td>
</tr>
<tr>
<td>Banking, Finance, and Insurance</td>
<td>1,064</td>
<td>109</td>
<td>1,173</td>
</tr>
<tr>
<td>Births, Deaths, Marriages, and Divorces</td>
<td>0</td>
<td>63</td>
<td>63</td>
</tr>
<tr>
<td>Business Enterprise</td>
<td>637</td>
<td>633</td>
<td>1,270</td>
</tr>
<tr>
<td>Construction and Housing</td>
<td>248</td>
<td>262</td>
<td>510</td>
</tr>
<tr>
<td>Education</td>
<td>196</td>
<td>702</td>
<td>898</td>
</tr>
<tr>
<td>Elections</td>
<td>648</td>
<td>19</td>
<td>667</td>
</tr>
<tr>
<td>Energy and Utilities</td>
<td>1,928</td>
<td>122</td>
<td>2,050</td>
</tr>
<tr>
<td>Federal Government Finances and Employment</td>
<td>2,882</td>
<td>253</td>
<td>3,135</td>
</tr>
<tr>
<td>Foreign Commerce and Aid</td>
<td>936</td>
<td>83</td>
<td>1,019</td>
</tr>
<tr>
<td>Geography and Environment</td>
<td>20,712</td>
<td>3,155</td>
<td>23,867</td>
</tr>
<tr>
<td>Health and Nutrition</td>
<td>3,774</td>
<td>4,448</td>
<td>8,222</td>
</tr>
<tr>
<td>Income, Expenditures, Poverty, and Wealth</td>
<td>522</td>
<td>129</td>
<td>651</td>
</tr>
<tr>
<td>Information and Communications</td>
<td>1,216</td>
<td>767</td>
<td>1,983</td>
</tr>
<tr>
<td>International Statistics</td>
<td>217</td>
<td>62</td>
<td>279</td>
</tr>
<tr>
<td>Labor Force, Employment, and Earnings</td>
<td>2,832</td>
<td>288</td>
<td>3,120</td>
</tr>
<tr>
<td>Law Enforcement, Courts, and Prisons</td>
<td>1,270</td>
<td>72</td>
<td>1,342</td>
</tr>
<tr>
<td>National Security and Veterans Affairs</td>
<td>281</td>
<td>2,999</td>
<td>3,280</td>
</tr>
<tr>
<td>Natural Resources</td>
<td>167</td>
<td>0</td>
<td>167</td>
</tr>
<tr>
<td>Other</td>
<td>4,913</td>
<td>870</td>
<td>5,783</td>
</tr>
<tr>
<td>Population</td>
<td>1,921</td>
<td>1,071</td>
<td>2,992</td>
</tr>
<tr>
<td>Prices</td>
<td>148</td>
<td>0</td>
<td>148</td>
</tr>
<tr>
<td>Science and Technology</td>
<td>919</td>
<td>926</td>
<td>1,845</td>
</tr>
<tr>
<td>Social Insurance and Human Services</td>
<td>2,412</td>
<td>281</td>
<td>3,693</td>
</tr>
<tr>
<td>State and Local Government Finances and Employment</td>
<td>41</td>
<td>54</td>
<td>95</td>
</tr>
<tr>
<td>Transportation</td>
<td>833</td>
<td>733</td>
<td>1,566</td>
</tr>
<tr>
<td>Wholesale and Retail Trade</td>
<td>40</td>
<td>366</td>
<td>406</td>
</tr>
<tr>
<td><strong>Grand Total</strong></td>
<td><strong>51,620</strong></td>
<td><strong>15,994</strong></td>
<td><strong>70,614</strong></td>
</tr>
</tbody>
</table>
Top 10 Visiting Countries (August 2010)

- China: 5,754
- Germany: 4,741
- United Kingdom: 2,109
- Japan: 2,705
- Canada: 2,421
- France: 1,717
- Brazil: 1,431
- Russia: 1,430
- Indonesia: 1,367
- Vietnam: 1,092
### Top 10 most Downloaded Datasets (All Time)

<table>
<thead>
<tr>
<th>Title</th>
<th>Agency/Sub-Agency</th>
<th>Category</th>
<th>Number of Downloads</th>
</tr>
</thead>
<tbody>
<tr>
<td>Worldwide M1+ Earthquakes, Past 7 Days</td>
<td>DOWSOS</td>
<td>Geography and Environment</td>
<td>124,546</td>
</tr>
<tr>
<td>U.S. Overseas Loans and Grants (Greenbook)</td>
<td>USAID</td>
<td>Foreign Commerce and All</td>
<td>37,271</td>
</tr>
<tr>
<td>Latest Volumes of Foreign Relations of the United States</td>
<td>STATE</td>
<td>Other</td>
<td>18,146</td>
</tr>
<tr>
<td>Food and Drug Administration--Recalls</td>
<td>HHS/FDA</td>
<td>Health and Nutrition</td>
<td>5,621</td>
</tr>
<tr>
<td>MyPyramid Food Raw Data</td>
<td>USDA/FNS</td>
<td>Health and Nutrition</td>
<td>3,999</td>
</tr>
<tr>
<td>EPA Geospatial Data Downloads: Facility and Site Information</td>
<td>EPA</td>
<td>Geography and Environment</td>
<td>3,004</td>
</tr>
<tr>
<td>2000 Federal Register in XML</td>
<td>NASA/OIFR</td>
<td>Other</td>
<td>3,650</td>
</tr>
<tr>
<td>Cooperative Research and Development Agreement (CRADA) Opportunities from NIH</td>
<td>HHS/NIH</td>
<td>Business Enterprise</td>
<td>3,306</td>
</tr>
<tr>
<td>Global Trade - World Copper Smelters</td>
<td>DOWSOS</td>
<td>Geography and Environment</td>
<td>3,209</td>
</tr>
<tr>
<td>Child-Related Product Recalls</td>
<td>CPSC</td>
<td>Wholesale and Retail Trade</td>
<td>3,017</td>
</tr>
</tbody>
</table>
What’s Next?

Geo-Spatial Data is A Key Enabler for “Killer Apps”

- **Geo-data Integration** - Combine capabilities of Geodata.gov and Data.gov
- Enhanced visualization and data-mashing capabilities
- “Human knowledge is expected to be doubling by the year 2012.” (Alvin Toffler)
- Geo-aware applications are key.
  How to realize the promise of geospatial information systems (GIS) for the nation?
  - Geo-data “architected and built-in”
  - Lightweight geo-applications and mash-ups for Web 2.0/Gov 2.0
  - Incremental, agile, actionable and affordable delivery
A Push for Mobile Apps

USA.gov

Get it done online, not in line!

Apply for a Passport
- Apply for Student Aid
- File Your Taxes
- Get Your Driver’s License

MOST POPULAR
1. Passport
2. Jobs
3. Grants
4. Auctions
5. Green Card

Public Engagement
Post an idea, comment on the ideas of others, and rate and rank ideas to improve your government. Make your voice heard.

Performance Dashboards
Your window into government performance. See Performance Indicators.

Mobile Apps
Check the wait time at your airport, the status of your tax refund, and more on your mobile device.

Connect with Government
Facebook Twitter RSS Feeds Mobile YouTube Our Blog

GSA

Your iPhone gets better with every new app.

Applications for iPhone are like nothing you’ve ever seen on a mobile phone. Explore some of our favorite apps here and see how they allow iPhone to do even more.
What’s Next?

- **Shared Dataset Hosting**
  - Data extraction
  - Data conversion
  - Geocoding
  - Visualization

- **Data Discovery Services**
  - Available to agencies as a fee-for-service
  - Allow agencies to discover datasets within their entire public space

- **Mobile Applications**

- **APIs** – simplify access for developers and publishers
Set the Data Free....

We’re Looking Forward to Working with You!

Questions?