

Toward an Enacted Approach to Understanding OSS Developers' Motivations

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ABSTRACT

A large part of the existing literature on Open Source Software (OSS) projects identifies the motivation factors predicting the participation level of members. However, the effective satisfaction of developers toward their project still remains a managerial and theoretical challenge. So, it is also consistent to assess how the effective participation of developers in OSS projects makes sense of their own motivations. This article uses the enactivist approach and considers that motivations are not simple antecedents to actions but are shaped by actions as well. The empirical analysis delivers the results of a survey administrated to participants of business OSS projects. The results reveal reputation, reciprocity and expected professional opportunities as the most positively influenced variables. However, learning motivations and ideology toward open source beliefs and values are the lesser influenced ones. These results counterbalance prior empirical researches which have observed a strong predicting power of both variables on expected participation level of participants. This study suggests that participation seems to make sense regarding motivations for which developers have some visible indicators of their personal achievement.

Keywords: Attitude, Developers, Enactivism, Involvement, Motivations, Open Source, Participation, Programmers, Sourceforge

INTRODUCTION

A large part of the literature focuses on identifying extrinsic and intrinsic motivations of OSS project participants. Most cited factors are: learning and developing competences (Lakhani & Von Hippel, 2003), enhancing

reputation toward peers (Lerner & Tirole, 2000; Scacchi, 2006), acquiring job opportunities (Hann et al., 2004), and contributing to open source ideology (Stewart & Gosain, 2006; Von Hippel & Von Krogh, 2003), etc. These incentives, however, do not ensure sustained participation of members along the project's life-cycles (Fang & Neufeld, 2009; Dahlander & Magnusson, 2005). As a whole, project teams

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are affected by high turnover (Von Hippel & Von Krogh, 2003) and 80% of projects turn out to be non-active projects (Hunt & Johnson, 2002). Members having no contractual obligations toward the projects remain free to leave team. Most of them stop contributing when their personal needs are satisfied (Shah, 2006), and, as a consequence, a lot of projects are aborted or abandoned before the beta version software has been distributed (Stewart & Gosain, 2006). Thus, the effective satisfaction of developers toward their project still remains a managerial and theoretical challenge. Beyond the analysis of extrinsic and intrinsic motivational factors predicting an expected active participation of project members, the question ought to be reversed: how does the effective participation of developers in OSS projects make sense of their own motivations? In other words: how their motivations are influenced by their implication level.

This article addresses this issue with the enactivist approach (Weick, 1988), considering individual motivations as not straightforward antecedents to the action but as being shaped during the action. Referring to the Theory of Planned Behaviour (Ajzen, 1991; Taylor & Todd, 1995b) and Social Cognitive Theory (Compeau & Higgins, 1995), we consider participation as distinguished from indivisible emotional and psychological antecedents (Bagozzi & Utpal, 2006; Benbya et al., 2007). The objective of the article is to assess the influence of developers' participation on their *implication*, *attitude* and *motivations*. The empirical analysis provides a survey of participants in open source business projects hosted on SourceForge. The results reveal that developers' participation level mainly positively influences their motivations in terms of *reputation*, *expected reciprocity* and *professional opportunities*. However, *motivations to learn* and to contribute to the *open source ideology* are weakly concerned. These results contradict prior empirical researches that had observed strong predicting power of both variables on expected participation levels of members. The conclusion suggests that participation seems to

make sense regarding motivations for which developers have some visible indicators of their personal achievement.

LITERATURE REVIEW

Open source communities are considered as hybrid forms between private and collective models (Von Hippel & Von Krogh, 2003), putting into question traditional economic theories according to which agent behaviours and decisions are based on cost reduction and profit maximisation (Bonaccorsi & Rossi, 2003). OSS communities infuse individual and social incentives regulating participation of developers. However, the lack of consensus about factors efficiently predicting a sustained participation level motivates us to leave this kind of approach that isolates motivations from actions by which they are shaped. The literature analysis considers that intrinsic and extrinsic motivations of developers are modelled by their effective participation during the project. We postulate that actions provided by project members make sense of their own incentives. The enactivist approach allows conceiving motivations not as antecedents to participation but as dependant variables.

The Enactivist Approach of Motivation-Participation Relation

"An explorer can never know what he is exploring until it has been explored" (Bateson, 1972). By this perspective, we may consider that motivations sustaining the active behaviour of one person over time cannot be considered as isolated antecedents to his/her actions. Enactivism is often associated with *autopoietic* theory (Maturana & Varela, 1992) which postulates that, like a biological organisms, a system continually self-produces itself in function of its on-going interactions with its environment. The term 'enactment' expresses the idea that when people act, they bring events and structures into existence (Weick, 1988). The enactment is viewed as a twofold social process by which people model material and symbolic records

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