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Open Source Software implementation in the UK public sector: Evidence from the field and implications for the future

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Abstract

Open Source Software (OSS) is a model of computer software development where the source code is available for programmers to view, read, modify and re-distribute without the property right restrictions of proprietary software. OSS has existed as a model for developing computer applications and software since the 1950s. However, OSS has only found its way into the public arena within the past decade due to some major projects gaining significant market share from commercial developers such as Microsoft. Research in the area of OSS has become more extensive in recent years and has examined areas such as motivation of programmers as well as the benefits of OSS. However, literature focusing on the actual implementation of OSS is more limited with only Fitzgerald and Kenny [(2004). Developing an information infrastructure with Open Source Software. *IEEE Software*, 50–55] providing any substantial analysis of how it might be achieved.

In this paper the focus is on OSS use and implementation within the UK public sector. This sector has a history of resource wastage and underperforming information systems. The underpinning issues of motivation and benefits to organisations will be addressed along with the difficulties that the UK Government faces in adopting an OSS strategy. Section 2 examines the existing literature in the area and explores why OSS should be adopted and implemented by the public sector in the UK. Section 3 considers the research approach taken and the results obtained from considering the implementation of OSS in eight

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government organisations. Section 4 concludes with a discussion and some implications for those organisations in the public sector who might wish to take this approach.

1. Introduction

Open Source Software (OSS) is a model of computer software development where the source code is available for programmers to view, read, modify and re-distribute without the property right restrictions of proprietary software. This model allows constant innovation by individuals who may be geographically widely distributed. The resulting Open Source programs may be available free of charge, although depending on licensing arrangements this does not always hold true.

OSS has existed as a model for developing computer applications and software since the 1950s. The Internet was developed in Open Source environments (Newman, 1999). The UNIX operating system was developed in the 1970s as a simple operating system with re-usable code (Open Group, 2003). However, OSS has only found its way into the public arena within the past decade due to some major projects gaining significant market share from commercial developers such as Microsoft (Dubash, 2005).

The terminology 'free software' was created by the Free Software Foundation (FSF) formed in 1984 and the mission of this organisation as stated by the founder, Richard Stallman was 'to provide freedom to programmers' (UNESCO, 2001) lost when UNIX systems were largely commercialised and their source closed (Wheeler, 2003). This software was described as free as in 'free speech' not as in 'free beer' (GNU, 2004), meaning it could be sold but the underpinning code of projects must be available to allow future innovation. The name 'Open Source' came from a decision in 1997 of the OSS initiative that wrote the 'Open Source' definition that requires the availability of program source code and also includes rules on licensing and discrimination in OSS projects (Perens, 1997).

Research in the area of OSS has become more extensive in recent years and has examined areas such as motivation of programmers (Bonaccorsi & Rossi, 2003; Haruvy, Prasad, & Sethi, 2003; Hertel, Niedner, & Herrmann, 2003; Lakhani & Wolf, 2003; Lerner & Tirole, 2001, 2002) as well as the benefits of OSS (Kogut & Metiu, 2001; Spinellis & Szyperski, 2004). However, literature focusing on the actual implementation of OSS is more limited with only Fitzgerald and Kenny (2004) providing any substantial analysis of how it might be achieved. There are now white papers on OSS from the UK Office for Government Commerce and the NHS Information Authority (NHSIA) setting out plans for investigating and implementing OSS applications. Nevertheless, it appears that only Applewhite (2003) and McDonald et al. (2003) have provided any insight into the potential government benefits of using OSS.

In this paper the focus will be on OSS use within the UK public sector. This sector has a history of resource wastage and underperforming information systems (IS) and even as this paper is being written yet another Government system at the Department of Work and Pensions (DWP) has crashed leaving many people without benefits (BBC, 26 November 2004). The underpinning issues