Available online at www.sciencedirect.com

ScienceDirect

Procedia Computer Science 64 (2015) 395 – 402

Procedia Computer Science

Conference on ENTERprise Information Systems / International Conference on Project MANagement / Conference on Health and Social Care Information Systems and Technologies, CENTERIS / ProjMAN / HCist 2015 October 7-9, 2015

Software Business Models from a distribution perspective: A Systematic Mapping Study

Alberto Heredia [a], Ricardo Colomo-Palacios [b]*, Antonio de Amescua [a]

[a] *Universidad Carlos III de Madrid, Av. Universidad 30, Leganés 28911, Spain*
[b] *Østfold University College, B R A Veien 4, Halden 1783, Norway*

Abstract

Business models (BMs) describe how a company creates and delivers value to customers, the products or services that it offers and the compensation for them. Software companies need to be able to adopt different BMs to be successful in modern economy. Despite the number of publications on the field, there is still not a clear picture of software BMs. The purpose of this study is to structure and characterize the state of the art on software BMs with focus on sales and distribution models to help discover possible research gaps. The authors of this study conducted a systematic mapping study using relevant keywords to identify primary studies in the existing literature related to software BMs from a business management perspective. The search strategy returned 1871 papers and 51 were selected as primary studies. The analysis of results helps clarify the picture of software BMs and highlights the most relevant sources of papers. Results also reveal the broad interest of researchers on this topic. Most of the primary studies were related to service-based BMs, and to a lesser extent on product-based or open-source-based BMs; there is also an increase in the attention of researchers towards models built around mobile apps. While many authors report experience papers, only some authors validate or evaluate new proposals of sales and distribution models.

Peer-review under responsibility of SciKA - Association for Promotion and Dissemination of Scientific Knowledge

Keywords: software business models, systematic mapping, on-premise software, SaaS, open-source software, mobile apps.

* Corresponding author. Tel.: + 47 6921 5000; fax: + 47 6921 5002.
E-mail address: ricardo.colomo-palacios@hiof.no

Peer-review under responsibility of SciKA - Association for Promotion and Dissemination of Scientific Knowledge
doi:10.1016/j.procs.2015.08.516

1. Introduction

Software organizations no longer describe architectures solely in terms of their technical characteristics; instead, they view them in relationship to BMs [1]. As technology itself has no value, companies need to be able to create and capture value through an effective BM [2]. The success of innovations in modern economy highly depends on the respective BM, especially in fast evolving sectors such as the software industry [3].

BMs describe how a company creates and delivers value to customers, the products or services that it offers and the compensation for them [4]. A BM comprises elements such as company's value proposition, customer segments and relationships, revenue streams and resources [5].

Although existing literature on BMs has been previously reviewed from a broad and multifaceted perspective, e.g. [6–9], the impact of the software industry in our society is a solid motivation for conducting deeper research in this specific field. Indeed, the interest of researchers and practitioners in software BMs is continuously increasing [10]. In the particular case of distribution models, which describe how the organization offers the software to the market, including the sales process and its outcome [11], published papers seem to gradually shift the focus from the traditional model of software installed on-premises to new on-demand models. Other BMs based on open-source (OS) software have usually receive much attention from researches throughout the years, but the boom of software applications for mobile devices gives the impression to emerge as a new competitor for these BMs.

To analyze the validity of these impressions and clarify the picture of this area, the objective of this paper is to structure and characterize the state of the art on software BMs with focus on sales and distribution models and from a business management perspective by means of a systematic mapping study.

2. Background

A BM describes the company's basic value propositions, its activities, customer relationships, revenue streams and key resources, i.e., it provides a detailed view of how the software firm is conducting business to create value [5]. Internet changed the product-based software business to a service-based one; it was not just new protocols, processes and techniques, but also a jump to new markets that required new BMs to generate both value to customers and revenue to the owners [2]. Those new types of software businesses, such as Software as a Service (SaaS) and OS models, did not fit into the traditional archetypes of packaged software [12], that was predominant just few years ago [13]. Software companies traditionally presented a BM in which they offered Software as a Product (SaaP), so they delivered a copy of the software to the customer, who got usage rights but not ownership; the customer carried the cost for the usage rights, support, maintenance and operations. Contrary to these product-based BMs, in service-based BMs such as SaaS the software vendor does not deliver the software, but the customer gets access to the software and usage rights; the software vendor carries the cost of software support, maintenance, and operation [4]. These market trends also lead to product reengineering efforts to adapt traditional software packages to service-oriented solutions [14].

Revenue in traditional product-based BMs is based on copyright licensing and maintenance. In contrast to these perpetual-use licenses, revenue in service-based BMs is based on subscriptions by customers from vendors [15], depending the subscription fee on the number of rented software functions or the used length of time by customers. In addition, since customers access on demand to a remotely managed server application, it also simplifies deployment and reduces costs for customers in comparison with on-premise IT systems [16].

Apart from SaaS, the software industry has also shown an increased interest in the last decade on how to build BMs around OS software [17], a kind of software developed jointly around the globe and provided to be used under certain conditions, at no cost. Many software companies have tried to take advantage of the OS by creating BMs around it. Even when their product is distributed for free, companies can make a profit offering customized software based on OS or integrating it in a commercial package [17]. However, sometimes OS principles are just applied within a limited environment that has a closed border, such as a division, a company or a consortium [11]. On the other hand, a large number of software companies that operate in the OS market decided to deploy a "freemium" (free and premium) BM in which free access is limited in features, time or size, while premium value-added services or an enhanced version of the service have a subscription fee [18]. Nevertheless, a new competitor recently emerged. To conclude, the mobile devices industry has recently given rise to a BM for small, low-cost applications (apps) that