

Aatu Laaksonen

**FACTORS AFFECTING CLOUD-BASED CRM SYSTEM
PROCUREMENT PROCESS**



JYVÄSKYLÄN YLIOPISTO
INFORMAATIOTEKNOLOGIAN TIEDEKUNTA
2022

ABSTRACT

Laaksonen, Aatu

Factors affecting cloud-based CRM system procurement process

Jyväskylä: University of Jyväskylä, 2022, 67 pp.

Information systems science, Master's Thesis

Supervisor(s): Marttiin, Pentti

This thesis aims to identify the factors affecting cloud-based customer relationship management (CRM) procurement process. Procurement process can be defined as a purchasing process of goods or products. More relevant for this study, information technology procurement process, is a more complex process which often includes modern technology such as cloud. The area of information technology procurement process is not heavily researched area. The sheer amount of information technologies and systems that can be procured causes the viewpoints on the area to be excessively varied thus lacking in research. The topic also includes a psychological side in it through theories regarding human element in decision making, such as contingency theory.

The research consists of two main sections. The first one is a literature review section. In this section, earlier research is reviewed to bring basis to the empirical section. The second part is the empirical section which was conducted in a form of a case study. The case study aims to find out the factors that affect a cloud-based procurement process. The material is gathered through semi-structures interviews. The interviewees represent different companies, fields of work as well as different cases though they all have in common the cloud-based procurement process. The interview questions were formed from the basis of the literature review section of the research.

The findings from the case study align partly with the results from the earlier research on the topic. Main differences can be seen in the amount of affect that the factors have, especially in security and user experience. Whilst the earlier research mention security as an affecting factor often, this research only mentions it once. On the contrary user experience and simpleness are mentioned in this research multitude of times whilst earlier research struggles to find it a major affecting factor in a cloud-based procurement process.

Keywords: Cloud, Information System, Software-as-a-service, SaaS, IT Procurement, Procurement Process, Salesforce

TIIVISTELMÄ

Laaksonen, Aatu

Pilvipohjaisen asiakkuudenhallintajärjestelmän hankintaprosessiin vaikuttavat tekijät

Jyväskylä: Jyväskylän yliopisto, 2022, 67 s.

Tietojärjestelmätiede, pro gradu -tutkielma

Ohjaaja(t): Marttiin, Pentti

Tässä tutkielmassa selvitetään pilvipohjaisen asiakkuudenhallintajärjestelmän hankintaprosessiin liittyviä tekijöitä. Hankintaprosessi voidaan määritellä olevan tavaran tai palvelun ostamisen prosessina. Tälle tutkimukselle relevantimpaa on tietojärjestelmän hankintaprosessi, joka on paljon monimutkaisempi prosessi, sillä siihen kuuluu usein moderneja teknologioita, kuten pilvi. Aihetta ei ole tutkittu tietojärjestelmätieteen alalla kattavasti. Mahdollisten tietojärjestelmien tai teknologioiden silkkä volyymimäärä aiheuttaa sen, että aiheella on laaja määrä näkökulmia, joita tutkia. Aiheeseen on myös mahdollista liittää psykologinen puoli ihmiselementtiin liittyvien teorioiden kautta. Esimerkki tällaisesta teoriasta on kontingenssiteoria.

Tämä tutkimus koostuu kahdesta pääosiesta. Ensimmäinen osio on kirjallisuuskatsausosio. Tässä osiossa aiempaa tutkimusta tarkastellaan antamaan pohjaa tutkimuksen empiiriselle osuudelle. Tutkimuksen toinen osuus on empiirinen osuus, joka toteutettiin tapaustutkimuksen muodossa. Tapaustutkimus pyrkii määrittämään pilvipohjaisen tietojärjestelmän hankintaprosessiin liittyviä tekijöitä. Materiaali on kerätty puolistrukturoitujen haastattelujen kautta. Kaikki haastateltavat edustavat eri yritystä, toimialaa, ja tapausta, vaikkakin kaikilla haastateltavilla on yhteistä pilvipohjaisen tietojärjestelmän hankintaprosessi. Haastattelukysymykset muodostettiin kirjallisuuskatsauksen perusteella.

Tutkimuksen löydökset ovat osittain linjassa aikaisemman tutkimuksen kanssa. Suurin ero löytyi vaikutuksen määrästä, joka tekijöillä on. Eritoten turvallisuudessa ja käyttäjäkokemuksessa eroja oli huomattavasti enemmän. Aiemmassa tutkimuksessa mainitaan turvallisuus vaikuttavana tekijänä usein, siinä missä tässä tutkimuksessa se tulee esiin vain kerran haastatteluissa. Päinvastoin käyttäjäkokemus ja helppous mainitaan tässä tutkimuksessa useasti, kun taas aiemmalla tutkimuksella on vaikeuksia löytää tätä merkittävänä tekijänä pilvipohjaisen tietojärjestelmän hankintaprosessissa.

Asiasanat: Pilvi, Pilvipohjainen, Software-as-a-Service, SaaS, tietojärjestelmän hankintapäätös, hankintapäätösprosessi, Salesforce

FIGURES

| | |
|---|----|
| Figure 1 Basic concept underlying user acceptance model (Venkatesh et al., 2003). | 17 |
| Figure 2 Theoretical framework of Industry 4.0 technologies (Frank, Dalenogare and Ayala, 2019)..... | 19 |
| Figure 3 The rational decision-making process model (Schoenfeld, 2011) | 20 |
| Figure 4 Software procurement process (Howcroft and Light, 2006)..... | 21 |
| Figure 5 Conceptual procurement process (Poon and Yu, 2006)..... | 22 |
| Figure 6 IT-service preparation process (Jede and Teuteberg, 2015) | 23 |
| Figure 7 IT-service procurement process (Jede and Teuteberg, 2015) | 24 |

TABLES

| | |
|---|----|
| Table 1 Characteristics of Cloud Models (Saraswat and Tripathi, 2020)..... | 13 |
| Table 2 Cloud Service Models Resource (Al-Ghofaili and Al-Mashari, 2014).... | 14 |
| Table 3 The four categories of commodities (Wagner, Padhi and Bode, 2013).. | 19 |
| Table 4 Factors affecting cloud-based procurement process based on the literature..... | 27 |
| Table 5 Role, Title, and experience of the interviewees | 32 |
| Table 6 Company of the interviewee and the procured system | 33 |
| Table 7 Factors affecting cloud-based procurement process based on interviews | 51 |

TABLE OF CONTENTS

| | |
|---|----|
| ABSTRACT | 2 |
| TIIVISTELMÄ | 3 |
| FIGURES | 4 |
| TABLE OF CONTENTS | 5 |
| 1 INTRODUCTION | 7 |
| 1.1 Research problem and question | 7 |
| 1.2 Research method..... | 8 |
| 1.3 Research structure | 8 |
| 2 CLOUD-BASED INFORMATION SYSTEMS | 10 |
| 2.1 Cloud-based Systems | 10 |
| 2.1.1 Definition of cloud-based systems..... | 10 |
| 2.1.2 Benefits of cloud-based systems..... | 11 |
| 2.1.3 Cloud models..... | 13 |
| 2.2 Cloud Service Models | 13 |
| 2.2.1 Definition of SaaS systems | 14 |
| 2.2.2 Definition of PaaS systems..... | 15 |
| 2.2.3 Definition of IaaS systems..... | 16 |
| 3 IT PROCUREMENT PROCESS..... | 17 |
| 3.1 Definition of IT procurement | 17 |
| 3.2 IT procurement process models | 19 |
| 4 LITERATURE REVIEW SUMMARY..... | 25 |
| 5 METODOLOGY | 29 |
| 5.1 Research method..... | 29 |
| 5.2 Phases and goals of the research | 30 |
| 5.3 Validity and reliability | 31 |
| 6 RESULTS | 32 |
| 6.1 The procured systems and services | 34 |
| 6.2 The procurement process progression | 35 |
| 6.3 Competitional aspect and time pressure..... | 39 |
| 6.4 The main factors affecting the process..... | 40 |
| 6.4.1 User experience..... | 41 |
| 6.4.2 Price | 42 |
| 6.4.3 Upgradeability and updateability | 43 |
| 6.4.4 Human aspect and communication..... | 44 |
| 6.5 Successes, difficulties, and communication..... | 45 |

| | | |
|-------|--|----|
| 7 | ANALYSIS..... | 49 |
| 7.1 | Conclusions..... | 49 |
| 7.1.1 | The procured systems and services | 49 |
| 7.1.2 | The procurement process progression..... | 50 |
| 7.1.3 | Competitional aspect and time pressure | 50 |
| 7.1.4 | The main factors affecting the procurement process | 50 |
| 7.1.5 | Successes, difficulties, and communication..... | 53 |
| 7.2 | Utilizing the results | 54 |
| 7.3 | Limitations and critical inspection..... | 54 |
| 7.4 | Future research..... | 55 |
| 8 | SUMMARY..... | 56 |
| | REFERENCES..... | 58 |
| | ANNEX 1 INTERVIEW QUESTIONS | 67 |

1 INTRODUCTION

According to Gartner (2021) **software-as-a-service (SaaS)** reached market share growth of 16.3% in 2020 overall gaining worth of \$105.6 billion. The use of **cloud computing (CC)** increased 13.9% from 2020 to 2021 in European union enterprises now achieving high of 41% overall (*Cloud computing - statistics on the use by enterprises - Statistics Explained*, 2021). The common trend amongst the topics indicates the overall growth that the cloud-based SaaS systems are managing. SaaS and Cloud are trends that have been commonly recognized as a new way of assembling information system infrastructure models. (Ojala, 2013; Araujo, Vazquez and Cota, 2014; Yu and Lin, 2014; Lee, Wong and Hoo, 2017).

Information technology **procurement process** is the process of acquiring goods or services through buying them (Hellsten *et al.*, 2016). Procurement process is often inevitable due to the nature of constant change and progress in the world (Hu and Liu, 2008). Researching the topic due to these trends makes it rather relevant for the field of information science hence the topic of this thesis.

1.1 Research problem and question

This thesis answers the main question regarding the factors affecting the procurement process of an information system. The thesis explores more specifically the procurement process related to the transformation from company's own on-premises system to cloud-based systems such as SaaS. The main research question that the thesis aims to answer is:

What are the factors that affect the procurement process of a cloud-based CRM system?

1.2 Research method

The literature for the thesis is compiled from mostly research done on the field of information systems. Keywords while looking for the research material have been Cloud, Cloud Computing, Cloud service Models and IT Procurement process (acquisition, implementation).

The research is focused on procurement process of cloud computing elements. The empirical part of the research is done by conducting interviews with companies which have gone through specifically the procurement process of cloud solution during the last 3 years.

The research is relevant since all the companies interviewed have gone through the process in the recent past. Building up on the relevancy of the research there is recognizably a lack of studies done from the topic according to Moe (2014). Although cloud computing is recognized as one of the growing trends of recent times and its uses such as flexibility are more typical research topics (Poon and Yu, 2010; Wagner, Padhi and Bode, 2013; Jede and Teuteberg, 2015), Nicoletti (2016) mentions that the specific topic of cloud procurement process is not commonly researched topic.

The literature is gathered using method from Okoli and Schabram (2010) in which the source material is searched by keywords which have been selected in advance. The keywords are mentioned in the beginning of the chapter. The keywords or parts of them are used to find relevant source material for the study. The thesis used also heavily material procurement tactic called backwards search. It is defined by Okoli and Schabram (2010) to mean the process of finding source material from the reference section of literatures used as a source material already. The source material mostly consists of conference releases and scientific articles. The source material is mostly gathered from the IEEE (Institute of Electrical and Electronics Engineers) Xplore digital library as well as Google Scholar library.

The literature gathered needs to go through an evaluation where it is determined if it is valid and trustworthy enough. The source material needs to be relevant for the thesis. The material needs to provide notable research and its publishing site needs to be valid enough. After reviewing the validity of the source material, it is used to form a comprehensive review of firstly the cloud computing topic as well as the information system procurement process.

The empirical section consists of a case study done to a Salesforce focused group. This group has formed through a main contact who works in the field of cloud-based CRM system procurements and more specifically Salesforce.

1.3 Research structure

This research focused on the factors that affected a cloud-based system procurement process. The research consists of two sections. The first section is a literature review part of the subject. In this part the focus is on earlier research on the topic. The second part consists of an empirical section. The empirical section consists of

an interview section as well as analysis section. The interview section includes 7 interviews in it from people who have been heavily involved in a cloud-based system procurement process. The research question in the study is “What are the factors that affect the procurement process of a cloud-based IT-system?”. The question played a role in the first section in which the question was answered through a literature review section. In the empirical section the question was one of the main questions asked whilst other questions formed a basis for the legitimacy of the empirical section.

The literature review section starts with an overview of cloud-based information systems. Cloud-based system is defined by National Institute of Standards and Technology in the chapter 2. The chapter consists of benefits of cloud-based systems which is an important topic to cover since it allows for overall understanding of capabilities of cloud-based systems.

The chapter explores different cloud models as well as different cloud service models. Understanding the models is important to the nature of the study since cloud-based systems can be varied thus more difficult to comprehend. The chapter proposes the cloud-based systems as being a notable technology already in the field of IT. Cloud can be seen as a modern industry 4.0 technology which allows for greater efficiency, simplicity, and usability.

Chapter 3 in the research focuses on the procurement process. Procurement process is the process of purchasing goods or services. The chapter focuses on IT procurement process since it is the most relevant viewpoint for this research. The different procurement process models are presented in the chapter 3. Procurement process can be deemed as inevitable. Especially IT procurement processes have multiple forms which all differ from each other. Products and services nowadays are increasingly complex.

Chapter 4 is the literature review section which forms a basis for the empirical section of the study. The chapter 4 includes a table which summarizes the factors that affect cloud-based CRM procurement processes. The chapter 4 gives a reference point to the empirical section and its results.

The empirical section was a case study which consists of 7 individuals who represented 7 different smaller cases of the same phenomenon. The phenomenon researched is a cloud-based CRM procurement process. The research is a qualitative study which consists of semi-structured interviews. The interview questions are formed from the literature review section and are viewable in the annex section. The interviews have a free formed flow although they follow the structure of the interview frame. All the interviewees represent a different company thus a different case. All the interviewees were heavily involved in the procurement process. In the empirical section, one can notice the difference in the procurement processes which further proves the overall variety in cloud-based procurement processes. The interviewees represent a large variety of knowledge, role, companies, and processes.

2 CLOUD-BASED INFORMATION SYSTEMS

In this chapter the focus is on **cloud-based information systems**. The chapter explores cloud-based systems as well as the different **cloud service models**. The different cloud service models explored are **software as a service (SaaS)**, **platform as a service (PaaS)** and **infrastructure as a service (IaaS)**. The chapter aims to give definitions for these terms. Benefits related to the topics are also covered ending the chapter with summary of the topic discussed.

2.1 Cloud-based Systems

According to Morgan and Conboy (2013) the **cloud computing (CC)** industry was estimated to be worth over \$35 billion in 2013. The same cloud computing industry is estimated of being worth over \$400 billion in 2022 (Vailshery, 2022) which emphasizes the immaculate growth that the industry has had. Cloud computing is marked as one of the more exceedingly advantageous applications for companies (Pahl, Xiong and Walshe, 2013; Fisher, 2018). It allows for long-term savings in costs as well as simpler access to data with increased freedom whilst providing economically a better solution (Amron, Ibrahim and Chuprat, 2017). Cloud computing is theorized by Saedi (2016) to not only penetrate organizational level but also daily lives of people. Cloud computing has an ability to provide high scalability and dynamic resources which could be, and already is, used in real-life applications such as cloud storages. (Saedi, 2016). Büyüközkan, Göçer and Feyzioğlu (2017) list cloud computing's capability to yield next-generational access to infrastructure and application services, its reason for an immense interest it has gained in the information technology industry.

2.1.1 Definition of cloud-based systems

The National Institute of Standards and Technology (NIST) defines cloud computing as a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction (Mell and Grance, 2011). The definition from NIST is heavily present on the chapter since it is often regarded as an official definition for the term and it is regulated by the Federal Information Security Management Act (FISMA) of 2002, Public Law 107-347. The definition includes five characteristics, four deployment models and three service models. The three service models include software as a system model, platform as a service (PaaS) model and infrastructure as a service (IaaS) model. The different models and their definitions are discussed in a later section. The different deployment models are private cloud, community cloud, public

could and hybrid cloud. The essential characteristics are on-demand self-service, rapid elasticity, measured service, resource pooling and broad network access.

Some amount of variations for the definition exist, with some of the elements of cloud computing definition by NIST included or excluded. Büyüközkan, Göçer and Feyzioğlu (2017), Rehman, Hussain and Hussain (2011) as well as Ojala (2013) mention the subscription revenue model of cloud computing in their definition for cloud computing technology (CCT). This can be interpreted to mean that a distinct part of cloud computing definition is its revenue models that extricate them from traditional on-premises models. One of the most mentioned features of cloud computing in manifold of research articles is its unique storage and service solutions which makes them the most distinguishable terms whilst defining cloud computing. (Mell and Grance, 2011; Saedi, 2016; Wibowo and Deng, 2016; Büyüközkan, Göçer and Feyzioğlu, 2017; Ponsizewska-Maranda, Matusiak and Kryvinska, 2017).

2.1.2 Benefits of cloud-based systems

One of the essential characteristics of cloud computing by NIST is on-demand self-service. Self-service allows efficiency in models such as DevOps. (Rompicharla and P. V, 2020). According to Jabbari et al. (2016) cloud computing is considered an enabler for DevOps, in particular as a competitiveness advantage. In short condensing from Jabbari et al. (2016), DevOps is a development methodology aimed at bridging the gap between development and operations with an emphasis on communication and collaboration. If it is determined that the cloud computing is an enabler for DevOps, and especially the self-service function that the cloud computing has, it is quite a remarkable notion that the considerably popular development methodology DevOps revolves around cloud computing.

Cost benefits are listed by Rehman, Hussain and Hussain (2011) as one of the assets that cloud computing holds. Cloud computing has a modern revenue model with its pay per use and subscription models. (Rehman, Hussain and Hussain, 2011; Boillat and Legner, 2013; Ojala, 2013). The cloud service revenue models though, do not necessarily result in cost reduction indisputably. In research conducted by Fisher (2018), he points out that on-premise model might prove more cost effective in the long run. Though on-premises systems require a high confidence in planning and implementing the system. The flexibility of cloud services might result in a more convenient solution for lot of companies since discharging the company's IT services opens up a possibility for reallocation of resources. (Fisher, 2018).

As mentioned, there is a lot of perspectives that influence the cost context and producing a majorly successful on-premises model requires a lot of knowledge and effort whereas cloud migrations are far more flexible in their nature. In an extended research conducted by Misra and Mondal (2011) they unveiled that a considerably large portion of companies have gained financial benefits from adapting cloud computing.

Whilst researching content-based image retrieval (CBIR) efficiency, Meena and Bharadi (2016) found out that a cloud system contains a significant amount

more of performance compared to local systems. CBIR is an image retrieval service which identifies the image's colour, texture, and shape to retrieve the picture. In the research the CBIR was connected to Amazon Web Services (AWS) which is one of the major cloud services in the market. The cloud system required only 5 minutes to process a very high computation power requiring vendor feature extraction whereas the local system needed 45 minutes for the same operation. Concluding from the research one might argue that performance could be listed to being one of the benefits of cloud computing. Cloud computing's advantage in this situation was the off-loaded computing power and storage that are include in the cloud's functionalities.

Information and data availability is one of the essential components of business process management (Lee, Wong and Hoo, 2017). The understanding of existing operations and infrastructures is heavily influenced by the amount of information and data available inside the company. Cloud based systems have extended scalability and availability due to the lack of limitations in unmodifiable hardware. (Lee, Wong and Hoo, 2017).

Kolluru and Mantha (2013) researched the cloud integration strategies and found out that the integration and procurement process of cloud-based systems can have very similar abilities compared to the cloud computing overall. Planning the integration and procurement is crucial in making sure that the process is as flowing as smoothly as possible. The process can be attempted to be made with same scalability and flexibility abilities as cloud computing overall possesses (Kolluru and Mantha, 2013). The cloud services can be used to gain certain agility to the process. The complex application integration can be transformed into reusable service-based connectivity between the company and the cloud. (Kolluru and Mantha, 2013). The migration of cloud does not have established processes which has made it difficult recognize any common consensus regarding cloud migration. (Pahl, Xiong and Walshe, 2013).

The benefits from cloud computing can be categorized differently based on the viewpoint chosen. The benefits can be divided into two categories being non-functional requirements and technical requirements. *Quality of service (QoS)* is one of the main non-functional requirements set often in the matrix of cloud computing impact. According to O'Dwyer and Neville (2017) the quality of service in cloud computing is nowadays measured by social media as well as customer and referral feedback. O'Dwyer and Neville (2017) reviewed the consistency of QoS in software-as-a-service (SaaS) deployments. They determined that the QoS in SaaS is primarily compelled by three drivers: 1) the pace and complexity of incoming workload, 2) the design and procurement of the SaaS system and 3) the different individual QoS variables in the cloud platform.

Although it can be debated that on-premise models provide more cost-efficient model compared to cloud systems (Fisher, 2018), the cost-cutting benefit is often mentioned in research due to its overall simpleness compared to the on-premise systems. (Boillat and Legner, 2013; Ojala, 2013; Araujo, Vazquez and Cota, 2014; Alotaibi, 2016). The cost-cutting benefits are also influenced by other factors such as setup cost, cost-functionality-level match, simpler architectures, virtualization, re-distribution of resources and quick time to market ability. (Araujo, Vazquez and Cota, 2014).

2.1.3 Cloud models

There are four distinct cloud models based on the openness that they serve. The four models are public cloud, private cloud, hybrid cloud and community cloud. Saraswat and Tripathi (2020) illustrate the different models and their characteristics in the following Table 1:

Table 1 Characteristics of Cloud Models (Saraswat and Tripathi, 2020)

| Attributes | Public | Private | Community | Hybrid |
|------------------------|---|---|--|------------------------------------|
| Scope of Service | Open for public and large industrial groups | Open for licensed users, single organizations | Open for community users that have shared concerns | Open for public and licensed users |
| Owned by | Always third party | Single organization | Several organizations | Organizations and third party |
| Security | Low | Very high | High | Medium |
| Location | Off-premises | Off or on premises | Off or on premises | Off or on premises |
| Cost of implementation | No initial cost | High initial cost | Depends on the number of organizations | medium |

Gathering from the table one can notice the different attributes that the cloud models have. In public cloud all the users gain all the services from the providers. (Amron, Ibrahim and Chuprat, 2017). According to Meena and Bharadi (2016) the public cloud is not as cost effective as for example hybrid cloud because all the systems run on the same public clouds. Public cloud could also be argued to be less secure since it is open for the public. Public cloud offers easy accessibility and low or no entry cost which makes them very convenient solution for easy-to-use cloud platform.

2.2 Cloud Service Models

Software as a service (SaaS) is a helping factor amongst organizations due to its capability to avoid capital expenditure and its pay-per-use functionality which allows for companies to pay for functionality as an operational expense. (Godse and Mulik, 2009). According to Godse and Mulik (2009) SaaS is often rarely used to completely satisfy organization's information system needs but one of the more popular applications for SaaS is Sales Force Automation (SFA).

SaaS has two popular service model "cousins" which are **platform as a service (PaaS)** and **infrastructure as a service (IaaS)**. The main difference in the models is the amount of on-premises infrastructure the company presents to the equation. SaaS model is the most off-premises heavy being able to offer almost

every infrastructure layer by itself. In the PaaS model application and data layer are handled by on-premises systems but other layers such as servers, storage and networking are handled by the service. The most on-premise heavy service model is the IaaS in which services, storages, servers and virtualizations are the layers which are offered through off-premise resources. (Saraswat and Tripathi, 2020; Sowmya, Deepika, and Naren, 2014). In the following Table 2 from Al-Ghofaili and Al-Mashari (2014) the cloud service models are illustrated as for which resources are provided by the customer service provider (CSP) and what are to be provided by the customer itself.

Table 2 Cloud Service Models Resource (Al-Ghofaili and Al-Mashari, 2014)

| Cloud Model | Service | Application Software | Soft-ware | Operating System | Virtual resources |
|-------------|---------|----------------------|-----------|------------------|-------------------|
| SaaS | | CSP | | CSP | CSP |
| PaaS | | Customer | | CSP | CSP |
| IaaS | | Customer | | Customer | CSP |

As seen from the Table 2, the main difference in the different cloud service models is the number of resources offered by the customer service provider. Understanding the different cloud service models is important for this research since it can vary heavily which service model or combination of these models' companies procure. It is important to gain context to the different aspects of the service models to allow for greater comprehension of their role as a procured system.

2.2.1 Definition of SaaS systems

One of the more popular definitions for the term software as a service comes from Gartner (2020) who's definition is that software as a service (SaaS) is software that is owned, delivered and managed remotely by one or more providers. The delivered service is software based on common code and data definitions which is used by one-to-many model by the customers. The service is available at any time on pay-for-use basis or as a subscription basis. Simpler definition from Godse and Mulik (2009) is that SaaS is a software delivery paradigm in which the software is hosted off-premise and delivered via web.

SaaS allows all the customers to have prevalent infrastructure. SaaS grants the users an access to the service through the web which creates an environment in which no installation of software or hardware is required (Sowmya, Deepika, and Naren, 2014). SaaS offers a full-on cloud environment where customers can shift their on-premises applications. (Pahl, Xiong and Walshe, 2013). SaaS is defined by Araujo, Vazquez, and Cota (2014) to be highly flexible, easily accessible and low costing technology that supports business processes. It is speculated that companies are to adopt a SaaS model as a compulsory service model considering benefits associated with it. SaaS model's competitiveness advantage might become inevitable element of its growth. (Araujo, Vazquez and Cota, 2014).

SaaS compared to traditional on-premises systems can be differentiated with its three main attributes: IT outsourcing, remote hosting, and software

licensing practises. (Wu, Wortmann and Tan, 2014; Alotaibi, 2016). In SaaS the CSP are responsible for sourcing the software development, IT infrastructure, data backup, security, maintenance, user support as well as software delivery platform. Service level agreement (SLA) is a contract which guarantees a certain reliability level for the customer of the services hosted (Alotaibi, 2016). The SLA plays a role in ranking different CSP's since it is the official mutual understanding for the level of service agreed. (Anjana *et al.*, 2019). Hosting includes the pay per use product model as well as the overall consensus that the software is hosted by the CSPs. (Alotaibi, 2016). There are multiple of revenue models available in SaaS. Subscription (also known as software rental), pay per use of cloud services, and others such as revenue sharing and affiliate services are revenue models identified by Boillat and Legner (2013) as well as Ojala (2013). The subscription model is simply a negotiated fee which the customer pays for the software rental period. Pay per use model is explanatory in its title being only needed to pay by the customer when the service is used (Boillat and Legner, 2013; Ojala, 2013). The licensing aspect in SaaS means that the software has only one version which customers can access. This allows for customers to possess an equality and fairness as well as instant access to up-to-date updates in the system. (Alotaibi, 2016).

2.2.2 Definition of PaaS systems

Platform as a service (PaaS) is a model of service in which the platform is offered as a service. According to Sowmya, Deepika, and Naren (2014) this primarily contains resources such as operating system, programming language, database or a web server. The resources have an ability to scale to the applications demands. In PaaS, applications are made on existing programming languages or API. Customers are not to manage their digital machinery but rather entrust on the computing and storing resources provided by the platform's framework (Pahl, Xiong and Walshe, 2013).

The platform element in PaaS allows for software developers to have and deployment and development environment through cloud computing technology. (Boillat and Legner, 2013). According to Boillat and Legner (2013) this expands the value proposition overall for SaaS solutions. The development aspect of PaaS introduces a possibility for creating value through the add-on content that the developers create. The developers use the platform to create add-on applications which then can be sold to the SaaS users creating the value. The most successful procurement of such environment is done by Salesforce and its components Salesforce Sales Cloud and Force.com. (Boillat and Legner, 2013).

Customers are able to model, design develop and test the applications they have created directly on the cloud platform. (Saraswat and Tripathi, 2020). The cloud aspect plays a major role in PaaS. In accordance with Saraswat and Tripathi (2020) the five main benefits of cloud computing are multi-tendency, scalability, elasticity, pay per use, and self-provisioning. PaaS, being based on cloud computing, luxuriates in these benefits. PaaS specifically revels in the self-provisioning aspect of cloud computing. Boillat and Legner (2013) put emphasis on the online

tools which allow the developers to publish applications, collaborate, communicate, or find resources by virtue of PaaS.

2.2.3 Definition of IaaS systems

Infrastructure as a service (IaaS) is the last notable service model from the cloud service model family. IaaS is the most least off-premises service model that offers infrastructure, meaning essential resources such as storage and network, as the service. (Saraswat and Tripathi, 2020). Sowmya, Deepika, and Naren (2014) describe IaaS as a comprehensive platform that supplies mentioned essential resources without requiring for the customer to have any hardware on site. They also suggest that the service model is used by large scale of enterprise customers and that it is often referred as a hardware as a service. Hardware as a service reference comes from the main role of IaaS as an off-premise hardware-like service provider (Sowmya, Deepika and Naren, 2014).

IaaS supplies an at-will produced operated servers, storage systems, or networking resources. Thus, instead of purchasing hosted servers or servers, customers can rely on attaining the infrastructure through virtual machines offered by IaaS (Pahl, Xiong, and Walshe, 2013). Khajeh-Hosseini, Greenwood and Sommerville (2010) argue that IaaS is the most accessible layer for companies since migration between systems can happen without having a need to change any applications.

IaaS allows companies to outsource parts of their infrastructure in a more low threshold manner allowing for simple benefits (Khajeh-Hosseini, Greenwood and Sommerville, 2010). Although implementing IaaS systems can provide monetary benefit along with increased simpleness and flexibility, cloud computing migration includes socio-technical issues such as decrease in customer satisfaction (Khajeh-Hosseini, Greenwood and Sommerville, 2010). IaaS allows for on-demand dynamic resource acquirement or releasement which can be seen as increasingly important feature for services (Manvi and Krishna Shyam, 2014).

3 IT PROCUREMENT PROCESS

In this chapter the topic of information technology procurement is researched. The aim of the chapter is to provide a definition for IT procurement as well as provide in-practise examples for the subject. The aim for the chapter is to gain overall insight into the process of IT procurement especially from the viewpoint of the factors that affect the procurement process.

3.1 Definition of IT procurement

In its simpleness, the definition for information technology procurement is the process of acquiring good or services through buying them. (Hellsten *et al.*, 2016). Acquisition is often seen as a synonym for procurement but the main difference between the terms is that acquisition is seen as more strategic term. (Hellsten *et al.*, 2016). Procurement and acquisition are trends which all the companies must face since the world is ever-changing. As the world has moved towards innovative technologies has the IT procurement gained many forms. The term itself contains many perspectives inside it since the system or the technology can be anything. The processes for the different technologies vary and so does the definition. This makes it difficult to precisely define the term more in detail.

Procurement according to Saarinen and Vepsäläinen (1994) is the choice among suppliers. The definition is from 1994 though, in its essence it describes the complex process simply. Since the ownership of private businesses lie within a limited number of shareholders, they possess more freedom in procurement process compared to public procurement processes. (Hellsten *et al.*, 2016). This freedom can be seen as reflection on definition by Saarinen and Vepsäläinen (1994) since choices can include more or less freedom. (Boyne, 2002).

Technology Acceptance Model (TAM) is one of the more acknowledged models related to technology procurement. TAM was originally from Davis and Davis (1989) who introduced it as an instrument that predicts the likelihood of which new technology is adopted. (Tang and Chen, 2011). Figure 1 from Venkatesh *et al.*, (2003) illustrates the basic concept underlying user acceptance model:

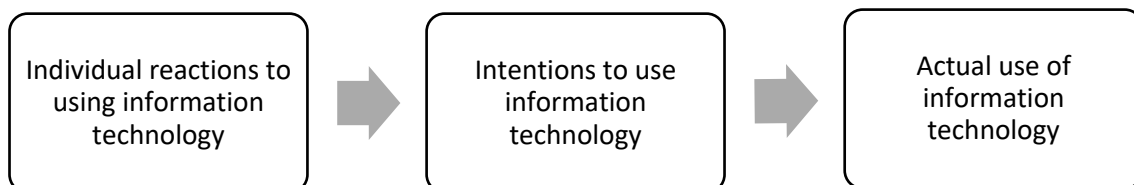


Figure 1 Basic concept underlying user acceptance model (Venkatesh *et al.*, 2003).

The TAM has gained a recognized position as a model that can explain the diversity in user behaviour (Venkatesh *et al.*, 2003). User behaviour can be seen as one

of the parts of Donaldson's (2001) researched contingency theory in which there is no correct way of making decisions. The human element plays a major role since the theory refers mostly to the extensive number of factors that need to be considered when making decisions. The user behaviour can be seen as a human element in the procurement process through TAM connecting the two subjects.

The technology acceptance model by Venkatesh *et al.*, (2003) is a unified theory of acceptance and use of technology. The model consists of four main key constructs being performance expectancy, effort expectancy, social influence and enabling conditions. (Venkatesh *et al.*, 2003). Jokonya, (2015) determined that the TAM is an important aspect in IT adoption processes and that it is better handled in an individual context level rather than trying to handle diverse perceptions. In the research by Jokonya, (2015), the respondents strongly agreed that user experience and usefulness are important TAM variables in a IT adoption process. Perceived usefulness and perceived ease of use lead to the behavioural intention to use the system. There is a lack of studies in the actual reasons which make the system useful or easy to use. The constant change in the field of IT causes the TAM to lose its value. Whilst the decision makers have different views on systems usefulness the TAM presents as a more lacking model. (Jokonya, 2015)

User experience is a term that plays an important role in the field of IT, but its definitive definition is difficult to come by since lot of it is tied to the human element. Many of the aspects in the research by Jokonya, (2015) as well as in the Venkatesh *et al.*, (2003) model is tied to the human aspect of people *feeling* or *believing* in something. As it is used in the UTAUT the term perceived is the human element which is personal to all and whilst some overall distinctions can be made in systems to label them easy to use, is there always a personal preference in the background making decisions. (Davis and Davis, 1989). User experience can be seen as the experience that the user has whilst using or perceiving the system. User experience is tied to users personal beliefs about the system and they can differ wildly from other user's experiences. (Davis and Davis, 1989).

Nowadays the term Industry 4.0 is thrown into procurement conversation since it is seen as the new concept for commercial offerings thus requiring often and procurement of technology. (Bassi, 2017). Industry 4.0 is not seen as an equally revolutionary and acknowledged as the other three revolutions since it is lacking a major break-through technology that the others possessed. (Bassi, 2017). Although the revolution has only been proposed as being the next industrial revolution, it does affect the way that the emerging technologies are making their way into businesses. Frank, Dalenogare and Ayala (2019) proposed a way of understanding how these technologies are implemented by companies. The main element of the fourth industrial revolution is the smart manufacturing. Technologies such as 3D printing fall into this category and it is a process which affects the lifecycle of a product and the supply chain activities heavily. (Frank, Dalenogare and Ayala, 2019). From IT procurement's perspective the revolution provides the viewpoint of emerging technologies. The following Figure 2 from Frank, Dalenogare and Ayal (2019) illustrates the Industry 4.0 technologies

framework:

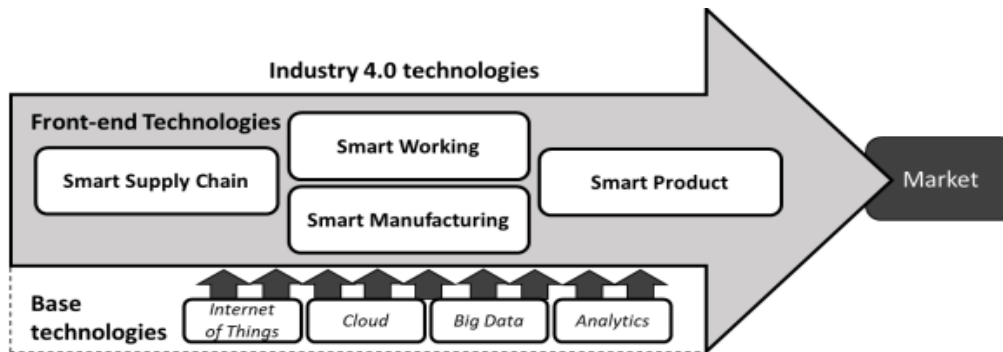


Figure 2 Theoretical framework of Industry 4.0 technologies (Frank, Dalenogare and Ayala, 2019).

As seen on the Figure 2, Cloud is one of the base technologies of the Industry 4.0 and according to Frank, Dalenogare and Ayala (2019) it is considered to least complex in term of procurement level complexity. Indicating that the Cloud is in the centre of recent IT procurement trends is crucial element for this thesis since it explores the procurement of Cloud environments.

3.2 IT procurement process models

IT procurement process varies depending on different factors such as private versus public sector. (Hommen and Rolfstam, 2009). Private sector remains the sector with increased freedom in IT procurement process (Hellsten *et al.*, 2016). This thesis focuses on the viewpoint of private sector.

Procurement processes also vary according to the field in which they are conducted. (Hellsten *et al.*, 2016). Wagner, Padhi and Bode (2013) proposed a flow for procurement process in the field of purchasing and supply management. The flow can be used to interpret IT procurement process as well since the model is quite universal. The model is based on Krajlic's portfolio matrix which lists supply risks and profit impact on the matrix from low to high. The following Table 3 illustrates Wagner, Padhi and Bode's (2013) proposed four categories of commodities:

Table 3 The four categories of commodities (Wagner, Padhi and Bode, 2013).

| | |
|--|--|
| <p>Leverage items</p> <ul style="list-style-type: none"> • Standard, substitutable • Alternate suppliers • High volume or cost • Profit impact high • Supply risk low | <p>Strategic items</p> <ul style="list-style-type: none"> • Strategically important • Substitution difficult • No alternate suppliers • Profit impact high • Supply risk high |
| <p>Noncritical items</p> <ul style="list-style-type: none"> • Standard, substitutable • alternate suppliers • Low volume or cost | <p>Bottleneck items</p> <ul style="list-style-type: none"> • Substitution difficult • Monopolistic market • Critical items |

| | |
|--|---|
| <ul style="list-style-type: none"> • Profit impact low • Supply risk low | <ul style="list-style-type: none"> • Profit impact low • Supply risk high |
|--|---|

IT Procurement process is not as simple process as some of the more standardized service or product procurement processes. (Moe and Päivärinta, 2011; Alanne *et al.*, 2015; Hellsten *et al.*, 2016). For standardized products and services, the comparison process is more straightforward. In procurements related to information technology the comparison process includes more complex elements than just e.g., the features of the information system. Information system procurement processes often include high volume of personalized configurations and pricing models. (Hellsten *et al.*, 2016). Cloud service models include many aspects which relate to the procurement process. These aspects include but are not limited to varied risks, cost patterns, features and requirements. (Godse and Mulik, 2009; Costa, Santos and Silva, 2013; Johansson and Ruivo, 2013; Tehrani, 2021).

Jamieson (2007) conducted extensive research on information systems decision making. He inspected the factors affecting decision makers and the outcome. He discussed five main factors that affected decision making process which were environmental, organisational, situational, individual, and content-based factors. Decision making includes different models which can be viewed individual perspectives in the decision-making process. One of these models is rational model (Lunenburg, 2010) which according to Bannister and Remenyi (2000) is not often seen in IS decision making. As for IS decision-making, Bannister and Remenyi (1999) found out that the main driver in the IS decision-making process is instinct or intuition. The rational model by Schoenfeld (2011) includes six main steps as illustrated in the Figure 3:

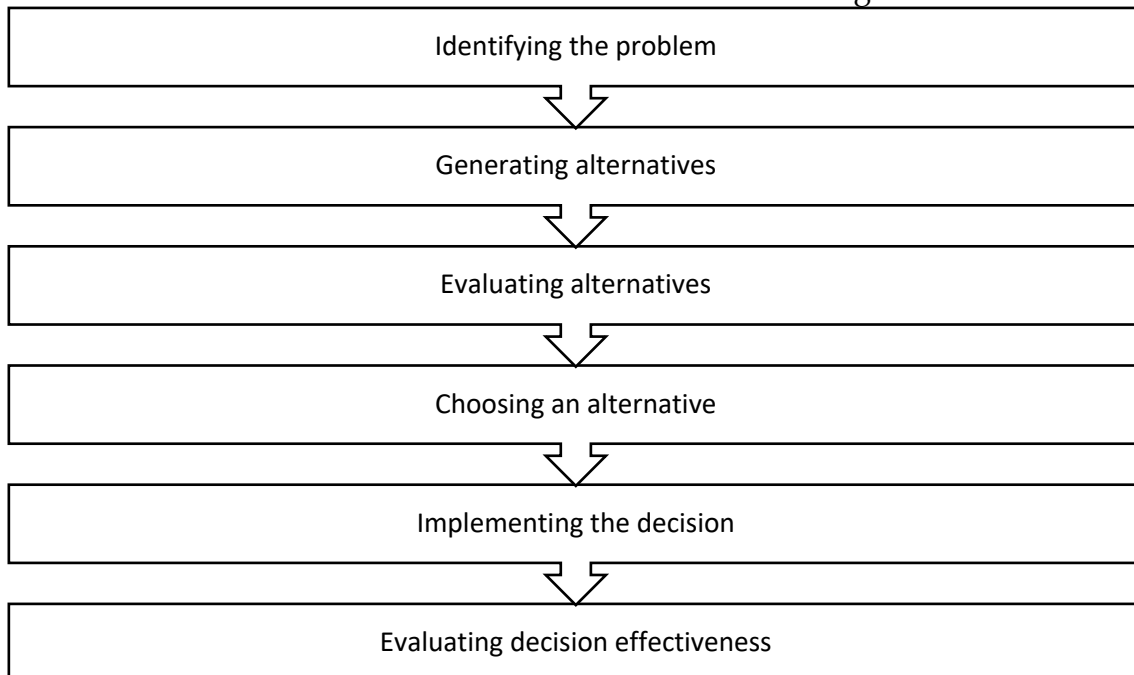


Figure 3 The rational decision-making process model (Schoenfeld, 2011)

Howcroft and Light (2006) construed the flow for selecting packaged software which follows very similar process as Schoenfeld's (2011) rational decision-making process. The process starts with studying existing needs. The following step is identifying the problem and requirements. Establishing clear goals is one of the main success factors noted in implementation and adoption of IT projects. (Korpelainen, 2011; McLeod and MacDonell, 2011; Hentschel, Leyh and Baumhauer, 2019; Balobaid and Debnath, 2020). The goal formation process is basis in problem identification. (Lunenburg, 2010). The third step in Howcroft and Light's (2006) process is evaluating the different options. In some decision making processes, before this step is the step of generating options (Lunenburg, 2010; Schoenfeld, 2011). In procurement processes of information systems often includes the already existing options available making this step sometimes unnecessary. (Howcroft and Light, 2006; Jamieson, 2007). Evaluation of options includes the process of trying to disclose the best alternative for the needs identified. The last step is choosing the desired option as well as deciding to proceed to purchasing. The following Figure 4 illustrates the software procurement process by Howcroft and Light (2006):

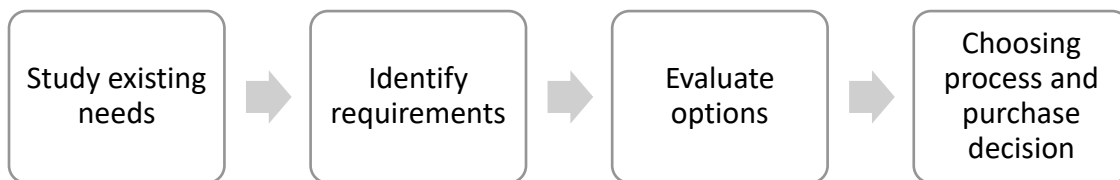


Figure 4 Software procurement process (Howcroft and Light, 2006)

Although the graph illustrates very straightforward and simple process, the process is much more complex. The steps can fuse into each other and overall, the steps include much more complexity than what is seen. The purpose of the graph is to propose the complex matter of procurement process in a more uncomplicated way.

As for any project, IT procurement process can be one that affects the whole company. The volume in which the procurement process affects the company is related to the system and its scope (Weiss and Anderson, 2004). Often procurement processes related to systems such as cloud service, customer relationship management (CRM) or enterprise resource planning system (ERP) are seen as integrations that have the extent to affect the whole company (Poon and Yu, 2006; Al-Ghofaili and Al-Mashari, 2014; Lee, Wong and Hoo, 2017). As for projects with such scope, the company is often required to dwell into more strategic viewpoint (Poon and Yu, 2010). Poon and Yu (2006) proposed a conceptual procurement model for ERP systems which can be compared to cloud procurement process due to the sheer magnitude of influence such systems have in companies. The following Figure 5 illustrates the conceptual procurement model by Poon and Yu

(2006):

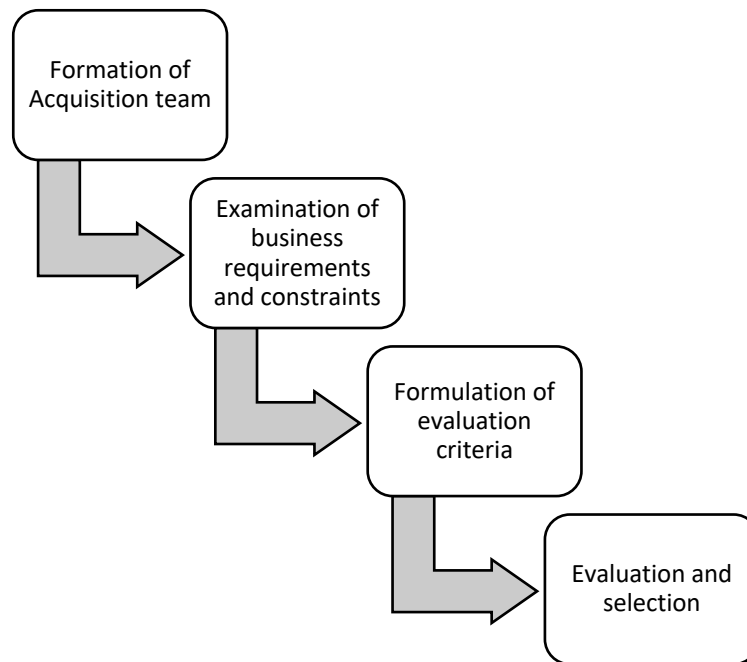


Figure 5 Conceptual procurement process (Poon and Yu, 2006)

As in graph based on Howcroft and Light's (2006) procurement process model, the graph that illustrates the Poon and Yu (2006) is simplified version of the process overall. Both procurement models include untold complexity in attempt to make the procurement process more comprehensible.

Third procurement model is from Jede and Teuteberg (2015) who looked at the procurement process through cloud computing. Their process consists of two main steps being the IT-service preparation step and the IT-service procurement step. The IT-service preparation begins with defining and analysing the IT service requirements. The requirement analysis is important to conduct in a systematic manner since market nowadays offers high volume of available services (Jede and Teuteberg, 2015). Following the requirement analysis is the market analysis which consists of exploring different service suppliers. General screening is a process in which key conditions of the service are defined. This helps narrowing down the options to more fitting candidates. The following Figure 6 illustrates

the IT-service preparation process described by Jede and Teuteberg (2015):

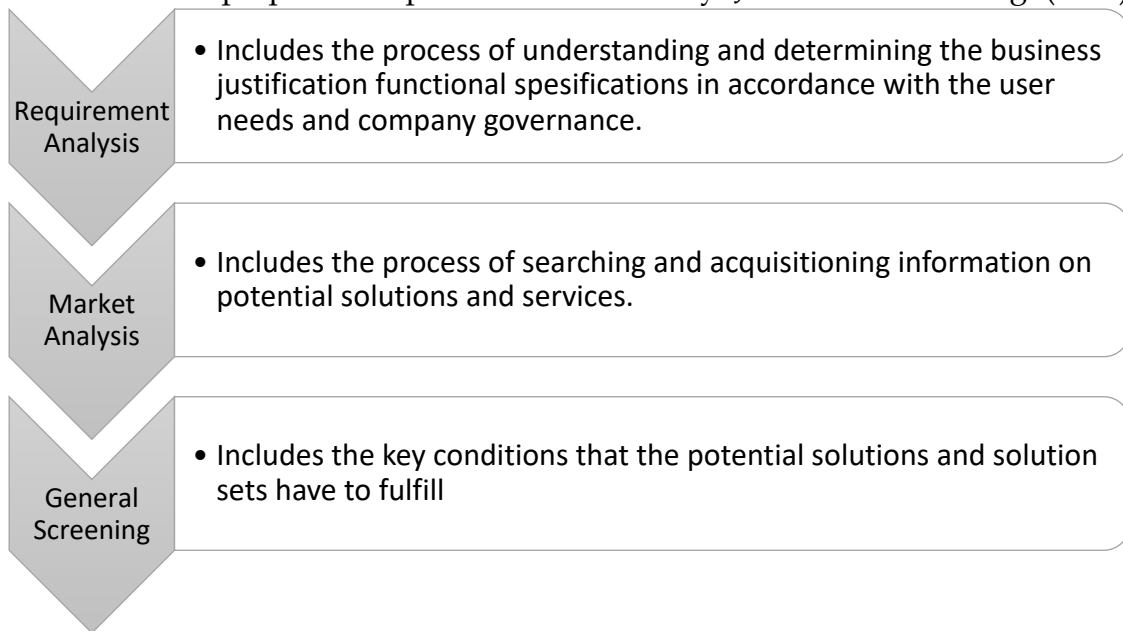


Figure 6 IT-service preparation process (Jede and Teuteberg, 2015)

The second phase, IT-service procurement process includes evaluation and selection of desired service. The process starts with evaluation of the new IT-system. often, the system has an influence on a company level thus making it necessary to conduct a component-based evaluation. This allows for that the service fulfils all the requirements set for it. Requirement verifying is often seen as customers task which makes it important step to consider (Schneider and Sunyaev, 2016). After evaluating the new IT-system one is to evaluate the overall system. IT procurement often requires a change to more advanced architecture (Nicoletti, 2016). The main points that Jede and Teuteberg (2015) list for looking out for are firstly that the service interactions follow critical paths. Secondly focus point should be the extensibility of the IT-architecture and thirdly the overall system protection. A system-level performance test should be conducted to make sure that all the requirements are matched, and that the system is working efficiently in the way that was imagined.

After this the process follows to strategic evaluation of the systems fit. In this step a more long-term goals are viewed along with overall financial and structural effect that the system has in the company. One should make sure that the business strategies of the company match following the system implementation. After the strategic fit evaluation has seen an approved state follows the business case creation in which the selection of the IT service provider is made. The contractual process should include specialists in areas related such as law, tax, security and purchasing. A signed contract is the final step after both parties have accepted the terms of the contract. The following Figure 7 illustrates the

procurement process described by Jede and Teuteberg (2015):

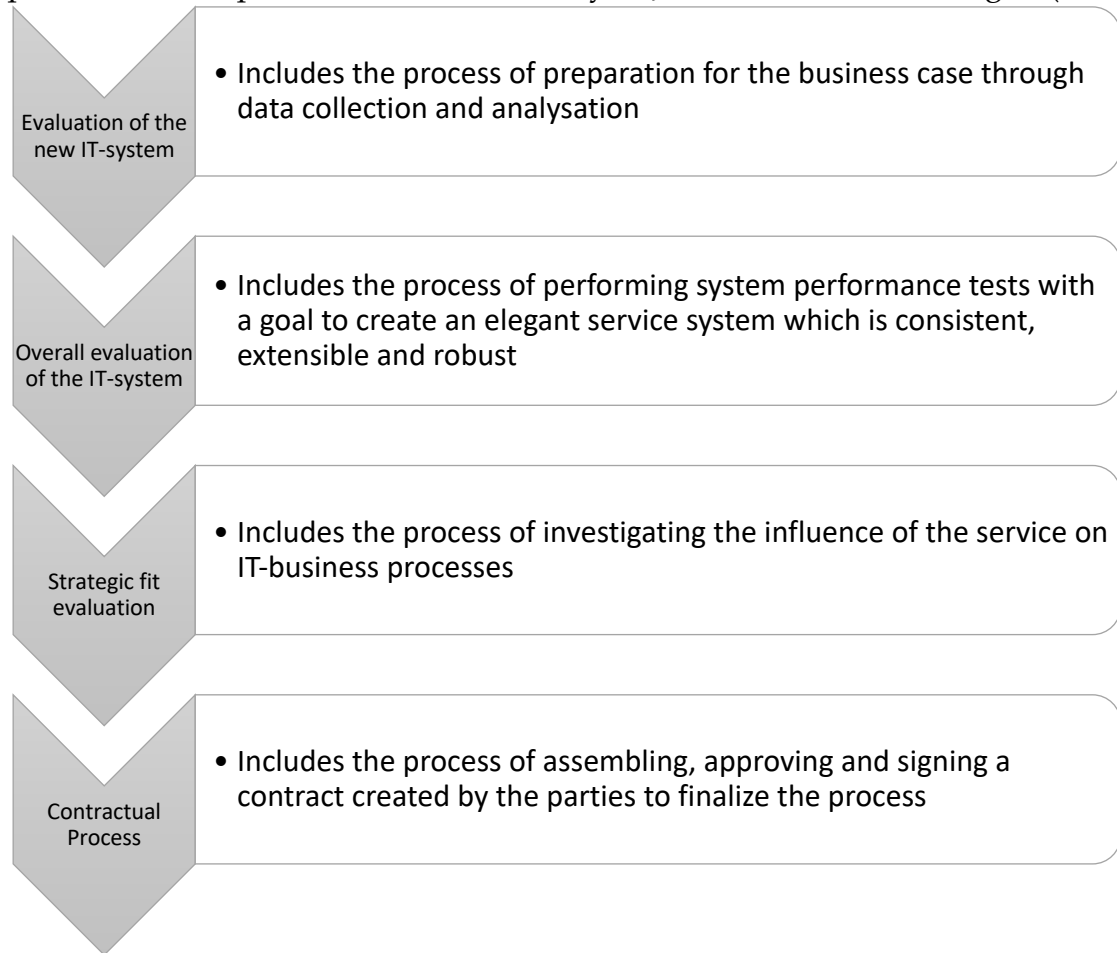


Figure 7 IT-service procurement process (Jede and Teuteberg, 2015)

4 LITERATURE REVIEW SUMMARY

In this chapter the literature review is summarized providing an answer to the research question and problems set at the beginning. The goal of the literature review was to figure out the factors related to cloud-based information system procurement process. The literature available for the topic was somewhat scarce due to such specific conditions that were set for the information systems although there was decent amount of research done on the topic from recent years. This illustrates both the need for the research topic as well as noticeable growing trend on it.

The literature review has defined the different concepts and areas of research in the before chapters. In the literature review summary part, the focus is on the research question which was defined in the Introduction part of the thesis:

What are the factors that affect the procurement process of a cloud-based CRM system?

In the beginning cloud-based systems were explored amongst different cloud service models such as SaaS. Cloud-based systems are a part of cloud computing industry which is noted as one of the more advantageous technologies for companies due to its capability to provide flexible solutions economically as well as infrastructurally (Morgan and Conboy, 2013; Amron, Ibrahim and Chuprat, 2017).

Generally recognized definition for cloud computing is from the National Institute of Standards and Technology (NIST). Cloud computing according to NIST is a model for enabling ubiquitous, convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction (Mell and Grance, 2011).

The definition includes five main characteristics, four deployment models and three service models for cloud computing. These combined provide thorough definition for the term. The five main characteristics of cloud computing are on-demand service self-service, broad network access, resource pooling, rapid elasticity, and measured service (Mell and Grance, 2011).

All the characteristics of cloud computing have been given more in-depth definitions by the Mell and Grance (2011) according to the definition set by NIST. On-demand self-service is the computing capabilities such as network storage that the consumer can provision as needed automatically. Broad network access is the overall online feature of cloud meaning that the resources are available through network accessible with any platform. Resource pooling is based on consumer demand. The resources of the provider are to be pooled to allow for dynamic assignment and reassigning of different physical and virtual resources to consumers. The elasticity is often mentioned capability of cloud computing (Kolluru and Mantha, 2013; Lee, Wong and Hoo, 2017). The elasticity of cloud computing refers to the capabilities to scale rapidly with demand. The resources available for the consumer are often unlimited accessible anytime. The last main

characteristic of cloud computing is its capability to measure service. Cloud systems can automatically monitor resources to provide transparency and control for the consumer as well as the provider. The monitoring aspect allows for control and optimization of the service. Quality of service is proposed by O'Dwyer and Neville (2017) of being an important indicator in service impact. Cloud computing's capability to monitor and rapidly optimize the quality of service is a major advantage (Mell and Grance, 2011).

In cloud computing procurement process the most optimal Cloud Service Provider (CSP) is one of the main tasks for the customer (Youssef, 2020). The selection of the best CSP is often seen as Multi-Criteria Decision Making (MCDM) problem. (Rehman, Hussain and Hussain, 2011, 2013; Büyüközkan, Göçer and Feyzioğlu, 2017; Youssef, 2020; Mostafa, 2021). The MCDM problem is to choose from different alternatives by assessing their criteria. In MCDM different aspects of the evaluated CSP are weighted differently though the decision comes down to the decision maker(s) in the end (Youssef, 2020).

This problem can be seen as part of contingency theory in which the belief is that there is no correct way of making decisions (Donaldson, 2001). As IT procurement processes are often seen as decisions related to the area multi-criteria decision making, it is often determined that the decision comes down to personal preference in the end (Bannister and Remenyi, 1999; Rehman, Hussain and Hussain, 2011; Anjana *et al.*, 2019). Service assessment is seen as difficult topic since in the procurement process there is multiple decisionmakers, decision making criteria, at times conflicting criteria and the difficulty of weighting different criteria in relative to other criteria (Costa, Santos and Silva, 2013; Wibowo and Deng, 2016).

In the definition of contingency theory by Donaldson (2001) there is a part which concludes that the contingency approach says that the effect of one variable on another depends always from a third variable. As summarized in the Table 4 Factors affecting cloud-based procurement process based on the literature of the different factors that affect the procurement process one can notice that the list consists of large variety of affects such as social, structural, environmental and system related. This illustrates the large variety of criteria that is to be considered often by companies whilst performing the procurement process.

There are many researches that have proposed different assessment models such as Best-Only Method (Mostafa, 2021), TOPSIS and BWM (Rehman, Hussain and Hussain, 2012; Youssef, 2020), selection by quality of service history (Rehman, Hussain and Hussain, 2013) and min-max or max min method (Rehman, Hussain and Hussain, 2012). Although these models have been proved efficient by the authors in their research there is still such a large variety of criteria that is to be considered by the multiple decisionmakers with varied preferences towards how the criteria is to be weighted (Costa, Santos and Silva, 2013; Qu, Wang and Orgun, 2013; Nadeem, 2020).

Donaldson (2001) points out in his book about contingency theory the role of uncertainty in technological change. This uncertainty is due to the need for constant change and innovation in information technology companies. Not only does the information technology field hold constant uncertainty in itself, it is also proposed by Bannister and Remenyi (1999) that human decision-makers rarely

are logically rational as they themselves believe to be. History all the way back to Aristotle points that technical model of reason has major limitations (Bannister and Remenyi, 1999). One can make out the complexness that the human decision-maker element brings to the equation. Although the decision-makers were to be given a proven way of choosing the most fitting cloud system during the procurement process, the decision itself could end up being any of the options due to the lack of logical rationality in decision making (Bannister and Remenyi, 1999). So, although the different factors affecting the procurement process can be identified, it is important to remember that there can be an inconsistency in the decision made in the end since people are highly inconsistent variable in the process.

Costa, Santos and Silva (2013) propose that the CSP plays an individual role as an affecting factor in information system procurement process separate from the service that they offer. In this category they listed criteria such as audibility, compliance, provider qualifications and supportability. Ahn and Ahn (2020) researched factors affecting the intention to adopt cloud-based ERP. In their research they found out that topics such as organization culture, regulatory environment, relative advantage, trialability and vendor lock-in had significant influence on the intention to adopt cloud-based ERP. On the contrary topics such as ICT skill, complexity, observability, data security and customization had no significant influence on the adoption.

Table 4 Factors affecting cloud-based procurement process based on the literature

| Factors affecting the procurement process | Reference |
|--|---|
| Characteristics of CSP independent from service | (Costa, Santos and Silva, 2013) (Godse and Mulik, 2009) (Saedi, 2016) |
| Performance of the service features and functions in reality | (Costa, Santos and Silva, 2013) (Amron, Ibrahim and Chuprat, 2017) (Nadeem, 2020) |
| Security on protection and service control | (Costa, Santos and Silva, 2013) (Tripathi and Jigeesh, 2013) (Amron, Ibrahim and Chuprat, 2017) (Nadeem, 2020) (Godse and Mulik, 2009) (Balobaid and Debnath, 2020) (Saedi, 2016) (Fehér and Sándor, 2019) (Tehrani, 2021) (Johansson and Ruivo, 2013) (Morgan and Conboy, 2013) |
| Organization culture to be responsive and flexible | (Ahn and Ahn, 2020) (Tripathi and Jigeesh, 2013) (Amron, Ibrahim and Chuprat, 2017) (Nadeem, 2020) (Tehrani, 2021) |
| Regulatory environment through law and regulations | (Ahn and Ahn, 2020) (Moe and Päivärinta, 2011) (Morgan and Conboy, 2013) |
| Relative advantage through increased effectiveness of organization | (Ahn and Ahn, 2020) (Amron, Ibrahim and Chuprat, 2017) (Saedi, 2016) (Tehrani, 2021) (Morgan and Conboy, 2013) |
| Trialability of a new technology | (Ahn and Ahn, 2020) (Tehrani, 2021) |

| | |
|---|---|
| | (Morgan and Conboy, 2013) |
| Vendor lock-in as to reduce the stress of changing the supplier | (Ahn and Ahn, 2020) (Tripathi and Jigeesh, 2013) (Fisher, 2018) |
| Cost control and governance | (Wu, Wortmann and Tan, 2014) (Fisher, 2018) (Amron, Ibrahim and Chuprat, 2017) (Saedi, 2016) |
| Cost of the system | (Pahl, Xiong and Walshe, 2013) (Wu, Wortmann and Tan, 2014) (Amron, Ibrahim and Chuprat, 2017) (Nadeem, 2020) (Godse and Mulik, 2009) (Balobaid and Debnath, 2020) (Johansson and Ruivo, 2013) (Tehrani, 2021) |
| Customization, modification, evolution of the system | (Araujo, Vazquez and Cota, 2014) (Nadeem, 2020) (Saedi, 2016) (Johansson and Ruivo, 2013) |
| Pressure from partners in the business ecosystem | (Amron, Ibrahim and Chuprat, 2017) (Moe and Päivärinta, 2011) |
| User experience | (Nadeem, 2020) (Godse and Mulik, 2009) (Johansson and Ruivo, 2013) |
| Functionalities of the system | (Godse and Mulik, 2009) |
| Pressure from competition | (Tehrani, 2021) (Misra and Mondal, 2011) (Jede and Teuteberg, 2015) |

5 METODOLOGY

In this chapter the empirical section of the research is conducted. The chapter aims to explain the used methodology as well as the phases and the goals of the research. Validity and reliability are also examined in the chapter.

5.1 Research method

The research is formed as a case study. Case study is one of the more popular ways of conducting qualitative research in the area of information technology (Orlikowski and Baroudi, 1991). According to Denzin and Lincoln (2011) case study focuses on a “individual unit”. This individual unit is to be examined as an example of a class of phenomenon. Case study though does not provide fully reliable information about the more extensive unit. Case study has been a thriving way of research expanding to many research areas unfamiliar with the method such as political economics (Gerring, 2004).

The definition for case study is varied. Yin (2003) defines case study to refer to a qualitative, ethnographic, clinical, participant-observant method. The singular phenomenon can also be seen as a defining character for case study (Gerring, 2004). Though the definitions may vary from perspective to another, the key for choosing a case study as a method in this research is due to its ability to be broad in its definition (Gerring, 2004). Case study fits in well in studies in which the boundaries are vague (Yin, 2003). Benbasat, Goldstein and Mead (1987) have determined that case study is a well-fitting method when the theories of the research and its target have not been reached a fixed state yet. They also theorize that the case study method is especially fitting in organizational and business environments. Since the goal is to gain concrete, in-depth information about a specific topic and taking the mentioned research into account it can be determined that the case study method is relevant for this research.

Although the research focuses on several companies, they all share the same procurement process. All the interviews exemplify a situation where there are three main stakeholders. First stakeholder is the company that is completing the procurement process. The second stakeholder is the suppliers who supply the system which in the cases of this research, is Salesforce. The most often procured system was Salesforce CRM but some other aspects of Salesforce were also included. The third stakeholder group is the partner company. Salesforce’s way of business is to provide the partner company candidates to the customer from where they choose the best fitting one. The role of the partner company is to perform the integration process as well as the possible support. This three-way stakeholder situation is prevalent in all the cases and Salesforce CRM is the procured technology.

Interviews are one of the most used methods of qualitative research (DiCicco-Bloom and Crabtree, 2006). Interview is a great and varied data collection strategy which can be divided into three categories related to the structure of the

interview (DiCicco-Bloom and Crabtree, 2006). The categories are unstructured interview which consists of a more of a guided conversation, structured interview in which the structure is very strict and before planned. The last of the bunch is semi structured interview which is the one chosen for this research. Semi structured interview in which some conversational aspects can be seen although the interview is to follow a certain before planned structure (DiCicco-Bloom and Crabtree, 2006). The semi structured interview method was chosen due to the need to gain a more genuine connection to the interviewee thus allowing for better understanding of the complexness of the factors affecting the procurement process.

The interview questions are listed in the appendix 1. It is good to acknowledge though that the interview differs from person to person since it is semi structured interview and people have different levels of experience as well as different roles in the procurement process. The target is to choose people who have enough information from the procurement process. It is crucial for the interviewees to have a proper grasp of the process to be able to supply reliable answers. The interviews were conducted in Finnish after which they were translated to English.

The interviewees were gathered through a main contact in the field of IT. The main contact works as a CEO in an IT company and the interviewees were gathered through this contact. The list consisted of major clients as well as former associates of the person. Since all the contacts are gathered from the same source mostly all of them are regarding the Salesforce system. The contact works in the field of Salesforce which causes this phenomenon. The interviews were conducted in October of 2022.

5.2 Phases and goals of the research

The goal of this research was to find out the main factors that influence the procurement process of a cloud-based information system. The research question was stated in the chapter one, and it goes as follows: *“What are the factors that affect the procurement process of a cloud-based CRM System?”*

The empirical phase is conducted as a qualitative study where the information is gathered through semi structured interview. The interviewees are from different companies that have recently gone through a procurement process of a cloud-based information system. The aspect of the cloud-based information system differs in the companies since the cloud-based system is often configured to meet the company’s needs and wants. Earlier in the thesis the different levels of cloud and cloud services were explored, and this is due to the varied nature of the cloud-based information systems. Since the targets of the procurement processes can change it is to be determined in the interview that which service has the customer purchased.

The interviews were held in Google Meet -service. The interviews were one-on-one situations which means that only the interviewee and the interviewer were present. Since the whole system procured can change from case to case it

was important not to make the interviews too complex in diving all the different aspects of the cloud. The interviews were from 20 minutes to 40 minutes and there was x amount of people interviewed. The goal of the interviews is to figure out the main factors that were considered whilst comparing the service providers.

The interviews were recorded with the permission from the interviewee. This allowed for recording of both the video and the sound. These interviews were transcribed into text form. This makes analysing and result gathering and pondering easier whilst making it unnecessary to take notes during the interview.

The gathered material was analysed and presented in the chapter 6. The results were compared to the first section of the research being the literature review. Similarities not only between the sections but amongst the interview results were also inspected.

5.3 Validity and reliability

Validity and reliability are always topics which are to be examined in research. Validity measures the accuracy of a measure. Validity examines if the results measure wanted phenomenon. Reliability is a measurement about consistency. Reliability measures the extent to which in the same conditions the results gained can be reproduced. Validity is assessed by examining how the gathered results correspond to other more established theories. Reliability is assessed by the consistency of results. (Kimberlin and Winterstein, 2008).

According to Noble and Smith (2015) measuring validity and reliability is not as straightforward in qualitative research as it is in quantitative. Numbers and statistics are much easier to cross analyse but in qualitative research evaluations in reliability and validity are often ambiguous. Often the most criticised element of qualitative research is its lack of transparency (Noble and Smith, 2015). In aims to supply increased transparency the research methods are described in detail. This allows for the research to be repeated thus fulfilling the requirements for validity and reliability.

It is to be noted that although the interviewees are a varied population overall, all interviewees were gathered from a single main contact. This form on singularity aspect might cause the results to be directed into a specific direction which in this case is the perspective of Salesforce. Most of the interviewees had the procurement process be related to procuring a Salesforce system which might cause a lack of variety in the perspectives gained.

Although the chosen system was often the same the interviewees, the interview or the interviewer did not pose any biased opinions about the system but rather the focus was on the affecting reasons for the procurement process. All the interviewees represented individuals and all the cases represented individual processes. Similarities in the interviews can be seen but this is due to evaluations, needs and irrationality of the individuals and their processes.

6 RESULTS

In this chapter the results of the research are presented. The results are formed from the interviews conducted. The interviews consisted of 7 people who have worked closely in a procurement process of a cloud-based system. The information about the interviewees' role in the procurement process, the title and experience in procurement processes is illustrated in the Table 5. Experience from procurements section was evaluate through the questions in the interview. The interviewees were to describe their experience in such processes. They were asked to provide examples of such processes. The answers from the interviewees determined the amount of experience they possess from procurement processes. Information about the interviewees' companies and the procured systems is illustrated in the Table 6. All the interviewees represent a different company which creates greater variability in the study.

Table 5 Role, Title, and experience of the interviewees

| | Title | Experience from procurements | Role in the procurement process |
|-----------|---|-------------------------------------|--|
| P1 | Chief information officer. | Extensive amount of experience. | Gather and evaluate options. Prepare the final proposal. Be part of the decision making. |
| P2 | Administration and service development coordinator. | Decent amount of experience. | Gather and evaluate options. Prepare the final proposal. |
| P3 | Nordic sales support. | Some amount of experience. | Project manager in the process. The root user of the system. |
| P4 | IT manager. | Extensive amount of experience. | Evaluate the options. Be part of the decision-making. |
| P5 | Development and technology director. | Decent amount of experience. | Process holder. Assuring a proper flow of the process. Assuring proper budgetary restraints are met. |
| P6 | Sales director. | Decent amount of experience. | Project manager in the process. Responsible for the kick-off and the completion of the process. |
| P7 | CEO. | Extensive amount of experience. | Project manager in the process. |

| | | | |
|--|--|--|---|
| | | | Responsible for the kick-off and the completion of the process. |
|--|--|--|---|

Table 6 Company of the interviewee and the procured system

| | Company | Procured system |
|----|---|--|
| P1 | A large, international company working in the field of steel construction projects. | Salesforce CRM |
| P2 | A small, non-profit organization working in the field preserving water areas. | Electric signature system. |
| P3 | A large, international company working in the field of manufacturing and installing cables. | Salesforce CRM and HubSpot marketing automation. |
| P4 | A large, international company working in the field of configuring and conceptualizing boats. | Salesforce Community Cloud |
| P5 | A large company working in the field of Finnish Media. | Salesforce CRM and an inventory management system- |
| P6 | A medium company working in the field of producing fireplaces and saunas. | Salesforce CRM |
| P7 | A small company working in the field of Salesforce consulting. | Salesforce CRM |

All the interviewees were heavily involved in the procurement process and the processes varied some amounts from each other although similarities in the processes can be seen. The results from the interviews are divided into subchapters from 6.1-6.5. The chapters are focused on the individual interview questions and the perspectives that they bring to the results.

In addition to the results there is quotes from the interviewees to help clarify the information attempted to disclose. The answers have been translated from Finnish to English as well as simplified and clarified since most of the answers include filler words and repetition. The quotes can be differentiated from the text by the smaller font as well as indentation of the text. In the quotes the company size, the title of the person as well as experience in procurement processes is mentioned.

6.1 The procured systems and services

The first question in the interview regarding the procurement process was related to the procured system. Since all the interviewees represent a different organization thus a different procured system or service, this was an important question to start with. The question also has a sub question regarding the reason for the procurement.

The procurement process involved two different aspects in it. The first one was a solution which was Salesforce and an integration/implementation partner for the solution which was Company X. (P1 Large company, Chief information officer, extensive amount of experience)

The procured system was an electric signature system that works in the cloud. (P2 Small company, Administration and service development coordinator, decent amount of experience)

We procured a CRM and marketing automation. CRM is in a form of Salesforce and marketing automation in a form of HubSpot. (P3 Large company, Nordic sales support, some amount of experience)

The procured system was a CRM system by Salesforce. The system was to be used in the sales department mainly. (P6 Medium company, Sales director, decent amount of experience)

Salesforce and it was procured as a CRM solution. We wanted to have the customer relationship management system. (P7 Small company, CEO, Extensive amount of experience)

Analyzing the procured systems one can notice that the most procured system in the interviews was Salesforce CRM or some parts of it specifically. Whilst this could be seen as a major similarity between the procurement processes it is important to note that Salesforce includes all variations of cloud service models. The reasoning for procuring the systems reveals the motivation behind the cases. Most of the cases represent a traditional Salesforce CRM procurement process which falls into the category of SaaS solution procurement process.

The obvious combining aspect in the study is that all the interviewees were gathered from a source which works in the field of Salesforce thus connecting all the cases into the same technology.

The main reason for the procurement process overall was that the company was missing a CRM system. We had a SharePoint based system with excel integration which we used to manage our customer relationship and data. It did not fulfill our business requirements, so the need came from the business requirements to procure a new CRM system. (P1 Large company, Chief information officer, extensive amount of experience)

The current process was lacking as well as difficult, especially during the covid 19 - epidemic. We wanted to make the move to the cloud, so no more paper was needed,

and that the efficiency was increased. (P2 Small company, Administration and service development coordinator, decent amount of experience)

Was procured mainly due to dissatisfaction with the prior supplier. The dissatisfaction was due to lack of updates and upgrades on the system since procurement. Service quality is bad and there is a lack of service upgrades. User experience is very dissatisfactory and “stiff” to use. (P3 Large company, Nordic sales support, some amount of experience)

In the beginning the need for the solution came from the need to separate some of the operations from aging systems. Our system was heavily involved in the older way of working with the press releases. Our company was evolving, and we were attempting to offer more modern solutions, so our system was too aging. We wanted to increase the sales management through data, and this was not possible with our current system. (P5 Large company, Development and technology director, decent amount of experience)

The reason why the system procured was a desperate need for a CRM system. In 85 years, the company did not manage to procure a CRM system so now was the time for it. (P6 Medium company, Sales director, decent amount of experience)

We started to have a lot more customers and our data control and data from the customers was lacking. Too much of the process was based on people’s memory and their individual notes and systems. At the time we had a small sales team, but we saw an increase in the scale soon, so the distributed data was a problem. (P7 Small company, CEO, Extensive amount of experience)

The reasoning behind the procurement processes often glares from the dissatisfaction to the current system or a complete lack of such system. As seen in all the interviews the need for the procurement started with existing identified problems.

In some cases, such as in cases related to P3, P4 and P5 the system was procured because of the dissatisfaction to the prior system. Although in these cases the “aging” system was very evidently seen in the answers from the interviewees, in rest of the cases the need for a modern system was noticed at some point. To this situation one can refer to chapter 3.1 in which technology acceptance model (TAM) and the term Industry 4.0 were discussed. Industry 4.0 introduces technologies such as cloud to the framework whilst TAM explores the human element in the procurement process. Overall, the need to upgrade and update the system to a modern one was the most often mentioned motivation in the interviews.

6.2 The procurement process progression

The second question was for the interviewees to explain the procurement process in the organization in their own words through their own experiences. The procurement processes followed a similar pattern which is dwelled in-depth in the analysis part. It is important to one to note how the procurement processes

progressed since a clear similarity and be seen in them. The similarity can be explained through the same end choice of Salesforce. Whilst most the companies ended up with the same system it is obvious that the processes followed a similar pattern.

First, we conducted a minimum business requirement together with a small project group after which we started to scour through the solutions which matched these requirements. We had a bit of a time pressure and a small team working on the requirement process so there were three solutions which were compared with each other. We went through the solutions with potential integration partners and compared the solutions to the requirements that we had set. And after that we formed a scoring board in which there was the functional fit so how well the solution fits our needs. We wanted to heavily emphasize the customer experience. [...] All the competitors were scored based on the scoring board from 1-5 and the different sections of the scoring board had different multipliers. We had a five-man group which oversaw the scoring and based on that and in the end, Salesforce won the competition. (P1 Large company, Chief information officer, extensive amount of experience)

The process started with a search of systems and providers. The providers were contacted, and they were all asked to prepare a sales pitch. All the providers were met one-to-one. After this we formed a pros and cons list with a colleague from the pitches and then we made a recommendation for the CEO for approval of the system. [...] Needs for different teams in the company were evaluated when considering the proposals to make sure that the system was going to be a good fit. (P2 Small company, Administration and service development coordinator, decent amount of experience)

This procurement process started with a request from the leadership ladder that our CRM is to be used and exploited more than it was now. The leadership ladder wanted to gain more of their financial investment to the system. The leadership ladder asked me to do a re-kick-off of the system, but I felt like we needed to change the system overall to gain any benefit. This caused us to have a problem evaluation process in which gathered all the problems that the system has. Our management wanted to save in costs and wished us to try and gain more of our already system. So, we went through the problems with them to fix the problems. The current supplier informed us that our company was at fault and not the system. They made an offer to do the re-do of the system, but it was a costly operation as well. After this we decided to move to different suppliers and different systems. We chose a few systems that work in English language since we are international company. [...] In the end we heavily evaluated the service production capabilities. It was important to us that the system was upgradable and updateable after the implementation. (P3 Large company, Nordic sales support, some amount of experience)

In the beginning of the project, we had three solutions in mind. First of the was a so-called bespoke solution. Other solution was a Microsoft 365 solutions and the third one was Salesforce which we in the end chose. We evaluated our needs, and, in the end, we preferred a platform solution rather than a tailored solution. This narrowed it down to two competitors, Salesforce, and Microsoft Dynamics. We knew Salesforce beforehand, so we knew the strengths of the system. Salesforce was deemed as a very safe bet for the solution. The most important aspect of the Salesforce was its usefulness and different internal solutions that matched a lot of our needs for the system. For us the collaboration aspect was important as well. We wanted the partner to be somewhat close by to make sure that the collaboration aspect works. Both solutions had a few supplier options. The different suppliers were evaluated, and they all offered their

solutions to us. Salesforce was involved together with the possible partner in the discussion process which helped us to find the best supplier for us. (P4 Large company, IT manager, extensive amount of experience)

The procurement process started from our strategy change meeting in which we stated that we need to figure out our new ways of selling. We wanted to stay competitive in the field and when we tried to add new features to our existing system we ran into a wall. The whole b2b side of business experienced a change which included organizational, operational and product changes. Through these changes we started to set the requirements for the system. Our corporate architect started to communicate with different suppliers of solutions. The team worked as an evaluator in the process as well as operational users in the demo meetings. In the end there were two solutions which were compared against each other. Our conduct was to get a feel for the system by using it to evaluate them against each other. We wanted to procure a lot in a form of services since our past systems have been a bit too specific and stiff to update and use. We wanted a very simple system architecture and to off-load a lot of systems out from our own structures. (P5 Large company, Development and technology director, decent amount of experience)

The process started with a requirement scope. The need for the system was noticed before but last may I was transferred to my current positions as a sales director, and I took a mission to get the company a CRM system. About six months later I felt confident in my abilities as the director, and we formed a scan of the possible systems. We chose three main systems. The process for choosing the three systems consisted of references from known associates and their systems and experiences. I did a quick scan of the available systems and the systems recommended to me after which I contacted the system suppliers. Three of these were the ones chosen and they were Salesforce, HubSpot and Line. After this we met with the suppliers and the ball was thrown into the court of the suppliers' sales teams. From meeting to the final contract proposals. (P6 Medium company, Sales director, decent amount of experience)

Started with a requirement analysis on our needs. We thought of a shared Excel solution or a Pipedrive which would have been a temporary solution or do we want to invest in Salesforce. We also thought of a cheaper CRM system which had a ready-made solution. But we quickly realized that to fit these solutions to our operational process was very difficult. To fit these systems to our company was to change our operational process a lot. We did want the system to have our look in it, so these models were scrapped as well in the beginning. We knew that the Salesforce investment was expensive for us. It would have required us not only money but a lot of time investing into the deployment process. We needed to evaluate if we have enough resources for the system. After this I made a proposition for the leadership ladder based on my analysis on the situation. [...] We wanted to have a more prolonged investment and this if why we chose Salesforce. [...] At the same time, we started to think about the implementation process and the team working on it. (P7 Small company, CEO, Extensive amount of experience)

This chapter is heavily related to the chapter 3.2 which goes through the IT procurement process. In the different cases you can see a lot of similarity. All the procurement processes have in the beginning a problem evaluation process. Some of the cases had a singular person responsible for the requirement analysis (P2, P6) whilst some had bigger teams gathered in the beginning (P1, P3, P4, P5). After the team assembly the need for the solution was defined as well as different

aspects of the procured system that are desirable. Requirement identifying is a process which all the companies went through in the procurement process.

After the requirement analysis all the cases went through an evaluation process of the different options. The different evaluation criteria were somewhat different in the cases. One of the candidates had a full-fledged data-based scoring system (P1) whilst the others prioritized meetings with the suppliers as well an internal debated about the systems. Whilst all the evaluations were based on data in some level, in the end it could be argued that the irrational human element can be seen in all the evaluation criteria. Most of the interviewees described their actions in the procurement process as to be based on the feel rather than strictly to the data of logic.

After the evaluation the processes produced a suggestion which was then decided on often in the leadership ladder. In this step the decision regarding the system is to be made based on the information that the procurement process has provided. Currently, if not sooner, one is to conduct a system fit process. In the interviews it was often mentioned that the functional fit of the system was an important aspect. This functional fit is one that needs strategizing and a one that influences the result.

All the cases follow a quite similar straight-forward procurement process. In the end the decision comes in based on either data or the individual's instinct. In at least two of the interviews, it can be easily seen that the decision was made by instinct based on trust and feel.

Salesforce was deemed as a very safe bet for the solution. (P4 Large company, IT manager, extensive amount of experience)

After about a month I had three offers in my table and enough information from the suppliers to make the gut decision which ended up being the Salesforce. (P6 Medium company, Sales director, decent amount of experience)

The second part of the overall procurement process questionnaire was about the stakeholders in the process. The main stakeholders in most of the cases were the project team, the leadership ladder as well as the system suppliers.

We had sales and marketing department as well as communication department. These were involved since the marketing aspect was heavily considered in the procurement process. Also in the process was the leadership ladder and the suppliers. (P1 Large company, Chief information officer, extensive amount of experience)

The most important stakeholders in the project were the supplier and my colleagues which I regarded as "clients" here since the system was going to be used heavily by them. Also, the CEO oversaw the final approval. (P2 Small company, Administration and service development coordinator, decent amount of experience)

In the process the most important stakeholders were the suppliers and the internal teams of sales and leadership ladder. (P6 Medium company, Sales director, decent amount of experience)

6.3 Competitional aspect and time pressure

The third main question in the interview was related to the competitional aspect in the process. By addressing the competitional aspect in the process we aim to determine the adequate amount of evaluation in the process. Should the procurement process lack the proper evaluation process of the different systems or supplier, it could be deemed as incomplete procurement process relating to the theories of procurement process in the chapter 3.2.

We had Salesforce, HubSpot and Microsoft dynamics 365 in the end but at the start there was about 15 different solutions of which Salesforce seemed too expensive at first. There were free solutions for which the leadership ladder was interested in, but the free systems are often free for just a very limited user amount. (P1 Large company, Chief information officer, extensive amount of experience)

The process had competition and all the suppliers were asked to propose an offer so that we could evaluate the options. It was not the most in-depth competitional set since the project was somewhat small and we wanted a simple solution. After the wish scan of the options, we chose three competitors from who we asked the offers from. (P2 Small company, Administration and service development coordinator, decent amount of experience)

In the beginning a lot of solutions were explored but in the competition stage there was Salesforce and Microsoft. We compared the two systems to each other, and Salesforce seemed a better one. [...] We wanted to increase our brand by implementing this secondary market solution. (P4 Large company, IT manager, extensive amount of experience)

The process did not have competition since we produced our own evaluation of the different systems. After the decision we had only offer from Salesforce. We scrapped the two competitors in the internal evaluation process. We also did not wish to use different competitors in the similar field since they were seen as competing solutions to what we offer as a company. (P7 Small company, CEO, Extensive amount of experience)

Only one of the processes (P7) did not include a proper competition between different systems and this was due to heavy rivalry setting from the other systems. Since the company works as a Salesforce consultancy house, it deemed the other competing systems as not an option. All the other cases had a proper competition between the candidates. At this point in the process the companies received offers from the different suppliers regarding their ways of fulfilling the company's requirements for the system. In the interviews it seemed important for the person involved in the procurement process to have a one-to-one meeting with the suppliers. Slow and deliberate evaluation and communication between the parties was seen as an important aspect.

The other aspect evaluated in this part of the questionnaire was the amount of time in the process. Time pressure might lead into rushed decisions. Enough time in the evaluation stage allows for more in-depth analyzation of the offers, systems, and solutions. In none of the cases were there a disturbing amount of

time pressure and all the interviewees felt that the decisions and evaluations were made in sufficient deliberation.

The choosing process was not rushed and there was plenty of time to evaluate the competition but the choosing of the number of solutions evaluated was a bit rushed. The time in the start was a bit limited but I feel like it was not a problem since we had quite clear views on the requirements for the solution. (P1 Large company, Chief information officer, extensive amount of experience)

The project had no time pressure. The evaluation process was deemed in nice pace. One minor issue was that sometimes people had personal time issues. (P3 Large company, Nordic sales support, some amount of experience)

The process was not rushed. All the evaluations happened with no time pressure. We wanted to make sure that the solution was a good fit for us. The process lasted about three months which was plenty time. (P4 Large company, IT manager, extensive amount of experience)

The process did not have time pressure. We had a lot of time. The process was conducted in four separate tracks. In the process of figuring out the operational models and making it work in action we had the four tracks going simultaneously. Due to this we had a lot of time and resources to ponder on each aspect. (P5 Large company, Development and technology director, decent amount of experience)

The process did have enough time and we took a lot of time to evaluate all the steps in the process. We did not use any external consultation services but rather did the whole procurement process internally. (P7 Small company, CEO, Extensive amount of experience)

A good conclusion from the answers is that in projects such as these, companies prefer a lot of time in the evaluation process. This could be due to important nature of such decisions and a desire to handle such important decisions with proper deliberation. It was very common amongst the interviewees that the time investment on the project was not compromised.

6.4 The main factors affecting the process

Whilst the other questions provided a foundation to the cases, the fourth question was the most notable in terms of this research. The fourth question focused on the factors that affected the procurement process the most. Whilst overall the answers did differ from each other, were there clear similarities in them. Since the question provided the main research question, the section is divided into specific chapter discussing the factors.

6.4.1 User experience

User experience is a quality which is mentioned the most in the answers. The usability of the system was deemed as a very important aspect whilst evaluation the options. The ease of use, simplicity and usefulness were words that resonated from the interviews for the most important factors affecting the procurement process. The conclusion that a good user experience would promote easier implementation process as well as reduced resistance to change could be made from these interviews. Interviewees 1, 2, 3, 5 and 6 felt that the simpleness of the system was very important. The functional fit and a simple solution were also mentioned by the same interviewees.

Whilst the starting points in the companies differentiated from already systems to no systems at all, did almost all of them deem the simplicity the desired step moving forward. Many of the interviewees pointed out the easiness that follows the procurement process be it that the system procured featured the factor of a good user interface. Many deemed it better solution overall to go with the more expensive option in exchange for easier steps during and after the procurement process. The user training, system implementation, integration, updating, and upgrading were heavily mentioned factors as well. In lot of the cases the companies are focused on the future thus making the next step as important to ponder as the one before it.

By investing in a simpler and costlier system now, the companies aimed to achieve a more efficient and cheaper solution in the future. By getting the users to use to system was an important viewpoint in which some of the interviewees had some negative experiences in.

The user experience was the feature with the biggest evaluation percentages. It is to be considered that user experience is difficult to evaluate absolutely but it is more about feel rather than science. All the members in the project were to evaluate the experience from their gut feel. The user experience was heavily more weighted than others. [...] In my experience the user experience is the most important. For example, SAP has in my opinion not the best user experience since although SAP enthusiasts swear that nothing is better, a more inexperienced user might feel the system very difficult to use thus more inefficient and useless. It makes it a lot easier to control organizational change management when the system is user friendly. (P1 Large company, Chief information officer, extensive amount of experience)

In this procurement process the user experience was in a clear first place whilst the price was secondary. If the people do not use the system, it is going to be more costly than the more expensive system. We wanted to prioritize the user experience since it was important to us that the training and the usage of the system is easy and thus brings more value form the procured system. (P2 Small company, Administration and service development coordinator, decent amount of experience)

In procurement process the most important facture in our evaluation was the easiness of the system. We wanted the system to provide as easy and efficient as possible solution for our needs. Our biggest problem with the prior system was that it was difficult and complex to use that it caused a lot of unnecessary time spent. [...] It was very difficult trying to get the users to use the CRM since it was not easy and pleasant to use. [...] In my opinion the cost savings are made in the time spent on the system.

Better user experience and more efficiency in the system are more valuable than a cheap system. Rather the employees focus on working rather than using excessive amounts of time to try to use the system. (P3 Large company, Nordic sales support, some amount of experience)

User experience was important aspect to us, and we wanted our users to provide the feedback specifically for the user experience. Salesforce was clearly the best in user experience in our opinion. [...] In my opinion an important viewpoint is from the user's experience. The use of the system needs to be flowing nicely and the system needs to support the user in their working. The less time the user uses the system the better. Simplicity in user experience and overall structure are important in my opinion. (P5 Large company, Development and technology director, decent amount of experience)

The most important factor for us was that the system served us the best. For us to achieve this was not through big feature list or possibility of tailoring but through good user experience. The system needed to be easy to use especially in mobile. [...] The user experience can serve the company for years to come and overall provides efficiency to our working. Therefore, I value the user experience more than the cost of the system. I would rather have a more expensive system that has an easy-to-use user experience rather than a cheaper one which might not get used as much. I see the value in the amount of use of the system and worse user experiences might cause the cost in other ways. (P6 Medium company, Sales director, decent amount of experience)

User experience is important aspect as well since people who deem the system to have a bad user experience might cause that the system does not support their working but rather slows it down. The less the system is used the worse the data is and the less value the system provides for the company. A good user experience is a must have in a system. The user experience must support the operating process in the company, or the operating process must be changed to match the system to gain the value out of the system. (P7 Small company, CEO, Extensive amount of experience)

6.4.2 Price

Price was another topic mentioned in all the interviews, but it did not seem as important in the list as the simplicity aspect. Some interviewees felt that they would have been ready to pay even more money to gain a system with good user experience. The price aspect notable in terms of the cost-value that the interviewees felt that the system brought.

In all the cases, the most expensive system was chosen, which makes the price aspect interesting. Whilst price was a feature that played a major role in the procurement process, a high price was not necessarily a turn-off for many. Price evaluation did not happen in terms of the quantity of it but rather the quality that it had in it. A better feeling, more expensive system was chosen in all the cases.

We did not want to just look at the price tag. In my experience lot of the project in which only price is looked at are gone wrong badly. In my opinion the suitability for usage is the most important aspect. Price allows a grand scale defining in the beginning, but it is not to be weighted heaviest later. (P1 Large company, Chief information officer, extensive amount of experience)

We are a small company and so we wanted to have a cost-efficient solution and that it works in a smaller scale. [...] We wanted the pricing to be transparent and easy as to match our need for a simple solution. We did not want any hidden costs in the process. We wanted a simple package deal. (P2 Small company, Administration and service development coordinator, decent amount of experience)

We were a bit cautious about the price since Salesforce was the more expensive system of the two. But in Microsoft solution there was a lot of hidden costs in the end so the pricing model for Salesforce was simpler. Also, Salesforce had a lot of the functions that we were looking for that the Microsoft did not have. Also, the licenses related to the Salesforce are paid by the third-party sellers, which made the system very cost efficient. (P4 Large company, IT manager, extensive amount of experience)

Price was important but, in the end, we did choose the more expensive solution. The positives such as user experience overshadowed the cost. (P5 Large company, Development and technology director, decent amount of experience)

Price did play a role in the decision, but the chosen system was the most expensive. The system was reasonably priced related to the usefulness that we seemed in the system. [...] Thinking about the cost aspect I feel like it was just a one-time thing in which I feel like you need to make the sacrifice to gain something useful. (P6 Medium company, Sales director, decent amount of experience)

The biggest concerns in the process were the price. As often in such processes, Salesforce was the most expensive option for us. Although the investment was very expensive for such a small company we decided to go with the solution since we saw at the time that the solution would fit nicely to our plans and that it would support our speedy growth. (P7 Small company, CEO, Extensive amount of experience)

6.4.3 Upgradeability and updateability

Long term notions such as upgradeability and updateability were mentioned in four of the cases as affecting features. Not only that the system fits the requirements that are set now but also that they continue to do so in the future. The longevity of the system was a noted aspect especially in contrast to the older systems that the companies had. This can be seen as partly in relation to the user experience which was often noted to provide a better future for the company through the amount of use that the system experiences.

The chosen system was a good fit to us with our requirements. The system was fit for a smaller company with a possibility of largening the operation. I heavily thought about the integration process of the system since it seems to be the most difficult part of the procurement process. The easier the system is to use the easier it is for employees to use and train. Resistance of change can happen easily if the system is too difficult to use. It was important in the procurement process to include the end users in the conversation to understand their needs so that the user experience could be evaluated clearer. (P2 Small company, Administration and service development coordinator, decent amount of experience)

The features of the system need to match the requirement set easily. Too much tailoring seems unnecessary especially in a simple project such as this. (P4 Large company, IT manager, extensive amount of experience)

The user experience was tested a lot in the pilot and demo sessions. Other reasons included the advancing possibilities that the system had that matched our advancing goal for the future. Also, the readiness of some features such as reporting was an important feature to us (P5 Large company, Development and technology director, decent amount of experience)

In the evaluation process the benefits of the system were analysed. How the procured system was to improve and drive our business was an important aspect. Salesforce was chosen because we knew that it would bring us the most functional benefit from. (P7 Small company, CEO, Extensive amount of experience)

6.4.4 Human aspect and communication

Whilst a lot of the affecting features were quite concrete such as price and the features of the system, a more abstract feature played a role in the procurement processes as well, a human aspect. The human aspect can be seen as the irrational aspect in the procurement process and a way to explain the other features such as user experience. Whilst user experience was the most mentioned aspect in the interviews, the evaluation aspect of the user experience was noted as a human aspect overall. Many described their evaluation process to be based on *feel* rather than to any concrete evidence.

Also, the communication and the human interaction was seen as somewhat notable aspect affecting the procurement process. The relationship between the supplier and the customer was at times the most important factor. This is also related to the *feel* that the supplier provides thus making it a more desirable choice as a system.

For example, the other system supplier was not as enthusiastic in communicating with us until we gave them an ultimatum. We viewed Salesforce as to be more involved in the procurement process which was somewhat notable for me. I had negative experiences with HubSpot which in the end affected a lot of the decision-making process in the end. Salesforce provided enough information for us to make a safer bet on the investment due to their excellent communication. Whilst the price and the user experience in the systems were quite like us, in the end, the more involved and enthusiastic supplier won. (P3 Large company, Nordic sales support, some amount of experience)

We wanted the partner to be somewhat close by to make sure that the collaboration aspect works. Both solutions had a few supplier options. The different suppliers were evaluated, and they all offered their solutions to us. Salesforce was involved together with the possible partner in the discussion process which helped us to find the best supplier for us. [...] At the end of the project when the final decisions are made, this is when you must trust your team's evaluation skills. (P4 Large company, IT manager, extensive amount of experience)

The user experience was evaluated through feel of the system. Other people's experiences and the feel and the look of the system were the aspect evaluated. The other

systems felt a bit too engineer-like and the Salesforce seemed a bit more like the Apple-kind-of simple to use system. (P6 Medium company, Sales director, decent amount of experience)

After about a month I had three offers in my table and enough information from the suppliers to make the gut decision which ended up being the Salesforce. (P6 Medium company, Sales director, decent amount of experience)

6.5 Successes, difficulties, and communication

The fifth question in the interviews was about the successfulness of the project as well as the problems that were faced. Also, the communication during the process was questioned. The question aims to bring some insight into the processes and their overall flows. Should the process have a lot of major issues or a complete failure, it would be imperative to take this into account whilst analyzing the processes. The main problems in the processes provide insight into the overall process flow and possibly some more insight into the systems and their features. Firstly, though the successfulness of the project was questioned which also often includes some of the reasons why the interviewees deemed the system desirable.

It was successful. The timing was great for the procurement process since the time was in the end of Salesforce's accounting period. This caused a major discount percentage. The discount was major one and although I think no one buys licenses for the list price the discount was major in my eyes. [...] In my opinion the discount was a major thing influencing the decision in the beginning. Salesforce seemed too expensive, but the discount made it fall into the requirement basket. Salesforce is by its list price the most expensive one but in the end, it won the price competition. (P1 Large company, Chief information officer, extensive amount of experience)

The procurement process was successful in my eyes since it being used. It was important that the system was procured to be used and that afterwards the system was chosen in a way that satisfies our employees. (P2 Small company, Administration and service development coordinator, decent amount of experience)

I feel like the process is successful and in my experience the process has been good. Someone more experienced might have a lot of areas in which they would improve the process but, in my opinion, if you reach the requirements for the system and the timeline in the end, it is a successful project. (P3 Large company, Nordic sales support, some amount of experience)

In my opinion the procurement process was successful. We went a bit over the budget in the integration processes, but this was due to our want for a proper change. [...] I consider this one of my most successful projects. (P5 Large company, Development and technology director, decent amount of experience)

The project was successful in my opinion. The project was to be done a bit earlier, but it was due to integration issues with our ERP system. The problems were not because of Salesforce or the partner but the ERP integration difficulty. (P6 Medium company, Sales director, decent amount of experience)

We made a right decision in the process. [...] In my opinion the strong involvement of the leadership ladder is important aspect in procurement processes to maximize the value of the investment. A system that does not get used is rarely the one that should be chosen. (P7 Small company, CEO, Extensive amount of experience)

As seen from the answers, all the interviewees felt that the procurement process was considered successful. At times the processes faced time issues and the projects were dragged out, but the interviewees did not see this as major failure. There were multiple different reasons why the interviewees felt that the process was successful. Some felt that the system being used meant that the procurement process was successful. Other felt that the project scope and time match meant a successful process. The timing problems were often related to later realized problems or internal time problems, so the interviewees did not deem them as failures in the process.

The next part of the interview was the problems that the interviewees faced during the procurement process. The most common problem amongst the processes was integration processes between the old and the new systems. This was a feature mentioned by some in the procurement process requirement set part. A system that has an ability to easily integrate to older systems od data banks was somewhat important aspect. Analysing from the answers it could have been an even more important aspect to consider. Should the preparation for the integration process be a little more though and planned would there be possibly less problems in this area. This often caused a time problem which could be planned better in the earlier stages of the project.

Another common problem was internal resources. Internal resources could refer to time, skills, or communication. These were areas in which the interviewees felt that they could have done better in. The last part of the questions was related to the overall communication in the project and how the interviewees felt that it went.

Major problem in the process was deadlines set by Salesforce which were difficult to achieve. The resistance from the leadership ladder caused the deadlines to be very difficult to match. There was also discussion in the beginning about the system and its need overall. Some argued that we do not need a new system at all. [...] The partner was not a big problem, but the Salesforce solution experienced a heavy resistance. In the background there was a problem that this same solution was used 10 years back by the parent company. The problem is that the parent company misused the Salesforce as a personnel efficiency evaluator which left a negative stigma around the system. (P1 Large company, Chief information officer, extensive amount of experience)

The project did not encounter major problems but one of the problems was the system implementation process since some of the employees require a notable time in it. In the procurement process there was no problems since the project was quite simple and clear. (P2 Small company, Administration and service development coordinator, decent amount of experience)

Our internal resources were the biggest problem in the process. People have a lack of time at times. The lack of time causes some tasks to be neglected for too long. The lack of time is very understandable though since the time in the world right now causes a

heavy fluctuation in the resource market. (P3 Large company, Nordic sales support, some amount of experience)

There were no bigger problems in the process. The solution was quite a simple one so there was no problems. The solution we procured had a limited number of users in the end from the company's scale so there were a limited number of users affected by the decision. In my experience the decision-making processes overall consist of often changing problems. [...] One of the problems was the requirement set process which we lacked a bit of prior knowledge of these kinds of systems. (P4 Large company, IT manager, extensive amount of experience)

The biggest problem in the project was in my opinion the small lack of frequency in the communication between the different tracks. Some of the integrations between the needed legacy systems were troublesome. In my opinion we could have made even more simplifications in some processes, but we lacked a bit of courage as a company to make these happen. (P5 Large company, Development and technology director, decent amount of experience)

As mentioned, the biggest problem was the ERP integration. We also lack knowledge from within the company so there is a fourth party involved which is an IT-support. This four-way has brought a little trouble. (P6 Medium company, Sales director, decent amount of experience)

Communication overall was deemed as a successful element of the process. All the interviewees felt that the communication was proper, and it did not cause major problems. Some of the more interesting elements in the communication were between the suppliers and the procuring company. One can see the personal differences that come in to play whilst evaluating the communication. Some felt that the communication was pressuring whilst some liked the more intensive communication. This can be seen as a human element in the process since the viewpoint to the communication can change related to the person's preferences.

The communication in the project was successful in my opinion. There were no major problems considering communication. The one-to-one interaction was important phase of keeping the communication clear. (P2 Small company, Administration and service development coordinator, decent amount of experience)

The communication was successful in the project and our organizational structure is very low so there were not any difficulties communicating back and forth with and amongst the work group. (P3 Large company, Nordic sales support, some amount of experience)

We planned a lot of time for the communication processes, so the communication was successful. (P4 Large company, IT manager, extensive amount of experience)

As mentioned, the problem was the frequency of communication in syncing the tracks. The communication overall was good, but the communication could have been better amongst the teams. In my opinion a great deal of proper communication provided the partner and supplier which were heavily involved in the communication. (P5 Large company, Development and technology director, decent amount of experience)

From Salesforce there was enough communication though maybe a bit too much at times. Internal communication was excellent. The process was gone through by all the internal parties and the requirements were set by the whole team. (P7 Small company, CEO, Extensive amount of experience)

7 ANALYSIS

In this chapter the focus is on the deliberations and conclusions from the results. The chapter also inspects the possible utilization targets for the research results as well as possible limitations and future research topics.

7.1 Conclusions

In this chapter the main conclusions from the interview answers are proposed. The answers go through a reference and comparing process to the literature review section of the research. Overall, the empirical section results match with the literature section results though the weighting of the different factors differs a bit.

7.1.1 The procured systems and services

The procured systems list consists of Salesforce CRM system as well as marketing automation systems and an electronic signature system. All of these are cloud-based information systems which is a topic covered in the chapter 2. One could argue that all the cases in the empirical section were looking for the overall benefits that the cloud provides for the company and the system. As mentioned in the chapter 2.1.2 by Kolluru and Mantha, (2013) the cloud allows for a type of agility specific to it. Adjectives such as stiff, old, and difficult to use were used to describe a lot of old systems that the companies had in the interviews. It is to be noted that the adjectives can also be seen as describing a transformation from an older on-site system into a newer on-site system. Adopting into a new system regardless of the cloud aspect is often due to the need of a change towards a better system.

The cloud procurements consisted of mostly of hybrid and community cloud models. The marketing automation is often produced in the community cloud whereas the traditional CRM solution is often a hybrid model solution.

All the solutions are considered SaaS solutions, but some also have aspects of IaaS solutions since some companies had their own system which needed integration with the procured system. Salesforce solution as well as HubSpot and the electronic signature system are SaaS solutions in that they offer an environment which can be accessed through the web and required no hardware (Sowmya, Deepika and Naren, 2014).

Interesting aspect to notice is that even though most of the procurement processes were related to the Salesforce, the actual solution changed between the processes. Modern cloud-based systems such as Salesforce are varied in their offering to the customers. Whilst most of the companies procured similar solution all the systems in the end were very different from each other. This variability

and flexibility is also a feature of cloud-based systems (Kolluru and Mantha, 2013).

7.1.2 The procurement process progression

All the procurement processes follow the IT procurement process discussed in the chapter 3. All the cases fit the definition of an IT procurement process by being a process of acquiring information technology goods or services through buying them. (Hellsten *et al.*, 2016). All the processes consisted of a choice between suppliers and were part of the industry 4.0 phenomenon as they all had the cloud element present.

All the procurement processes fall into the commodity matrix by Wagner, Padhi and Bode (2013). Whilst some of the processes can be seen as a strategic item due to their strategic importance do the markets also provide alternate suppliers and substitutability. All the systems can be thus seen as a leverage or non-critical items just differentiating in price.

The most accurately the empirical section cases followed the rational decision-making model by Schoenfeld, (2011). All the processes followed the combination of presented decision-making and procurement process models in the chapter 3.2. Problem identification, evaluation of alternatives, choosing an alternative as well as implementation are all steps that were present in the interview cases. Whilst the evaluation processes did differ from each other were they all present in some form. In some cases, there was more strategic fit discussed, market analysis conducted, and general screening performed.

7.1.3 Competitional aspect and time pressure

By considering the competitional aspect and a possible time pressure, the research aims to evaluate the maturity of the decision-making process. Whilst the processes have proper competitional aspect and a lack of time pressure, can we be sure that the procurement process has had no biased evaluation processes.

All the processes in the research par one had a proper competitional aspect in them. This competitional aspect consisted of different options in the evaluation process. Some cases consisted of a procurement process of a supplier or a partner company as well and a competitional aspect was present here as well.

None of the processes had extensive amounts of time pressure which allows for the results to be more valid since the evaluation processes have been more in-depth.

7.1.4 The main factors affecting the procurement process

The factors that can be derived from the interviews are illustrated in the following Table 7 compared to the factors explored in the literature review section.

Table 7 Factors affecting cloud-based procurement process based on interviews

| Factors affecting the procurement process | Interviewee Reference |
|--|----------------------------|
| Characteristics of CSP independent from service | P1, P3, P4 |
| Performance of the service features and functions in reality | P4, P5, P7 |
| Security on protection and service control | P4 |
| Organization culture to be responsive and flexible | P2, P5, P6, P7 |
| Regulatory environment through law and regulations | |
| Relative advantage through increased effectiveness of organization | P1, P4, P5, P7 |
| Trialability of a new technology | P1, P2, P5 |
| Vendor lock-in as to reduce the stress of changing the supplier | P4, P7 |
| Cost control and governance | P2, P4, P7 |
| Cost of the system | P1, P2, P3, P4, P5, P6, P7 |
| Customization, modification, evolution of the system | P3, P4, P5, P7 |
| Pressure from partners in the business ecosystem | P1, P7 |
| User experience | P1, P2, P3, P5, P6, P7 |
| Functionalities of the system | P4 |
| Pressure from competition | P7 |

Comparing the interviews results and the Table 4 which lists the factors affecting cloud-based procurement process based on the literature one can notice the differences. Whilst in the chapter 4 user experience was listed as a notable factor in procurement processes by only three references compared to features such as security which was referenced 11 times, it seemed as a most notable result in this research along with cost.

The characteristics of the system provider were mentioned by three interviewees as an affecting factor. The way that Salesforce conducted their business and sales was somewhat affecting factors in these cases. These cases mentioned either the Salesforce or the partner company as the affecting factor.

Performance of the service could be deemed as an obvious one due the nature of cloud versus on-premises based on the literature review. Cloud provides increased agility and efficiency compared to the on-premises systems which is why it is often listen as an affecting factor. This factor could be deemed as obvious in the context of a procurement process since often the goal of the procurement process is to aim for more efficiency in a system. This performance upgrade is not necessarily tied to the cloud aspect but as an aspect in the IT procurement process overall.

Security was mentioned by one interviewee in the interviews as an affecting feature in the procurement process. As mentioned, this does not go directly against the proposition that the feature is important since the cloud in itself provides increased security compared to the on-premises systems. (Amron, Ibrahim and Chuprat, 2017). The difference between the importance of the factors in the literature review and the empirical section differ somewhat. This can be due to lacking interview structure, the obviousness of the feature, the lack of its real affection in procurement processes or a too small sample size. The most probable explanations for this are the lack of role that the security plays in the procurement process and the lack of involvement from the interviewee in the topic of security. Security is often discussed in the intention to procure IT system thus not relevant in the procurement process. (Ahn and Ahn, 2020). Security is also often handled by the security unit in the company which might stay separate from the procurement process. It is to be noted though that it did not seem as important feature in the interviews as was theorized.

Regulatory aspects were not mentioned by anyone in the interviews. This could be due to the privacy nature that such topics has or the disinvolvement of the person interviewed to such actions. Same theorization can be used to the regulatory aspect as in the security aspect. It might not be part of the procurement process, or the interviewee was not involved in it. To be noted again that it does not mean that it is not an affecting factor.

Organizational culture responsiveness was mentioned as an effecting factor in four of the cases. The system functional fit can be seen to fit this category of affecting factor. The interviewees deemed that it was somewhat important that the system allowed for a flexible organizational culture, and this was formed through well-fitting system. In the four cases the focus was on involving the whole company to the system to able for a smooth transition.

Relative advantage through increased effectiveness was somewhat relevant topic in the interviews. Some companies felt that the competition aspect in the market is forcing the decision to move into a cloud-based solution. Four of the seven interviewees felt that the system was to give efficiency that was previously not had or was lacking.

Trialability of the system was noted three interviewees. Some of the procurement processes included a trial period of the system in which the user got to use the system in a trial basis, and this was deemed as a somewhat important aspect. This was especially important from the viewpoint of user experience.

Two of the interviewees saw the vendor lock-in as an affecting factor. Locking in a vendor is made to prevent stress and in this the CSP characteristics played a secondary role. The need for a good fit between the vendor and the customer was notable in the sense that it would create a working and notable relationship between the parties. This relationship was an affecting factor to two of the interviewees and they spend some time evaluating if the vendor was a proper fit for them.

Cost was a facture that was mentioned in all the interviews. Whilst cost was an important facture it is wrong to assume that a high cost was undesirable. All the interviewees chose a more expensive system so a high cost in a system is not the question. The question that was focused on the procurement process was to

the cost-value impression that the companies got. All the companies ended up choosing the more expensive system whilst believing that the investment is worth it for the value that the system gives. Whilst the cost was an affecting feature in all the cases, it is important for one to understand that it consists of more than just the expensiveness of the system.

Customizability, modifiability and evolvability of the system were mentioned in four interviews as an affecting factor. Especially the future use of the system was often an affecting feature of the system. Upgradeability and updateability were seen as desirable factors in the systems thus affecting the procurement process.

Pressure from partners in the business ecosystem or from competition can be seen as an affecting factor in two of the interviewee's answers. Especially in the cases of "old" systems the pressure to evolve was present in the interviews. Some of the long-established companies had an external as well as internal pressure to move to the modern power curve. Pressure was also seen in two of the cases as an attempt to force a decision by the leadership ladder that was not preferred by the interviewee.

User experience was a factor that was mentioned by six out of seven interviewees. It was also a feature that was put the most value in overall in the interviews. Whilst this was mentioned in the literature review section, did it not endure as much prominence as it did in the empirical section of the research. This was a result which was not expected from the literature review. This could be due to pure value seen in the user experience and its provided efficiency, the transformation from an "old" system to a new one can provide an extreme example of opposites in such features as user experience. This feature is not exclusive to cloud although cloud is theorized in having excellent qualities in the easiness of use. (Godse and Mulik, 2009; Johansson and Ruivo, 2013; Nadeem, 2020). It can be argued that a move from an old on-premises to a new on-premises system would include this same factor as a notable affecting factor. As the human element plays a heavy role in the user experience evaluation overall it is even more difficult to note the difference between the qualities of cloud and transformation from an old system to a new one. (Lunenborg, 2010; Schoenfeld, 2011). One would have to dwell deeper into the user experience as an affecting factor to note the difference in the two cases. User experience is also a term which includes many subcategories such as ease of use, perception of utility and perception of efficiency. (Davis and Davis, 1989). The reason for the difference could also be the sample size and its focus towards Salesforce.

7.1.5 Successes, difficulties, and communication

Understanding the overall successfulness of the procurement processes provides an unbiasedness to the research. All the interviewees felt that the procurement processes were successful providing a solid foundation to base the information on. All the interviewees also felt that the communication was successful and was not a factor that would have caused any biasness to the procurement process.

Major problems in the procurement processes were internal resources which in the end did not affect the procurement processes in a negative way from the viewpoint of the interviewees. Major problems in the processes could implicate difficulties in the systems or yet again biasedness in the procurement process.

7.2 Utilizing the results

The results from the research can be used to provide perspective to both the company and to researchers. For the supplier the research provides a list of formed factors affecting the procurement processes presented in the chapter 4. This list allows for the suppliers to optimize their product or service offering to match these features. The empirical section provides a more real-life view on the topic, providing a different perspective to the customer's needs.

Another use of utilization is from a company which is looking to perform a procurement process of a cloud-based system. The research provides a lot of useful information about cloud-based systems as well as procurement process overall. The literature review section provides a list of features that are often seen affectual in the procurement processes. The empirical section provides another perspective from a company's point-of-view. This point-of-view can be very interesting since it provides some in-depth processes that happen in the procurement process and increased reasoning behind the decisions.

For the field of information technology, the research provides a viewpoint into the cloud-based CRM system procurement process especially with a focus on Salesforce. This viewpoint could be compared to other providers and technologies in the same field as to provide in-depth aspects of such systems and their strengths and weaknesses.

The research provides a more concrete answer to the question of affecting features in a cloud-based CRM system procurement process. Whilst theory can be reviewed to provide this answer the empirical section provides a more in-depth view on a specific case study. This research can be used to reference into the aspects that specifically Salesforce has in its procurement processes and the strengths that it holds against other systems.

7.3 Limitations and critical inspection

The main limitation in this research is the number of interviewees as well as similarity in the cases. Whilst the companies and the interviewees differ from each other the procured system was very similar in many of them. The companies and the interviewees display a variation of field, roles and perspectives which makes the research valuable, but the lack of different systems procured could be the reason for very similar answers in the interviews.

Whilst the companies were varied were they all procured from a single contact which provides some similarity between them. The contact works in the field of Salesforce which caused a lot of the solutions to be Salesforce.

One limiting aspect to note as well was the language of which the interviews were held. The interviews were held in Finnish after which they were translated into English to their final form. In this translation process some of the points could have been lost due to the relaxed nature of the interviews and the difficulty to translate Finnish spoken terms into English. The researcher, being Finnish, has gained a C2 level in English which provides a sufficient ability to translate the interviews, but a risk of vocabulary mishaps is a possible limitation.

The interviews were held through a video contact which could be seen as a limiting factor since face-to-face contact could be seen as a more natural way of communicating. Although the technology did not cause any problems could the video aspect of the interviews pose an unnatural aspect.

7.4 Future research

Research from the subject of cloud-based CRM procurement process is overall somewhat lacking. Due to this all subjects related to the mentioned topic would be advantageous for the field of IT. Majority of the research is focused on the public sector. Specifically targeting the cloud-based procurement processes allows us to better understand the future way of working. In all the cases in this research the companies not only wished to procure a system, but they specifically targeted cloud-based systems. This phenomenon seems to be the future.

Seeing the difference in the factors affecting the procurement process in this research it would be interesting to see if this result is repeatable. User experience being the main factor affecting procurement processes leaves a notion for supplier to further aim to improve the user experience.

Psychological point-of-view would provide more insight into the “feelings” in which a lot of the procurement processes came down in the end. Humans continue to be irrational beings who based on contingency theory lack the way of making “the best” decision. This human element could be researched more providing insight into the mind of a human whilst evaluating the different options in a procurement process.

Similar study could be formed with a larger variability in the interviewees as well as greater amount of the interviewees. This variability could provide clearer answer to the question and possibly providing more aspects not mentioned in this research. The topic is important for all the parties involved in a procurement process thus making it an important one to focus future research on.

8 SUMMARY

The thesis explored the procurement process related to Salesforce CRM and the factors that affected the process. The main research question of the thesis was: “What are the factors that affect the procurement process of a cloud-based CRM system?”.

The results from this research partly comply with the earlier research. The empirical section illustrates that whilst all the factors presented in the chapter 4 are relevant, some are relevant than the earlier research suggests. The earlier research proposes according to sheer number of mentions that security and costs are the two main factors affecting procurement processes whilst this research concluded that the user experience and costs are the two most affecting ones.

User experience was seen as a notable affecting factor in the research. Whilst user experience was deemed as the most notable feature, only second to cost, it is to be noted that the distinction between a quality that the cloud has and an obvious quality that a new system has compared to an old one is difficult to differentiate. Evaluating user experience as a factor was deemed difficult in this research since the interviewees themselves described it being based on nothing but their *feel* for the system. As mentioned, it is to be noted that this user experience as an affecting factor is not exclusively related to the cloud aspect in this research. Whilst the cloud can offer increased user experience, a regular transformation from an older on-site system to a new one can offer similar increase in user experience.

Topics such as security and regulations played a role in the literature review section whilst they were not seen in the empirical section as much. This can be due to the possibility of interviewees lacking the responsibility in such area. Another explanation is the lack of these topics being a part of the procurement process. As theorized in the research these topics can be evaluated even before the procurement process begins which is why they are not seen in the process. It is to be noted that these topics can and often will play an important role in such procurement processes although not seen in the empirical section of the research.

Cost of the system was seen as an important factor but in the sense that the system needed to match the cost in the value it provides. The empirical section provided an insight into the cost aspect in that it is not the amount of cost necessarily that is the affecting factor, as one might assume, but is the cost-value that the customer *feels* that they are getting. Functional fit of the system was another factor mentioned often as an affecting factor. Functional fit in the context of the research can be referred to the easiness aspect that it brings to the company. Integration and implementation were topics that were deemed as important in or after the procurement process. These topics are example of the ones that relate to the functional fit aspect.

Feel is a term which seems important in the research as well since at times in the results of the interview. It is noticeable in the interview answers that the reasoning for the affecting factors is often based on *feel*. This human element was proposed in the literature review section of the research. The research includes some psychological aspects in it through the contingency theory as well as the

irrationality of people. Whilst user experience was noted an affecting factor in the procurement processes, evaluating it was described to be based on the *feel* for the system. The contingency theory suggests that there is no one correct way of forming the decision-making process. The results go along with the theory in that all the processes in the research followed a process that felt correct to them and made decisions based on evaluation criteria set by them. Despite the in-depth evaluation process and the comparing process of the supplier, the decision could be seen as to be based on the persons *feel* about the correct option, rather than any “one” correct way of deciding.

The interviews were formed in a way that enough information about the legitimacy of the interviews could be gathered. Communication and overall process successfulness were seen as successful factors in the procurement processes. The cases in the research did include enough aspects to remark them as valid.

By addressing time pressure and the competition aspect the research aimed to increase this maturity in the evaluation section of the procurement process. None of the cases experienced a disturbing time pressure nor lacking competition aspect par one case. Time pressure or major lack of competition aspect might cause biased results since a procurement process according to the models presented in the chapter 3 include such topics.

The main limitation in the research was the lack of interviewees as well the lack of variety in the cloud-based systems that were procured. Whilst the research provides a notable viewpoint on the topic, in the future research concerning more varied and increased abundance of interviewees could provide a better insight into the topic of cloud-based procurement processes.

This research offers to the academic society a more in-depth view to the factors affecting cloud-based CRM procurement process. This is a process which is increasingly prevalent as companies evaluate between the update and upgrade options in their systems. Research from the topic is somewhat lacking with most of it focusing towards public sector as well as the overall view on the topic. A more specific view into the psychology of decision making in information technology should be explored. Whilst this research noted user experience as a notable factor affecting cloud-based CRM procurement processes, the definition for the term in this context, is still ambiguous.

REFERENCES

- Ahn, B. and Ahn, H. (2020) 'Factors Affecting Intention to Adopt Cloud-Based ERP from a Comprehensive Approach', *Sustainability*, 12(16), p. 6426. Available at: <https://doi.org/10.3390/su12166426>.
- Alanne, A. *et al.* (2015) 'Three Positives Make One Negative: Public Sector IS Procurement', in E. Tambouris *et al.* (eds) *14th International Conference on Electronic Government (EGOV)*. Thessaloniki, Greece (Electronic Government), pp. 321–333. Available at: https://doi.org/10.1007/978-3-319-22479-4_24.
- Al-Ghofaili, A.A. and Al-Mashari, M.A. (2014) 'ERP system adoption traditional ERP systems vs. cloud-based ERP systems', in *Fourth edition of the International Conference on the Innovative Computing Technology (INTECH 2014)*. *Fourth edition of the International Conference on the Innovative Computing Technology (INTECH 2014)*, pp. 135–139. Available at: <https://doi.org/10.1109/INTECH.2014.6927770>.
- Alotaibi, M. (2016) 'Antecedents of software-as-a-service (SaaS) adoption: a structural equation model', *International Journal of Advanced Computer Research*, 6, pp. 114–129. Available at: <https://doi.org/10.19101/IJACR.2016.626019>.
- Amron, M.T., Ibrahim, R. and Chuprat, S. (2017) 'A Review on Cloud Computing Acceptance Factors', *Procedia Computer Science*, 124, pp. 639–646. Available at: <https://doi.org/10.1016/j.procs.2017.12.200>.
- Anjana, P.S. *et al.* (2019) 'Cloud Service Provider Evaluation System Using Fuzzy Rough Set Technique', in *2019 IEEE International Conference on Service-Oriented System Engineering (SOSE)*. *2019 IEEE International Conference on Service-Oriented System Engineering (SOSE)*, pp. 187–18709. Available at: <https://doi.org/10.1109/SOSE.2019.00033>.
- Araujo, V., Vazquez, J. and Cota, M. (2014) 'A Framework for the Evaluation of SaaS Impact', *International Journal in Foundations of Computer Science & Technology*, 4. Available at: <https://doi.org/10.5121/ijfcst.2014.4301>.
- Balobaid, A. and Debnath, D. (2020) 'An Effective Approach to Cloud Migration for Small and Medium Enterprises (SMEs)', in *2020 IEEE International Conference on Smart Cloud (SmartCloud)*. *2020 IEEE International Conference on Smart Cloud (SmartCloud)*, pp. 7–12. Available at: <https://doi.org/10.1109/SmartCloud49737.2020.00011>.
- Bannister, F. and Remenyi, D. (1999) 'Instinct and Value in IT Investment Decisions', *undefined* [Preprint]. Available at: <https://www.semanticscholar.org/paper/Instinct-and-Value-in-IT->

Investment-Decisions-Bannister-Remenyi/36df78cfe789100dd6492b23d26432852e6d10b1 (Accessed: 24 March 2022).

- Bannister, F. and Remenyi, D. (2000) 'Acts of faith: Instinct, value and IT investment decisions', *Journal of Information Technology*, 15, pp. 231–241. Available at: <https://doi.org/10.1080/02683960050153183>.
- Bassi, L. (2017) 'Industry 4.0: Hope, hype or revolution?', in *2017 IEEE 3rd International Forum on Research and Technologies for Society and Industry (RTSI)*. *2017 IEEE 3rd International Forum on Research and Technologies for Society and Industry (RTSI)*, pp. 1–6. Available at: <https://doi.org/10.1109/RTSI.2017.8065927>.
- Benbasat, I., Goldstein, D. and Mead, M. (1987) 'The Case Research Strategy in Studies of Information Systems', *MIS Q.* [Preprint]. Available at: <https://doi.org/10.2307/248684>.
- Boillat, T. and Legner, C. (2013) 'From On-Premise Software to Cloud Services: The Impact of Cloud Computing on Enterprise Software Vendors' Business Models', *Journal of Theoretical and Applied Electronic Commerce Research*, 8(3), pp. 39–58. Available at: <https://doi.org/10.4067/S0718-18762013000300004>.
- Boyne, G. (2002) 'Public and Private Management: What's the Difference?', *Journal of Management Studies*, 39, pp. 97–122.
- Büyüközkan, G., Göçer, F. and Feyzioğlu, O. (2017) 'Cloud computing technology selection based on interval valued intuitionistic fuzzy group decision making using MULTIMOORA approach', in *2017 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)*. *2017 IEEE International Conference on Fuzzy Systems (FUZZ-IEEE)*, pp. 1–6. Available at: <https://doi.org/10.1109/FUZZ-IEEE.2017.8015682>.
- Cloud computing - statistics on the use by enterprises - Statistics Explained* (2021). Available at: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Cloud_computing_-_statistics_on_the_use_by_enterprises#Use_of_cloud_computing_highlights (Accessed: 25 February 2022).
- Costa, P., Santos, J.P. and Silva, M.M. da (2013) 'Evaluation Criteria for Cloud Services', in *2013 IEEE Sixth International Conference on Cloud Computing*. *2013 IEEE Sixth International Conference on Cloud Computing*, pp. 598–605. Available at: <https://doi.org/10.1109/CLOUD.2013.70>.
- Davis, F. and Davis, F. (1989) 'Perceived Usefulness, Perceived Ease of Use, and User Acceptance of Information Technology', *MIS Quarterly*, 13, p. 319. Available at: <https://doi.org/10.2307/249008>.

- Denzin, N.K. and Lincoln, Y.S. (2011) *The SAGE Handbook of Qualitative Research*. SAGE.
- DiCicco-Bloom, B. and Crabtree, B.F. (2006) 'The qualitative research interview', *Medical Education*, 40(4), pp. 314–321. Available at: <https://doi.org/10.1111/j.1365-2929.2006.02418.x>.
- Donaldson, L. (2001) *The Contingency Theory of Organizations*. SAGE.
- Fehér, D.J. and Sándor, B. (2019) 'Cloud SaaS Security Issues and Challenges', in *2019 IEEE 13th International Symposium on Applied Computational Intelligence and Informatics (SACI)*. *2019 IEEE 13th International Symposium on Applied Computational Intelligence and Informatics (SACI)*, pp. 000131–000134. Available at: <https://doi.org/10.1109/SACI46893.2019.9111529>.
- Fisher, C. (2018) 'Cloud versus On-Premise Computing', *American Journal of Industrial and Business Management*, 08(09), pp. 1991–2006. Available at: <https://doi.org/10.4236/ajibm.2018.89133>.
- Frank, A., Dalenogare, L. and Ayala, N. (2019) 'Industry 4.0 technologies: Implementation patterns in manufacturing companies', *International Journal of Production Economics*, 210. Available at: <https://doi.org/10.1016/j.ijpe.2019.01.004>.
- Gartner, Inc. (2020) *Definition of Software as a Service (SaaS) - Gartner Information Technology Glossary*, Gartner. Available at: <https://www.gartner.com/en/information-technology/glossary/software-as-a-service-saas> (Accessed: 27 February 2022).
- Gartner, Inc. (2021) *Market Share: Enterprise Application Software as a Service, Worldwide, 2020*, Gartner. Available at: <https://www.gartner.com/en/documents/4001152/market-share-enterprise-application-software-as-a-service-worldwide-2020> (Accessed: 25 February 2022).
- Gerring, J. (2004) 'What Is a Case Study and What Is It Good for?', *The American Political Science Review*, 98(2), pp. 341–354.
- Godse, M. and Mulik, S. (2009) 'An Approach for Selecting Software-as-a-Service (SaaS) Product', in *2009 IEEE International Conference on Cloud Computing*. *2009 IEEE International Conference on Cloud Computing*, pp. 155–158. Available at: <https://doi.org/10.1109/CLOUD.2009.74>.
- Hellsten, P. et al. (2016) 'Together We Stand, Divided We Fall – Analyzing Information Systems Acquisition as Service', in *2016 49th Hawaii International Conference on System Sciences (HICSS)*. *2016 49th Hawaii International Conference on System Sciences (HICSS)*, pp. 4870–4879. Available at: <https://doi.org/10.1109/HICSS.2016.604>.

- Hentschel, R., Leyh, C. and Baumhauer, T. (2019) 'Critical Success Factors for the Implementation and Adoption of Cloud Services in SMEs', in. Available at: <https://doi.org/10.24251/HICSS.2019.882>.
- Hommen, L. and Rolfstam, M. (2009) 'Public procurement and innovation: Towards a taxonomy', *Journal of Public Procurement*, 9, pp. 17–56. Available at: <https://doi.org/10.1108/JOPP-08-03-2008-B001>.
- Howcroft, D. and Light, B. (2006) 'Reflections on issues of power in packaged software selection', *Inf. Syst. J.* [Preprint]. Available at: <https://doi.org/10.1111/j.1365-2575.2006.00216.x>.
- Hu, E. and Liu, Y. (2008) 'IT Project Change Management', in *2008 International Symposium on Computer Science and Computational Technology*. 2008 International Symposium on Computer Science and Computational Technology, pp. 417–420. Available at: <https://doi.org/10.1109/ISCST.2008.224>.
- Jabbari, R. et al. (2016) *What is DevOps?: A Systematic Mapping Study on Definitions and Practices*, p. 11. Available at: <https://doi.org/10.1145/2962695.2962707>.
- Jamieson, B. (2007) *Information systems decision making: Factors affecting decision makers and outcomes*. thesis. CQUniversity. Available at: https://acquire.cqu.edu.au/articles/thesis/Information_systems_decision_making_Factors_affecting_decision_makers_and_outcomes/13422254/2 (Accessed: 24 March 2022).
- Jede, A. and Teuteberg, F. (2015) 'Managing the Cloud Procurement Process – Findings from a Case Study', *International Journal of Economics and Management Engineering*, 9(2), pp. 378–388.
- Johansson, B. and Ruivo, P. (2013) 'Exploring Factors for Adopting ERP as SaaS', *Procedia Technology*, 9, pp. 94–99. Available at: <https://doi.org/10.1016/j.protcy.2013.12.010>.
- Jokonya, O. (2015) 'Validating Technology Acceptance Model (TAM) during IT Adoption in Organizations', in *2015 IEEE 7th International Conference on Cloud Computing Technology and Science (CloudCom)*. 2015 IEEE 7th International Conference on Cloud Computing Technology and Science (CloudCom), pp. 509–516. Available at: <https://doi.org/10.1109/CloudCom.2015.56>.
- Khajeh-Hosseini, A., Greenwood, D. and Sommerville, I. (2010) 'Cloud Migration: A Case Study of Migrating an Enterprise IT System to IaaS', in *2010 IEEE 3rd International Conference on Cloud Computing*. 2010 IEEE 3rd International Conference on Cloud Computing, pp. 450–457. Available at: <https://doi.org/10.1109/CLOUD.2010.37>.

- Kimberlin, C.L. and Winterstein, A.G. (2008) 'Validity and reliability of measurement instruments used in research', *American Journal of Health-System Pharmacy*, 65(23), pp. 2276–2284. Available at: <https://doi.org/10.2146/ajhp070364>.
- Kolluru, N.V.S. and Mantha, N. (2013) 'Cloud integration – Strategy to connect applications to cloud', in *2013 Annual IEEE India Conference (INDICON)*. *2013 Annual IEEE India Conference (INDICON)*, pp. 1–6. Available at: <https://doi.org/10.1109/INDICON.2013.6726096>.
- Korpelainen, E. (2011) 'Theories of ICT System Implementation and Adoption – A Critical Review', *Aalto University*, p. 57.
- Lee, M.J., Wong, W.Y. and Hoo, M.H. (2017) 'Next era of enterprise resource planning system review on traditional on-premise ERP versus cloud-based ERP: Factors influence decision on migration to cloud-based ERP for Malaysian SMEs/SMIs', in *2017 IEEE Conference on Systems, Process and Control (ICSPC)*. *2017 IEEE Conference on Systems, Process and Control (ICSPC)*, pp. 48–53. Available at: <https://doi.org/10.1109/SPC.2017.8313020>.
- Lunenburg, F.C. (2010) 'THE DECISION MAKING PROCESS', *NATIONAL FORUM OF EDUCATIONAL ADMINISTRATION AND SUPERVISION JOURNAL*, 27(4), p. 12.
- Manvi, S.S. and Krishna Shyam, G. (2014) 'Resource management for Infrastructure as a Service (IaaS) in cloud computing: A survey', *Journal of Network and Computer Applications*, 41, pp. 424–440. Available at: <https://doi.org/10.1016/j.jnca.2013.10.004>.
- McLeod, L. and MacDonell, S.G. (2011) 'Factors that affect software systems development project outcomes: A survey of research', *ACM Computing Surveys*, 43(4), pp. 1–56. Available at: <https://doi.org/10.1145/1978802.1978803>.
- Meena, M. and Bharadi, V.A. (2016) 'Performance analysis of cloud based software as a service (SaaS) model on public and hybrid cloud', in *2016 Symposium on Colossal Data Analysis and Networking (CDAN)*. *2016 Symposium on Colossal Data Analysis and Networking (CDAN)*, pp. 1–6. Available at: <https://doi.org/10.1109/CDAN.2016.7570951>.
- Mell, P. and Grance, T. (2011) 'The NIST Definition of Cloud Computing', *NIST Special Publication 800-145*, p. 7.
- Misra, S.C. and Mondal, A. (2011) 'Identification of a company's suitability for the adoption of cloud computing and modelling its corresponding Return on Investment', *Mathematical and Computer Modelling*, 53(3), pp. 504–521. Available at: <https://doi.org/10.1016/j.mcm.2010.03.037>.

- Moe, C. (2014) 'Research on Public Procurement of Information Systems: The Need for a Process Approach', *Communications of the Association for Information Systems*, 34(1). Available at: <https://doi.org/10.17705/1CAIS.03478>.
- Moe, C.E. and Päivärinta, T. (2011) 'Challenges in Information Systems Procurement in the Norwegian Public Sector', in M. Janssen et al. (eds) *Electronic Government*. Berlin, Heidelberg: Springer, pp. 404–417. Available at: https://doi.org/10.1007/978-3-642-22878-0_34.
- Morgan, L. and Conboy, K. (2013) 'Key Factors Impacting Cloud Computing Adoption', *Computer*, 46(10), pp. 97–99. Available at: <https://doi.org/10.1109/MC.2013.362>.
- Mostafa, A.M. (2021) 'An MCDM Approach for Cloud Computing Service Selection Based on Best-Only Method', *IEEE Access*, 9, pp. 155072–155086. Available at: <https://doi.org/10.1109/ACCESS.2021.3129716>.
- Nadeem, F. (2020) 'A Unified Framework for User-Preferred Multi-Level Ranking of Cloud Computing Services Based on Usability and Quality of Service Evaluation', *IEEE Access*, 8, pp. 180054–180066. Available at: <https://doi.org/10.1109/ACCESS.2020.3027775>.
- Nicoletti, B. (2016) *Cloud Computing and Procurement*. Available at: <https://doi.org/10.1145/2896387.2896441>.
- Noble, H. and Smith, J. (2015) 'Issues of validity and reliability in qualitative research', *Evidence Based Nursing*, 18(2), pp. 34–35. Available at: <https://doi.org/10.1136/eb-2015-102054>.
- O'Dwyer, R. and Neville, S.W. (2017) 'Assessing QoS consistency in cloud-based software-as-a-service deployments', in *2017 IEEE Pacific Rim Conference on Communications, Computers and Signal Processing (PACRIM)*. *2017 IEEE Pacific Rim Conference on Communications, Computers and Signal Processing (PACRIM)*, pp. 1–6. Available at: <https://doi.org/10.1109/PACRIM.2017.8121889>.
- Ojala, A. (2013) 'Software-as-a-Service Revenue Models', *IT Professional*, 15, pp. 54–59. Available at: <https://doi.org/10.1109/MITP.2012.73>.
- Okoli, C. and Schabram, K. (2010) 'A Guide to Conducting a Systematic Literature Review of Information Systems Research', *SSRN Electronic Journal* [Preprint]. Available at: <https://doi.org/10.2139/ssrn.1954824>.
- Orlikowski, W. and Baroudi, J. (1991) 'Studying Information Technology in Organizations: Research Approaches and Assumptions', *Information Systems Research*, 2, pp. 1–28. Available at: <https://doi.org/10.1287/isre.2.1.1>.

- Pahl, C., Xiong, H. and Walshe, R. (2013) 'A Comparison of On-Premise to Cloud Migration Approaches', in, pp. 212–226. Available at: https://doi.org/10.1007/978-3-642-40651-5_18.
- Poniszewska-Maranda, A., Matusiak, R. and Kryvinska, N. (2017) 'Use of Salesforce Platform for Building Real-Time Service Systems in Cloud', in *2017 IEEE International Conference on Services Computing (SCC)*. *2017 IEEE International Conference on Services Computing (SCC)*, pp. 491–494. Available at: <https://doi.org/10.1109/SCC.2017.72>.
- Poon, P.-L. and Yu, Y. (2010) 'Investigating ERP systems procurement practice: Hong Kong & Australian experiences', *Information and Software Technology*, 52, pp. 1011–1022. Available at: <https://doi.org/10.1016/j.infsof.2010.04.003>.
- Poon, P.-L. and Yu, Y.-T. (2006) *Procurement of enterprise resource planning systems: experiences with some Hong Kong companies*, p. 568. Available at: <https://doi.org/10.1145/1134364>.
- Qu, L., Wang, Y. and Orgun, M.A. (2013) 'Cloud Service Selection Based on the Aggregation of User Feedback and Quantitative Performance Assessment', in *2013 IEEE International Conference on Services Computing*. *2013 IEEE International Conference on Services Computing*, pp. 152–159. Available at: <https://doi.org/10.1109/SCC.2013.92>.
- Rehman, Z. ur, Hussain, F.K. and Hussain, O.K. (2011) 'Towards Multi-criteria Cloud Service Selection', in *2011 Fifth International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing*. *2011 Fifth International Conference on Innovative Mobile and Internet Services in Ubiquitous Computing*, pp. 44–48. Available at: <https://doi.org/10.1109/IMIS.2011.99>.
- Rehman, Z. ur, Hussain, O.K. and Hussain, F.K. (2012) 'IaaS Cloud Selection using MCDM Methods', in *2012 IEEE Ninth International Conference on e-Business Engineering*. *2012 IEEE Ninth International Conference on e-Business Engineering*, pp. 246–251. Available at: <https://doi.org/10.1109/ICEBE.2012.47>.
- Rehman, Z. ur, Hussain, O.K. and Hussain, F.K. (2013) 'Multi-criteria IaaS Service Selection Based on QoS History', in *2013 IEEE 27th International Conference on Advanced Information Networking and Applications (AINA)*. *2013 IEEE 27th International Conference on Advanced Information Networking and Applications (AINA)*, pp. 1129–1135. Available at: <https://doi.org/10.1109/AINA.2013.158>.
- Rompicharla, R. and P. V, B.R. (2020) 'Continuous Compliance model for Hybrid Multi-Cloud through Self-Service Orchestrator', in *2020 International Conference on Smart Technologies in Computing, Electrical and Electronics (ICSTCEE)*. *2020 International Conference on Smart Technologies in*

Computing, Electrical and Electronics (ICSTCEE), pp. 589–593. Available at: <https://doi.org/10.1109/ICSTCEE49637.2020.9276897>.

Saarinen, T. and Vepsäläinen, A.P.J. (1994) 'Procurement Strategies for Information Systems', *Journal of Management Information Systems*, 11(2), pp. 187–208. Available at: <https://doi.org/10.1080/07421222.1994.11518045>.

Saedi, A. (2016) 'Cloud computing adoption framework: Innovation translation approach', in *2016 3rd International Conference on Computer and Information Sciences (ICCOINS)*. *2016 3rd International Conference on Computer and Information Sciences (ICCOINS)*, pp. 153–157. Available at: <https://doi.org/10.1109/ICCOINS.2016.7783206>.

Saraswat, M. and Tripathi, R.C. (2020) 'Cloud Computing: Analysis of Top 5 CSPs in SaaS, PaaS and IaaS Platforms', in *2020 9th International Conference System Modeling and Advancement in Research Trends (SMART)*. *2020 9th International Conference System Modeling and Advancement in Research Trends (SMART)*, pp. 300–305. Available at: <https://doi.org/10.1109/SMART50582.2020.9337157>.

Schneider, S. and Sunyaev, A. (2016) 'Determinant factors of cloud-sourcing decisions: reflecting on the IT outsourcing literature in the era of cloud computing', *Journal of Information Technology*, 31(1), pp. 1–31. Available at: <https://doi.org/10.1057/jit.2014.25>.

Schoenfeld, A. (2011) *How We Think: A Theory of Goal-Oriented Decision Making and its Educational Applications*, *How We Think: A Theory of Goal-Oriented Decision Making and its Educational Applications*. Available at: <https://doi.org/10.4324/9780203843000>.

Sowmya, S.K., Deepika, P. and Naren, J. (2014) 'Layers of Cloud – IaaS, PaaS and SaaS: A Survey', 5, p. 5.

Tang, D. and Chen, L. (2011) 'A review of the evolution of research on information Technology Acceptance Model', in *2011 International Conference on Business Management and Electronic Information*. *2011 International Conference on Business Management and Electronic Information*, pp. 588–591. Available at: <https://doi.org/10.1109/ICBMEI.2011.5917980>.

Tehrani, S.R. (2021) 'Factors Influencing the Adoption of Cloud Computing by Small and Medium-Sized Enterprises (SMEs)', in. Available at: <https://doi.org/10.32920/ryerson.14661393>.

Tripathi, S. and Jigeesh, N. (2013) 'Review of factors that influence cloud computing adoption'.

Vailshery, L.S. (2022) *Cloud computing - Statistics & Facts*, *Statista*. Available at: <https://www.statista.com/topics/1695/cloud-computing/> (Accessed: 21 April 2022).

- Venkatesh, V. *et al.* (2003) 'User acceptance of information technology: Toward a unified view', *MIS Quarterly: Management Information Systems*, 27(3), pp. 425–478. Available at: <https://doi.org/10.2307/30036540>.
- Wagner, S., Padhi, S. and Bode, C. (2013) 'The procurement process', 45, pp. 34–39.
- Weiss, J. and Anderson, D. (2004) *Aligning Technology and Business Strategy: Issues & Frameworks, A Field Study of 15 Companies.*, *Proceeding of the 37th Hawaii International Conference on System Sciences*. Available at: <https://doi.org/10.1109/HICSS.2004.1265511>.
- Wibowo, S. and Deng, H. (2016) 'Evaluating the Performance of Cloud Services: A Fuzzy Multicriteria Group Decision Making Approach', in *2016 International Symposium on Computer, Consumer and Control (IS3C)*. *2016 International Symposium on Computer, Consumer and Control (IS3C)*, pp. 327–332. Available at: <https://doi.org/10.1109/IS3C.2016.92>.
- Wu, S., Wortmann, H. and Tan, C. (2014) 'A pricing framework for software-as-a-service', in *Fourth edition of the International Conference on the Innovative Computing Technology (INTECH 2014)*. *Fourth edition of the International Conference on the Innovative Computing Technology (INTECH 2014)*, pp. 152–157. Available at: <https://doi.org/10.1109/INTECH.2014.6927738>.
- Yin, R.K. (2003) *Case Study Research: Design and Methods*. SAGE.
- Youssef, A.E. (2020) 'An Integrated MCDM Approach for Cloud Service Selection Based on TOPSIS and BWM', *IEEE Access*, 8, pp. 71851–71865. Available at: <https://doi.org/10.1109/ACCESS.2020.2987111>.
- Yu, J. and Lin, J. (2014) 'An Architecture for Cloud-Based Consumer Support Software-as-a-Service', in *2014 International Symposium on Computer, Consumer and Control*. *2014 International Symposium on Computer, Consumer and Control*, pp. 5–8. Available at: <https://doi.org/10.1109/IS3C.2014.15>.

ANNEX 1 INTERVIEW QUESTIONS

Interviewee information:

- Title
- What was your role in the procurement process?
- What is your prior experience in IT procurement processes?

Interview questions:

1. What was the procured system?
 - a. Why was this specific system the one that was procured?
2. Describe in your own words the procurement process at your company.
 - a. Who were the main stakeholders in the process?
3. Did you have competition between different companies or systems during the procurement process?
 - a. Did you feel like you had enough time to ponder on the options?
4. What would you describe to be the most impactful factors affecting the discussed procurement process and choosing the specific system/competitor?
 - a. What would you describe as the most impactful factors affecting the procurement process overall from your point-of-view?
5. Was the process successful from your point-of-view?
 - a. Was there something that caused major issues during the process?
 - b. Was the communication effective and successful?