

Web 3.0 Tools

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Tracking the Stimulus: Recovery.Gov Showcases Federal Evolution to Web 3.0

In the effort to make government information more open and accountable, there's perhaps no better example public sector organizations and others can draw from than Recovery.gov, which was set up by the current administration to follow the ongoing impact of the president's economic stimulus plan, otherwise known as the American Recovery and Reinvestment Act (ARRA) of 2009.

Recovery.gov is the website being used to track the stimulus. The original site, launched in February 2009, was powered by Drupal, an open source content management platform that offered blogs, forums, newsletters and podcasting among its features. But users were not able to follow the recovery funds from beginning to end as the Obama administration had promised. Nor could site administrators use the site for the approval process required to collect, sort and display spending data collected from funding recipients. As a result, the site became a target for watchdogs, open government advocates and lawmakers 'underwhelmed' with the site's original contents and capabilities.

“And we expect you, the American people, to hold us accountable for the results. That is why we have created Recovery.gov, so every American can go online and see how their money is being spent.”

— *President Obama*

As a result, the Recovery Accountability and Transparency Board, which was charged with tracking stimulus funds made the decision to change not only the site's look but also its core focus. They solicited a contract through the Government Services Administration (GSA) to redesign the site. An \$18 million contract was awarded to Hollywood, Md.-based Smartronix, Inc., a firm experienced in federal and military IT projects, with help from three subcontractors, Synteractive, TMP Government and KPMG in July 2009.

The Recovery.gov contract awarded to Smartronix included the procurement, installation, configuration, security and 24x7 operation and maintenance of a robust, secure and highly available web infrastructure to support millions of users. A mirrored continuity of operations environment was included in the contract. If all options were exercised, the award would be valued at \$18 million over five years.

Ten Week Turnaround

How Smartronix, along with partners Synteractive, TMP Government and KPMG redesigned Recovery.gov in just ten weeks from a static web site to a dynamic platform based on Microsoft SharePoint, FAST Search and SQL Server is a story worth explaining in detail. According to Evan Burfield, CEO of Synteractive, the incredibly challenging opportunity required his team to step back and think about the government's problem. “We had a week to determine if we were the current administration, what would we want to accomplish?”

To that end, Burfield's team came up with the concept for a site that would be “hyperpersonalized and localized for the average individual to understand and use,” he said.

This concept comes primarily from a growing trend in the consumer arena, in which a citizen in Dayton, Ohio frankly doesn't care much about the national picture. Instead he or she really wants to know what's happening in their own community.

Using Web 2.0 and 3.0 concepts, it takes radically fewer people to design and build a new web environment, Burfield explained. It takes a specialized skill set, along with the right incentives to rethink a problem so it can be effectively resolved. In the case of Recovery.gov the differences boiled down to a fixed price contract, rather than a more traditional cost plus contract. Another difference: using an iterative approach rather than a more traditional 'waterflow' approach to design, along with relying on a few groups of highly skilled personnel to implement the solution. “What we've found in this type of development process is that many 'business process' problems are actually collaboration problems,” Burfield said. □



The original Recovery.gov home page February 2009.



Defining Web 3.0

Web 3.0, otherwise known as the “Semantic Web” is a term coined by Tim Berners-Lee, one of the originators of the World Wide Web. At its core Web 3.0 is a place, where machines will read web pages much like humans. It’s also reportedly a place where Internet search engines along with software agents will troll the Internet to find precisely what a user is searching for. Web 3.0 has been described as a set of standards for turning the web into one gigantic database. Bing’s reference search is one example of a Web 3.0 application.

Recovery.gov home page now



On Recovery.gov –
“I expect it to be a template
from this point on
for how the federal
government deals
with taxpayers’ money.”
– Vice President Joseph Biden

Inside the Relaunch: Understanding How Web 3.0 Works

Within the redesign of Recovery.gov, the overarching challenge was to engage citizens in analyzing the Recovery Act's funding data – and to do it fast. The entire redesign had to be completed in ten weeks.

The contract award team of Smartronix, with partners Synteractive, TMP Government, and KPMG decided the best way to attack this challenge was to break all tasks down into multiple elements, and then focus intently on the simplest way to resolve each challenge. With only 10 weeks to complete the redesign, engineers needed a robust solution that could meet all of the government's security and governance requirements and still be flexible and scalable enough to meet the needs of an entire U.S. population. The overall architecture had to have content management workflows, which is primarily why the environment was moved to Microsoft SharePoint, which is already widely deployed throughout government. "We knew if the entire site had to be up and running in ten weeks, it could take six weeks or more to buy a new platform and complete the certification/accreditation process," said Evan Burfield, CEO of Synteractive.

Development time that would have otherwise been spent building a custom solution was freed up by the decision to use SharePoint, and that allowed the team to address critical business problems, such as how to collect data from hundreds of disparate sources. SharePoint is a collection of software that can be used to host web sites that access shared workspaces, information stores and documents, as well as host defined applications such as wikis, podcasts, blogs, widgets, gadgets, pipes and microblogs. At its core, SharePoint has built-in integration for reporting, collaboration, social networking, and other capabilities that can greatly improve how constituents interact with government and how government organizations interact with each other. "We also used open source components and web services, including Microsoft's Bing, because the architecture is already interoperable and widely used," Burfield said.

Ultimately, this early stage set of decisions is how Recovery.gov became the first government-wide platform to run on in a cloud computing environment, sources said.

An Important Incentive

Because this was a fixed price contract there was a tremendous incentive to get the solution implemented as cost

effectively as possible. "We took an iterative approach, doing strategic design, engaging stakeholders at each step along the way. In reality, the development of a redesigned Recovery.gov turned into two separate, yet intertwined five week challenges. The first challenge was to build a development, test and staging architecture using Microsoft's SharePoint, running on Amazon's cloud computing platform. This helped determine the actual look and feel of the site, Burfield explained.

The second five week challenge was focused on digging into data elements that would reside on the newly revised web site. To resolve this challenge, several small, highly skilled teams with 'elite' resources were used, Burfield explained. "Our goal wasn't to build the end-all solution. Instead, we wanted to build the quickest solution possible, which could be improved upon after launch."

Among the teams working on the data challenges, Burfield explained that there were no more than 25 people dedicated to any single challenge, with many teams using fewer than 20 people. The teams built a collection of use cases, or the user stories. Teams were set up to build the data architecture, the user experience, a content management system, and all other elements of the new site, each working separately on challenges that somehow had to work together to resolve the team's initial use cases. "It takes a unique skill set to break down a business problem into workflows, and then build the programs that would address each challenge.

The development team included six SharePoint architects and two project managers. The smaller teams of highly skilled professionals (average age, 28) provided a unique and diverse skill set. "They brought pragmatism and innovation to get the job done," Burfield said.

In many ways, the entire development process had a West Coast startup feel, which in so many ways has been completely foreign to traditional government contracting deals. Multiple industry observers agree that the iterative approach to resolving challenges using a Web 3.0 site design has worked extremely well. "We chose to resolve each problem by tightly defining specific elements and creatively resolving each element by leveraging technological tools from Google, Amazon and Microsoft to help us along the way," Burfield explained. □

Winning Results Via Web 3.0 Implementation

Recovery.gov now enables citizens to understand the impact of the \$787 billion American Recovery and Reinvestment Act in their local community. Newsweek has reported Recovery.gov is, “perhaps the finest interactive database ever produced by the American bureaucracy.”

In recent testimony before a Senate subcommittee on federal financial management, Earl Devaney, chairman of the Recovery Accountability and Transparency Board said, “The Board’s IT team members universally say they learned two valuable lessons from the strategy of developing components of [Recovery.gov] simultaneously instead of serially. First, developing the typical monolithic, one-size-fits-all technology to solve a problem is not necessary. Quickly and imaginatively integrating existing technologies can work as well, or even better. Second, deploying individual tools and components as soon as they are ready and integrating others as they become available can work just as well as waiting until all pieces have been completed.”

The Recovery Act currently provides funds to more than 275 different federal programs. According to Devaney, Recovery.gov 2.0 has raised the standard for accountability

and transparency in the federal government. Recovery.gov has also been honored for innovation by several local and national organizations, including the Ad Club of Metropolitan D.C. and the 14th annual Webby Awards. And a Newsweek article on the re-launch of the site reported, “The result is the current incarnation of Recovery.gov – which, as anyone who has spent significant amounts of time scouring government websites for information will tell you – is perhaps the clearest, richest interactive database ever produced by the American bureaucracy.”

Vivek Kundra, U.S. Chief Information Officer recognized Recovery.gov as, “the first government-wide system to move to the cloud.”

The Recovery.gov redesign contract award team, including Smartronix, with partners Synteractive, TMP Government and KPMG is working with Recovery.gov’s board to refine the site. The Recovery Accountability and Transparency Board is currently focused on open APIs, widgets, enabling people to build their own apps. “We are also working on ways to engage the entire ecosystem to help with data quality,” said Evan Burfield, CEO of Synteractive.

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Awards and Recognition

Synteractive was recognized as Microsoft’s Federal Partner of the Year for its work on Recovery.gov honoring Synteractive’s innovative use of Microsoft technology in support of Recovery.gov.

Winners and finalists were chosen by Microsoft’s U.S. Public Sector team. “Microsoft’s federal partners are essential to our goal of delivering technology that helps agencies meet mission requirements,” said Teresa Carlson, Vice President, Microsoft Federal. “With Recovery.gov, Synteractive created a solution that has become synonymous with transparency, accountability and the open government goals of the administration. Synteractive’s approach to innovation and to rapid, iterative solutions is invaluable given the emerging needs of the public sector.”

In addition to Treasury.gov, Synteractive was also been tapped to work on <http://www.americaspeakingout.com/>, part of the Republican leadership’s Pledge for America, designed to help create a new vision for the political party during the current midterm election season. “Rather than going into a room and coming up with

think tank ideas, the party’s leadership has opened a website for anyone who wants to participate to tell them which policy ideas to vote for or against. It’s all about being able to connect and seeing what others are thinking about policies across a broad network of people,” Burfield explained.

This site runs on Microsoft’s Azure platform and also leverages Microsoft TownHall. Constituents can even use an Android app or iPhone to participate through Facebook, bringing the conversation to the people, wherever they may be located.

Synteractive is currently getting as much business from foreign governments as it has from U.S. federal sector organizations. This is mostly because those governments are now under pressure to build their own Recovery.gov sites as well. “Seems that as soon as it’s proven what can be done with this type of site, the ability to tell any country’s citizens ‘the information is impossible to provide’ becomes difficult to sustain,” Burfield explained.

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The Recovery Accountability and Transparency Board is an independent board within the current White House administration consisting of 13 inspector generals from each of the major agencies, along with leaders from Congress. What has been so amazing to Burfield is that the Recovery board's leaders, including Vice President Joseph Biden didn't just allow, but encouraged the team to break down bureaucratic barriers to work in this way. That's because Recovery.gov has turned into a completely new way of working on a public sector challenge.

Futures

Recovery.gov will soon be implementing a new element, suggested by Edward Tufte, Professor Emeritus of political science, statistics, and computer science at Yale University, which should help users get a visual feel for how Recovery funds are being spent across the country. And Devaney reported the Board is also engaged in a second round of focus group and usability testing, visiting cities across America – including Detroit and Phoenix – with the ultimate goal of increasing the usability of the Recovery.gov and further enabling detailed tracking of Recovery Act monies.

The Recovery.gov website will also be unveiling a new widget that will allow users to put on their own websites a live, real-time display of ARRA projects in whichever Congressional district they select. “We also plan to reach out to the public for input and ideas on additional widgets and hopefully get the citizenry engaged in creating new applications we had not even considered,” Devaney said.

Future improvements may eventually include making data from Recovery.gov readily available through social media platforms such as Facebook. Social media tools would likely help users note errors in the data, interact with the data to construct new data sets and mashups, upload videos using to the site, and integrate various localized feeds from Twitter, according to industry reports.

Meanwhile, the same development team that successfully completed the redesign of Recovery.gov was also awarded the redesign of the Treasury.gov website, which is set to go live in the near future. There will be associated web sites that focus on helping constituents build financial stability, and making homes affordable. According to Burfield, in Web 3.0, the ultimate goal is to turn data into a structured, living thing. The Treasury Department has a great deal of important information for local constituents throughout the U.S., in addition to traditional federal government entities. “We are working to turn that information into a dynamic structure for everyone to collaborate on. If Web 2.0 is about turning organizations into publishers and consumers of content, then Web 3.0 is really all about data – sharing a common structural approach to build composite apps from data that may reside in 50 different places,” Burfield explained.

Recovery.gov's success proves Web 3.0 concepts actually do work. Burfield maintains that the concepts in Web 3.0 invert all established ideas on how to hold government accountable. “Where before individuals or organizations would hold hearings to hold an executive or branch of government accountable, in a very ‘inside-Washington game,’ this technology creates a whole new way to hold government officials accountable, empowering citizens to participate,” Burfield said.

The biggest obstacle in understanding how to actually resolve thorny challenges is to be willing to rethink the problem, sources said. According to Burfield, “Is it really necessary for the Treasury Department to build better financial reports for internal or oversight organizations to review? Or would it be better to put financial information into the hands of constituents, who can then work to hold government accountable?”

Ultimately, trusting that the process will work makes the biggest difference, Burfield added. □

Q & A: An Interview with David Eaves

David Eaves, author, adjunct professor, public policy entrepreneur, open government activist and negotiation expert was interviewed by 1105 Government Information Group Custom Media at a recent Washington D.C. conference on social media in government.

His observations provide insight into the ongoing challenges, obstacles and opportunities government organizations face as they work to find new ways to incorporate online social media tools to better serve their constituencies.

Question: What do you see as one of the biggest single challenges facing government today?

Eaves: Government organizations of all kinds are struggling to find more and better ways to interact and collaborate. Largely the problem centers around managing the cultural shift required to better share information. On the defense side, military organizations with incredibly hierarchical culture have surprisingly adapted fairly well to a 'net-centric' world, and are increasingly handing power down to lower levels. This is an enormous and ongoing transition, but the military fully understands that to achieve mission goals they require accurate, immediate intelligence, gathered from all levels of their organizations – lives depend on their decisions.

That's why collaboration and interaction are crucial. Civilian governments meanwhile, appear to be struggling more to make the necessary adjustments to improve sharing and collaboration. It's not about a magic technology the military establishment has obtained that civilian agencies aren't allowed to use. Instead, civilian organizations face numerous cultural barriers and software challenges that have been difficult to overcome. Each agency must have a legal department willing to engage in change. And because regulatory policies are so rigid the cultural changes required to better collaborate has been extremely difficult to accomplish.

Question: Besides the need to culturally adapt, what other obstacles hinder government's ability to improve collaboration?

Eaves: Most government organizations currently see themselves as service providers. As Tim O'Reilly, founder

and CEO of O'Reilly Media describes it, they see themselves like a soda machine, constituents put money in (via taxes) and expect to receive services from government organizations. In this scenario, data is largely considered a byproduct of any government organization's primary mission goals. What appears to be missing is a full and complete understanding about what makes the world's most successful enterprises so good at what they do. Ultimately, the best organizations all peddle information. Consider for example, Kmart versus Walmart. Both are so similar, except Kmart believes it's a retailer. Data driven organizations, such as Walmart, understand that logistics information and data management can be leveraged for every decision, from where to locate stores to what items are sold in stores.

Also, on a separate, but equally important note, it's simply not relevant to be better than any other agency or country's governments. Online users want an experience that's similar or of equivalent value as they receive from online services provided by Amazon, Google and Microsoft's Bing. That's why there's a critical need in government for web designers who can address problems of navigating current public sector web sites in ways that make the sites more similar to top commercial web environments.

Question: Are there any intriguing government examples showcasing the importance of leveraging information?

Eaves: Yes, there are a few good examples, especially in the federal government's ongoing initiatives to provide more and better information, such as data.gov, and even more specifically, how government is spending taxpayer dollars on the economic stimulus at Recovery.gov, for examples (See related article on Recovery.gov in this Snapshot report). Indeed, some of the examples that center on the use of data mining to find fraud are fantastic at showing that a greater understanding of an organization's data, both behind the government firewall and publically available, can help foster better security and even cost savings. However, an even greater cultural shift is needed to change the current mindset from one in which security and privacy concerns eclipse requirements on public servants to provide valuable services or information.

Best Practices Advice to Aid Agency Web 3.0 Migration Efforts

Public policy entrepreneur, open government activist and negotiation expert, David Eaves is currently retained by several governments to advise on open government and open data issues. He also contributed to a book entitled *Open Government: Collaboration, Transparency, and Participation in Practice*, published by O'Reilly Media, January 2010.

Eaves offered his advice on key ways government organizations can move toward greater collaboration and information-sharing via public web sites. To learn more about Eaves' work or subscribe to his blog, please visit <http://eaves.ca/>.

Information is more than a byproduct of a government organization's mission goals, it's at the core of any successful organization. Government organizations still need to learn how they can leverage information so it can be distilled, analyzed, utilized to help agency managers make better decisions.

Data is both a strategic and public asset that is vital to all government operations. It's important for government organizations to incorporate the following three guiding principles, which have become widely accepted as a basis for open government (namely "how to find, play with and share data.")

The Three Laws of Open Government Data are:

- 1) If it can't be 'spidered' or indexed, it doesn't exist;
- 2) If it isn't available in open and machine readable format, it can't engage;
- 3) If a legal framework doesn't allow it to be repurposed, it doesn't empower.

Barriers must remain low. To adhere to the Laws of Open Government Data, government organizations shouldn't require users to register to access data.

Know thyself. It will be impossible to overcome cultural barriers and achieve the interaction/collaboration and information sharing public sector organizations claim to want without clearly understanding what the organization all about, and what it should strive to become.

The cultural change needed to achieve collaboration goals takes leadership. A visionary kind of leadership is fundamental to achieving all-important collaboration goals. Migrating a government organization from the current status quo to one that's fully aware of what 'competitors' of all kinds are doing, and striving to match those capabilities as closely as possible takes a true shift of mindset for most public sector organizations.

As government organizations rush to implement open data portals, it's important to remember those online efforts must be sustainable. In other words, manually updating the data in these portals won't work. Government organizations must figure out how to automate data updates.

Enlist help from good librarians and designers. In order to be navigable, open data sites must have excellent design, requiring a breed of librarian capable of thinking in the online space, to help create a system for locating data sets quickly and easily. It's important to think about how the site will evolve to avoid problems in the categorization of data later.

Don't fear feedback. No data set is perfect. Once citizens start accessing data on the site, they will find mistakes. Ask to be notified of errors. Harnessing the eyes of the public will enable government organizations to identify and fix problems more quickly.

Security is in.

Compliance is in.

Privacy is in.

Microsoft has spent billions on increasing the capacity and security of its system infrastructure and data centers. We're all in.



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