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Peer Participation and Software

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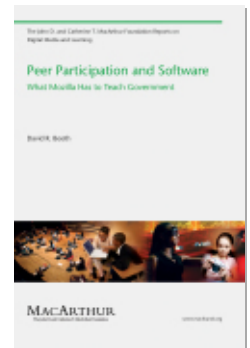
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What Software Has to Teach Government

Introduction

Contemporary examples of crowdsourcing abound. Examples of mass participation in the public sector often take the form of wikis. Similar in its function to the Mozilla Knowledge Base, DailyStrength.org is a health network of individuals sharing symptoms and treatment advice. WikiHow.com reports at its site that over 50,000 articles have been written and edited primarily by self-selected volunteers in the ongoing compilation of the world's largest how-to manual. For-profit and nonprofit organizations seek ideas from the wisdom of groups. Originally a Web site designed to crowdsource ideas for Web-based businesses, Cambrian House claims to collaborate with its 50,000 online members not only to source entrepreneurial ideas, but also to develop the best of those ideas into businesses.

Knowledge As Power, DemocracyLab, and Govit are examples of Web sites designed to increase public participation in governmental decision making. The city of San Diego, California, is experimenting with participatory budget drafting by asking

citizens to suggest money-saving measures.⁶⁸ Officials in federal agencies like the Transportation Security Administration (<http://www.tsa.gov>) are blogging with the public.

Mozilla is arguably the most successful open source project yet undertaken. Both in terms of the number of participants and the importance of the Firefox browser, Mozilla is worthy of attention. While Mozilla software is licensed to ensure its free redistribution and modification, what is unique about the Mozilla Project is that it is both *participatory* and *professional*. Ordinary people outside of the Mozilla organization collaborate in making and marketing the browser. The number of individuals who participate is far greater than ever before realized in any online project. But unlike many collaborative open source projects, Mozilla's distributed network of producers manages to turn out a product that millions of people rely on daily for their information. So for those who argue that ordinary people have neither the time nor the ability to participate in the hard work of governance, Mozilla may offer an instructive and timely counter-example, as well as a model for how to organize citizen participation in government.

We begin this section by identifying parallels between the technology used to create engagement for Firefox and the technological innovations used by the Obama administration to solicit public participation in a variety of programs. In applying the Mozilla model to government, we then identify some contemporary examples of participatory governance. Which government agencies already use crowdsourcing in their decision-making processes? What do they have in common with Mozilla from an organizational standpoint? Answers to

these questions help us speculate as to which other agencies might benefit from open source strategies. Finally, we make recommendations on how to stimulate Mozilla-like public participation, and address scenarios in which the Mozilla model may not be appropriate and useful in the public and civic sectors.

A Philosophy of Experimentation

Despite the fact that open source has its roots in the advocacy of hackers in the 1960s, the practices that we associate with open source continue to be in currency (or are popular once again). This is owing in part to the fact that open source is by its nature not only a growing set of forkable and portable tools, but also a philosophy of experimentation that is becoming increasingly palatable in traditional organizations. This is illustrated by the volume of new projects and now-abandoned projects conceived by user groups under the Mozilla banner, and also in the number of inactive projects that reside like ghost towns in source code repositories hosted by such organizations as Sourceforge (at sourceforge.net).⁶⁹

An aspect of open source that promotes experimentation is the low cost of crowdsourcing once the infrastructure for an open source process is set up: put simply, when it is too expensive to find people, let them find themselves.⁷⁰ Let them gather on the basis of shared interests. The hundreds of user groups hosted at spreadfirefox.com were started voluntarily by advocates of the Firefox browser at little expense to Mozilla. What inspires individuals to voluntarily organize groups for the benefit of Mozilla? As we have discussed, one reason is the rele-

vance of the Firefox browser in people's everyday lives. Does governmental policymaking have the saliency with people that their Web browsers do? Because the importance of government in daily life is an abstraction relative to the utility of a Web browser in connecting people with the Internet, experimentation begins with crowd-forming questions, whether those crowds are large or small. *Any question of public policy is the basis of an experiment in crowdsourcing.*

In trying to imagine the possible applications of crowdsourcing as a tool for increasing public participation in government policymaking, one begins by asking what issues are of public interest, even when the public interested in a particular policy issue is small or specialized, relative to the general public at large. We mentioned the example of participatory budget drafting in San Diego. While there is not yet any data on the success of that project, a city's fiscal planning is relevant to the lives of many people. Imagine more targeted, industry-specific questions. For example: a senator wants to draft frost protection legislation to insure crops grown in the state he represents. The experiment is the question or battery of questions addressed to stakeholders in the relevant industry. Maybe the issue is tenure for professors at state universities. Under the banner of the Department of Health and Human Services, what questions might the U.S. Administration on Aging ask families about their caretaking needs for their elders? Government-founded consumer blogs could be set up to address such issues as toy safety, erosion and landslide monitoring, and traffic congestion on interstate freeways. As we will see later in this section, when we describe some contemporary examples of open government,

crowdsourcing and its attendant process of self-selection work well when the question posed to a constituency is a narrow and carefully targeted one.

Another powerful crowdsourcing tool is the contest. Contests motivate individuals to experiment and innovate. Just as Mozilla Campus Reps promote Mozilla Lab's Design Challenge, and Mozilla sponsors marketing contests at ImpactMozilla.com, in 2008 the District of Columbia ran "Apps for Democracy," a contest that challenged technologists to create useful software applications from open data feeds in the district's Data Catalog, a public repository accessed via a Web site offering links to dozens of operational data sets about the city. For \$50,000 in prize money, innovators from the general public devised 47 new tools in 30 days.⁷¹

President Obama launched his administration in the spirit of experimentation. In the transition between the presidential election and inauguration, the change.gov Web site hosted six online participation projects that invited people to either post questions or answers to other posted questions. Join the Discussion ran three times. Open for Questions took place twice, culminating with the creation of the online Citizen's Briefing Book. In each case, public participation was bookended by videotaped responses from senior political officials inviting and then responding to questions from private citizens. The fact that each of these pilots was an iteration of an idea is the definition of a work in progress—an experiment. The number of questions posted by private citizens ran over one hundred thousand, though the clarity of these questions varied wildly. While there was no way to trace the impact of any policy input offered by the

citizenry, the attempt to create online public participation in the political process was a historic first for a presidential transition.

Mybarackobama.com

Understanding what Mozilla has to teach us about how to create more effective participation has become a more relevant and urgent exercise. On January 21, 2009, President Barack Obama issued a “Presidential Memorandum on Transparent and Open Government.”⁷² In it he writes: “Government should be participatory.” Echoing what we know from Mozilla and other open source projects, he affirms, “knowledge is widely dispersed in society.” The memorandum goes on to call for executive departments and agencies to “offer Americans increased opportunities to participate in policymaking and to provide their Government with the benefits of their collective expertise and information.”

The “open government” ethic emerging in the first days of the Obama administration came as no surprise given the highly participatory nature of the U.S. presidential campaign and the transition from George W. Bush’s presidency—an administration widely criticized for its lack of transparency—to the Obama administration. In the run up to the 2008 presidential election, Barack Obama made Web 2.0 capabilities—Web pages for online communication, Facebook and MySpace pages for social networking, and YouTube clips to air advertisements and presidential debates—an integral part of his campaign. He took full advantage of Web 2.0 tools and methods to connect supporters

with one another and encourage people to build a movement for change.

When Senator Obama announced his candidacy on February 10, 2007, his campaign published mybarackobama.com. The Web site invited the public to submit policy suggestions and to blog about the campaign, as well as to upload pictures. The campaign also encouraged people to use Twitter, Facebook, and other technologies to make the campaign their own, rather than trying to control it from the center. An epigraph on the home page quoted then-Senator Barack Obama: "I'm asking you to believe not just in my ability to bring about real change in Washington . . . I'm asking you to believe in yours."⁷³ Some volunteers took it upon themselves to set up several campaign offices and ran ground operations without any assistance from the Obama campaign headquarters in Chicago.⁷⁴ This echoes the work of the Mozilla user groups, as well as the collaboration between Mozilla.org and Mozdev.org.

Mybarackobama.com had an important administrative component to it, one that is in widespread use on many Web sites: all visitors were asked to create accounts. This is one key step in identifying emergent (or "recursive") publics. A recent paper by Britt Blaser, David Weinberger, and Joe Trippi discusses the six stages in the transformation of campaign site visitors from Web surfer to political activist: (1) Readers, (2) Critics, (3) Creators, (4) Joiners, (5) Doers, and (6) Leaders.⁷⁵ *Readers* visiting campaign sites are casually and occasionally tracking the campaign. *Critics* scrutinize the site itself and may comment on articles. *Creators* are more active, entering into dialogs on interactive Weblogs. *Joiners*, *Doers*, and *Leaders* involve themselves in the

campaign to the extent that their participation ceases to be exclusively online. They not only join groups in their physical communities, but also initiate projects designed to promote their chosen candidates and issues. Based on this theoretical hierarchy, visitors who created accounts at mybarackobama.com actually were more inclined toward active roles—creators, joiners, doers, and leaders—in the campaign. As registered members, they could locate meetings in their communities, blog at the Web site, and coordinate canvassing activities.

Mybarackobama.com also took advantage of listservs to convene over 5,400 experts and organize them into policy subcommittees to offer advice and write position papers for the campaign.⁷⁶ Because the Obama transition team solicited experts, this is not a strong example of self-selection. However, this is an instance of Mozilla-like architecture: participants formed their own committees, creating a hierarchy of small groups—each with its own hierarchy—that constellated the Obama agenda. Subcommittees focused on topics such as telecommunications, green energy, disabilities, and climate change. Like Mozilla, the listservs were not without central coordination. Each list, which equated to a subcommittee, had a moderator who, in turn, reported to a committee chair. But the committees themselves had lists to which any member could post announcements and news. In other words, the telecommunications subcommittee had a chair and a listserv, but that group also belonged to the much larger Telecommunications, Media, and Technology (TMT) committee and list. The subcommittees worked on more detailed drafting projects while the committee activity was more focused on the exchange of stories and get-out-the-vote activities.

The fact that these experts were recruited echoes the importance that Mozilla places on the ability of leaders to steer volunteer experts toward underrepresented projects. Furthermore, the assigning of leaders to teams that covered such a broad spectrum of topics reflects the essential nature of modularity in organizing an open source process. In effect, each area of inquiry—telecommunications, climate change, and so on—became its own innovation center, where each center may benefit from its own open source infrastructure. Mozilla is an aggregation of innovation centers.

From early February of 2007 until Election Day on November 4, 2008, the constituency base of the Obama campaign created approximately 2 million user profiles and 35,000 volunteer groups at mybarackobama.com. In the same period, volunteers organized some 200,000 off-line events via the Web site.⁷⁷ Though it is difficult to quantify the influence of time on rates of participation, it is worth noting that the presidential campaign, beginning in late 2006 and early 2007 when public figures began to formally announce their candidacies, lasted nearly two years. Given this timeframe and the centrality of public participation in the Obama campaign, the effort facilitated at mybarackobama.com resembles the earliest iterations of the Mozilla Project as an open source start-up.

The New Administration

There are many potential and real parallels between the online infrastructures and—with regard to how best to interface with their recursive publics—the stated missions of the Mozilla Project and the Obama administration. Both enterprises identify

the Internet as a public resource essential to increasing communication with their constituencies, maximizing the transparency of the operations, and inspiring public participation in the development of their products and services.

When he took office, Barack Obama brought with him a “new media” team—originally an ad hoc group of technologists who had managed his Web presence throughout the presidential campaign. On January 20, 2009, this team assumed the management of whitehouse.gov.⁷⁸ Owned by the U.S. government and launched as the official Web site of the White House in 1994, whitehouse.gov is the purview of the presiding administration, which controls its content. Like the Mozilla Project’s use of mozilla.org, the Obama White House is using its Web site as a primary tool for promoting transparency and public participation in its overall enterprise.

A month after President Obama’s inauguration, Macon Phillips, the incoming director of new media at the White House, appeared in an online video posted at whitehouse.gov to promote the site as a public resource dedicated to opening the lines of communication between private citizens and the executive branch of government.⁷⁹ In addition to its traditional content—vignettes about American history, historical photographs, press briefings, executive orders, announcements of appointments and nominations, and the like—whitehouse.gov highlights pressing legislation before Congress and airs “Your Weekly Address,” a video address by President Obama. Whitehouse.gov features the White House blog, a medium new to the Web site that affords visitors access to commentary by White House staff

on a wide range of contemporary issues, including civil rights, national defense, the economy, education, the environment, foreign policy, immigration, and poverty. The Web site also provides links to the various social networking tools to which the White House officially subscribes, including Facebook, Twitter, Flickr, MySpace, YouTube, iTunes, and LinkedIn. The centralization of online access points to content via new media at whitehouse.gov echoes the Mozilla Project's use of mozilla.org as its online headquarters.

In a change closely linked with the mission of the president's new media team, on May 11, 2009, President Obama announced a new name for the Office of Public Liaison, a White House office established under President Nixon to manage public affairs between the executive branch and public interest groups. Under its new designation as the White House Office of Public Engagement, the office "will serve as the front door to the White House through which ordinary Americans can participate and inform the work of the President."⁸⁰ This change of name heralded a change of mission: the Obama administration is using the revised office to manage implementation of the Presidential Memorandum on Transparent and Open Government and to work with agencies on becoming more transparent to and collaborative with American taxpayers.

Like the Mozilla Project in its infancy, the Obama administration is a work in progress, one that is expediently redefining offices and personnel to increase government transparency through the use of the everyday technologies that enable private citizens to communicate with their elected representatives.

Even before President Obama took office, he made a public commitment to transparency in government. During the transition to the new administration, Senator Obama's new media team published the minutes of meetings held by the president-elect at change.gov. The Web site also hosted an interactive blog through which visitors could post opinions about public policy. Visitors were also invited to respond to the Citizens Briefing Book (CBB), a program that will be described in the next section of this report.

Before turning to the CBB, it is worth noting that the content of change.gov was licensed to the public at large via a Creative Commons Attribution 3.0 License.⁸¹ Creative Commons (CC) is a nonprofit organization that, in its effort to increase the range of published works that others can legally use as resources in their own work, advocates open source practices in industries other than software development. Operating in a manner similar to the open source licenses described in this report, a CC license allows proprietors of published content to designate which of their proprietary rights they reserve, and which of those rights they waive for the benefit of projects unaffiliated with their own. After the Obama administration transferred much of the content of change.gov to whitehouse.gov, third-party content on whitehouse.gov was relicensed under a CC license.⁸² In the same press release that announced the new name and the revised functions of the Office of Public Engagement, the Obama administration also announced the publication of the results of CBB, an early experiment in transparency conducted by the new administration.

President Obama and the Citizen's Briefing Book

An example of the use of crowdsourcing to gather public feedback on high-visibility, national issues (and to at least promote transparency and participation) comes from Barack Obama's transition to the Oval Office. The Citizen's Briefing Book (CBB) project ran at the change.gov Web site during the last week of the transition period. The CBB asked the public to submit policy suggestions in one or more of over two dozen categories, including civil rights, education, national defense, the environment, immigration, taxes, poverty, and veterans affairs. The design of the CBB Web site, which employed a commercially available product developed by Salesforce.com that companies like Starbucks use to solicit customer and employee feedback, enabled private citizens to submit suggestions and rank the proposals of others. Michael Strautmanis, director of public liaison and inter-governmental affairs for the transition, reported that over 70 million people participated.⁸³ At the end of the comment period, which lasted a week, the then-president-elect's transition team posted a video reply on YouTube to some of the more popular suggestions collected at the CBB Web site, including ideas about green jobs, high-speed rail, and energy efficiency.⁸⁴

Narrated by Nancy Sutley, chair-designee for the White House Council on Environmental Quality, this response illustrates *one* aspect of the Mozilla model at work: private citizens were able to identify the national issues they deemed most relevant to their daily lives, or that most resonated with their worldviews. In addition to transportation and the environment, the most popular comments posted in the CBB centered on ending mari-

juana prohibition, the efficacy of government-sponsored abstinence education in sex education programs, taxes, the place of insurance companies in healthcare reform, and whether or not President Obama would advocate the prosecution of members of the Bush administration for torture, illegal wiretapping, and misleading the country into war.

Though this opportunity on the part of private citizens to identify crucial issues did suggest a new administration dedicated to increased transparency in government, the CBB nevertheless was designed more as a national poll than a conduit through which private citizens could participate in policymaking. In focusing exclusively on transportation and the environment in the YouTube response, the incoming administration used the occasion of the CBB to spotlight issues that would be prominently addressed in the economic stimulus package passed in February 2009. Despite the inherent limitations of the CBB to increase public participation in governmental decision making, the incoming administration's strategic selection of issues exemplifies such core open source principles as transparency, forking, and portability:

- Issues that were not emphasized in the incoming administration's video response were nevertheless published as they were ranked.
- The CBB created public deliberation separate from President Obama's immediate agenda.
- The CBB created a document that in the spirit of a source code repository could be fashioned as a public registry, from which ideas might be cribbed, reproduced, and distributed.

- Such a public registry could be appropriated, republished at a different location on the Web, discontinued in its original capacity, and launched as a new and separate registry.

Keeping these points in mind, it is helpful, if only as a thought experiment, to contrast the function of the CBB with characteristics of open source processes that make Mozilla successful, even if such a comparison is irrelevant to the intended use of the CBB. Relative to the Mozilla experience, the administration's question regarding which issues private citizens find most pressing is an open-ended one. To truly embrace the Mozilla model, the administration would need to assign issues to smaller, ad hoc groups—groups that act as discrete innovation centers, much like modules under Mozilla's module ownership system or profit centers comprised by a single corporation.

From the perspective of a governing body, crowdsourcing is a "pull" strategy—one that solicits feedback on a narrow topic, such as efficiency in patent review at the United States Patent and Trademark Office (USPTO) or watershed health, as monitored by the U.S. Environmental Protection Agency (EPA). When the call for feedback is monolithic, it dilutes the process of self-selection that identifies issue-specific experts in the crowd. Furthermore, it renders a private citizen's access to issue-specific leadership circuitous, if not improbable. The subject matter addressed by the federal government at large is modular by dint of its organization into agencies. Agencies are themselves modular. At EPA.gov, the EPA publishes advice and solicits feedback on how best to protect the environment in a variety of settings, including homes, schools, and the workplace. With

regard to gardening, the EPA solicits feedback and recommends strategies for saving energy, reducing air pollution, conserving water, recycling materials, and safely using toxic pesticides.⁸⁵ To identify each of these topics as its own innovation center recalls characteristics of open-source software development that may be applicable to open government. Here we use the term *open source* more generally as a philosophy that, having been established an approach to software development, may be applied to the concept of open government:

- Open source integrates the distribution of products and/or services with the needs, lifestyles, and expertise of the public it serves.
- Open source operates in the public eye as a public resource.
- Open source as a process solicits the knowledge of individuals and groups with specific interests and expertise, making those individuals self-selecting because they can only volunteer their feedback on issues about which they are truly knowledgeable.
- Open source as a process depends on modularity—the dividing of tasks into manageable and thematically or technically specific projects.
- Open source requires an online structure—a set of protocols by which volunteer feedback is organized.
- Open source as a managerial structure is most effective as a top-down, hierarchical organization, one in which leadership steers participation and makes final decisions.

With regard to this final point and the centrality of self-selection in an open source approach to governance, it is important

to recall that Mozilla does at times recruit experts from its community to work on specific projects. Self-selection is not in opposition to the solicitation of experts. Self-selection occurs within a pool of like-minded individuals, who make up a sub-community that is defined by a skill set.

The Open Government Initiative: [Whitehouse.gov](#) Revisited

As part of President Obama's Open Government Initiative, the new administration launched an online public consultation process designed to involve private citizens in the development of policies and practices that will increase transparency in governance, public participation in governmental decision making, and collaboration between inter- and intra-governmental agencies.⁸⁶ At [whitehouse.gov](#), individuals were invited to participate in a three-phase process to aid the administration in the design and implementation of new protocols in open-government development.

The first phase, "Brainstorm," asked self-selected participants to submit recommendations on how to make government more open, and to rate the recommendations of their peers. The second phase, "Discuss," gave participants the opportunity to express their opinions on the many ideas captured in the first phase. The final phase, "Draft," enabled participants to collaborate via a wiki in the drafting of "recommendations that translate good ideas and lofty principles into specific actions that can be taken to achieve open government."⁸⁷ Specific topics included "Transparency Principles: Defining Transparency," "Citizen Participation in Government Decision Making: Creat-

ing New Opportunities to Engage,” “Transparency Governance: Institutionalizing Transparency,” “Strengthening Civic Participation: Training People to Participate,” “Prizes: Creating Incentives for Public-Private Partnerships,” “New Technologies and Participation: Enabling Participation with New Media,” and “Online Public Participation in Agency Rulemaking/E-Rulemaking.” Whitehouse.gov highlights important aspects of the Mozilla model, as we apply it to government:

- Volunteers are self-selected.
- The process for participation is clearly defined.
- Areas of inquiry were divided into categories (modules), maximizing the volunteers’ ability to choose the subjects best suited to their experiences and skills, and thus to *specialize*.
- Volunteer recommendations are rated by the community; peer review is central to the process. Participants are given the ability to flag peer recommendations that seem off topic.
- Participants are given the ability to introduce new topics.
- The concept of forking was realized through a wiki that allowed participants to borrow sentences from peers and, with attribution, incorporate them into their own recommendations.
- Facilitators of the process published clear protocols—advice, recommendations—to volunteers on how to maximize the effectiveness of their contributions.
- Facilitators published an explanation of how feedback would be used by those who make final decisions.
- Final draft recommendations were reviewed by internal moderators, published for comment by the public, and circulated for interagency comment.

Some Contemporary Examples of Collaborative Governance

In considering Mozilla, a template begins to emerge that may in a few cases be identified as already at work in government. Faced with a crippling backlog of patent applications, the United States Patent and Trademark Office (USPTO) has in recent years instituted a pilot program known as Peer-to-Patent that, commensurate with Mozilla's crowdsourcing efforts, invites the public into the patent examination process.⁸⁸ Anyone can become a public reviewer by visiting the Peer-to-Patent Web site. Upon registering, public reviewers join teams akin to Mozilla's modules and contribute to the evaluation of inventions in their areas of knowledge. The expertise required to participate meaningfully in any one capacity creates a natural process of self-selection. Because public reviewers work in teams, they are responsible for vetting one another's contributions to the evaluation process. Individuals gain stature through the quality of their contributions, as determined via a formal rating system. Despite the established relevance of volunteer contributions, the final decisions on whether or not to grant a patent remains with the official patent examiner.⁸⁹ As with the Mozilla Project, the Peer-to-Patent pilot relies on technologists from around the country (and the world), who enthusiastically volunteer their expertise to the USPTO via the Internet. The entire program is online at peertopatent.org.

Similarly, the EPA crowdsources the expertise of private citizens by training them to monitor the quality of water in estuaries, lakes, streams, and wetlands in their local communities, and to report their findings to the appropriate public or private orga-

nizations.⁹⁰ The EPA educates potential volunteers about bioassessment by publishing fact sheets, monitoring methodologies, and resource guides at its Web site. Individuals join or start project groups in their communities by contacting project coordinators through the listserv known as “The Volmonitor.”⁹¹

The examples of Peer-to-Patent and the EPA’s volunteer water-monitoring program share several characteristics with the Mozilla model:

- The USPTO and EPA are tasked with solving complex problems that require interdisciplinary activities.
- At both the USPTO and the EPA, the use of volunteer experts requires a more granular (or modular) and focused set of practices, so that it is possible to clearly define and recruit for the roles available to private citizens.
- The USPTO and the EPA create group-based projects by connecting volunteers with each other.
- Despite the use of networks of private citizens, government agencies are still responsible for coordinating policymaking, and must remain central to the decision-making process, while taking advantage of volunteer feedback at the periphery.
- Both agencies solicit volunteers from a relatively unlimited and geographically dispersed pool of experts and enthusiasts.
- While the number of people who potentially can participate in any one project is large, the number of people who do participate in a single project is small.
- Volunteers choose what project they want to work on, and when they want to work on it.

A point of contrast between the EPA and both Mozilla and the USPTO concerns *locale*. Because the EPA's reach is national, it too benefits from federated participation. The work of volunteer water monitors takes place in the field. The EPA facilitates collaboration between small groups and regional organizations. As such, a geographically unlimited community may also be described from the point of view of a federal agency as a *network* of geographically *delimited* populations, a point that raises interesting questions about how the federal government might broker collaboration between private citizens and regional government agencies. How might federal agencies crowdsource expertise and assign that expertise to state and local programs? How might networks of delimited populations multiply opportunities for private citizens to participate in national service projects?

The example of volunteer bioassessment raises one more point of comparison between these organizations. Traditionally, aquatic biologists work alone or with an assistant. The assignment of groups of volunteers to bioassessment projects makes it possible for a federal or state agency to monitor many locations at once. Furthermore, volunteers tend to monitor waters where they live or vacation, so that they are regularly engaged in the task they have selected for themselves, and can in some cases monitor the health of a body of water over time.⁹² This fact further captures an idea implicit in the motivations of volunteers involved with Mozilla and the USPTO: Programmers contribute code, technologists and hobbyists alike scrutinize patent applications, and environmentalists monitor watersheds because these activities construct their identities.

The Obama Network after the Election

In his blog posting on November 3, 2008, David Lazer, associate professor of public policy at Harvard's Kennedy School of Government, and director of the Program on Networked Governance, posed the question, "What happens to the Obama network after the election?"⁹³ On the eve of the election, Lazer estimated that there were an average of 4,000 *active* Obama supporters—what Joe Trippi would label *Leaders*—in each Congressional district in the United States. Other journalists and public intellectuals blogged about the use of the millions of people who volunteered to help the Obama campaign. The journalist Dan Fromkin called for a "Wiki White House":⁹⁴

The goal should be to create a process whereby good ideas, relevant personal stories, informed opinions and perhaps even consensus on some issues can bubble up from the public. And while that may sound impossible, organizations like Wikipedia provide one model for handling vast quantities of user-submitted content with great if not perfect success. That model calls for a huge number of community volunteers working under the guidance of a small number of staffers. The White House is uniquely positioned to mobilize a small army of volunteers to monitor public comments should it choose that route.

A month after President Obama's inauguration, Blaser, Weinberger, and Trippi proposed a virtual network of the 435 U.S. Congressional districts.⁹⁵ Bringing the commentary of each of these critics to bear, the possibility of a Mozilla-like approach to participatory governance emerges.

In discussing the community of users dedicated to the Firefox browser, we saw that volunteer developers were variously active or, rather, that they became active when they identified prob-

lems that they felt qualified to work on. Despite the occasional nature of their participation, the fact that they would volunteer from time to time in the future meant the perpetuation of the project that defines their community. The classification of citizens according to which tier they occupy in the progression to political activist supports the notion that individuals choose when and how they will participate. Those who are most active—the Leaders at the top of the ladder, or the estimated 4,000 active Obama supporters in each of the 435 Congressional districts—are comparable to the most active programmers in the Mozilla development community; they are the module owners, peers, and committers. Imagine uniting their electoral counterparts under Froomkin’s “Wiki White House.”

Earlier in this report, in discussing the EPA’s effort to involve private citizens in the monitoring of watersheds in their local communities, we introduced the idea of federated participation, by which a federal agency may describe a geographically unlimited community as a network of geographically delimited populations. The EPA brokers collaboration between private citizens (working in small groups) and regional agencies. A virtual network of Congressional districts could begin with the federal, online coordination of volunteers in their districts.

Potential Limitations of Crowdsourcing

It is tempting to say that the potential of crowdsourcing is unlimited. Maybe the greatest challenge of this discussion is the identification of those instances where open source strategies such as crowdsourcing *definitively* cannot instruct government.

This is true for at least two reasons: the proliferation of successful and/or novel crowdsourcing projects in both the public and private sectors and the fact that open source projects characteristically are experimental.

Any theory of open government raises questions about representation and inclusiveness. One could argue that a ranking system used by participants to vote community contributions up or down could be exploited to give undue influence to a few well-organized participants. Rating and ranking systems of citizen input may in some cases deny individuals the right to participate. Group-based participation systems, while potentially more manageable and useful, could also impede the individual First Amendment right to participate. For example, an individual who wishes to submit a piece of prior art to the Peer-to-Patent pilot, and has that submission rated down by the crowd, may feel that she has been denied her right to participate in the evaluation of a patent application. Of course, the integrity of such a complaint would depend on when the participation process was understood to have started: participation may be the right to introduce a proposal and have that proposal reviewed by peers. Continued participation may be contingent on the outcome of such peer review.

Another limitation is conceivable. Advocates and enthusiasts working in relatively esoteric areas of national interest might find that their issues are always ranked below headline-grabbing topics. On January 13, 2009, an individual who was monitoring the CBB during the comment period posted the following message on the blog at nasawatch.com:

Right now there are a few [posts] regarding NASA and space exploration but not enough votes to rise to the top. I just wanted to let you know about this with hopes that you would make a post about it. Your website reaches a large pro-space audience and maybe with that kind of exposure the space exploration ideas will have a chance to reach our President-elect.⁹⁶

This citizen's concerns are real and reasonable. At the same time, the CBB inspired her or him to take action and draw attention to the issue of space in another forum. This blog posting supports the open source idea that effective public deliberation is not relegated by a controlling interest, but can spread virally to many forums, potentially inspiring new issue-centric advocacy groups.

Another possible side effect of increased public participation in governmental decision making is the potential rise in lawsuits known as *SLAPPs* (Strategic Lawsuits Against Public Participation). A SLAPP is usually a civil complaint or a counterclaim filed against someone who is critical of the plaintiff's enterprise. Though such lawsuits rarely are legally successful, they can be effective in silencing critics by encumbering them with legal expenses. For instance, a real estate developer might claim that a petition signatory aligned against his project was interfering with his contract. When such SLAPPs are brought against individuals who have participated in government crowdsourcing projects, it is known as *crowdslapping*.⁹⁷

One final unknown with regard to crowdsourcing has to do with the unintended consequences of mobilizing a crowd. In 2008, the state of Texas set up a network of Internet cameras so that the general public could monitor the border with Mexico for illegal aliens and report suspicious activity to local authori-

ties. This is a clear example of crowdsourcing.⁹⁸ The use of the Internet in mobilizing people against people may have unforeseen consequences, such as vigilantism.

Transparency: Toward Open Source Governance

The creation of an online forum, and ultimately the formation of a recursive public, begins with an organization's open call to a large, undefined group. An emergent, self-organizing public need not be defined by geography or proximity, but it will always coalesce around shared interests. In the abstract, the Mozilla model of participatory governance requires that government crowdsources expertise in the creation of passionate, self-organizing groups that represent the interests of larger constituencies. Government inspires private citizens to participate by creating a system that connects a small group with a government agency that, with the aid public feedback, is working to solve a specific problem.

The rise of participatory governance is predicated on the political concept of transparency. Openness equals transparency. The work of government must be made public if participation is to ensue. In concluding our discussion of Mozilla and the applicability of its open source practices to government, we ask the following question: Who makes transparency happen? We end with this question because transparency as a responsibility shared by the public and private sectors is the basis—the genesis—of public participation in governmental decision making.

In a panel discussion on January 9, 2009, at the Google headquarters in Washington, DC, Ellen Miller, executive director of

the Sunlight Foundation, stated, “Transparency is government’s responsibility.”⁹⁹ A partial timeline of the legislative history of public transparency in the United States—beginning with the formation of the Government Accountability Office in 1921, and continuing with Administrative Procedure Act of 1946, the passage of the Freedom of Information Act in 1966 (and its subsequent amendments in 1996, 2002, and 2007), the Government Performance Results Act of 1993, the Government in the Sunshine Act of 1994, and the Federal Funding Accountability and Transparency Act of 2006—helps to narrate the history of Congress working to fulfill its responsibility of transparency. Laws such as the Clinger-Cohen Act (The Information Technology Management Reform Act of 1996), the 2001 Information Quality Act, and the e-Government Act of 2002 place public accessibility to information in the context of technology in the Internet Age. Beyond legislation, regulations that are open for public comment and final rules are available at the regulations.gov Web site. Today, President Obama’s agenda is published at whitehouse.gov.

In a book called *Full Disclosure: The Perils and Promise of Transparency*, authors Archon Fung, Mary Graham, and David Weil describe another government strategy to increase public awareness of a variety of issues, including corporate and campaign finance, product safety, toxicity levels in drinking water, school performance, and terrorism-threat levels. “Targeted transparency” is the publication by the government of factual information about the social, commercial, and political interests that most affect the lives of private citizens.¹⁰⁰ Writing about *Full Disclosure* for *The American Prospect*, Professor Paul Starr situated

this concept in another loose timeline in the history of public transparency:

The first-generation transparency policies of the 1960s and '70s—right-to-know laws, such as the Freedom of Information Act—gave the public access to previously restricted data and documents. Targeted transparency policies enacted in the '80s and after went a step further by requiring business and government to disclose standardized forms of information relevant to organizational performance. More recently, a third generation of efforts has emerged that the authors call “technology-enabled collaborative transparency.” Instead of passively receiving information, consumers and the public can now actively create it by pooling their own data and experience. And in contrast to the relatively inflexible and slow systems created under targeted transparency laws, the new approach uses computers and the Internet to provide real-time information that individuals can customize for their own use.¹⁰¹

Culminating with the rise of “technology-enabled collaborative transparency,” this chronology approaches but does not encapsulate the extent to which collaborative transparency has required collaboration between government and private citizens. There are two reasons why. First, the collaboration entailed in technology-enabled collaborative transparency is neither top-down nor bottom-up—the terms hardly apply—as it is not in service of any particular organization or agency. The collaborators are the crowd. The roles they may play are not defined and aggregated in a process developed to realize the goals of a larger organization. In contrast, Mozilla, like a government, is the centralizing authority of its enterprise. Mozilla offers individuals a variety of ways to participate. It puts people into collaboration with each other in the maintenance of its public’s assets.

To understand the second reason that Mozilla represents a somewhat different strain of transparency as an approach to engendering participation, we return to Ellen Miller's position that transparency is the responsibility of government. Whether or not this is true, an accurate history of public participation in the United States depends on the contributions of organizations from outside of government that we may call *participation brokers*—organizations that act as intermediaries between government and its constituencies.

With regard to the specific issue of transparency, there are many examples of such brokers. Dedicated to voter services, citizen education, and "an open governmental system that is representative, accountable and responsive," the League of Women Voters was founded by Carrie Chapman Catt in 1920, months before the passage of the Nineteenth Amendment.¹⁰² Serving as the Washington, DC bureau chief for a cable industry trade journal, Brian Lamb founded C-SPAN in 1979.¹⁰³ C-SPAN put Congress on TV. In 2006, Ellen Miller and attorney Michael Klein founded The Sunlight Foundation as a 501(c)(3) educational organization. The foundation hosts an interactive blog, links to open source coders dedicated to software projects that increase the transparency of government, and links to online databases that publish government data in useable formats.¹⁰⁴ In 2008, with the aid of a grant from the Sunlight Foundation, Sarah Schacht founded Knowledge As Power (KAP), an organization that, among other things, tracks legislation in the state of Washington.¹⁰⁵

Each of these organizations aims to increase civic engagement through citizen education. Their collective purpose is so obvi-

ous and so aligned with government's supposed responsibility of transparency that one would think they were the innovations of government. One can imagine—maybe somewhat idealistically—the U.S. House of Representatives coming up with the idea of turning on the TV cameras. Equally idealistic but not utopic, one can imagine the federal government setting up KAP-like agencies in every state. (The work of NGOs such as Knowledge As Power further suggests the potential of the federal government to broker collaboration between private citizens and regional government agencies. The most active volunteers in each district could coordinate the publication of federal legislation on a state-by-state basis, an idea that approximates the independent but coordinated efforts of user groups in the Mozilla model.)

Though not exclusively an example of transparency, Peer-to-Patent is unique as an example of participation brokering because the broker, New York Law School, is an NGO that by way of peertopatent.org enlists private citizens (to form small, task-oriented groups) to participate in the work of government. Peer-to-Patent has proven to be such a worthy experiment that one wonders if the USPTO will ever cut out the middleman, and bring the program in-house. If it did, it would be internalizing a structure of hierarchical management that relies on collaborative, volunteer participation. The point here is not (yet) that the USPTO *should* take over the reins of the Peer-to-Patent pilot, or that Congress should necessarily found regional, KAP-like agencies. The point is that the responsibility of transparency is *shared*.

We see this shared sense of responsibility in the relationship between Mozilla.org and Mozdev.org, through which the Mozdev Community Organization brokers participation between volunteer programmers and Mozilla.org by hosting projects. New York Law School mirrors this relationship by (again) soliciting the expertise of volunteers in the examination of patent applications.

In Conclusion: Mozilla for Government

I

Mozilla organizes large-scale participation in the development of its software. The scope of participation is not captured by the total number of people working on Mozilla's overall mission, but rather, in the aggregation of a large number of small groups dedicated to many projects under the Mozilla banner. Development of the Firefox browser is organized under a module ownership system. Each module is governed by a system of hierarchical meritocracy. Each group houses its own hierarchy. Like profit centers in traditional corporations, each group or module operates as its own innovation center.

It follows that a large-scale poll like the one conducted under the auspices of the Citizens Briefing Book would be useful in identifying the issues to which private citizens pay the most attention. That said, an open source infrastructure is most effective when designed to manage public input on module- or agency-specific topics. Environmentally sound gardening techniques are not the purview of the White House, whereas the EPA is dedicated to increasing public awareness of green prac-

tices in the home and in public places. We see the abstract nature of the CBB in the scores of specific issues—from aerospace to the patent system—that were not represented.

Once a government agency like the EPA or the USPTO sets up an online infrastructure for public participation, it can work conscientiously with individuals in communities that are defined by skill sets. The door will also open to collaboration with industry-specific organizations. The assigning of tasks to self-organizing groups helps Mozilla improve its product, build market share, and educate the general public about its core mission. As articulated in the Mozilla Manifesto, that mission is as altruistic as it is commercial. The Mozilla community promotes a product and an experience, which perpetuates a sense of cohesion in a geographically dispersed population that is united by a shared sense of mission.

II

Open source participants are identified on the basis of their roles in a system of distributed peer review. From the top down, that hierarchy (in the Mozilla model) includes the module owner, the module owner's immediate peers, committers, and FLOSS developers from outside and within Mozilla proper. With the rare exception of individuals who are both employed by Mozilla and active in the development of a module, each of these roles is voluntary. The success of the module ownership system depends on the following concepts:

- People must know they have the option to participate.
- Participants choose their tasks. Based on their expertise and enthusiasm, they choose what they want to do, when they want to do it.

- Individuals are self-selected into self-organizing groups.
- Not everyone is involved all the time.
- The ratio of active participants to the total population of a community may be small.
- Participants may discover new roles as they acclimate to the community.
- Final decisions are made leaders—module owners, elected officials, editors, etc.

Each of these points is applicable to government. We see such organization in the examples of the USTPO and the EPA. Not everyone is paying attention to the health and wellbeing of watersheds. But there are those who are, just as there are those who have an interest in the innovations in their industries under review by the USTPO. Where participation is mutually beneficial to the organization, the volunteer, and the volunteer's community, there is a greater likelihood of engagement. The benefits of collaboration to Mozilla are clear: the input of proportionately small, self-selected groups makes public participation manageable.

The motivations of the volunteer are manifest in a variety of dichotomies: personal/professional, individual/civic, psychological/sociological. Participants are motivated by personal enrichment and a sense of community. That the Mozilla experience engenders civic-mindedness and, at the same time, opportunities for individuals to improve the technology they use in their everyday lives makes the Mozilla Project applicable to our understanding of the stated and implied goals of governmental agencies. Though government is not expressly in the business of product development and marketing, it does manage enter-

prises and offer services that are relevant to the everyday lives of citizens and may be improved through the feedback of constituencies that are meant to benefit from these services. Furthermore, government seeks to develop new programs based on the needs of the governed.

III

If government is to successfully proliferate its current services and innovate new policies, it may do so by collaborating with private citizens. While in the abstract the Internet enables geographically distributed communities to cohere around a common cause or interest, infrastructure is necessary for people working across a distance to become a community. With regard to this assertion, the Mozilla model makes the following points:

- Having a well-designed system by which individuals can contribute to the shared work of the group is essential to forging a recursive public.
- Such a system must be able to evolve.
- Without the ability to manage volunteer contributions online, an organization can ill afford to support public participation.
- Networked governance is organized with Web pages.
- Networked governance through Web pages provides group-based structures for collaboration on the Internet.

The Mozilla CVS provides the necessary technological architecture to support the community in its distributed work. Mozilla.org not only is the home of the source code repository, but also is a portal to other technical and nontechnical segments of the overall project, many of which operate as discrete Web sites.

Through these Web sites, Mozilla extends the open source idea beyond programming. Firefox's user community helps with marketing campaigns at spreadfirefox.com. The Mozilla Knowledge Base, a community-maintained (wiki) user manual, is online at support.mozilla.com.

IV

The collaboration between Mozilla and networked publics is governed through the licensing of intellectual property. An open source license creates recursion by guaranteeing the individual the use of licensed resources in his own innovations, in return for access to those innovations. Though the relevance of licensing to governance is subtle, an open source license does reflect two concepts crucial to the concept of innovation as a collaborative exercise: forking, by which a new project is created on the basis of an existing project, with or without the foreknowledge of the licensor; and portability, which ensures that an effective tool can be used "as is" for applications other than the one for which it was originally designed. The significance of these practices cannot be overstated in our understanding of Mozilla's success, as they allow an individual to choose the work she wants to do, when she wants do it, without her needing to be commissioned or sanctioned by Mozilla. This fact makes possible more aspects of the Mozilla model of governance:

- Open source licensing formalizes the relationship between an organization and its constituency.
- Open source licensing formalizes decentralized participation and what in many instances we may think of as *blind* collabora-

tion. (Mozilla need not know that a developer is working to improve the Firefox browser until that improvement is submitted for review.)¹⁰⁶

- Because licensing makes possible decentralized participation, it helps to create a culture in which experimentation is rewarded and failure is tolerated.

This final point merits elaboration, as its ramifications for government are profound. Under a system of hierarchical meritocracy, voluntary contributions are induced and, when cogent, rewarded. The volunteer—the citizen or the “netizen”—incurs opportunity costs—experiments, succeeds, fails—and advances in the cybercommunity based on the usefulness of his contributions. His independence offsets the risks of innovation faced by the organization with which he means to collaborate. He experiments prior to peer review. Whether or not the original organization implements his innovation, he is free to use it himself, and to distribute it. Likewise:

- Participatory governance connects an organization with its constituency.
- Participatory governance inspires innovation beyond its own agenda, in part by putting constituents into contact with other constituents, without the chaperoning of the government agency.

V

An understanding of the term *netizen* begins to articulate what is quietly revolutionary about this system. A netizen is someone who is actively involved in online communities.¹⁰⁷ He or she is

actively concerned with the health of the Internet: Is it free? Is it open? Is it available to everyone? How do we measure? He or she uses such online tools and forums as blogs, chat rooms, file sharing, and wikis to join virtual networks. Because of the centrality of technology in their everyday lives, netizens are very familiar with the use of these same technologies by political candidates and their campaigns. To use these communications technologies to follow and to some degree contribute to a campaign, a cause, or an idea in these times of cybercampaigning and virtual networks is to be self-politicizing.

The problem that arises is an old one, known by the term *digital divide*. Netizens, generally speaking, have the skills and resources to participate in online governance. In defining the digital divide, identifying these skills and resources as a way of differentiating netizens from individuals who cannot easily participate in online communities is difficult. Most basically, the term is used to compare netizens to individuals who do not have access to a computer and/or the Internet. Here, the digital divide may also suggest a gap between those who have access to broadband and those who do not. Defining the problem becomes increasingly complex when barriers to Internet access are associated with societal problems like poverty. The question is an obvious one: how does a system of collaborative governance that is dependent on its participants' use of technology include those individuals who are disenfranchised because they lack that technology?

Though an investigation of all of the factors that may contribute to a comprehensive understanding of the digital divide is beyond the scope of this report, it is relevant to return to some

of the original motivations of early, open source activists. As described at the beginning of this report, the FSF—the organization inspired by Richard Stallman’s GNU Project—contextualizes free software as the freedoms “to study how the program works, and adapt it to your needs”; “to redistribute [software] so you can help your neighbor”; and “to improve the program, and release your improvements (and modified versions in general) to the public, so that the whole community benefits.”¹⁰⁸ As the FSF definition of free software goes on to state, “access to the source code is a precondition for this,” just as access to the Internet is a precondition to the Mozilla Project’s powerful conviction that “individuals must have the ability to shape their own experiences on the Internet”¹⁰⁹—a tenet that has led individuals to translate online text into their native languages and individuals with disabilities to make meaningful suggestions as to how best the Mozilla Project may accommodate them in their use of the Firefox Web browser. Though these values cannot thoroughly address challenges posed by the digital divide, they do promote an ethos of participation that extends the open source concept beyond software to collaborative governance.

In sum, government is meant to enable everyone to participate equally. The Mozilla model of governance allocates responsibility based on an individual’s contribution. A contributor is empowered through his ability to exploit the opportunity to participate. This calls into question our most fundamental assumptions about equality. In the Mozilla model, the administration of pure equality, where each contribution is given equal weight, is inconceivable. Nonhierarchical collaboration is inconsistent with productivity. The assignment of tasks based

on comparative advantage among individuals—and reputation derived from merit—makes mass participation manageable. Mozilla's contribution to our understanding of democracy stems from the fact that the work it invites volunteers to undertake is various. Not everyone can do everything effectively. But the extension of community-based approaches to problem solving to more areas makes participatory governance increasingly interdisciplinary and, as such, promotes inclusivity.

VI

Though we demand of our government that it be transparent and accountable, a history of political and civic life in the United States reminds us that transparency sometimes requires an NGO-brokered relationship between private citizens and government. Netizens are predisposed to collaboration with the online organizations that strive to connect people and government. They are well positioned to receive government services via the media of Web sites and social networking tools. For an increasing number of people open source spreads collaboration beyond its own agenda (forking and portability), suggesting the potential for open government to create opportunities for civic engagement in direct alignment with—and beyond—its own agenda. It is for this reason that we may ask not only what software has to teach government, but also what open source has to teach private citizens who, through participation, want to foster greater transparency and accountability on the part of government. Every opportunity that Mozilla offers individuals to collaborate on a project is only as good as the willingness of those individuals, even if only a few at a time, to accept that offer and contribute both their time and knowledge as they see fit.

