

Managerial and Technical Barriers to the Adoption of Open Source Software

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Abstract. In this paper we focus on managerial and technical decisions for acquisition of OSS and discuss potential approaches to a widespread adoption of OSS. Moving from mainly technical issues in procurement to corporate IS governance presents OSS with new challenges beyond outlining a business case for a particular OSS application. We draw parallels to the business case for commercial software products (COTS). Compared with COTS, OSS products seem to have several advantages, but based on existing literature and a case study, we develop and discuss the hypothesis that a major barrier may be the “customer’s” uncertainty and unfamiliarity with OSS vendor relationships. We find that corporate governance and architecture needs to be accounted for in both COTS and OSS. This paper should be seen as a first step researching the fit between procurement and delivery models for OSS.

1 Introduction

Originally, Open source software (OSS) set out at the technical level of SW engineering communities but has recently gained interest at policy and managerial levels. In the face of a managerial demand for information about availability and accessibility of OSS publications on applications flourished in the beginning of the decade like O’Reilly’s book series [1]. Today, OSS products are profiled against commercial products, e.g. Linux vs. Windows, OpenOffice.org vs. Microsoft Office, and Apache vs. IIS in performance measurements. Understanding OSS at policy and managerial levels reflects a need to cope with large application portfolios and increasing demands for interoperability. Attending to these new requirements we will take a look at OSS compared to COTS. We look at how a recent launch coped with policy and managerial issues indicating first steps toward a corporate governance and architecture policy that we expect OSS will be facing in the coming years.

2 Open Source Software Movement

In developing our understanding of the Open Source “movement” [1-3], a multi-perspective analysis needs to be undertaken in order to embrace the complexities of this phenomenon. As this research field is fairly young, mature bodies of theories such as

economics [2] often set the development directions and research agendas of the research field. In our literature review we find a lack of research addressing Open Source Software (OSS) from a business perspective – not from a product, developer, community, or industry perspective [4-6].

Our focus will be the decision-making challenges for managers when confronted with OSS. Initial decision-making is of interest and highly important because even though the realized costs at this point in time are relatively small, costs derived from the decisions and dispositional mechanisms [7], will often be substantial.

This paper is a step in a larger research project on a series of research questions:

- What barriers and enablers do organizations experience considering adoption of OSS?
- Which measures do organizations take to acquire and deploy OSS?
- Are these measures different from measures taken when acquiring and deploying commercial software?
- Do these measures vary across different types of organizations?
- Can we identify a set of “best practices” for organizations when they consider, acquire, and deploy OSS within a governance and architectural framework?

The paper is organized as follows: After an overview in section three of OSS literature, we will in section four present our research question: why are OSS products not in more widespread use? In section five we describe our research approach, and in section six we outline our understanding of OSS. In sections seven to ten we discuss similarities and differences between COTS and OSS and the case of a Danish hospital migrating to OSS. In section 11 we discuss our results and further research.

3 Literature Study

Although the research area of OSS is relatively young, documented research contributions are coming at a rapid pace.

The one aspect of OSS that seems to have attracted most interest is the question of *why* individuals and organizations may choose to contribute to OSS projects, delivering time, work, and other resources, apparently without economic compensation. Focusing on the individual contributors, some authors [8, 9] suggest that OSS projects can be described as a “gift economy”, where one gift (e.g. a source code contribution) must be paid back with other gifts. Ye et al. [10] suggest learning as the primary motivation; Hars and Ou [11] identify both internal (joy of programming, altruism, identification with a community) and external (self-marketing, building human capital, need for software solution) motivational factors, the external factors having most weight. In an analysis of the Apache project [12], Hann et al. found that active contributors received higher wages from the employers, also suggesting economic motives for their “voluntary” work.

Focusing on organizations, several authors [2, 13-19] have argued that contributing to and participating in OSS projects may under some circumstances be a viable economic activity. Dahlander [20], and Bonaccorsi and Rossi [21] have presented by case studies of OSS business models.