ABSTRACT

Several European countries, as well as the European Commission, have acknowledged the importance of open standards (under various definitions of that term) and have taken steps accordingly. Formal (e.g., ISO) standards are often referred to in software development and procurement, but may not necessarily also be open standards. The authors consider the application of formal standards where national policy promotes their use, and, since much contemporary software development involves open source software, they further consider the interaction between the requirement to comply with open standards, and the implementation of open and formal standards in open source software, with particular reference to patent licensing. It is shown that not all formal standards are open standards. SSO policies and procedures regarding the notification of standards-essential patents (SEPs) present challenges for organisations wishing to implement standards in software since such policies and procedures need to be compliant with procurement requirements, patent licences and open source software licences. This paper draws out some implications for those organisations (differentiating where appropriate between small companies and other organisations) and suggests a number of ways of addressing the challenges identified. Use of formal standards may create barriers for implementation in open source software and inhibit an open and inclusive business-friendly ecosystem, and to avoid such barriers is of particular importance for small companies that are essential players in an innovative and international society.

Keywords: Formal Standards, Open Standards, Licensing, Open Source Software, Patents

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1. INTRODUCTION

‘Openness’ including open standards and open source software is increasingly prevalent, but presents a number of challenges requiring effective policy and strategic initiatives. The European Commission (EC, 2013a, 2013b) and countries, such as the Netherlands (NOC, 2007), Portugal (Ballard, 2012), and the U.K. (UK, 2012a, 2015), have acknowledged the importance of open standards and have implemented initiatives accordingly.

Open standards have been discussed by researchers (e.g. Bird, 1998) and policy makers in the EU and different member countries (EU, 2004; SOU, 2009) for a long time. Some member countries mandate use of open standards, based on definitions which require that standards are provided on royalty-free conditions, as part of national policy (e.g. NOC, 2007; UK, 2012a). Such policies aim to promote use of standards which have certain open properties and can thereby be used as a basis for implementation in software under different (proprietary and open source) software licenses. For example, the U.K. Government has a national policy which promotes and mandates use of specific open standards (UK, 2012a, 2012b, 2014, 2015). In Sweden, the minister responsible for municipalities has expressed support for the definition of ‘open standard’ set out in the European Interoperability Framework version 1.0 (Odell, 2009) and national framework agreements for public sector procurement of software in Sweden refer to open standards (EU, 2004; SOU, 2009; Kammarkollegiet, 2013, 2014a, 2014b) in relation to the standards which can be referenced in procurement.

At the same time, there is confusion related to use of the term ‘standard’ and research shows that practitioners may regard products and applications (e.g. Microsoft Word) as standards (e.g. Lundell, 2011). It has also been shown that there is confusion amongst policy makers between the two concepts of open standard and open source software (e.g. Egyedi & Enserink, 2013). Previous research results also show that many standardisation organisations neglect implementation issues and conclude that standards development and implementation activities “cannot be meaningfully separated” (Egyedi, 2007, p. 612). In particular, implementation of standards for representation of data over long life-cycles, beyond the life-cycle for any specific software, is of particular importance for long-term maintenance of data (Lundell, 2012). For these reasons, this study considers standards for representation of data and the potential for implementation of such standards in software, with a specific focus on the extent to which different standards can be implemented in open source software (i.e. software provided under a license which is recognised by Open Source Initiative (OSI, 2015)).

Previous research shows various positive effects from use of open standards (e.g. Friedrich, 2011; Ghosh, 2005; Krechmer, 2005; Lundell, 2012; Simcoe, 2006) and its potential for promotion of innovation has been stressed in recent research (e.g. Lundell, 2012). Further, reports from the European Commission (EC, 2013a) and the U.K. Government (UK, 2012a, 2012b, 2015) show considerable potential for innovation from the use of open standards, which can also reduce certain risks, for example to enable interoperability and prevent different kinds of lock-in effects with associated unwanted dependencies on suppliers and proprietary technologies. Friedrich (2011) states that the “prime example for how Open Standards can boost innovation are the internet and the world wide web”. Open standards facilitate collaboration in development of software which can be provided under different types of licenses, including open source software. Such open collaboration represents an early exemplar of open innovation (Lundell & van der Linden, 2013) and open standards and open source software are used by most innovative organisations. For example, on 5 May 2014 Rachael King reported in the Wall Street Journal that a Samsung representative stated during an open source business conference: “Today, you can’t build a product without using Open Source”1.
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