

Chapter XXXVIII

Analyzing Firm Participation in Open Source Communities

Wouter Stam

Vrije Universiteit Amsterdam, The Netherlands

Ruben van Wendel de Joode

Delft University of Technology, The Netherlands

Twynstra Gudde Management Consultants, The Netherlands

ABSTRACT

Increasingly, firms participate in OSS communities. However, surprisingly little empirical research has been performed to understand firms' participation in OSS communities. This chapter aims to fill this gap in state-of-the-art research on OSS. We will discuss and analyze the results from a survey of 90 Dutch high-technology firms that are active in the market for OSS products and services. In the survey we asked the firms what activities in OSS communities they perform. One outcome is that firms' activities can be grouped into two distinct categories of activities, namely technical and social activities. This outcome is an important contribution to research on OSS that until now has viewed community participation as a uni-dimensional construct. The survey results also suggest that firms view their internal investments in R&D as a complement to their external product-development activities in OSS communities.

INTRODUCTION

The emergence of open source software (OSS) communities, in which individual contributors freely share their innovations, has presented organizations with new opportunities to sell their software products and services (Von Hippel & Von Krogh, 2003). Well-known examples of firms that use the communal resources of OSS communities are IBM, SUN, and Red Hat. These and other organizations hope to benefit from OSS because

they believe it constitutes a low-cost and high-quality knowledge resource that may spur new product development. Furthermore, they believe that characteristics of OSS communities, like the release of source code, may provide opportunities that lead to the early adoption of new products and hence lead to first-mover advantages (Dahlander & Magnusson, 2005). Engagement of commercial organizations in OSS communities may also provide various benefits to OSS communities, since firms may (a) enlarge the user base of the

communities, (b) contribute scarce financial and human resources, and (c) perform a boundary-spanning function by linking the communities to various groups of non-technical users.

Despite the potential mutual benefits of community participation by firms, recent studies have suggested that commercial actors may have a tendency to demonstrate significant free-riding behavior and contribute little back to the joint effort that characterizes open source communities (Bonaccorsi & Rossi, 2004). Firms may focus only on their own benefits and as a consequence, exploit the communal resources while keeping their involvement in the community at a minimum. Although this behavior can harm both the firm and the community in the long run (Dahlander & Magnusson, 2005), surprisingly little empirical research has been carried out to examine if such free-ridership actually takes place. Little research has been performed to analyze the activities firms actually perform in OSS communities. As a result, an understanding of the conditions under which firms contribute to the development of OSS communities remains incomplete.

This chapter extends previous work on participation in OSS communities by firms. We achieve this by studying how such firms participate in OSS communities. Specifically, we are looking for factors that may explain any variation in the type and extent of participation across firms.

Based on survey data that was collected from 90 OSS firms in The Netherlands, our first aim is to show that the engagement of firms in OSS communities involves more than just technical activities such as contributing software code. We will show that organizations also perform social activities, such as organizing conferences and workshops that may facilitate knowledge sharing among community members and spur the wider adoption of OSS. By making a distinction between technical and social participation, we offer a more holistic perspective on the engagement of commercial actors in OSS communities.

Our second purpose is to explain what factors account for the observed differences between firms in the ways they participate in OSS communities. By demonstrating that the type and extent to which companies participate in OSS communities is logically connected to specific characteristics of these firms, such as their business models, we generate a better understanding of the conditions under which firms make certain types of contributions to OSS communities.

Our chapter proceeds as follows. First, an overview of state-of-art literature is given in which we will introduce the literature on community participation by individual developers and commercial firms. Next, we present our empirical study of Dutch OSS firms and discuss its main findings. We conclude with a discussion of future trends and present our overall conclusions.

BACKGROUND

Economic theory suggests that people only contribute to the production of a good if the benefits exceed the costs (e.g., Olson, 1965). Yet, people *participate* in open source communities without receiving direct tangible benefits for their efforts. In other words the efforts, or costs, involved in writing source code or solving other people's problems do not exceed the direct monetary benefits that can be gained from such activities. The reason for this lack of direct benefits is that the products and services created by active participants like the source code (the human-readable part of software) or the answers to questions can simply be downloaded for free. Thus, in OSS communities the costs of participation appear to outweigh the benefits. At the same time, however, research has shown that a surprisingly large number of individuals voluntarily *participate* in the communities (Hertel, Niedner, & Herrmann, 2003). This paradox has received much attention from researchers, who wondered: "Why do individuals *participate* in OSS communities?"

13 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage: www.igi-global.com/chapter/analyzing-firm-participation-open-source/21211

Related Content

Generalized Multi-Release Framework for Fault Prediction in Open Source Software

Shozab Khurshid, A.K. Shrivastava and Javaid Iqbal (2021). *Research Anthology on Usage and Development of Open Source Software* (pp. 710-732).

www.irma-international.org/chapter/generalized-multi-release-framework-for-fault-prediction-in-open-source-software/286601

Open Source Software Adoption: Anatomy of Success and Failure

Brian Fitzgerald (2011). *Multi-Disciplinary Advancement in Open Source Software and Processes* (pp. 1-23).

www.irma-international.org/chapter/open-source-software-adoption/52242

Logging Analysis and Prediction in Open Source Java Project

Sangeeta Lal, Neetu Sardana and Ashish Sureka (2021). *Research Anthology on Usage and Development of Open Source Software* (pp. 733-761).

www.irma-international.org/chapter/logging-analysis-and-prediction-in-open-source-java-project/286602

An Empirical Analysis of Software Changes on Statement Entity in Java Open Source Projects

Xiaoyan Zhu, Qinbao Song and Zhongbin Sun (2012). *International Journal of Open Source Software and Processes* (pp. 16-31).

www.irma-international.org/article/empirical-analysis-software-changes-statement/78559

Will the Customer Survive or Not in the Organization?: A Perspective of Churn Prediction Using Supervised Learning

Neelamadhab Padhy, Sanskruti Panda and Jigyashu Suraj (2022). *International Journal of Open Source Software and Processes* (pp. 1-20).

www.irma-international.org/article/will-the-customer-survive-or-not-in-the-organization/300753