Chapter 5
Long-Term Analysis of the Development of the Open ACS Community Framework

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ABSTRACT

The OpenACS community framework is a mature software toolkit for developing online community platforms. Originally invented at a university, it has prospered due to a high commercial demand and major investments, and subsequently settled as an open source project. In this chapter, the authors extend a previous analysis of the evolution of this software framework and its surrounding community. This long-term analysis of fourteen years of the project’s evolution considers the commercial background of the members of the developer community (for-profit or non-profit), investigates the changing contribution and collaboration structures and the geographical distribution of the user community. The results reveal a continuous shift from new product development work by commercial developers to maintenance work by the open community and a relatively uniform and growing global distribution of users over the years.

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INTRODUCTION

OpenACS (Hernández & Grumet, 2005) is a high-level community framework designed for developing collaborative Internet sites. It started from a university project at the Massachusetts Institute of Technology (MIT), got momentum from the ArsDigita Foundation, and split up into a commercial and an open source version. After the end of ArsDigita the development of OpenACS was driven by a collection of independent consultants and small companies implementing diverse and complex large-scale mostly commercial Web solutions. The background from a development based on commercial applications shifted over the years, especially after .LRN (Blesius, Moreno-Ger, Neumann, Raffenne, Boticario, & Kloos, 2007), a course management and e-learning solution was developed. Being primarily designed as a web development framework, OpenACS serves as a basis for various successful, large-scale applications, which are substantially tailored to their domain-specific needs. Examples are Project Open (http://www.project-open.com), Learn@WU (Neumann, Sobernig, & Aram, 2014), LMS.at (https://lms.at), or the e-learning systems at Galileo.edu (http://www.galileo.edu) or UNED (Santos, Boticario, Raffenne, & Pastor, 2007), which follow different development goals but share a common core of software artifacts. The ERP software Project Open is used by about 6,000 companies worldwide, including some Fortune 5,000 companies (Huger & Bergmann, 2013). Learn@WU, which is based on .LRN, is one of the most-intensively used university e-learning systems (160,000 learning resources, up to 4 million page impressions per day, up to 2,500 concurrent users). As of today the framework’s code base contains about 3.6 million lines of code, which were developed with an estimated effort based on the COCOMO model of over 1,000 person years (Open HUB, 2015).

In this paper, we extend the previous work (Demetriou, Koch, & Neumann, 2006) on this technological ecosystem into two directions. While the original study covered the years 1995 to 2006, we will extend the analysis until present time, covering in total nearly 20 years of development. Secondly, we approach the analysis with different methods by focusing on contributions and collaborations, which are analyzed using social network analysis. Our social network analysis approach not only covers contributions to the code base, but also sheds light on more informational contributions, which extends the view from the software artifacts to the community structures that can be observed to user groups in the business domain. Based on these instruments we can visualize a comprehensive picture of the complex characteristics of the framework and how these structures have changed in the different phases of the life of the project.
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