Adoption factors for cloud based enterprise resource planning systems:

And how system vendors can act on these

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KTH Industrial Engineering
and Management

Master of Science Thesis

Stockholm, Sweden 2012

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Och hur system-implementatörer kan hantera dessa

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Godkänd 2012-mån-dag	Examinator Staffan Laestadius	Handledare Pär Blomkvist
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Sammanfattning

Företag, oavsett storlek och marknad är i behov av styrning och administration. Ett affärssystem är ett system som med hjälp av sin funktionalitet kan hjälpa företag med detta, och anses ofta därför vara ryggraden som håller ihop alla arbetsprocesser i en organisation. Mer specifikt kan ett affärssystem hjälpa till inom allt från produkt planering, inköp och lagernivåer till interaktion med leverantörer och utföra kundservice. Att implementera ett affärssystem i en organisation är dock oftast en dyr historia, och små och medelstora företag har ofta inte den ekonomiska styrkan att klara av detta på samma sätt som större företag. En viktig utveckling inom området är därför molnbaserade affärssystem som sägs skapa ett flertal fördelar för dessa kunder.

Målet med detta examensarbete är att kartlägga vilka faktorer som gör att små- och medelstora företag väljer att flytta eller implementera ett nytt affärssystem i molnet. Vidare har även dessa frågor undersökts strategiskt utifrån ett ledningsperspektiv. Huvudfrågorna för examensarbetet är därför:

- Vilka faktorer påverkar kundens implementeringsbeslut av affärssystem i molnet?
- Hur kan leverantörer agera på dessa faktorer?

Den empiriska datainsamlingen har skett via intervjuer som begränsats till leverantörer och företag inom kundsegmentet små- och medelstora företag som implementerat ett molnbaserat affärssystem. Dessa företag är systemleverantörerna Implema, Alterview och Unit4Agresso samt kunderna Handheld, Naty, Grays American Stores och Södertörns Högskola. Resultatet från detta har sedan analyserats med hjälp teoretisk referensram berörande främst Modellering av teknisks förändring; Teknisk förändring i samhället; och Teknisk system evolution.

Resultatet visar att risk, funktion, kostnad och flexibilitet är starkt betydande faktorer för valet av ett molnbaserat affärssystem framför ett fast affärssystem.

Nyckelord: Affärssystem, Molntjänster, Implema, Alterview, Unit4Agresso, Teknisk förändring, innovation

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Approved 2012-mån-dag	Eaxaminer Staffan Laestadius	Supervisor Pär Blomkvist
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Abstract

No matter how big a company is or what market segment it serves it still needs administration and supervision. An ERP system is a system that has the sole purpose to help a company with these activities and is often considered the backbone that intertwines the key business-processes in an organization. More specifically an ERP system can help a company to manage everything from product planning, purchasing, and inventory control to interaction with suppliers and customer service. Implementing a competitive ERP system into an organization can however become very capital intense, and small and medium enterprises do not often have the financial strength to handle this investment. An important step in the evolution of ERP is therefore cloud based ERP systems which are considered an enabler for many advantages for small and medium enterprises.

The purpose of this master thesis is to establish which factors that affect the decision of small and medium enterprises to move their ERP system to the cloud or to implement a brand new cloud solution. Further, these factors have been evaluated and investigated from a strategic perspective in order to provide managerial recommendations for vendor companies. The main research questions for this master thesis are therefor:

- What factors affect the client's adoption decision of cloud based ERP systems technology?
- How can the vendors cope with these factors?

In order to collect empirical data, a set of interviews have been conducted with vendors which is targeting the small and medium enterprise segment; and customers to these vendors which have adopted a cloud based ERP system. These companies are the system vendors Implema AB, Alterview, and Unit4Agresso and the adopters Handheld, Naty, Grays American Stores, and Södertörns Högskola. The resulting data from this have been analyzed with the help from a theoretical framework which consists of theories from technological change (Types of technological change); Technological change as a social process (Technology diffusion; Technology adoption); Technology system evolution (Salient and Reverse Salient).

The results of the empirical research show that risk, function, cost and flexibility are strong contributing factors for the adoption of cloud based ERP systems.

Keywords: ERP systems, Cloud services, Implema, Alterview, Unit4Agresso, Technological change, innovation.

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We would also like to send our gratitude to Pär Blomkvist whom helped us at numerous meetings with the disposition and outline of the thesis in order to give it the proper academic weight. Last but not least we would like to thank all of our respondents whom let us in to their companies and shared their knowledge of ERP systems and ERP adoption.

Table of contents

Glossary

In order of appearance

ERP – Enterprise Resource Planning

ROP – Reorder point

MRP – Material Requirement Planning (Before the 1990s)

SAP – Systemanalyze und Programmentwicklung

SQL - Structural Query Language

SAP R/2 is a product name and not an acronym

MRP and MRP II – Material Resource Planning (After the 1990s)

CIM – Computer Integrated Manufacturing

SAP R/3 is a product name and not an acronym

IT – Information technology

SaaS – Software as a service

IaaS – Infrastructure as a service

PaaS – Platform as a Service

CRM – Customer Relationship management (This term was first coined as all company activities that focus on customer relations. However in recent years this term has shifted to become a word for software that handles customer relationships and the management is simply called relationship management.

1 Background

In this chapter, we present the underlying background and technological history that have shaped these two respective technologies. This will be done to give the reader a thorough understanding of the technologies. After this, the objective and research questions of the thesis will be presented. Lastly in the chapter the commissioning body of this master thesis is presented

1.1 Introduction

Enterprise Resource Planning (ERP) is the wide definition of the systems that help a company to manage strategically important decisions. More specifically, ERP systems can be used in product planning, parts purchasing, tracking inventory levels, interaction with suppliers, providing customer service, and order management. This technology is evolving and the latest step in the evolution is the introduction of cloud based ERP systems. In order to give the reader insights in how, why, and when this change ins happening, this chapter will introduce and explain the historical changes that have shaped the ERP industry, cloud technology, and why this interaction is interesting.

1.2 Enterprise Resource Planning systems

The fundamentals for ERP-systems stems from the 1950s and 1960s when computers where introduced to the corporate landscape (Möller, 2005; Roberts Jacobs & Weston Jr, 2007). The competitive factor in manufacturing in those years was cost, and focus was therefore on product-focused manufacturing strategies (Roberts Jacobs & Weston Jr, 2007; Umble, et al., 2003). Companies maintained a high service level by constantly having a high degree of safety inventory. When competition hardened and companies no longer could afford this luxury they needed systems to help them take control of the inventory levels (Umble, et al., 2003). One of the pioneering systems used to help the companies handle this issue was something called Reorder Point systems (ROP) (Roberts Jacobs & Weston Jr, 2007).

In the late 1960s, a new technology called Material Requirement Planning (MRP) systems were introduced to the market. At the time, this was a cutting edge technology used for planning complex manufactured products, although it was a big and expensive solution that required a large technical staff just to handle and maintain the system (Roberts Jacobs & Weston Jr, 2007). These systems were also highly customized and required a vast amount of money to acquire.

Prevailing market circumstances created the business opportunity to create a standardized software package for the basic functions that the systems handled. In the mid-1970s some of the companies that saw this possibility were Systemanalyse und Programmentwicklung (SAP), J.D. Edwards and Oracle (Roberts Jacobs & Weston Jr, 2007). This also resulted in that Oracle introduced a basic commercial relationship database technology called Structural Query Language (SQL) 1979, which gave the enterprise systems some real momentum. First, SQL was only used internally by Oracle but in the mid-1980s Oracle made this technology publicly available.

The fast development of software and hardware quickly led to that the MRP systems began to feel outdated. As available computing power rose, this led to the possibility of software being developed with more functionality, which among other things resulted in a more highly integrated software version of SAP called SAP R/2 (Roberts Jacobs & Weston Jr, 2007).

In the late 1980s, IBM introduced technology built on an earlier platform called Computer Integrated Manufacturing (CIM). This new architecture enabled a further integration of more functions across the enterprise. Technology improvements in the beginning of the 1990s enabled MRP systems to evolve and stretch beyond production related functions and the new definition MRP II was coined (Roberts Jacobs & Weston Jr, 2007). These new system expanded the functionality to new fields such as industrial design, information warehousing, communication, financing, accounting, project management and human resource management (Umble, et al., 2003). Due to the greater functionality, MRP and MRP II started to be an acronym for manufacturing resource planning instead of the previous material requirements planning. Later on Gartner Group decided to call the systems ERP since these new systems could now be of assistance to the entire enterprise (Umble, et al., 2003).

Systems called ERP grew in the market and in 1992 SAP released SAP R/3. SAP R/3 was the first system that was based on a server-client technology, which allowed the software to run on different computer platforms (Roberts Jacobs & Weston Jr, 2007). This was one of the factors that enabled SAP to become the world's largest inter-enterprise software company and the world's fourth largest independent software supplier in 1999. Today, SAP is still one of the leading ERP-suppliers and offers a variety of ERP-systems including cloud solutions.

The basal purpose of today's ERP systems is to link together important business functions such as material handling, order entry, distribution, logistics, and financial (Brown & Vessey, 2003). ERP systems are highly technologically complex and consist of several million lines of code and requires significant investment if companies wish to develop and use these systems (Hoffman, 2008; Addo-Tenkorang & Helo, 2011). In their review of more than 150 articles on the subject of ERP implementation, Addo-Tenkorang and Helo (2011) found that during the last decade more than 500 billion dollars were invested worldwide in ERP systems.

ERP systems have established a solid spot in the market and are sometimes considered an enabler for companies to run a successful business. It is debated which one of the advantages of an ERP system is most important, but one very broad, and descriptive point is made by (Alballaa & Al-Mudimigh, 2011). They argue that the most important function in an ERP system is that it gives the employees the ability to access information in real time. However, since many companies fail to capture the competitiveness when implementing the systems so are the benefits of the system often debated as well (Stratman, 2007).

Brown and Vessey (2008) argue that to succeed with an implementation companies need to have a well-developed plan from the very beginning. To succeed with implementing an ERP system, companies must ensure that top management is truly committed to the project; the project leaders have sufficient experience; the members have the confidence to make decisions; third party stakeholders complement with expertise and knowledge; and that the planning of the projects considers change management (Brown & Vessey, 2003). Addo-Tenkorang and Helo (2011) have found in their extensive research that if a company manages to successfully implement a system the value it can bring is substantial. The new

access to information will contribute to more aligned management strategies, and more educated and information based decisions.

1.3 Cloud computing

John McCarthy is considered as one of the founders of the cloud computing concept with his pioneering words at MIT Centennial in the beginning of1960s, *"computing may someday be organized as public utility"* (Zissis & Lekkas, 2011, p. 244). Although information technology has evolved significantly, computer power as a utility is still a very vivid discussion. One of the first actors to concretize cloud computing for what it is today was SalesForce.com and their way of delivering customer relationship management applications through a web browser, i.e. in the cloud. This was followed by Amazon, which launched its Amazon web services in 2002. However, in 2006 the concept had its major breakthrough in the mass-market with the launch of Google's new cloud application Google Docs (Sourya, 2011)

Cloud computing is the technology that has gotten closets to offering computing power as a utility. The concept is being treated as the next big technological shift of information technology (IT) and that it will change the entire world of IT (Sharif, 2009). Cloud computing is a multi-layered, multi-faced concept that heirs from the notion of having data and computing power in the *clouds*. The technology of cloud computing is however a bit more complex than that. Cloud computing concerns a platform that is based on dynamic resource allocation operating on the top of hardware (Wang, et al., 2008). The basic idea behind cloud computing is that parts of a network's resources, or even the entire network, can be moved online and managed by another company (Wang, et al., 2008).

All cloud services must be distributed by a cloud vendor. The vendors can use three models for the distribution of their cloud services (Oracle, 2010). These models are private-, public- and hybrid clouds (Oracle, 2010). Private cloud, also called enterprise cloud, is when the user and the vendor are part of the same company. An example of this is when an IT-department creates an internal mail server for all employees in the company. Next, public cloud is similar to a private cloud but with the key differences that anyone with an Internet connection can get access to the provided service. For example Googles mail client G-mail. Finally, a hybrid cloud is a combination of a private and a public cloud, strictly separated from each other, but bound together by other technologies. One example of this is using Dropbox where files are stored locally on your computer and sync to the cloud when Internet access is available.

Cloud computing is built on an important part of computing technology called virtualization and grid computing. Virtualization is to simulate hardware with the help of software (Carr, 2008). Further, grid computing can be described as a way of resource sharing that allows allocation of different instances that can be put together to solve a problem. This optimizes computing capacity and makes it possible to scale up and down in an efficient manner (Dillon, et al., 2010).

There are three dominating delivery models for cloud services. Those are Software as a Service (SaaS), Infrastructure as a Service (IaaS), and Platform as a Service (PaaS). SaaS is the most common of the three and is a complete functional and modular software delivered through a completely Internet based infrastructure. The types of services offered in a SaaS system is spanning across many fields. Some examples are productivity applications such as Word processing and spreadsheet; entertainment applications such as movie and music

streaming; and last Customer Relationship Management (CRM) and ERP. Studies have shown that more than half of America's large companies will use at least one SaaS-application as a supplement to a traditional business application. Another research by Gartner shows that SaaS-sales will represent a quarter of the entire software market in the year 2011. The other two cloud models are not as common, therefore they will not be further elaborated in this thesis. However, the use of the services can be described as follows. IaaS is used when full computer infrastructure is offered such as Amazons web services where customers get access to Amazons e-commerce infrastructure for selling products on the Internet. PaaS is the offering of whole platforms as e.g. operating systems, web servers, or system databases.

1.4 Problem background

ERP systems such as SAP, Oracle and Microsoft have existed for more than three decades but the way of using them is now changing dramatically (Hoffman, 2008). The ERP systems have been rather static, and the possibilities to make alterations in an already implemented system are highly limited without a significant investment. However, the emergence of cloud computing has changed the market conditions over the last ten years (Danielsson, 2011).

Because of tightening budgets and shortened product life cycles, managers are looking more and more at outsourcing their entire IT infrastructure, including their ERP system, to the cloud (Wang, et al., 2008).

Microsoft, Salesforce.com, Infor, SAP and many more ERP suppliers are developing or offering cloud software. Below we will focus on the bigger companies offering ERP cloud-solutions.

Microsoft is offering cloud software called *Microsoft Dynamics ERP* that is a cloud modification of their regular ERP-system Microsoft dynamics. They are running their solution on their Windows Azure platform, which is their cloud application platform. Microsoft promotes their cloud systems as a system for every organization, despite of size.

SalesForce.com is one of the leading players in the cloud based CRM market. With their Force.com platform they are offering, in a partnership with Infor, three SaaS ERP product solutions with the name InForce (Everywhere, Order Management and Marketing). The partnership with Infor, the third largest ERP provider, has made SalesForce to a direct player in the market.

SAP has a growing On-demand portfolio where cloud solutions are offered. SAP Business ByDesign is the first SaaS ERP solution from SAP that maps all the processes within an organization. As a supplement to this, SAP is also offering other On-demand applications e.g. SAP on-demand manufacturing and SAP on-demand.

1.5 Objective

The changing market conditions forces the ERP suppliers to adapt and maybe change the entire business model according to the increasing demand from the customers. This will also affect the vendors implementing the systems. The vital knowledge of what factors that affect the decision of using a cloud based system instead of a traditional one is a rather unexplored field in Sweden. Therefore the purpose of this thesis is to investigate what the adoption factors are for cloud based ERP systems and how managers of vendor companies can act on these factors.

The objective of this thesis is therefor to investigate how the technological shift of ERP and cloud integration will affect the adoption decision of ERP clients and how this possible change of preferences will affect the general strategy and business model of vendors of ERP systems.

1.6 Research Questions

The purpose of this thesis is to answer the following research questions.

- What factors affect the client's adoption decision of cloud based ERP systems technology?
    - Is there any imbalance in the market that stalls the adoption?
- How can the vendors cope with these factors?

1.7 Commissioning body

This study is commissioned by Implema AB. Implema AB is a vendor partner of the software company SAP. Vendor means that Implema does not develop any original software but implements SAPs software. However, they make alternations and customize the standardized modules to suit the wishes of their clients. Implema AB is located in Stockholm but is implementing the software worldwide. Traditionally SAP is considered software for large enterprises that are not obtainable for small and medium enterprises because of the cost and time needed for an implementation. However, Implema have based their business model on focusing on the niche market of Small and medium enterprises and distributing their module-package of SAP. The newest addition to their product portfolio from SAP is their new cloud ERP service called SAP ON DEMAND. This product is based on a different business model where the clients rent the ERP system on a monthly basis instead of the large one-time payment, which is usually the case with normal ERP systems.

The technology aspect of this service is no news to the management of Implema AB since they have broad experience in the IT industry and have been working on their cloud solution since the beginning of 2000. However, the adoption factors for this technology are rather uncharted territory for Implema AB.

2 Method

In this chapter the scientific approach of the thesis and the method used is presented. This chapter also includes a description and introduction to the companies and respondents which we had the great pleasure of meeting.

2.1 Scientific Approach

This thesis is written under the interpretivism paradigm. This means that the ontological assumptions made in this thesis, i.e. the nature of reality, is that the authors assume that social reality is highly subjective and human beings is shaped by their social environment (Collis & Hussey, 2009). This also influence our epistemological assumption, what we consider valid knowledge, which is that knowledge is not objective and is affected by the context and environment from which it comes (Collis & Hussey, 2009). This is because the authors of this thesis believe that the decision of adopting technology is affected by social and environmental influence and cannot be studied in a totally objective manner. Therefore, we consider knowledge valid if the provider of knowledge is acting in a context and environment that is suited for this thesis. Since this research will investigate a technology, which is not that widespread yet, the possible sample to investigate will be highly, limited. Therefore an exploratory multiple case study method is proper to use to get a more condensed body of knowledge from a small sample (Collis & Hussey, 2009).

2.2 Theoretical framework

The literature used in this thesis will be divided into two separate frameworks. The first framework will be used to gather insight into how a technological change of this type can affect a company and a market. The theories presented in the first framework will be used to understand and analyze the empirical data. The second framework will be used to explain the forces, which surround the found adoption factors and how an implementing company can cope with these. Since the decision of adopting a technology is an area which spans over several research fields this theoretical framework will do just the same.

2.3 Empirical Method

The empirical method used in this thesis is of the interpretivism paradigm, and the data collected is qualitative (Collis & Hussey, 2009). To gather data, sets of semi-structured interviews have been conducted with four adopters and three providers. Overall the interviews and gathering of data have been a dynamic process, and the interview framework has been altered as new insights and knowledge have been obtained from the interviews.

However, the questions asked during the interviews were created with the help from literature that has studied other adopted technologies that share similar characteristics such as the Internet and cloud technology in general. The original questions were tested at the first interview and during the interview the theoretical adoption factors where checked if they were mentioned, and revised accordingly.

Overall the point of the interviews have been to create a dialogue with the respondents in order see whether there is any adoption factors that they are in fact un aware of, and that have not submerged in previous studies.

2.4 Respondents

The interviewed companies consist of both adopters of cloud based ERP systems and the vendors of the systems adopted. The choice of interviewing both adopters and vendors was to get a broad view.

Below follows a brief presentation of each company and their respondent. The adopters will be presented first and the vendors second. We have made interviews with two adopters of Implemas SAP On-Demand system since they are our commissioning body and granted us access to their clients easily.

2.4.1 Handheld

Date for interview	**2012-02-23**
Adopted cloud ERP	2010 Q3
Revenue	120 000 000 SEK
Respondent	Thomas Lövblad
Cloud system	NetSuite

Handheld Scandinavia AB is an affiliate to Handheld Group AB that delivers rugged personal data assistants and mobile computers for very harsh environments such as military operations, arctic expeditions, and construction sites. They are using the ERP-system Netsuite One World since 2010 implemented by Alterview. Thomas Löfblad is cofounder of the company and is also Managing Director of Handheld Scandinavia and Handheld Europe AB.

2.4.2 Naty

Date for interview	**2012-03-01**
Adopted cloud ERP	2011 Q2
Revenue	200 000 000 SEK
Respondent	Lars Zejlon
Cloud System	SAP On-Demand

Naty is a Swedish company that produces organic diapers and personal care products such as moisturizing creams. They have their own research and development facility and they are on the verge of creating a 100% decomposable diaper. The company has twelve employees at its headquarter in Nacka and their sales spans within a variety of locations worldwide. They are using the ERP-system SAP On-Demand implemented by Implema. Lars Zejlon is the financial manager at Naty since a couple of years back. He has held similar roles before he started at Naty at other major Swedish companies.

2.4.3 Grays American stores

Date for interview	**2012-03-14**
Adopted cloud ERP	2011 Q4
Revenue	100 000 000 SEK
Respondent	Johan Höglund
Cloud System	SAP On-Demand

Grays American Stores is a wholesaler of classical American groceries to the Scandinavian market. They have 15 employees and are growing significantly, with an average of 30% every year since start, and have outgrown several ERP systems during these years. They currently have active operations in Sweden, Finland, Norway, and Poland, and have plans to expand further. They are currently using a freshly implemented cloud version of SAP called

SAP On-Demand implemented by Implema AB. Johan Höglund is CEO and part owner of the company and has held this role since ten years back. He has before joining Grays a background in the automotive and electronics industry where he worked with large industrial companies around the world

2.4.4 Södertörns Högskola

Date for interview	**2012-04-23**
Adopted cloud ERP	2011 Q1
Revenue	Not applicable
Respondent	Anna Sande
Cloud System	Agresso Business World

Södertörns Högskola is a University located in Flemingsberg in southern Stockholm. They provide quality education and research at all levels in a multidisciplinary environment. The school has approximately 15 000 students. Anna Sande is Financial System Manager at Södertörns Högskola since 2004

2.4.5 Unit4Agresso

Date for interview	**2012-02-28**
Started offering cloud ERP	1998 Q4
Revenue	530 000 000
Respondent	Bengt Höjer
Cloud System	Agresso Business World

Unit4Aggresso is implementing their ERP SaaS solution Agresso Business world which runs on a Microsoft platform. They are since year 2000 in the corporate group UNIT4 NV, ranked as number two among Europe's largest suppliers of ERP-system solutions. They deliver both custom and standardized solutions to a variety of industries. In Sweden, the company has approximately 500 employees.

Bengt Höjer is responsible for the corporate cloud initiatives ranging from strategic issues to delivery. He is also official spokesperson and an expert of Cloud Computing infrastructure at the nonprofit organization Cloud Sweden.

2.4.6 Alterview

Date for interview	**2012-03-08**
Started offering cloud ERP	2006 Q4
Revenue	15 000 000
Respondent	Stefan Faith-Ell
Cloud System	NetSuite

Alterview is the Swedish implementing partner of the American ERP system called NetSuite. NetSuite was created by a couple of former Oracle employees in 1998 and has more than 10 000 clients in America(Faith-El, 2012 March 8). Alterview is the Swedish partner of NetSuite and has about twenty employees and started offering NetSuite four years ago. Stefan Faith-Ell is CEO of Alterview and has a rich background of ERP systems with more than ten years of experience from Oracle. From his year with Oracle he worked with mostly very large implementations such as SaS, Skanska and Scania. With Alterview they focus instead more on medium enterprises as NetSuite is best suited for companies with approximately thirty to hundred users.

2.4.7 Implema AB

Date for interview	**2012-03-29**
Started offering cloud ERP	2011 XX
Revenue	120 000 000
Respondent	Björn Ödewing
Cloud System	SAP On-Demand

Implema AB is an implementing partner of the software company SAP. Implema makes alternations and customize the standardized modules to suit the wishes of their clients. The newest addition to their product portfolio from SAP is their new in-house developed cloud ERP service called SAP ON DEMAND. Björn Ödewing is the acting sales manager of Implemas cloud solution and is also one of the original founders and owners of the company. He has a large experience of ERP systems and has worked with SAP for more than twenty years.

2.5 Validity and Reliability

"*Reliability refers to the absence of differences in the results if the research was repeated."* (Collis & Hussey, 2009, p. 64)

Since the interviews are of a semi structured nature with the objective of creating an informal dialogue the reliability of the research can be considered rather low. The informal nature of the interviews makes them hard to replicate. This is a common problem with interpretivistic studies, but it is not of big importance since it is the nature of the interpretivistic paradigm (Collis & Hussey, 2009). However Collis and Hussey (2009) also argue that the difference in observations made on different occasions should be able to be explained and we believe that this is possible. The detail level of the interviews can differ if this research would be performed at a later stage since the adopters of this technology made their decision less than two years ago making the factors easier to recall to memory.

"Validity is the extent to which the research findings accurately reflect the phenomena under study." (Collis & Hussey, 2009, p. 64)

One of the reasons for choosing an interpretivism paradigm is to get to the very essence of a phenomenon and gaining deep knowledge. A consequence of this is that the research gets a high validity (Collis & Hussey, 2009). Collis and Hussey argue that when doing research under interpretivism paradigm it is important to choose a method which collects data on the actual phenomenon. The semi-structured interview in a multi exploratory case study is such a method according to Collis and Hussie (2009) when studying rather unexplored phenomena. When choosing the research sample the authors has been thorough to only choose respondents that has been the definitive decision maker of the adoption to increase the validity.

2.6 Delimitations

This thesis will only focus on companies classified as adopters of ERP-systems with Cloud Technologies and the adopters of these systems. Therefore, there are no companies that have opted out the technology for a traditional system within the thesis. Further, the companies are chosen in such a way that none of them are active in the same markets. All the respondent companies are classified as Small- and medium enterprises.

The thesis is based on the assumption that an ERP-system is a homogenous unit, independently of the systems core focus and status in society.

3 Theoretical framework

Here we present theories, which will be used to understand and evaluate the empirical data. The theories presented are adoption factors found in literature, types of technological change, technology diffusion, technology adoption, and salient, reverse salient.

3.1 Introduction

The objective with the theoretical framework is to introduce theoretical concepts that are needed to evaluate the empirical data about the ERP and Cloud integration that is presented in the following chapter. The theories cover: Modeling of technological change (Types of technological change); Technological change as a social process (Technology diffusion; Technology adoption); Technology system evolution (Salient and Reverse Salient).

3.2 Adoption factors according to literature

It can be argued that cloud technology shares characteristics in its technological nature with the Internet when it was adopted by the SME segment (Wei-Wen, 2011). Studies on Internet adoption by SME's in the early 2000s showed that affecting factors is perceived benefits, organizational readiness and external pressure (Merthens, et al., 2001). Merthens et al also emphasized the need for technical innovative personal in the adopting company that understands the core of the technology and can sponsor the adoption.

Misra and Mondal (2010) argue that cloud computing is most suitable for startup companies because this will eliminate the pending large investment for hardware and software in large IT centers. However, ERP systems face some implementation cost with or without cloud technology that needs to be considered regardless of choice. They also argue that companies that are suited for cloud computing initiatives can be identified by evaluating four factors: the size of the present IT resources, the utilization pattern of the resources, sensitivity of the data they are handling, and criticality of work done by the organization.

The risks associated with cloud computing is according to Subashini and Kavitha (2011) one of the key reasons why companies not fully embracing the cloud technology. This specifically for SaaS cloud systems where research has shown that the main concerns from enterprises is data security; network security; data locality; data integrity; data segregation; data access; authentication and authorization; data confidentiality; web application security; data breaches; virtualization vulnerability; availability; backup; identity management; and sign-on process. This is according to Wei-Wen Wu (2011) the main reason that SMEs have not adopted SaaS technology as fast as first predicted. In all, this have made the vendor companies of the technology to consider the risks associated and the criticality of the data they are handling since risk awareness is a possible friction for the adoption of this technology (Misra & Mondal, 2010).

Lastly, one of the abilities of cloud computing which could play an important role of the adoption of cloud based ERP is the scalability and on-demand characteristics (Goscinski & Brock, 2010).

Above, we have chosen to bring up an excerpt of the factors that are often mentioned in the literature above. There are many other factors that are said to influence the decision. Below, is presented Table 1 containing a variety of factors from studied literature on Internet, cloud technology, and SaaS technology adoption that can affect the adoption decision.

Factors	

• Different laws in different countries
• Confidentiality agreements
• No hardware investments
• No IT-competence
• Little Software
• No need for IT-support
• Easy to Change of vendor (contract length?)
• Possible Scalability
• Is adequate technology present, enough bandwidth and computer power
• Efficiency benefits from the relative advantage of SaaS ERP over traditional ERP
• Presence of technological champions that sponsor the adoption
• Limited functionality
• Technical competence in-house
	• Easy to get a competitive ERP system
	• Increased user flexibility
	• Society and media report on cloud technologies
	• Risks
	  ○ Data security
	  ○ Network security
	  ○ Data locality
	  ○ Data integrity
	  ○ Data segregation
	  ○ Data access
	  ○ Authentication
	  ○ Authorization
	  ○ Data confidentiality
	  ○ Web application security
	  ○ Data breaches
	  ○ Virtualization vulnerability
	  ○ Availability
	  ○ Backup
	  ○ Identity management, sign-on process

Table 1: Adoption factors according to previous litterature

3.3 Types of technological change

The adoption of technology is much influenced by how the innovation affects a company. In order to understand the magnitude of the impact that cloud based ERP will have and how to handle it, some classification of the innovation is needed. These theories will be used to analyze the empirical research to establish whether the vendors or adopters need new knowledge.

Traditional research on innovation management and technological change proclaimed that there are two types of innovation, incremental and radical (Abernathy & Utterback, 1978). These two kinds of innovations are on the extreme opposite sides of a spectrum. A radical innovation can be classified as the introduction of new technology that forces the stakeholders to make large changes. A radical innovation can completely disrupt an entire industry and usually open up completely new markets (Henderson & Clark, 1990). For example, when the digital camera entered the market this innovation forced mayor players in the 35mm film industry to completely change their business models and manufacturing processes in order survive. An incremental innovation on the other hand is not that dramatic. It can be the introduction of new technology, but an incremental innovation usually refines an old technology or process. Although incremental innovation does not offer any groundbreaking new technology it can still provide significant economic benefits for an industry (Henderson & Clark, 1990). Industrial history shows a very clear pattern on the dynamics of innovation. Incremental innovations usually complement and strengthen present corporate capabilities whereas radical innovations force companies to acquire brand new technical and managerial skills.

When a radical innovation is introduced to the market, a brand new market segment usually follows. The coming years after the introduction of the innovation many new companies enter the market, and many new incremental innovations follow. After some time, the innovation gets more and more established in society and the market starts to get a clear idea on what to expect from this technology. This is often referred to as a dominant design is created for the market. A dominant design can be described as a design architecture that defines the standard specifications for an entire product category. For instance, the dominant design for a car is four wheels and a steering wheel. When the dominant design starts to get established many players exit the market and the innovation pace declines. When there is a lack of an actual dominant design within the market, so the growth of the market can be delayed as the customers postpone their purchases in anticipation of that a dominant design will emerge (Abernathy & Utterback, 1978).

However, Henderson & Clark (1990) argues that there are two more types of innovations that become visible when looking at innovations with an architectural perspective. These two complimentary types of innovation are coined as architectural- and modular innovations. The architecture of technology can be described as the interaction between components in a system and architectural innovations affect the needed knowledge of this interaction (Henderson & Clark, 1990). For example, if a manufacturer of ceiling fans decides to start producing handheld fans it is a change in the needed architectural knowledge. The company has all the knowledge it needs when it comes to the fan design and motor construction. However, the organization does not know how these components will interact in a downscaled version and therefore need to acquire new architectural knowledge. The company can also lack the needed market knowledge of how to sell such a product. Once a company realizes that they are facing an architectural innovation it is crucial to invest the necessary time and resources to gain the new required architectural knowledge (Henderson & Clark, 1990). Modular innovation affects the constitution of the components but leaves the architecture rather untouched. For example if research in aerodynamics have found a new optimal blade design this will require the ceiling fan manufacturer to acquire completely new component knowledge, but the interaction between the blade and motor will stay the same, i.e. the architectural knowledge will stay the same.

Henderson and Clark (1990) visualize their idea in a framework where the innovation can be categorized on how it affects needed architectural- or component knowledge. Below we present an interpretation made by Hanna Ström (2010) of this framework, Figure 1. With this new perspective, it becomes apparent that radical and incremental innovation has impact on both architectural and component knowledge. For example, an architectural innovation has high impact on architectural knowledge but low impact on component knowledge.

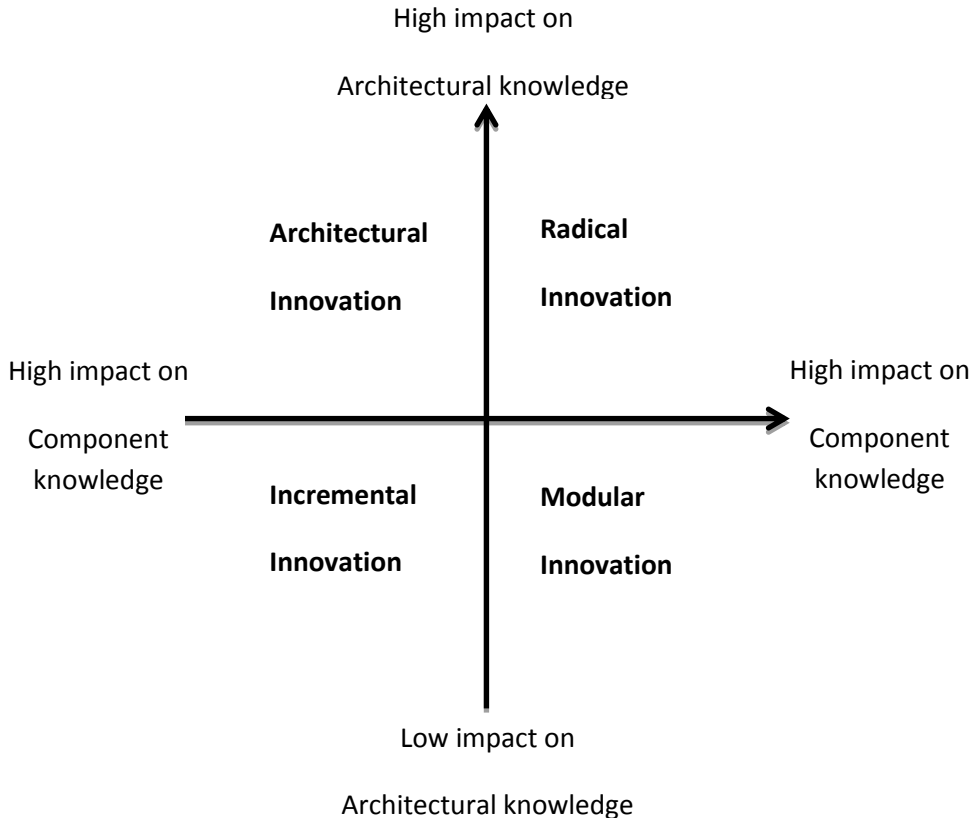

Figure 1: Interpretation of Henderson and Clark's framework of types of Innovation

3.4 Technology diffusion

In order to handle a potential change within the technology, it is of importance to make assumptions of how and when the innovation is spread through the society. To what degree a technology is diffused may be crucial for its future market potential.

The term diffusion is borrowed from natural science and is the phenomena where gases or liquid particles wander randomly from one concentration gradient to another to create an evened out equilibrium (Askeland, et al., 2010). The concept of diffusion of innovations is about how, why, and when innovations make its way through communication channels in society and become accepted. Diffusion as a social concept was coined and defined by Everett Rogers in 1968. The principles were not new, but it was Rogers who gave the concept some real academic weight in his book Diffusion of innovations where he synthesized the work of 580 diffusion studies. Rogers's book revolves around four key elements that greatly influence the spread of innovations in society. These elements are the innovation itself, communication channels, time and social systems.

The innovation itself greatly affects how fast it will spread. Communication channels refer to the means of communication that will transfer the information and knowledge about the innovation. In this element Rogers argue that a contradiction usually evolves. To share knowledge about a technological product both the agent and the respondent need to have knowledge about the innovation to understand it. The time element concerns the time for the innovation to adopt and at what time the innovation reaches certain stages of the adoption cycle. The social system can be described as independent entities socially engaged to solve a common goal, and thus in social groups share experiences and perceptions. Roger's sums up the connection between the elements as "Diffusion is the process in which an innovation is communicated through certain channels over time among the members of a social system" (Rogers, 1995, p. 5).

3.5 Technology adoption

As mentioned above, the time element mostly considers the adoption decision. When a new technology is released, it usually takes some time for the market to adapt to the change and make the decision to adopt the technology.

Technology adoption is defined as when a company or a private consumer makes the final decision to invest in a new technology (Frambach & Schillewaert, 2002). Rogers (1995) defined technology adoption as ''the process through which an individual or other decision-making unit passes from first knowledge of an innovation, to forming an attitude to the innovation, to a decision to adopt or reject, to implementation of the new idea, and to confirmation of this decision.'' (Rogers, 1995, p. 20)

There are five key stages in the decision process that individuals pass through when making the adoption decision. These stages are knowledge, persuasion, decision, implementation, and confirmation (Roberts Jacobs & Weston Jr, 2007; Rogers, 1995). The knowledge stage starts when the adopter achieves knowledge about the innovations existence and its functions. The persuasion occurs when the individual starts to form a positive- or negative attitude to the innovation. Perhaps the most critical phase for the supplier is the decision phase, which will be described further in 3.5.1. Here, the adopter decides if the innovation

should be adopted or rejected. The implementation stage is when the innovation begins to be utilized. In the confirmation stage the adopter emphasizes the strengths of the innovation and commits to the technology or reinforces the weaknesses, considers revisiting the decision stage and rejecting the adoption (Rogers, 1995). The supplier of the innovation can consider the technology fully adopted and a success when the customer shows true commitment to the technology by promoting the strengths in the confirmation stage (Frambach & Schillewaert, 2002).

3.5.1 Considerations which can affect the decision phase

The adopters perceived characteristics, and benefits of an innovation are important and affect the adopter's proneness to adopt the technology. The adopter must perceive that the relative advantage of an innovation should exceed the alternatives of economic benefits and general functionality (Anderson & Narus, 1999). The summarized perceived innovation characteristics should create a net benefit of an innovation, and the scale of the net benefit has great effect on the organizational adoption decision (Frambach & Schillewaert, 2002; Robinson, 1990). For example, when El Camino hospital in California decided to adopt a new earthquake safe technology they realized that this change enabled them to integrate the entire facility and the technology also made it possible to automate many other functions with robotic technology (Rutherford, 2010). This increased the net benefit of the innovation beyond the actual adopted technology. Some other examples of important characteristics according to Rogers (1995) are compatibility with existing systems, the option of a trial period and the ability to observe the technology in action.

As stated by Rogers (1995) the innovation cannot bear the full responsibility for the adoption. The characteristics of the adopter also have great influence on the innovation adoption. Such features as organizational size, organizational structure, and organizational innovativeness are examples of characteristics that influence adoption (Frambach & Schillewaert, 2002). However, how the size of the adopting company affects the adopting decision is widely debated. It is argued that large companies are more prone to adopt innovations to increase their performance and general competitiveness (Frambach & Schillewaert, 2002). It is also argued that small companies are more innovative and flexible and therefore more receptive to innovation (Frambach & Schillewaert, 2002). These contradicting statements is an indication that the connection between size and other organizational attributes such as culture, strategy and structure also affects a company's proneness to adopt innovative technologies and concepts (Frambach & Schillewaert, 2002). Further, Damannpour (1991) have in his research also found indications that the adopting company is affected by the managers personal opinions on innovations and that the managers general openness to new ideas greatly affects the adoption decision.

The supplier of the innovation also plays an important role in the adoption. The marketing activity of the supplier will affect the probability of how an innovation gets adopted (Frambach & Schillewaert, 2002). In a study on launch strategies, the authors found that targeting, communication, and risk reduction is major factors that affect the adoption rate of technology (Easingwood & Beard, 1989). The marketing should be educated and carefully targeted to potential adopters. Marketing must also focus on communicating the innovation to increase awareness. The risks associated with the innovation must also be brought to surface and analyzed so that marketing can create strategies which will dampen the customers feeling of risk, for example a trial period (Frambach & Schillewaert, 2002).

It is important to consider which informal social networks and groups a potential adopter are part of since the information about innovations and new technologies spreads very fast in such groups. If members of the groups or networks have a positive experience about the innovation or the associated technologies, then the possibility for adoption will increase significantly (Frambach & Schillewaert, 2002).

The environment in which the adopter does business is also important. If important business partners use the innovation or has systems that the innovation supports, then the adoption may be easier to motivate (Frambach & Schillewaert, 2002). For example, If a company is using a database technology, which is compatible with SAP, then the decision to choose SAP is much easier.

Frambach and Schillewart summarize these ideas in a model that illustrates how these different factors are linked to the decision stage in the adoption cycle, Figure 2.

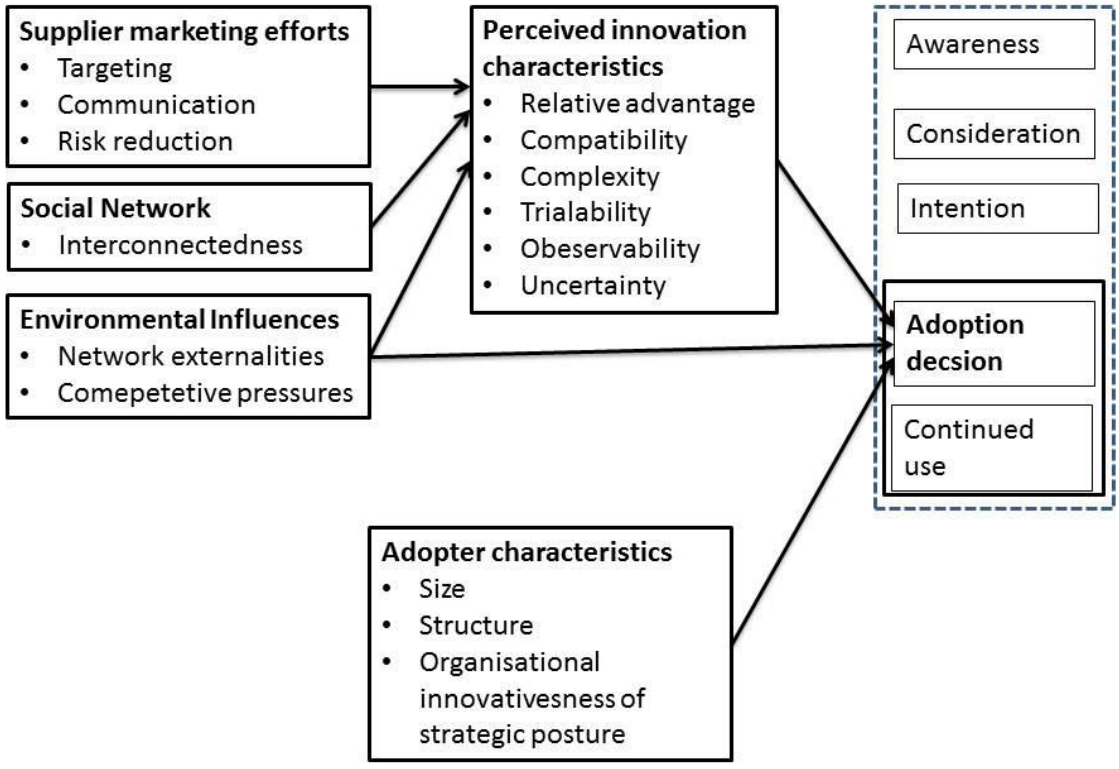

Figure 2: Frambach and Schilewaert model of organisational technology adoption

3.6 Salient and Reverse Salient

Often, when new technologies such as cloud based ERP are introduced to the market there can be states of imbalance between sections in the society, which affect the diffusion of the technology. These are important to identify, and if possible handle, to increase the possibility of a market accepted innovation.

Technological sub-systems, socio-technical- and organizational systems, are some examples of sections that can create these imbalances. Rosenkopf and Nerkar (1999) argue that an individual system rarely develops in solitude. Instead they are developing in an independent collaboration with other systems.

Different scholars such as Nathan Rosenberg and Thomas Hughes have introduced different concepts when discussing the area. Reverse salient/salient, bottleneck, and technological disequilibrium are some common concepts used. From a socio-technical perspective, Thomas Hughes is discussing the electricity technology from its birth until early twentieth century. When discussing this, he is introducing reverse salient as a name for problematic sub systems. For example, the lack a supporting infrastructure for charging batteries in electrical cars is a reverse salient for the entire electrical car industry. The origin of reverse salient comes from military history where the inverse of a salient was a backward bulge in an advancing front on a battlefield. In this context, the term is an imbalance in some elements, which obstructs or prevents the full potential of a system. Since these elements, which can both be technical and social components, withdraw the full potential of another system, Hughes emphasizes the importance of correcting these through incremental or radical changes to not prevent a potential innovation in an industry. This is also reinforced in a work by Rosenberg (1969), where he points out that *"The relationship among components was usually such that some imbalance had to be corrected before an initial innovation could be fully exploited."* (Rosenberg, 1969, pp. 11). The opposite concept, salient, instead means that some areas are leading when compared to the rest of the sub-systems.

4 Empirical research

Here, empirical data, and our thoughts surrounding the issues mentioned are presented. The chapter is organized in the most important found adoption factors and what the different respondents say about them.

4.1 Introduction

During the interviews with the respondents, a large number of adoption factors for cloud based ERP systems have submerged. This was expected due to the chosen methodology of this thesis. Among these adoption factors, the authors have identified four key adoption factors that all of the respondents consider the more critical than others. These four are risk, function, cost, and flexibility. Below the respondents views on the adoption factors are elaborated and the adoption factors are also analyzed with help from literature described in the previous chapters. Further, some factors that were not mentioned by all the respondents but from the author's point of view are considered important are summarized in the General section (4.5).

4.2 Risk

Being able to pat the server that runs the companies ERP-system might not be a rational way to ensure safety of your data. Nevertheless, according to Bengt Höjer (2012, February 28) there are many companies that classify a secure system just in this way. However, this is not the case at the interviewed companies that have adopted the cloud solution. Tomas Lövblad (2012, February 23) at Handheld argues that the risk issue was on their agenda when choosing their system. But since they used expert consultants to evaluate the ERP-market, they had great reliability that the recommended solution was safe. This is also something that is reinforced by Björn Ödewing (2012, March 29) who points out that the risk awareness is generally quite low among the customers. According to the literature study, this is in total contradiction to previous studies on similar cloud technologies.

Further, in hindsight, the adopters are pointing out that it is quite logical that a company that handles the amount of data the system vendors can be considered experts. It is therefore naïve to think that a small company can make it better yourself with your own local servers (Zejlon, 2012, March 1; Höjer, 2012, February 28; Lövblad, 2012 February 23; Sande, 2012 April 23).

According to Frambach and Schillewaert (2002) a technology is considered fully adopted when a customer shows commitment to the supplier and their technology. Here, it is clear that the customers believe that the supplier's technology from such a critical point as safety is reliable which can be seen as the adopters are showing true commitment to the technology.

Stefan Faith-Ell, CEO of Alterview, is pointing out that companies have to be pragmatic and understand that data in a mountain in California is more secure than a basement in for example Ludvika (Faith-Ell, 2012, March 8). This is also enhanced by Johan Höglund (2012, March 14) at Grays American Stores, but instead his perspective is from the physical risk, observing that it is safer than the alternative since they always have a back-up in case of fire, burglary, etc. Anyhow, this perspective can be considered a security increase in comparison

with an in-house system. This is an interesting finding since the research on similar technologies argues that risk awareness and general concerns regarding risks are a factor for not adopting cloud technology (Subashini & Kavitha, 2011). This could be an indication of that the vendors lacks the needed knowledge in how to market the technology with the present market conditions, i.e. in the words of Henderson and Clark (1990) they need to acquire new architectural knowledge . Yet, another perspective is provided by Alterviews's CEO, Stefan Faith El (2012, March 8), who points out the operational safety as a risk if he had to mention anyone. This is clarified as if the Internet connection for some reason completely stops working, which is unlikely, this would mean that the systems would be completely useless, as opposed to a fixed installation.

According to the words of Thomas Hughes, this can be seen as a salient from the perspective of the vendors since they cannot control or defend themselves and their systems against such occurrences. Although the control of this issue is completely at the partnership relation between the adopters and their Internet providers, it may have major effect on how the adopters perceive the system and its reliability. As Stated by Hughes these salient needs to be dealt with before a technology can grow to its full potential.

Further, Faith-El also emphasizes that he does not really see any different risks to running cloud-based versus fixed installation. He argues instead that it is often psychological factors that make people see the risks. (Faith El, 2012, March 8)

To build upon what Bengt Höjer pointed out about the irrational approach mentioned above. He also mentions that many security costs are fixed costs (Höjer, 2012, February 28). If you think of the idea that X companies invests the fixed cost for security on a common system instead of their individual, then it's rather obvious that the safety will increase with a factor of X. This point of view share similar traits with the production industry that has seen the benefits of economy of scales for several years.

However, for the same reason of sharing servers etc., one should be aware that some companies consider this sharing of data a risk factor and a major reason for not moving their system to cloud-services. Some examples of comapnies that probably never will have their data lying in someone else's responsibility is SAAB Group and the Swedish military research institute (FOI) (Höjer, 2012, February 28) This is because of the sensitive material that they are handling in their daily work could create major problems if leaked.

4.3 Functionality

Traditionally, when choosing a new ERP-system, companies often need to integrate a software- and hardware solution to all the functional processes in the organization. Lars Zejlon (2012, March 1) highlights that choosing a new ERP-system is this way often related to troublesome processes and it is not without friction to maintain the system and keep it up-to-date. However, his view on this has changed since he came in contact with cloud-based systems. He points out clearly that since they have implemented the system, Naty have been able to fully concentrate on their core business and excluded everything related to their IT-facilities. This is something which small companies often find difficult to manage effectively by themselves (Zejlon, 2012, March 1).This has also led to that the technical aspects of the system have completely disappeared. Today companies are only interested in what they need from a functional perspective in order to perform the job within the company (Zejlon, 2012, March 1; Höjer, 2012, February 28; Lövblad, 2012, February 23; Sande, April 23).

In the words of Anderson and Naurus (1999), to have the opportunity to avoid thinking about technology and only purchase pure functions can be considered a clear relative advantage against traditional ERP-systems. This can according to Frambach and Schillewaert (2002) greatly affect the adoption decision of the systems as the relative advantages exceeds the alternatives based on simplicity.

This is also highlighted from a selling perspective by Bengt Höjer (2012, February 28) that argues for the importance of talking about the possibilities from a functional perspective. It is essential to not send a technical programmer that easily can confuse or talk about things outside the client's interest.

As they are facing a new architectural innovation, it is in huge need of what Henderson and Clark (1990) have chosen to call architectural knowledge. As their analogy with the ceiling fan, the system is still just the same but the knowledge of how the components interact with each other needs to change. The purpose of the systems is still to deliver critical business processing information, and it still needs the supporting architecture. Hilti whom is a Liechtenstein based manufacturer of high performance tools for the construction industry is an example of how a company can be affected of this kind of change. Hilti decided to offer their clients the functionality of heir tools at a monthly cost instead of selling it. This especially put a lot of strain on all functions of the organization and the sales personnel whom now had to sell subscription of services instead of products (Johnson, et al., 2008). For the vendors of ERP systems, however, now the responsibility for the infrastructure lies with the vendor and the vendor needs to acquire the architectural knowledge of how to run and sell a function instead of selling technology and software licenses.

Being able to expand the functionality continuously without worrying about the technical aspects or the system capabilities are also considered as a contributing factor to why companies are choosing the systems (Ödewing, 2012, March 29; Zejlon, 2012, March 1; Faith-Ell, 2012, March 8; Höglund, 2012, March 14; Höjer, 2012, February 28; Lövblad, 2012, Febraury 23; Sande, April 23). This form of customization is highly valued, as the SME normally often do not have this possibility with in-house solutions, and therefore needs to go with pre-package systems. (Zejlon, 2012, March 1; Lövblad, 2012, February 23) The customers are also well aware that there are some limitations with this kind of customization in comparison with a totally tailored in-house solution (Höjer, 2012, February 28). However, none of those interviewed have encountered a problem within this area that has posed a problem in their way of working.

4.4 Cost

Johan Höglund (2012, March 14) at Grays American Store is pointing out that price is a factor in choosing their system as a traditional ERP Implementation can often run into millions of SEK. But the price is often not decisive when the adopters are choosing their system (Lövblad, 2012 February 23; Höglund, 2012 March 14). This as the implementation is usually about a long-term investment rather than cost savings for the companies. Further, form the perspective of the vendors, Björn Ödewing (2012, March 29) is pointing out that low cost is an important factor as the customer who is looking for their systems often does not have a strong cash flow. This can be seen as a contradiction between the implementers and the adopter's view of the cost factors.

The adopter's view of cost can be compared with the point made by Frambach and Schillewaert (2002) who are arguing that cost is an important factor as long as the cost feels reasonable for the service and the function obtained. However, Stefan Faith El (2012, March 8) is arguing that it is often difficult to sell a system to customers in the SME-segment from a cost perspective as their current system often is low-cost systems and you cannot offer them something cheaper.

However, many vendors are providing ERP-solutions for SME that is cost efficient, as their customer segment cannot afford to costly systems. They clearly have their niche market that they are trying to satisfy. The vendors offer a well-known ERP-system for a smaller fee. This creates in itself many advantages for the adopters such as more respect when doing business around the world (Zejlon, 2012, March 1) and the opportunity to larger deals (Höglund, 2012, March 14). This is something which can affect the diffusion of the technology because this positive reinforcement spreads fast in social systems according to Rogers (1995). However, it should be pointed out that these benefits were perceived after implementation.

The companies who change their ERP system often make this either to improve their processes or to reduce costs. Stefan faith El (2012, March 8) describes this as they often have clients who have a specific problem that they need help with, such as increasing the efficiency of the business of any kind, and in that way reduce costs. Bengt Höjer (2012, March 28) also points out the importance of cost saving, but this based on the financial crisis in the years 2008-2010. He explains this as a lesson learned from companies that had gigantic systems that cost large amounts of money, and that cost could not be lowered as the system was very static. This meant that companies had to dismiss competent personnel to reduce costs and avoid bankruptcy, instead of having an opportunity to reduce costs because of its rented ERP-solution. Therefore, by adopting an ERP-system within the cloud it also causes reductions of the financial risk within the company. This is a clear relative advantage to traditional ERP systems and should therefore increase the adoption rate according to Frambach and Schillewaert (2002).

4.5 Flexibility

An Enterprise Resource Planning system is often seen as a long-term investment. Therefore, it is important that the system can change as your company evolves and easily handle new procedures when the need arises. The importance of this is emphasized by all the adopters who points out that the possibility of scaling their system up and down is of great importance. This is especially apparent if you are doing business in fast changing environments, or have other conditions e.g. peaks and valleys in your daily business and may need different capacity (Zejlon, 2012 March 1; Lövblad, 2012 February 23; Höglund, 2012 March 1). By having this possibility, you can change your capacity, but still do not have to invest in the maximal load volume, which can be viewed as both highly flexible and cost saving (Höjer, 2012 February 28)

Even though all adopters have pointed out the importance of a having flexible system and that the flexibility of cloud technology is one of the leading factors for choosing a cloud system this is not something that is emphasized by the vendors in the same strong manner. Nearly all the interviewed vendors have mentioned that the system is flexible but not as a major factor for adopting the technology, which can be seen as an imbalance in what area each stakeholder consider most critical (Faith-Ell, 2012 March 8; Höjer, 2012 February 28).

As we are living in a world with changes that needs to occur in many different ways and in many different places, the need to manage and carry out work in a mobile way is of great importance. Johan Höglund (2012 March 14) and Anna Sande (2012 April 23) says that their organization is working in a highly self-propelled manner and each employee has their own responsibilities. It is therefore important that their system can brought wherever they go. It should not matter if the employee works at home, from a hotel room in Turkey our in the office, a requirement is that the system should operate regardless of location. Furthermore, Thomas Lövblad (2012 February 23) is enhancing this approach by explaining that they have offices all over the world and through a secure cloud solution, they can now easily involve a new office just by having a computer that can connect to the system, and its works both quickly and smoothly, unlike former solutions.

4.6 General

Some of the respondents mentioned that the time to implement the system was surprisingly fast (Zejlon, 2012 March 1; Höglund, 2012 March 14) and this increased their general good impression of the system. As stated by Rogers (1995) and Frambach & Shillewaert (2002) this is something that can prove vital for the vendors since this general attitude easily spreads through various social systems.

Further, as argued in the literature on Internet adoption, cloud computing- and SaaS technology adoption it is important that the monthly price covers all costs and activities of the systems, such as maintenance and support. However, one of the respondents (anonymous interview object, 2012) felt that this was not achieved. The respondent was willing to accept a higher price to get control of budgeting and fully utilize the vendor's expertise. This could be something which vendors should look further into when offering their clients a cloud alternative.

Cloud computing has received some extensive media attention in recent years and this could have had significant effect on the diffusion of the technology according to Rogers (1995). However, all interviewed vendors believe that the customers do not have chosen a cloud alternative because of this publicity (Höjer, 2012 February 28; Faith-Ell, 2012 March 8; Ödewing, 2012 March 29; Sande April 23). This is also emphasized by the adopters who note that they were not affected in their decision (Zejlon, 2012 March 1; Höglund, 2012 March 14; Lövblad, 2012 February 23). However, as pointed out by Rogers (1995) the diffusion of technology is greatly affected by communication and the social systems in which they act.

When talking about technology adoption, the adopters have all passed the knowledge and persuasion stage of Rogers (1995) adoption cycle on their own. This as some of the adopters were from the beginning determined to have a monthly subscription solution, and the cloud was just an enabler for this decision (Zejlon, 2012 March 1; Lövblad, 2012 February 23).

5 Conclusion

Here we present a summarized conclusion of the found adoption factors for cloud based ERP-systems that is found within the empirical research.

5.1 Risk

ERP-systems in the cloud are generally considered as safer systems than in-house solutions according to adopters of the technology. The main indicator of what this attitude depends on is a rather low awareness of the risks in combination with a high reliability for the technology. Because of this view, it can also be assumed that the adopters are truly committed to the technology. This is to a certain extent a contradiction to what previous literature within the area is pointing out. This is caused by that the risk is often considered one of the key factors why companies do not choose to embrace a technology.

The research also shows that there are risks that may affect their systems such as lost Internet connection. However, these factors do not have a particular drawback effect on the decision when there are risks associated with the same effect on an in-house solution.

5.2 Function

One aspect considered more important in the decision of choosing the system is functionality. By functionality it is meant the possibility to purchase the functionality of the system that the company wants. Furthermore, to be able to focus on the core competencies and its core business and exclude the thoughts of IT and technology can be considered as a very strong factor for companies to choose a rented cloud solution. There are some indications that a contributing factor to this result is because of the small size of the interviewed companies

5.3 Cost

Cost is another factor that the study shows some contradiction in importance. In the investigation of the vendor, the cost is considered to be a very important factor when adopters are choosing their system. This view is completely in contradiction to what the adopters consider. The adopters applies more of their attention towards the features of the systems and what they can do for their business, where the price of the system obviously plays a role, but not as a determining factor. They also prefer the system as a long-term investment with long-lasting relationships instead of an opportunity to chase low prices.

However, from a low-cost perspective the adopters rather see the system as a way to increase their efficiency and their processes and in that way get maximum cost efficiency. The possibility of having a well-known ERP-system has also been shown to simplify the business flow and the cooperation with partners, which have increased their revenue.

5.4 Flexibility

This increased efficiency is emphasized due partly by the increased flexibility the system brings. The research shows clearly that the opportunity to work mobile all over the world is something that is valued by the adopters.

The ability to scale the system, both by adding and removing functions and changing the capacity, depending on various phases within the company is also something highly valued among all the adopters. This ability to scale involves both occasions when market conditions are fluctuating as well as when the company is expanding their business.

6 Managerial implications and Recommendations

In this chapter we present our managerial implications and recommendations for the found adoption factors. This is done with the help from literature associated with the found adoption factors.

6.1 Risk

The notion of risk spans over several research fields such as finance, construction, mining, traffic, cognition etc. Nevertheless which perspective is used, risk is a part of practically everyone's daily life, which has led to that several researchers are constantly trying to understand how people perceive and tries to manage risk.

Although risk is a broad area that is defined in many ways, it is often based on the likelihood that an individual will experience the effect of danger (Short Jr, 1984). Rosa (2003) would, however, reinforce the area by involving uncertainties with risk. This means that the risk is also a situation that has human value, but where the result is uncertain and only exists in mind.

This result, how people perceive and manage risk varies widely between individuals. It is not uncommon that perceptions and actions of risk-thought are learned by social and cultural beliefs and values of the world and goes beyond the individual (Boholm, 1998). This perception of a risk is also argued by Sjöberg et al (2004) as a subjective assessment of a possible event happening and how we are evaluating the consequences of a potential negative result.

The risk the individuals perceive is also changed by the fact that they feel engaged in voluntary behavior. Braun (1994) is explaining this by the phenomena that risk sometimes is about insufficient controllability. By this it is meant that a sense of personal control leads to that less risk is perceived.

Sweeney et al (1999) is discussing the perceived risk in relationship to the buying of specific products. They are arguing that customers always make a form of gambling when they are buying a product based on their desired need over long-term. The higher the perceived risk is, the bigger the gamble is. This must always be effectively dealt with through the whole buying process by mapping and understanding all possible factors that may affect the customer's perceived value by a negative perceived risk.

Risk is an important factor that needs to be exercised with caution for vendors of ERP-systems. It is important to understand the difference between perceived risk and the actual risk when discussing the area. Previous research within the cloud areas sees the risk factor as the major deal breaker for adopting cloud solutions, but our investigation shows a completely different side of the factor. The risks mentioned by the adopters are to some degree a case of technological ignorance. This can be clarified with that they have a perception of a secure and safe technology, mainly because they have not encountered any setbacks and are therefore unaware of the actual risks. This kind of approach to risk is an area that has to be continuously handled carefully to avoid the disastrous consequences. It can be compared to the risks associated with driving a car. Statistically, driving is an incredible dangerous activity and a large amount of people die on the roads every year. However, still drivers feel that they have a sense of control over their car and in that way

perceive it is a low risk activity. But, if they experience or take some part in a traffic accident, the probability that this view changes and the view of driving suddenly is seen as incredibly risky is quite high. The perceived risk is replaced by the actual risk. Within the ERP and Cloud Computing area, if such incidents occur it can cause huge problems with e.g. reliability, and the risk of dropping customers in a steady stream is large if there are no efficient plans of actions to use. Further, an important factor that implementers need to understand is the many factors that can affect perception. If adopters in any way cannot use their business systems, it might influence their risk perception. Often, it is unimportant who is responsible for the risk as the adopters of the product expect it to work. Therefore, it may be an advantage to inform the customers of the product in advantage about what might happen and the risks, and in this way to some degree protect themselves and their brand instead of focusing on convincing the customers that this technology is safe. This can be the difference between satisfied customers or the loss of key accounts

6.2 Function

The classic concept of delivering goods to customers is getting more and more outdated and a change too more functional selling with monthly fees is happening across many industries. This shift can also be assumed to occur in the ERP-business where cloud technology is an enabler for discarding technical aspects and products and instead offering functions for a monthly fee.

This way of managing customers is called functional sales and is a way for satisfying a specific need from customers (Ölundh, 2003). This principle of doing business has existed for a while, for example in the laundry industry where washing clothes can be offered as a service (Sundin & Bras, 2005). But with the increasing demand for more service oriented sales based on requests (Ölundh, 2003), it has become a more common type of selling. Some examples of companies, which have successfully made this transition is BT Trucks and Hilti (Sundin & Bras, 2005; Johnson, et al., 2008). Within the ERP and IT-industry, strategic sales-changes of this type have not been possible as licensing of software has been static. But thanks to cloud computing and the pace in which technology is being developed, this industry is also beginning to move to more functional sales rather than products sales within many areas (Ölundh, 2003).

The main differences between the goods-dominant logic and functional sales are interpreted by Ölundh (2003) in Table 2

	Sale of product	Sale of performance
Object of sale	The object of sale is a product	The object of a sale is performance, and customer satisfaction is the result
Seller liability	The seller is liable for the manufacturing quality	The seller is liable for the quality of performance
Payment	Payment is due for and at the time of transfer of property rights	Payment is due pro rata if and when the performance is delivered
Property rights	Property rights and liability are transferred to the buyer	Property rights and liability remain with the provider

Table 2: Main differences between goods-dominant logic and functional sales (Öhlund, 2003

Scholars argue that sales management and marketing research have focused too little on this evolving market trend (Vargo & Lusch, 2004) However, It is argued in Industrial Marketing management (Vol 37, 2008) that marketing is switching to a more service dominated sales force and that companies need to revise their routines in selling. Since the product does not represent the value but rather the function it delivers, it is important to realize that the sales force demonstrates knowledge about the required function and why that function is important to the customer (Sheth & Sharma, 2008).

Sheth and Sharma (2008) argue that deep customer relationship is key to success with service marketing since the input from customers is crucial when determining the functions that should be marketed. The strategic focus of selling will have to change from product centric to the intangible resources, co-creation of value and customer relationships (Vargo & Lusch, 2004). When embarking on functional sales it is important to use a long-term strategy, both from the customers and the vendor's point of view (Ölundh 2003). Öhlund has also found clear indications of the importance of that every cost factor of the function is included in the monthly price when offering functions. For example, one of the respondents within her research even included the used energy of the product in their monthly fee.

One of the aspects of selling cloud based ERP as a rent service can be considered as delivering a pure function to your customers. Scholars argue that when using a functional sale strategy, it is important to use a long-term perspective and actively nurture your customer relationships. An approach to being a relational focused supplier is called relationship marketing (Grönroos, 2002). Grönroos (1999) argues that when companies decide to rent services and competitors offer the same service, the commitment to the relationship gets the deal. Delivering functions is a long-term process, and customers can be tempted to change supplier if the relationship is not truly served.

Relationship marketing is customers focused sales strategy with focus on building more long-term relationship and create extra value for both the buying and the selling part (Hennig-Thurau, et al., 2002; Mattsson, 2010). Buttle (1996) argues that relationship marketing is most beneficial for companies that are involved in business-to-business sales. The main point in relationship marketing is to invest in a deepened relationship with your customers to increase your company's general attractiveness, which will attract new customers, and the value generated by the present customers (Helfert, et al., 2002).

The benefits of relationship marketing are many. Andersson (1995) is arguing for that a relational focus that increase perceived value will also increase the chances for a long-term relationship while Grönroos (2011) argues that the most important point of deepening the relationship with a client is to increase the gained value for both parts in the buyer-seller relationship.

Although many academics proclaim the given success of relationship marketing there are those who go against this paradigm. Palmateir et al (2006) has trough their research found that the success of relationship marketing is much influenced by the customer's observed importance of the relationship. If for example more service offerings are of no critical importance for the customers, the relationship marketing will not give increased performance for the supplier (Palmatier, et al., 2006). Another pitfall identified by Palmateir et al (2006) is that companies tend to build stronger relationships with people instead of with companies.

Therefore, if the vendor's wishes to be more relational focused it is important to identify the customer's relationship building preferences.

One of the major factors from the adopter's point of view for adopting the solution in the cloud is the ability to ignore technical factors and just care about the functional factors. The possibilities to pay for the function you want, and get that functionality. This desire and way of thinking is not an unusual phenomenon, we humans usually work in this way our everyday lives. An example is a situation where you have bought a heat exchanger for your house. During the purchase process you do not care about flux and efficiency, you only care about the actual temperature in your house that you want to buy. The adopters of cloud ERP-systems are forming their purchasing process in exactly the same way. Most of the decision makers are people with a business need that they want to satisfy. There are many ways of dealing with this, and one example is to create a functional sale strategy, which focuses on satisfying a customer's business need. The similarity with customers that are choosing a supplier that is focusing on the functional aspects of business needs and the adoptions factors for Cloud based ERP are quite many. Increasing flexibility, Cost Control, Low initial investments and outsourcing of non-core business are just some of the similarities. To have a functional approach does not come for free and bring a larger financial risk for the suppliers, as they now are hiring out functionality from a larger system. This means that they are purchasing expensive systems and therefore it is of large importance that functional suppliers focus on creating long-term relationships that provide continuous revenue. To succeed in maintaining this relationship, it is therefore important that all functions included in the contract are thoroughly specified and accounted for within the price. If the company fails to do so, it is likely that customers feel that the business- and functional need is not satisfied and the relationship may be lost.

Worthwhile to mention, the relationship needed for functional sales is comprised of possible pitfalls that should exist in vendor's consciousness. When the focus is on building relationships it is important to realize that this should be on the co-creation of value. If this focus is absent from the supplier's perspective, the relationship will likely fail, which also entails the risk that the collaboration is interrupted. This is not unique for the treated segment, but essential importance to succeed. Companies of smaller scale are often in need of more personal contact when conducting business and often need a responsible person. They often consider that their purchase of the product also contains a personal relationship within the organization, which helps them smoothly. This personal contact is often essential throughout the collaboration. People generally tend in to build much stronger relationships with people than with companies. Since the major market for cloud based ERP systems is SME this consideration is extra crucial.

6.3 Cost

The total cost is important for adopters within the SME-segment when they go in thoughts of adopting a new ERP solution. Gartner Group research and consulting firm have developed a model that has been a leading tool to use when calculating and budgeting IT-projects. This model is highlighting the differences between purchase and long-term cost and has been in focus since the 80's.

Richard West and Daigle at California State University (2004) has made an interpretation of this method adapted for ERP planning and implementation. They mention three important disciplines that are life-cycle costs, Indirect, and direct costs. A life-Cycle cost includes five

components that are acquisition, implementation, operations, maintenance, and replacement. The importance of these factors is dependent of the organizational nature, the software within it selves and management practice. The direct and indirect costs are critical but often hard to predict on a long-term basis. Direct costs are often tangible expenditures related to clients, servers, networks, and labor costs. The indirect costs are non-budgetary things as downtime and services and support to end-users.

The overall picture of the cost is often based on that companies who embrace a cloud solution often see it as a way to among other factors lowering data center cost including hardware acquisition, operating expenses, and maintenance costs. According to Perry et al (2009), it has been shown that some organizations that have adapted a cloud solution have lowered their costs and increased their revenue as the focus has moved from systematical things to things as innovation and creating true business value.

This is also highlighted by Sultan (2010), which clarifies that by implementing and utilizing cloud services it can free the organization from having a complex hierarchy with complex hardware and software that must be managed and instead focusing on core competences.

Cost is of course of importance for the adopter, but not essential, as mentioned before. However, it is important that the suppliers try to include all costs that may arise within their subscriptions. This will make it easier for customers to calculate their total cost of their system monthly and leads likely to a smooth relationship without any unforeseen costs for customers.

Suppliers must also realize that the previous incomes from maintenance and such will become a cost. Therefore, suppliers must find a way to incorporate this in their general business model.

6.4 Flexibility

A common way to see the increased flexibility with cloud services is through the vision of a scalable system. According to Armbrust et al (2009), cloud computing will create three new aspects of scalability for the business with the introduction of cloud services. The first is an illusion comprised of that infinite computer resources are available on demand. This means that companies not necessarily need to predict their resource requirements in advance. Furthermore, it also defines the ease of scaling up the number of users with simplicity, allowing a company to start with few user accounts, and then increase gradually on demand. Finally, it is defined as the option to pay for the use of computer resources on a short-term basis. This means that storage by the day etc. can be bought or released on a short term basis. All this means that companies can save money because they avoid to invest in the needs at peak-load.

Further, Sharma et al (2010) analyzed the Indian market in 2010 by using a Factor rating method including factors such as scalability, availability, mobility, and flexibility. These factors clearly showed that they were a superior advantage of the cloud-based solution compared to a traditional solution. This is also strengthened by Kloch et al (2011), which points out that cloud services offers an open platform for anyone, anywhere, for any business and organization in whatever country they desired.

Sharma et al (2010) also highlights in relation to this, that traditional ERP systems involve a higher degree of difficulty in adaptability than cloud services.

Maintenance and service is also considered as an important factor also to be considered in connection with cloud services and flexibility. The classical infrastructure changes when companies in no way need to maintain, or upgrade systems and servers. This is instead done entirely by the responsible operators in charge of the service, which is said to simplify everyday life for companies. This is because they can exclude the knowledge and control in their work and instead focus their core business (Kloch, et al., 2011)

Because of this, the vendors should thoroughly market the flexibility of the system. The factor at product level is considered as one of the most attracting features when choosing cloud based ERP, but this after the implementation. This flexibility is factors that must be retained regardless of the service size and also expand further if possible.

6.5 Summary

Firstly, the managers of systems should focus on building strategies for handling risks since the low risk awareness of the adopters is actually perceived risk. This type of risk awareness is easily disrupted and may change quickly if not handled correctly

Further, vendors must focus on building long-term relationships and make sure that focus is on the co-creation of value when establishing new relationships. The vendors should also adapt their sales processes to incorporate the principles of functional sales since this is what customers are demanding.

A contradiction important to notice is that the cost saving aspects of the systems is of importance for the adopters, but not to the extent that vendors consider today. The cost factor should be emphasized more in relation to the cost saving that occur when the system is implemented. This is cost saving from the systematical perspective, but also for maintenance etc. It is therefore of importance that the monthly fee of the system is calculated so that all of the cost bearing activities is included in the price for the customers. This as the customers could otherwise feel that the pure functionality aspect of the system is not truly served.

Lastly, the vendor should market the high flexibility of the systems both from its scalability and its mobility characteristics since today's adopters value this high.

7 Further research

During this research we have done a brief investigation of some interesting sidetracks that were not further elaborated since they were considered to off-topic or because of lack of time. Some of these topics are however valid for further investigations.

This thesis has been focused on the decision phase of technological adoption and how the implementers can affect this phase. To get a true organizational adoption, the intra organizational adoption is also a useful insight for a vendor. This is something that we have decided not to look into. This since the technology still is novel and the adopter's still lack knowledge to give useful input on internal adoption. That's why we believe that intra organizational adoption of cloud based ERP could give useful insights if researched further.

During this thesis it is found that if an old EU directive from 1997 is renewed it can create friction for some cloud vendors. The directive basically says that to transfer important company data across national borders the company must be able to ensure that the data handling is safety enough in the countries that the data passes on their way. This law is somehow outdated, but during the period under which this thesis was conducted, a new EU directive of data handling is actively debated. Essentially, this new directive are about giving users more control of their personal data and about losing up the borders of data handling to pave way for the emerging cloud companies. If this directive is put to action in can change the competitive landscape for Swedish cloud companies since it will enable foreign competitors to offer their cloud services and still keep their servers abroad. How this law can affect the Swedish cloud market could be an interesting topic to study.

Lastly, it would be of great value for the adoption factors to consider companies that have opted out the technology for a traditional system. This since naysayers could give insights in to what fears and concerns that surround the technology. This information could be useful to improve the technology and come to terms with how to get more adopters.

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Appendix

Below the interview framework that was used during the interviews is presented in both swedish and english. The interviews were conducted in Swedish and the Swedish version is therefore the original framework. The English version have been created after the interviews have been conducted in tor der to present them in this thesis.

Appendix 1: Interview framework adopters, Swedish

1. Vem är du?
2. Vad jobbar du med?
3. Ni jobbar med produkter som kanske inte är så tekniskt avancerade. Upplever du att det återspeglas i organisationens generella inställning till teknik.
4. Hur fick ni reda på att det fanns ERP/affärssystem i molnet?
    - Har ni haft en annan leverantör av ERP innan?
        - Om ja, varför bytte ni?
        - Om nej, varför fick er leverantör nytt förtroende?
    - Vilka ERP tjänster har ni valt att ha i molnet? (Teknisk fråga, om de börjar prata om anledningar kan vi glida in i fråga 5)
    - Har ni några andra moln-tjänster utöver ERP?
5. Har ni masterdata i andra länder? Det finns en lag om datatrafik över gränserna. Har ni upplevt detta som ett problem med moln?
6. Övervägde ni andra plattformar? SAP, Microsoft, Unit4Agresso, osv
7. Varför valde ni ERP i molnet?
    - Betalningsmodell? Hyra kontra köpa?
    - Lätt sätt att få ett fett affärssystem utan att betala massor
    - (Pris, smidighet, osv)
    - Finns det någon tanke om att detta bara är en startfas? Alltså är tanken att ni ska uppgradera vid ett senare tillfälle?
    - Varför valde ni just det systemet som ni har nu?
    - Hur lång tid tog implementering?
    - Kostnadseffektivt? (jagade de låga kostnader?)
    - Teknisk kompetens hos beslutsfattarna?
    - Upplevde ni att ni köpte en funktion eller en teknik
    - Är skalbarhet viktigt för er?
8. Fanns det faktorer som gjorde att ni övervägde att inte flytta ut i molnet?
    - Tillräckligt med bandbredd?
    - Riskerna som är associerade med molnteknik?
    - Tillräckligt med kompetens in house?
    - Ganska statisk och begränsad funktionalitet?
9. Vilka fördelar har ni upplevt med molnbaserad ERP?
    - Hur förmedlades fördelarna av leverantören?
    - **Se ”adoption factors from literature”**
10. Vilka nackdelar har ni upplevt med molnbaserad ERP?
    - Om ni uttryckte osäkerheter och risker, gjorde leverantören något “extra” för att lösa det?
    - **Se ”adoption factors from literature”**
11. Upplevde ni att det stora media intresset kring molnteknik påverkade ert beslut?
12. Har partnerföretag eller kunders val av ERP system påverkat ert val?
13. (Har leverantörens ekosystem påverkat ert beslut?)

Appendix 2: Interview framework adopters, English

1. Who are you?
2. What do you do?
3. You work with products that may not be as technologically advanced. Do you feel that this is reflected in the organization's overall approach to technology?
4. How did you find out that there were ERP / ERP in the cloud?
    - Have you had a different supplier of ERP before?
        - If yes, why have you changed your ERP system?
        - If no, why did your supplier earn new trust?
    - What ERP services have you chosen to have in the cloud? (Technical question if they start talking about reasons, we can slide into question 5)
    - Do you have any other cloud services in addition to ERP?
    - How did you find out that ERP in the cloud was an option?
5. Do you have master data in other countries? There is a law on data traffic across the borders. Have you experienced this as a problem with the cloud?
6. Were you considering other platforms? SAP, Microsoft, Unit4Agresso, etc.
7. Why did you choose a cloud based ERP system?
    - Business model? Renting versus buying?
    - Easy way to get a competitive ERP system without a large investment
    - (Price, agility, etc.)
    - Is there any thought that this is just an initial phase? The idea is that you want to upgrade later?
    - Why did you choose the system that you have now?
    - How long did the implementation take?
    - Cost-effective? (Chasing low cost?)
    - Technical expertise among decision-makers?
    - Would you say you bought a feature or technology?
    - Is scalability important to you?
8. Were there factors that made you considering not move to the cloud?
    - Sufficient bandwidth?
    - Risks associated with the cloud technology?
    - Sufficient skills in house?
    - Quite static and limited functionality?
9. What benefits have you experienced with cloud-based ERP?
    - How was the benefits conveyed by the supplier?
    - See "adoption factors from literature"
10. What disadvantages have you experienced with cloud-based ERP?
    - If you expressed uncertainties and risks, did the supplier do something "extra" to solve it?
    - See "adoption factors from literature"
11. Do you think that the big media interest around cloud technology influenced your decision?
12. Has the partner or customers choice of ERP system influenced your choice?
13. (Has the suppliers ecosystem influenced your decision?)

Appendix 3: Interview framework vendors, Swedish

1. Vem är du?
2. Vad jobbar du med?
3. Vad gör **företaget**?
4. Berätta om er produkt/molnprodukt.
5. Hur ser er affärsmodell ut? Hyra/fast pris?
6. Vad är viktigast att tänka på när man säljer och implementerar molnlösningar?
7. Hur marknadsför ni till kunderna att det finns ERP/affärssystem i molnet?
    - Jobbar ni främst med nyimplementationer eller byter företag i regel från ett ”gammalt” affärssystem?
        - Vad är ert intryck av varför företag väljer?
    - Vilka ERP tjänster erbjuder ni i molnet? (Teknisk fråga, om de börjar prata om anledningar kan vi glida in i fråga 4)
    - Har ni några andra moln-tjänster utöver ERP?
8. Har ni masterdata i andra länder?
9. Hur ser ni på era konkurenter? SAP, Microsoft, Infor osv
10. Vad upplever ni är anledningarna till att företag väljer ERP i molnet?
    - Betalningsmodell? Hyra kontra köpa?
    - Lätt sätt att få ett konkurrenskraftigt affärssystem utan att betala mycket
    - (Pris, smidighet, osv)
    - Finns det någon tanke om att detta bara är en startfas? Alltså är tanken att ni ska uppgradera vid ett senare tillfälle?
    - Varför väljer man som kund **företaget** och inget annat?
    - Hur lång tid brukar en implementering ta?
    - Kostnadseffektivt? (jagade de låga kostnader?)
    - Teknisk kompetens hos beslutsfattarna?
    - Är skalbarhet viktigt för era kunder?
        - Är er plattform skalbar?
11. Vilka faktorer upplever ni är mest kritiska för att företag INTE väljer ERP i molnet?
    - Finns det några uppenbara bromsklossar i försäljningen av ERP i molnet?
        - Hur har ni tacklat dessa?
    - Tillräckligt med bandbredd?
    - Riskerna som är associerade med molnteknik?
    - Tillräckligt med kompetens in house?
    - Ganska statisk och begränsad funktionalitet?
12. Vilka fördelar tror ni kunderna upplever med molnbaserad ERP?
    - **Se ”adoption factors from literature”**
    - Hur förmedlades fördelarna av leverantören?
13. Vilka nackdelar tror ni kunderna upplever med molnbaserad ERP?
    - **Se ”adoption factors from literature”**
    - Om ni uttryckte osäkerheter och risker, gjorde ni något “extra” för att lösa det?
14. Upplever ni att det stora media intresset kring molnteknik hjälper till i marknadsföringen?
15. (Har leverantörens ekosystem påverkat ert beslut?)

Appendix 4: Interview framework vendors, English

1. Who are you?
2. What do you do?
3. Describe your company.
4. Tell us about your product / cloud product.
5. What is your business model?
    - Do you offer your customers a rent service or a fixed price?
6. What is the most important factor to consider when selling and implementing cloud solutions?
7. How do you promote to your clients that you offer ERP in the cloud?
    - Do you work mostly with fresh implementions or do your customers simply upgrade an old system?
        - What is your impression of why customers choose “what he said”?
    - What ERP services do you offer in the cloud?
    - Do you have any other cloud services in addition to ERP?
8. Do you have master data in other countries than Sweden`
9. What do you think of your competitors systems? SAP, Microsoft, Infor etc
10. What are your feelings about the reasons why customers are choosing cloud based ERP?
    - Paymentmodel renting vs buying?
    - Easy way to get a competitive ERP system without high investment?
    - (Price, agility etc)
    - Is there any thoughts that this is just an initial phase? Is the idea that you will upgrade the system later?
    - Why do customers choose your company and not another one?
    - How long does an implementation take?
    - Cost effective? (chasing low costs?)
    - Technical knowledge among decision-makers?
    - Is scalability important to your customers?
        - Is your platform scalable?
11. What are the factors you are experiencing for customers not choosing an cloud based ERP system?
    - Are there any obvious roadblocks in the selling of cloud based ERP systems?
        - If yes, how have you addressed these?
    - Sufficient bandwidth?
    - Risks associated with cloud technology?
    - Sufficient skills in house?
    - Quite static and limited functionality?
12. What advantages do you think customers experience with cloud based ERP?
    - **See “adoption factors from literature”**
    - How was the benefits conveyed by the vendor?
13. What disadvantages do you think customers experience with cloud based ERP?
    - **See “adoption factors from literature”**
    - Did you do something “extra” to solve these concerns?
14. Do you feel that the big media interest for cloud technology will help in your marketing

15. (Has the suppliers ecosystem influenced your marketing of cloud based ERP systems)