Chapter 5.8
Open Source – Collaborative Innovation

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ABSTRACT

This chapter reviews the current status of Open Source (OS) and provides new insights into the prerequisites of the OS process as well as the profile of OS contributors. Moreover, it extends the scope of possible business models such to augment those that exist or were already discussed in the past. While the term OS was coined in the context of software development and redistribution, this chapter presents and discusses the concept of OS to include any Open Collaborative Innovation in both software and hardware.

INTRODUCTION

The term Open Source (OS) was coined, as implied, to represent a software code that is usually distributed in the form of a high level programming language – in contrast to machine, compiled, code – and is freely copied, redistributed as well as modifiable by users at no cost. This description differentiates OS software from Freeware software that can be freely copied/ downloaded from the web for personal use but is distributed as (binary) executable machine code and most commonly restricted to personal use. It also differs from public domain software that is available to the public and is uncontrolled (more formal definition is available at http://www.opensource.org/docs/osd). The purpose of this chapter is to review the current status of OS and to provide new insights into the prerequisites of the OS process as well as the profile of OS contributors. I also extend the scope of possible business models such to augment those that exist or were already discussed in the past. While the term OS was coined in the context of software development and redistribu-

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tion, in this chapter I will present and discuss the concept of OS to include any Open Collaborative Innovation in both software (SW) and hardware. Having said that, the vast majority of examples still come from software applications although few nineteenth's century examples of HW collaborative invention were discussed by Allen (1983). Note that I make the distinction between invention and innovation. Formally speaking, invention is the first conception or occurrence of a new idea of a product, a process or a service while innovation is the realization of an invention. Open source relates to the latter process and should be clearly distinguished from invention. It is involved with the use of existing framework for the development of new products or services rather than inventing such.

Open source have already penetrated our lives far more than most of us perceive. There are examples in business (Linux, MySQL) finance (XBRL reporting format), information technology and communications (ITC) including the Internet (from Apache web server to Facebook widgets) and mobile communications (e.g. Iphone's AppStore, Moblin.org), image editing (GIMP), R&D and services (e.g. Utest's quality assurance community) and more. The LAMP (Linux, Apache, MySQL, PHP/Python/Perl) stack can be viewed as the spearhead of OS products but OS sparks are spread all over. In the arts front we find OS examples in video (e.g. Xvid compression format), animation creation (blender.org, artis.imag.fr etc.), music making (digitalmuiscian.net for online collaboration real-time music recording), collaborative knowledge development and learning (Knownet.com), movie making (Drupal.org) and screen writing (plotbot.com). In game development, Acclaim.com have opened its multi-player PC game design process to the OS community and claims to harness the brainpower of 60,000 individuals for development. Open source in hardware is by far more difficult to develop since real objects cannot be redistributed over the Internet. However, hardware designs can be shared and improved by a collaborative process. Such example is the Arduino USB board. Moreover, there are many forums on the web in which users present discuss and improve hardware designs that range from electronic circuit design (e.g. forums.parallax.com) to mechanical design and naturally to hardware-dedicated software (www.arduino.cc for example).

In general, variety of restrictions might be placed on the usability and distribution of an OS product and these depend on the license dictated by the originator. Such restrictions are not limited only to the use or distribution of the code but also to other relevant issues such as documentation, support, warranty, user interface, backward compatibility and the like. The web site freshmeat.net lists 46,000 OS projects, 410,000 registered users and about 60 types of OS licenses. SourceForge.net lists 180,000 projects and roughly two million registered users. The most common OS license is the General Public License (GPL) that permits the copying and distribution of OS software, modifying it or a portion of it, making derivatives or embedding it under a Reciprocity/Copyleft license that conveys all rights to any other recipient of the software. Namely, any person who redistributes software under GPL – with or without modifications - cannot add restrictions to deny other people the above-mentioned central freedoms and must pass along the freedom to further copy, modify and redistribute the software. The motto of the OS movement is free in the context of freedom and should not be confused with free of charge. The legal aspects of OS are presented and more broadly discussed toward the end of the chapter.

Naturally, OS projects are expected to flourish in ITC-software related environments because they can leverage on connectivity to result in voluntary collaborative innovation. As such, OS collaborative innovation relies on and comprises of three components: knowledge sharing, active contribution and distribution. By active contribution I specifically refer to code origination or modification. Passive contributors may also play