Strategies for software-based hybrid business models

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ABSTRACT

The open source approach to software development has been used by software organizations in tandem with their existing business models, which are based on proprietary software licensing. This led to the creation of hybrid business models that merge open source and proprietary paradigms. This paper explores the practices used by software product vendors using hybrid business models and proposes strategies emerging out of these practices using interpretive, single case study research design.

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1. Introduction

Open source software (OSS) is a software licensing and development paradigm (Lerner and Tirole, 2002, 2005). Its conceptual foundation can be traced back to the Free Software Foundation (FSF). In 1985, FSF was founded by Richard Stallman to counter the growing influence proprietary organizations had over the software that was being developed at institutes like MIT. Founded to counter the proprietary model, the Free Software movement had several distinguishing features, compared to the typical proprietary model of software development. Salient features of OSS include product *licensing* that mandates the source code of the software to be publicly available and modifiable (Lerner and Tirole, 2005), as opposed to proprietary licensing that did not allow users to either see or modify the source code, and *highly collaborative software development* involving user communities (Lakhani et al., 2003; von Hippel, 2005), as opposed to the guarded, in-house software development in the proprietary model.

These practices were later carried forward from the Free Software movement to the OSS paradigm and have since led to a creation of widely-used software products, such as the Linux operating system and Apache web server. From the research perspective, OSS has received considerable research attention, leading to research issues, such as motivation for participation and the competitive dynamics of OSS versus proprietary software (von Krogh and Spaeth, 2007).

For commercial software organizations, the open source approach to software development offered advantages like faster product development and faster product distribution (Vitari and Ravarini, 2009), and perhaps to leverage these advantages, commercial software organizations use the open source approach as a part of their business model. Business models that

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integrate the open source approach with the traditional proprietary software business model are called hybrid business models in the literature (Bonaccorsi et al., 2006).

Since its conceptualization by Mahadevan (2000), the idea of the business model has been examined through numerous frameworks (Morris et al., 2005). Although there is no well-accepted definition of the term business model (Hedman and Kalling, 2003), it is understood to represent a *map of activities that link value creation, value delivery, and revenue generation.* Thus, in order to understand the business model of a firm, it is important to understand these interrelated activities. Organizational research is full of concepts that talk about an organization's operations. For example, organizational process refers to an interrelated set of activities that are coordinated to achieve a certain goal. However, business models are highly contextualized to particular organizational settings because, in addition to activities, business models interface with the people and other resources. Hence, it is important to view the underlying activities by keeping the context of their execution intact.

Organizational practice is one of the useful theoretical perspectives that can link the activities or actions of a business to its existence (Kostova and Roth, 2002). Organizational practices are defined as *an organization's routine use of knowledge for conducting a particular function that has evolved over time under the influence of the organization's history, people, interests, and actions.* Perceived from the practice perspective, a general business model and a hybrid business model can be viewed as configurations of organizational practices. Consequently, it can be argued that in order to employ a hybrid business model, an organization must employ and configure the organizational practices that aid in hybridization. However, what these practices are is not known. Hence, there is a need for further exploration and elaboration (West, 2003; Fitzgerald, 2006).

In this study, our goal is to partially address this gap through a single case study research design. The product chosen for the case study was a successful OSS product created by a commercial software organization that has a *hybrid business model.* The success of an OSS product implies community participation and software usage. This is in line with the existing literature on OSS product success (Grewal et al., 2006; Stewart et al., 2006; Subramanian et al., 2009; Lee et al., 2009; Comino et al., 2007). Through our case-based research, we report five management practices and three emergent strategies used in formulating the organization's hybrid business model. The authors believed that the study provides a fresh conceptualization of the phenomenon at hand, and it has theoretical and practical implications for undertaking and using OSS-based hybrid business models.

The paper is structured as follows: In the next section, we elaborate on the evolution of OSS from its ideological origins in Free Software to an approach for software development that can be merged with the proprietary business model. We end the section by highlighting the research gap. In the next section, we provide an explanation of the research methodology, including data collection and data analysis processes. Next, we outline the inferred management practices and strategies. The paper concludes by highlighting the contributions and limitations of the study along with future research directions.

2. Open source software: from an ideology to a business model

2.1. Origins of open source software

OSS originated from a Free Software foundation established by Richard Stallman in mid-1980s in order to counter the growing influence of proprietary software organizations. The Free Software foundation grew from the need to share software code, which was a common practice amongst the scientific community and hackers (von Hippel and von Krogh, 2003). However, Stallman feared that commercial organizations would free-ride on the work of the developers who wanted to release their software in a public domain under the banner of Free Software. In order to counter this, he created a licensing scheme commonly known as a General Public License that prevented the code and any derived modifications from being made proprietary. This feature is known commonly in OSS vernacular as the viral effect.

Stallman's idea of *free software* did not sit well with commercial software organizations; hence, Free Software could not immediately become a mainstream software development model and remained largely in the confines of the research laboratories (von Hippel and von Krogh, 2003). In 1998 Eric Raymond and Bruce Perens coined the term *open source* to move away from the ideologically rigid foundation and offer a more accessible concept to the software organizations (von Hippel and von Krogh, 2003). Open source, indeed, retained a majority of the practices that were prevalent during the Free Software movement, including *copyleft* licensing and community-driven software development.

2.2. Private collective model of innovation

The private collective model of innovation is perhaps one of the earliest attempts to conceptualize the OSS phenomenon. Proposed by von Hippel and von Krogh (2003), the underlying argument of this model is that OSS does not coincide exactly with the private-investment model, where a manufacturer produces goods and hopes to reap benefits from them privately, or the collective-action model, where a public good is created by innovators in the condition of market failure. Thus, von Hippel and von Krogh (2003) concluded that OSS belongs to a third category of innovation model. The authors have described this model more formally as follows: "the developers contribute their private resources toward the development of an innovation and then release it freely. In doing so, they still get private rewards, such as enjoyment, fame, learning, and sense of control over the created innovation" (von Hippel and von Krogh, 2003; p: 216). Fig. 1 graphically depicts the private-collective model of innovation.