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Exploring Factors for Adopting ERP as SaaS

Björn Johansson^a, Pedro Ruivo^{b*}

^aDepartment of Informatics, School of Economics and Management, Lund University, SE-223 63 Lund, Sweden

^bISEGI, Universidade Nova de Lisboa, Campus de Campolide, 1070-312 Lisbon, Portugal,

Abstract

Within the hype of cloud computing, Enterprise Resource Planning (ERP) systems delivered as Software as a Service (SaaS) is receiving more focus from ERP vendors. ERP vendors have for many years developed and sold ERP as 'standard software' that fits the needs of many firms, and now SaaS as a new approach to deliver software has emerged. In this study the value propositions of software as a service from an ERP vendor's perspective is explored. Using semi-structured exploratory interviews conducted amongst 20 Microsoft employees we aim at exploring which perceived benefits are realized by software as a service. Results show that the value propositions of ERP delivered thru SaaS model can be grouped into the following 10 factors: costs, security, availability, usability, implementation, ubiquity, flexibility, compatibility, analytics and best-practices. Been costs concerns, data security and system availability the most important factors.

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*Corresponding author. Pedro Ruivo Tel. +351210491063

E-mail address: pruivo@isegi.unl.pt

1. Introduction

The 2010 Davos World Economic Forum meeting highlighted the benefits of cloud based technologies and has called for empirical research on benefits and contextual complementarities on cloud computing [1]. Software as a Service (SaaS) could be said is a “model” of cloud computing and as such seen as a new model for service delivery, which has recently attracted the attention in research and practice. SaaS offers new chances and revenue streams, but also induces new challenges for established software vendors like Microsoft. In the SaaS model the Enterprise Resource Planning (ERP) system is provided by a cloud service provider. The roles of cloud service provider and ERP vendor are merged in this setting (vertical integration). Some “traditional” ERP vendors have developed new versions that can be deployed in the cloud [2].

In line with above, our study is motivated by the said calls and attempts to explore value propositions of having an ERP system delivered through SaaS. Thus the purpose of this paper is to explore vendor’s perspective on what factors affect adopting ERP as SaaS.

2. Background

ERP systems are integrated software packages with a common database that support business processes in firms regardless of size. They comprise different functional modules that reflect the departmental structure of a firm (accounting, procurement, sales, production, warehouse, etc.) [3].

ERP in SaaS means, to deliver an ERP system “as a service”. Traditionally ERP systems had been implemented “on premise” as products bought by customers. The most important disparities between ERP in SaaS and installed in-house ERP applications are, that ERP in SaaS is accessed through Internet, the application and data are under control of the service provider while installed applications are offered as a product and accessed and controlled from the customer’s location. Moreover, the payment for the software services is provided through subscriptions that have to be paid as example per user on a monthly basis [4].

Recent research indicates that ERP delivered thru SaaS will outperform the traditional IT offers as a consequence of the current economic crisis and will helps the economies to recover [5]. A study conducted by Aberdeen Group [6] amongst 1200 companies across Europe found ERP in SaaS deployments to be less prevalent compared to other SaaS deployments. Although ERP is lagging behind other applications in terms of SaaS based applications there seems to be a general consensus that ERP in SaaS is gaining momentum [7].

To grab this momentum, the four big players in the ERP systems market SAP, Oracle, Sage and Microsoft are positioning their ERP offers in SaaS model. These players have different sales models and channels. Microsoft, for example, uses an indirect sales channel and has built up an ecosystem of implementation partners for their Dynamics suite. Accordingly with Antero and Holst Riis [8] study, the indirect sales channel limits the possibilities for software as a services for ERP system vendors, because they would cannibalize their own distribution partners if they offer cloud services directly to customers, therefore a study on this matter if of interest.

Even if it seems that cloud computing is a revolution in the IT-market taking place from one day to another the innovation cannot be described as a revolution of IT. However, it is the result of an evolutionary process, depending on different technological development processes [9, 10].

The concept of distributing software as a commodity like electricity already originates from John McCarthy in 1960 [11]. In this context, cloud computing can be described as a new way of distributing IT in an easy and fast manner inducing cost scalability [12].

The innovative part of cloud computing revolution is the consumerization of IT as a service which includes significant changes for consumers as well as for sellers. Distributing a service compared to distributing a product is more complicated because of the immateriality, the integration and the one-shot-principle referring to services [13]. An additional problem for established software vendors is the fact that new software-sellers

with innovative structures adapted to the new situations and realized a significant market share (e.g. SalesForce.com). Established software sellers such as Microsoft have to face the problem known as Christensen’s “innovator’s dilemma” [14]. To compete in this new scenario, the software companies have to change their strategy, especially their delivery and support processes.

3. Methodology and Results

Value propositions can be identified either through a literature review or by exploratory interviews. This work focusses on exploratory interviews. The research approach refers to the structure and the explanations from [15]. Due to the limited scope of this paper, the research process is not shown in detail. Supported on the existing literature in the field of SaaS, which is still at the beginning, the research method chosen was semi-structured expert interviews. These interviews were conducted with 20 experts (Consultants, Architects, Engineers, program managers, technical sales) in ERP and SaaS domain within Microsoft.

An inductive approach was used and the data analysis method selected was the "content matrix analysis" [15]. The face-to-face interviews were conducted in January and February 2013. The interview-guide had several questions created from the literature and secondary informational sources such as Gartner [2, 7, 16, 17] and IDC [5, 18]. In short we followed five steps in the analysis of the interviews: 1) After all interviews were completed, we transcribed each interview selectively, and irrelevant information was left out. 2) Themes were then identified for each interview. 3) The identified themes for each transcription were then compared across all interviews. 4) Each interview was then further reduced with the aid of the identified themes to a list of statements which 5) afterwards was validated against the raw information to ensure that the statements did not misrepresent the participant and grouped into a list of 10 factors (Figure 1):

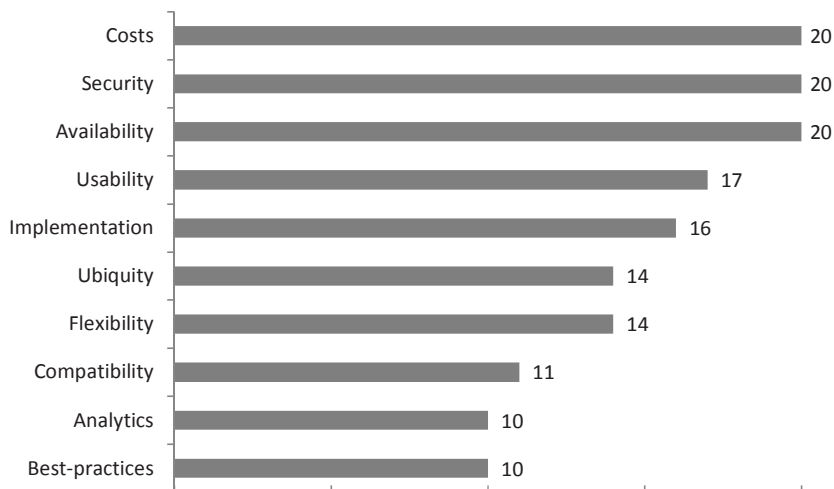


Fig. 1. The raking of the 10 factors of ERP in SaaS

4. Interpretation of the results

The results show that 10 factors are the top value propositions which Microsoft can offer to bring value to the customer and to gain market share in comparison to on-premise solutions.

Costs concerns, data security and system availability were perceived by the experts as the most important factors in customer perspective for adopting ERP systems in a SaaS delivery model. The following statements

from the interviews support the motion of changes in costs and costs structure as reasons for adoption. In sixteen interviews out of twenty the experts talked about lower total cost of ownership (TCO) when comparing SaaS ERP with on-premise ERPs. Example of statements supporting this are: *“the most appealing SaaS feature is the lower TOC”*, but also as stated by one interviewed: *“as soon as customers realize the costs figures they become more receptive to continuing the conversation”* which sort of indicate that potential SaaS ERP customers are interested in decreasing costs by SaaS.

Reducing costs were seen by all participants as a benefit influencing adoption of SaaS ERP, while at the same time security and confidentiality of customer data were raised as a concern by all 20 participants. In regards to **security**. Four experts mentioned that customers usually ask questions about confidentiality about critical information, asking questions such as: *“How are you going to ensure confidentiality of information?”*, *“What happens if the vendor goes out of business?”*. There were also statements expressing concerns about local laws in countries where they operate which prevent certain kinds of information to be kept off-shore, such as: *“how do you secure the jurisdictional boundaries location(s) in which the breach might occur”*, *“How are you just going to leave that in the cloud somewhere?”* [19].

All experts perceived that customer’s understanding of systems **availability** affect the adoption of ERP in SaaS. SaaS requires a predictable, stable and reliable internet connection to access web-based service. As one interviewee stated: *“regardless customer claims, the system capacity of our datacenters ensure high system availability and data availability”*. Other participants have noted that customers concerns about future developments of the ERP SaaS system: *“you lose the ownership and lose the control that you have over the system and you are forced into the direction by the system as when you actually hosting it yourself”* [5].

System **usability** was pointed out by 17 experts as an important factor to adopt ERP in a SaaS delivery model. Five experts claim that customer usually ask questions about the user interface, such as: *“is the user interface the same as on-premise?”*. Another added the fact that customer would like to *“change to a more intuitive and simple to use”*. Four experts expressed that each time wrong data is posted into the DB, customers are used to make the correction directly on system tables avoiding credit/debit time consuming procedures, *“this is something SaaS might limited”* states one expert. Another one specified that: *“managers are not likely to move the processing power into the cloud when it is not guaranteed that the system performs at least at the same level as a comparable on-premise solution”*.

16 participants reveal that **implementation** of ERP in a SaaS model is an important factor amongst customers, 10 experts had expressions about complexity regarding implementation, such as: *“the ERP implementation effort has lost its complexity”*. This reduces the allocation of capital and allows for faster start-up of ERP [20]. Another added that the *“proof of concepts, testing as well short development cycles are greatly enhanced”* which leads to low implementation costs and the rental cost model lead to a reduced vendor lock-in. All participants stated as main reasons behind adopting SaaS is that *“the risk of a possible bad implementation shifts from the customer to the provider”* in line with traditional outsourcing of IT [21, 22].

14 out of 20 experts also classified ubiquity and flexibility as major drivers for choosing SaaS over on-premise. In respect to **ubiquity** 14 participants’ tails that *“the access to ERP over the internet thru any device allows independent access possibility”* and *“a mobile access”* build up a flexible and mobile workforce. Moreover two experts stated that *“since licenses are provided as needed”*, the expenses scales with actual requirements and as the costs decreases and increases business flexibility. Nine participants asserted that *“for customers the IT is nowadays a process supporting commodity”*, one added that *“customers are in focus of the core business, because the operating expenses for the IT and risks free up resources”*.

Flexibility was mentioned by 14 participants has an enhancement over on-premise solutions, eight stated that *“enhancements to the ERP are easy to implement and inexpensive”*. Two reinforces that *“onsite ERP functions can be individually adjusted as needed and without external assistance”* [23].

Compatibility was referred by 11 experts as an important factor. Five experts stated that *“based on an interoperable technology platform and an ecosystem - specific requirements are covered by a repository with*

available add-ons". Another added that *"it is now possible to plug-and-play POS and RFID systems and use without worries on the background compatibility"*. As on-premises installations often need to be electronically linked with other software systems (e.g. legacy systems or partner systems), the feasibility of such adaptations is one of benefits to go to the cloud. Moreover another participant claims that *"going to cloud can be beneficial in the surrounding areas such office computing and collaboration"* [24].

10 out of 20 experts defined Analytics and Best-practices as important factors in an on-demand service model. These experts supported the notion that SaaS model powers the use of integrated **analytics** tools for design making, planning and transparency. Three participant's mentioned that *"reports can be quickly and easily adapted to customer requirements"*, and two strengthen that *"customers can use different analysis functions, for example creating real-time reports, KPIs, etc"* [25] [23].

It was discussed among 10 experts that perceived **best-practices** positively impacts adoption of ERP in SaaS. It was described not only in terms of possible cost decreases but also in terms of business process standardization. The issue of best-practices came out as important because it is seen as a way to refocus on the activities that are really valuable by end-clients [26]. One interviewee stated that: *"customers were consuming a lot of time in achieving differentiation on their business models which implied customizations, nowadays they wish us to provide them the best-practices to free them to focus on product/service differentiation"*. Another expert stated that a typical claim from customers is: *"I would like to have a system that works accordingly with standard practices, as each time a new director comes aboard he/she complains that practice is not fine for their teams....and again embrace an expensive IT project"*. The experts perceive customer's expectations about adopting ERP in SaaS model as standardization of processes [26].

5. Conclusion, limitations and future work

Software as a Service (SaaS) is gaining increasing acceptance and is thereby changing how Enterprise Resource Planning (ERP) systems are delivered and consumed. The existing literature shows that there is a lack of empirical research about SaaS and ERP systems. From research perspective, this exploratory research has made a first attempt. To the best of our knowledge, there is the first methodological grounded research that studied which value propositions can be offered by SaaS from a vendor's point of view. This paper present 10 factors influencing adoption of the SaaS ERP model: Costs, Security, Availability, Usability, Implementation, Ubiquity, Flexibility, Compatibility, Analytics and Best-practices.

The overall conclusion is that the reasons to use ERP don't change no matter if the software is installed on-premise or consumed on-demand. Most of the value propositions just influence the way of using ERP in a more efficient, flexible and simple manner. Moreover as the important role ERP system plays in firms today makes it difficult to hand control over to third parties. One can conclude that the extent to which an application is perceived as being core to the business operations has a negative impact on the adoption of SaaS, and hence ERP in SaaS. However, a SaaS provider should realize that a successful market establishment of its offer lays not so much on the product itself but on the kind of support given in the SaaS model and the customer experience with provided service. That is, the paradigm changes from product feature to service trust. As ultimately the customer's goal for using ERP is still the same. These findings have not been confirmed in a consumer context. Therefore a future work would be to develop an empirical-quantitative research approach with the aim of validating suggested value propositions from the customer's perspective.

Moreover given the emerging paradigm of ERP delivered thru SaaS model, researchers can investigate other forms of business value like cost efficiencies, customer-centric and partner-centric capabilities [27] With SaaS creating new models of service subscription and licensing, studying the opportunities, challenges and constraints in on-demand ERP implementations versus traditional on-premises ERP implementations can return interesting results [28].

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