Between Organization and Community: Investigating Turnover Intention Factors of Firm-Sponsored Open Source Software Developers

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ABSTRACT

While research has extensively studied the group of voluntary contributors and their motivation to participate in open source software (OSS) development, we lack an understanding of how firm-sponsored developers behave when they work for an OSS project. In specific, firm-sponsored developers may face identification conflicts arising from different social norms and beliefs inherent in both the organizational culture of their employing company and dominant OSS cultures. These conflicts may induce developer turnover intention towards the organization and the OSS community. This research seeks to identify identification-related determinants that drive turnover intention by surveying Linux kernel developers (N = 321). This study finds, among others, that perceived external reputation of the employing organization reduces turnover intention towards the company while perceived own reputation dampens turnover intention directed towards the OSS community.

CCS Concepts

•**General and reference** → **Surveys and overviews;**

Keywords

Open Source Software, Social Exchange Theory, Reputation Theory

1. INTRODUCTION

Open source software (OSS) projects are not only driven by hobbyists in their leisure time, because even companies have started to actively engage in OSS communities in recent years [7]. Although the software has to be released under an open source license that allows it to be freely used, modified and shared, OSS is a profitable market for companies and was worth approx. $ 8 billion in 2013 [10].

The way in which companies benefit from engaging in OSS communities varies and corresponds with the strategy they maintain [3]. For example, firms can benefit by capturing technical knowledge available in an OSS community [1] but also cut costs through integrating OSS in their own products. No matter which way a company pursues, it has to assign own employees to work with one or more OSS communities to gain the expected benefits [12]. These employed developers are contractually bonded to the firm and are likely to behave in the firm's sense while contributing to an OSS project as "a man on the inside" [4]. This allocation may bring employees in a situation where they have to fulfill organizational as well as community obligations concurrently. In specific, employed developers may face identification conflicts arising from different social norms and beliefs inherent in both organizational and OSS cultures [11]. If requests of the firms are opposed to community ideology or values employees have to deal with situations where they have to balance between community and firm interests. Conflict of interests as well as identification imbalance are known to negatively affect work-related behavior such as affective commitment and positively influence turnover intentions [5]. However, it is far from understood how identification with a community and a company affect turnover intentions directed to the community and the organization.

2. HYPOTHESES

We used a theory-driven approach and formulated hypotheses concerning developers' withdrawal behavior. In particular, in line with social exchange theory, we posit that identification with the employing company reduces company-related turnover intention (H1). Similarly, identification with the community is negatively related to community turnover intention (H2). In addition, we draw on reputation theory and argue that how developers perceive their employer affects their turnover intention. In particular, perceived external reputation, defined as how individuals think outsiders may evaluate their employer [8] is also a buffer in terms of company turnover intention (H3). Similarly, when developers have a high status in the community, they tend to stay with the community. Thus, perceived own reputation in the community reduces turnover intentions (H4).

WebSci '16 May 22-25, 2016, Hannover, Germany

ACM ISBN 978-1-4503-4208-7/16/05.

DOI: http://dx.doi.org/10.1145/2908131.2908200

3. METHOD

For this empirical research a quantitative approach was chosen by surveying contributors of the largest cooperative and most active OSS project existing [2], the Linux kernel (LK) project. The LK project has an increasing economic relevance, as many companies have business models that rely on the LK or on software working on top of the LK, respectively (e.g., Android). Many of these companies do actively participate in the improvement of the LK and deploy resources to the project in the form of own paid developers [2, 9].

In an online survey, LK source code contributors were asked about their identification with their employing organization and with the LK community as well as about their turnover intention toward their organization and the LK community, respectively. We measured community identification with Venn-diagrams that range from complete overlap between individuals' and community norms and beliefs to complete distinction [6]. The same procedure was applied to organizational identification. We further measured turnover intention with three items, perceived external reputation with four items and perceived own reputation with three items. All constructs revealed good reliability as indicated by values for Cronbach's Alpha ranging from .77 to .91. The survey data were cleaned (e.g., deletion of responses from hobbyists), which resulted in a data set of 321 employed LK developers.

4. FINDINGS

We relied on regression models to assess H1-H4. We ran one ordinary least square regression with organizational turnover, and one regression with community turnover as dependent variables (see Table 1). In both models, we included gender, age, and tenure with the organization (in years) as control variables. In addition, both models contained community identification (COM. IDENT.), organization identification (ORG. IDENT.), perceived external reputation (PER) and perceived own reputation (POR).

Table 1: OLS regression results

	DV = Community TI	DV = Organization TI
AGE	.00 (.01)	-.00 (.01)
ORG. TENURE	-.10 (.01)	-.02 (.02)
GENDER	.01 (.28)	-.35 (.33)
COM. IDENT.	-.21 (.04)***	-.03 (.05)
ORG. IDENT.	-.04 (.04)	-.31 (.05)***
PER	-.02 (.06)	-.42 (.07)***
POR	-.39 (.07)***	-.10 (.08)
R^2	.23	.32
No. of individuals	321	321

*** $p < 0.001$

None of the control variables revealed significance. As expected, community turnover intention is significantly influenced by community identification ($\beta = -.28$) and perceived own reputation in the community ($\beta = -.30$). Neither organizational identification nor perceived external reputation of their employer had a significant effect. In turn, organizational identification ($\beta = -.32$) and perceived external reputation ($\beta = -.32$) are negatively related to organization turnover intention. Here, the factors that explain community turnover intention are not related to organization turnover intention.

5. CONCLUSION

Although firm involvement in OSS development is still increasing [9], we know little of what drives developers intention to leave the community and/or their employer in case of conflicts of interest. In this study, we present drivers that explain both organizational as well as community turnover intentions. Future research could advance these findings by studying conflict in more detail, for instance, by measuring identification imbalance.

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