Improving Software-as-a-Service Sales by Managing the Knowledge of Change Agents

A Case Study of an IT-company in a Servitization Transition

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Förbättrad SaaS-Försäljning genom Hantering av Förändringsagenters Kunskap

En Fallstudie av ett IT-företag som befinner sig i en Tjänstefieringstransformation

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Abstract

Servitization describes the trend amongst companies of supplementing tangible product offerings with services. A case in point is the cloud computing which represents a paradigm shift of servitization in the IT industry as it allows physical products to be delivered entirely remotely as a service. Software-as-a-Service (SaaS) constitutes a delivery business model of cloud computing which allows customers to access a supplier's application through a cloud infrastructure and is seen as a disruptive innovation. Despite the growing market for cloud computing services, the concept is claimed not to be very understood by many businesses.

When transitioning from product-oriented to service-oriented value propositions, successful companies have for instance put efforts on the education of their sales personnel. Such employees could be seen as change agents whose goal is to influence the adoption decision making processes of the organization’s clients. Furthermore, as economies have become more knowledge-intensive, Knowledge management has become more critical. Previous research has put little attention to how Knowledge management relates to the diffusion rate of innovations. This study, therefore, explores how management of change agents' knowledge can facilitate the mediation of innovations. A case study was conducted of an IT company experiencing a servitization transition towards SaaS offerings to achieve the purpose of this study. The study is delimited to the diffusion of SaaS as an innovation within the financial
industry in Sweden. 12 employees within the Case Company and six clients were interviewed regarding the subjects previously mentioned.

The results suggest that the mediation of SaaS is done through personal communication, presentations, and distribution of sales material. The study has found that change agents need to be clear in their mediation efforts of SaaS solutions as the understanding of what SaaS includes sometimes differs between clients and suppliers. Furthermore, customers considered SaaS solutions for systems that they view as not being directly value-adding and for those systems they prefer standardization as it allows cost-efficiency.

SaaS allows multi-tenant environments and is therefore suitable for standardized offerings, as standardization corresponds well to the business logic appropriate for a codification Knowledge Management strategy. The Case Company already conducts a codification strategy. However, the finding of this study suggests that they should strengthen it since a focused KM strategy is preferable to attain more of its benefits and to increase the organizational knowledge creation capabilities. Conducting a codification strategy is something they have good capabilities of pursuing and is suggested to facilitate the change agents' mediation of innovations. Sales material at the Case Company is identified as dependent on personal performance and standardizing the material would thereby ensure an even quality. Making a variety of standardized material easily accessible would further allow the change agents to select material with appropriate messages aimed at specific types of customers, which is important since the customers are found to have different preferences.

Keywords: Servitization, Cloud Computing, Software-as-a-Service, Sales, Knowledge Management, Diffusion of Innovations, Change Agents, Codification Strategy
Sammanfattning

Molntjänster representerar ett paradigmskifte inom tjänstefierings-trenden (servitisering), då IT-företag kan erbjuda fysiska produkter som tjänster via internet. Software-as-a-Service (SaaS) är en affärs- och leveransmodell inom molntjänst-konceptet vilken ger användare tillgång till applikationer via molnlösningens infrastruktur, och ses fortsättningsvis som en innovation. Trots den växande marknaden för molntjänster är kunskapen angående konceptet fortfarande låg inom många företag.

Vid övergång från produkt- till serviceorienterade värdeerbjudanden har framgångsrika företag bland annat fokuserat på utbildning av säljpersonal. Sådan personal kan ses som förändringsagenter vars mål är att influera beslutsprocesser hos för organisationens kunder. Fortsättningsvis har kunskapshantering (Knowledge Management) blivit allt viktigare då världsekonomierna har blivit mer kunskapsintensiva. Tidigare forskning har dessutom sällan lagt fokus på hur kunskapshantering relaterar till spridningen av innovationer. Den här studien undersöker därför hur kunskapshanteringens kunskap främjar medlingen av innovationer. Denna fråga utgör ett viktigt område att fokusera på då SaaS tjänster är en av de mest utökade tjänsttyperna idag.

Författarna Kristoffer Birgersson och Philip Granath presenterar i sin examenarbete en studie där de undersöker hur förändringsagenters kunskap främjar medlingen av SaaS-lösningar. Studien utförs genom en fältstudie på en IT-organisation genomgår en tjänstefieringstransformation. 12 anställda hos IT-organisationen och 6 kunskapshanterande anställda intervjuades angående de tidigare nämnda områdena.

Studien visar att medlingen av SaaS-lösningar sker genom personlig kommunikation, presentationer samt distribution av säljmaterial, och att förändringsagenterna behöver vara tydligare i sin medling då förståelsen utav SaaS tjänster skiljer sig åt mellan kunder och leverantörer. Fortsättningsvis efterfrågar kunder SaaS till de system som inte anses bidra med
direkta konkurrensfördelar. De vill därför ha standardiserade lösningar hellre än kundanpassade lösningar för att dra nytta utav kostnadsfördelarna som standardiserade lösningar möjliggör.

SaaS lämpar sig för standardiserade lösningar då flera användare kan koppla upp sig till samma applikationsmiljö, vilket ligger i linje med en kodifierings-kunskapsstrategi. Företaget som undersöktes i fallstudien använder redan en kodifieringsstrategi, men rekommenderas stärka den eftersom en mer fokuserad strategi skulle leda till en högre realisering av dess fördelar samt öka organisationens kapacitet att utveckla sin kunskap. Fallföretaget har bra förutsättningar att få till en mer fokuserad kodifieringsstrategi, vilket skulle kunna förbättra förändringsagenternas medlande av innovationen. Säljmaterial är ibland för personberoende och standardisering av sådant material skulle därav försäkra en jämnare kvalité. Att dessutom förbättra tillgängligheten av standardiserat material skulle fortsättningsvis ge förändringsagenterna större möjlighet att välja det mest passande budskapet till specifika kunder, vilket är fördelaktigt eftersom kunder visade sig ha olika preferenser.

Nykkelord: Tjänstefiering, Software-as-a-Service, Molntjänster, Sälj, Kunskapshantering, Innovation, Förändringsagenter, Kodifieringsstrategi
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<td>BPO</td>
<td>Business Process Outsourcing</td>
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<td>CRM</td>
<td>Corporate Relationship Management</td>
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<td>IaaS</td>
<td>Infrastructure as a Service</td>
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<td>ICT</td>
<td>Information and Communication Technology</td>
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<td>IT</td>
<td>Information Technology</td>
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<td>KM</td>
<td>Knowledge Management</td>
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<td>PaaS</td>
<td>Platform as a Service</td>
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<td>PSS</td>
<td>Product Service Systems</td>
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<td>RFI</td>
<td>Request for Information</td>
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<tr>
<td>RFP</td>
<td>Request for Proposals</td>
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<tr>
<td>RFX</td>
<td>Generic abbreviation for either RFI or RFP</td>
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<td>SaaS</td>
<td>Software-as-a-Service</td>
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<td>SECI</td>
<td>Socialisation, Externalization, Combination, Internalization</td>
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Kristoffer Birgersson & Philip Granath

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1. Introduction

This chapter introduces the purpose of this study by firstly presenting the background and problem formulation. Then the research questions are articulated to help fulfil the purpose of the report. Lastly, the delimitation, expected contributions and the disposition of the thesis are presented.

1.1 Background

In recent decades, an increased competitive pressure has moved manufacturing companies towards adding services to their physical products. This is a trend referred to as Servitization (Vandermerwe & Rada, 1988). In the IT industry, the emergence of cloud computing represents a disruptive innovation and a paradigm shift of servitization. It allows the functionality of physical products to be delivered entirely as a service, i.e. software and hardware are offered remotely (Sultan, 2014). Cloud computing includes several different delivery models which all are based on a common business logic, which is to provide IT functionality remotely. Delivery models are, e.g. Software-as-a-Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) (Lin & Chen, 2012). The focus of this study is on the SaaS model.

The demand for cloud services is growing dramatically today, and major IT-providers are seen to transition their business models from license-based on-premise offerings to cloud offerings such as SaaS. The worldwide market for cloud services was estimated at 219.6 billion USD year 2016, 260.2 billion USD year 2017 and is projected to grow into 411.4 billion USD year 2020 (Nag et al. 2017). However, despite the growing popularity and increased market size for cloud computing services (Lin & Chen 2012; Gartner 2017), Lin & Chen (2012) claims that the concept is still not very understood by many businesses. Some of the concerns regarding cloud computing are data security, service level and higher costs compared to on-premise offerings (Gangwar et al., 2015).

Models for organizational change raises the importance of creating awareness and spreading knowledge amongst employees during a change process. For it to be successful, the employees require knowledge of why and how to it should be carried out (Hiatt, 2006). IT-providers transitions of value propositions from on-premise offerings to cloud offerings such as SaaS is a transition from product-oriented to service-oriented offerings, and such transitions require actions within the sales function. Companies that have been successful in such transitions have, for instance, put effort in training of sales employees. It is also posed that tools and processes need to be created, which can document and explain the new value propositions to the consumers (Reinartz & Ulaga, 2008). Salespersons roles are essential when new products or service innovations are rolled out to a market. In Roger's (1983) diffusion of innovation theory, salespersons are mentioned as change agents who acts as
facilitators of the diffusion of innovations to adopters. A change agents goal is to influence a potential adopter's decision-making process (Rogers, 1983).

Managing knowledge is vital during organizational change. Knowledge management is also a practice that has become more important as the modern economies have become more knowledge-intensive (Adler, 2001). Successful knowledge management could maximize an organization's internal efficiency (Terzieva 2014) and result in more creative products and services (Gupta et al., 2000). This study aims to combine theories from the field of knowledge management and Diffusion of Innovations theory and investigate its intersection, which is identified as understudied in previous literature. It is also identified to be a lack of research that connects the field of Servitization to knowledge management in recent literature (Leoni, 2015).

1.2 Problem Formulation

The servitization of IT-organizations has changed the way products such as servers and software are offered and delivered to consumers, where cloud computing is described as a disruptive innovation. Nowadays, cloud technology allows IT-companies to offer software and computer capacity completely remotely which includes the deliverance of SaaS (Sultan, 2014). This transformation affects the sales personnel as the value propositions that the sales personnel are selling is changing.

Organizations introducing innovations could be referred to as a change agent, where salespersons are change agents whose goal is to influence adopter's decision making. These change agents are needed when there is a social or technical chasm between an organization and a client, and thus acts as a linkage (Rogers, 1983). Research suggests changes need to be made within the salesforce of a company moving from product-oriented offerings to service offerings (Reinartz & Ulaga, 2008). For instance, sales personnel need to be educated to gain knowledge of the new offerings and how to communicate them to consumers. This requires knowledge management initiatives. Knowledge management has become increasingly important in the knowledge-economy of today (Adler, 2001) however, it is a challenging topic for most organisations. There is a lack of research which addresses the topics of knowledge management and servitization simultaneously.
1.3 Purpose & Research Questions

The purpose of this study is to investigate how an IT-company can utilize knowledge management strategies to facilitate and improve their sales process in an industry transitioning to Software-as-a-Service offerings.

To achieve the purpose of this study the following main research question (RQ) is articulated:

**Main RQ:** How could management of change agents’ knowledge facilitate mediation of innovations?

Three sub-research questions are formulated to answer the main research question:

**Sub-RQ 1:** How do change agents mediate SaaS?

**Sub-RQ 2:** What SaaS perceptions of adopters and potential adopters can be improved by using appropriate knowledge management practices amongst change agents?

**Sub-RQ 3:** Does the transition to SaaS offerings suit a certain knowledge management strategy?

In order shed some light on these research questions this study focuses on an IT-company providing offerings to the financial industry, experiencing a servitization transition towards SaaS offerings

1.4 Delimitations

This study is delimited to investigate SaaS offerings as the manifestation of servitization within the IT-industry and does not consider the IaaS or PaaS layers of cloud computing. The study is furthermore delimited to how knowledge management can be of assistance in the sales process of a company experiencing such transition. The Case Company is Tieto where the study is delimited to their Financial Services market in Sweden. Clients include both customers and non-customers. The sales process includes activities from the generating of sales leads to the closure of a sales contract.

The unit of analysis is on an individual and functional level. Implications relating to an industrial perspective\(^1\) will receive less attention, although this perspective will be discussed briefly.

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\(^1\) The industrial perspective refers to the perspective of an industry, the functional perspective refers to a process and production perspective and the individual perspective refers to the perspective of individuals within an organization e.g. employees and managers.
1.5 Contributions

A literature review revealed that there exist vast amount of studies covering servitization and knowledge management separately, however, studies addressing these fields simultaneously are found rare. Luna Leoni (2015) states that there is a paucity. Responding to this gap, this master thesis aims to combine theories from the field of knowledge management and the Diffusion of Innovations theory, which is an relatively unexplored interdisciplinary field. This study will also contribute practical understanding to the Case Company Tieto of how knowledge management can improve their internal processes to better meet the expectations of their customers.

1.6 Disposition of the Thesis

The disposition of the thesis is summarized in Table 1. The introductory chapter which presented the background, purpose and research questions is followed by Chapter 2. Research Context where further contextual concepts are described. It includes, the servitization trend, cloud computing, the sales process of SaaS, sustainability and a description of the Case Company. Chapter 3. Theory introduces the theoretical perspective of this study and the theories that is deemed relevant for the case study. These theories are related to the Diffusion of Innovations, knowledge management strategies and theories of knowledge creation. The Diffusion of Innovation theory is covering the theoretical concepts of Change Agents and the Characteristics of Innovations that is influencing diffusion. Following, Chapter 4. Methodology motivates the research approach, data collection methods, research process and elaborates on the quality of the research. Chapter 5. Findings presents the empirical results from employee and client interviews related to the sales process, client perception of SaaS and knowledge management practices of the Case Company. The three sections that Chapter 6. Analysis and Discussion constitutes of is divided according to the sub research questions, elaborating on how SaaS is mediated by change agents, how it is perceived by clients, and what knowledge management practises and strategies that are recommended for improving the mediating of SaaS. Lastly, Chapter 7. Conclusion summarizes the findings of the report, firstly answering the sub research questions before answering the main research question. The limitations of the study are then presented, followed by suggestions of appropriate further research.
Chapter Summary

This chapter introduces the servitization trend in the IT industry, where the study is delimited to investigating SaaS in the finance market. Despite the growing popularity, the SaaS concept is still not understood by many businesses. Also, when making a value proposition transition from product to service-oriented, suppliers of such software's need to make changes in their sales functions, where salespersons could be seen as change agents. Models for organizational change raises the importance of spreading knowledge amongst employees, and knowledge management has become more critical as modern economies has become more knowledge-intensive. This study therefore aims to shed some light on how the management of change agents' knowledge facilitate mediation of innovations, where the case study is conducted at a company experiencing a SaaS offering transition. This will add knowledge to the interdisciplinary field of knowledge management and diffusion of innovations, and contribute with practical understanding to the Case Company.
2. Research Context

This chapter introduces literature and previous research which composes the context to this thesis. Firstly, the phenomenon of Servitization is elaborated on as it explains the concept of cloud computing. Then, the selling of services is put in the context of the contemporary environment. This is followed by a section of sustainability as it is a relevant topic for any corporation. Lastly, the Case Company is presented as it will serve for the case study of this thesis.

2.1 Servitization

Vandermerwe & Rada introduced the term “servitization of business” in 1988. It describes the trend amongst companies to supplement tangible product offerings with services as a way to add value and differentiate from their competitors (Vandermerwe & Rada, 1988) and enhance the customer engagement (Vendrell-Herrero et al., 2017). The servitization trend has been widely acknowledged by researchers in recent years (Baines et al., 2009), and many product-selling firms are gradually adapting to business models where they offer an increasing amount of service content in their value propositions. The academic focus of servitization has been on production firms in various industries (Vendrell-Herrero et al., 2017). The cloud transformation within the IT industry has seemingly received less attention from the servitization research. However, the cloud business model is increasingly servitizing the IT industry, and cloud computing is stated to be constituting a paradigm shift of servitization in a study by Sultan (2014) as it transforms products which were previously sold as physical product entirely into remotely provided services (Sultan, 2014).

2.2 Product Service Systems

Sales of pure products and pure services have existed for as long as can be remembered in history. In the modern history, industrialisation revolutionised the efficiency of the manufacturing of physical products. Industrialisation increased the supply of products in the markets. Today the supply often exceeds the demand in many markets (Parment, 2015) and the competition has increased among companies selling products. As mentioned earlier, the increased competition is posed as one of the reasons for the increased servitization amongst businesses.

Business models which are based on offering their customers different bundles of products or services are often referred to as product service systems (PSS). In Figure 1, different types of PSS’s are categorized, where the types of PSS’s differ by the amount of service or product content that is provided (Tukker, 2004).
Product-oriented PSS’s has a focus on the physical product and services are offered as supplements, for instance insurances or financial payment plans for products. The customer overtakes the ownership of the product after the sale. Use-oriented PSS’s has a lower focus on the sales of the physical product. The provider retains ownership of the product and instead, the business models are based on offering usage of a product during a limited period of time such as e.g. leasing. The provider is often managing the maintenance of the product, and the customers usually pay regular fees throughout the usage period result-oriented PSS's are yet another step away from selling pure physical products. A result-oriented offering is focused on selling the performance rather than the product itself. An example of this is where the customer purchases a functionality, rather than a certain level of performance is agreed upon by the different parties. Then the provider selects and provides products that will provide the agreed upon functionality. The provider is also ensuring that the products are operating and performing according to the agreement, i.e. managing maintenance and repairs.

Other arrangements which are categorized as result-oriented PSSs are for instance pay-per-service unit offerings, which is similar to the previous example. However, the customer pays only for the functionality that the product has been providing, e.g. a number of printed pages from a copying machine. Another example of a result-oriented offering is by Rolls Royce “Power by the Hour” offering, where flight hours are sold instead of the ownership of the engine (Tukker, 2004).

2.3 Cloud Computing

Outsourcing is a common phenomenon in the global economy of today, and many organizations are outsourcing their IT functions (Dhar & Balakrishnan, 2006). Cloud computing uses ICT technologies to deliver services through software and virtual hardware (Sultan, 2014), and Stantchev et al. (2014) argue that cloud computing can be a strong enabler of the servitization business trend. Cloud computing is not new as a concept and was first mentioned in 1997, but has since then become a common term. Its notion is metaphorical and usually describes resources such as hard- and software that are made available through the Internet (Lin & Chen, 2012). Cloud computing is morphing physical products into service offerings (Sultan, 2014).
Cloud computing is characterised by a market-oriented architecture, which is driven by the supply and demand for cloud resources, in contrast to traditional system-centric resource management architectures (Lin & Chen, 2012). Both large and small organizations have adopted the servitizing model due to its relative advantages related to cost structures, scalability and efficiency (Sultan, 2014). Typically, different service level agreements form the basis for the provided services. Depending on customer needs and expectations, different service criteria can be met in these agreements (Lin & Chen, 2012). Cloud computing could be seen as having three layers, as represented in Figure 2. These layers are: Software-as-a-Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) (Dhar, 2012).

![Figure 2. Levels of Cloud Computing (Dhar, 2012)](image)

A high-level of cloud computing can be composed of the underlying layer services (Buyya et al., 2011). These three layers will be shortly presented below. However, this report will emphasise the SaaS layer as this will be investigated in the case study.

The bottom layer in Figure 2 represents IaaS, where a supplier handles physical infrastructure and distributes virtualized infrastructure to the customer (Dhar, 2012). This infrastructure can then be configured depending on customer needs, and the IaaS layer contains e.g. data storage, computer servers and firewalls (Buyya et al., 2011). Customers are given the opportunities to conduct activities such as starting and stopping the server, configuring access and customize it through software package installations (Buyya et al., 2011).

The second layer in Figure 2 represents PaaS, which provide necessary application infrastructure services such as connectivity and messaging (Dhar, 2012). This is a higher level than the raw computing and storage-oriented IaaS layer, and instead facilitates the programming of the cloud. In a cloud platform, there are several programming models that functions as building blocks to the development of applications (Buyya et al., 2011).

The top layer of Figure 2 represents SaaS, which is the highest level of cloud computing. This allows applications to be delivered to users as-a-service over the Internet (Dhar, 2012). This contributes to a shift where customers increasingly are going from having programs installed
locally, as the same functionality can be accessed over the web. Examples of such applications are office suites and CRM systems (Buyya et al., 2011). SaaS differs from on-premise modes, in which the customers pay for the software up front (Banerjee et al., 2017). Its architecture is multi-tenant, meaning that users can access multiple softwares on demand (Martins et al., 2016).

SaaS offerings relieve the customers from software maintenance activities at the same time as it makes it easier for developers to test and develop the applications (Buyya et al., 2011). SaaS is typically associated with ease of use and good customer adoption, and also gives benefits such as lower implementation costs than on-premise offerings, and a higher rate of software quality improvements (Martins et al., 2016). SaaS offerings bring uniques service expectations from the customers and thus introduces unique service quality challenges for providers SaaS offerings brings uniques service expectations from the customers and thus introduces unique service quality challenges for providers (Benlian et al., 2011). The opportunity to pay for usage through subscriptions is more appealing for many customers than paying large sums upfront (Pineda & Izaret, 2013), and customers are expecting to get value from their SaaS purchases almost directly (Banerjee et al., 2017). Simultaneously, service subscriptions are efficient tools for increasing switching costs and locking in customers. By entering a customers business and taking over the responsibility of performing certain tasks, the customer also loses their own capability of performing these task over time (Reinartz & Ulaga, 2008). Furthermore, cloud computing has been argued to serve both customers and society (Sultan, 2014). It has received attention as an energy efficient technology by making data centres better utilized (Berl et al., 2010) and thus it can reduce the carbon footprints of companies (Sultan, 2014).

2.4 Selling Services in the Contemporary Environment

The environment for organizations are constantly changing and the salesperson’s role today are not the same as a few decades ago. Jones et al (2005) depict four external dimensions that are changing and affecting the selling and sales management. These can be seen in Figure 3.

Customers' expectations are changing, and the demand on salespersons are increasing. For instance, customers expect more regarding their knowledge, quicker responses, and breadth of communication. In the past, the first customer call from a salesperson would often be to gather information about the customer. Today, the customers expect that the selling organization already possesses the publicly available information about the company. Thus, challenges with information overload for sales employees is highly relevant today. Technological advancements have made communication easier and more accessible today, however, that has also increased the customers' expectations on quick responses which increases the demands on the salespersons. The increasingly complex, and technological advanced products and services that are offered today also creates challenges for salespersons as they now need to coordinate communication and support with a broader spectrum of people both within and outside their organization. Coordination efforts of people such as technical experts, executives and others. Customers are also increasingly involved in what can be viewed as a co-creation process of the services and products that are being sold.
Customers part in the creation of services means that salespersons also need to make sure that the customer knows and fulfils their responsibilities in the sales process because their role fulfilment affects the realized value of the final product or service that the provider delivers (Jones et al., 2005).

Jones et al. (2005) state that the typical market today is hyper-competitive, and the competition amongst organizations creates a faster pace of change amongst the products and services that are offered. This increases the need for the salespersons to keep a jour with information about the current products and market developments. The technological advancements in the organizations external environments facilitates data management, i.e. storage, retrieval and analysis. However as previously mentioned it also increases the expectations of customers regarding quicker responses and service. Adoption of new technology such as CRM systems also requires efforts from the salespersons as they need to incorporate the technology into their daily work routines in tandem with their other daily responsibilities. This inhibits the technology adoption rate amongst salespeople and companies complains about the low of return on investments from their expensive investments in technology (Jones et al. 2005).

The regulatory and legal environment affects how the salespersons can conduct business and sometimes constrains certain marketing activities. Unethical or illegal actions are frequently displayed as scandals for the public in the tabloids and the public demands for transparency and ethical behaviours from corporations increases (Jones et al. 2005).

Figure 3. The External Dimensions Affecting the Selling Environment (Based on illustration by Jones et al, 2005)

Software-as-a-Service business model differs markedly from traditional software business, and pricing, service, support and finance are some of the challenges which are associated with SaaS selling (Banerjee et al., 2017). Ulaga and Loveland (2014) describes how manufacturers in business transitions from selling products towards selling services might be challenged and how they could sell services more profitable. When services are seen as an
add-on to existing products, the sales force will most likely succeed to handle both types of sales with some training. However, when companies move towards more complex solutions, management must reconsider their sales management strategy. Also, the purchasing of services is often made on a more strategic level, and thus the decision of the customer tends to be made higher in their organizational hierarchy. The sales process often becomes more strategic and complex, and complex solutions require sales cycles to be longer. This can cause resistance among salespeople that otherwise are used closing deals faster and thereby earning commissions. Moving towards selling service will fail if the salespeople are not financially motivated to promote them, and a shift towards selling services is difficult when revenues from products are higher than from services. Ulaga and Loveland (2014) further argue that companies need to develop tools for documenting and communicating value when selling services. Examples of such tools are customer case studies, white paper or more sophisticated simulation software. The manufacturing company SKF is brought up as an example. They have developed a tool which helps their salespeople around the world to identify and explain to their customer about the benefits of their services. This tool compares best practices among SKF’s customers through a database, allowing them to calculate their return on investment (Ulaga & Loveland, 2014).

2.5 Sustainability

Issues related to sustainability has become more important in recent decades and are concerning all actors in society e.g. corporations, public and private organisations as well as consumers (Ottosson & Parment, 2015). Degradation of ecological and social systems is changing the business environments (Franca et al. 2017)

Ever since the Brundtland report *Our common future* was released in 1987 by the UN, the term sustainable development has received much attention (Ottosson & Parment 2015, Boström 2012). Sustainable development is commonly discussed in relation to three dimensions, which are environmental, social and economic (Boström 2012, Baumgartner & Rauter 2017, Ottosson & Parment 2015). These are also referred to as the three pillars of sustainability, which are all necessary to consider in order to achieve sustainability (Boström 2012). The environmental dimension is concerning ecological aspects and that economic growth should not be pursued at the expense of the ecological or social environment. The social aspect is relating to factors concerning people and society, e.g. ensuring that basic needs are not compromised. The economic dimension is concerning aspects of how economic growth can be reached through sustainable use of the company's human and material resources (Ottosson & Parment 2015).
2.6 Case Company

This investigation focuses on the Financial Services department within the IT company Tieto to shed some light on the previously mentioned research questions (Ch. 1.3). Tieto is an IT-company that is identified to experience a servitization transition. Tieto was founded in Finland year 1968 and is one of the largest IT service providers in Northern Europe, operating in 19 countries with around 14 000 employees. Tieto actively drives innovation, especially related to data-intensive services and technologies, to grow across markets and customer segments. Investments have during the past two years been directed in areas such as cloud services. (Tieto Annual Report, 2017)

Chapter Summary

The term servitization was introduced in 1988 and describes the trend amongst companies to supplement tangible product offerings with services. Cloud computing represents a new paradigm of servitization since physical products are morphed into services. Cloud computing could be seen as a layered architecture with three layers which are; SaaS, IaaS and PaaS. The top layer SaaS enables customers to utilize an application through a cloud infrastructure, which is the layer that this study focuses on. Moving from selling products towards selling services creates needs for reviewing one's sale strategy, and customers' expectations of salespersons are increasing. Sustainability is also presented in this chapter as it is an important topic concerning all actors in society. Sustainable development should consider three dimensions; economic, social and environmental. To shed some light on the research question, this report investigates the Case Company Tieto, as they are experiencing a servitization transition.
3. Theory

This chapter presents frameworks that relate to diffusion of innovation and knowledge management. The Diffusion of Innovations theory focuses on the two variables referred to as perceived attributes of innovations and change agents, while the knowledge management theories focus on strategies, knowledge conversions and knowledge creation.

3.1 Diffusion of Innovations

An innovation is defined as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption" (Rogers, 1983, p. 11). Diffusion is further referred to as the communication of new ideas over time to the members within a social system (Rogers, 1983). Two of the variables that have a deep influence on the innovation adoption rate is what is referred to as the perceived attributes of innovation and the change agents (Lin & Chen, 2012). In previous literature, adopters to SaaS and non-adopters has been found to have different perceptions of the innovation (Benlian et al., 2011). The perceived attributes of innovation are from here on referred to as characteristics of innovation.

3.1.1 Change Agents

Rogers diffusion of innovation theory (1983) includes a distinction between the involved actors in a diffusion process. The actors are; the organizations or persons supplying the innovation, the potential adopters, and the group of people that influence the potential adopter's adoption decisions regarding the innovation.

The organizations or persons that are supplying and introducing the innovation are referred to as a change agency system, and the group of potential adopters are constituting a client system. Furthermore, the persons that are influencing the potential adopters' decisions regarding the innovation is referred to as change agents. A change agent influences the adopters’ decisions in a way that is desired by a change agency, which most often is in a direction which increases the adoption of an innovation. Roger's (1983) definition of change agents makes people with a vast variety of occupations to potential change agents. Some occupations which fit the definition are mentioned, e.g. consultants, teachers, salespersons and development workers. A change agency system is usually composed of persons who have a high degree of knowledge of the innovation. However, their superior technological knowledge does not necessarily mean that they are the most fitted to communicate the benefits of the innovation to the clients. Roger states that the change agency personnel's expertise makes it difficult for them to communicate with the clients. He further states that there might also be a sociocultural difference between the persons at the change agency which contributes to the communication challenge. Change agents are needed when there is a social or technical chasm between the change agency system and the client system. Change agents thus act as a link between the change agency and the client system and facilitate the flow of innovations to clients by communicating the innovation, as illustrated in Figure 4.
There can, however, be similar challenges for the change agents who are situated in between two social systems, i.e. differences in technological and social aspects. Other challenges that the change agent can be experiencing is information overload. Information overload refers to that the change agent needs to sort out the relevant information from the change agency, to mediate what is relevant to the client's needs or problems. Change agents also communicate feedback back to the change agency in good cases. Feedback is important for allowing efficient diffusion as it allows the change agency to react to the client's needs (Rogers 1983).

Rogers describes seven sequential roles that a change agent can have during an introduction of an innovation to a client system. These roles are shown in Figure 5, and described in the following paragraphs:

![Figure 4. Change Agent Linkages (Rogers 1983)](image-url)


Figure 5. The Seven Roles (Rogers 1983)

"Develops a need for change"

Rogers states that it is often required that the change agent makes the client aware that there is a need for change. For instance, by creating awareness of existing problems, showing that there are alternatives and that it is feasible to carry out the change.

"Establishes an information-exchange relationship"

The client's perception of an innovation is often dependent on the client's perception of the change agent. Therefore, the change agent must create a relationship with the client. A way to create a strong relationship with the client is through building a perception of being competent, credible and caring for the client's problem (Rogers 1983).

"Diagnoses their problems"

Rogers (1983) further states, that it is the change agent's responsibility to identify why the client's current situation does not meet their needs, and this requires the change agent to analyze the situation through the client's perspective.

"Creates intent to change in the client"

The change agent needs to motivate the client to become interested in the innovation and create an intent to carry out a change, this process should, however, be client-oriented and not innovation oriented (Rogers 1983).

"Translates intent into action"

Further, the intent needs to be turned into action. Roger describes (1983) that the innovation-decision process at the decision stage where a client decides whether to adopt an innovation or not is most affected by their close peer-network. Therefore, change agents often work towards affecting opinion leaders in order to reach into clients close-peer network.

"Stabilizes adoption and prevents discontinuances"

After the client's adoption or during the implementation, the change agent can assist as a stabilizing force by communicating reinforcing messages to the client (Rogers 1983).

"Achieves a terminal relationship"
The last role and the final objective for a change agent is to make the new behaviours in the client system self-renewing, thus relinquish the reliance on the change agent's efforts to keep the client systems adoption of the innovation continuing (Rogers 1983)

One of the most important aspects which determine the success of a change agent is the change agents ability to diagnose the clients' needs. A change agent who is more innovation-oriented than client oriented is a common reason for failed diffusion attempts.

3.1.2 Characteristics of Innovations

How individuals' or organizations experience the attributes of innovations forms their overall perception of it (Lin & Chen, 2012). There are five characteristics identified as influential for the rate of diffusion. These are; relative advantage, complexity, compatibility, trialability and observability (Rogers, 1983). In previous studies concerning the perceptions of IT innovations, the trialability and observability have often been rejected since they have been argued not to relate to the diffusion process in a consistent manner (Martins et al., 2016). However, since these two characteristics have not been exclusively rejected in all previous studies, this study intends to investigate all five characteristics.

Relative Advantage

Relative Advantage refers to the benefits that is brought to the adopter by the innovation (Martins et al., 2016). If an innovation, for instance, is thought to increase efficiency, effectiveness or have economic benefits, it is more likely to be adopted to by an organization. The perceived relative advantages are measured in relation to the existing alternatives and in comparison to using an innovation or not. Previous studies concerning perceptions of cloud computing, has, e.g. identified relative advantages to include, e.g. capital costs, capacity, ease of implementation, simplicity of using it etc. (Lin & Chen, 2012). The most important factor of the perceived relative advantage depends on the type of innovation and the specific needs of the adopter (Rogers, 1983).

Complexity

Complexity describes how difficult users find it to use or understand an innovation (Martins et al., 2016), or the level of perceived difficulty of using it (Lin & Chen, 2012), and innovations can be placed in a simplicity-complexity continuum depending on its traits. The complexity is negatively related to the adoption rate of an innovation (Rogers, 1983) and it is generally argued that an innovation with high complexity that needs more skills and efforts for its use decreases the adoption rate (Lin & Chen, 2012).

Compatibility

Compatibility describes how well an innovation goes with the needs and values of the receiver (Martins et al., 2016) as well as with the receivers’ previous experiences. It describes to which level an innovation is perceived to conform with internal organisational environments, e.g. in cases concerning IT innovations previously, conformance with already adopted IT systems. Internal organisational environments relate to areas such as primary and
support business activities, business strategy, and more. Information systems relates to areas such as capability and infrastructure (Lin & Chen, 2012).

**Trialability**

Trialability describes how easy it is to test an innovation before fully adopting to it and relates to the perceived uncertainty amongst the potential adopters. High trialability will likely increase the adoption rate (Rogers 1983), and IT professionals could be more comfortable adopting to cloud computing after having tested it (Lin & Chen, 2012).

**Observability**

Observability describes to what extent the positive outcomes of an innovation are visible to the adopters and to what degree they can be communicated to others. High observability leads to a greater likelihood of adoption (Rogers 1983). For instance, if a business partner can be seen to draw advantages from an innovation, it may increase the willingness of managers to adopt the innovation. Cloud computing offerings which have well-communicated advantages and outcomes increases the likelihood of adoption by IT professionals. It is however stated that both observability and trialability is argued to not be very strong predictors of adoption in previous studies regarding adoption of IT innovations (Lin & Chen, 2012).

The attributes which Rogers (1983) introduced are extensively used in subsequent research, and other attributes which are suggested to affect the adoption rates of innovations have also been identified. The characteristics described above has been referred to as the standard attributes (Greenhalgh et al., 2004).

### 3.2 Knowledge Management

The resource-based view is considering organizations as consisting of different sets of resources, which can provide both strengths and weaknesses. Competitive advantage is defined as the ability to implement successful strategies that the competitors are unable to imitate. It assumes that organizations resources may be both heterogeneous and immobile. Certain resources can thus provide a long-lasting competitive advantage by providing organization with differentiated strengths (Barney, 1991). Such resources are also referred to as strategic assets (Meso & Smith, 2000). Such assets have four necessary characteristics which are; being valuable, i.e. enable the exploitation of business opportunities, being rare i.e. not in possession by enough competitors to create a perfect competition, being imperfectly imitable i.e. being unable for other companies to obtain and being non-substitutable which means that there should not exist any equivalent substitution that are valuable but not rare or not imperfectly imitable (Barney, 1991). According to the resource-based view, tangible assets are not strategic, as they can be acquired or imitated (Meso & Smith, 2000). Knowledge is, however, a strategic resource, which is viewed as the most important. The knowledge management is thus critical to an organization's success (Ipe, 2003).
Knowledge management approaches can be understood as the means that strengthen the systemic memory of individuals or groups within an organization (Powell & Ambrosini, 2012). Systemic memory is in turn defined as the mixture of knowledge acquired by individuals and groups, together with the available knowledge that lies outside of them (Anand et al., 1998 as cited by Powell & Ambrosini, 2012). If there are no formal strategies for knowledge management, the external knowledge is accessed through social networks, which is the informal relations within teams and subunits in an organization. Powell & Ambrosini (2012) states that the usage of social networks leads to concerns on three organizational levels, which firstly is that the search for knowledge is limited in reach, and the searcher might not identify relevant knowledge for a specific case. Secondly, the transfer itself is dependent upon how responsive the contact person is. Third and lastly, the knowledge is not protected from attrition.

3.2.1 Tacit and Explicit Knowledge

In 1966 Michael Polanyi wrote that "we can know more than we can tell" (Polanyi, 2009 p. 4). He introduced that knowledge can be divided and described as either explicit or tacit (Polanyi, 2009). Explicit knowledge is sometimes referred to as articulated knowledge and it is defined as knowledge which is possible to put into words and which can easily be described. Explicit knowledge can be envisioned as the tip of an iceberg of the knowledge a person has, whereas the tacit knowledge constitutes the remainder (Nonaka, 1994). Tacit knowledge is, contrary to explicit knowledge, the knowledge of which is difficult to put into words. Polanyi (2009) uses the example of how we recognize someone's face amongst others as an example of a skill mainly constituted of tacit knowledge. One cannot articulate what decision rules that underlie tacit based performance (Powell & Ambrosini, 2012). Negotiation skills that are required at a corporate meeting is another example of a skill that is largely constituted of tacit knowledge. Tacit knowledge is not knowledge that cannot be codified, but some dimensions of tacit knowledge are unlikely ever to be explicated, whether related to cognition or physical abilities (Leonard & Sensiper, 1998). Knowledge lies in many parts of an organization, for instance in the organization’s culture, identity, routines, system and individual employees etc. (Alavi & Leidner, 2001).

3.2.2 Knowledge Management Strategies

The capacity for knowledge sharing and application among individuals and teams within an organization is increasingly seen as an essential aspect to gain a competitive advantage in many industries (Powell & Ambrosini, 2012). Since knowledge is the core assets of consultant firms, they were also among the first businesses to highlight the area, and to make substantial investments in their knowledge management practices. They were also early in the exploration and usage of information technology to capture and disseminate knowledge. However, it has been identified that these firms use vastly different approaches to managing knowledge and that the choice of KM strategy depends on what business strategy the company has (Hansen et al., 1999).
Hansen et al. (1999) identified and depicted two KM strategies which they extracted from an analysis of KM amongst consultancy firms, computer companies and healthcare companies in 1999. These are described as vastly different from each other and are titled personalization- and codification strategy. This classification has there after become the most supported and referenced classification of KM strategies (Meroño-Cerdan et al., 2007). A Codification strategy is based on the codification of knowledge and usage of computers to store and share knowledge. Tacit and personally bounded knowledge is extracted and codified to make the knowledge accessible to others, e.g. through uploading it to shared databases. Codified knowledge allows cost-efficient reuse and transfer of knowledge as it does not require any personal interactions to be shared. Although the codification process might be costly, the codified knowledge can later be reused and transferred at low costs. Accenture (formerly Andersen Consulting) and Ernest & Young are companies which are depicted as consultancy firms which are pursuing codification strategies through a focus on having processes for codification, storage and re-usage of knowledge. In contrary to the codification strategy, the personalization strategy is relying on personal interactions and communication to transfer knowledge, computers are rather used to facilitate communication of knowledge between individuals instead of storage of knowledge. Sharing of knowledge is done via methods such as socialization or coaching etc. McKinsey and Bain & Co are referred to by Hansen et al. (1999) as companies which are pursuing personalization strategies. Having a personalization KM strategy which is based on employees personally bounded knowledge has limitations regarding the transferability of the knowledge, sharing is more expensive in relation to the transfer of codified knowledge. Personal communication can be time-consuming and might include travelling expenses. However, extraction and codification of personally bounded knowledge could also be time-consuming and expensive, but it enables significantly cheaper knowledge sharing when codified. The basic idea of profitability for a company using a codification strategy is to offer products or services quickly, and to lower prices by re-use of knowledge. For a company using a personalization strategy, the idea of profitability is to offer highly customized offerings, which allows for higher pricing and profit margins (Hansen et al. 1999).

Many theories point to the fact that organizations must focus on either a codification or a personalization strategy approach consistently as long as there are no contextual changes within the organization (Powell & Ambrosini, 2012). Hansen et al., (1999) argues that companies that utilize their knowledge effectively focus one strategy and use the other strategy as support. According to them, an 80/20 split is appropriate; 80 % on the focus strategy, and 20 % on the supporting strategy. If executives try to succeed in both strategies, they risk failing at both.

3.3 Dynamic Theory of Organizational Knowledge Creation

Nonaka's (1994) paper A Dynamic Theory of Organizational Knowledge Creation presents a fundamental theme, which is that the continuous conversion between tacit and explicit knowledge is the creator of organizational knowledge. It further argues that knowledge is developed by individuals, and that organizations play an essential role in articulating and
Building on this individually created knowledge (Nonaka, 1994). Organizations that are exposed to changing environments both need the ability to process information and to create knowledge. The environmental interaction of an organization, and how it manages information and knowledge, is argued to be more important than the design and capacity to handle information that arises from the external environment, in turns of creating a good organizational understanding. Knowledge as a concept has several meanings, where Nonaka (1994) follows a traditional epistemology by defining knowledge as "justified true belief" (Nonaka, 1994, p. 15). Information and knowledge are furthermore terms that often are used synonymously. Information could, however, be seen as "flow of messages" while knowledge instead could be "created and organized by the very flow of information, anchored on the commitment and beliefs of its holder" (Nonaka, 1994, p. 15).

3.3.1 Knowledge Conversion

Nonaka (1994) postulates four modes of knowledge conversion, based on the assumption that knowledge creation is generated by conversion of tacit and explicit knowledge. The model consists of four different knowledge conversion modes which are illustrated in Figure 6. These modes are concerning the interplay and conversion between the tacit and explicit forms of knowledge.

![Figure 6. Modes of the Knowledge Creation (Nonaka, 1994)](image)

The model is referred to as the SECI-model which is an acronym of the knowledge conversion modes. The four modes in Figure 6 are further described in the following three paragraphs below:
Socialisation

The process from tacit to tacit knowledge, where the creation of tacit knowledge is accrued from shared experience, is called Socialization. The conversion of tacit knowledge between individuals is done through interactions. Tacit knowledge can be acquired by individuals without verbal communication, for instance, through observations, imitating or guidance (Nonaka, 1994).

Combination

The process from explicit to explicit knowledge is combination of explicit knowledge that individuals possess through social processes is called Combination. Combination activities can create new knowledge from processes such as recategorizing or re-contextualising previously acquired explicit knowledge (Nonaka, 1994).

Externalization & Internalization

The remaining two modes of knowledge conversion is related to processes which both include tacit and explicit knowledge. These modes describe tacit and explicit knowledge as complementary. The process from tacit to explicit knowledge is referred to as externalization, and the process from explicit to tacit knowledge is referred to as internalization (Nonaka, 1994).

The SECI-model assumes that individuals and groups of employees within an organization consistently are encouraged to share their knowledge by the organization, to keep the knowledge conversion processes that creates knowledge active. The model also assumes that knowledge is created and built upon as it is iterated through individuals, groups and levels of the organization. Thereby, creating value in forms of new knowledge which is generated by the positive impact from individual and group knowledge holders (Rice & Rice, 2005).

Glisby and Holden (2003) criticizes the SECI-model for not being as universal as it has been accepted as in the KM community. Loyalty is strong in Japanese culture. Personnel commitment and identification with the corporate identity is a crucial feature for the successful knowledge transfer. Those are traits that Japanese companies have to a higher degree than western companies. Nonaka’s model furthermore builds upon an openness of sharing information both internally and between organizations, which is also strong in Japanese management culture in comparison to the western (Glisby & Holden 2003).

Glisby and Holden (2003) also points out several distinct aspects of Japanese culture that is not found in western contexts. They argue that the SECI model must be seen as a product emerging from Japan and that the modes of knowledge creation only can be understood with reference to the Japanese social organizational culture and value systems. The model should according to them be used with care and be seen as a map rather than a model, or possibly a mirror facilitating revision of KM practices from new perspectives (Glisby & Holden, 2003). However, Rice & Rice (2005) points out that there has been a wide acceptance of the SECI-model among management practitioners since it is intuitively understandable and its distinct separation of tacit and explicit types of knowledge. They simultaneously point out that the
realization of SECI processes brings challenges to traditional management systems, such as Tayloristic systems. This study will utilize the SECI model as a theoretical framework, although, with caution and the presented criticism of the model in mind.

3.3.2 Organizational Knowledge Creation

The creation of organizational knowledge is enabled when the modes of knowledge conversion (Socialization, Combination, Externalization and Internalization) are organizationally managed in cycles as illustrated in Figure 7. This type of knowledge creation is different from individual knowledge creation, and the cycle takes shape from the shifts of the knowledge conversion modes. The epistemological dimension, as seen on the vertical axis of Figure 7, represents the distinction of tacit and explicit knowledge. The Ontological dimension, as seen in the horizontal axis, is constituted by the social interactions which the SECI-model represents (Nonaka, 1994).

![Figure 7. Spiral of Organizational Knowledge Creation (Nonaka, 1994)](image)

The shifts of knowledge conversion modes are caused by different triggers. The socialization mode can, for instance, be initiated by creating a team or a field of interaction facilitating the sharing of experiences of its members. The externalization mode is then triggered by rounds of dialogues which can bring hidden tacit knowledge to the surface. The ideas that are created by the teams can then be combined with, e.g. previously acquired data. Good capabilities for internal coordination and documentation facilitates the combination mode. It is then through an iterative process that concepts explicitly get pronounced. This iterative form of experimentation and creation can make employees create new knowledge by repetitions of doing, which is part of the internalization (Nonaka, 1994).
Individual tacit knowledge may be the core in the process of creating knowledge. One should, however, understand that much benefits lie in the externalization and the building of knowledge through the interactions of the conversion modes. Also, as more organizational and surrounding actors become involved, these interactions tend to gain scale and velocity. Organizational creation of knowledge can, therefore, be regarded as an upgoing spiral process which initiates from the individual organizational member before moving up to the group and organizational level (Nonaka, 1994).

Chapter Summary

This chapter introduces the Diffusion of Innovations theory, Resource-Based View of Competitive Advantage, knowledge management theories and the Dynamic Theory of Organizational Creation. The diffusion of innovation theory is a broad framework, and this study applies the variables Characteristics of Innovations, and Change Agents. Characteristics of Innovations are the five variables that affect the rate an innovation diffuses, and change agents are persons that are influencing the potential adopters' decisions regarding an innovation. The Resource-Based View of Competitive advantage is the perspective used in this study and views knowledge as the essential resource within an organization. Knowledge is viewed as the only resource that can bring sustainable competitive advantage to the organization. Knowledge management can be perceived as the means to strengthening the systemic memory within an organization and is also used for managing problems that arise from social networks. Furthermore, the SECI-model explains knowledge creation through an interplay between the knowledge conversion modes.
4. Methodology

This chapter presents the method that has been used for acquiring and analysing data, that is needed to fulfil the purpose of this report. It is divided into four sections where firstly the Research Approach is presented, followed by the method for Data Collection. Then the method for achieving Research Quality is presented, and lastly the Research Process is described.

4.1 Research Approach

Researchers have outlined the strategic importance of knowledge and knowledge management within organizations (Ipe 2003; Barney 1991). It is also acknowledged that servitization is transforming the offerings within the IT industry, e.g. through the appearance of Software-as-a-Services offerings (Sultan, 2014). The purpose of this study is to investigate how an IT-company can utilize knowledge management strategies to facilitate and improve their sales process in an industry transitioning to Software-as-a-Service offerings. A gap in the previous research is identified as there are seemingly no previous studies covering this specific research area. The epistemological viewpoint in this study is interpretivism which recognises that social science research requires a different scientific approach than the approach used for natural sciences (Bryman, 2012). Furthermore, the subject is broad and complex and therefore a qualitative approach consisting of a case study has been used. A qualitative approach is appropriate for research which requires in-depth knowledge, and a case study is conducted as it allows the gathering of detailed and rich knowledge. However, the choice of conducting a case study is coming with a trade-off regarding the statistical generalisability, which is not possible to achieve through a case study of a single company (Blomkvist & Hallin, 2015).

4.2 Data Collection

The primary source for empirical data is from semi-structured interviews with employees and clients to the Case Company. The clients are both customers and potential customers to the Case Company and are either adopters or non-adopters to SaaS.

4.2.1 Semi-structured Interviews

The conducted interviews were semi-structured meaning that the themes of the interviews were prepared in beforehand and the interviewees' answers guided the development of the interviews (Blomkvist & Hallin, 2015). The interviews at the Case Company were conducted to collect data regarding knowledge management practices and how SaaS offerings are mediated to clients. The interviews with clients were conducted to gain understanding regarding their perception of SaaS. The overarching aim of the interviews was to identify areas where knowledge management could improve the mediation of SaaS between the Case Company's change agents and their clients.
The interviews within the Case Company were conducted throughout the period of the investigation and with employees from different areas of the organization so that a broad insight could be acquired. The participating employees are presented in Table 2, and it shows that 12 employees were interviewed in 18 sessions. To protect the integrity of some of the interviewees, some of the job titles presented in Table 2 are modified.

Table 2. List of interviewed employees at the Case Company

<table>
<thead>
<tr>
<th>Date (D/M)</th>
<th>Job Title</th>
<th>Assigned Code Name</th>
<th>Length of interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>23/1</td>
<td>Senior Manager</td>
<td>E1 (Employee 1)</td>
<td>90 min</td>
</tr>
<tr>
<td>26/1</td>
<td>Product Development Manager</td>
<td>E2</td>
<td>35 min</td>
</tr>
<tr>
<td>29/1</td>
<td>Senior Manager</td>
<td>E1</td>
<td>55 min</td>
</tr>
<tr>
<td>02/2</td>
<td>Senior Manager</td>
<td>E3</td>
<td>50 min</td>
</tr>
<tr>
<td>06/2</td>
<td>Sales Manager</td>
<td>E4</td>
<td>45 min</td>
</tr>
<tr>
<td>12/2</td>
<td>Bid Manager</td>
<td>E5</td>
<td>45 min</td>
</tr>
<tr>
<td>05/3</td>
<td>Sales Operations Manager</td>
<td>E6</td>
<td>55 min</td>
</tr>
<tr>
<td>05/3</td>
<td>Key Account Manager</td>
<td>E7</td>
<td>55 min</td>
</tr>
<tr>
<td>06/3</td>
<td>Enterprise Architect</td>
<td>E8</td>
<td>50 min</td>
</tr>
<tr>
<td>12/3</td>
<td>Product Manager</td>
<td>E9</td>
<td>50 min</td>
</tr>
<tr>
<td>19/3</td>
<td>Account Manager</td>
<td>E10</td>
<td>35 min</td>
</tr>
<tr>
<td>06/4</td>
<td>Product Manager</td>
<td>E9</td>
<td>15 min</td>
</tr>
<tr>
<td>19/4</td>
<td>Delivery Managers</td>
<td>E11</td>
<td>75 min</td>
</tr>
<tr>
<td>23/4</td>
<td>Delivery Managers</td>
<td>E11</td>
<td>50 min</td>
</tr>
<tr>
<td>25/4</td>
<td>Senior Manager</td>
<td>E1*</td>
<td>25 min</td>
</tr>
<tr>
<td>07/5</td>
<td>Sales Manager</td>
<td>E12</td>
<td>60 min</td>
</tr>
<tr>
<td>14/5</td>
<td>Sales Manager</td>
<td>E4*</td>
<td>35 min</td>
</tr>
<tr>
<td>21/5</td>
<td>Sales Manager</td>
<td>E4*</td>
<td>20 min</td>
</tr>
</tbody>
</table>

Clients were interviewed to attain empirical data regarding their perception of SaaS. These clients are briefly introduced in Table 3 and are both customers and potential customers to the Case Company, that is, they are both adopters and non-adopters to SaaS. The interview questions regarding their perception of Saas solutions were asked from a general perspective and did not solely concern their opinion regarding the Case Company. A total of 6 clients were interviewed. Three interviewees attended Company 4's interview session, but they are referred to as C4 (Client 4) in the singular. Company 1 and Company 2 are non-adopters to SaaS while the others are SaaS adopters. Company 3 is a credit market company while the others are banks.
### Table 3. List of interviewed clients

<table>
<thead>
<tr>
<th>Date (D/ M)</th>
<th>Job Title</th>
<th>IT Seniority</th>
<th>Client Code Name</th>
<th>Company Code Name</th>
<th>Length of Interview</th>
</tr>
</thead>
<tbody>
<tr>
<td>11/4</td>
<td>Senior Vice President Vendor Management</td>
<td>33 years</td>
<td>C1 (Client 1)</td>
<td>Company 1</td>
<td>80 min</td>
</tr>
<tr>
<td>13/4</td>
<td>Product Specialist</td>
<td>3 years</td>
<td>C2*</td>
<td>Company 2</td>
<td>45 min</td>
</tr>
<tr>
<td>18/4</td>
<td>Project Leader</td>
<td>~20 years</td>
<td>C3*</td>
<td>Company 3</td>
<td>60 min</td>
</tr>
<tr>
<td>26/4</td>
<td>CIO &amp; Two employees from Digital Services</td>
<td>~30; 24; 19 years</td>
<td>C4</td>
<td>Company 4</td>
<td>55 min</td>
</tr>
<tr>
<td>4/5</td>
<td>Head of Application Development.</td>
<td>18 years</td>
<td>C5</td>
<td>Company 5</td>
<td>50 min</td>
</tr>
<tr>
<td>9/5</td>
<td>CIO</td>
<td>~25 years</td>
<td>C6</td>
<td>Company 6</td>
<td>45 min</td>
</tr>
</tbody>
</table>

All interviews were recorded with consent from the interviewee. The conversations were then transcribed before they were documented in the thesis. Processing information from transcriptions could mean risks of misunderstanding the meaning of the information since it could be misunderstood due to the lack of context. The ambition has been to mitigate this risk and, thus, if any uncertainties were experienced the interviews has been listened to again. Some of the interviews were held over the phone and are marked with an asterisk (*) in the "Assigned Code Name" column.

### 4.2.2 Ethical Considerations

Qualitative research conducted within the field of social sciences often includes conducting interviews or data gathering methods which concerns people. Documenting these findings brings a need for ethical considerations. This study has been conducting in compliance with the Swedish Research Council four ethical requirements, which are formulated for social science research (Vetenskapsrådet, 2002). All interviewees are held anonymous throughout the report, they are informed about the purpose of the study and have given their consent to participate in the study. The data is furthermore only used for the purpose that the interviewee provided consent to.
4.3 Research Quality

This section presents the quality of this research. The three aspects of credibility of the report's findings are explained, which are Reliability, Validity and Generalizability. This section will lastly elaborate on how Source Criticism was approached when conducting the study.

4.3.1 Reliability

"Reliability refers to the accuracy and precision of the measurement and the absence of differences if the research were repeated" (Collis & Hussey, 2014, p. 52). If a repeated study produces the same result as the original study, the research results have high reliability (Collis & Hussey, 2014). It means that high reliability also requires that the results should be stable over time (Bryman, 2012). Reliability depends on a research being conducted in an appropriate way, for instance, that empirics are gathered and treated with impartiality by the researchers (Blomkvist & Hallin, 2015) or making sure that transcripts does not include obvious errors or typos (Creswell, 2009). The ambition of this study has been to attain a high reliability by having an objective view throughout the investigation and not letting subjective opinions affect the interpretations of the interview material. However, through having a qualitative approach based on interview data collection, it is not possible to ensure that the interview participants will provide the same answers at a later time. This due to the fact that the answers could depend on the interviewees current degree of knowledge about the subject, which might not be the same at a later time. Responses could also be biased by the interviewees mood or due to personal agendas, which are variables that is not stable over time. Most interview questions were therefore asked to multiple interviewees, enabling that the answers could be compared to mitigate the risk for biased findings. Informing the interviewees about their anonymity was also performed as a measure to decrease potential bias which could have occurred through unwillingness to express opinions publicly. However, some of the interview questions were aimed to specific interviewees due to them having specific knowledge, and these answerers could therefore not be compared to others which could lead to less reliability regarding these answers.

4.3.2 Validity

Validity refers to how well a study measures what it is intended to measure and how well the findings reflect the investigated phenomena. Having an inappropriate research design with e.g. poor choice of sample, or misleading measurements could result in low validity of the results (Collis & Hussey, 2014). This study has aimed to pursue validity by the articulation of research questions which are designed to help shed light on the phenomena of interest. In order to attain validity, these questions have been peer reviewed by professors, PhD students, fellow thesis students during seminars and supervision meetings at KTH. The interview questions have been outlined with the purpose to gather rich insights into the investigated research area. Furthermore, the perspectives of both the customers and the SaaS provider has been interviewed to gain a broad insight of the investigated area. The choice of the case study organization is also deemed as an appropriate context to carry out this investigation, which
further ensures that the validity is strengthened. However, a study including more than one SaaS provider would, of course, provide a higher validity.

4.3.3 Generalizability

Generalizability refers to the extent to which the research findings can be extended to other cases or other settings (Collis & Hussey, 2014). This is also referred to as external validity (Bryman, 2012). Choosing to conduct a case study, as in this report, can however as mentioned never result in statistical generalisability. This means that one cannot claim that the result from a single case with statistical probability will apply to other cases, even if these cases are similar. However, analytical generalisability can be achieved from a well conducted and well-described case study, which this report has strived to do. Analytical generalisability is the result from a discussion about how the result from a case study could be applied in other similar cases, and this requires a sufficiently described case study so that the reader can assess if the reasoning is good enough (Blomkvist & Hallin, 2015).

4.3.4 Source Criticism

It is important to analyse and discuss if the sources for data are scientifically useful for the purpose of the work (Blomkvist & Hallin, 2015). As the primary sources for empirical data for this investigation will be gathered from interviews with employees and clients, it is important to have a critical mindset while conducting the interviews and during the analysis of the data. Data gathered from people can be biased in form of personal opinions and the interviewees personal agendas. Thus, it has been taken in consideration when interpreting the answers, and follow-up questions has been posed when considered appropriate if any clarifications has felt needed after a statement. To mitigate the risk of being affected by biased answers, a number of interviews was held to allow triangulation of interviewee answers. Triangulation with documented material would further have mitigated the risk, however, little such documented information could be acquired. The secondary sources, which mainly consists of research articles and consultancy reports has been collected from resources which are deemed reliable. Research articles was sorted based on relevance and amount of citations and collected from renowned journals which are deemed as credible sources. The consultancy reports, are collected from large trustworthy consultancy firms, and the material has been processed with awareness regarding that the content could be biased by the consultancy firms’ business interests.
4.4 Research Process

The research process for this investigation has been iterative, the semi-structured interviews which have been held for the empirical data gathering has guided the development of this study. They guided both the literature review as well as the formulation of the research questions. This could also be referred to as an inductive research process (Bryman 2012).

Firstly, an exploratory pre-study was conducted to investigate Tieto's current sales process and to gain an understanding of how a typical sales process within the IT industry looks. The pre-study concluded that SaaS offering is new to the industry, and that there are uncertainties regarding how finance customers perceive these offerings. It was also concluded that Tieto is a knowledge intensive firm, where knowledge management practices could be applied to improve the mediating of their offerings. Thus, posing an excellent context for the case study.

Semi-structured interviews have been conducted throughout the period of the investigation, where the first interviews were explorative while the latter were more detail oriented. The initial approach was oriented around product service systems and knowledge management, where the firstly mentioned was decided to be set as a contextual theory rather than a theory for the analysis. As knowledge management often tends to relate to internal processes, Diffusion of Innovations Theory was adopted as a framework for exploring the clients perception of the innovation. These two theoretical fields lay the foundations for the research questions of this report, and Table 4 provides an overview of the sources that are used for answering them.
Table 4. List of sources used to answer the research questions

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Sources</th>
<th>Clarification</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ 1</td>
<td>Theory + Case Company Interviews</td>
<td>Theory consists of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Ch. 2.4 Selling Services in the Modern Environment</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Ch. 3.1.1 Change Agents</td>
</tr>
<tr>
<td>RQ 2</td>
<td>Theory + Case Company Interviews + Customer</td>
<td>Theory consists of:</td>
</tr>
<tr>
<td></td>
<td>Interviews</td>
<td>● Ch. 3.1.2 Characteristics of Innovations</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Ch. 3.2 Knowledge Management</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Ch. 3.3.1 Knowledge Conversion</td>
</tr>
<tr>
<td>RQ 3</td>
<td>Theory + Case Company Interviews + Customer</td>
<td>Theory consists of:</td>
</tr>
<tr>
<td></td>
<td>Interviews</td>
<td>● Ch. 3.2 Knowledge Management</td>
</tr>
<tr>
<td>Main RQ</td>
<td>RQ1 + RQ2 + RQ3</td>
<td>Theory consists of:</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● Ch. 3.3 Dynamic Theory of Organizational Knowledge Creation</td>
</tr>
<tr>
<td></td>
<td></td>
<td>● + All of the above</td>
</tr>
</tbody>
</table>

Chapter Summary

This chapter introduces the research approach and the methods that are used for gathering empirical material, where a qualitative study is conducted at the Case Company and its clients. Empirical data was gathered through interviews with 12 Case Company employees and 6 clients concerning knowledge management and SaaS perception. The interviewees were conducted in compliance with the Swedish Research Councils four ethical requirements. A high research quality was strived for when conducting the study, this chapter elaborates how reliability, validity, generalizability and source criticism has been pursued. The research process was described as an iterative and inductive process, where firstly knowledge management theories was considered, later complemented with diffusion of innovations theory as a means to explore the customer perception of the innovation.
5. Findings

This chapter presents the findings from interviews with IT clients within the financial sector and sales personnel at the Case Company. Firstly, the sales processes of Tieto will be explained and mapped out, followed by findings on how SaaS sales is conducted. Then, customer perception of SaaS is presented followed by findings of knowledge management practices at the Case Company.

5.1 Sales Process and Selling Software-as-a-Service

This section aims to map out the sales process of IT solutions within the financial sector, the teams and roles that are connected to such process, and what characterizes the selling of SaaS.

5.1.1 Sales Process of IT Solutions within the Financial Sector

Financial industry customers receive information about new IT-solutions such as SaaS from several sources. It could either be from salespersons but also from people within their organizations, industry peers, during conferences or other social encounters (E4). E12 states that customers are better informed about available solutions today and often gather information themselves. However, there are still needs for salespersons to create awareness of services, by introducing customers to alternatives (E12). Relationships between customers and salespersons are established through the exchange of contact information such as email addresses and phone numbers to salespersons. In addition, customer activities such as mingle events or lunches are arranged which helps maintaining and strengthening the relationships (E12). Customer perception of a product is posed both to be highly influenced by the customers’ perception of the organization (E12) and also of the efforts of its salespersons. It is stated to be important to show genuine interest of wanting to help the client with their challenges to be successful as a salesperson. It is also important to be transparent and to explain what challenges that can be addressed and what challenges that cannot be addressed by the supplying organizations offerings, to be perceived as credible. Further, there is always a need to perform an analysis of the customers’ situation, to gain insights of the customers’ business which is also a necessity to be perceived as credible. To persuade the customer into a purchase decision it is posed that the goal is to achieve a win-win scenario for both, the customer and the provider, and to be transparent about that (E4) Furthermore, communication with the right people such as people with formal decision-making authority or informal opinion leaders, and to co-create together with the customer is suggested to be beneficial to get the customer to go from intent to action (E4).

There are many ways to initiate a sales process, which is illustrated in Figure 8. It could be by a salesperson approaching a client, by a client approaching a supplier with an RFI (requests for information) or an RFP (request for proposal), or by the renewal of existing contracts (A4).
Although the financial industry is not affected by the Swedish Public Procurement Act (LOU), many of its actors follow the same procurement procedures. It provides clear boundaries on how procurements should be conducted. A sales process could be viewed as a sequential process (E8) as illustrated in Figure 9.

A "Customer business case", as illustrated in Figure 9, is followed by the customer submitting a request (see RFX), which could either be an RFI (Request for Information) or an RFP (Request for Proposal). Afterwards a business case is established where the supplier responds to the RFX. The RFX is iterated and followed by a BAFO, Best and Final offering. After the final negotiations are completed, a project plan is established (E8) followed by an implementation phase. There are different teams and roles at Tieto that are involved in a sales process, which are categorized in Table 5.

Table 5. Sales related teams at Tieto

<table>
<thead>
<tr>
<th>Sales-Related teams</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hunting sales teams</td>
<td>Selling solutions towards any customer.</td>
</tr>
<tr>
<td>Customer account sales teams</td>
<td>Selling solutions towards specific customers. Constitutes of Account Managers, Delivery Managers and others.</td>
</tr>
<tr>
<td>Bid Managers</td>
<td>Review financials and ensures coordination of internal resources between departments.</td>
</tr>
</tbody>
</table>
Employees within the hunting sales team work across Tieto towards all customers in the Financial Services department, but with specific solutions (E10). They are active in the first phases of a sales case and are responsible for gathering a steering group with needed competencies within the Case Company. This group is composed of around ten employees during small sales cases (E4). Currently, they move on at a rather early stage in the sales process (E11). The standard procedure is that after the purchase agreement is signed their role decreases and they take on an advisory role which supports the delivering unit and maintains the relationship with the customer (E4).

The customer account sales teams constitute of Account Managers, Delivery Managers and others. Account Manager has a focus on selling, but it is not their only area of responsibility. They also have a responsibility to keep their customers satisfied and for having a good understanding of their customers and the logic of their businesses. It is crucial for an Account Manager to have knowledge and to understand what context their customers operate in, who their competitors are, what their business model looks like etc. Together with the customers, they should propose what Tieto can do in the next step. Account Managers should also lead specific internal requests for promoting offerings to specific customers (E10). Delivery Managers has similar responsibilities as Account Managers but are more internally focused e.g. on how current delivery process is functioning, pricing issues, governance, add-on sales and putting requirements on the delivery organization. They also mediate how the customer experiences their delivery and ensures that processes are followed (E11).

Bid managers operate more internally, reviewing financials, coordinating internal resources and ensuring that people and information from different departments come together (E11). They are for instance involved in the communication of RFX between the supplying organization and the customers.

5.1.2 Selling Software-as-a-Service

On-premise or license-based solutions entail a high degree of responsibility for the customer to maintain and keep their solution up and running by themselves in comparison to SaaS solutions. A license-based on-premise solution is hosted on the customers own servers whereas a SaaS solution is provided remotely to the consumer via the internet and is hosted on the service providers servers (E11). SaaS-solutions thus includes more commitments from the solution provider in comparison to on-premise solutions. In a SaaS-delivery, the provider supplies and maintains everything that is necessary for the customer to enjoy the benefits of using the solution. The provider's responsibility includes configuration, maintenance and more (E9).

A consequence of the servitizing of products is that the solution provider and its' salespersons are challenged with higher requirements of understanding the customers businesses, due to the differences that services have to plain products. Further, selling SaaS is explained as requiring more knowledge regarding how to position the solution in the customer's business ecosystem. This poses a shift away from how the industry previously functioned, where the providers were more of order receivers, providing solutions with a larger focus on merely fulfilling technical requirements (E1). When an application is provided as a service, the
service provider also commits to keeping the application compliant with regulatory demands and network update requirements etc. Previously, the client was responsible for dealing with such areas themselves, meaning that they can reduce their staffing in such areas (E11).

A strength of SaaS-solutions is that if they are standardized, the marginal cost of delivering to yet another customer is low, and thus a current goal at Tieto is to standardize and modularise their SaaS solutions (E2). This would allow low marginal costs for incremental sales and also still allow for customization. A possibility to pick and choose amongst available standard functions is described as a desirable state (E9). Customization requirements affect the implementation times, and implementation times for customized products can extend over several months (E1). Another manager claims that selling SaaS is beneficial for the provider as it leads to full control over all pieces of the delivery which allows the provider to manage the solution better, providing a good experience. A current challenge is, however, to decide on what degree of customizability a SaaS delivery should have, since providing too many options could be compromising the level of quality of the completed solution (E9).

When selling SaaS, one manager states:

"Half of the game is to convince the customer what is different from what they have been getting" (E9).

It is further suggested that improving offering material is one possible way for Tieto to improve the process of conveying this message (E10). A problem which is described related to SaaS sales is that there can be a loss of connection when Tieto and their customers speak about offerings on different levels. E9 highly recommends having material where Tieto tell a story rather than merely describing product features, and that one should start presenting at a relatable level and build a story from there. That is an area where one manager stated that Tieto has improvement potential. The same manager further thought that Tieto have a very good offering (E9) and refers explicitly to the SaaS solution he is working with as very simple to use where the customer gets a link, a username and a password.

"You do not have to install anything, everything is already done, parametrized and you just click and start working – and once you are done working for the day, log out and go home."

Manager E9 explains that he would like Tieto to tell a better story about the fact that Tieto can provide a full service and what result that can bring to the customer. If the customer, for instance, is using a full SaaS solution already, Tieto's message should be explaining why Tieto's SaaS solutions have advantages over the current delivery and should not necessarily be explaining the basics. However, if the customer currently has an on-premise or hosting solution, the customer needs a presentation which focuses more on the basics. The material should according to E9 be inclusive for all kind of audience, and it is important to differentiate between the material that goes to large banks and start-ups. The material should not be too Tieto oriented, for instance; "I am selling this, my product is good at this". Instead, it should focus on the customer; "You are a small bank, you do not have a data centre, you do not have a big data staff, how can I help you?". Since start-ups usually do not have their own data centres, that is something that Tieto can help them with. Such messages would never work on a bank with a large data centre and many employees supporting their IT centre. Tieto
should focus on how to reduce the complexity, make the solution more affordable and be a partner in compliance (E9).

5.2 Client Perception of Software-as-a-Service

Perception of the differences between SaaS- and on-premise solutions differs amongst customers. Some of the clients within the financial industry already has implemented SaaS solutions while others manage all of their applications on-premise. The interview questions regarding clients' perception of SaaS where decoupled from the clients' opinion of the Case Company's offerings and processes. Instead, they were asked about their general views of SaaS and SaaS suppliers. Furthermore, not all interviewees had inputs regarding the same areas which is why some topics only is reflecting perceptions expressed by some Clients.

Relative advantages

The most prevalent relative advantages with SaaS solutions that were discussed under the interviews concerned; economics, simplicity and data security. Loss of control was put forward as the dominant downside of SaaS in comparison to managing applications on-premise.

Economic

For Company 4, the most important reason for adopting and wanting more SaaS solutions are cost advantages. However, Company 2 expressed a lack of perceived economic advantages with SaaS offerings and thus are not considering buying or replacing their current on-premise systems although C2 sees potential in the concept as it allows economies of scale through sharing the development costs with many other users. C3, C5 and C6 do not perceive SaaS solutions as being cheaper than on-premise solutions, although they see other aspects which are beneficial for them.

In general, it seems like the interviewed clients want their offerings to be standardized, where one of the reasons is cost efficiency (C1, C3, C5, C6), however, standardized applications might leave requirement gaps, which C1 and C2 states are often expensive to seal. C1 expresses that they could consider developing the lacking features themselves if the SaaS solution is delivered to a reasonable price. The applications that Company 3 choose as SaaS deliveries are desired to be standardized mainly since they believe that large suppliers know what features that are most appropriate. Instead, they want to focus on the activities that makes them competitive. Company 4 states that they are willing to pay their SaaS suppliers more than what they are currently doing if they get the services the way they want it. In their experience, working around gaps within a provider’s SaaS solution has always cost more than what the provider would have charged to do the customization for them (C4). Company 5 also want their SaaS offerings to be standardised and would prefer building the solution themselves if many customizations would be necessary. C6 poses that a standard solution is preferable since highly customized solutions brings up costs substantially.
Simplicity

Company 1 would especially consider SaaS for the services that they do not consider as strategically important and want to put efforts on activities that create high customer value, so they can distinguish themselves from their competitors. C2 poses that SaaS could enable Company 2 to receive help with the development of new IT functionalities if, and when, they need it. C2 sees opportunities for a SaaS supplier to contribute in areas where Company 2 might not have the right capacities.

Manager E11 perceives that clients appreciate the convenience of not needing to deal with regulatory compliance which allows them to focus on the management of their business operations instead (E11). Company 3 express that there are many regulations and that development related to regulatory compliance is time-consuming. By letting a SaaS provider handle those issues, C3 sees an opportunity to focus on value-creating activities instead. C5 states that "SaaS solutions is making things simpler" for them. When they are installing something new in their on-premise datacentre, several steps need to be performed such as getting permissions from security managers, creating backups, deciding operative systems and more. When purchasing SaaS solutions these kinds of issues are considered by the provider instead, and the process of implementing something new is quicker. C6 states that their primary reason for purchasing SaaS solutions is the convenience of having a full package deal, where all main areas of maintenance of an application is included.

According to C4, another relative advantage of SaaS is that the Company becomes one of several customers, which means that one can benefit from other customer's requests for improvements. This is stated to result in faster development of IT solutions than what Company 4 could have done by themselves in-house (C4). Furthermore, some companies see potential advantages of SaaS related to flexibility and being able to scale the data capacity on demand (C3, C5, C6).

Data Security

Generally, data security is either deemed as an advantage of SaaS solutions or as something that is not considered to be problematic (C3, C4, C5, C6). Company 2 expressed that they want to manage their most sensitive data in-house to minimize risks of security breaches. C1 does not see data security as either an advantage nor a disadvantage with SaaS solutions in comparison to having or on-premise solutions. C3 expresses that there are high demands for data security within the financial industry and regulations even includes the physical security of server halls, and this can be very costly and difficult to live up to on-premise. SaaS solutions are alleviating these concerns for companies as security is then managed by the service provider (C3). C4 states that the industry preferences have historically been to use on-premise solutions for managing all data which has high-security requirements. Furthermore, there have been uncertainties for many years regarding if the Swedish regulations allowed financial actors to use cloud services for their sensitive data. This mindset has however changed, and today, many actors are adopting these types of services in a strategical manner (C4). Both C4 and C5 stated that SaaS often provides better security than what can be
achieved in-house and security is stated as the second most significant reason for Company 4 to make a SaaS transition (C4). C4 states:

"To employ that type of security staff would be a huge cost for us."

C6 has confidence in the SaaS providers capabilities to manage data securely. However, C6 also points out the importance of ensuring that regulatory compliance is addressed in the purchase agreements.

**Control**

Manager E11 expresses that clients might experience loss of control as a relative disadvantage with SaaS solutions, regarding time to market of new features. That is, if the client requests a new feature to be developed, that is not desired by any of the other clients and may get a low priority by the supplier. However, E11 added that clients still have the possibility to pay for a customization to be performed specifically for them. Company 2's IT-organization is closely integrated with the rest of the bank, and there are short decision paths. Therefore, Company 2 are positive to continue developing systems inhouse to maintain control. C3 and C4 also confirms E11's statement and brings up that having a SaaS delivery includes a perception of having less control. C4 emphasises the importance of SaaS providers to be transparent with how the application is being developed, and states:

"How do we know that they deliver what they should deliver... How do we know that they will be compliant with regulations?"

When having on-premise installations, the company can prioritize their own time, controlling exactly what the developers should focus on (C4). The lead times for making changes happen is therefore seen as a disadvantage with SaaS solutions. C4 further states:

“When we report an issue, we are put in queue."

However, C4 sees benefits with the easiness of SaaS, where services can be turned on or off and where additional services can be bought if required. Company 5’s view regarding these issues were however different as it is easier to make changes happen by purchasing ready-to-go SaaS solutions, since internal processes could be slow.

C6 poses that there is a risk to become too dependent on single providers. Therefore, Company 6 prefers purchasing several small SaaS deliveries rather than having all functionalities sourced from a single provider. Having a lot of functionalities in the same SaaS delivery, brings a risk of becoming locked in with one supplier where it could be difficult to perform changes (C6).

**Complexity**

C1, C3, C4, C5 and C6 states that they personally have good knowledge about the SaaS concept. C1 and C6 states that this knowledge is widespread within the entire organization while C2 states that his knowledge about SaaS is limited, and that it also is limited throughout the rest of Company 2. C3 and C4 perceives that the knowledge of SaaS concepts is spread within the IT department but is less understood in other parts of the organization. C5 expressed that the understanding of what SaaS solutions are generally is low throughout the organization, mainly since there are not much previous experiences from it.
Customers knowledge regarding what SaaS solutions are, is suggested to vary in general and manager E11 believes that there frequently is a discrepancy between customers and suppliers expectations. Thus, it is suggested that suppliers need to be clearer when mediating SaaS to potential and existing customers. E11 believes this discrepancy originates from the term "as a Service", which could be interpreted differently. C4 also describes the same problematics with differences in expectations between buyers and suppliers and thus poses that it is important as a buyer to be informed so that all parties agree and understands the terms and division of responsibilities in an offering. C5 described that there might be differences in definitions between different parties. C6 believes there is an ambiguity in the market, where suppliers sell something but are delivering something else. C6 also problematizes around the high technical requirements for understanding SaaS contracts, and states that the customers should not need to have a technical competence.

Pricing is perceived as something which can be troublesome with SaaS deliveries and thus makes budgeting more difficult. Completely variable pricing has been expressed as the most desirable pricing model by C1, C2, C3 and C6. C1 emphasized the importance of finding simple payment models. Manager E11 believes that clients appreciate predictability in the SaaS pricing which could be provided through offering fixed monthly fees. C3 prefers a payment structure based on usage volumes since having initial small volumes would not be very expensive. C4 also suggests this and states that IT providers should strive to have as standardised platforms as possible to enable simplistic pricing models. "The most important thing, is not if there is fixed or variable price. The importance is that there is a clear and understandable pricing" (C4). If the pricing is variable and volume-based, Company 4 wants to know what the specific costs are per unit in order to enable their budgeting. They do not always perceive the SaaS providers pricing models to be clear, for instance it is posed that it could be difficult to understand what the price includes. Trying to get a price per unit and planning a budget is therefore deemed difficult for them. C4 states that "fixed prices are the best for us since it is the most predictable, but there are not many providers which offers that” (C4). C6 does, however, not experience pricing as a disadvantage of SaaS, regardless if the pricing model is fixed or variable. Although, C6 expresses that the pricing models need to be further developed by the suppliers and would like transparency on what drives their costs (C6). The price should according to C4 be clear per unit and should not be a mix of fixed and variable costs. Having fixed start-up costs with variable parts in some areas and completely variable in others is expressed as a situation which creates challenging budgeting (C4). "There is definitely space for a higher fixed cost for the supplier" if it makes it easier for the client to make a budget (C4). C5 also problematizes around budgeting and sees the advantages of a fix SaaS cost. An alternative to that would be a cost per usage that is easy to calculate. If the cost is based on the amount of data-usage or if it is progressive, it becomes difficult to calculate by (C5).

Compatibility

E11 describes that the compatibility of SaaS solutions differs between customers as it depends on how much IT solutions that the customer keeps in-house which affects how much integration that is needed (E11). All customer interviewees expressed that they perceive SaaS solutions as compatible with their existing IT systems (C1, C2, C3, C4, C5, C6). However, the compatibility regarding internal culture and values are describe as varying amongst them.
C1, C4, C5 expresses the possible concerns about internal resistance against SaaS. C1 expressed that there could be internal resistance against adopting SaaS solutions due to job protectionistic attitudes, and the fact that certain work tasks might disappear. This is however expressed as manageable if the transition could be explained as economically justifiable. C4 expresses that there might be concerns amongst IT employees regarding losing their jobs when transitioning to SaaS, but there has always been other tasks for these employees to perform afterwards (C4). C5 expresses that there are conservative mindsets amongst many employees which is identified as an inhibiting force against adopting SaaS solutions. So far SaaS solution is frequently chosen at Company 5 mainly when there is something new that is wanted, but more seldom as a replacement of an old solution (C5). At Company 6 there are explicit directives in their IT strategy to choose SaaS as the preferred choice and the general attitude towards this development within the organization is positive (C6).

Company 3 is currently implementing a SaaS solution and overall, there are no major compatibility difficulties for them to integrate towards an IT system that is not on-premise. The challenge is rather concerning a resistance amongst employees of using standard solutions. Though, Company 3 wants their SaaS solutions to be as standardized as possible to keep the implementation smooth and achieve cost efficiency. A future challenge could be to find ways to collaborate with the supplier regarding who will be responsible for what (C3).

**Trialability**

With on-premise deliveries the user first need to purchase, install and customize the application before trying it (E9). Manager E9 states that providing demos are possible with SaaS deliveries. C4 would have appreciated if there were opportunities for such demos before purchasing their current SaaS solution, since some issues have appeared after the purchase (C3). Trialability is deemed important for Company 4 and 5, and they want to try out a SaaS offering before purchasing it. Both C4 and C5 states that they want to install test flows, so that they can evaluate the functionality of the product. C4 states:

“I do not think I have been in a process where we have not tried a SaaS-delivery before purchasing it.”

C4 further states the importance of also having Workshop's:

“Workshops is also part of the process somehow.”

C5 expresses that they want to try the service for free for three to six month and want support from the supplier to get started. The supplier should be motivated to do so for building long term relationships (C5). C6 are currently in a procurement where they are sending data to a potential SaaS supplier to test Company 6's processes in their systems. In this way the supplier gets to make a test in their systems, but C6 were also positive to a scenario where they would get a demo-link to try a test version of the application by themselves.

**Observability**

All interviewees except C3 are positive towards being presented to success stories, which presents outcomes of previous successful implementations of SaaS solutions. C3 explained some scepticism against such sales pitch endeavours. C3 instead prefers salespersons to focus on demonstrating the products live. However, interviewee C1, C2, C4, C5 and C6 stressed the importance of being presented to reference companies. C2 adds that that reference
companies often constitute of satisfied customers. Company 4 has experienced situations when the presented SaaS solutions have been in operation for less than a month. Contacting reference companies is often deemed more reliable than hearing success stories from salespersons, although success stories can be inspiring (C4, C5). C5 expresses that there is a certain distrust to new services and that some suppliers want to release services before they are sufficiently ready for the market. Company 5 has previous experience of purchasing a service where some functionality was not completed, and they had to develop these functionalities themselves on-premise instead.

C6 argues that transparency is of highest importance. Company 6 value presentations of challenges in previous SaaS deliveries because in their experience there are always challenges with implementation of new technology. Being transparent allows countermeasures to be taken to avoid repetition of mistakes (C6). C3 furthermore states that they sometimes have experienced a resistance among SaaS providers for giving price estimations, which should not be problematic for experienced suppliers.

The most significant customer perceptions of SaaS are presented in Table 6 according to the five characteristics.

Table 6. Key customer perceptions of SaaS

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Key perceptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Relative Advantage</td>
<td>Standardization cost-efficient and preferable, Customization expensive, Convenience, High data security, Loss of control</td>
</tr>
<tr>
<td>Complexity</td>
<td>Low understanding in organization except IT-department, Vaguely defined as a concept, Unclear pricing</td>
</tr>
<tr>
<td>Compatibility</td>
<td>IT-compatible, Generally compatible with values and culture</td>
</tr>
<tr>
<td>Trialability</td>
<td>Workshops appreciated, Testing important</td>
</tr>
<tr>
<td>Observability</td>
<td>Success stories appreciated, References important, Transparency important</td>
</tr>
</tbody>
</table>

*Relative disadvantage

5.3 Knowledge Management Practices

Knowledge is managed in a variety of ways at the Case Company and it differs between sales teams. This section aims to describe current knowledge management practices which are used by the salespersons involved in mediating SaaS solutions from the service provider to the customers within the financial industry. The focus is on areas of improvements and improvement challenges in regards to the management of knowledge.

At the Case Company, sales information is stored in cloud-based share directories, in employee's PC's and in other applications. Currently there are two file hosting services which
are utilized at the Case Company since it is in a phase of transition to a new storage system, and it is in those that salespersons store most of their data, which they can share with others (E4). Some sales teams are posed to have good structures of their material in the file hosting services, where they are storing presentation-, meeting-, pitching material etc., while other teams do not have such structure (E6). At the file hosting services, the access is limited and files are only visible and accessible by assigned employees. The people who are assigned access to material related to a sales case is usually the ones who are involved in that specific case (E5). Tieto also have an internal intranet where a lot of various information and knowledge are uploaded and made searchable. The information and knowledge could however be dispersed in many different places on the intranet. At the intranet there are some repositories designated for material concerning specific functions e.g. there is one for sales and bid content which has been developed quite recently. Many employees who are involved in sales and bid management are however found unfamiliar with them. This is posed as bringing challenges for the development of the repositories since low usage leads to low demands on improvements and therefore an inhibited development of it (E10). Another challenge for the repository is that some material could be necessary to clean from sensitive customer information and special offerings before making it publicly available to all employees (E6).

Within the Case Company there is a continuous exchange of material and knowledge between sales teams, but not in a formalized manner. It is mainly carried out through discussions with co-workers and e.g. having monthly meetings (E10). Two managers claim that knowledge management is functioning well within teams but becomes more problematic between teams or departments (E4 & E6). However, two other employees claim there is also potential for improvements to be made within sales teams (E7, E5), where the file sharing is stated as an example (E7). Within a team, people frequently speaks and share experiences with each other. However, as the distance grow, the personal exchange of knowledge decreases and more system support is required. This is described as an occurring phenomenon between floors at the office building. Sharing of knowledge on an organizational wide level is also described as having potential for improvements (E4) where there for instance are material that bid managers and salespersons have that would be interesting for both parties to take part of (E4). Knowledge management practices for educating newly hired employees is, however, perceived as good by a newly hired Sales Manager (E12). They are for instance participating in take-off days where there are opportunities for networking and where necessary knowledge regarding areas such as organizational structure is provided. There are also internal tools for education available through the organization's intranet, and the opportunities to learn is perceived as vast (E12).

A Knowledge management improvement area is stated to be that sales material is reinvented too often (E4 & E7). At large cases where SaaS or any servitized solution is delivered, some material might be created from scratch even though 95 % of the information is expressed to be generic (E4). Thereby, unnecessary work hours are invested, and sales material gets personally bound and the quality of the material is at risk of being uneven as it becomes dependent on the employees who creates it. Material also gets dispersed at personal directories on employee's computers or at file sharing services where few employees has
access to it. More re-usage is posed to improve the level of quality of the material (E7). Also, employees sometimes experience difficulties in finding information (E6 & E10).

It is stated that the sharing of generic material could become better, e.g. what certificates Tieto have, how many developers there are, and what the protection the server halls have, which are relevant for all employees (E6). The material that currently is reused in a frequent manner is concerning generic information which gives an overview of the organization, such as descriptions of Tieto’s business areas (E4). Descriptions of services and solutions in a bid are not as reusable as a general description of something in a sales pitch, but there are also improvement areas there (E6).

Sales material could be improved by storing professional templates for specific business cases which can be built upon when needed (E7). There is also improvement potential related to storage and sharing of information regarding Tieto’s different markets or products, and the development of awareness regarding what material and information that has been created in previous cases which could be reused in current or upcoming cases. The creation of a centralized place where employees can find information, give recommendations, and share material would pose a good starting point (E6).

Material needs to be updated and revised to better suit the audience (E4), and E5 problematizes around the vast amount of available information, how to highlight what is important and how to build reference cases from best practices. It is suggested that improvements is desired regarding accessibility of previously created material (E5). E5 further emphasise the importance of having success-stories so that employees can learn from previous exemplary practices (E5). Furthermore, E11 states that it is desirable to have easier access to standardised tariffs since it would facilitate the provision of price information to clients (E11). Facts about the accuracy of the financial estimates in previous sales regarding costs and margins are also useful in forthcoming similar cases according to a bid manager (E5).

Salespersons find it difficult to locate information and finding persons who have specific knowledge internally. They are largely dependent on their personal networks to efficiently find out who to contact when there is a need to gather knowledge. There are currently no systems where one can find what different people previously have worked with (E6). Another manager states;

"I have worked at Tieto for almost nine years and I have the benefit of knowing many people here... I like speaking to people. Everyone are not like me... how do you reach them? I have built my own network, so I know who I should call." (E4).

Captivating all the knowledge and making it available so that it does not disappear as salespersons change jobs or positions is important (E5). Organizational knowledge should have a solid structure that does not depend on the people. There should be roles defined, processes defined, and tools defined. The organizational knowledge process should further not be vulnerable to changes in personnel, management or leadership style (E5).

E4 states:
"There are loads of tools for sharing information [...] and Tieto have a lot of such tools. But why are they not used more? [...] I think it is more of a question regarding culture and mindset... How does one create incentives for sharing, and how does one create incentives for turning to a system when looking for information?".

There are many tools that could enable better knowledge management and a file hosting service is according to this manager the simplest way, if there is a good map structure (E4). Another manager agrees that the current available tools are not the problem. It is about making good use of them so that there is a place where salespersons could find information (E6).

The greatest challenge in making a better searchable system at Tieto is that someone needs to be responsible for the creation and maintenance of the material (E10). One manager states that he could work "around the clock" and always have something to do. He further states that tasks where there is no clear owner typically will not be performed. The Case Company’s challenge regarding knowledge management is expressed to be that there is no clear ownership, and that implementing ownership of material would be an advantage.

Another manager further states that if there are too many processes, the creativity can be hindered (E4). However, too little process orientation makes the way of working less consequent and consistent (E10). E4 states;

"When I came to Tieto from the university I thought that technology would solve anything, but one notice quite soon it does not work like that. Humans need their freedom."

Chapter Summary

This chapter presents the findings from employee and client interviews regarding the sales process, client perception of SaaS and knowledge management practices within the Case Company. The first section finds many complementary teams and roles being connected to a sales process, and also finds that providing SaaS differs from selling on-premise offerings in areas such as understanding the customers business. In the second section, clients are found to have different perceptions of SaaS regarding many of its characteristics. However, most clients prefer the benefits of standardized offerings, instead of having customizations. The last section identifies good knowledge management tools at the Case Company, however practices differs between employees.
6. Analysis and Discussion

This chapter analyses and discusses findings from employee and client interviews in relation to literature and theory. The following sections are sequentially based on the three sub research questions.

6.1 Change Agents

The first sub research question aims to explore how change agents mediate Software-as-a-Service offerings to Clients, which is analysed and discussed in this section.

Several roles at Tieto can be viewed as change agents who mediate the SaaS innovation to clients within the financial industry in Sweden. These roles are presented in Table 4 (Ch. 5.1). The main objective for a change agent is to facilitate the diffusion process of innovations to the potential adopters and is stated to be needed when there exists a social or technical chasm between the change agency system and the client system (Rogers, 1983). Such technological chasm is identified in this study by the fact that several of the interviewed clients posed that the level of knowledge regarding SaaS solutions is not widespread within their organizations (C2, C3, C4, C5). This is also confirmed by an interviewed change agent who expressed that one of the main challenges can be to mediate the differences between SaaS- and on-premise offerings (E9).

As previous literature on the sales environment by Jones et al. (2005), as well as Rogers in his theory of the diffusion (1983) poses, change agents have access to a vast amount of information today and are interacting with a large number of people within the change agency which suggests challenges regarding handling much information (Jones et al. 2005, Rogers 1983). This is corresponding to the empirical findings of this report. For instance, it is found that change agents who are mediating SaaS solutions are challenged with a higher requirement on holding knowledge about the customers businesses, as that is needed in order to be a credible service provider. Furthermore, a change agent involved in a a sales case which is considered as small by the Case Company, are included in a steering group which is made up by approximately ten employees (E4).

The process of how a change agent induces change at a client is found to follow the sequential roles of change agents as described by Rogers (1983) (Ch. 3.1.1). However, because the financial industry in Sweden is constituted by a limited number of actors, and the Case Company has been active many years within the industry, the information exchange relationship might already be existent between the change agent and the potential adopter before the clients need to change is discovered. That is likely because many actors within the financial industry are customers to Tieto since before or has experienced previous sales attempts. Therefore, the second role where the change agent establishes an information exchange relationship does not need to be repeated in those cases. Today's clients are also suggested to gather a lot of information by themselves, being fairly aware of alternative new
technologies such as SaaS, and thus sometimes develop their own sense of need for change and reaches out to the change agency. Therefore, also the first change agent role where the change agent is described to develop the clients perceive need to need amongst the client (Rogers 1983) does not always occur.

The change agents' roles during a sales process involving a new customer are however often following the sequence as described by Rogers (1983). As interviewee E4 and E12 described, salespersons are one of the information sources where customers are receiving information about innovations and how they could benefit the customer. A salesperson at the Case Company establishes an information exchange relationship through providing the client with their direct contact information and strive to be responsive to the clients' communication (E4).

As described by Rogers (1983), the perception of the innovations is often dependent on the perception of the change agent, which makes it important that the change agent is perceived as competent, credible and caring of the clients' problems. This view corresponds well with how the salespersons describe their strive to be perceived by their clients. Their method is to be transparent and responsive to ensure that the client understands the genuine interest in achieving a win-win situation, which is necessary for creating an intent to change (E4 & E12).

It is also posed that there is always an analysis carried out by salespersons regarding the client's situation. That is seen as a necessity to achieve credibility in the eyes of the client. Roger (1983) states that the client's final adoption decision process is most influenced by peers in their close network, and that change agents thus often targets opinions leader (Rogers, 1983). This is also corresponding to the salespersons at the Case Company who expresses that they seek to establish contact with the opinion leaders within the organizations. These can be either formal or informal leaders at the client. After the adoption decision has been carried out, the hunting salesperson's role decreases (E4) and the change agency role is divided between the salesperson, an Account Manager and a Delivery Managers who all ensures a stabilized adoption and that a terminal relationship is established.

In the case of an existing customer to the Case Company, there is a delivery Manager and an account manager that also partakes in the role as a change agent as they induce changes at the client by introducing new innovations continuously seek new opportunities where they can help the customers through implementation of innovations that they can provide.

Bid Managers can be viewed as change agent as they are involved in the mediation and communication of innovation as they function as a hub which finalizes the offering material that gets sent to the clients.
6.2 Knowledge Management Practices for Improving Clients' Perception

The second sub research question aims to explore what SaaS perceptions of adopters and potential adopters that can be improved by knowledge management practices amongst change agents. Previously in the report, findings regarding clients' perceptions of SaaS solutions was presented. The perceptions were categorized under the five Characteristics of Innovations which are posed as predictors of innovations adoption rates by Rogers (1983). The following section will analyse and discuss if change agents can improve the mediating of SaaS by applying knowledge management practices based on client and Case Company findings.

Relative advantage

The relative advantage of an innovation is measured in relation to the technology and equipment that is previously available or in use by the client (Rogers, 1983). In this study, the perception of SaaS has been compared with on-premise offerings, which has been the dominating technology in most firms within the financial industry until recently (E8). The findings suggest that SaaS offerings are perceived to have both relative advantages and disadvantages in comparison to on-premise solutions. Benlian et al.’s (2011) study expresses that there seems to be differences in perception between adopters and non-adopters, but in this study the differences in perceptions does not confirm that pattern, instead the perceptions were found to differ depending on the client’s organizational cultures and their internal IT capabilities rather than if the clients are SaaS adopters or not. The findings suggest that actors within the financial industry values the potential that SaaS solutions brings regarding standardization and sharing development costs with other users (C1, C3, C5, C6). Standardized solutions bring possibilities for the change agents mediation practices and would for instance allow for standardized sales material which could be reused in different sales cases, minimizing unnecessary duplication of work. However, due to the differences in IT capabilities among actors within the financial industry in Sweden and the differences in, cultures and perceptions of SaaS solutions, a variety of standardized sales material should be created and made available so that material can be chosen to fit a specific type of client. For instance, companies with smaller IT departments needs a different message than larger companies with large IT departments (E9). Categorizing material and making it accessible would help the change agents to adapt any presentation or information session to the clients specific needs as well as ensuring that the material is of high quality.

Ease of use as another positive aspect of SaaS that is brought up by the literature (Lin & Chen 2012), and from the empirical findings in this study it seems like the largest perceived relative advantage is related to the simplicity that SaaS brings, allowing the client to focus on their value creating activities. All SaaS adopting clients except Company 4 stated that they would only adopt standardized SaaS offerings. Costs were however expressed as a concern among customers related to filling the potential gaps between a standard solution and the needs of the company. Manager E9 also problematized around the challenge for the Case Company to decide what degree of customizability the SaaS offerings should allow, not to compromise the level of quality of the completed solution. Furthermore, all SaaS adopters
except C4 perceive SaaS as a benefit because of the reduced workload that is necessary related to creating regulatory compliance which also brings simplicity. However, C4 would like to see more transparency and communication from SaaS suppliers regarding how they keep the SaaS solution compliant. This could be seen as part of the change agents roles as they need to stabilize adoption and prevent discontinuances i.e. ensure that the client is confident about their choice to adopt and to ensure they keep using the innovation. As the clients wants standardized SaaS offerings, these findings suggests that the change agents should be highlighting the standardization and the benefits that it brings related SaaS offerings to the clients. This information should also be mediated back as feedback to the change agency (i.e. the Case Company), so that it can adapt its offerings to fulfill the demands from the clients.

Another concern and challenge related to cloud computing services in the literature is SaaS offerings data security compared to on-premise offerings (Gangwar et al., 2015). Data security is of high importance for actors within the financial industry since they are handling sensitive information and since there are strict regulations to keep certain security levels (C3). SaaS providers were perceived to have high capabilities to provide good security (C3, C4, C5, C6). It was even pointed out by C4 and C5 that the security level is likely to be higher when using SaaS solutions than on-premise solutions as the SaaS providers are likely to have higher capacities to keep their services secure. Company 2 is the only company preferring to have their most sensitive data in-house. Information about data security benefits should have a high focus. Data security information is often quite generic between sales cases, and Manager E6 stated that sharing and storage of generic information has potential for improvement in the Case Company's sales process. This would be improved and likely mediated with higher quality by better knowledge management practices amongst the change agents.

**Complexity**

Rogers (1983) refers to complexity as the difficulty to use or understand an innovation, and high complexity is negatively correlated to the adoption rate. Lin & Chen (2012) argues that SaaS is not very understood by many businesses. The findings in this report suggests that the understanding of SaaS solutions is varying amongst actors within the financial sector in Sweden. SaaS solutions is generally perceived as non-complex by the interviewees, except C2 who described his knowledge about SaaS as limited. This might be explained by Company 2 not being a SaaS adopter. It was also said that the concept is not understood throughout their organizations, especially outside of the IT-departments. It was only C1 and C6 that stated that the concept is widely understood throughout the organization. E9 describes a problem with loss of connection when communicating SaaS to clients with a lower level of understanding than the change agent. Having a diversity of sales material is therefore needed to mediate correctly to clients with different levels of knowledge about SaaS.

Manager E11 believes that clients appreciates predictability in the pricing of SaaS, which could be enabled through a fixed price. C1 and C4 also emphasizes the importance of having simplistic pricing models. C4 did not find fixed or variable pricing as important as having a clear and understandable pricing model. None of the interviewed clients expressed any issues
regarding the use of SaaS, which could be explained by the user interface not being significantly different. However, SaaS is not perceived as well defined and clients sometimes has different expectations from suppliers of what should be included in a deliverance and during the usage period of the SaaS solution (E11, C4, C6). The knowledge regarding what a SaaS solution is, what the service concept means and what the concept includes was explained as not very widespread within client organizations. It is also found that there sometimes are differences in the clients and change agencies’ perception of what SaaS deliveries should include. From Tukkers (2004) PSS model perspective, it seems like clients would like SaaS to be more result oriented while they perceive that many suppliers deliver user-oriented services. This suggestively mean that there is a need to be clearer in the dialogue between the client and the change agents to create agreements between all involved parties regarding who is responsible for what in the delivery of the SaaS solution and during the usage period. Knowledge sharing internally between the delivering organization and the change agents is important to ensure a unified communication towards the clients.

Compatibility

The compatibility is concerning the client's needs, values, previous experiences and internal organizational environment (Rogers 1983). Compatibility between SaaS and client IT systems is not viewed as a concern by the interviewed companies. One of the relative advantages of SaaS solutions is that the software is installed and maintained at the SaaS providers servers and should be easily accessible for the client. However, clients are aware that integration of large IT-systems always require some configurations to interact with existing systems. Apart from the IT compatibility some clients expressed concerns related to job protectionism, organizational culture and values. However, no specific knowledge management practices are identified for improving clients perceptions of the compatibility.

Trialability

Rogers (1983) described trialability as how easy it is to test the innovation before the adoption decision. Implementation of large IT system can be complex, and it can require a lot of integration with existing IT infrastructure etc. (E1). Therefore, trialability is more difficult then it is for less complex products. However, since SaaS applications are provided remotely over the internet, there is a possibility to provide demo versions of the application. However, these demo versions would just provide a look and feel of the system because the system would still need to be integrated to communicate with the clients existing IT systems.

Trialability is argued not to be a strong predictor of the current intentions of adopting, even though there may be a greater comfortability with adopting to cloud computing after IT professionals have tested it (Lin & Chen, 2012). Trialability was expressed as desirable by the interviewed companies where especially C4, C5 and C6 emphasised the importance of testing a SaaS solution before taking the adoption decision. Trialability could either be provided by having workshops or possibly by letting the clients try the software as a demo version, which E9 stated is possible to develop, however not existent today. A demo version would according to E9 be a simpler version with no integration to existing systems. Banking
clients would not be able to use all the functionalities that they need since they often have very specific requirements regarding integrations (E9). However, since this report found that many clients within the financial industry expressed desires to utilize as standardized solutions as possible, demo versions could potentially be a great enhancer of customer adoption. Clients are positive to the idea of utilizing demos as a way of trying an application. Creating, storing and letting the change agents distribute demo versions to clients does not seem common by SaaS providers today, however, this could improve the mediation of the SaaS solutions features as it would allow them to actually test the application before their decision. Although it would only be a test version, but it would enhance the trialability for the potential adopters.

**Observability**

Observability describes how observable the benefits of the innovation are (Rogers, 1983). Observability is, like trialability, also argued not to be a strong predictor of the current intentions of adopting to SaaS (Lin & Chen, 2012). Through codification and documentation of success-stories, it would be easier for change agents to communicate the benefits of the SaaS solutions. Most of the interviewees are expressing that they appreciate presentations of success stories of previous implementations of SaaS offerings. However, reference companies were claimed to have higher credibility and importance in the client's adoption decision. Still, a majority amongst the client interviewees problematized around observability. Company 4 and 5 describes their experiences of having purchased, or having been presented for, SaaS offerings that had not been sufficiently developed. C6 argues that transparency is of high importance when suppliers present SaaS to customers, and that presenting challenges in previous SaaS deliveries are of equal importance as presenting success stories. In C6's experience there are always challenges with implementation of new technology and being transparent may allow countermeasures to be taken (C6). Improving the documentation of previous offering implementations could improve such transparency.

C1 furthermore stated that they sometimes have experienced a resistance among SaaS providers for producing price estimations, which should not be problematic for any supplier with previous experiences of supplying a specific implementation. By creating pricing tariffs based on previous e.g. precious implementations it would be easier for change agents to give price indications to clients. This would both lead to that the Case Company being able to make more accurate business cases for new customers, highlighting possible cost benefits of SaaS implementations, as well as allowing customers to make business cases for themselves based on the pricing data. Creating such tariffs at Tieto would according to E11 be possible.

Clients within the financial industry seemingly want to see how an application works before an implementation. Some customers want an interactive experience, but it is also stated by one customer that they are not satisfied with pictures of how an application looks. As an addition to equipping change agents with demo version of an application to distribute during the sales process, video tutorials of applications would also increase the observability of SaaS solutions, this documentation would thus facilitate the mediation and enhance the clients’ perception of the observability.
6.3 Recommended Knowledge Management Strategy

The third and last sub research question is exploring if an organizational transition to SaaS offerings suit a certain knowledge management strategy, which this section will address.

The knowledge management strategy at Tieto includes elements from both the personalization and the codification strategy. Change agents are found utilizing various tools where codified information and knowledge can be stored and shared, e.g. the internal intranet, and various file hosting services. However, the change agents are also dependent on their personal networks to gain access to a lot of the information and knowledge which are existent within the organization. Their personal network is necessary for them because much knowledge and information are either stored locally on employee's personal storage locations or as personally embedded knowledge. As derived from Hansen et al., (1999), successful knowledge management strategies focus either on codification or personalization activities, where the focus is approximately divided according to an 80/20 ratio of either activities. From the empirical findings, Tieto is found to have a higher focus on codification activities, but seemingly not to the degree as Hansen et al. (1999) recommend. This conclusion is drawn from interpretation of the internal interviewees descriptions of the KM processes, however, it is neither quantitatively proven nor explicitly stated from the investigation. The reason for pursuing a codification strategy is to offer products and services quickly, to a lower price, by the re-usage of knowledge. The personalization strategy is instead appropriate when providing highly customized offerings which allow the supplier to have a higher profit margin and pricing. The customer findings suggest that many client organizations are willing to give up control of systems they previously were hosting for gaining advantages from a standardized multi-tenant SaaS environment. This motivates the suggestion that Tieto should aim for pursuing a focused codification strategy where they increase their focus on codification activities, storage possibilities and accessibility of the documented knowledge.

Nonaka describes organizational knowledge creation as enabled when all four knowledge creation modes are organizationally managed, which are; Socialization, Externalization, Combination and Internalization (Nonaka, 1994). By improving an organizations KM practices and processes, e.g. through having a well-balanced codification strategy, these modes could be enhanced which could increase the organizational systemic memory and the organizational learning capabilities. A well-functioning codification strategy would especially facilitate externalization, combination and internalization, e.g. through having information and knowledge accessible in a centralized manner. As it is today, the culture at the Case Company promotes socialization, i.e. it is necessary for employees to establish a personal network in order to access knowledge which is personally embedded or stored locally at personal computers. However, a transition to SaaS and standardized solutions is found to be an enabler for a codification strategy and thus a higher focus on conversion of tacit to explicit knowledge would be beneficial. Glisby and Holden's (2003) critique towards the SECI model should however be noted, stating that it is a product from a Japanese cultural context, and should therefore be referenced to with caution. How much the knowledge creation would be enhanced by a codification strategy is therefore a subject for speculation. Nonetheless, the findings of this study indicate that much of the personally bound knowledge
would be useful for other employees to take part of, and that the sharing of such knowledge could lead to new insights.

Tieto has several tools and resources for the management of their codified material created within their sales processes, although the usage of these differs between employees and sales teams. This could be explained by Tieto being a large organization with many different offerings towards several branches and customers, which might explain and justify different ways of working. The sharing of codified knowledge is generally not an issue between employees situated within the same team since file hosting services and sharing of information is conducted when information is needed. Ulaga and Loveland (2014) mention that companies need to develop tools for documenting and communicating the benefits of services when they perform a transition of their offerings from product- to service offerings (Ulaga & Loveland, 2014), which the transition from license-based on-premise solutions to SaaS solutions is an example of. For instance, producing presentable customer reference cases, white papers or simulation software. At Tieto, such material exists, however, these materials are dispersed in different locations, e.g. at directories on the internal intranet and various file hosting service which limits the accessibility and sharing.

By enhancing guidelines for knowledge management, directing people on how and where to store data in a unified way throughout the organization, Tieto would improve the externalization. As it is today, there are no incitements to make material public after a sales case since there are no processes for that. Thus, there is a need for employees to have broad personal networks within the organization to get access to knowledge, material and information which are dispersed locally on other employees' computers. Having a personal network is not necessarily bad but could hinder employees from accessing sources of information. Improving the externalization and information availability would also enable improved combination as employees could merge and add knowledge to the previously codified material. Sales material with high quality would set the baseline standard in the organization, which could be built upon. Today, material is combined within different teams to a larger extent than between different teams. Material could possibly be made available through an improved searchable system, facilitating the internalization, where employees acquire tacit knowledge over time from using the explicit knowledge.

Nonaka states that the knowledge tends to enlarge in scale and speed when more organizational actors become involved. This report suggests knowledge management improvements on an organizational level, rather than on a team level since it seemingly is well functioning on the team level. A challenge with a codification strategy was expressed to be that there is a need to keep documentation up to date which requires that there exist clear directives regarding this issue. Someone needs to be the owner and have the responsibility to ensure that shared material is kept up to date. Another concern regarding a codification strategy was mentioned by employees to be that it can hinder the creative and Nordic way of working.

SaaS solutions are found to suit standardized offerings because of its possibility to be made multi-tenant. Most clients are also found to desire standardized SaaS offerings due to several reasons of which cost efficiency is one of them. Standardization and cost efficiency suits a
codification strategy well as these are the proposed cornerstones of the business model appropriate for a codification KM strategy (Hansen et al. 1999).

Chapter Summary

This chapter identifies change agents at Tieto by comparing Case Company employees with the characteristics that Rogers (1983) presents. It also analyses what knowledge management practices that can improve the mediation of SaaS derived from the customer findings. It is found that Tieto is pursuing a codification strategy, which is the strategy that this study finds appropriate. However, this strategy would be improved if the codification practices are enhanced which further would make employees less reliant on their personal networks. The Case Company are found to have good capabilities for enforcing such a strategy.
7. Conclusion

This chapter addresses the Research Questions, and the Managerial Implications and Ethical considerations that may arise from implementing any of the recommendations. The last section presents the Limitation of the study and Suggestions for Further Research.

7.1 Addressing the Research Questions

There is a trend where IT providers and financial actors such as banks are moving towards SaaS offerings. Previously financial actors either purchased licensed applications or developed their own on-premise solutions, today there is another option which is to purchase cloud services such as SaaS solutions. Despite the growing popularity of cloud computing services, it is stated in the literature that it still is not very understood by many businesses, and concerns are described related to different areas. The purpose of this study is to investigate how an IT company can utilize knowledge management strategies to facilitate and improve their sales process in an industry transitioning to Software-as-a-Service offerings. To shed some light on the purpose of this study, a case study was conducted of an IT company within the financial industry. One main and three sub-research questions were formulated, which this section tends to answer by first responding to the sub research questions sequentially before answering the main research question.

Sub RQ1 How is SaaS mediated by change agents?

There are several roles which can be described as change agents, which are all involved in the sales processes and the communication of the benefits of adopting SaaS solutions to the potential clients. The sequential roles which Rogers (1983) describes matches well with the roles of which the change agents partake accurately. The identified change agents introduce the innovation as an alternative to the client through personal communication, presentations, and distribution of sales material. There is an information exchange relationship established, an analysis of the client's situation, actions to persuade the client to go from intent to action, such as informing opinion leaders. Often the sales process follows a similar process as demanded by the regulation of public procurement, even though that regulations do not include private actors within the financial industry. This means that there are commonly RFI's and RFP's communicated between the client and the IT provider. The manager of the compilation of RFI's and RFP's thus plays an important role in the mediation process of the responses that are sent to the client. After the adoption decision, change agents are stabilizing the adoption and creates a terminal relationship through communicating advice and support to facilitate the clients' usage.

There is a need for SaaS change agents to improve the mediating of their offerings as this study has shown that the understanding of SaaS generally not widespread, and the expectations of SaaS offerings sometimes differs between SaaS providers and the clients. The
misconceptions relate to what should and what should not be included in a SaaS delivery, and there can be different expectations of who is responsible for what during the implementation and usage period. Therefore, there is a need for change agents to be clear and distinct in their mediation of SaaS to ensure that a coherent and unambiguous message is delivered to the clients. This study suggests that improved knowledge management practices could facilitate the mediating process.

**Sub RQ2 What SaaS perceptions of adopters and potential adopters can be improved by using appropriate knowledge management practices amongst change agents?**

Customers have expressed that SaaS solutions have potential for several relative advantages in comparison to on-premise solutions. For instance, high cost-efficiency, better data security than in-house, on-demand scalability and the simplicity of not having to put focus on non-value adding activities such as IT maintenance or keeping applications compliant. However, there are differences in these perceptions and not all the potential adopters perceive and values the same advantages. For instance, not all clients perceive that the currently available solutions are providing relative advantages related to cost-efficiency or that they are providing better data security or easy scalability.

Customers values even quality and thus implementing a solution where the sales material achieves a uniform quality independent of the individual change agent will enhance the customer experience. The quality of sales material is sometimes described as uneven at the Case Company as it is dependent on personal and team performance. It is also posed that sales material is reinvented too often. Introducing processes which ensures accessibility of standardized sales material would facilitate mediation of the benefits with SaaS and ensure an even quality of the material that is presented to clients. It would also facilitate for the change agents to pick and choose high-quality material that has the most appropriate message for a specific customer. Standardized sales material which has assigned owners that keeps it up-to-date would also ensure that the characteristics that are deemed important by the potential adopters are consistently included in the presentations.

Economic aspects were often ranked as the most important characteristic for clients in their decisions to adopt SaaS solutions, where cost-efficient and cheap solutions where preferred before customized solutions. The clients expressed a wish for simple and transparent payment models to facilitate the calculation how a SaaS solution would affect them economically. SaaS solutions pricing is perceived as complex. Pricing estimates should preferably be made available quickly to the clients, and thus the knowledge regarding the pricing should be spread amongst the change agents for enabling that. To codify standardized pricing tariffs based on previous sales cases and make them readily available for the change agents could be a way of facilitating the communication of price estimates and propositions to clients.
**Sub RQ3 Does the transition to SaaS offerings suit a certain KM strategy?**

SaaS is described as suitable for standardized offerings since it allows multi-tenant environments, which together with a standardized application means low marginal costs for the provider to add additional customers. SaaS clients are found appreciating standardization in their SaaS deliveries as it is desirable to have as cost-efficient solutions as possible for their purchased IT systems, as these are perceived as non-value adding to their end-consumers. Supplying standardized products corresponds well with the appropriate business strategy that suits a codification KM strategy. With a codification KM strategy, an organization is more capable of providing fast, cost-efficient and standardized products.

The Case Company is found to conduct a codification strategy. However, employees are too reliant on their organizational personal networks, when comparing to Hansen's et al. (1999) recommendations for a codification strategy. Thus, a higher focus on codification activities are suggested. The Case Company has good capabilities for pursuing a more focused codification strategy as they have proper IT tools that could be used more and differently. It is also suggested that the Case Company should be clearer in guiding practices of how information should be stored and shared.

Material should be made easily available to achieve a more time-efficient procedure of sharing. A suitable place to share material could be in a repository on the intranet accessible to all employees. However, the procedures for uploading material must be simple, and there need to be employees responsible of keeping the material up to date. Material should be searchable and possible to browse depending on the type of customer needs, branch or if they are current or possible SaaS clients. This would furthermore give a better coherency in the sales material, where material with high quality would set the baseline standard in the organization. This knowledge management strategy would enhance the organizational learning capabilities as the externalization, combination and internalization knowledge modes could be enhanced.

The Case Company already conducts a codification strategy but the finding of this study suggests that they should strengthen it since a focused KM strategy is preferable to attain more of its benefits and to increase the organizational knowledge creation capabilities.

As part of a codification strategy, documenting the benefits of an innovation and making it presentable is important. This is also stated to be important in an organizational transition from selling products to selling services by Ulaga & Loveland (2014). One way for the Case Company to document and present the innovation would be by developing demo version of the SaaS offerings which presents the services to the clients in an accessible format, demonstrating its user interfaces and functionalities. This could be complemented with a library of tutorial videos which could be made available for change agents when mediating to the potential adopters.
Main RQ How could management of change agents’ knowledge facilitate mediation of innovations?

Several roles could be described as change agents who are involved in mediating SaaS to clients. SaaS is mediated through personal communication, presentations and sales material. The study has found that there sometimes are differences in expectations of SaaS offerings between clients and suppliers. There is, therefore, a need for change agents to be clear in their mediating of SaaS, and this study suggests that the mediation of SaaS could be facilitated by knowledge management practices.

Sales material is sometimes described as too depending on personal performance in the Case Company, and standardized sales material would, therefore, facilitate the mediation of SaaS as it would ensure even quality. Introducing processes that ensure accessibility to standardised sales material would also ensure quality as the material would not be personally bound to change agents. Making material easily searchable would also allow choices for change agents to select material which provides the most appropriate message to a specific customer since customers were found to have different preferences. As economic aspects often were ranked as the most important characteristics amongst clients, standardized SaaS offerings were preferred before customized solutions, and customers wanted SaaS for the IT systems that are non-value adding to their end consumers. Clients also expressed their wish for simple and transparent payment models. Documenting standardized pricing tariffs based on previous sales data would, therefore, be a way of facilitating the mediation of the innovation.

SaaS allows multi-tenant environments and is suitable for standardized offering. This corresponds well with a codification knowledge management strategy as an organization gets more capable of providing cost-efficient and standardized products. The Case Company already conducts a codification strategy, but not to a sufficient extent as employees are too reliant on their personal networks. A higher focus on codification activities is therefore suggested as means to facilitate change agents’ mediation of innovation, which the Case Company has good capabilities of pursuing. Adopting to such strategy would furthermore improve the organizational learning capabilities as the knowledge conversion modes would be enhanced.

7.2 Managerial Implications

The findings of this thesis suggest changes in knowledge management practices and strategy for the Case Company, which undoubtedly would lead to managerial implications if followed. Reaping the benefits from a codification strategy require employees to adapt to given processes, making material available by externalizing it according to guidelines. Adopting new processes could need initiation of change projects, which would require change management actions as means of handling problems that arise from such projects on individual, team and organizational levels. Tieto is furthermore a Nordic company, not being as process-oriented as their foreign competitors. This is stated to give employees more mandate which is a typical Nordic way of working. Knowledge management practices would
withdraw working freedom to some extent, which possibly may lead to opposition or lessened motivation amongst some employees. It is, therefore, a necessity to evaluate what processes that are most appropriate for implementing in the specific cultural context that is existent.

7.3 Sustainability Aspects

The findings suggest that a codification strategy is a suitable strategy for managing the knowledge of the change agents. This suggestion can be argued to concern all the three dimensions of sustainability, i.e. the economic, the social and the environmental dimension for organisations providing SaaS solutions.

The economic dimension is concerning how well a company is utilizing its human and material resources (Ottoson & Parment 2015). A SaaS provider who follows the recommended KM strategy of this study uses its knowledge resources more efficiently. A focus on the codification of knowledge and standardization of sales material would allow cost-efficient reuse of the knowledge, and it would allow the change agents to work more efficiently and thus the solution provider to meet the client's demands efficiently. Knowledge management also assures that Knowledge is kept within an organization even if employees change positions or jobs.

The social dimension of sustainability would also be concerned as the salespersons working methods would be affected. Having standard material, easily accessible would alleviate the workload for the change agents as they will not need to reinvent material that already exists. The results for the change agents would be that they need to focus less on mediating generic information and could focus more on the case-specific aspects as previously mentioned. However, introducing a more focused KM strategy would also mean more guidelines for the employees to follow and thus they would be less free to choose how to conduct their work.

The findings are not considered to have substantial effects on the environmental dimension of sustainability. However, pursuing a codification KM strategy means less dependency on face-to-face knowledge transfer (Hansen et al 1999), thus likely reducing the amount of travelling that is needed for employees at a large multinational IT provider such as the Case Company. Reduced travelling has potential to reduce the carbon footprint from the company's as travelling is commonly done with transportation that runs on fossil fuels. Also, a potential consequence of improvements of the SaaS sales is that it could lead to a lower carbon footprint in society as cloud technology has claimed to be an energy efficient technology as it brings better utilization of data centers (Berl et al., 2010).

7.4 Limitations and Suggestions for Further Research

This study has its limitations, where some could be explained by the broad topic being invested. Since the findings of the study are derived from the context of the Case Company it may not be as applicable in other contexts. Furthermore, within the context of the study,
comparative studies could be done beyond the delimitations such as investigating the same topic in other industries or markets.

The findings of this study originate from a single case study, and a qualitative approach was used. Empirical findings from interviewees are biased by the subjective opinions of the interviewees and little documented material was found regarding the topics that were brought up during the interview sessions. This reduced the possibilities of triangulating the findings and decreases the reliability and generalizability of the study. An alternative research approach would be quantitative, involving a higher number of participants. This would especially be suitable for investigating the clients' perception of SaaS as knowledge management practices are experienced as more complex, requiring open-ended questions, at least in this case study. Client perception of SaaS as an innovation depends on aspects such as the size of the organization and if they currently are adopters or not, which this study only succeeded to cover briefly. Quantitative studies about SaaS perceptions have been conducted by, e.g. Martins et al., 2016, but these did not relate to financial SaaS offerings solely. Furthermore, the interviewees in this study had IT experience are not exclusive opinion leaders at client companies. Another future topic to investigate could therefore be how the perception of SaaS differs between opinion leaders within client organizations.

This study has put the focus on change agents as the linkage between supplying organization and clients and has not focused on the product development side of SaaS. Another topic for further research could focus on how SaaS offerings should be developed, rather than mediated, to meet the expectations of the clients better. A possible approach would be investigating what tools or methods software developers could utilize for gaining client insights, and how that should affect the roadmap of the SaaS offering.

Chapter Summary

This chapter addresses the research questions of this report. There are many roles at Tieto which are identified as change agents, mediating SaaS to clients by the presentation of sales material and personal communication. It is further suggested that economic aspect is the most important SaaS characteristics among clients and that standardized offerings were preferred before customized solutions. This corresponds well with a codification knowledge management strategy which the Case Company already is conducting, however not to the extent as recommended by the theory. Pursuing a more focused codification strategy identified as an area that Tieto have good capabilities of pursuing.

Adapting to a codification strategy would likely have managerial implications in forms of requiring change management actions, on different levels of the organization, as this strategy brings new processes that employees need to align with. Pursuing a more focused codification strategy is further identified to affect all three levels of sustainability, but to various extent. This study also has its limitations, and future studies could either have a quantitative approach, investigate how the perception of SaaS differs within an organization, or focus on how SaaS offerings could be developed to better meet customer expectations.
References

Personal communication:


Employee 3. Personal interview. 2018-02-02.
Employee 5. Personal interview. 2018-02-12.
Employee 6. Personal interview. 2018-03-05.
Employee 7. Personal interview. 2018-03-05.
Employee 8. Personal interview. 2018-03-06.

Literature:


BRYMAN, A. 2012. Social Research Methods, Liber AB.


