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Software as a Service

What are the contributors to Software as a Service usage?

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Abstract

Software as a service (SaaS), which means executing software over the internet, is recently getting more attention in scientific articles and the SaaS market is growing. This implies that there are some factors contributing to SaaS usage but we saw that there are different views on what is contributing to SaaS usage. Therefore the research question is;

"What are the factors contributing to SaaS usage?"

The studies purpose is to identify the factors contributing to SaaS usage, seen from customers' perspective. To achieve the purpose a literature study was conducted to find the factors contributing to SaaS usage according to contemporary research. These factors were then discussed through interviews with six informants who work in a company that uses SaaS or that has decided not to use SaaS.

In the literature study we found 11 factors which may contribute to SaaS usage and through our research we identified that 10 of these does contribute to SaaS usage. Some of these factors had several aspects of them contributing to SaaS usage. We also found one new factor that partly contributes to SaaS usage.

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Chapter 1: Introduction

In this chapter we present the background of the field study, together with the research problem discussion as a part where we present and discuss the current issues regarding the researchers for SaaS as a phenomenon. The discussion leads to our research question and the chapter also contains the research purpose and a brief research overview.

1.1 Background

Software as a service, which means executing software over the internet, is recently getting more attention in scientific articles and from business. Software as a Service (SaaS) can incorporate both more complex software as ERP or CRM solutions and smaller applications as word processors.

A search on Google scholar for “Software as a service” gave 7280 hits from articles published from year 2005 and until now. When expanded to consider articles from year 2000 and forward it resulted in 7620, only 340 more hits. It furthermore showed that from 2009 to 2011 there were 4930 hits. This small discussion implies that software as a service is a more recent phenomenon getting higher attention. This may be due to the use of software as a service, as a search word. If we had used application service provider we may have had more hits. This is because software as a service is a relatively new concept.

As stated, the attention for SaaS is increasing even on the business side. Several IT-giants are offering SaaS products. E.g. Google offer mail service, document management, word processing, spreadsheets and presentation tools as a service (docs.google.com). Microsoft offers both their office package and more complex software as a service (Microsoft homepage). As more complex service solutions they offer application development and Microsoft Dynamics CRM online. The last is, as it sounds, a CRM software provided online. Oracle does also provide CRM software as a service, called Oracle on demand.

As an example we can look at the Swedish cloud computing market where SaaS is included. The market has grown from 68 million euro in 2009, to 105 million euro in 2010 and is forecasted to be 153 million in 2011 (Glaad, 2011). Another example is Markets and Markets (2010) market research which shows that the global cloud computing market was 37.8 billion dollars in 2010 and is expected to grow to 121.1 billion dollars in 2015. Moreover they state that SaaS accounted for 73% of the markets revenue in 2010, making it the largest cloud computing segment.

This clearly shows an increasing focus on cloud computing and thus on SaaS in the global market. An obvious question one can ask is why all this attention to SaaS? Why do companies use SaaS?

1.2 Problem discussion

Some issues with larger on premise software is that it usually is time and resource consuming to implement (Stamatia et al, 2010). Furthermore it forces companies using the software to hire IT-professionals to maintain and update the software. The SaaS concept is trying to

decrease the implementation complexity and the need for maintenance staff by providing the software from their own datacenters to the customers through the internet.

There are articles agreeing with this thought and other disagreeing. This is the case with several of SaaS software so called “advantages”. Where one article states that some feature is an advantage of SaaS, there is almost certainly one stating the opposite. As for e.g. that SaaS is easier to implement. Ju et. Al. (2010) and Waters (2005) writes that SaaS can be up and running relatively fast because its ease to implement. Lashar (2008) on the other hand mean that the data conversion to SaaS software can be more demanding than expected and thus lead to higher cost and more demanding implementation. We are wondering if SaaS is provided through the internet, can you really say that there is need for implementation.

Another example is the security issue. In Atkinson’s (2008) article, one interviewee discusses the security concerns of SaaS, stating that his company would like to have the software inside their firewalls because of security reasons. Prakash (2011, p. 2) contributes to the thought that SaaS is weaker than on-premise software on security by saying that "data on the cloud is almost always encrypted; this is to ensure security of the data. However, this comes with a price - corrupted encrypted data is always harder to recover than unencrypted data".

Whereas Howarth (2010, p. 1) states that “Purchasing software licenses is the traditional method of accessing software applications, but each extra application that is licensed requires IT resources to set up the system on each device to be protected, and it must manage the processes of keeping the software up to date and properly configured”. This she means affects the security negatively, further stating “managing web-borne threats is becoming a major headache for today’s resource-strapped organizations” (Howarth, 2010; p. 1). Lastly Howarth (2010; p. 10) states that “through use of a cloud based service, with updates quickly and automatically deployed to users, the risk of an incident occurring, and therefore the costs of remediating that incident, is reduced considerably”.

Prakash (2011) states that according to a survey from 2010 made by ISACA 45% of IT professionals consider the risk of using SaaS outweigh the benefits. He on the other hand does not state how many of them do not consider that.

Nevertheless, as discussed in the background, companies are using cloud computing and SaaS and the market is growing and is expected to grow rapidly. For example Rådmark (2010) states that sales of SaaS are growing six times faster than general software. Glaad (2011) writes that an research made by Gartner shows that a majority of thousands of CIOs asked answered that they believe that everything well be moved to the cloud in four years.

This fact implies that there are some factors contributing to the usage of SaaS but that there seem to be different views on what is contributing to SaaS usage. Factors contributing to the use of SaaS may be some of these discussed above, or those discussed in section 2.4, but there might be some other factors as well. To give some example, maybe the size of the company or which market it is in affects the decision whether to use SaaS or on-premise software.

As noted, there seems to be some uncertainty about what is contributing to SaaS usage. Therefore we feel there is a need for more research in the SaaS area with focus on why companies choose to use SaaS. This leads us to our research question:

"What are the factors contributing to SaaS usage?"

1.3 Purpose

The studies purpose is to identify the factors contributing to SaaS usage, seen from customers' perspective. The different factors will most probably have less or more impact for contributing to SaaS usage. We chose to research the perceived factors to get "as is" knowledge and not thoughts or believes. Furthermore we chose to have a customer perspective because they are those who are using SaaS in their daily routines and who should benefit from it.

1.4 Concept explanation

SaaS – is one way of delivering software. The software is executed over the internet and can consist of any different types of software. It can e.g. be CRM-system, mail solutions and word processors. One important SaaS characteristic is that there is no installation made on the customer's side, everything is installed at the vendor and the customer rents what it needs.

On premise – is software that is bought and installed at the customer's side. The customer most often pays license fees to use the software. On premise software can be the same software as SaaS, the big difference is in the way of delivering the software.

1.5 Research overview

The research was conducted by first doing a literature review to increase our knowledge about SaaS and SaaS advantages. From the literature review we derived factors which may contribute to SaaS usage. These factors were developed into questions which later on were asked the customers through semi-structured interviews. The questions can be found in appendix 1. The empirical data conducted was used to present and analyse the factors. This was done by comparing the interviewees' answers to the factors, to see if they agreed with that the factors was a contributor to SaaS usage or not. This approach leads to questions being grounded in literature and a logical link between the theoretical and actual data. The factors that were agreed on were presented as factors contributing to SaaS usage. (See Figure 1.1 for research overview)

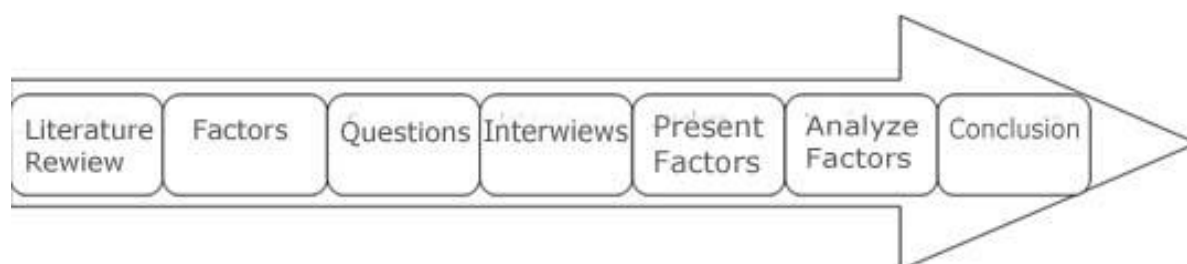


Figure 1.1 Research overview.

Chapter 2: Theory

To increase our knowledge about what SaaS is and the factors contributing to SaaS usage according to contemporary literature we did a literature study. More about how the literature study was conducted can be found in section 3.1.

In this chapter the general concept of Cloud computing and its relation to SaaS is explained. Furthermore a detailed explanation of SaaS and its characteristics is provided followed by the differences between SaaS and On-premise software. Lastly we state advantages of SaaS found in the literature. This was made do be able to derive factors which may contribute to SaaS usage, thus constructing our research model.

2.1 Cloud Computing

The development of the internet technology affected the computing utilities in a way that brought the competition and business feelings in to the game. So called "Cloud computing" is the term that emerged from putting all the resources of hardware and software available to make more money. There are many definitions of Cloud Computing but one may say that it appears as a collaboration between the applications that are being delivered as a services and on the other hand the (Cloud) hardware and the software that provides this kind of services (Armbrus et al, 2009).

Delivering the software as a service needs advanced technology, and cloud computing according to Domingo et al, (2010) provides with the most recent infrastructure and technology specialized in delivering applications, software and solutions as a service, where they use special Multi-User architecture that gives freedom to maintain and manage large amounts of data, without disturbing the end-users.

The above mentioned technology is available in subscription bases where the end user pays fees for the services that are subscribed for (Armbrus et al, 2009).

According to Domingo et al, (2010) Cloud computing enables SaaS deployment, upgrade and maintenance in a very efficient and easy way for all the end users because of its centralized management features, the interaction or the collaboration between users is made very easy and from anywhere, and the advantage of on-demand usage gives the freedom of choice for scaling the service in terms of amount and time, that the user wants to use. At one point Armbrus et al (2009), defines Cloud Computing as the combination of SaaS and Utility computing where in Figure 2 is shown the relation between the end SaaS users and SaaS providers in Cloud Computing. (See Figure 2.1)

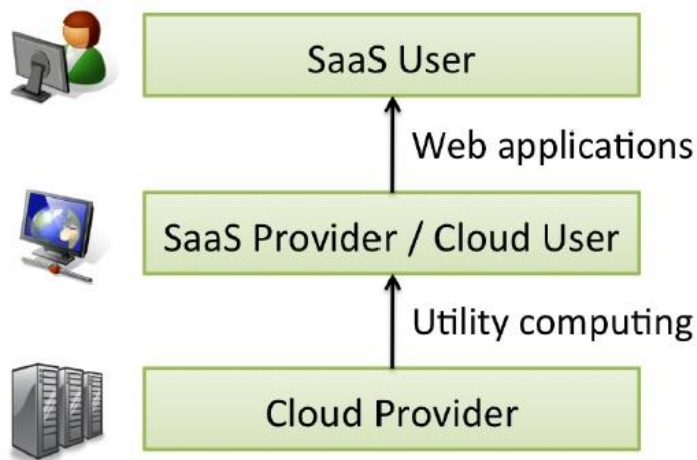


Figure 2.1 Cloud Computing model. (Armbrus et al, 2009)

2.2 Service or Product

Armstrong and Kotler (2007) discuss the difference between services and products. They state that even services are products, thus they call them service products. However they pinpoint some differences between products and service products, here called just products and services. Armstrong and Kotler (2007) state that services cannot be divided from their providers and that they can't be tested before delivered, which on the other hand products can. They furthermore state that the quality of the service can vary, even though the same service provided by the same provider, contrary to products which most often have the same quality if it is the same product offered from the same vendor.

Hedman and Kalling (2002) also discuss the difference between services and products. One difference they mentioned is that services are intangible and products are tangible, the differences are summarized in table 2.1.

Table 2.1 Differences between product and service features.(Hedman & Kalling 2002)

Services	Products
Intangible	Tangible
Heterogeneous	Homogeneous
Use, production, and distribution at the same time	Distribution and production dispartate from use
A process or activity	A thing
Value created in the seller and buying interactions	Value created in production or operations
External participants involved in the production	No external involvement in the production
N/A	Can be held in stock
No ownership	Ownership transfer

2.3 Explanation of SaaS

This section will provide an explanation about what SaaS is, to enhance our understanding about SaaS and ease the understanding about the differences with on premise software and the advantages with SaaS. This is important because SaaS is our service of study and thus should be understood. Furthermore it is easier to understand where its advantages evolve from if one understands what SaaS is.

2.3.1 SaaS Characteristics

With the internet rapid growth the world is changing its ways of communication in many aspects of life. Everything takes its shape within the new dimension of technology, eliminating the barriers of distance, speed and efficiency. Solving problems becomes easier and more creativity is used during problem solving process Hong (2010). Using IT technologies for solving problems nowadays emerges in a different form, it is being provided as a "Service" through the net. Anerousis and Mohindra (2006) states that Software-as-a-Service (SaaS) emerges as an evolutionary result of the Application Service Provider (ASP) model where the online pay-as-you go feature changes the traditional believe, the relationship with vendors and consumers. As Bhardwaj et al. (2010) describes, Software-as-a-Service is one of the service categories of Cloud Computing. Where Bhardwaj et al. (2010) continue to elaborate this concept describing it as a process that is used by the Application service Provides (ASP) to provide variety of software applications through internet, using the infrastructure of the Cloud.

Ju et al. (2010) claims that this type of service is growing fast, SaaS will be delivered across the net with very specific characteristics that will allow this service to conquer everyone's business. He also uncovers some of the SaaS characteristics, they state that SaaS will be accessed through the web where the end users will use the web browsers to access it instead of using the company WAN. The end user will not have to care about the maintenance completely ignoring the in-house IT department. Pay-per-use system that provides the possibility of paying what module or instance you need to use and the quantity of it, management and upgrading of the system is performed multiple times by the vendor, so another reason not to have an in-house IT department. According to Bhardwaj et al. (2010) The provided application is on the one-to-many bases model where one application is shared along the multiple users known as: single-instance with multi-tenant architecture, he also suggests that it is also possible to make large network adjustments and integration and work together in different forms, new forms and innovation are easily applied in the service provider which is applied directly to the end users.

2.3.2 SaaS Components

Anerousis and Mohindra (2006) categorized the components in charge for the good performance of the SaaS in the following way:

End-Users: The biggest initial target group of customer will be the Small and Medium Businesses followed by customers.

SaaS Providers: Vendors and companies that provide these kind of application in form of services.

SaaS Developers: Professionals that develop these applications for the Vendors.

SaaS Hosts: Companies or organizations that are administrating the infrastructure of the SaaS providers, which eliminate the need for the Providers to host the product for delivery.

Hub Providers: A component that helps the client integrating new SaaS services and other applications

In his paper Liao (2010) has two views about SaaS, the business approach and the technical approach.

1. **The business approach of SaaS-** Is mainly characterised with the Multi-tenancy architecture where the equipment consisted of hardware and software can supply many end-users at the same time, freeing the customer from the obligation of having their own expensive hardware and professional teams to do the work. SaaS models put more attention in to the software application customization and extension. The costumer is charged on the time of usage or the rented functioned of the application by the Software vendor, Software firm or Internet Software Vendor (ISV). SaaS also is more spread or better said used by the small and medium size businesses, where for bigger companies according to Liao (2010) the ASP is used.(See Figure e 2.2)

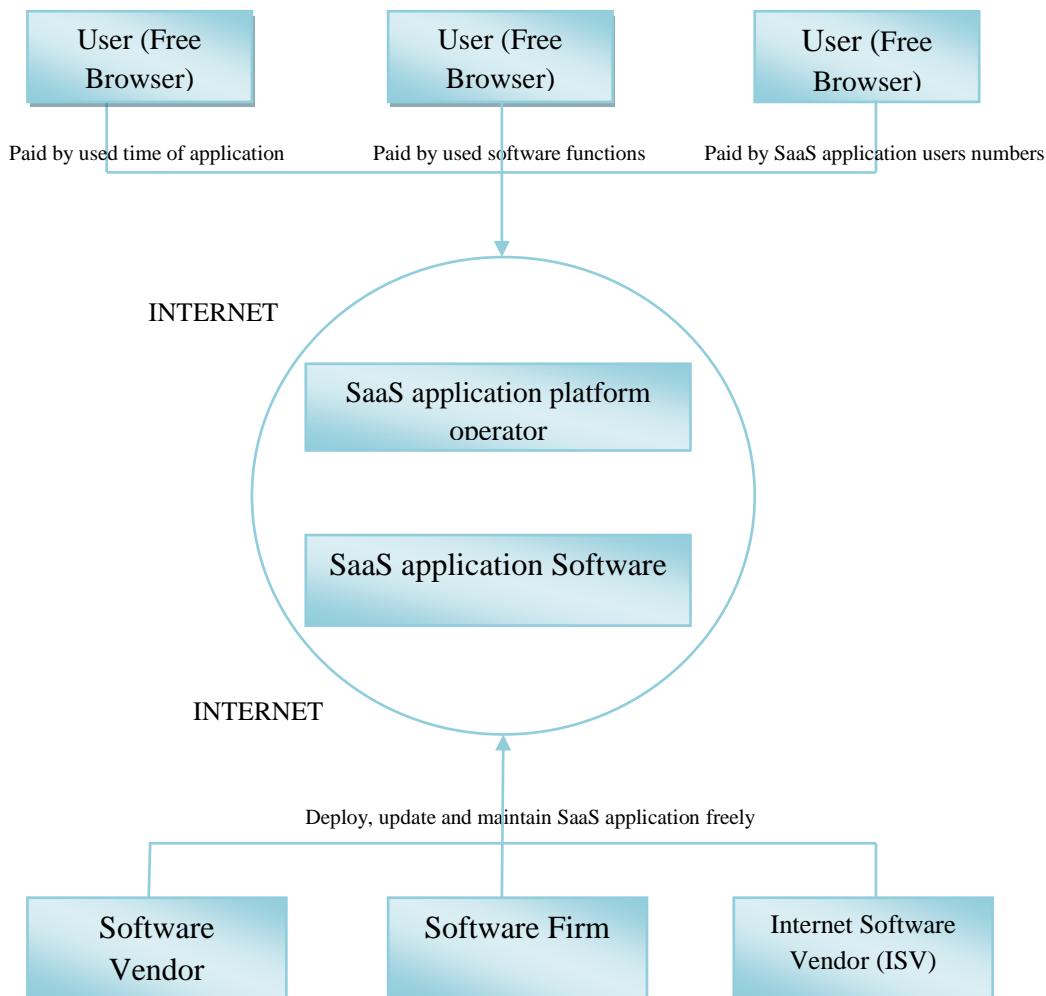


Figure 2.2 Business view of SaaS; (Liao 2010)

2. The technical view- Refers to the operational procedures and features of SaaS as an enhancement of IT technology. Being centrally managed, having the Single Multi-tenancy, unique isolation of data for each customer, its business logic and so on. SaaS manages to arrange these functionalities in order to reduce upgrade costs and time. The service technology layer includes several services that made possible to the End-users to have access to some of the features and applications for customization and organizing of their work for their company with no need of professional programming skills. (See Figure 2.3)

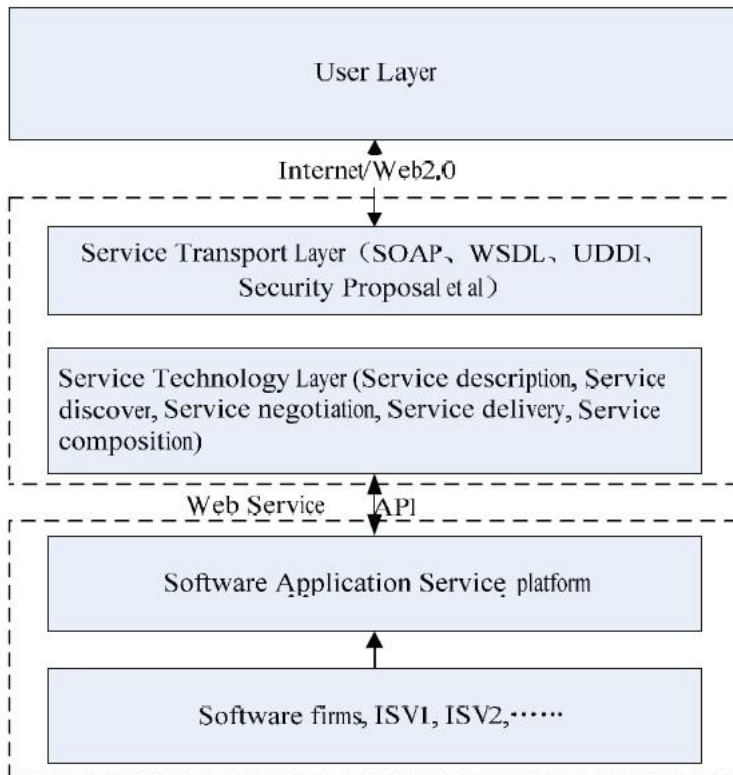


Figure 2.3 Technical View of SaaS; (Liao 2010)

2.3.3 SaaS Service Categories

Furthermore Liao (2010) classifies the SaaS services in to two categories as *company-oriented services*, where different type of SaaS are offered such as: CRM, HRM, SCM, ERP and different financial assistants for these groups of users. Where the charge is based in monthly fees for the group of users for a certain company. The second is *user-oriented services*, which is aiming the individuals using these services for different purposes like communication, entertainment and so on, which is free of charge, being founded by the advertisements and of users on the net. Where the software vendors according to Liao (2010) should accept different business models that will result on cost reductions, service enhancements and bigger profit, which on the other side results with providing better SaaS platform services. Anerousis (2006) suggested that the company-oriented service can be categorized as follows:

Access Services

Represents the point of authentication of the users of the platform whether they are platform administrators or clients. It's located in the site of the provider, where after logging in it checks and grants access further more.

Platform support services

Supports the distribution of SaaS application and further more it consists of two sub groups:

1. *Business Support Service* -refers to the portal that is designed for the communication between clients (end-users or resellers) and the service providers for any emerged situation within the application.
2. *Operation Support Service*-This service includes a set of tools that can be used for management, deploying, monitoring and analyzing SaaS applications offered.

Security Services

This service manages and controls the different leveled users and their roles in relation with the SaaS membership setting their privileges and positions with different levels of security and accessibility.

SaaS Management Services

Contains a set of tools that manages, maintains and helps in development of different applications that the clients subscribed for, in a life cycle period.

SaaS Instances

This unit contains applications that are served within the frame of the subscription packet and is being delivered to the client, where the same is provided from the vendors in a very efficient way.

Data Service

This unit administrates the data that are being used in the SaaS Instances.

Integration Services

This service is used to manage and administrate the data of the company that are outside of the SaaS provider servers

2.3.4 SaaS vs. On-Premise Software

Liu et al (2010) defines SaaS as a software model which is based in the cloud platform and its deployed and maintained from the software vendor to its customer in multi-user system, and its delivered over the internet network in the form of a service on-demand bases. He also states that the SaaS appears to emerge as a new concept of a software delivery drawing attention to variety of industries and the academia as well. The deployment of SaaS in to the clients' premises needs no special infrastructure and it reduces the cost of resources and special infrastructure where further more it frees the client from the obligation to have specialized IT department on-premise (Liu et al 2010).

On the other hand Dubey & Wagle (2007) describe the on-premise software as an application that is delivered as a product to the costumer, with the license as a separate accessory for operation, this type of software tend to be installed to the customer premise where it requires a special infrastructure and a specialized team that will keep maintaining it. They also mention that some vendors played the role of the maintaining team where they bought the license and provided the needed care for the client regarding the software.

The differences regarding this two types of software are obvious, Stamatia et al (2010) focuses on the cost effectiveness as a very important factor in this case. The IT infrastructure cost is to be considered when calculating the total software development and maintenance cost, it also includes the hardware, software and license fees that come as a separate packages. Operational costs also point to the hardware change and replacement which depends on the hardware list that is used as server equipment and the hardware list used for the end-users, where also the license usage is depending on the quantity of the workstations that the software is installed. Also implementation and team training is a separate cost that should be taken into consideration (Stamatia et al, 2010).

The on-premise software development delivered as a product will keep on growing but some stated that the software delivered as a service will grow faster (Liao, 2010). The SaaS core functionality lies behind the idea of separating the software ownership from the use, enabling the user to take advantage of the usability, deployment and implementation. That will result in opening the horizons of the market for business purposes (Mark et al, 2002). And this separation of the ownership right, started to affect the traditional software business model (Liao, 2010). See table 2.2 for an overview of the differences between SaaS and On-premise software.

Table 2.2 Differences between SaaS and On-premise Software

Features	Software as a Service	On-premise Software
<i>Licence Ownership</i>	Vendor	Customer
<i>Delivery</i>	Internet based	Local Implementation
<i>Cost</i>	Subscription based	Pay-per-License
<i>Maintenance</i>	Vendor Administrator	In house IT Staff
<i>Upgrading</i>	Continuesly from the Vendor	Update from Vendor -Installation from Customer
Special Infrastructure	Not required	Required

2.4 Advantages of SaaS

In this section, we will state the advantages of SaaS over on premise software, according to contemporary literature. These advantages are taken from articles explaining what SaaS is and why it is beneficial. We have focused on finding articles that are not more than five years old, to get more contemporary information.

As our purpose is to study the factors contributing to SaaS usage from customers' perspective we will use the advantages discussed in this section to create factors, which we later will ask the customers to comment. We ground the factors in theory to get as qualified factors as possible.

2.4.1 Cost-effective

SaaS is more cost effective to the customers (Bhardwaj et. al, 2010; Liao, 2010; Ju et. al, 2010). One reason, according to Bhardwaj et. al (2010) and Liao (2010), is the pricing models of SaaS, where there are three kinds of pricing models offered from the vendors; pay as you go cost model, monthly subscription and per user. Waters (2005) on the other hand, mean that the “buy vs. rent” discussion about traditional installed software and SaaS is misleading because typically when you buy traditional software you buy a license to use the software per user or for a period of time.

Instead, the cause for SaaS being less expensive is that the customers don't have any hidden cost, as with traditional software (Waters, 2005). Waters (2005) calls this the snowball effect of upgrade cost, stating that when a customer buys a new application, it ends up needing a new database, which in turn needs a new server, which requires new hardware and so on.

Dubey and Wagle (2007) state that SaaS pricing models most often only charge for the functions used by the customers, thus decreasing customers cost by cutting of unused functions. This is shared with Ju et al (2010) who state that the basic advantage of SaaS are that companies only pay for what they need. This discussion shows that there is a possibility that customers perceived advantages of SaaS may depend on what type of pricing model SaaS providers offer. Another reason for SaaS being less expensive is that there are no front loaded expenses and the customers have less fixed cost, as all hardware is located at the vendors end. (Ju et al., 2010; Bhardwaj et al., 2010; Anerousis & Mohindra, 2006.).

Yet another factor contributing to SaaS being cheaper is that companies' need for IT-professionals decreases, as do the cost for maintaining the software, since the providers are responsible for the software maintenance (Liao, 2010; Liao & Tao, 2008). Furthermore the vendors increase the efficiency with which they manage their solutions because they do it in their own data centers for multiple customers at the same time, leading to less cost and thus less charge for the customers (Waters 2005).

2.4.2 Easier deployment

According to Ju et. Al. (2010) and Waters (2005) SaaS customers can be ‘up and running’ relatively fast. The reason for this they state is that the service is provided through Internet and therefore there is no installation and setup at the customer's end. Waters (2005) furthermore states that both installation and other services, e.g. customization, is done more quickly because the vendors are making the customization and installation within their own data centres, instead of having to send their employees to the customer. Anerousis and Mohindra (2006) agree with the above written and provides a timeframe to the discussion, saying that SaaS solutions can be used by the customer in a few weeks.

2.4.3 Scalability

According to Waters (2005) scalability is one big advantage of SaaS, as he states that the customer can buy the capacity he need for today and yet tomorrow increase or decrease the capacity if needed. He also makes comparisons with just-in-time supply change management, claiming that there are similar advantages to gain.

This view is shared by Ju et al. (2010) who point out that with SaaS companies can easily adapt the software usage according to their need, buying the application for a couple of people to start with and in a month or two easy adapt it for a whole department or the entire company. They continue by saying that a company can do all this without planning for it.

We finish this discussion with Liao (2010) who leads us to the next advantage by stating that SaaS application customers have more scalability and more freedom of choice.

2.4.4 On demand usage

The freedom of choice is partly be explained by on demand usage. This is similar to the above discussion, where customers can easily use the applications they need, when they need it and in the amount they need. This is shared by Liao (2010) who point out that customer's can enable or disable SaaS applications more flexible according to their needs and strategies. Which is further confirmed by Ju et al (2010) stating that the basic advantage of SaaS is that companies only pay for what they need.

2.4.5 Always upgraded or easier to upgrade

As the service is on the vendors end, the upgrade is made by the vendors in their own data centers when needed and without the customers seeing it (Waters, 2005). This takes the burden and cost of upgrading the software from the customer's shoulders. It also facilitates more quickly updates and enhancements (Anerousis & Mohindra, 2006; Bhardwaj et al., 2010).

Except being more updated the customer will also enjoy better service and more sound upgrades, as feedback from multiple users of the same application can be used to make upgrades and enhancements to the application (Liao, 2010).

2.4.6 Security and disaster recovery

This is one advantage that we did not think would emerge in our literature review. We thought that this was a flaw of SaaS, but it is the opposite according to Anerousis and Mohindra (2006). They state that security used to be an issue for SaaS customers, but that now it is rather an advantage. This is because SaaS providers are aware of their customer's concerns and understand that information security is of primary priority, and thus invests in security and assures compliance with contemporary safety guidelines (Anerousis & Mohindra, 2006; Ju et al., 2010). This increases the customer's information security because it is more profitable for the providers to invest in heavy information security than for the customers.

2.4.7 Easier to change provider

As the solution is bought as a service and there are no installations or heavy IT-investments are made at the customers end it will be easier for the customer to change provider (Ju et al. 2010). This ease of change can also be a motivator for the providers to provide higher quality solutions.

2.4.8 More mobile and accessible

The software will be more mobile and accessible as the solution is provided over the internet (Ju et al., 2010), thus enabling the companies to have easier access to mutual data.

2.4.9 Core competency focus

Because the vendors are maintaining the IT-solution, the customers do not have to put resources in IT-maintenance and thus can focus on their core business competencies (Laplante, et al., 2008). Furthermore it enables the customer to focus the IT-resources on their core business activities (Ju et al., 2010).

2.4.10 SaaS is more beneficial to small and medium sized companies.

Liao (2010) states that small and medium sized (SMS) company's informationization has "not been high popularity". He gives the reasons that SMS companies have a small IT-budget and a lack of IT-staff. But he on the other hand state that SMS companies has the need for contemporary systems to be able to compete and he means that SaaS will enable them to have so. This because SaaS systems can be bought with a smaller budget and there is less need for IT-staff thus SaaS fits SMS companies requirements better, as he assumes that big companies don't have the same stated concerns as SMS companies. These thoughts are shared by Ju et al (2010).

2.4.11 The vendor trust is more important

The last factor is that the SaaS vendor is more important to the customer than the on-premise vendor is. One reason for this is, as discussed in section 2.2, a service cannot be divided from its provider.

Furthermore the service quality is dependent on the provider. If we look at some of the factors discussed above; More mobile and accessible, Security and disaster recovery, Always upgraded. All three of these factors are dependent on the vendor. If the software on the vendors side crashes allot, then is will not be more accessible. If the vendor has not invested in high security, then your data will be at risk. And lastly if the vendor does not do his updated on your software, you will not have contemporary updated software.

Another aspect to bear in mind is that how strong the vendor is financially and if the vendor can make it through hard times. This is because if the vendor company goes in bankruptcy, with him goes your data.

Chakraborty et al. (2010) also discuss data privacy, stating that the client's must trust the vendor's privacy policy to be sure that the vendor will not access their private data.

This discussion implies that trusting the vendor may be a factor contributing to SaaS usage.

2.5 Research model

From the advantages discussed above, we have derived propositions about SaaS advantages. These propositions will be used to derive if the factors behind the propositions are contributing to SaaS usage. We have reasoned that advantages of SaaS should be contributors to SaaS usage. For each factor we have provided some propositions which will enable us to ask questions about the factor. We have derived eleven general factors and each of them has propositions connected to them. Some factors have several propositions because we want to further clarify what aspect(s) of the factor is affecting the decision to use SaaS, where we feel that there is a possibility that different aspects of the factor can affect the usage.

1. **Cost** (This factor is derived from *Cost-effective* in section 2.4).
 - SaaS is more cost-effective than on-premise software.
 - SaaS is more cost-effective due to its pricing-model.
 - SaaS is more cost-effective because it does not have any hidden costs.
 - SaaS is more cost-effective because there are no front loaded expenses and the customers have less fixed cost.
 - SaaS is more cost-effective because customers need for IT-professionals and cost for maintaining the software decreases.
2. **Deployment** (This factor is derived from *Easier deployment* in section 2.4).
 - SaaS is easier to deploy than on-premise software.
 - SaaS reduces system deployment time.
 - The implementation time is reduces because the service is provided through Internet and therefore there is no installation and setup at the customer's end.
 - The customization is easier and more quickly.
3. **Scalability** (This factor is derived from *Scalability* in section 2.4).
 - SaaS gives the customers the opportunity to easy scale their software to include more or less users.
4. **On demand usage** (This factor is derived from *On demand usage* in section 2.4).
 - SaaS enables customers to use the applications they need, when they need it and in the amount they need.
5. **Software upgrade** (This factor is derived from *Always upgraded/Easier to upgrade* in section 2.4).
 - SaaS is easier to upgrade.
 - SaaS software is upgraded without affecting the users
 - SaaS software moves the burden and cost of upgrading the software from the customer to the vendor.'

6. **Security and disaster recovery** (This factor is derived from *Security and disaster recovery* in section 2.4).
 - SaaS enables higher security and disaster recovery.
 - SaaS increases the customer's data security.
 - SaaS increases the customer's data recovery.
7. **SaaS enables customers to easier change a provider** (This factor is derived from *Easier to change provider* in section 2.4).
8. **Mobility and accessibility** (This factor is derived from *More mobile and accessible* in section 2.4).
 - SaaS is more mobile and accessible then on premise software.
9. **Core competency focus** (This factor is derived from *Core competency focus* in section 2.4).
 - SaaS enables the customer to focus their resources on their core business.
10. **Company size** (This factor is derived from *SaaS is more beneficial to small and medium sized companies* in section 2.4).
 - SaaS is more beneficial to small and medium sized companies.
11. **Vendor trust** (This factor is derived from *The vendor trust is more important* in section 2.4).
 - The vendor trust is more important when using SaaS then on premise software.
 - The vendor trust is important to be sure that the vendors do not intrude into clients data.
 - The vendor trust is important because a service cannot be divided from its provider, thus the vendor affects the service quality.
 - The vendor's financial state is important.

Chapter 3: Methods

Given our research question to find what factors are contributing to the usage of SaaS, research strategy and purpose this chapter will present the way how we conducted this research and explaining our choice and used method of collecting the empirical data, interview types and interview issue. In the theory chapter we have discussed what SaaS is and its characteristics and also which factors are contributing to the usage of SaaS according to literature. These factors are our research model. Thus here the data analysis will be presented followed by the validity, reliability and ethics of the research. Seen from the section 2.4 Advantages of SaaS and 2.5 Research model, we discovered that there is not much research being done in finding more about these phenomena from the client's point of view. This serves as a standing point of this research study to complete the missing puzzle of the whole picture in terms of this phenomenon.

3.1 Literature study

To increase our knowledge about what SaaS is and see what factors are contributing to SaaS usage according to literature, we did a literature study. The literature study was conducted by making searches on Google scholar and Lund university's article search LibHub.

The words we searched for incorporated Software as a service, advantages, cloud computing and SaaS. We narrowed our search to articles from 2005 to 2011. The articles found are from technological journals, business journals and technological conference papers. The conference papers are mostly from IEEE. We determined which articles to choose, according to which we felt contributed with appropriate knowledge for our research question.

Furthermore we only choose articles who we knew was reviewed to assure that the literature is trustworthy, as the literature is the foundation for all parts of our research. Because SaaS is not yet a developed field of study in the information system field and because of the lack of research we had to use the articles from other disciplines, which we felt was relevant.

3.2 Research strategy

One might argue that our research model, the factors discussed and outlined above, fit very well to a quantitative research strategy as the factors easily would be translated to a survey. But as stated in the Introduction chapter the purpose of the study in section 1.4 is to "increase the knowledge about the factors contributing to SaaS usage, seen from customers' perspective" we have used a qualitative research strategy.

Using a qualitative research strategy is an advantage when wanting to have more sophisticated and complex understanding and go deeper in analyzing the phenomena regarding the research question (Creswell, 2007; Kvale & Brinkman, 2009). It also provides an understanding of the context to which the participants of the study address an issue. First starting with broad assumptions, and then asking questions, categorizing them and ending with the complete report that explains the phenomena (Creswell, 2007; Kvale & Brinkman, 2009). This obviously fits our purpose very well and thus is more beneficial to us.

3.3 Data collection

As our research strategy is qualitative, it narrowed our choices for data collection tools because not all fit well for qualitative research. When going through suitable data collection tools we decided to use interviews as a tool that will enable us to collect the knowledge which will emerge during the interview process with our informants.

3.3.1 Interviews

According to Creswell (2007) this technique of collecting the data will help us see through the lived reality of the phenomena from the interviewees' perspective. It also emphasizes the possibility of being more objective regarding the knowledge that will emerge from this data collection technique (Kvale & Brinkman, 2009).

Conducting a research interview will help us to extract the needed the knowledge from the subjects of study. Having this professional conversation between us as the interviewee that will lead and control the entire situation and the subjects of study (interviewee) will result with bringing light to the phenomena that we are studying, the SaaS advantages from the subject's point of view. This way of extracting knowledge is suggested by Kvale and Brinkman (2009).

3.3.2 Interviews Types

Of the different interview types we chose semi-structured interviews. As we want to discuss all found factors and because we want a deeper knowledge about the phenomenon, other interview methods would not be suitable. Because a structured interview, which could be compared to a survey, would not give us the deep understanding we are aiming for (Bryman & Bell, 2005). An open interview on the other hand could result in that we miss out asking about some of the factors.

With the semi-structured interview we were able to see the phenomena from the subject's perspective, where the description of the experienced phenomena was interpreted.

It also gives freedom to the both sides that are being part of the interview process, not like the structured interviews that in some cases the interviewee will not reveal the whole truth because he has lack of trust or is under time pressure or other reasons (Kvale & Brinkman, 2009)

Considering the fact that semi-structured interviews are not that formal, we prepared an interview guide before the interviews. This enabled us to have a good overview about what we have and have not discussed and to keep the conversation in track and not to lose control over the situation (Myers & Newman, 2007). But since the type of interview are more informal it also gave us the possibility to ask follow up questions when we felt that it was needed, thus enabling us to get deeper answers. This is in line with Bryman and Bell's (2005) recommendations.

We think that using different techniques other than the above mentioned will complicate the process of knowledge production in our study. Having in mind our research area and

considering the possible informant behavior that might emerge during the data collection we are positive about that this selected technique fits our research study.

3.3.3 Interview guideline and conduction

The interviews started with us explaining that they could be anonymous if they want and that they don't have to comment questions if they don't want to. Then we asked some introduction questions.

The first question (The interview guideline can be found in appendix 1), "*Could you tell us your function in the company?*" is for making sure that the interviewee has a suitable function in the company to give us qualified answers.

The second introduction question, "*Does the company use software as a service or on premise, or both?*", is to give us the information about what kind of software delivery model the company uses.

The third question, "*Could you explain what you think is the difference between SaaS and on-premise software?*", is a control question to be sure that the person knows what SaaS is.

All these three questions are one way of increasing the studies validity.

The introduction questions were followed by an open question; "What factors did you consider when deciding to start using SaaS?". When the informant answered we marked in our interview guideline what factors was commented. Then we asked questions about the factors which was not commented in the answer to the opening question.

The next questions all have the same form. First we stated a proposition, then asked the interviewee about his or hers opinion on that proposition. Then we asked if the factor affected the choice to use or not to use SaaS. We did this because, as discussed in the problem area, there are different opinions on what is the advantage of SaaS.

This method also enabled us to get a deeper understanding about SaaS advantages but also about the factor's importance. One interviewee may e.g. say that a particular proposition is not a SaaS advantage but still is important for the SaaS usage decision. Or opposite, that it is an advantage but thus not a factor contributing to SaaS usage.

We also asked follow up questions where we felt it was necessary to make the interviewee further explain his or her thoughts and to get a deeper answer.

After the factor questions we asked the interviewees if we had missed some factors which affected the decision and if he or she could explain the factor and how it affected it.

Lastly we asked if it they accepted that we put their name and their company's name in the thesis. The fact that they could be anonymous was explained before the interview.

3.3.4 Recording Interviews

We recorded the interviews to enable us to focus on follow up questions during the interview and to facilitate the transcribing part of the research. Our approach follow Kvale and Brinkman's (2009) and Bryman and Bell's (2005) recommendations on how to conduct interviews. We must mention that first of all the subjects of study will be notified that we intend to record the interviews, and make sure that the technology that we will use to make the recording wont be a obstacle of performing the same.

3.4 Informants

Our informant companies will be companies that use SaaS or that have decided not to use SaaS. Because we want to see what factors did contribute to start using SaaS.

The informants we talked to are people in the IT-department with managerial positions or which deals with the administrative process of the company's software systems. Furthermore we assured that the informants have knowledge about why their company chose to use SaaS. We intentionally chose companies of different sizes, using different SaaS systems and in different industries.

The interviewees were found by searching for SaaS vendors, finding their customers and contacting the customers. We used convenient sampling, meaning that we chose those informants which had time and were willing to participate in an interview.

3.5 Data analysis

First to facilitate the data analysis we transcribed the recorded interviews into text. The interviewees' answers were grouped by question, so all answers to one specific question easily could be reviewed. The answers were put in a table to facilitate an easier overview.

All answers were analyzed to see if they agreed with the proposition and if the factor did contribute to SaaS usage. At the bottom of the table of the tables we wrote if the respondent agree or disagree with the proposition, then we stated if the factor did affect the choice of start using SaaS or not, with that meaning if the respondents did consider the factor when deciding to use SaaS. If the choice was affected by the factor, we stated how it affected the choice, positively by contributing to SaaS usage or negatively by not contributing to SaaS usage (See table 3.1).

Table 3.1 Example of how the answers were categorized in tables for an easier overview, the real tables contains all six respondents' answers.

Factor	Question(s)	Answer(s) interviewee 1	Answer interviewee 2	Answer interviewee 3
Factor 1	Related Question(s)	Answer(s) interviewee 1	Answer(s) interviewee 2	Answer(s) interviewee 3
		Agree and Contribute	Agree and Not contribute	Disagree and Not affect decision

3.6 Reliability

The reliability represents the trustworthiness of a research study, referring to the possibility of the research being reproducible from other authors at other times. This brings the question if the same research was conducted from other researchers, will the answers of the informants change or be the same (Kvale and Brinkman, 2009). The authors considered that matter and while designing the interview questions the authors carefully formulated the questions to avoid ambiguity and make sure that the questions cover all the prepositions of the factors and are very much related to the research.

In addition all the companies interviewed use SaaS, except one company that is not currently using SaaS, and we selected informants that pose knowledge about what the differences between SaaS and on-premise software. Thus we as authors believe that the answers from the interview questions are reliable for the research that is conducted, and the process of selection can be found under section 3.4.

The nature of semi-structured interviews gave freedom to the authors to be neutral during the process of interviewing and also the interview guideline that the authors posses was very helpful for controlling the situation and keeping on track with the interview, which is supported by Kvale and Brinkman, (2009). The detailed process can be found under the section 3.3.2.

One other argument in favors for the reliability of this research is the recording of the interview where after they were recorded they were transcribed to reading text and interpreted by the authors. This method increases the reliability according to Creswell (2007).

3.7 Validity

In order to increase or internal validity we have made logical links between the various parts of the study. To be able to answer our research question, “*What are the factors contributing to SaaS usage?*”, we first conducted a literature review finding proposed advantages of SaaS. The found advantages were later on, as noted, converted into factors and propositions, hence into our research model. The research model was converted into interview questions, thus linked to our data analysis, and the answers analyzed with help of the research model. By doing this procedure we were able to ensure us that there is a logical link between the research question, research model, data collection and data analysis. Table 4 shows an example of the link between the found advantage cost-effectiveness, its associated factor and its associated question.

Table 3.2 An example of the logical link between an advantage, its associated factor and its associated question.

Advantage	Proposition	Interview question
Cost-effective	SaaS is more cost-effective than on-premise software.	<i>SaaS is more Cost-effective.</i> What is your opinion on that? Did that affect your choice of (not) using SaaS?

According to Creswell (2007) validity is a process and should be incorporated in all parts of a study. We believe that we accomplished this by having validity in mind in each part of the research. Here validity being according to Kvale and Brinkman's (2009) definition: "To the extent to which our observations indeed reflect the phenomena or variables of interest to us". When doing the literature review we assured that the literature was relevant, as discussed in section 3.2. Then by doing the logical linking of the parts, as described above, we accomplished to reflect the phenomena of interest to us, because all parts were linked to each other and to relevant literature.

We believe that choosing informants from management level with relevant positions in the company will assure the quality of information source.

3.8 Ethics

All interviewees received a brief description about our thesis when they first were contacted (Appendix 2). We did this to ensure that the informant knew what subject we are going to ask questions about but also to let them know what the information is going to be used to. When we were on set we always explained that the informants could be anonymous if they want, both their name and/or the companies name could be anonymous. Furthermore we also told them that they always could pass a question without giving us any reason, just telling that they do not want to comment it. Lastly all respondents were asked if it was okay that we recorded the interview. For those informants that wanted to be anonymous (one) we assured that there was no possibility that their identity could be identified in the transcription our in our thesis.

4. Empirical presentation and data analysis

In this chapter we will present and analyze the data. The chapter starts with a presentation about our informants, their company and their answers to the introduction questions (Section 4.1). This is made to show who are informants were and to show that they have knowledge about our research problem. In section 4.2 we present and analyze our empirical data. More details about the structure of that section are found in the introduction to the section.

4.1. Informants Presentation

In this section we present our informants and their position in the companies, as well as the company background and activities. We conducted six interviews where we covered different size of the companies and different fields of the business. We considered companies that use SaaS, SaaS and on-premise and companies that use only on-premise software, aiming to see the different angles and reasons behind the decision for using or not using SaaS. Also we made clear our informants knew the difference between SaaS and on-premise software. That's why mainly we contacted people in IT related positions and familiar with the concepts of SaaS an on-premise software.

4.1.1 Life Support Company

Contact Person: Director of the IT department

Life Support Company is a logistics company that provides life support and infrastructural services to task forces and other clients involved in international missions, including crisis situations. Life Support Company provides a wide spectrum of services ranging from logistics solutions to waste management and laundry services and fuel supply. The company operates on a sole supplier basis. This company is a big size company with head quarters in 7 different places around the world, counting more than 1000 administration workers and more than 5000 field workers. They use their on-premise system that is designed from their IT department, to handle specifically their requirements. The information about the company is found on the company's homepage, but as the company wants to be anonymous we cannot provide the reference.

This informant will be called Life support Company in the data presentation and analysis, which is a fictional name, because the informant wanted his and the companies identity to be anonymous.

4.1.2 Condesign

Contact Person: Ulrika Bromander, Sales Director

Condesign offers "services that to increase the efficiency of creating, managing and publishing information" (www.condesign.se). Condesign Group is made up by the parent company Condesign AB and four subsidiaries that deliver services in three areas: Design & Automation, Information Technology & communications and system solutions. They have approximately 200 employees and operate in nine locations in southern Sweden. (www.condesign.se)

They use the SaaS software time management and CRM module from webCRM.

In the data presentation and analysis the informant will be called Bromander.

4.1.3 Malmö University

Contact Person: Staffan Krook, Service Level Manager

Malmö University is higher education institute found in Malmö, Sweden. Their goal is to create a multi-cultural study for all. Malmö University had 13 000 whole year full time students and 1426 employees in 2010. (www.mah.se)

Malmö University uses the SaaS Itslearning but also other on premise software.

In the data presentation and analysis the informant will be called Krook.

4.1.4 Findwise

Contact Person: Bengt Rodung, Founding Partner

Findwise is an “IT consultancy company, founded in 2005 by a team of experts from the enterprise search industry. The company currently employs 55 people and have offices in Sweden, Denmark and Norway.” Findwise creates “search solutions for intranets, web, e-commerce and applications to help their customers make information easily accessible to both company employees and their customers”. (www.findwise.se)

They use the SaaS time reporting module from Qbis.

In the data presentation and analysis the informant will be called Rodung.

4.1.5 Analytik LTD

Contact person: Ian Laidlaw, Manager

Analytical AB is established in 2003, and it's a provider of niche analytical instrumentation solutions to a wide range of applications and industries. They are based in Biggleswade, Bedfordshire, UK, but work throughout Britain and Ireland and sometimes with projects abroad and have five employees. (www.analytik.co.uk)

The SaaS they use is a CRM system named webCRM.

In the data presentation and analysis the informant will be called Laidlaw.

4.1.6 City Conersity AB

Erik Wallin, Managing Director

City Conersity AB, is a small eLearning content provider with courseware developed according to a concept for experimental learning called "Conersity". The conersity concept for competence development allows not only learning by reading and writing , but also learning by doing and creating and learning by social acting and reacting. In order to produce and manage such courses effectively, the company has created a virtual country called Busyland in which the learners can easily combine and integrate these different modes of

learning. The ambition is to make Busyland a home for lifelong Learning in social entrepreneurship. City Conersity AB is engaged in EU-projects like G8WAY, based on ICT support for effective and efficient transitions from education to work. This company uses the platforms as *Office 365*, *Share Point* and Microsoft Dynamics, Expert Maker, WeProject, Web 2.0 tools based in SaaS. The company has one employee for IT maintenance.

In the data presentation and analysis the informant will be called Wallin.

4.2 Presentation and Analysis for each factor

In this section we will present and analyze the empirical data. The section is divided by each factor and for each factor we first present the respondents answers, which mean that we present our empirical data, and then we analyze the factor. For each factor we first present a table with the factors question, the respondent's answers to the factor and at the bottom of the table it's written if the respondent agrees or disagrees with the proposition. Then we stated if the factor did affect the choice of using SaaS or not, with that meaning if the respondents did consider the factor when using SaaS. If the choice was affected by the factor, we stated how it affected the choice, positively by contributing to SaaS usage or negatively by not contributing to SaaS usage. For each question connected to the factors we only state the starting proposition, but during the interview all proposition were followed by "*What is your opinion about that? Did that affect your choice of (not) using SaaS?*"(Appendix 1). We don't have this in the tables to make it more readable.

The tables are followed by a text further presenting the data and then the factor is analyzed. This structure was chosen to facilitate an easier overview for each factor.

4.2.1 Factor 1- Cost Effective

Presentation

The smaller companies agreed that SaaS is more cost-effective then on-premise software. The bigger companies disagreed and meant that SaaS is more or equally expensive as on-premise software, whereas one of the respondents expressed that it depends on the vendors pricing model. That cost effectiveness depends on the pricing model was expressed by the Life Support Service Company and agreed by Rodung. Rodung stated that it's time for them to reconsider their contract with the vendors and try to change the pricing model, which now is pay per user, because they are growing and getting more employees and therefore with the current pricing model SaaS is less cost-effective.

Table 4.1.a: Cost-effective.

Factor 1	Question(s)	Analytic Ltd, Laidlaw	Condesign, Bromander	Life Support Company
Cost-Effective - SaaS is more cost-effective than on-premise software.	<p><i>Q4: SaaS is more Cost-effective.</i></p> <p><i>Q5: SaaS is more cost-effective due to its pricing-model.</i></p> <p><i>Q6: SaaS is more cost-effective because it does not have any hidden costs.</i></p> <p><i>Q7: SaaS is more cost-effective because there are no front loaded expenses and the customers have less fixed cost</i></p> <p><i>Q8: SaaS is more cost-effective because customers need for IT-professionals and cost for maintaining the software decreases.</i></p>	<p>Q4: Certainly a very cost effective solution.</p> <p>Q4: I looked add various different options and a lot of these solutions they were expensive. It was a low cost system.</p> <p>Q6: The number of features in the service has increased, and consequently the price has increased, but a lot of the features we don't use for the moment but still we pay for them.</p>	<p>Q4: At the moment it's more expensive to use just online systems.</p>	<p>Q4: The price could be a factor that might be an advantage when deciding of SaaS usage. But the price is not of a big deal when it comes to the importance of the service that you use to complete your tasks for your business.</p> <p>Q5: It depends on the pricing model. Maybe we can agree on taking a package and pay a bit more in the beginning rather than be based per user, because if we grow too much than we will have a lot of unnecessary costs for each user.</p>
		Agree and Contribute	Disagree and Not contribute	Not sure and partly Not Contribute.

Table 4.1.b: Cost-effective.

Factor 1	Question(s)	City Conversy, Wallin	Findwise, Rodung	Malmo University, Krook
Cost-Effective	<p>Q4: SaaS is more Cost-effective.</p> <p>Q5: SaaS is more cost-effective due to its pricing-model.</p> <p>Q6: SaaS is more cost-effective because it does not have any hidden costs.</p> <p>Q7: SaaS is more cost-effective because there are no front loaded expenses and the customers have less fixed cost</p> <p>Q8: SaaS is more cost-effective because customers need for IT-professionals and cost for maintaining the software decreases.</p>	<p>Q5, Q7: Well you don't have to do the investment, because the price model typically is per user.</p> <p>Q7: Absolutely, so get rid of the investments. For a small company there is a burden to invest in server, and server administration and server update and all that stuff.</p> <p>Q8: We have one employee working with IT which is a result of using SaaS.</p>	<p>Q5: The pricing model is very important. We don't commit our self to a lot of money.</p> <p>Q6: But no, not any hidden cost.</p> <p>Q7: We didn't want to do a big investment in system so it was very easy to start because u doesn't need to invest anything, to buy computers.</p>	<p>Q4: The price we pay for it is maybe a little bit more expensive but it's not much more money.</p> <p>Q6: In the beginning we one price, when we discussed a new contract price was a bit more expensive.</p>
		Agree and Contribute	Agree and Contribute	Disagree and Not contribute

Analysis

As shown by the answers, how cost effective SaaS is can depend on the pricing model. We saw that several of the companies had a pay per user pricing model and it was explicitly stated that the pay per user is less cost effective when a company grows. As an example Life support company stated “If we grow too much than we will have a lot of unnecessary costs for each user” (Appendix 4, section 3). On the other hand, when the company is small, the pricing model is more beneficial and thus contributes to SaaS usage. Once again, it partly depends on the size of the company. This is further enhanced by the fact that the small companies answered that SaaS is more cost effective then on premise software. This means that the statement in section 2.4 saying that SaaS is more cost effective because of its pricing model not necessarily is correct.

Thus the respondents did agree with the statement in section 2.4 considering that there are no front loaded expenses and that the need for IT-professionals and cost for maintaining the software decreases.

As Rodung expressed: “We didn't want to do a big investment in system so it was very easy to start because u doesn't need to invest anything” (Appendix 5, section 1).

This is showing that the ability to test software without having to invest in hardware and such, as stated in cost effective in section 2.4, clearly contributes to SaaS usage.

The respondents did not comment that SaaS is more cost-effective because it does not have any hidden costs.

As the above discussion shows, SaaS can be more cost effective than on premise software. However, regarding the factor cost it was obvious that it affected the decision in one or another way. For smaller companies we found that it contributes to SaaS usage but for bigger companies it was a factor to consider and if the price is reasonable it affects the decision positively.

4.2.2 Factor 2- Deployment

Presentation

All respondents agreed that SaaS is easier to deploy than on-premise software where as Rodung said "it was very easy to start because u don't need to invest anything, to buy computers or to install software or anything" (Appendix 5, section 1) and Wallin agreed by stating that "Yeah it's normally very quick, so the learning curve is quite civilized" (Appendix 8, section 2). And they also agreed that this factor contributed to the decision to use SaaS which was claimed from Rodung that "We didn't want to do a big investment in system so it was very easy to start because you don't need to invest anything, to buy computers or to install software or anything" (Appendix 5, section 1), and also confirmed by Laidlaw and Krook.

On the other hand we had respondents saying that this factor didn't affect their decision to use SaaS, where Life Support Company stated that "it makes no difference to them since they have their IT department and the deployment of any kind of software would have the same attention" (Appendix 4, section 4), on which Krook agreed with the reason that "we don't see any big difference on having the service from the external provider or on-premise as far as deployment is concerned" (Appendix 6, section 5).

Furthermore regarding the quicker and easier customization stated as a sub factor, some of the respondents claimed that it contribute to their decision regarding the usage of SaaS where Bromander stated that "the vendor has a tool box and we can call them and they have to give us access and change what we need to change and pay them of course" (Appendix 7, section 4) and on the other hand Wallin is neutral regarding this sub factor stating that "Of course it's customizable to a certain degree, but if u would like to make some major changes then u are stuck perhaps, so that's a restriction of software as a service" (Appendix 8, section 3), and the same idea was supported by Rodung and Krook where the customization is more or less the same with the on-premise software.

Table 4.2.a : Deployment.

Factor 2	Question(s)	Analytic Ltd, Laidlaw	Condesign, Bromander	Live Support Company
Deployment	<p><i>Q9.SaaS is easier to deploy than on premise software?</i></p> <p><i>Q10: SaaS reduces system deployment time?</i></p> <p><i>Q11: The implementation time is reduces because the service is provided through Internet and therefore there is no installation and setup at the customer's end?</i></p> <p><i>Q12: The customization is easier and more quickly?</i></p>	<p>Q9.Well it's pretty easy, since it's all online and you just need to have a good machine. Yes,</p>	<p>Q9. We also appreciate that we don't need also to have the software on our servers, just we use from the vendors.</p> <p>Q12.It is important to mention that if we needed to have a report and we just contact them and discuss and than we pay and they developed it.</p>	<p>Q10. I assume you don't need to much time to install and so on the software, but still that is not a big thing that would affect our decision for implementing SaaS because we have our IT department now and if we decide to do that the deployment would be very easy, and will not make any difference.</p> <p>Q12.About us customization I don't know because it depends from the provider and the nature of the business that you are doing.</p>
		Agree and Contribute	Agree and Contribute	Agree but not affect

Table 4.2.b : Deployment.

Factor 2	Question(s)	City Conersity, Wallin	Findwise, Rodung	Malmo University, Krook
Deployment	<p><i>Q9.SaaS is easier to deploy than on premise software?</i></p> <p><i>Q10: SaaS reduces system deployment time?</i></p> <p><i>Q11: The implementation time is reduces because the service is provided through Internet and therefore there is no installation and setup at the customer's end?</i></p> <p><i>Q12: The customization is easier and more quickly?</i></p>	<p>Q9.Yeah it's normally very quick.</p> <p>Q12.And of course it's customizable to a certain degree but if u would like to make some major changes then u are stuck perhaps, so that's a restriction of software as a service.</p>	<p>Q9.We didn't want to do a big investment in system so it was very easy to start because you don't need to invest anything, to buy computers or to install software or anything.</p> <p>Q11.Its easy to implement, because we don't need to implement anything. To start using it, its the same as other, because u need to learn the product and do some configurations</p> <p>Q12.Regarding the customization, it's a hard question, depending on which kind of software you mean, but I think it's the same.</p>	<p>Q9. You don't have to worry about this. We thought about the cost but when looking back it was be about the same cost.</p> <p>Q11.If you have it in house you have big possibilities to change it, but when you buy it you get what the provider sells to you.</p> <p>Q12.We contact the company and say we want this and this changes. Sometimes they listen and sometimes they don't. So I actually don't see any big difference on having it from an external provider or making it yourselves.</p>
		Agree and Contribute	Agree and particularly Contribute	Agree but not affect

Analysis

Considering the fact that the respondents agree that SaaS is easier to deploy corresponds very well with the Easier Deployment as advantage of SaaS that we found from the literature stated in section 2.4. Where the customer or the SaaS users will have an easier deployment of the software and they don't need to invest in new equipment and technology to access the features of SaaS, they just need an internet connection and a web browser. And the service is provided through internet which doesn't require any installation from the Customers side. Further more on the same section 2.4 it's explained that customization and adoptions of the SaaS software is done in a very quick way and there is no need to spend time in installation. The answers of our respondents clearly showed that deployment is easy with SaaS.

Looking at the respondents answers regarding how much deployment as a factor, contributed to their decision to use SaaS, what we understood was that it contributed to a certain point shifting the burden and the care of that process from their shoulder to the vendor, as Bromander, Laidlaw and Wallin express their positive thoughts regarding this factor, considering the customization as well, where the answer of Rodung clearly describes the easiness by not having anything to care for, nor any thing to invest, which on the other hand provided us with the overall findings that the deployment as a factor contributes to the decision for SaaS usage.

4.2.3 Factor 3– Scalability

Presentation

Two of the companies agreed that SaaS gives the customers the opportunities to easy scale their software to include more or less users. Krook, who agreed on the proposition, stated: “The Company that sells the software charges me for each user, so if say I want to scale it up to 10 000 more users, they say jipiiii, are happy and fix it in a second” (Appendix 6, section 4). This was agreed on by Rodung who stated a short answer and clear answer: “Yes, that's a very big advantage, yeah. Yes” (Appendix 4, section 4), whereas Wallin and Bromander did not have comments to this factor.

Table 4.3.a: Scalability

Factor 3	Question(s)	Analytic Ltd, Laidlaw	Condesign, Bromander	Live Support Company
Scalability	Q13.SaaS gives the customers the opportunity to easy scale their software, to include more or less users.	No comments	No comments	Q13.Well yes, but even with our on-premise software "Econet" we developed the possibility to include or take away ... so I think there is no effect in the decision to use SaaS.
		Question not asked	No comments	Agree and Did not affect the decision

Table 4.3.b: Scalability

Factor 3	Question(s)	City Conversy, Wallin	Findwise, Rodung	Malmö University, Krook
Scalability	<i>Q13.SaaS gives the customers the opportunity to easy scale their software, to include more or less users?</i>	Q13.When I worked with e-learning the scale is defined by the client organization ... so that's not one of my parameters.	Q13.Yes, that's a very big advantage, yeah. Yes.	Q13.Yeah, it's very easy. The company that sells the software charges me for each user, so if I want to scale it up to 10 000 more users, they are happy and fix it in a second. They contact the data center and I don't have to do anything.
		No comment	Agree and Contribute	Agree and Contribute

Analysis

Even though the respondents didn't explicitly say that this factor did contribute to SaaS usage, their answers implicitly showed it. When studying for e.g. Krook's answer, it is possible to see that the factor scalability is something the customers seem to expect from the provider. We believe that this is the case because several of the respondents also have a pay per user model as Malmö University. Then, when having this kind of payment model, it becomes pretty natural for the customers to expect that the vendors are providing the possibility to scale the software. Because the more users you have, the larger the bill from the provider is. This can also be seen from the answers about the factor cost.

Wallin's answer is an example of how the customers expect the providers to offer scale solution. Even though stating that it was not one of his parameters, he said that "the scale is defined by the client organization" (Appendix 8, section 4), showing that the ability to scale the software was a factor which the software needed to have. Because if there was no need for the ability to scale, he would not mention that the client organization defined any scale.

If looking at Life Support Company's answer, they never repel that SaaS is easy to scale, furthermore they say that "even with our on-premise software "Econet" we developed the possibility to include or take away" (Appendix 4, section 5) showing that scalability is an important factor for both SaaS and on premise systems.

Comparing the conclusion here with the research model in section 2.5, we see that the factor scalability truly is contributing to SaaS usage, because sincerely, would any company use software which is impossible to scale? We found that this is the case even though companies not necessarily agree that "scalability is one big advantage of SaaS " as stated in section 2.4.

4.2.4 Factor 4– On demand Usage

Presentation

There are some split opinions about this factor. Some respondents agreed on the proposition and while others disagreed or did not have any comments. Laidlaw disagreed, stating that the vendors sell the software as a package and that it affects their cost negatively: “What has actually happened is that the number of features in the service has increased, and then consequently the price has also increased, but a lot of the features that are new are not necessarily what we need for the moment or that we use for the moment but still we pay for them” (Appendix 3, section 2).

Wallin, expressed that there are “two different kinds of facilities perhaps, one kind is affecting the price ticket, and the other doesn’t affect, is just a kind of machinery you would like to work with” (Appendix 8, section 4). While Krook said: “Regarding this system it is not possible. When you buy it you get what the provider sells to you” (Appendix 6, section 6).

Table 4.4.a: On demand usage

Factors 4	Question(s)	Analytic Ltd, Laidlaw	Condesign, Bromander	Live Support Company
On demand usage	<i>Q14.SaaS enables customers to use the applications they need, when they need it and in the amount they need?</i>	Q14.What has actually happened is that the number of features in the service has increased, and then consequently the price has also increased, but a lot of the features that are new are not necessarily what we need for the moment or that we use for the moment but still we pay for them.	No comments	Q14.Well that is possible but it’s not in the category of the factors that could affect us to use SaaS
		Disagree and Did not affect the decision	No comments	Agree and Did not affect decision

Table 4.4.b: On demand usage

Factors 4	Question(s)	City Conversy, Wallin	Findwise, Rodung	Malmö University, Krook
On demand usage	Q14.SaaS enables customers to use the applications they need, when they need it and in the amount they need?	Q14.Typically yes, absolutely. Its two different kinds of facilities perhaps, one kind is affecting the price ticket, and the other doesn't affect.	Q14.That was not a big question for us. They have a lot of modules but we are only using the old time reporting part of the system today.	Q14.Regarding this system it is not possible. When you buy it you get what the provider sells to you.
		Agree and contributing	Agree and Did not affect decision	Disagree and Not contribute

Analysis

When analyzing the answers to this factor we found that the respondents did not confirm the factor did contribute to SaaS usage. As Rodung said: "That was not a big question for us. Today it's a more complex system, they have a lot of modules and things" (Appendix 5, section 4), meaning that they agree on the proposition but that it was not an important factor for them. A very similar answer was provided by Life Support Company: "Well that is possible but it's not in the category of the factors that could affect us to use SaaS" (Appendix 4, section 5) and we found that it did not contribute to Krook SaaS usage either. As Krook state that it is not possible regarding their software. For analytic it even raised their cost as seen in the answer in data presentation table, they pay for features which they do not need. Although some respondents did agree on the proposition, so we can assume that if it's possible or not depends on the service provider and the software bought. However the factor is not contributing to SaaS usage.

4.2.5 Factor 5 - Easier to upgrade

Presentation

When it comes to the process of SaaS upgrade the respondents agree that SaaS is easier to be upgraded, and as Wallin stated "Typically very easy, and that's the good thing with the cloud as I see it, that you don't have to care about the upgrade"(Appendix 8, section 5), and Bromander also states "we just use it , it's all cared of by them and that's what attracts us" (Appendix 7, section 5), also Rodung claims "yes yes, that's was a positive thing for buying it as a service" (Appendix 5, section 5). Life Support Company is stating that " I think that SaaS should be slightly easier to upgrade but that has no big effect in affecting whether to have or not SaaS, but one positive thing that I see with SaaS is that maybe there won't be need of many people taking care of that process, so the responsibility goes to the vendor" (Appendix 4, section 6).

Regarding if the users are affected from the SaaS upgrade process, Laidlaw tells that "sometimes we get a mail from them that they have activated some additional features " (Appendix 3, section 3), and Bromander explains that " they upgrade it by notifications" (Appendix 7, section 5), further more supported by Wallin as he says "the updates are

implemented automatically and without any user affection mostly done during the hours with less traffic and quickly" (Appendix 8, section 5). But Krook doesn't share the same opinion, they stated that "Yes it does, we have some rules that they must tell us times in advanced. Sometimes it can take up to one day, the system goes down, can be for a day and they don't do it in the weekend, they do it during the week" (Appendix 6, section 6).

As we talked about the SaaS software moves the burden and cost of upgrading the software from the customer to the vendor we found out that Rodung agrees by stating "I think it's a positive impact that they update the service, because if we have bought the product instead we have had to do it ourselves" (Appendix 5, section 5), and Krook claims that "we considered it in a way that when you know that they will make an upgrade it works, if we do it in house we will guess more, they have better possibilities, they have huge test systems for trials, they have a lot of customer and they got the money to do it" (Appendix 6, section 6). And an interesting point was made from Life Support Company saying that "when using SaaS you pay the whole service including the cost of upgrade and so on, so it's a matter of when you pay, whether before using SaaS or after using your own IT department" (Appendix 4 ,section 6).

Table 4.5.a Easier to upgrade

Factors 5	Question(s)	Analytic Ltd, Laidlaw	Condesign, Bromander	Live Support Company
Easy to Upgrade	<p>Q15.SaaS is easier to upgrade.</p> <p>Q16: SaaS software is updated without affecting the users?</p> <p>Q17: SaaS software moves the burden and cost of upgrading the software from the customer to the vendor?</p>	<p>Q16.Okay, sometimes we get a mail from them that they have activated some additional features; they inform us about this kind of things.</p>	<p>Q15.yes, we also appreciate that we don't need also to have the software on our servers, just we use from the vendors.</p> <p>Q16.And they upgrade it by notifications, we just use it, it's all cared of by them and that's what attracts us.</p> <p>Q17.And we only have one person that is working with IT for 200 people that are working in our company and we are concentrating our resources in the business and not our IT needs.</p>	<p>Q15.I think that SaaS should be slightly easier to upgrade but that has no big effect in affecting whether to have or not SaaS</p> <p>Q17.I don't think SaaS moves the burden because when using SaaS you pay the whole service including the cost of upgrade and so on, so its a matter of when u pay, whether before using SaaS or after using our IT department.</p>
		Agree and Did not affect decision	Agree and contributing	Disagree and Not contribute

Table 4.5.b Easier to upgrade

Factors 5	Question(s)	City Conersivity, Wallin	Findwise, Rodung	Malmo University, Krook
Easy to Upgrade	<p><i>Q15.SaaS is easier to upgrade.</i></p> <p><i>Q16: SaaS software is updated without affecting the users?</i></p> <p><i>Q17: SaaS software moves the burden and cost of upgrading the software from the customer to the vendor?</i></p>	<p>Q15.Typically, and that's the good thing with the cloud as I see it, that u don't have to care about the upgradement and upgrading.</p> <p>Q16.There is no need for user announcement, where is a new version it's automatically implemented gradually.</p>	<p>Q15.Yes yes, that's was a positive thing for buying it as a service.</p> <p>Q16.No, we have never been affected of that.</p> <p>Q17.I thing its a positive impact that they update the service, because if we have bought the product instead we have had to do it ourselves</p>	<p>Q16.Yes it does, we have some rules that they must tell us times in advanced. Some times it can take up to one day. If we get the notification 2-3 weeks in advance we can inform our customer and they will accept it.</p> <p>Q17.And yes, we considered it in a way that when you know that they will make an upgrade it works, if we do it in house we will guess more, they have better possibilities, they have huge test systems for trials, they have a lot of customer and they got the money to do it.</p>
		Agree and contributing	Agree and contributing	Agree and contributing

Analysis

Considering the answers we got from Life Support Company, Wallin, Bromander and Rodung agree with what we stated in the section 2.4 that SaaS is easier to upgrade because the upgrade is made from the vendors side without any costumer effort. But in the other hand it didn't really affect the Life Support Company and Krook apparently because they already had their own IT departments and this was the reason behind.

When discussing whether the update of the SaaS affects or not the decision of the companies, we got different answers. It is mainly because they get their services from different vendors with different regulations. But when considering if this factor affected the users in their decision for SaaS usage we found out that bigger companies as Life Support Company and Krook weren't affected by this advantage of SaaS because they consider it as an advantage of the current IT technology and their IT departments that they posses thus they didn't even care about that. At this point we found out that having an IT department within the company may reduce the issues when dealing with upgrade of the software.

The fact that the upgrade process of SaaS shifts the burden and the cost software upgrade from the costumer to the vendor and provide the users with better services that is stated in the section 2.4 matches with the findings that came out from the research where Rodung, Krook and Bromander finds it beneficial for them and she claims is true and that they get better services because the vendors have better capabilities and responsibilities towards customer, and it also affected their decision to use SaaS

But when talking about if the upgrade process of SaaS affects users respondents agreed by claiming that it didn't affect the users, and only Krook that didn't agree due to technical problems that they were facing at the moment and it's important to mention that in this case they had problems just 3 times over 4 years and that is considered as not negative impact of the upgrade process over the users.

Overall we can conclude that it's true that SaaS upgrade is easier and its always updated and the process mainly affects the companies when deciding to use or not SaaS, and we also found out that id doesn't affect the bigger companies that much due to their capabilities of having a IT department which takes care of the upgrade process even with SaaS or on premise.

4.2.6 Factor 6- Security and Disaster Recovery

Presentation

The respondents that agreed that SaaS enables higher security and disaster recovery, as Krook states that "yes we agree, because the provider is a big center and they have to have very high security because they sell the service, if there will be a leak than they would lose customer and that's not good that's why they are trying so much to not getting hacked and they continue backing up their argument by saying that" I think it has a positive impact coz they will get sued if something happened, so they have to be very careful with it" (Appendix 6, section 7).

Also there were voices that said that it didn't affect them when they decided to use SaaS, as Laidlaw states "that's an interesting point and its probably something that we as a company should check a little closely, we did ask those questions to web CRM when we first started to work with them, they assured that they themselves kept backups for many months" (Appendix 3, section 4), and Bromander claims that "at this point when you mention it, we haven't asked them or even make sure that the disaster may happen and that they have back up the data, and that they will restore it. I don't know actually how that is done. Actually I don't know what states in the physical agreement, but I know that they mentioned somewhere that they have a backup but I'm not sure in what way they do it" (Appendix 7, section 6), and Life Support Company disagrees and wasn't affected from this factor reasoning that "yes this affects a lot our decision to not use SaaS at least now, in this stage of our work as a company we have a lot of data of different customer that we provide services around the world and we think that data security is very important to us and we don't want to take any chances by experimenting at least now" (Appendix 4, section 7).

On the other side there were respondents claiming that this factor affected their decision for using SaaS, as Rodung states "I think that we, in some way we see this as a base requirement of a vendor that sell SaaS, that they have a secure solution" (Appendix 5, section 6) and Wallin agrees stating that "yes absolutely, if you know, that the server, it has that and that ip number, is located there and in the contract there is a kind of back up process, so you know there is a back up service, that's a kind of security feeling, that if something happens you can always roll back to say, the day before" (Appendix 8, section 6).

Further more in the discussion if SaaS increases the Customers data security positive answers we got from Wallin who claims "that's depending on who will be responsible for it, if it's me, in a small company I will not trust myself. I mean, I would rather have someone else to take care of it. It's not my cup of tea" (Appendix 8, section 6), and Krook agrees with saying that "yes we considered, on the security part I think that we in-house had a fine security but I'm sure that a big center like Oslo university data center , they will have great security " (Appendix 6, section 7), and Rodung states "I'm sure that the supplier is doing this in a good way, better then we ourselves are doing it with our own systems" (Appendix 5, section 6).

And when asked if SaaS increased the customer data recovery the responds we got were almost the same where Wallin stated that "that's I think part of, if you go for software as a service, that is a kind of service you are asking for. Otherwise it's not a good service, if there is no backups, no roll back alternatives then it's not good" (Appendix 8, section 6), and Bromander clearly stated "we rely on our vendor completely" (Appendix 7, section 6), also Krook shares the same opinion as stating above that "I think it has a positive impact because they will get sued if something happened, so they have to be very careful with it" (Appendix 6, section 7).

Table 4.6.a: Security and disaster recovery

Factor 6	Question(s)	Analytic Ltd, Laidlaw	Condesign, Bromander	Live Support Company
Security and Disaster Recovery	<p>Q18: SaaS increases the customer's data security?</p> <p>Q.19: SaaS increases the customer's data recovery?</p>	<p>Q18.They assured that they themselves kept backups for many months,</p> <p>Q19.I can't remember for how long, but so if it was any problem they could recover that data, but we actually do on addition to that is that the data that is on web CRM we back that up ourselves, to on excel spreadsheet.</p>	<p>Q18.I don't know what states in the physical agreement, but I know that they mentioned somewhere that they have a backup but I'm not sure in what way they do it.</p> <p>Q19.We just rely on them. We don't know to make a backup for the data</p>	<p>Q18.Yes this affects a lot our decision to not use SaaS at least now, in this stage of our work as a company we have a lot of data of different customer that we provide services around the world and we think that data security is very important to us and we don't want to take any chances by experimenting at least now</p> <p>Q19.Regarding the data recovery I don't know how the providers of SaaS do the data recovery and to what extent they can recover , because every business nature is unique, but regarding our system we have our back ups every day in our servers and we store the most important data so we have full back up for that matter.</p>
		Agree and Did not affect decision	Agree and Did not affect decision	Disagree and Not contribute

Table 4.6.b: Security and disaster recovery

Factor 6	Question(s)	City Conersity, Wallin	Findwise, Rodung	Malmo University, Krook
Security and Disaster Recovery	<p>Q18: SaaS increases the customer's data security?</p> <p>Q.19: SaaS increases the customer's data recovery?</p>	<p>Q18.Yes absolutely, if you know, that the server, it has that and that ip number, is located there and in the contract there is a kind of back up process, so you know there is a back up service.</p> <p>Q19.That's depending on who will be responsible for it, if it's me, in a small company I will not trust myself. I mean, I would rather have someone else to take care of it. It's not my cup of tea.</p>	<p>Q18.In some way we see this as a base requirement of a vendor that sell SaaS, that they have a secure solution. It's not a big question but of course I assume that this is true.</p> <p>Q19.But as I said before I'm sure that the supplier is doing this in a good way, better then we ourselves is doing it with our own systems. So that's something I assume from a vendor that delivered SaaS, that this is so.</p>	<p>Q18.Considering that I think it has a positive impact coz they will get sued if something happened, so they have to be very careful with it. And is a big center and they had to have very high security because they sell the service, if there will be a leak than they would loose customer. Yes we considered.</p> <p>Q19.On the security part I think that we in-house had a fine security but I'm sure that a big center like Oslo university data center, they will have the same security.</p>
		Agree and Contributing	Agree & particularly affect	Agree and Contributing

Analysis

When analyzing the presented data, if you look at the section 2.3.3 where we explained the security services and also latter on in the section 2.4 talking for Security as an advantage of SaaS, and comparing the answers that we got from our respondents where Krook clearly points out the capabilities of the providers of the service as well as Wallin, Rodung and all the other answers were related to the good reputation of the provider, which implies that if we have to deal with a provider that is well known then security can be a factor that influences our decision positively when starting to use SaaS.

We also had negative opinions regarding the security and data recovery as Life Support Company that expresses their negative opinion which they base in the nature of their business and the current technology that is used for security purpose, and also Laidlaw and Bromander answer were not in favour of the contribution of this factor when deciding to use SaaS, but as we understood they based their reasoning in not asking their vendors for that because they felt that it should be included in the service.

Discussing further the possibility of disaster recovery we got the same answers where the smaller companies including a big company agreed that data recovery contributed when they decided to use SaaS, again emphasizing the importance of vendor's reputation.

Here at this point we can see that smaller companies are affected from security and disaster recovery when deciding to use SaaS, and that is not the case with particularly bigger companies, and the reasons behind are the vendors reputation and the nature of the business together with technology used for that purpose. So we recommend further studies about this

factor in order to get more detailed understanding about its influence to the customer when deciding for SaaS usage.

4.2.7 Factor 7 –Easier to change a provider

Presentation

We had respondents that did not agree that SaaS enables customers to easier change a provider which they have noticed after have using SaaS for a while. They also stated that this factor was nothing that affected their decision to use SaaS. While Bromander expressed that: “It’s not easy to switch ... because the transfer of the important data could be at risk and it would be a lot of work for us to get the old data in to the new system and adopt it for our business workflow” (Appendix 7, section 7). This implicating that the switching data from system to another is complicating the provider change, which was a thought several respondents expressed. As Rodung said: “It’s very easy to go in to buy this kind of Service in the beginning and to end the service, so then yes, but now we have had the service in four years and of course if we change supplier now we will have probably big problem. Because you are using the historical data ... so if we should change to another supplier we need to transfer the data to another supplier” (Appendix 5, section 7). However the ease to change provider in the beginning did contribute to Rodung choosing SaaS and it was the same case for Wallin.

Table 4.7.a: Easier to change a provider.

Factors 7	Question(s)	Analytic Ltd, Laidlaw	Condesign, Bromander	Live Support Company
Easier change a provider.	Q20.SaaS enables customers to easier change vendor?	Q20.It is a pretty difficult thing to do. But actually it is not based on a real experience so that really just my perception.	Q20.The time management old data is not very useful, but the CRM system data of course it’s more important and there you have more data, it’s very possible to change but it’s a quiet risky in the same time because the transfer of the important data could be at risk and it would be a lot of work for us to get the old data in to the new system and adopt it for our business workflow.	Q20.I think that, of course you can change the providers, they provide you with a contract and so on but this has no effect as such in my opinion.
		Disagree and Did not affect decision	Disagree and Not contributed	Unsure and Did not affect decision

Table 4.7.b: Easier to change a provider.

Factors 7	Question(s)	City Conversity, Wallin	Findwise, Rodung	Malmo University, Krook
Easier change a provider.	<i>Q20.SaaS enables customers to easier change vendor?</i>	Q20.It's like the difference between having short engagement and being married, you would like to test out, and if that's an option that you have a kind of contract that you cancel or you renew or update every six months or something that's okay.	Q20.It's very easy to go in to buy this kind of Service in the beginning and to end the service. So then yes. Now we have had the service in 4 years. You are using the historical data till today, if we should change supplier we need to transfer the data to another supplier, of course that is a big problem. So it's not so easy for us to change the supplier now, no.	Q20.No, I don't think you can change the vendor easily. You are quiet bound to the provider these days, it's like a package.
		Agree and Contributed	Partly agree and contributed	Disagree and Did not affect decision

Analysis

Several of the respondents noticed that switching data from one system to another is complicating the provider change. An example is what Bromander answer: "It's not easy to switch ... because the transfer of the important data could be at risk and it would be a lot of work for us to get the old data in to the new system and adopt it for our business workflow" (Appendix 7, section 7).

This furthermore implicates that the more data one have stored on the system, the more complicated the provider change is. Thus logically implicating that the longer one has had a system the harder it is to change a provider, because most probably the amount of data stored on the system increases the longer time period a system is used. This statement is enhanced by Rodung's answer: "It's very easy to go in to buy this kind of Service in the beginning and to end the service, so then yes. But now we have had the service in four years and of course if we change supplier now we will have probably big problem. Because you are using the historical data, so if we should change to another supplier we need to transfer the data to another supplier" (Appendix 5, section 7).

This discussion implies that the advantage stated in section 2.4, that SaaS enables customers to easier change a provider, is not confirmed by the companies when having the system for a longer period of time with a greater amount of data stored on it.

However as discussed in section 2.4 there are no installations and no investments made in hardware for using SaaS and as the contract most often is renewed after a time period, therefore SaaS is easy to change when first starting to use it, as long as you don't mass store data on the system immediately.

Wallin expressed a similar thought: “Yeah I mean, it’s like the difference between having short engagement and being married, it’s not good perhaps from the start being married to somebody that you don’t really know, so you would like to test out, and if that’s an option, that you have a kind of contract that you cancel or you renew or update every six months or something that’s okay” (Appendix 8, section 7). And as we already stated, Rodung said that it in the beginning was easy adopt SaaS and to end the service. This shows us that ease of changing the provider is a factor contributing to SaaS usage, at least if the system haven’t been used for a longer period of time.

Furthermore, another factor may be the size of the company. Because as Bromander expressed it is not only the transfer of the data that complicates the provider change, it is also the need to adopt the new system to the companies work flow. And obviously if the company has a greater amount of employees, then there are greater amount of workflows, more people connected to the workflows and thus it becomes more complicated. So if the company is smaller, the possibility to change SaaS provider increases, thus enabling the advantage “Easier to change provider” in section 2.4 and therefore contributing to SaaS usage. Further discussion about company size and its relation to SaaS can be found in the discussion about factor 10.

Yet another factor is the type of system used or the type of data stored, as Bromander expressed: “the time management old data is not very useful, but the CRM system data of course it’s more important” (Appendix 7, section 7). Thus meaning the less important data, the easier it is to change provider as the data doesn’t have to be transferred, and thus the advantage of provider ease is achieved which can contribute to SaaS usage.

4.2.8 Factor 8- Mobility and accessibility

Presentation

Respondents that claimed that SaaS is more mobile and accessible pointed out the possibilities that SaaS offers to them, where Bromander states that "its quiet accessible and mobile you can access from anywhere, we were trying to get an app for iPhone but it’s not ready up till now. We can store our data and work with it" (Appendix 7, section 8), and Laidlaw agrees with it in a similar way, followed by Rodung adding that "it is only a web browser that you need" (Appendix 5, section 7), and also Wallin who is claiming that "Absolutely yes, so the business model I’m working with is very much oriented to looking at ICT services as part of the new media so to say rather than something putting to your computers" (Appendix 8, section 8).

Table 4.8.a: Mobile and accessible.

Factor 8	Question(s)	Analytic Ltd, Laidlaw	Condesign, Bromander	Live Support Company
Mobility and accessibility	<i>Q21.SaaS is more mobile and accessible?</i>	Q21.That was pretty Important to us actually yeah.	Q21.Its quiet accessible and mobile you can access from anywhere, we were trying to get an app for iPhone but it's not ready up till now. We can store our data and work with it.	Q21.Completely not affecting our decision, because our software also is accessible every where you have internet.
		Agree and Contributed	Agree and Contributed	Disagree and Not contributed

Table 4.8.b: Mobile and accessible.

Factor 8	Question(s)	City Conversity, Wallin	Findwise, Rodung	Malmo University, Krook
Mobility and accessibility	<i>Q21.SaaS is more mobile and accessible?</i>	Q21. Absolutely that's another point of course because if u don't care to connect to that specific server at all you are of course open to wherever you are Absolutely yeah, so the business model I'm working with is very much oriented to looking at ICT services as part of the new media so to say rather than something putting to your computers.	Q21.Yes, because you could access the service from wherever you are, if you have a web browser and that's very positive.	Q21. I don't know, if there is any difference, I think is the same like with in house.
		Agree and Contributed	Agree and Contributed	Disagree and Not contributed

Analysis

Regarding this factor in section 2.4 we stated that SaaS is more mobile and more accessible to the users due to his possibilities and the solution that is being provided through the internet and the same allows users to have easier access to their data with just a web browser. This was obvious from the answers that we got from Bromander about their trial to have it as a iPhone app, and Wallin, Rodung and Laidlaw that were focused on the freedom that they had with SaaS, by accessing it from anywhere with a simple web browser. And the same agreed that these possibilities were affecting the decision for SaaS usage. But on the other hand Krook and Life Support Company provided some information claiming that they didn't see any difference between SaaS and on-premise software when it comes to the mobility and accessibility as a feature of the software due to some technologies that they used. We can see that being a big company is an advantage at this point because it provides the opportunity to

invest more in the technology and have similar functions as SaaS with on-premise software. Based on these claims we can say that this factor can particularly affect the users decision to use SaaS because is also dependent by the size of the company and the technology they use, in our case all the small and middle size companies agreed and all the big size companies didn't agree, so we recommend further studies regarding this factor

4.2.9 Factor 9 – Core business focus

Presentation

This factor was considered by every respondent except Life Support Service Company and the factor contributed to the usage of SaaS. AS an example Bromander mentioned: “We only have one person that is working with IT for 200 people that are working in our company and we are concentrating our resources in the business and not our IT needs” (Appendix 7, section 5) or Wallin stated: “Because you already from the start said we don't need an It department, it's up there somewhere” (Appendix 8, section 7). Meaning that focusing on you core competency this is one core decision you make when choosing to use SaaS. Rodung also gave answer in similar sense: “I think that is very important to us, so we only want to focus in our own competence not in IT” (Appendix 5, section 8).

Table 4.9.a: Focus on their core business.

Factors 9	Question(s)	Analytic Ltd, Laidlaw	Condesign, Bromander	Live Support Company
Focus on the core business	<i>Q22.SaaS enables the customer to focus their resources on their core business?</i>	Q22. Yes, absolutely. Yes.	Q22. We have one person that is working with IT for 200 people. We found it easy to use and there is no need to have more people engaged, they would rather be concentrated on the business process.	Q22. We have a big IT department that is working for the IT needs of our company, it could be beneficial to our company to focus the personnel to the business, but still that is not my decision. So it could affect us but I can't say that it will, I don't know.
		Agree and Contributed	Agree and Contributed	Unsure

Table 4.9.b: Focus on their core business.

Factors 9	Question(s)	City Conversity, Wallin	Findwise, Rodung	Malmo University, Krook
Focus on the core business	Q22.SaaS enables the customer to focus their resources on their core business?	Q22.Yes, yeah, I would agree on that formulation. Because you already from the start said we don't need an It department, it's up there somewhere.	Q22.Yes. I think that is very important to us, so we only want to focus in our own competence not in IT.	Q22. If you buy it from a provider they can have people there all day around, they can make it run. Even if it crashes three a clock in the night. We can't have it here, were only 30 people working here. They can afford having people there 24/7.
		Agree and Contributed	Agree and Contributed	Agree and Contributed

Analysis

According to our theory in section 2.4 SaaS customers do not have to put resources in IT-maintenance and thus can focus on their core business competencies and furthermore SaaS enables the customer to focus the IT-resources on their core business activities. Both these statements were agreed on by the respondents. Furthermore this factor was very easy to verify and we believe that this is one of the factors which contributes to SaaS usage mostly. We believe so, because this factor was more or less always answered as the first factor when we asked the starting question "which factors did contribute to SaaS usage?". Furthermore when analyzing the answers we noticed that the respondents answered this question without doubt. Wallin's answer, found in the above table, can be used as one example where the answer more or less implies that focusing on your core competency is one core decision you make when choosing to use SaaS. This can be further enhanced by Krook's answer, also found in the above table, especially the part "it's very easy to have it in an outsourced way; it's not my problem anymore" (Appendix 6, section 4) clearly showing that focusing on the core competency instead of IT-related issues is a factor contributing to SaaS usage. Lastly Bromander answer, "there is no need to have more people engaged, they would rather be concentrated to the business process" (Appendix 7, section 8), explicitly states that SaaS enables the customers to focus their resources on their core business and implicitly that this was a factor contributing to their usage of SaaS.

4.2.10 Factor 10- Beneficial to Small and Medium sized (SMS) companies

Presentation

Regarding that is SaaS is more beneficial for SMS companies our respondents agreed, Wallin based his reason by saying "Depending on how big the company is and the user groups and etc and if it's a fix size not dynamic , or changing very much perhaps an implementation at home might be easier and the other issue is how many on unique companies specific software should be part of the solution, so I think that's a lot of issues for the big companies and its also question of the pricing model for software as a service because if it's a linear price model where if the new user costs the same as the last one , that's not good if you have 1 million

users will cost a lot, and if you can reduce the user license costs in one than its of course more interesting "(Appendix 8, section 9), and Rodung said that " Yes its probably true, I think in some way the price model is not good enough if you are big company, for example if you have a price per user and you have 40 000 users you have a problem" (Appendix 5, section 9), and the same attention was from Krook , Life Support Company and so on they all were claiming that seeing from costs point of view was more beneficial. But when we asked if that affected their reason to choose SaaS we had Rodung confirming that "it affected because when we went in to this it was a small cost for us and today is not small cost, it's a big cost , so of course this is an issue that we have on our agenda" (Appendix 5, section 9), and also Wallin states that "I think that's a lot of issues for the big companies and its also question of the pricing model for software as a service because if it's a linear price model where if the new user costs the same as the last one , that's not good if you have 1 million users will cost a lot" (Appendix 8, section 8), and Life support Company claimed that it didn't affect their decision.

Table 4.10.a: Beneficial for SMS companies

Factor 10	Question(s)	Analytic Ltd, Laidlaw	Condesign, Bromander	Live Support Company
Beneficial for SMS companies	<i>Q23.SaaS is more beneficial to small and medium sized companies?</i>	Q23.Did not know.	Q23.And our Vendor has their target group on small and medium businesses and I assume that they wouldn't say no if a big company like Ericson would like to use their system.	Well I agree this is more for the SMS companies, maybe because they have less possibility to effort a IT department and the nature of the business maybe allows to have less security over the data and can effort the costs of a SaaS
		Not affected and didn't contribute	Agreed but not contributed	Agreed but not contributed

Table 4.10.b: Beneficial for SMS companies

Factor 10	Question(s)	City Conersity, Wallin	Findwise, Rodung	Malmo University, Krook
Beneficial for SMS companies	<i>Q23.SaaS is more beneficial to small and medium sized companies?</i>	Q23.Depending on how big the company is and the user groups and etc and if it's a fix size not dynamic, or changing very much perhaps an implementation. I think that's a lot of issues for the big companies and its also question of the pricing model for software as a service because if it's a linear price model where if the new user costs the same as the last one , that's not good if you have 1 million users will cost a lot, and if you can reduce the user license costs in one than its of course more interesting	Q23.Yes its probably true, I think in some way the price model is not good enough if you are big company, for example if you have a price per user and you have 40 000 users you have a problem.	Q23.Yeah, you can say that, when it cost there are people over that are going to do other stuff now
		Agreed and contributed	Agreed and contributed	Agreed but not contributed

Analysis

Referring to section 2.4 where is stated that SMS companies have low IT budget the answers that we got from our respondents clearly shows that due to company size and low budget they couldn't effort having big IT staff and this factor contributed when they decided to use SaaS. On the other hand bigger companies as Life Support Company even though they agree that SaaS is more beneficial for SMS companies they weren't affected by this factor to go for SaaS, it's their big size of the company and their possibilities to effort and IT department which is dragging them not to use SaaS in this case. From this answers we understood that this factor clearly contributes for the SMS companies to use SaaS.

4.2.11 Factor 11 – The vendor trust

Presentation

There are different perspectives the respondents considered, one example comes from Wallin: "The vendor for SaaS is of course really important ... you don't want to invest too many models in a service that is corrupted in 8 months" (Appendix 8, section 10). Another perspective is provided by Laidlaw, concerning the data security: "I think trust is quite important, because at the end of the day you trust fairly crucial company information to the vendor" (Appendix 3, section 9). Yet a third is given by Krook stating: "It's cheaper to buy from a big provider, they deal with thousands of servers and they can afford having people there 24/7" (Appendix 6, section 2).

Table 4.11.a: The vendor trust.

Factor 11	Question(s)	Analytic Ltd, Laidlaw	Condesign, Bromander	Live Support Company
The vendor trust	<p><i>Q24: The vendor trust is more important when using SaaS then on premise software.</i></p> <p><i>Q25: The vendor trust is important to be sure that the vendor does not intrude into clients data.</i></p> <p><i>Q26: The vendor trust is important because a service cannot be divided from its provider, thus the vendor affects the service quality.</i></p> <p><i>Q27: The vendor's financial state is important.</i></p>	<p>Q24.I think trust is quite important, because at the end of the day you're trusting a fairly crucial company information to the vendor but at the same time you do put in your own security measures to make sure that in the case it might be a failure in some point in time you are still covered and you can still get your data.</p>	<p>Q24.Yes, it's very important factor. And we have a good experience with this vendor.</p>	<p>Q24.Definitely when you have SaaS is more important.</p> <p>Q25Because you need to know if you vendor is miss using your data for his benefit, and you need to choose the vendor carefully</p> <p>Q27.And of course is important the future of the vendor, the perspective and so on.</p>
		Agree and affected	Agree and affected	Agree and Affected

Table 4.11.b: The vendor trust

Factor 11	Question(s)	City Conversity, Wallin	Findwise, Rodung	Malmo University, Krook
The vendor trust	<p><i>Q24: The vendor trust is more important when using SaaS then on premise software.</i></p> <p><i>Q25: The vendor trust is important to be sure that the vendor does not intrude into clients data.</i></p> <p><i>Q26: The vendor trust is important because a service cannot be divided from its provider, thus the vendor affects the service quality.</i></p> <p><i>Q27: The vendor's financial state is important.</i></p>	<p>Q24.The vendor for SaaS is of course really important, it's a learning investment in the vendor's services and you don't want to invest too many models in a service that is corrupted in 8 months.</p> <p>Q25.Of course that's business ethics, so it's part of the general terms of the game as I see, perhaps if you have very sophisticated secret data you have to make special arrangements, but for most SMS enterprises there is no need for a special arrangement to exclude the possibility of intruding the client data.</p> <p>Q27.Of course it would be natural perhaps for a new user or SaaS to look on the deep providers, those who sound reasonable and will stay on the market the next 10 years.</p>	<p>I don't think so, because in some way you are focused in the functionalities that the Service or the product is providing so No I don't think it's that important it's probably the same.</p>	<p>Q25.So sometimes it's cheaper to buy from a big provider, they deal with thousands of servers and they can afford having people there 24/7.</p> <p>Q27.Yeah, always in your mind you make calculations of this, if the provider is going to live for a long time.</p>
		Agree and affected	Disagree and Affected	Agree and Affected

Analysis

We saw that this factor affected the respondents' decision. There are different perspectives the respondents considered, one example comes from Wallin: "The vendor for SaaS is of course really important ... you don't want to invest too many models in a service that is corrupted in 8 months" (Appendix 8, section 10). Krook also had a similar thought in his answer: "Yeah, always in you're mind you make calculations of this, if the provider is going to live for a long time" (Appendix 6, section 10).

Clearly showing that trusting that the vendor is financially strong and can manage to survive for a long period of time contributes to using SaaS and clearly confirming our discussion about vendor trust in section 2.4. This is a pretty obvious factor, because we doubt that any company would buy a SaaS or on premise software if they did not believe that the vendor is going to be on the market for quite a while. However we are not sure if they really go on and investigate it in some greater depth. Nevertheless the factor is considered thus trusting that the company will stay alive contributes to SaaS usage.

Another perspective is provided by Laidlaw, concerning the data security: "I think trust is quite important, because at the end of the day you trust fairly crucial company information to the vendor" (Appendix 3, section 9). This statement agrees that the client's must trust the vendor's privacy policy to be sure that the vendor will not access their private data which we stated in section 2.4.

It can be argued that if trusting the vendor on the security issue it will lead to SaaS usage, else it will lead to the opposite, not using SaaS. Which was the case for Life Support Company who stated: "Because you need to know if you vendor is misusing your data for his benefit, and you need to choose the vendor carefully" (Appendix 4, section 10) and which does not use SaaS mainly for not wanting to trust company data to the vendor.

Yet a third is given by Krook stating: "It's cheaper to buy from a big provider, they deal with thousands of servers and they can afford having people there 24/7" (Appendix 6, section 10). The statement hints that there may be yet another factor contributing affecting the decision, the vendors size and ability to maintain the software. This can be connected to our discussion in section 2.4 that the service quality is dependent on the provider. And thus trusting that the provider has a high quality service contributes to the usage of SaaS.

4.3 Other Factors

While conducting this research, during the interview process from our informants we found out some factors that we did not list as contributors for SaaS usage. The informants claimed that they were affected negatively regarding SaaS usage by these factors. As Krook points out the Legal Factor as a possibility to harden the work when it comes to decision for SaaS usage, because as he claims "when the file leaves the compound here and goes to Norway, its outside the EU and it could be a legal problem, but we checked this thing, it could be a problem if we store things in google, that could be a legal problem, because this documents sometimes they are a dignity" (Appendix 6, section 7), but as he confirms they double checked the possible problem and still decided to use SaaS. The other factor that we found to have impact on

decision to use SaaS is the Nature of the business factor which contributes conditionally as Life Support Company reasons " I don't know how the providers of SaaS do the data recovery and to what extent they can recover, because every business nature is unique "(Appendix 4, section 7), which implies that this factors influence is dependent from the every companies business activity

5. Conclusion

5.1 Research overview

The purpose of the research is to identify the factors contributing to SaaS usage, seen from customers' perspective. This was achieved by first doing a literature review of SaaS advantages, then converting the advantages to factors which later on were commented by our informants, which all are companies that are using or have used SaaS. The informants commented if the factor did or did not contribute to their SaaS usage. We found that 10 of the factors listed in our research model contribute SaaS usage and we also found different aspects of the factor contributing to SaaS usage. We also noticed that the factors had different importance to the contribution. Because of this we have categorized the factors into three groups; main contributing factors, partly contributing factors and not contributing. The main contributing factors are those factors who were the main driver for SaaS usage, the partly contributing factors are those factors that did contribute to SaaS usage but were not the main reasons to use SaaS and lastly the not contributing is obviously those factors that did not contribute to SaaS usage.

Following is the factors categorized in main factors, sub factors and not contributing. For each factor we argue why it belongs to the category.

5.1.1 Main contributing factors

Company size – We saw that this is an important factor when considering SaaS usage. Several of the propositions were confirmed by the informants, but just for small and medium sized companies. This meaning that the same SaaS benefits were not applicable to big companies. Examples are that the pricing model is better suited for companies with less users and that the security increases for companies with a lower IT-budget. More examples are discussed in section 4.2. Therefore some of the factors discussed here will be divided depending on the company size, big companies or small and medium sized companies (SMS). For an example see the following factor cost.

Deployment - Looking form different perspectives this factor contributes for the decision to use SaaS. It affects mainly the equipment investment part where the companies don't have to invest in any special equipment to have SaaS. Even though some of the bigger companies were not so excited about the deployment process as a factors because they had experienced having professional big IT departments that carried on this phase without any problem so they didn't care too much for that. The other type of the companies regarding size, the small and medium enterprises, was affected due to low budget to afford IT departments, and the ease of the process. When it comes to the customization, companies were affected to a certain point that SaaS is customizable due to their experience and size of the company, but generally they had a positive feeling toward this factor as a contributor towards deciding to use SaaS

Cost – Regarding the factor cost it was obvious that it affected the decision in one or another way. For SMS companies we found that it contributes to SaaS usage but for bigger companies it was a factor to consider and if the price is reasonable it affects the decision positively. Thus this factor is partly a main factor and partly a sub factor, depending on the size of the

company. For SMS companies it is a main factor, because of their low IT-budget and for big companies it is a sub factor. As cost always is a factor to consider.

Core competency focus – As stated this factor was more or less always answered as the first factor when we asked the starting question “which factors did contribute to SaaS usage?”. Furthermore the way the informants expressed this answers gave us the interpretation that this factor is the main driver for SaaS usage.

5.1.2 Partly contributing factors

Scalability – As discussed in section 4.2, we saw that the factor scalability truly is contributing to SaaS usage, because sincerely, no company would use software which is impossible to scale. Thus, we found that this factor should be met, but it is not a main reason to use SaaS.

Easier to change provider – As discussed and noted in section 4.2 there are no installations and no investments made in hardware for using SaaS and as the contract most often is renewed after a time period SaaS is easy to change when first starting to use it, as long as you don't have a lot of data stored on the software. This factor did contribute to SaaS usage in the beginning, by enabling companies to test out different software more easily then on premise software. This was a factor which further contributed to SaaS usage after the main decision to use SaaS, as the companies would not start to use SaaS just because they more easily can change provider.

Type of data stored/software – Another aspect of the factor easier to change provider is the kind of software the customer buys as a service. If using software that contains less important company data then it will be easier to change provider because it's not equally important that the data is transferred to the new software. Thus the ability to test and switch between different software increases.

Vendor trust – financial strength - As stated this is a pretty obvious factor, because we doubt that any company would buy SaaS software if they did not believe that the vendor is going to be on the market for quite a while. Thus trusting the vendors financial strength contributes to SaaS usage, but the same implies for on premise software. So this is not a factor that is unique for SaaS software. It is not a main reason to start using SaaS, therefore it belongs in the partly contributing factor category.

Vendor trust – data integrity – As we stated in our analysis in section 4.2 it can be argued that if trusting that the vendor will not intrude your company data, which is saved in the vendors databases, it will lead to SaaS usage. Else it will lead to the opposite, not using SaaS. Which is obvious, no company would buy SaaS if they believe that their data is going to be intruded. This factor must be met if a customer is going to start using SaaS, but it is not a main reason for companies to start using SaaS, it's rather a prerequisite.

Vendor trust – software maintenance – This is another form of vendor trust that we found was contributing to SaaS usage, which can be connected to our discussion in section 2.4 that

the service quality is dependent on the provider. So if a customer trusts that a vendor can maintain the purchased software in a good way then it will contribute to SaaS usage.

Upgradation (SMS companies) - This factor affects the customers when deciding to use SaaS in a way that they see it as an advantage of the current technology. Some companies are affected in a way that they don't have to do anything because is provided from the vendor directly, but when it comes to the bigger companies they are not impressed that much again due to having experience with big IT departments that take care of this problem even with on-premise and of course it depend from which vendor they got the service, but however they are positive about this factor. When analyzing the responds from informants regarding that SaaS shifts the burden and the cost of upgrade from the customer to the vendor we see that the fact that the service is provided from a specialized company gives the costumer more room for trust considering the fact that the provider have in disposition better equipment for that purpose. Also the users are not affected during to the process of upgrade of the software for some companies, where they clearly indicated that it depends on the provider and the technology that they are using, so this is not that strong advantage of the SaaS, that's why we concluded that this factor in general contributes but its not the main contribution that companies take in to consideration when deciding to use SaaS.

Security and disaster (SMS companies) - The security of the data is a sensitive issue when it comes to the companies as we analyzed the responses of the informants we saw that the smaller companies are affected by this factor when deciding to use SaaS and there also can be seen clearly that the vendor reputation and its capabilities for providing the security are really important in this case. Where according to the analysis the data recovery is contributing only the smaller companies and some of the big companies due to the technology the vendors used for data recovery. But we can conclude that this factor partially contributes to the decision for using SaaS under the influence of the company size and the vendor reputation, that's why we placed in the contributing factors not the main contributing factors.

Mobile and accessible (SMS companies) - According to the analysis that we did from the answers that we got we can conclude that this factor contributes only to the small and mid size companies when It comes to the decision of SaaS usage. The reason behind is that these type of the companies mainly focused on the freedom that they have with SaaS. But its not the case with big companies, they reason that it's no difference at all when it comes to this factor between SaaS and on premise, so if this factor contributes or not to the decision of using SaaS is influenced from the size and type of the company, but we place this factor in to the contributing one because there are still companies that were affected from this factor in some way, it's not a main factor to be considered but can help if its counted.

5.1.3 Not contributing

On demand usage - As stated this factor did not contribute to SaaS usage. This because some of the informants explicitly stated that it did not contribute to SaaS usage and for others it was not possible to have on demand usage.

Legal Problems - As we found that this factor is not contributing to the decision for SaaS usage, because there are different legal terms between countries of different regions, but in our case the company that experienced this problem managed to avoid the barrier by fixing it beforehand. In conclusion this factor can be avoided if prior caution is paid to the legal terms between countries.

Nature of business - This factor can be both contributing and not contributing because is very depended from the companies' activity and nature of business. In our case it appeared not to contribute to the decision of SaaS usage, due to the sensitive nature of the data that Life Support Company was dealing with.

5.2 Research contribution

Our research contribution can be divided into two sections. The first research contribution comes from the literature review. Our research has contributed to an overview of contemporary literature about SaaS advantages, clearly showing that contemporary researchers have different opinions about what the advantages of SaaS is. As noted this contribution did not provide new knowledge, it only gave a picture of the contemporary knowledge in the field.

The second contribution is the factors we identified are contributing to SaaS usage. This factor provided new knowledge because, as discussed in section 1.2 Problem discussion, there is a lack of research focusing on why companies use SaaS. The research found four factors which are the main contributors to SaaS usage, thus meaning more “important” factors than other. Furthermore the research found six other factors which are partly contributing to SaaS usage. One of the more interesting findings is that SaaS is more beneficial to small and medium sized companies, this insight impose couple of challenges for SaaS vendors. One of the challenges is how e.g. the pricing model of SaaS can be changed to better suite big companies. Another is what factors could be customized to better fit big companies, thus increasing the spread of SaaS systems.

For academics this research has contributed to new insights about factors contributing to SaaS usage and shown some contemporary problems with SaaS.

5.3 Research critique

One critique to the research is that we cannot know if we have managed to identify all factors contributing to SaaS usage. This is kind of an obvious critique which is very hard to address. To be able to find all factors contributing to SaaS usage, we should have a population that is all the companies in the world which use some kind of software, which probably is majority of the worlds existing companies. We do not claim in our research that we found all possible factors that contribute to SaaS use.

Another critique is about leading questions in the interview process. Even though we know that leading questions should be avoided, we posed partly leading questions in some cases during our interviews. This happened mostly in the first interview because of lack of interview experience, but as we started to be more comfortable and used to interviewing our

interviews were conducted in a more professional way without any leading questions. However we did not interpret that the questions that can be seen as leading in some way affected the informant's answers.

5.4 Bias

We have thought about bias in the research and one aspect that can be seen as biased is that we only focus on the factors which contribute to SaaS usage. Thus we have no focus on factors which contributes to the opposite, not using SaaS. We are aware of that there are advantages contributing to not using SaaS, however we explicitly state in our research question and research purpose that we are focusing on the factors contributing to SaaS usage, even though we are aware of that this will not give an entire picture about the factors affecting the decision whether to use SaaS or not.

Another bias may be the literature chosen, which impact the whole research. The literature was chosen on our perceptions and criteria. The perceptions and criteria are biased in the way that we believe that some articles are the "right" according to our pre knowledge about which articles are most suitable to our research.

Lastly a bias could be that we only chose to have customers' point of view and not the vendors', it may be argued that this leads to that we are not showing the entire picture. We on the other hand argue that the customers are those who use the software and those who best know because of what factors they decided to use SaaS. Vendors can have their assumptions about what factors are contributing to SaaS usage while the customers have the "true" knowledge.

Appendix 1

Interview guideline

Introduction questions

Q1: *Could you tell us your function in the company?*

Q2: *Does the company use software as a service or on premise, or both?*

Q3: *Could you explain what you think is the difference between SaaS and on-premise software?*

Factors that affect SaaS usage

What factors did affect your decision to use or not to use SaaS?

SaaS is Cheaper/Cost-effective

Q4: *SaaS is more Cost-effective. What is your opinion on that? Did that affect your choice of (not) using SaaS?*

Q5: *SaaS is more cost-effective due to its pricing-model. What is your opinion about that? Did that affect your choice of using SaaS?*

Q6: *SaaS is more cost-effective because it does not have any hidden costs. What is your opinion about that? Did that affect your choice of (not) using SaaS?*

Q7: *SaaS is more cost-effective because there are no front loaded expenses and the customers have less fixed cost. What is your opinion about that? Did that affect your choice of (not) using SaaS?*

Q8: *SaaS is more cost-effective because customers need for IT-professionals and cost for maintaining the software decreases. What is your opinion about that? Did that affect your choice of (not) using SaaS?*

Easier to deploy

Q9: *SaaS is easier to deploy than on premise software. What is your opinion about that? Did that affect your choice of (not) using SaaS?*

Q10: *SaaS reduces system deployment time.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Q11: *The implementation time is reduces because the service is provided through Internet and therefore there is no installation and setup at the customer's end.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Q12: *The customization is easier and more quickly.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Scalability

Q13: *SaaS gives the customers the opportunity to easy scale their software, to include more or less users.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

On demand usage

Q14: *SaaS enables customers to use the applications they need, when they need it and in the amount they need.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Always upgraded/easier to upgrade

Q15: *SaaS is easier to upgrade?* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Q16: *SaaS software is updated without affecting the users.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Q17: *SaaS software moves the burden and cost of upgrading the software from the customer to the vendor.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Security and disaster recovery

Q18: *SaaS increases the customer's data security.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Q.19: *SaaS increases the customer's data recovery.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Easier to change provider (bigger freedom of choice)

Q20: *SaaS enables customers to easier change vendor.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

More mobile and accessible

Q21: *SaaS is more accessible.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Core competency focus

Q22: *SaaS enables the customer to focus their resources on their core business.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Beneficial for SMS companies

Q23: *SaaS is more beneficial to small and medium sized companies.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

The vendor is more important

Q24: *The vendor trust is more important when using SaaS then on premise software.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Q25: *The vendor trust is important to be sure that the vendor does not intrude into clients data.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Q26: *The vendor trust is important because a service cannot be divided from its provider, thus the vendor affects the service quality.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Q27: *The vendor's financial state is important.* What is your opinion about that? Did that affect your choice of (not) using SaaS?

Finishing questions

Q28: *What are other possible factors affecting SaaS usage? Could you list the factors one by one and give some explanation?*

Q29: *Do you allow us to present your name and company name in our study?*

Appendix 2

Letter to companies

To: whom it may concern

Letter of Introduction

My name is Kenan Dedukic and I'm a master student at Lunds University, Information Systems program. Together with my colleague Blerim Shaqiri, we are currently writing our master thesis and our research interest is Software as a Service (SaaS).

Our research question is: What factors contribute to the usage of SaaS?

We have found that your company uses SaaS (in form of XXX) and we would like to know if it is possible to have an interview with one of the company's employees? The employee should be some one that has knowledge about IT and knows why your company decided to use SaaS, as we are interested in your opinion about what factors affected your choice to use SaaS.

We are wondering if we could have between 30-60 minutes of your time for an interview, preferably face to face, since it is more interactive and it would be easier to explain the issue.

If you don't have the possibility for a face to face interview then a phone or Skype interview works as well, whatever suites you the best.

Thank you very much for your help.

Greetings,

Blerim and Kenan

Appendix 3

Transcription Laidlaw, Analytic

Section 1

Sh: Explains the thesis subject.

Sh: We want to investigate the customers' point of view about Software as a Service, and I see from the webCRM's website that your company Analytic uses their software and I would like to know your opinion on what factors did affect your decision to start using it?

La: I can tell you fairly that the decision about that was made about... umm... five years ago. The reason was that at that particular time business had just started and it was just myself at that point working the business. What I was doing was to take on a new guy to work with me and he was going to be located elsewhere in the country because he's prime role was going to be as a sales person, so he was going to so he was going to be traveling around the country most of the time, and not being in the same office as myself. So we had a fundamental problem that I had my own contact database that I used, for storing peoples contact, telephone number, email etc etc, also some time used for some emailing promotional activities and the problem was how do I share that with my new colleague who both of us needed to be able to add to the list, and delete from the list, change from the list and we both needed to be continuity updated with the contact information so what I did was I looked add various different options, things I used in the past in various organizations, thing as salesfoce.com uum, what else, X? was another we looked at, and a lot of these solutions was, a, they were expensive and b, they actually required you to do some synchronization which meant that any changes u made was not instantly updated on your list, it required you to update them and then on the end of the day to synchronize.

Sh: Yeah, those are like the main reasons, factors that affected your decision to use SaaS.

La: Yes that's right, webCRM was primarily it was low cost system, it was relatively basic system but actually a basic system with all we needed that particular time, that was the main reasons then.

Section 2

Sh: Sound very reasonable, regarding to your activities that you're doing. What do you think about the cost affecting factor, was it affecting you as well? Do you think using SaaS would be more or less cost effective, what is your opinion and experience of that?

La: Well it was at the time, certainly a very cost effective solution as compared to other possibilities that were on the market, and as I said I think also it's a relatively basic, or it was a relatively basic solution but it was efficient for what we needed at that time. Obviously things have changed a little and out requirements are changing and will change in more the future, but also the cost has in any case increased somewhat in that time.

Sh: so your saying that the costs are more now for the software you are using regarding to the time when you started to use it?

La: Yes it cost a little bit more than it did when we started.

Sh: So you say that vendors have increased the price?

La: Yes. But I'm not saying its cost effective, just that maybe, what would be preferable to us, is that it would be different levels of service, so if we just need a basic service then we can be on one level, then it can be other levels that we could move to when we need additional features, what has actually happened is that the number of features in the service has increased, and then consequently the price has also increased, but a lot of the features that are new are not necessarily what we need on the moment or that we use for the moment but still we pay for them.

At the moment we pay per user pay month, an amount per month per user.

Sh: What is your opinion about that is SaaS more easy to deploy than the on-premise software?

La: Well it's pretty easy, since it's all online and you just need to have a good machine.

Sh: Did that affect your decision for using SaaS?

La: Yes.

Section 3

Sh: Easier to upgrade? Or need effort, or how you manage that part?

La: What to u mean upgrade?

Sh: Sh explains, for e.g. upgrade of technology.

La: I don't think that, webCRM is a completely online system so it's not dependent on what operational system you have.

Sh: OK, my question was, referring to the upgrade from the provider's side, do they upgrade it on time, because technology evolves and systems need to be upgraded, do you need to put an effort to it or do they do everything?

Okay, sometimes we get a mail from them that they have activated some additional features; they inform us about this kind of things.

Section 4

Sh: Regarding security, data recovery and so on, that's really important when dealing with non on premise software, like yours. What would be your comment on the security? Do you have a special any special agreement or any special way to deal with that?

La: That's an interesting point and its probably something that we as a company should check a little closely, we did ask those questions to webCRM when we first started to work with them, they assured that they themselves kept backups for many months, I can't remember for how long, but so if it was any problem they could recover that data, but we actually do on addition to that is that the data that is on webCRM we back that up ourselves, to on excel spreadsheet.

We do that, it's not completely bullet proof, we do that on a monthly basis, just for our own security measure, I mean we trust webCRM security measurements, but at the end of the day they are in Denmark and we in UK, we have never met these guys, we don't really know them, so I think u always have to be honest and make some direct security activities.

Sh: Interesting that you mention that u never met them but u trust these guys, to u have any, I mean how do u decide to trust them, is it from their website of something?

La: No, I, in the first instance when we first started to work with them I had some direct telephone discussions with one of the guys who was a founders of the company and I guess I felt that I developed a kind of relationship with him and I felt really comfortable with that.

Section 5

Sh: Ok, have you had any problems with this kind of service, major problem?

La: Not really, in general we are really happy with them, they run some training courses and so on they do now have a UK based representative so it's easier for us to get a hold of them if we have a question, I think in general terms they do pretty good job, they to a lot of webinar training, if we have a new person joins us that needs a familiarity of the system or even to learn some new things that might be helpful to us in the future then they can have some training with these guys and get them up to date, so we are pretty happy with how they work generally.

Section 6

Sh: Regarding your possibility to change provider, is it easy to do that or not? Not in terms of do you want to change, I mean is it easy to change or like difficult.

La: To be honest I have not looked in to it in any great depth but my perception is certainly that that is a pretty difficult thing to do. But actually it is not based on a real experience so that really just my perception.

Section 7

Sh: Talks, then; you say it's more mobile and accessible, you mention in the beginning. It's unlimited and you only need internet and stuff.

La: That was pretty important to us actually yeah.

Sh: my next question, regarding the IT-maintenance, do you have to put any effort in that? Do you have to have some special guy that it's dealing with this system or do you have just normal users?

La: We have different level of users, so two of us are able to do all thing on our system, to delete contacts and so on, the rest really can only add contacts and make some changes of the contact, so we have some different levels of access, but in general terms, the people that have access to it they can change most things in it.

Sh: So you do not need to put extra effort on your IT-maintenance so you would rather focus your manpower to your business then doing this it –stuff.

La: Yes, absolutely.

Section 8

Sh: You are a small company, but do you think you would use this if you were a big company? What is your opinion on that?

La: I would certainly give it serious consideration, yeah I think it's a good system, I think u have continually assess it to see if it's the best for what u want to do, for us as a small company its fine its works for us in fact it probably does a awful lot that we do not use in it on this particular moment of time, if I was a big company then maybe My requirements would be more taxing so obviously I would need to reassess that. But I would certainly give it serious consideration, cause I think probably from a cost per feature, and benefit point of view its probably reasonably cost effective system compared to other things that are out they but as I say I did not asses the market to see what else is out there for quite a long time, it's just my perception that I have.

Section 9

Sh: My last question would be, the vendors trust, explain ... is it vendors trust more important than when you use software on premise? Is it important to have big trust of the vendor?

La: Um I think trust is quite important, because at the end of the day you're trusting a fairly crucial company information to the vendor, um, because really, we are a distribution company and our customer contacts and so on that is one of the most critical things for us, as a company, so yeah the trust level is pretty important, but at the same time you do, as I said earlier, put in your own security measures to make sure that in the case it might be a failure in some point in time you are still covered and you can still get your data.

Section 10

Sh: What's your position?

La: Managing director.

Appendix 4

Life Support Company

Section 1

Sh: Could you tell us your function in the company?

LSC: My function in the company is the Director of the IT department for software development.

Sh: Does the company use software as a service or on premise, or both?

LSC: Our company has its own software called "Econet" developed by our IT department located in different that are our property, our servers. And we use this kind of software for our needs.

Sh: Could you explain what you think is the difference between SaaS and on-premise software?

LSC: Well as far as I know, but this is my opinion not the opinion of the company, I think that the difference between these is that software on premise is in the servers of the company and its fully controlled by the company and the other the SaaS is a software that is provided from some other IT company to some other company online.

Section 2

Sh: What factors did affect your decision to use SaaS?

LSC: Well there are a lot of factors that affect the decision for using SaaS, we are discussing this matter but according to my opinion the price could be a factor that might be an advantage when deciding of SaaS usage.

Sh: What factors did affect your decision not to use SaaS?

LSC: the not having the full control over the data of your company is one of the most important factors in our case our company is big company and has different important data.

Sh: What are you opinion on the factors stated bellow? How did they affect your decision to use or not use SaaS?

Section 3

Sh: What is your opinion on SaaS being more cost effective?

LSC: I think that the price is not that of a big deal when it comes to the importance of the service that you use to complete your tasks for your business.

Sh: And what do you think about the pricing model of the SaaS?

LSC: As I mentioned before we are a pretty big company in different with head quarters in different states and we have a lot of users that use our system and I think that this could be a point where we have to negotiate for the terms of use, because we grow continuously and it depends from the provider and their business plan, maybe we can agree on taking a package and pay a bit more in the beginning rather than be based per user, because if we grow to much than we will have a lot of unnecessary costs for each user. So it depends in what bases is the pricing model.

Section 4

Sh: Regarding the Deployment of the SaaS what is your opinion?

LSC: Well I think that this might be a advantage because I assume you don't need to much time to install and so on the software, but still that is not a big thing that would affect our decision for implementing SaaS because we have our IT department now and if we decide to do that the deployment would be very easy, and will not make any difference.

Sh: what about the customization of the software do you think that it is easier?

LSC: I don't know because it depends from the provider and the nature of the business that you are doing.

Section 5

Sh: SaaS gives the customers the opportunity to easy scale their software, to include more or less users, what do you think about that?

LSC: Well yes even with our on-premise software "Econet" we developed the possibility to include or take away users and the IT department is adding features that we need as the business evolves, and continuously we take feed back from the users and do the necessary changes for more efficient workflow, so I think there is No effect in the decision to use SaaS.

Section 5

Sh: Regarding the on demand usage what is your opinion about that?

LSC: well that is possible but its not in the category of the factors that could affect us to use because as I mentioned before right now we can effort that feature thanks to our IT department, of course maybe in SaaS would be in a different way but still we can achieve what we want.

Section 6

Sh: regarding the upgrade of the software what, is it more easy to with SaaS or on-premise as you use? In what way it affect the users?

LSC: I think that SaaS should be slightly easier to upgrade but that has no big effect in affecting whether to have or not SaaS, but one positive thing that I see with SaaS is that

maybe there won't be need of many people taking care of that process. So the responsibility goes to the vendor.

Sh: what about the burden of cost of upgrade is it moved from the costumer to the provider if using SaaS?

LSC: I don't think so because when using SaaS you pay the whole service including the cost of upgrade and so on, so it's a matter of when u pay, whether before using SaaS or after using our IT department.

Section 7

Sh: What is your opinion when it comes to the security and disaster recovery?

LSC: Yes this affects a lot our decision to not use SaaS at least now, in this stage of our work as a company we have a lot of data of different customer that we provide services around the world and we think that data security is very important to us and we don't want to take any chances by experimenting at least now, we are in negotiations with Microsoft but still we haven't decided to go for it because the technology that is now is still evolving and we need strong arguments and proof that it will be safe and our data will not be lost or the worst hijacked and cause damage and disaster to our business. Regarding the data recovery I don't know how the providers of SaaS do the data recovery and to what extent they can recover , because every business nature is unique, but regarding our system we have our back ups every day in our servers and we store the most important data so we have full back up for that matter.

Section 8

Sh: What do you think the SaaS users can they easily change the providers? Would this factor affect your decision to use SaaS?

LSC:I think that of course you can change the providers they provide you with a contract and so on but , this has no effect as such in my opinion because first you need to chose carefully your provider to see if you trust him and if he provides with what you request for your business and how he provides it and so on, but still there is a problem at least I'm talking for our company but I'm sure all the companies have thought of that that if you chose one provider changing it in terms of technicality is easy I assume but in terms of functionality I think it's not because doing the all agreements from the beginning, implementing it all it takes time and effort and you lose your continuity with your business workflow and the staff gets exhausted every time implementing a new thing, getting trained they lose the will for work.

Section 9

Sh: what do you think of SaaS- accessibility, does it affect you?

LSC: Completely not affecting our decision, because our software also is accessible everywhere you have internet.

Sh: Do you think that using SaaS your company would benefit, focussing your resources in the core business?

LSC: Well that is a thing to think of because as I mentioned before we have a big IT department that is working for the IT needs of our company, it could be beneficial to our company to focus the personnel to the business, but still that is not my decision. So it could affect us but I can't say that it will, I don't know.

Section 10

Sh: what do you think is SaaS more beneficial to SMS companies?

LSC: Well I agree this is more for the SMS companies, maybe because they have less possibility to effort an IT department and the nature of the business maybe allows to have less security over the data and can effort the costs of a SaaS.

Sh: Is the vendor trust more important when using SaaS than on premise software?

LSC: Yes it's more important because you completely relay on the vendor and also it's important when having on premise if you outsource. But definitely when u have SaaS is more important. Because you need to know if you vendor is miss using your data for his benefit, and you need to chose the vendor carefully, and of course is important the future of the vendor, the perspective and so on.

Appendix 5

Transcription Rodung, Findwise

Section 1

De: What factors did you consider when choosing to use SaaS?

Ro: I think the most important thing is that we don't want to have any infrastructure or computers ourselves. It's much easier for us to use SaaS. When we started with Qbis we were a quite small company and we didn't want to do a big investment in system so it was very easy to start because u don't need to invest anything, to buy computers or to install software or anything.

Section 2

De: Regarding the cost-effective, is SaaS more cost effective because of less need for it-staff?

Ro: Yes exactly. So the step to start was very small for us so to say if u compare to buying a product, you always need to, you need to evaluate the product of course in a good way because you need to invest some money in it, when we started with Qbis, I think it cost 50 kr per month per user or something when we begun.

De: Do you think SaaS is more cost effective due to its pricing model?

Ro: Yes, the pricing model is very important here as I see it for us. We don't commit our self to a lot of money, if I remember right we could leave the service whenever we want.

Sh: Were there any hidden cost?

Ro: I don't think so, not what I can remember right now. Of course there is some learning cost, but that we know from the beginning. But no, not any hidden cost.

Section 3

De: IS SaaS easier to deploy?

Ro: It is easy to implement, because we don't need to implement anything. To start using it, it's the same as other, because u needs to learn the product and do some configurations regarding number of our users and what ever it was. But it was not so much, it was quite easy to configure.

De: Easier to customize/configure the on premise software?

Ro: It's a hard question, depending on which kind of software you mean, but I think it's the same. But that's nothing we thought of when deciding to use SaaS.

Section 4

De: Regarding the scalability, does SaaS allow you to easy scale the software to as many users you need?

Ro: Yes, that's also a very big advantage, yeah.

De: And did that affect you choose of adapting SaaS?

Ro: Yes yes.

De: And about software features, is it easy to choose what features you want to use from the software? Like on demand usage. Or is it a package with features?

Ro: Exactly, but when we started with the Qbis software they didn't have as much modules as they have today. There was a, if I remember right, this was four years ago or something; there was only one module for time reporting. And that's what we are using now also, so I think that was not a big question for us. Today it's a more complex system they have a lot of modules and thing but we are only using the old time reporting part of the system today.

Section 5

De: Regarding the upgradement of the software, when the vendors update the software does it affect you as a user?

Ro: No, we have never been affected of that.

De: Was that something you considered when choosing to use SaaS?

Ro: I thing it's a positive impact that they update the service, because if we have bought the product instead we have had to do it ourselves.

De: But was something that affected you decision?

Ro: Yes yes, that's was a positive thing for buying it as a service.

Section 6

De: Do you worry about the security and recovery of the data you store in the software?

Ro: That is an interesting question of course, I think that we, in some way we see this as a base requirement of a vendor that sell SaaS, that they have a secure solution. It's not a big question but of course I assume that this is true. But we didn't verify this on any way when choosing SaaS.

De: Do you think that using SaaS increases you data security?

Ro: Its a hard question, if we have it in-house, then we of course now the security level in some way, we have control over everything. Now we don't have it in house we have it some where else and we don't know exactly how the supplier is handling this. But as I said before I'm sure that the supplier is doing this in a good way, better then we ourselves are doing it

with our own systems. So that's something I assume from a vendor that delivered SaaS, that this is so, but I haven't verified it. Perhaps I should call Qbis and ask them.

Sh: Regarding this issue do you do yourselves any back up for your data or it's just that you rely on QBIS?

Ro: We rely on Qbis.

Section 7

Sh: our next question would be for the possibility to change the provider. With SaaS do you have more freedom to choose what provider or vendor you would like to cooperate with? Did this affect your decision when choosing SaaS?

Ro: er.. if we try to divide the question in to 2 questions, because when I choose the first time for example if I need the Time reporting system for example, if of course easier for me to choose the first time if I am looking to only SaaS vendors because if as I said in the initially its very easy to go in to buy this kind of Service in the beginning to end the service, but now we have had the service in 4 years and of course if we change supplier now we will have probably big problem.

De: Why?

Ro: because you are using the historical data till today that we have in QBIS, a lots of statistics, and other kind of things so we need of course if we should change to another supplier we need to transfer the data to another supplier, of course that also a big problem. So it's not so easy for us to change the supplier now, NO.

De: Would you say that SaaS is more accessible and mobile?

Ro: Yes.

De: Was that something you considered when choosing to use SaaS?

Ro: Yes, because you could access the service from wherever you are, if you have a web browser and that's very positive.

Section 8

De: Is it true that SaaS enables the costumer to focus the resources in their core business competences?

Ro: yeah, and that's also important for us of course.

Sh: How many people you have employed for IT right now?

Ro: We have around 0.5 persons working about 40-50% with it online.

De: How many employees do you have?

Ro: We are 55.

De: Could you comment on the core competency focus?

Ro: Yes I think that is very important to us, we are also very focused around this, so we only focus in our own competence not in IT. And than we want to buy everything meaning the SaaS.

Section 9

De: What is your opinion on that SaaS is more beneficial to SMS companies rather than big companies? Is it true?

Ro: err..Yes its probably true, I think in some way the price model is not good enough if you are big company, for example if you have a price per user and you have 40 000 users you have a problem .

De: do you think that can be a problem for you in the future?

Ro: yeah, it will be because when we went in to this it was a small cost for us and today is not small cost, it's a big cost, so of course this is an issue that we have on our agenda.

De: Do you have any discussions with the vendor how you can fix this issue?

Ro: Not right now but probably we need to take in to consideration that in to the future if we are growing as we do today.

De: as you said it's hard to transfer the data and it's not cost-effective.

Ro: yes of course, and the vendors have a good situation here.

Section 10

De: Talking about the vendor, is the vendor more important when you have a SaaS service than a usual on premise software?

Ro: err....I understand It's hard to say , I don't think so , because in some way you are focused in the functionalities that the Service or the product is providing so No I don't think its that important its probably the same.

De: When you chose SaaS you didn't consider the vendors financial aids, could it survive the hard times?

Ro: No, we didn't do that but it's a good idea of course.

De: That's it

Sh: do you have any other factors that affected your decision regarding usage of SaaS and we didn't cover?

Ro: err.. I don't think so. I think you are doing a very interesting research, and I also think that SaaS has a very good position for the future.

De: It is interesting to see how it will go for the big companies, will they adopt SaaS or will it just be the smaller.

Ro: Yeah exactly.

Appendix 6

Transcription Krook, Malmö University

Section 1

De: Can you tell us your position in the company?

Kr: My primary function is service level manager, I make contracts with customers and the organization regarding IT. If the organization needs some tools I make the contract.

Sh: Are your organization using SaaS or on premise?

Kr: Both, but primary we sell spaces on service here, but we also buy the service from a provider.

Sh: What is diff between SaaS and on premise for you?

Kr: When you have in house then you have to have technicians that are very good in making the system run, it can be a little bit hard to have demands internal, if you buy it from external provider its more easy to write a contract that you can pinpoint everything, we want this and this, in the long run you can sue them. When you have people inside running the service you have to be a nice fellow, they are colleagues. On the other hand, if you buy a system sometimes it can be a longer way to make service to be done, you have a contract and times when it has to be fulfilled. But inside u can have direct conversations to persons that are responsible. You can say I wanted it fixed in four hours can you make it in three now. If you have good people around you, you can get thing running smoother instead of filling up a contract. But it has a backfire, with people inside it's more a discussion but with people inside you just point to the contract and they have to fill it.

Section 2

De: What factors affected you decision to use SaaS, software as a service.

Kr: The decision was in this case, it was a quite big and complex system if we had taken it home to run it in our central. It would be quite hard to take it home and run it on our platform. We also got a lot of good guaranties of uptime and they are running it in a high quality big data center in Oslo University. Depending on the size of the organization it can be very hard to have a 24/7 service on a system. But if you buy it from a provider they can have people there all day around, they can make it run. Even if it crashes three a clock in the night. We can't have it here, were only 30 people working here. So sometimes it cheaper to buy from a big provider, they deal with thousands of servers and they can afford having people there 24/7.

De: Regarding the provider, so it's depending on which provider it is?

Kr: Of course it should be a big provider, to get a good price and to get a good service.

Section 3

Sh: SaaS is more cost effective, what is your opinion on that and did that affect you decision?

Kr: In this case I think it was, I would say that, maybe we made a decision about the price too but the primary reason we choose an external provider for this was the uptime, we were insured that this would work always. We would not have the problem of coming in the morning and the system is down, and then up and working after an hour, that would have such a bad influence on us as a department of computing and its very important that the system is up. But I also think that the price we pay for it is maybe a little bit more expensive but I'm not sure, but it's not much more money. But its hard for me to calculate how much it would cost if we would have it in house because I don't know how often it goes down, its very hard to measure how much time a employee put on each server. Now we pay a yearly fee for this service. But of course we always think of the price. We do a calculation in our head how much of an employees time will go to this. But it's hard to know exactly.

Sh: Has the service hidden cost and did this affect you decision?

Kr: Well when we made a contract in the beginning we got one price, and when we discussed a new contract the price was a bit more expensive. For example from the beginning we had free storage but now we have to pay for the space storage. Probably because they were concerned that the storage amount would be too big and that has cont in form of back up. But the price we got for a big amount of space, but limited, was the same as before. They assured them self that we did not use the space uncontrolled. That's a kind of a hidden cost. But we are never in contact with the provider because it almost always works, and we contact the provider and they contact the data center.

De: Did you consider this hidden cost in comparison with in house?

Kr: Yes we did. We have limited space in our server rooms. Limited cooling, and this is a quite big system so it would take some power and so on and there is a limit when u have to build out, and that's quite expensive, we were closing up to this limit so it's better to have it outside.

Section 4

De: Regarding scalability, is this easier with SaaS?

Kr: Yeah, it's very easy. Because if a want to scale it up, the company that sells the software charges me for each user, so if a say I want to scale it up to 10 000 more users, they say jipiii are happy and fix it in a second. They contact the data center and I don't have to d anything.

De: And were you considering this when choosing system?

Kr: Well I was considering that its very to have it in a outsourced way, it's not my problem any more, I don't have to do more than check that it works or listen when there is problems. Because they have specialist and are specialist in making the servers work, if we would have them inside, we have to develop it and when it goes online, than the package must be moved

into another department but the work for the developers just grows because they are the only ones who know the depth of the system. So we have a problem with that. If you use an external provider they have their developers and maintain the system.

Section 5

Sh: SaaS deployment is easier than on premise software. What is your opinion on that and did that affect your choice?

Kr: Like the implementation of the software? We don't know anything about it because there is no installation. "

Sh: So this was a factor affecting your decision?

Yes, because we don't have to have problems with it. You don't have to worry about this. I and my colleagues had some thoughts on trying to see how it is to have other datacenters running it and before we had all in house but then we thought time was ready to try an external provider so we tried this system. We thought about the cost but when looking back it was about the same cost.

De: Did you do any customization and was that easier because it's SaaS?

Kr: Yes, we had some customization to the login, not having to login twice, one for this system and one for the rest.

De: Have you customized any functionality to the software, except connections?

Kr: No, but we had discussions here about distance learning tools. We have had our own developed system for distance learning and you can buy a system. If you have it in house you have big possibilities to change it, but when you buy it you get what the provider sells to you. They can change things and you have to accept it. But we have also bought changes from the company, because we are a big group of 7, 8, 10 universities discussing the system and we contact the company and say we want this and this changes. Sometimes they listen and sometimes they don't.

De: So it's easier to make customization in house.

Kr: Well that's also depending on how it works in house. A reason why we stopped self-developing programs even if you have it in-house you must have some kind of board that demands changes, and we are a university, we are not professionals to develop programs and make processes how to change it. So that didn't work either. We want some changes in the systems but they never happened, it was unclear who's responsibility it was. So I actually don't see any big difference on having it from an external provider or making it yourselves.

Section 6

Sh: Regarding on demand usage, it goes back to what you said about package, does SaaS enable on demand usage?

Kr: Regarding this system it is not possible.

De: Does SaaS reduce the need for IT staff and did you consider this?

Kr: Yes, of course. It's quite expensive to pay salary and we could have a lot of computer power from one year salary. We can use our staff for other things.

Sh: Regarding the update, does it affect the user?

Kr: Yes it does, we have some rules that they must tell us times in advanced. Sometimes it can take up to one day. The system goes down, can be for a day and they don't do it in the weekend, they do it during the week. But I think that's maybe in 4 years we have had 3-4 times that they took it down for the whole day, if we get the notification 2-3 weeks in advance we can inform our customers and will inform our customers and they will accept it.

De: SaaS software moves the burden and cost of upgrading the software from the customer to the vendor. What is your opinion about that?

Kr: yeah, we considered it in a way that when you know that they will make an upgrade it works, if we do it in house we will guess more, they have better possibilities, they have huge test systems for trials, they have a lot of customer and they got the money to do it. We don't have the time to test, and there is a cost, and if it doesn't work u need to make a roll up and that costs, for the people that work to make it run again and that's difficult and big frustration. And if you let them do it that's their problem and they will fix it.

De: and that was one of the things that you consider when choosing to use SaaS?

Kr: yes

Section 7

Sh: regarding the security and the disaster recovery, do you think that SaaS increases the security of the data?

Kr: the safety of the things not getting lost, the backup systems and so on, considering that I think it has a positive impact coz they will get sued if something happened, so they have to be very careful with it.

Sh: We refer to the data security as a factor? And the data recovery?

Kr: on the security part I think that we in-house had a fine security but I'm sure that a big center like Oslo university data center, they will have the same security, and the problem is maybe when the file leaves the compound here and goes to Norway, its outside the EU and it could be a legal problem, but we checked this thing, it could be a problem if we store things

in Google, that could be a legal problem. Because this documents sometimes they are a dignity, and if a student asks a question a teacher must replay, a this things might get hijacked and that's a problem. I think is the same safety to have inside and outside in this case. And I think that if I had put money for where is the safest place I would put money to Oslo University data centre.

Sh: You considered this factor when choosing SaaS?

Kr: yes, because is a big center and they have to have very high security because they sell the service, if there will be a leak than they would lose customer and that's not food that's why they are trying so much to not getting hacked. Sometimes we get hacked here it happens.

De: Did you consider this security reason when u decided to use SaaS? Did it affect your decision positively or negatively?

Kr: Yes.

Section 8

De: regarding the freedom of changing vendor, does SaaS enable customers to easier change vendor. What is your opinion about that? Did that affect your choice of using SaaS?

Kr: No I don't think you can change the vendor easily you are quiet bound to the provider these days , in this case we get price on the program , and they are interested in getting the data center price and so on so it's like a package .

De: if you have bought it and have it in house and having SaaS is equally hard to change the provider.

Kr: yea absolutely, you might change the platform that you are running on and so on.

De: did u considered it when choosing?

Kr: I can't say that, it was not our problem to change it so no.

Section 9

Sh: Regarding the possibility of SaaS being more accessible and more mobile?

Kr: I don't know, if there is any difference, I think is the same like within house.

De: If you look at some companies they have the case that you need to log into the intranet to be able to access the features.

Sh: Regarding the factor of Core competency focus. SaaS enables the customer to focus their resources on their core business. What is your opinion about that? Did that affect your choice of using SaaS?

Kr: There is a possibility of being a bigger company, they can probably effort more experts and bigger plants, and the experts and the staff costs money, and if you can't effort it than.

De: Have you considered this, the smaller companies if they use SaaS they don't have to have IT, instead they can focus their staff in to the core business.

Kr: Yeah, you can say that, when it cost there are people over that are going to do other stuff now.

Section 10

De: The vendor trust is more important when using SaaS then on premise software. What is your opinion about that?

Kr: Yeah sure.

De: The vendor's financial state is important. What is your opinion about that? Did that affect your choice of using SaaS?

Kr: good question, yeah, always in your mind you make calculations of this, if the provider is going to live for a long time, we were discussing Microsoft, you expect them to survive.

De: The vendor trust is important to be sure that the vendors do not intrude into clients data. What is your opinion about that? Did that affect your choice of using SaaS?

Kr: Yes we did consider this before, as I mentioned when we decided about the Email thing, if it could be the email in the cloud than it could be stored in Amsterdam and if that goes down you have it somewhere else so that's in Europe and its legally OK . But when it comes to the support you can call your support person in Europe , but the support in big and huge systems it goes with the sun around the world , and if I call at 8h I can still call because its open 24/7 in India or in USA than you actually discuss with the person outside the EU they will also get access to maybe documents and then you situation will be complicated, we have had this discussion about the data and who is reading the data, there is some risks , if it gets outside, is not that we don't trust Indians or USA but its juridical perspective.

Sh: do you have any other factor that affected your decision for using SaaS that we didn't cover?

Kr: No basically you touched everything.

Appendix 7

Transcription Bromander, Condesign

Section 1

Sh: the question regarding the system that you are using, the SaaS from Qbis, I'd like to know more about the factors that affect your decision to use these kind of services, What factors affect your decision to use SaaS.

Br: Well.. Business need, of course, if your looking for the driver it was of course the commercial need.

Sh: So tell me how the software is, is it entirely online? Is there any need for In-house installation in your computers or just partially. Because as we know we have 2 types of software In-house and the online.

Br: I worked with IBM for 10 years so I can make the difference between them. No when I think I see that we concentrate on the CRM module. The first thing that we implemented was the Time management system.

Sh: As I remembered you told me yesterday that you have the time management model and the CRM model, and they are nice SaaS that you are using, and you mentioned the business factor, can you comment that.

Br: The first thing where we choose was the time management module, and that was 4 years ago. We were one of the Qbis first customers. So what we wanted than was more easy handled system where we could see and manage the time and we needed more functional interface and we wanted an interface that was easy to use and have web access to see the hours worked from the employees.

Section 2

Sh: I would like to ask you a question regarding the Cost effectiveness factor? What is you comment about this , whether the SaaS is more cost effective, how it used to be, how its now, whether the costs is changing or the provider changes the prices ?

Br: At the very beginning they were developing this software and they were trying a lot of things, so it was a lot of bugs and errors, and we helped them telling them what the business need because they want their product technical features. We had discussions of what we need as a costumer from a system like that and they developed to our needs. So during these four years they have enhanced their software and they gained more customer, than they have developed their CRM module so they have expanded the use of the software and they made it more complex during the way.

Section 3

Sh: And what about the customization for your business is it working fine?

Br: now it works very fine, even though we are not so big company and the time management system is for larger companies but for Qbis this was perfect, we had their web access.

Sh: regarding the Cost-effective factor and the current software that you are using, does it have any hidden costs that you didn't know and didn't expect and now you are seeing them.

Br: of course when the vendor hired more people for their needs, and they weren't so interested in building relations, and we as first customer we had an agreement on helping each other so we provided with information on how to adopt the Software and make more beneficial to the business and they would increase the price to other customer not us.

Section 4

De: I want to know more about the deployment procedures of the SaaS?

Br: It changed the old habits, so before we were finding the right ways to use it but today is working very fine no problem. Our problem is that we have separate unit's legal units and everyone uses in slightly different ways, so everyone adapts to their needs.

Sh: So regarding the Scalability, I'm refereeing to the possibility for scaling the software e.g.: including or excluding the number of the users, how is your payment plan? And dose this gives you the possibility to change the services

Br: we pay for every user active in monthly bases. Yes it allows us to change the services that we want to use as we first started with only the time management and than we added the CRM and so on. They have a tool box and we can call them and they have to give me access and change what we need to change and pay them of course. It is important to mention that if we needed to have a report and we just contact them and discuss and than we pay and they developed it.

Br: I must mention that it was a great advantage for us that this vendor wasn't so far like in USA, they were local close and we could communicate for everything.

Section 5

De: Did you visit the company before you chose to take their product?

Br: we visited several times.

Sh: My next question would be regarding the software upgrade? Do you need any extra effort for that matter?

Br: No, we also appreciate that we don't need also to have the software on our servers, just we use from the vendors. And they upgrade it by notifications, we just use it, it's all cared of by them and that's what attracts us, and we only have one person that is working with IT for 200 people that are working in our company and we are concentrating our resources in the business and not our IT needs.

Section 6

De: My next question is about the security issues and the disaster recovery as an important factor affecting the decision for SaaS.

Br: At this point when u mention it , we haven't asked them or even make sure that the disaster may happen and that they have back up the data , and that they will restore it , I don't know actually how that is done. Actually I don't know what states in the physical agreement, but I know that they mentioned somewhere that they have a backup but I'm not sure in what way they do it.

Sh: In that case do you doo back up yourself, just in case?

Br: No we just rely on them. We don` t know to make a backup for the data.

Section 7

Sh: regarding the vendor trust, do you think it's important as a factor? As u mentioned before you just rely on the vendor about the data and so on?

Br: Yes, it's very important factor. Ant we have a good experience with this vendor.

Sh: My next question would be: is it easy to change the provider? Is it a big freedom or its just u must stick to one vendor after u decided to work with them?

Br: We know that we can get the data out in excel file, and the time management old data is not very useful, but the CRM system data of course its more important and there you have more data, and its not easy to switch and we know that and that was also an issue for us or a point of discussion, its very possible to change but its a quiet risky in the same time because the transfer of the important data could be at risk, and we didn` t took that risk, and also it would be a lot of work for us to get the old data in to the new system and adopt it for our business workflow.

Sh: And how it works with the current provider do you have any problems regarding security?

Br: No, we never had problems it works quiet fine till now. In the beginning there were some bugs but now its running quiet fine.

Section 8

De: And what do u thing about the mobility and accessibility of the system as a factor?

Br: Its quiet accessible and mobile you can access from anywhere, we were trying to get an app for iPhone but it's not ready up till now. We can store our data and work with it.

Sh: as u mentioned before that you have one person working with IT, why?

Br: We found it easy to use and there is no need to have more people engaged, they would rather bee concentrated to the business process. This person is taking care of some data that we need to store in our servers that are not curtail to the business.

Section 9

Sh: If I understood you good you have a hybrid system, online and in house?

Br: Yes we have some software in house and the main is online.

Sh: can you comment on the decision of not using everything online or the other way around?

Br: well that is cost based factor that affected our decision using some online some in-house. At the moment it's more expensive to use just online systems. And the reliability of the system is not allowing that.

De: So you suggest that reliability is an issue?

Br: Yes , and now the new technical development by IBM, we have IBM servers, now we can get all of our own company data within 2 disks, and before we needed so many disks to do that, now basically we need less space , as they had enhanced the technology and its possible to cope with the data in house.

Section 10

Sh: Do you have any intentions of using just online software as a service in the future?

Br: We are discussing it right now, it might be a possible solution for the future.

Sh: I would like to ask you if SaaS is more beneficial to SMs companies or the bigger companies?

Br: The principles behind the software are commonly used basically by every company, so I don't know what kind of limit they have, but I'm sure all the companies have the time management module, where the people log in and out during the day, and a lots of companies are having this kind of a systems. And our Vendor has their target group on small and medium businesses and I assume that they wouldn't say now if a big company like Ericson would like to use their system.

Appendix 8

Transcription Wallin, City Conversity

Section 1

Sh: What is your function in your company?

Wa: I'm the founder and the managing director.

Sh: Does your company use software as a service, on premise software or both?

Wa: As a service, on premise, we use software of course home.

Sh: But you say that you use software as a service?

Wa: Yes, for me software as a service simply is that the server and the server administration is not on premise.

There is a difference between Software as a service when you have an application provider, where you have perhaps a dedicated server somewhere else but without the server administration. But when it comes to cloud services I think that the servers, physical servers are not easily recognized, where they are, how many they are, where the server is localized etc etc, so that's a difference.

Section 2

Sh: We would like to talk about the factors that affect you decision to use Software as a service. As stated we have these factors, but let's start with an open question, which factors did affect your decision when choosing to use software as a service?

Wa: I think for a small company there is a burden to invest in server, and server administration and server update and all that stuff. When seen from a technical level it's not a core competency and you would like to outsource that, and software as a service is one kind of outsourcing.

Sh: What do you think about cost effective regarding software as a service?

Wa: Well you don't have to do the investment, so the price model typically is per use.

De: Was that something you thought of when deciding to use software as a service?

Wa: Absolutely, so get rid of the burden and get rid of the investments, and get rid of the need for specification of demand, service demand, because that can be dynamic.

Sh: How many people do you have engaged working with it in your company?

Wa: One.

Sh: Is that a result of that u use Software as a service?

Wa: Yes.

Sh: Regarding the deployment, what is your opinion on that?

Wa: What do you mean with deployment?

Sh and De explain.

Wa: Yeah it's normally very quick, so the learning curve is quite civilized.

Sh: Is training included in the deployment?

Wa: Well because the service to be used are already defined for its use so you know a little bit about the software and that's why u choose it, so you already know a lot about the software, it's like having it installed at home or having it up in the clouds.

Section 3

De: What software do you use as a service?

Wa: SharePoint online, in different versions. And there is some other, when I was engaged in e-learning you can say that from a teacher, learner perspective you use a service almost up in the clouds, but you don't have to care about the administrative services.

De: Is there any customization to that software?

Wa: For instance take learning managing systems, I have experienced a number of them and they all have some default format. And of course it's customizable to a certain degree but if u would like to make some major changes then u are stuck perhaps, so that's a restriction of software as a service. Here is the framework you can work with. If you have it in house you can perhaps go in to the server and do some customization that goes beyond the standard package.

Section 4

De: So the vendors don't offer any way of customizing the software?

Wa: Yes, it's possible.

Sh: regarding the scalability how is your experience with that?

Wa: When I worked with e-learning the scale is defined by the client organization, so they define the class number so to say and define the server capacity from that on so that's not one of my parameters.

Sh: But is that a factor that affected or could affect your decision to use software as a service?

Wa: Yes absolutely, but here we have different version of software as a service, I think some are very much confined, so this is what we offer you, take it or leave it, but here's the package. And in other you are happy because the package includes customization facilities

and then you can try that up to a certain point. For instance take SharePoint as an example, as software as a service you can have different degrees on implementing web parts from a basic Microsoft library, from others and then from public market. But depending on the package, perhaps a market web part doesn't fit so you are excluded from using that.

De: Can you choose which features u want to have?

Wa: Typically yes, absolutely.

Sh: Is it easy to choose what you want to use or not?

Wa: Yeah, and often that kind of... its two different kind of facilities perhaps, one kind is affecting the price ticket, and the other doesn't affect, is just a kind of machinery you would like to work with.

Section 5

Sh: Regarding the upgrade is software as a service easier to upgrade and does it affect the user?

Wa: Typically, and that's the good thing with the cloud as I see it, that u don't have to care about the upgradement and upgrading, and there is no need for user announcement ere is a new version its automatically implemented gradually, so u don't have to tell the users now we are preparing for a new version and u have to get new accounts or whatever, it's not an issue as I see it when you go up in the clouds.

Sh: So you don't have to put any effort in it, you just get notified.

Wa: Yeah.

De: So you can use the software as usual during the upgrade work?

Wa: If you have software as a service with a specific server host, identifiable, with a whole responsibility, then perhaps the whole server have to b e managed, upgraded, then there is an announcement that during this night we will do that and that so no traffic will be possible and so, but its often 2-3 hours at night. And in the clouds, there is no need for that kind of announcement, because it's made without affect on the user side.

Section 6

Sh: Regarding the security and disaster recovery, is that a factor that has affected your choice of using software as a service?

Wa: Yes absolutely, if you know, that the server, it has that and that ip number, is located there and in the contract there is a kind of back up process, so you know there is a back up service, that's a kind of security feeling, that if something happens you can always roll back to say, the day before.

Sh: Have you ever regarded not using software as a service because of security reasons?

Wa: No, no, no. That's I think part of, if you go for software as a service, that is a kind of service you are asking for. Otherwise it's not a good service. If there is no backups, no roll back alternatives then it's not good.

De: But do you think your data security will be increased or decreased when using software as a service?

Wa: That's depending on who will be responsible for it, if it's me, in a small company I will not trust myself. I mean, I would rather have someone else to take care of it. It's not my cup of tea.

De: Do you think that feeling is usual for smaller companies?

Wa: Yeah, I think, in typical small business growing you cannot devote energy to everything, so you have to outsource with partners and so on otherwise there will be no business.

Section 7

De: That leads us to our next question, that software as a service enables core competency focus.

Wa: Yes, yeah, I would agree on that formulation. Because you already from the start said we don't need an It department, it's up there somewhere.

Sh: So you can focus your personnel on the business instead of it maintenance.

Wa: Yes, yes. Um, except if you are, your business is very much oriented to new software production and so on, then it's perhaps another situation.

Sh: Regarding the vendors, is it easy to change service provider? And did the factor affect your decision?

Wa: Yeah I mean, it's like the difference between having short engagement and being married, at least for evolving small and medium enterprises it's not good perhaps from the start being married to somebody that you don't really know, so you would like to test out, and if that's an option that you have a kind of contract that you cancel or you renew or update every six months or something that's okay.

Sh: Regarding you company, have you done any vendor changes?

Wa: Yes, absolutely, within the learning managing system field, I have gone through with my courseware running on these different platforms, we have had love it as one of them, after love it was blackboard, after blackboard it was um, an open source platform, I cannot remember the name at the moment and lately its model, also an open source. And in each of the sufficient you can see a different position problems, but at the content provider the small changes in the content, if you don't mounted to heavily into the platform, but if you do than you almost have to write over the course from new in order to fit the platform and my own experience is that the e-learning management system industry, has been to heavily focused on

the conventional education so the basic metaphor is that you can say dominant design which is implemented in such a way that you make a big difference between the teacher the learner, and the student and normally you have only instructor tutor and you have student, in the industry they have developed similar software for internal use , internal personal development and my experience is that is only when u skip the educational basic frame that you have commercial successful software for e-learning because you take away the restrictions in the current pedagogical model where you have the cloud and the teacher and classroom and of course material so you haven't prepared the old learning management system for collaborative learning group work team work , more or less user defined objectives nothing at all, so it's a very conventional so it seems to be difficult to get away of the defined principals but in the industry if you take learning organizations they are much more open for other pedagogical frameworks, so that's why I have over the years more and more reluctant or not very interested in new academic learning management systems but more what's happening on the learning organizations out in the industry .

Section 8

Sh: We would like to know more about the mobility and the accessibility of the software? Is this one of the factors that affected you to choose or not SaaS?

Wa: Ahh, well its, when u make a SaaS arrangement you more or less automatically requires the accessibility for users you should include not only for the admin development groups in house, so if more accessible from users perspective as I see, perhaps not for the internal so for the external point of view depending on what's your meaning with accessibility.

De: Do you think that its more or les mobile that you access it from more places

Wa: Absolutely that's another point of course because if u don't care to connect to that specific server at all you are of course open to wherever you are.

De: Was that like effecting your decision.

Wa: Absolutely yeah, so the businesses model I'm working with is very much oriented to looking at ICT services as part of the new media so to say rather than something putting to your computers.

Sh: And now my next question is regarding the SaaS is more beneficial to the SMS companies compared to the big companies, what is your opinion and experience about that?

Wa: Depending on how big the company is and the user groups and etc and if it's a fix size not dynamic , or changing very much perhaps an implementation at home might be easier and the other issue is how many on unique companies specific software should be part of the solution, so I think that's a lot of issues for the big companies and its also question of the pricing model for software as a service because if it's a linear price model where if the new user costs the same as the last one , that's not good if you have 1 million users will cost a lot, and if you can reduce the user license costs in one than its of course more interesting .

Section 9

De: We would like to talk about the vendors trust, do you feel that the vendors trust is more important when using SaaS than on premise software?

Wa: Amm Both but I think of course the market and the actors for SaaS are perhaps not yet defined and there are some small actors and big actors and so on so there is a market war perhaps going on, so on that side of course it would be natural perhaps for a new user or SaaS especially in the clouds to look on the deep providers those who sound reasonable and will stay on the market the next 10 years.

De: And when it comes to the security issue the vendor trust is more important, to be sure that the vendor is not intruding the clients data, what is your opinion about that?

Wa: Of course that's business ethics, so is part of the general terms of the game as I see, perhaps if you have very sophisticated secret data you have to make special arrangements, but for most SMS enterprises there is no need for a special arrangement to exclude the possibility of intruding the client data. But that's little bit of outside of my current experiences.

De: The vendor trust is more important or can it be more important because of the service quality? Because the service can't be divided from its provider.

Wa: Yeah that's a good point , that's on the one hand we can say that for instance the communication services up in the clouds do have some standards and some solution are property and some are according to some investors standard and of course if you can combine vendor specific offers with industrial standards that's fine but often there is a propriety component for instance in the discussion with Cisco I understand that when you have video conferencing image sound and things there are different protocols needed, to have collaborations up in the clouds and some of these protocols are standards , some are little bit propriety, so for instance Skype can not be connected with any other telecommunication facility it has to be another Skype , and the same goes for Microsoft old net meeting where those who engaged in a net meeting has to have a net meeting clients or so, and the Cisco ambition is to be a provider of industrial standards so to these "Dialog cafes" any provider of communication can be part of the communications so to say. But in some field you feel the restrictions from the provider.

Section 10

De: I would like to ask you if you could look through the factors, and say that which factor you did consider when deciding to go for SaaS.

Wa: OK, The main factors that affect my decision to use SaaS, perhaps not cheaper but cost effective, easy to get deployed yes, scalability absolutely a key issue, on demand usage absolutely, Easier to upgrade yes, security and disaster recovery I take it for granted, but I'm not sure that every provider do have a decent disaster recovery service but I think so, for instance in the Microsoft cloud I understand they have at least three big data clusters and one

in Ireland one somewhere in North America one in Asia somewhere, but any how as I understand there is always a replica of the one of them in the other so to say, so almost synchronically so if an atom bomb in that place the others will take up so that's the point of the security in the software recovery so it has to be them but depending on your company business, how important is the recovery for the last hour, easy to change providers there I would say no, I think most SaaS comes as a package and you take it with small modifications or additions so its like having a standard car not a customized car, so not easier to change in the sense of functionality, but more mobile and accessible yes, competence focus yes, I think is specifically beneficial for SMS companies depending on if they are just using modern ICT, PR bewares, consultancy firms and so on, than they shouldn't care about the IT administration too much, and the vendor for SaaS is of course really important so you don't take even though there is no big investment, it's a learning investment anyhow in the vendor services and so on, and you don't want to invest to many models in a service that is corrupted in 8 months.

Sh: Do you have any other factors that we didn't discuss and thy affected your decision.

Wa: One is also that the ICT industry it seems that if your looking for what's on the top list , front of the technology you can often see what is coming when you look up in the clouds, so its not historic relict of old technology that goes up to the clouds, on the contrary for instance Microsoft I understand that 90 % of their development resources the last 5 years taken over and has been developed in to cloud services so they have made a strategic commitment here we are going in our development resources so it's a front area, so that for those who like to have some contact with what's going on is better to be engaged in the clouds than in some bunkers so to say.

De: Do you think these factors depend of which system you are using?

Wa: Very much so absolutely yeah, so perhaps you have to make a kind of relevancy map what of the kind of industries and functionalities that are most relevant to consider for SaaS and Cloud services.

De: Is the most usually the CRM system, and if we talk about security and if the information is being hijacked, that could be disaster for that.

References

- Anerousis, N. & Mohindra, A. (2006). *The Software-as-a-Service Model for Mobile and Ubiquitous Computing Environments*. US: IEEE Explore.
- Armbrus, M., Fox, A., Griffith, R., Joseph, A., Katz, R., Konwinski, A., Lee, G., Patterson, D., Rabkin, A., Stoica, I., Zaharia, A., (2009). *Above the Clouds: A Berkeley View of Cloud Computing*; Electrical Engineering and Computer Sciences University of California at Berkeley; Technical Report No. UCB/EECS-2009-28
- Armstrong G., & Kotler P. (2007). *Marketing: an introduction*. New Jersey, Pearsons prentice hall.
- Atkinson, W. (2008). To SaaS or not to SaaS. *Manufacturing Business Technology*. 26(9), pp. 40.
- Bhardwaj S., Jain L., Jain S. (2010). An Approach for Investigating Perspective of Cloud Software-as-a-Service (SaaS). *International Journal of Computer Applications*. Vol 10, No.2, November 2010
- Bryman, A. & Bell, E., (2005). *Företagsekonomiska forskningsmetoder*. Malmö: Liber.
- Chakraborty, R. Ramireddy, S. Raghu, T.S. Rao, H.R. (2010). The Information Assurance Practices of Cloud Computing Vendors. *IT professional* Vol 12, Nr 4, Page: 29 – 37
- Creswell, J. W. (2007). *Qualitative inquiry and research design: choosing among five traditions*, Sage.
- Domingo, E., Niño, J., Lemos, A., Lemos, M., Palacios, R., Berbís, J., (2010): A Cloud Computing-oriented Multi-Tenant Architecture for Business Information Systems; (Computer Science Department Universidad Carlos III de Madrid Leganés, Madrid, Spain), *2010 IEEE 3rd International Conference on Cloud Computing*
- Dubey, A. & Wagle, D. (2007). Delivering software as a service. *The McKinsey Quarterly*. pp. 1-12
- Liu, F., Guo, W., Zhao, Z Q., Chou., W (2010). SaaS Integration for Software Cloud; *Avaya Labs Research, Avaya Inc; Avaya Labs Research, Avaya Inc*
- Glaad M. (2011). Skiftet kommer sakta men säkert. *Cloud Magazine*. Available at :<http://www.idg.se/2.1085/1.379401/skiftet-kommer-sakta-men-sakert> [Accessed at 12 May 2011]
- Hong H. (2010). Applications Deployment on the SaaS Platform; School of Mechanical, Electrical & Information Engineering Shandong University at Weihai; Weihai, China
- Howarth F. (2010). Why web security is best served in the cloud; Move protection to where the threats are. A White Paper by Bloor Research Publish. Available at: <http://resources.idgenterprise.com/original/AST->

0033092_Why_web_security_is_best_served_in_the_cloud_-_Bloor_Research.pdf 22:27
2011-04-24 [Accessed at 30 April 2011]

Ju, J., Wang, Y., Fu, J., Wu J., Lin Z. (2010). Research on Key Technology in SaaS. 2010
International Conference on Intelligent Computing and Cognitive Informatics

Kvale, S. & Brinkmann, S. (2009). *Interviews: Learning the Craft of qualitative research interviewing*, Sage.

Lashar, D. (2008). Are you ready for SaaS. *Customer Relationship Management*.
Vol 12, Nr 2. Feb 2008

Liao, H. (2010). SaaS Business Model for Software Enterprise. *IEEE International
Conference on Information Management and Engineering*. Pages: 604-607

Liao, H. & Tao, C. (2008). An Anatomy to SaaS Business Mode Based on Internet.
*International Conference on Management of e-Commerce and e-Government IEEE Computer
Society Press*. pp. 215-220

Markets and Markets (2010). Global Cloud Computing Market (2010 - 2015).

Available at:

http://www.researchandmarkets.com/reportinfo.asp?report_id=1395650&t=d&cat_id=23.01
2011-04-24 [Accessed at 12 May 2011]

Microsoft - cloud computing products. Available at:

<http://www.microsoft.com/sv-se/cloud/cloudpowersolutions/productivity.aspx> 13:33 2011-03-
24 [Accessed at 22 April 2011]

Myers, M & Newman, M (2007). The qualitative interview in IS research:Examining the
craft. Department of Information Systems and Operations Management, University of
Auckland

Prakash, S. (2011). Risk Management in Cloud Computing. Available at:

[http://www.computerworld.com/s/article/9215840/Risk_Management_in_Cloud_Computing?
taxonomyId=158&pageNumber=2](http://www.computerworld.com/s/article/9215840/Risk_Management_in_Cloud_Computing?taxonomyId=158&pageNumber=2) 22:27 2011-04-24 [Accessed at 15 May 2011]

Rådmark H., (2010). IDC: Mjukvara som tjänst växer lavinartat. *CIO Sweden*. Available at:

[http://www.computerworld.com/s/article/9215840/Risk_Management_in_Cloud_Computing?
taxonomyId=158&pageNumber=2](http://www.computerworld.com/s/article/9215840/Risk_Management_in_Cloud_Computing?taxonomyId=158&pageNumber=2) 22:27 2011-04-24 [Accessed at 27 May 2011]

Stamatia, B., Dimitrios, K., Panayiotis, B (2010). Application Development: Fly to the Clouds
or Stay in-House? Workshops on Enabling Technologies: Infrastructure for Collaborative
Enterprises

Waters, B. (2005). The benefits of software as a service. *Journal of digital asset management*.
Vol. 1. p 32-39.