Chapter 12
The Impact of Project Initiators on Open Source Software Project Success:
Evidence From Emerging Hosting Platform Gitee

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ABSTRACT

This paper focuses on studying the role of open source software project initiator in affecting the OSS project success from the perspective of individual and collective behaviors. The authors collected the data from an emerging OSS hosting platform Gitee in China. This research indicates that the success mode for open source software projects in China relies a lot on the project initiators. Project initiators not only contribute codes to aid the project directly, but also use their social capital to facilitate the project success. But no full play has been given to social network's effect on mass production and collaborative innovation. The authors suggest collaborative innovation which could lead to coherence of global collective wisdom, reduced development costs, and expanded source of innovation should be the further direction for the OSS project in emerging platforms.

1. INTRODUCTION

Open Source Software (OSS, or Open Source Code Software) refers to any software that is permitted to be used, modified and distributed by anyone in accordance with relevant protocols on open sources (see https://opensource.org/osd). After nearly 5 decades of development, OSS has long been an essential

part of the software field. Many excellent OSS projects such as Linux, Apache, and Eclipse, have been widely applied in the global IT industries due to their advantages such as high quality, low development cost, and short development cycles (Jin, Zhou & Zhang, 2016). According to the analysis by International Data Corporation and Trend Force, OSS is closely related to emerging industries such as mobile Internet, servers, cloud computing, big data, and artificial intelligences. The development of OSS in China began in 1995. With its prosperous Internet-based industry and software development industry in China, open source has become a key element to support high-speed iterations of software products (Liu, 2013). Technology companies such as Huawei and Alibaba have raised the application of OSS to the strategic level of development and regard it as an important means of their enterprises to gain competitive advantages in the future (Wang, Dai & Feng, 2009). At present, a large number of in-depth studies have been done on OSS, covering many disciplines such as software engineering, economics, management science, and science of law (Aksulu & Wade, 2010). OSS research topics in China are more concentrated in applications (Feng, 2010).

OSS projects developers volunteer to produce free public products (Lerner & Tirole, 2002). These developers gained private benefits such as knowledge and fun by investing in OSS project development (Hippel & Krogh, 2003). Unlike proprietary software which is developed in the firm-based production model, OSS is developed depending on the online-community-based self-organization behaviors (Garzarelli, 2003). The proprietary software development was vividly compared by Raymond (1999) to an elitist and closed cathedral construction, while the OSS development was compared to a chaotic and open marketplace. Though without explicit organizational structure and process arrangements, OSS projects can develop software that may be on a par with or better than traditional commercial software, thus offering a completely new concept of production and innovation for software development. However, despite the great success of several OSS projects such as Linux and Apache, most OSS projects are facing various development challenges (Bai, 2014). To illustrate, in Source Forge, an international OSS community, there are a huge amount of outcast OSS projects with few user download and voluntary developers.

The study of OSS project success has attracted widespread attention in the academic community. In the burgeoning stage of the open source movement, there were fewer OSS projects. Scholars mainly performed qualitative analysis on individual success cases. For example, the founder of Fetch mail summed up a large number of practical experiences based on his own experience in open source, and thus subverted the traditional software engineering concept (Raymond, 1999). With constantly improving OSS development tools, professional OSS projects cooperative development communities have integrated a large number of OSS projects of different natures and sizes (Zhang et al., 2015). The massive information and data on open software and developers in the Internet create good conditions for the quantitative analysis of the success of OSS projects. Social network analysis, based on a large amount of collaborative interaction data, has become an emerging perspective to study OSS projects development and to focus on the impact of network relationships formed among individuals, groups, organizations, and communities on the success of OSS projects.

This paper investigates the role of OSS project initiator in affecting the OSS project success via two different influencing mechanisms. From the individual behavior level, we view OSS development as an investment model and theorize that when the OSS project initiators contribute more work, the OSS projects would become more successful. From the collective behavior level, we put our emphasis on the effect of the social capital of the OSS project initiator on the project success. Based on the social capital theory, we propose that different dimensions of the project initiators' social capital could have diverse promotive functions for the OSS project success. The study described in this paper can make

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