The Inextricable Role of Organizational Sponsorship for Open Source Sustainability

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Abstract. Is the Bazaar a step to the Cathedral? This essay points out that organizational sponsorship appears to be inseparable of commercial grade, long-lasting open source software; and discusses the implications of that for organizational theory (rise of firms) and open source practice (IT governance).

Keywords: Open source, free software, sponsorship, sustainability, governance.

1   Introduction

We grew used to the metaphorical image that a group of grassroots volunteers were in charge of developing free and open source software (OSS). However, this metaphor had to be adapted to accommodate the increasing contributions from organizations to the production of OSS. The presence of organizational sponsorship had profound effects on how we perceived and should study the structure of these projects, the coordination mechanisms in place, and the motivations of contributors. The readily available findings of research on volunteerism and the Bazaar illustration did not quite fit the OSS phenomena as we initially thought. A more specific and thorough analysis of these communities was pressing to address the literature bias towards the study of volunteers' motivations as opposed to organizations' (Santos Jr., 2008). The first scholars to notice this gap between what the literature stated and what was being observed in OSS communities called for new research and proposed a label change, from OSS 1.0 to OSS 2.0, in an attempt to explicitly state that organizations were heavily involved in OSS, being thus partly responsible for their readiness for professional adoption (Fitzgerald, 2006; Watson et al., 2008).

A few years passed and now we have incorporated in the literature an updated image that there is a mix of volunteers and organizations in charge of OSS production, particularly in those that manage to build a productive ecosystem. Frequently, we see industry indicators of trustworthiness in OSS to take into account the presence and identity of organizational sponsors (e.g., see the Qualipso[1] process), and papers have been written to support organizations involved in OSS to effectively manage their relationships with the community of volunteers and industry partners towards sustainability (Agerfalk & Fitzgerald, 2008; West & O'Mahony, 2008). The

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[1] http://www.qualipso.org/node/558

current state of the literature reflects the facts that: OSS has been acquired by organizations; OSS projects (OSP) have themselves become legal bodies capable of having employees, attracting partners and funding, and of managing a portfolio of projects; and that OSPs are commonly born out of software developed by organizations engaged in the currently popular strategy of opensourcing. Altogether, these observations suggest that successful OSPs are (and should strive to be) collaborative efforts between organizations and a community of volunteers, having the shape of a boundary spanning unit and being thus secondary to the higher organizational missions of the entities involved in the development.

The idea of becoming a formal organization to seek and accommodate sponsors in the production of OSS is nowadays so obvious that there is reason to question the sustainability of this software development model without it. Empirical evidence suggests that all OSS that are candidates for adoption at a professional level enjoy organizational support of some kind. Key OSS such as Linux, Apache and Android represent alliances of major industry players involving Google, Facebook, IBM, Yahoo! and Microsoft, to name a few. Moreover, organizations created to support potential adopters of OSS in the processes of selection and implementation tend to stamp only those that have secured sponsorship and met the legal and managerial conditions to sustain it. As a consequence, organizational involvement in OSS has superseded the role of volunteers, who now have to strive for sponsorship and collaborate with corporations if their projects are to build a market-wide reputation. Therefore, it seems timely to ask: Is organizational sponsorship a required feature for open source sustainability? Does sponsorship-seeking lead to the design of a formal organization (e.g., foundation)? Also, wasn't the first image we had of OSS as a volunteer-based effort trustworthy? What are the limits of a community-exclusive, Bazaar-like effort to develop OSS? Is there an inherent need to institutionalize OSS, moving away from a market-type of governance structure to sustain its development?

The goal of this paper is to think-provoke and instigate scholars to pursue a greater understanding of what a dispersed community of volunteers can produce by means of self-organization without creating or relying on formal organizations to sustain work. Yet, the limits of the Bazaar are unknown and our acceptance of the role of organizations in OSS production has gone unquestionable and assumed unavoidable to produce professional software of high quality.

Next, we discuss our current understanding of what constitutes a contribution and what the motivations to contribute are in the context of OSS. That discussion provides the grounds we needed to foresee a few implications for organizational theory and open source practice, exposing when and why a market-type of governance collapses, giving rise to a firm with characteristics of ephemeral alliances.

2   Contributions, Motivations and Sponsorship: Sustaining Work

First, there are the motivations to found an OSP, which we assume to be, regardless of being an organization or individual, sharing development costs and achieving widespread adoption. Hence, OSP founders must face the managerial task of attracting visitors, users and developers to create and maintain an active community that improves the application and its source code continuously. In summary, the ultimate challenge is to sustain work towards software improvement and diffusion.

Various types of contribution can help OSS accomplish this challenge. Users can request new features and spread the word to find more users, developers can implement requested features and fix bugs, and visitors can report broken links and, as readers of source code, make design suggestions, for example. Besides that, visitors, users and developers can trigger network externalities that increase project visibility and thus the general likelihoods of receiving contributions and finding new users. Accordingly, the understanding of why and how these intertwined contributions come about is crucial. In fact, a great deal of research aimed at that.

In general, we have learnt from the literature that: the type of license chosen and the presence of sponsors influence user and developer attraction as well as their intention to contribute; that organizations prefer less restrictive licenses and get involved when their business model depends on the application; and that being paid to develop OSS leads to above-average contribution levels, whereas intrinsic motivations have no detectable effect on levels of contribution (Stewart et al., 2006; Roberts et al., 2006; Watson et al., 2008; Sen et al., 2008; Santos Jr. et al., 2010).

In unfolding what motivates individuals and organizations to contribute, this research stream highlighted the importance of OSS to provide stakeholders with leverage in their mundane tasks and professional activities (utilitarian value), diminishing the role of ideology and other abstract reasons. Likely, ideology plays an important but limited role, perhaps being a non-sufficient reason to sustain motivation to contribute. High-quality, market-impacting OSS was not, and maybe could not have been, produced and maintained by ideological and passionate volunteers alone during their free time. Sponsorship has always emerged as vital to sustain work in open source projects. Yet, the source of the incentive to contribute has been mostly assumed to come from individuals rather than organizations.

The role of organizations in sponsoring and developing OSS is of primary importance. For instance, it has been publicly stated that 90% of Eclipse committers are paid employees of member companies, and our analysis shows that about 95% of Android's commits are signed by organizations (Google: ~80%). Similarly, over 60% of the more than 800k commits made to 367 projects hosted by Gnome are of authors explicitly associated with organizations. This preliminary analysis[2] indicates that

[2] The results are based on the analysis of 836,298 commits, from January 1997 to August 2011, available on Gnome's git repository, and of 110,640 commits, from October 2008 to August 2011, available on Android's kernel git repository.

none of Gnome's projects is free of organizational support, and that all of these 369 projects are managed by legal foundations or formal alliances. Nevertheless, to say that organizations are heavily involved in OSS is nothing new. However, the discussion of whether sponsorship is a required condition for OSS sustainability and what the consequences of this are to communities and founders, who perhaps design formal organizations in response this perception, is absent in the literature.

3   Implications for Theory and Practice

Although OSS scholars have recognized that OSP receive large amounts of contribution from organizations, they are not yet able to explain when and why OSP step away from an informal structure (Bazaar-Market) and become a jurisdiction of interorganizational relationships to accommodate these contributions, account for the rights and obligations of participants, and sustain work. Probably, this transformation is a result of seeking and securing sponsorship, which turns OSP into a coalition of agents with various (conflicting) interests that requires a formal and complex governance structure to be managed, resembling the Cathedral-Hierarchy or Network form of economic organization (Powell, 1990). Thus, as scholars, we see as timely to ask: Does this metamorphose expose the limits of the Bazaar organization, indicating when and why Markets fail and give rise to Hierarchical or Network governance structures?

Additionally, responsible for the transformation, founders of OSP strive to find external resources (sponsorship) as it signals credibility to the market, boosting adoption rates, and sustains contributors' motivations to develop source code and locate bugs. Such behavior is not inconsequential, as it later restricts the governance structure and coordination mechanisms that can be effectively applied. But do practitioners have another option? O'Mahony (2007) stated that OSP vary according to governance structure and degree of community-management, defining how we can observe that. However, how OSP came to have those structures and the conditions under which each structure is effective or required were left out of the paper. Thus, as practitioners, it is important to ask: Is the Bazaar organization capable of sustaining OSS improvement and diffusion in the long term? Under which conditions and towards which goals the Bazaar must incorporate Cathedral elements? To what extent can sponsorship be accommodated in a Bazaar-type of organization?

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