



Managing potentially disruptive innovations in software companies: Transforming from On-premises to the On-demand



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ABSTRACT

The software industry faces a fundamental change from delivering software On-premises to delivering software On-demand. Well-established companies have to shift their focus from the (still) profitable On-premises market to an, as yet unprofitable, On-demand market to survive. This requires strategies to handle the transformation process. Based on five case studies and following Christensen's disruptive innovation theory, we learn the successful strategies that software companies can adopt to handle a change from On-premises to On-demand delivery. These strategies include the general ideas that Christensen proposes and separate extensions for the software industry, suggesting an emerging area of IS research.

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Introduction

Software companies are repeatedly faced with game changing technological innovations. These innovations may be either software (Bonaccorsi et al., 2006) or hardware developments (Campbell-Kelly, 2001), and pose strategic challenges for software companies (Deodhar et al., 2012; Kraemer and Dedrick, 2002; Mowery, 2003; von Krogh and Spaeth, 2007). For example, with the shift from mainframe to personal computers, we saw the emergence and rise of firms, such as Microsoft. Simultaneously, other firms lost their markets. Established firms either remained hugely successful, struggled or even failed to survive (Campbell-Kelly, 2001). Christensen (1997) maintains that dominant firms in the mainframe market remained too close to their customers and consequently lost their market position to the new generation of products (Chandy and Tellis, 1998). The change from proprietary software to open source software (Bonaccorsi et al., 2006) is another example, as it offers an interesting opportunity for start-up companies, but threatens established players' existence. Both cases show that software companies repeatedly find themselves facing potentially disruptive change.

Cloud computing technology may be the next challenge for software companies, because it is causing a fundamental change within the industry (Benlian et al., 2010; Kaltenecker et al., 2013). For a long time, On-premises was the software industry's dominant delivery model. According to this model, software runs on computers on the premises of the persons or organizations using the software (Buxmann et al., 2008). Currently, by using a Software as a Service (SaaS) model, cloud computing allows users to use a provider's applications on a cloud infrastructure. A few years ago, no one could see where the development would lead, nor recognize its potential. Now, there is a debate on SaaS's potential to disrupt software industry structures (Kaltenecker et al., 2013; Sultan and van de Bunt-Kokhuis, 2012).

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Disruptive innovations with a potential to create a new market not only disrupt the existing market, but also displace the existing technology (Christensen, 1997). Incumbents are often unable to change their strategies, even though good managers run the company. In order to survive in the changing industry, companies have to reconsider their strategies. Well-established companies have to think about products for the upcoming market. Adhering rigidly to old ways and not evolving can lead to problems, such as losing market share (Bower and Christensen, 1995). Additionally, SaaS products, unlike On-premises products, require distinct capabilities (Boillat and Legner, 2013) and established companies have to shift their focus from the (still) profitable On-premises market to an (as yet) unprofitable and unknown On-demand market. Although this is an urgent challenge, information systems (IS) literature has very little advice on disruptive innovation management in the software industry and, more specifically, on the transformation of software companies from On-premises providers to On-demand providers.

Neither studies that focus on software companies (De Marez et al., 2011), nor those that focus on SaaS (Benlian et al., 2010) have responded adequately to these problems. Boillat and Legner, (2013) point out that there is a lack of systematic analysis of cloud computing's impact on software vendors, with most research focusing on SaaS cloud adoption and migration from a user's perspective. Prior studies with a vendor perspective focus on revenue and price models (Eurich et al., 2011) or develop cloud offering typologies (Marston et al., 2011); they do not focus on strategic management decisions. Thus, implications of cloud computing for software vendors are still at an early stage of investigation.

Literature from innovation management introduced the disruptive innovation theory (Christensen, 1997) to academia and practice. The theory's strength lies in the simple way in which a disruptive phenomenon is described. Various studies have used the theory of disruptive innovation to analyze industries and support management decisions (Markides, 2006; Yu and Hang, 2009). However, these studies do not focus on the software industry (Herrmann et al., 2007).

The goal of this paper is to obtain insights into the management of disruptive innovation in the software industry. We draw on the current example of cloud computing technology and address the question: How do software companies successfully manage the transformation process from an On-premises provider to a company focusing on SaaS? Bearing the current state of research in mind, we use a case study approach. In order to learn from software companies and their transformation process a preliminary analysis of two case studies was conducted providing initial insights (Kaltenecker and Hess, 2014). Subsequently, three further cases were analyzed, all five case software companies having completed transformation from an On-premises provider to a company focusing on SaaS. Identifying disruptive innovation is a complex process and we refer our readers to studies by Danneels (2004), Markides (2006), Schmidt and Druehl (2008) and Tellis (2006) where this is discussed.

The remainder of this paper is structured as follows: first, we give a brief overview of the theoretical background, including disruptive innovation theory. Next, we describe the study methodology – the case study approach. We then present study results, followed by discussion of these results from both practical and theoretical viewpoints. The paper concludes with study limitations and future research options.

Background

Cloud computing technology

Cloud computing allows ubiquitous, convenient, and On-demand network access to computing resources (Mell and Grance, 2011). It enables a standard software solution in the form of a service, which can be provided over the Internet. Recently, On-demand software has become an important way of delivering software in the information technology (IT) landscape. Gartner expects the cloud computing market to grow to about USD 210 billion worldwide in 2016 (Statista, 2015).

One can differentiate between four basic organizational cloud forms: private, community, public, and hybrid (Mell and Grance, 2011). While these types are technologically comparable, they differ in terms of ownership, organization, and operations. A private cloud is a customer-owned, self-operated infrastructure. The customer controls the standardized IT operating environment, which allows for local adjustments. Only authorized stakeholders can access this environment. The community cloud is more open and allows access for consumers that have shared concerns. A public cloud is owned and run by an IT service provider, offering a selection of highly standardized business processes, mostly on a pay-per-use basis. This cloud allows for flexible and fast subscription-based use and is accessed over the Internet. Lastly, the cloud infrastructure of a hybrid cloud is a combination of the afore-mentioned.

Cloud services are usually divided into three service levels (Mell and Grance, 2011). At the lowest level, Infrastructure as a Service (IaaS), a provider offers basic infrastructure, including computers, storage on virtual servers, and network infrastructure functions. Platform as a Service (PaaS) comprises IT services in a middleware layer. These platforms enable the development and integration of application components. SaaS is the highest cloud computing service level, offering its users business applications as a standardized service. SaaS generally involves business processes completely uncoupled from the technology, for example, customer relationship management (Vaquero et al., 2009). Applications are bought On-demand, are easily expandable, and their payment is usage related. SaaS customers pay a fee for the right to use the software components and services on a monthly or quarterly basis (Buxmann et al., 2008). The provider is fully responsible for the software maintenance. All the user requires is a browser and Internet access. SaaS thus offers formerly excluded customer groups opportunities. Owing to its ready provision of software, its flexibility, and its minimal capital investment, SaaS

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