An Analysis of the Adoption of Open Source Software by Local Public Administrations: Evidence from the Emilia-Romagna Region of Italy

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ABSTRACT

The wide diffusion of open source software (OSS) is driving discussion among scholars on a set of issues, including its adoption by public administrations (PA). Previous works discussed a few factors that drive the decision to adopt OSS and did not address the potential benefits in terms of e-government that OSS may bring to PA. This paper fills these gaps. The analysis is based on the Emilia-Romagna region of Italy and studies the adoption of software (both proprietary and open source) by local PA. The results show there is increased adoption of OSS in several different domains of application, both servers and desktop clients. Among the motivations to adopt OSS, dependence on software suppliers is important. Its adoption also positively affects the variety and extent of interactivity of local public e-services.

Keywords: E-Government, Empirical Research, Online Public Services, Open Source Software, Public Administration

INTRODUCTION

Open source software (OSS) has grown in importance based on its wider diffusion and its reliability, both of which have improved at an outstanding pace at the public and private levels (Lerner et al., 2006; Fosfuri et al., 2008; Giuri et al., 2010). This increased use includes general users, private enterprises and public administrations (PA) which appreciate and are coming to rely on the advantages characterizing this alternative method of software production (Bonaccorsi & Rossi, 2003). This upsurge in interest in OSS has been accompanied by lively debate on the role of OSS in PA, which has attracted the interest of policy makers and practitioners in the field, and scholars in several disciplines ranging from computer science to economics (Von Krogh & Spaeth, 2007; Cassell, 2008; Federspiel & Brincker, 2010).

A large part of this interest is directed to the reasons for its adoption by PA (Waring &
Maddocks, 2005; Ven et al., 2007; Huysmans et al., 2008; Cassell, 2008; Munoz-Cornejo et al., 2008). These contributions only concentrate on few factors that explain the adoption of OSS by PA. An evident gap in our knowledge is left relating to all of the relevant factors that are likely to explain the pattern of adoption as well as the benefits it may bring.

Our study aims to begin to fill these gaps by providing an empirical assessment of the adoption of OSS by local PA, those located in the Emilia-Romagna region in Italy. In particular, our main research objective is to provide evidence on the numerous factors that are likely to spur adoption of OSS at the level of local PA. Furthermore, we aim at investigating the benefits that this adoption entails.

Municipal governments are chosen as the main unit of analysis for several reasons. First, the budgets of local PA are shrinking which is obliging them to find new ways to manage these reduced central government resources more efficiently (Arduini et al., 2010). The necessity to save money can be alleviated by the adoption of OSS which saves money related to licensing costs (Mukerji et al., 2006). Moreover, local PA provide important public services to citizens, which means that they are often in direct contact with them. This allows them to collect opinions and feedback on changes to the quality of service from migration to OSS. Furthermore, local PA are often the most important customers of local small and medium sized enterprises (SME) providing software products and services (Laursen & Salter, 2006). Thus, their demand for software solutions may be an important driver of local industry development and, in particular, of firms providing OSS products and services. Finally, PA are under increasing pressure from national and international organizations (OECD, 2003; EC, 2006; UN, 2010), to improve their e-government provision and, in this area, OSS may have an important role to play.

This paper contributes to the literature on the adoption of OSS by PA. Our contribution is twofold. First, unlike many previous works that have focused on one or a few factors driving the decision to adopt OSS, we provide an empirical investigation taking into consideration several factors influencing the adoption of OSS by PA and we find evidence for the important role of suppliers in this decision. To our knowledge, this is one of the few attempts to provide a systematic empirical analysis of the topic. Second, we focus on a crucial issue and examine whether the adoption of OSS by PA has an impact on the level of e-government of the PA. We show that the extent of OSS adoption has an impact on the variety and quality of local public e-services.

The paper is organized as follows. The next section reviews the literature, especially on the most recent developments concerning the adoption of OSS by PA. On this basis, we propose a conceptual model aimed at explaining the determinants of OSS adoption in local PA and the relationship with e-government performance. The study methodology is described, including the main features of the survey that collected the data. The principal findings are then discussed, followed by a concluding section.

THEORETICAL BACKGROUND

Literature Review

This section reviews the recent literature on the adoption of OSS by PA. We show that although some studies have been conducted, all of them examine only few of the many factors that explain the adoption of OSS by PA. Furthermore, there is still a lack of research on an important issue such as the realised benefits that OSS adoption may entail on the PA. Although the literature reviewed uses all kinds of PA as the unit of analysis, here we focus in particular on local government. We believe that local administrations in the form of municipal governments should be the focus of attention because of their important role in the provision of specific public services and the fact that they deal directly with citizens. Most existing work on OSS does not focus on the impact of OSS adoption and the factors driving adoption decision at the local level. This section discusses the recent literature and highlights the most important insights. Based on this we propose a

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