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## Peer Participation and Software

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## Introduction

Firefox is a free Web browser developed by the Mozilla Foundation for Windows, Linux, and Mac and in use by an estimated 270 million people worldwide.<sup>1</sup> As of December 2008, Firefox had garnered over 21 percent of browser market share, while Microsoft's Internet Explorer dropped below 70 percent of the market for the first time in eight years.<sup>2</sup> In maintaining and improving the Firefox browser, Mozilla depends not only on its core team of professional programmers and managers, but also on a network of volunteer technologists and enthusiasts—free/libre and open source software (FLOSS) developers—who contribute their expertise. Firefox is a unique example of peer production both for its vast scale and for its combination of structured, hierarchical management with open, collaborative volunteer participation.

The purpose of this report is to address how and why the Mozilla Foundation is successful at organizing large-scale participation in the development of its software. What motivates Mozilla to solicit the expertise of anyone who wishes to provide her time and knowledge to the Mozilla enterprise? What motivates volunteers to participate?

In examining the answers to these questions, the goal is to explore what aspects of Mozilla's open source approach to software development are transferable to government and civil society. Broadly speaking, the term *open source software* refers to software placed in the public domain by its proprietors as an invitation for outside programmers to volunteer their expertise to improving that software. The correlations between open source software and participatory governance come into sharper focus when considering the fact that Mozilla extends the open source idea beyond programming: Firefox's user community helps with marketing campaigns, responds to queries on Mozilla message boards, and writes and edits documentation for developers.

Mozilla's commitment to collaborating with its browser users on marketing, public relations, and product education suggests parallels with the Obama administration's philosophy of participatory governance (which amplifies the much older Jeffersonian ideal of democratic participation). Mozilla's success at engendering part-time, volunteer participation that produces successful marketplace innovation suggests strategies for how to organize civic participation in communities and government. Specifically, the Mozilla approach might demonstrate how to galvanize participation by those in the technical community. More generally, Mozilla's open source model may have something to teach us about how to create successful participatory democracy.

This report is divided into five sections. The first, Open Source, introduces the Mozilla Foundation, beginning with its inception as Netscape Communications and culminating with its present open-source business model. This brief history helps

to define open source by explaining Mozilla's place in the open source community.

The second section, Open Source at Mozilla, summarizes the unique mix of hierarchical management with peer-produced, volunteer labor that enables Mozilla to operate at scale in the development of the Firefox browser. To understand how volunteer contributions of code are evaluated and incorporated into ongoing projects, open source participants are identified on the basis of their roles in a system of distributed peer review.

The third section, Licensing, discusses the rules under which open source developers maintain and improve the Firefox browser. The role of licensing in open-source software development and distribution is examined with an eye toward the freedom and limitations granted the licensee: What protocols do volunteer developers follow in participating in projects at Mozilla? How does the Mozilla Foundation govern the redistribution of its source code? What role does licensing play in helping to bring about volunteer participation? How does an open source license actually legislate the freedom that makes large-scale participation possible? How does licensing create incentives to form communities?

In section four, Beyond Software, we explain how Mozilla takes the modular nature of code writing and applies these same techniques to a range of nontechnical activities. The utilization of an international community of volunteers in the strategic marketing of software is unique to the Mozilla Foundation and suggests the most parallels with civic engagement.

We begin the last and longest section of the report, What Software Has to Teach Government, with two questions: (1) Why is Mozilla successful? and (2) Is the Mozilla methodology

repeatable? We apply the answers to these questions to several contemporary examples of participatory governance in the United States. We then examine the Obama administration's efforts to solicit public participation both during the election campaign and in the early days of the new presidency. In concluding this report with recommendations for further research on participatory governance, we address possible shortcomings in the Mozilla methodology as applied to the work of government.