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Title: Benefits of Software Renting in Cloud Business

Year: 2012

Version:

Please cite the original version:

Ojala, A. (2012). Benefits of Software Renting in Cloud Business. In M. Cusumano, B. Iyer, & N. Venkatraman (Eds.), Proceedings of 3rd International Conference on Software Business (pp. 304-309). Springer. Lecture notes in business information processing, 114. https://doi.org/10.1007/978-3-642-30746-1_29

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Benefits of Software Renting in Cloud Business

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Abstract. In the new era of computing, software can be sold and delivered as a cloud service, and software renting has become a strategic tool to compete in the market. In this multi-case study, software renting was found to help the case firms to (i) differentiate themselves from competitors; (ii) increase their competitive advantage by making the software available for a larger customer group, and (iii) decrease the price of software by using centralized software delivery and maintenance.

Keywords: Software renting, cloud computing, cloud business, SaaS

1 Introduction

Software renting may give more economic benefits than other revenue models [1]. However, although software renting is becoming more frequent in the new era of computing, in which software is delivered via the Software-as-a-Service (SaaS) model, little is known about the advantages of software renting. In addition, most of the existing literature on software renting uses analytical approaches to analyze the benefits of software renting [1, 2, 3, 4]. I acknowledge the importance of these studies, but see a need for real-life cases in elucidating the strategic reasons that drive software firms to rent their software applications, in preference to the other revenue models available (see e.g. [1]).

The rapid growth of cloud computing has opened up new possibilities for software renting. In the SaaS model, the software is hosted in the data center of a service provider or third party, and delivered to customers via the Internet as a service. Since the software is used as a service, without physical installation in the customer's computers, SaaS is well suited to software renting. However, as noted by Armbrust et al. [6], most of the studies focusing on cloud computing have looked at the benefits from the customer's point of view, neglecting the possible benefits for the software vendor. In addition, there have been calls for a better understanding of revenue models in the software business in general [5, 8, 9], and especially in relation to software renting [1, 2, 4]. From these considerations, this study contributes to current knowledge in the following ways: (i) it reveals some of the competitive advantages of software renting from the software vendor's point of view, with reference to the competitive theory of Porter [10, 11] and (ii) it builds on previous work using analytical approaches in relation to software renting [1, 2, 3, 4]. The research question addressed in study is: What are the benefits of software renting?

2 Literature review

2.1 Cloud computing and SaaS

In cloud computing, users obtain access to computing resources, storage space, and software applications via the Internet as a service. Cloud computing includes three service layers. These consist of (i) Infrastructure as a Service (IaaS), which provides computation and storage capacity, (ii) Platform as a Service (PaaS), which provides software development tools plus an application execution environment, and (iii) SaaS, which provides applications on top of PaaS and IaaS [6, 13, 16]. Thus, cloud computing refers to the provision of computing capacity, storage capacity, and applications as a service across the Internet.

The data center hardware and software forming a “cloud” can be divided into a public cloud, a private cloud, and a hybrid cloud. In a public cloud, a software vendor uses his/her own or a third party’s cloud infrastructure (data center) to offer SaaS for customers on demand. A private cloud involves the customer’s internal data center, with the software being installed and used in a centralized manner within the organization; in this case the software is not made publicly available [6, 14]. In the case of a hybrid cloud, a firm using a private cloud may, for example, offload part of the workload onto a public cloud, and in that way acquire more computing capacity [14].

SaaS refers to the provision of software applications over the Internet. Hence, customers have online access to the software when it is needed instead of having it permanently installed on their own computers. SaaS also ensures that the latest version of the software is in use without the continuous installation of updates. In addition, because the software is executed on a service provider’s server, it frees users from worrying about the technical specification of the computer or the data storage capacity [13, 15, 16].

2.2 The economics of renting

Renting is a widely studied topic in economics literature [7, 12]. Flath [7, p. 247] defines renting (or leasing) as “a contractual arrangement for trading the rights to temporary use of an object, but not the right to all possible future use.” Thus, in a rental agreement, a customer does not get the full ownership rights over the object rented, as distinct from ownership following purchase. However, there are always trade-offs between the benefits of full ownership and those of “partial ownership” – i.e. renting. From the customer’s point of view, these benefits are related to the characteristics of the product and the time period needed for usage of the product. In the words of Flath [7, p. 249], “The shorter is one’s expected tenure of use of a good, the greater are the transacting cost gains to his leasing it rather than purchasing it outright.”

In software rental, the customer pays a negotiated subscription fee. There is a time limitation such that the software license is for a fixed period, irrespective of usage [6]. Choudhary et al. [1] list four reasons why the customer may rent software in

preference to buying it, as follows: (i) the software is for use in a short-term project, (ii) a customer may simply want to gain experience of using the software, (iii) a customer wants to test and evaluate the usability of the software, or (iv) a customer wants to avoid negative network externality. Choudhary et al. [1] also found that software renting benefited both the software vendor and the customer by providing cost savings for customers, with higher profits also for software vendors. In a subsequent study, Choudhary [2] has argued that software renting also increases the quality of the software. Software renting lessens the customers' need to have their own IT personnel and IT infrastructure. This decreases the total cost of ownership and reduces hidden costs. According to Waters [15], the hidden costs in traditional software licensing can increase a firm's IT budget by as much as 80 percent.

2.3 Software rental as a competitive strategy

Renting can be seen as a strategy to compete in the market on the basis of the positive impact of the rental on switching costs. According to Porter [11, p. 81] "switching costs are fixed cost that buyers face when they change suppliers." Switching costs arise, for instance, when a buyer changes to an alternative product, with the buyer then being obliged to train employees to use the product. In his study, Choudhary [2] found that in software renting, switching costs are relatively low, and this makes it easy for customers to change a software vendor if the quality or functionality of the software is not at the appropriate level.

Low switching costs in software renting may also increase the negotiating leverage of customers. The negotiating leverage of customers is also higher if the products are highly standardized. In this case, customers can always find an alternative product, and they can invite suppliers to tender against each other [11]. The threat of substitutes may also impact on software rental as a strategic choice. A substitute is a product that "performs the same or a similar function as an industry's product by a different means" [11, p. 84]. The threat of a substitute is high if a new product offers better value at a more attractive price than the older one. Rivalry among existing competitors impacts on prices. According to Porter [11], rivalry may decrease prices, for example (i) if the products are similar and there are low switching costs for customers, or (ii) if the product is perishable.

3 Methodology

The research method selected for this study should be able to cover human actions, enable the in-depth investigation of the complex phenomena, and capture cause-and-effect relationships. With all this in mind, I used a multiple case study methodology similar to the approaches presented by Eisenhardt [17] and Yin [18].

The research setting for this study consisted of five software firms (see Table 1) who acted as SaaS providers. I used multiple sources of information to gather data on each case firm. The main form of data collection was in-depth interviews. Altogether, 23 semi-structured open-ended interviews were conducted for this study. In addition

to the face-to-face interviews, telephone and e-mail communication was used to collect further information, and to clarify inconsistent issues if necessary. In the data collection, I also used many types of secondary information such as press releases, websites of the firms, brochures, etc. to collect the kind of information that could validate the data gathered in the interviews. The method utilized in the data analysis was content analysis. The analysis of the case data consisted of three concurrent flows of activity [19]: (i) data reduction, (ii) data displays, and (iii) conclusion-drawing/verification.

Table 1. Overview of the case firms.

Firm	Year of establishment	Product	Target industry
Firm A	1998	Planning and optimization software for telecom operators	Telecom operators
Firm B	2000	Gaming platform and content	Game players
Firm C	2006	Risk management software	Bank and financing sector
Firm D	2008	Entitlement management software	Large and medium-sized corporations
Firm E	2006	Interactive 3D sales software	Furniture industry

4 Findings

The benefits to the case firms relating to software renting were mainly based on (i) the technical factors that made software renting cost-effective for a software provider and consequently for its customers, (ii) competitive advantages, in so far as software renting and SaaS were seen as forming a new way to sell the product, (iii) the low investment costs for customers in the rental model, and (iv) the positive network effect brought about by software renting. The interviewees from firms A, B, D, and E commented that in technical terms, SaaS brings several advantages to both the software provider and the customer, especially if the software is used in a public cloud. From the point of view of the software providers (firms A, D, and E), the SaaS model was seen as having achieved cost savings, as the software firms do not need to install the software on each customer's Intranet separately. It also decreases possible traveling costs related to installation, implementation, and after-sales support.

Other benefits of the SaaS model included centralized development, maintenance, and expandability. This meant that the case firms knew that the customers were using the same version of the software, and by means of the public cloud, the case firm were able to bring in new options that were visible to all their customers immediately. These technical features consistently brought cost savings to the case firms. It made it possible to offer the software at a lower price in the rental mode than in the traditional licensing mode. In addition to cost savings, customers benefited from better scalability of the software, increased computing power and storage capacity, better flexibility, ease of use, and so on.

The case firms saw the SaaS and software renting as a new way to offer and deliver software products to their customers. They also anticipated that traditional licensing

would disappear from the market in the future. The software firms were keen to follow the developments in the field, differentiate themselves from their competitors, and take advantage of the possibilities offered by SaaS and software renting.

All the case firms emphasized that the rental model was attractive to customers because of low initial investments. This made purchasing decisions much easier for the customer, bearing in mind the high investment costs associated with the traditional licensing fee. Hence, renting became a particularly attractive option for smaller customers who lacked a budget for costly licenses. In practice, this meant that in the rental model, customers were able to purchase the software without having to make special budgeting arrangements, undertake long decision-making processes, or apply for the approval of top management. All this implied more attractive pricing for the customer than with traditional licensing, and the possibility of cost savings. Interviewees from firms A, C, D, and E commented that software renting also enabled them to bring the product more quickly to the market. Smaller customers were able to buy it, and this helped the case firms to acquire good market visibility rapidly, thereby achieving a positive network effect.

5 Discussions

The findings of this study indicate that the benefits of software renting derive from both technical advantages and competition strategies. First of all, software rental through the public cloud made software renting easier from a technical point of view, since the firms could use centralized delivery of software to their customers. Centralized software delivery and maintenance decreased the transaction costs and brought savings. This method also protected their products against perishability (see [11]), as the case firms were able to update new versions of the software in a centralized manner.

Secondly, software rental and SaaS gave competitive advantages to the case firms. By using a suitable combination of the new revenue and delivery model, they were able to differentiate themselves from other competitors and to offer something new to the customer. Thus, software renting and SaaS can be seen as a substitute for the old licensing model. This is in line with Porter's [11] notion that substitutes gives competitive advantages if they perform the same task within a lower price range than the original.

Thirdly, software renting made the case firms' products available for smaller customers, who would not have been able to pay for the software by the traditional licensing method. This method also provided added value to customers in terms of flexibility. Shifting capital investment onto operational costs enabled them to start using the software without special budgeting, or without having to obtain the approval of top management. This increased the case firms' competitive advantage, since they were now able to widen their customer segment from large corporations to small and medium-sized firms. In addition, software renting made it possible for customers to predict the actual costs of the software.

6 Conclusions

This study contributes to research on benefits of software renting in the following respects: (i) it validates and expands on earlier work related to software renting by providing empirical support for their economic models, (ii) it reveals the competitive advantages related to software renting from the software vendors' point of view, in contrast to previous research focusing mainly on the benefits to customers, and (iii) it contributes to knowledge of software renting in cloud computing, bearing in mind that cloud computing constitutes a new strategic tool for the delivery of software products.

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