Adoption and Use of Open Source Infrastructure Software by Large Corporations: The Case of MySQL

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ABSTRACT

Adoption and continuance of use of open source infrastructure software by large business organizations is not well understood. This study fills this gap in research by conducting a longitudinal investigation of the adoption and use of MySQL by two large corporations. One organization, an early adopter, adopted and used MySQL for several years before reverting back to a proprietary product. The other, a late adopter, made an initial adoption decision but didn’t deploy it in mission critical applications. Interestingly, free software and freedom to access and modify the source code, the hallmark of the open source model, were not found to be significant in promoting adoption. In contrast, high quality maintenance support and timely product enhancement to keep up with user needs were considered critical for initial adoption and continued use of software. The study also demonstrates the need to investigate continuance of use to get a complete picture of open source software adoption and use by organizations.

Keywords: Continuance of Use, Diffusion of Innovation, MySQL Adoption, Open Source Software Adoption, Open Source Software

INTRODUCTION

The success of open source software (OSS) products, such as, the Linux operating system, the Apache web server, and the Mozilla browser, has demonstrated the viability of the open source model as an alternative to the proprietary model of software development (Crowston et al., 2012; Niederman et al., 2006; Siau & Tian 2013). Understanding adoption and use of OSS by...
business organizations is critical to promote their wider use and the consequential benefit to the economy. While a number of studies have addressed organizational adoption of OSS (see for example, Hauge et al., 2010; Spinellis & Giannikas, 2012; Ven & Verelst, 2012, Poba-Nzaou et. al, 2014), this body of research has three key limitations. First, a majority of these studies have been conducted in small to medium sized organizations and/or organizations in the public sector. Thus, the perspective of large businesses, generally the primary consumers of software produced using the proprietary model, has not received adequate attention by OSS adoption researchers. IT adoption and implementation research has demonstrated that adoption decisions are influenced by organization size (Buonanno et al., 2005; Daniel & Grimshaw, 2002; Mabert et al., 2003). It is, therefore, imperative to understand factors that influence OSS adoption by large organizations. We use Gartner (2013) to classify organizations by size. According to this definition, a medium sized business employs less than 1000 employees and has annual revenue of less than $1 billion.

Second, a large number of OSS adoption studies have addressed adoption of desktop OSS products, such as, OpenOffice and Mozilla FireFox (Goode, 2005; Lerner & Troile, 2002; Mtsweni & Biermann, 2008). In contrast, very few studies have investigated adoption issues related to infrastructure software, such as, the Linux operating system and the Apache web server (Lundell et al., 2010). Infrastructure software has some unique characteristics that make its adoption process interesting to study, especially in an organizational context (Niederman et al., 2006). Its adoption carries significantly higher risk than desktop software, as failure of the former in a production environment can seriously impact an organization’s business. Furthermore, infrastructure software adoption decisions are influenced more by organizational decision making processes than by individual decision making processes (Chengalur-Smith et al., 2010). Due to its criticality in supporting day to day business operations, the IT organization plays a key role in the adoption of infrastructure software.

Finally, most of the adoption studies in the extant literature, have investigated OSS adoption decisions at a single point in time. Such an approach fails to explore post adoption behavior of continuance of use (Bhattacherjee, 2001). Successful adoption happens when the adoptive organization continues to use the software. Initial adoption decisions are not always based on a rational decision making process but may be influenced by a herd mentality (Sun, 2013). Additionally, the adoptive organization may rely on second hand information gleaned from other adopters and/or product vendors in making the adoption decision. Firsthand experience of using the software may not live up to prior expectations. This may lead to discontinuation of the software product. In order to get a complete picture of OSS adoption, it is imperative to understand not only initial adoption decisions but also continuance of use. The current study attempts to fill these gaps in the OSS adoption literature through a longitudinal case study of the adoption and use of MySQL, a database management software, in two large business organizations. Thus, it addresses two open research issues: (a) factors influencing the initial adoption decision of infrastructure OSS by large organizations, and (b) continuance of use of infrastructure OSS by these organizations.

The remaining of the paper is organized as follows. The next section reviews extant research on OSS adoption. The research method is then presented. It is followed by a presentation and discussion of the research findings. The research contributions are then highlighted and conclusions are drawn.
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Evaluation of MDE Tools from a Metamodelling Perspective
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