Critical aspects of e-commerce technology adoptions

A qualitative study of Swedish e-tailers' choices

KRISTINE S. BERGLIA
SOFIA BJURN

Bachelor of Informatics Thesis

Report nr. 2017:153

Abstract

As an effect of the constant development of e-commerce, the range of e-commerce technology alternatives increases and makes the selection more difficult for e-tailers. Research about Swedish companies and e-commerce adoption is limited. This thesis examined what is considered important and affects e-tailers when they adopt new e-commerce technology. Our research question was: *What aspects are most influential for e-tailers' choice of e-commerce solution?* With a qualitative approach we gathered information through interviews with five knowledgeable employees in large Swedish e-commerce businesses. A theoretical framework, consisting of influential factors in the adoption of e-commerce technology, was the foundation for our study. The study showed that there are four aspects that are most influential: *Technology*, *Supplier's competence*, *Cost* and *Comprehension*. The result did somewhat agree with previous studies as well as discover some additional aspects.

Keywords: E-commerce, EC technology, e-commerce adoption, technology decision

Acknowledgements

We want to thank all of the respondents that participated in our study for giving their time and valuable information!

We would also like to give a big thank you to our supervisor Juho Lindman for helpful and efficient guidance!

Table of content

1. Introduction

This chapter gives a presentation of the thesis's subject. This introduction consist of different parts; the background of the study and problem area, the purpose of the study, and question formulation. It also contains a list of definitions to ease further reading of the thesis and at last the study limitations and disposition are presented.

1.1. Background

Electronic commerce (e-commerce) is a growing trend within retailing, physical and electronic boutiques will have to learn to coexist and interfuse (Rosenström, 2016). E-commerce forms a smaller percentage of the total retail business today than many like to believe, but according to a prognosis by "Handelsanställdas förbund" it will most likely be doubled by the year 2025 (ibid). Thereby it becomes more important for retail businesses to follow this trend. E-commerce is a common term in the public today (Postnord, 2017), and means buying and selling goods and services over the Internet. It often works out through a web-based platform where the customer can shop independent of time and place (Laudon & Traver, 2014). The phenomenon is in constant transformation to the bigger and better. In 2016 the Swedish e-commerce grew with sixteen percent and is expected to increase seventeen percent during 2017 (Postnord, 2017). The volume of sales has increased rapidly, in the past five years the revenue has been doubled from 27,7 billion SEK to 57,9 billion SEK. During the year 2015 to 2016, the increase was 7,8 billion SEK in revenue (ibid).

E-commerce is constantly evolving whereas new aspects and technologies are launched to create both possibilities and challenges for suppliers as well as electronic retailers (e-tailers). One evolvement is the use of omnichannel, which means that sales are made through several different channels within the company e.g. a physical store, a mobile app and a web site (Hultman, Fuentes, Hjort, Johansson & Tarnovskaya, 2017). Another current trend is the social aspect of e-commerce, where consumers play an active part in the marketing and promotion of products (Ahmad & Laroche, 2017). To support these constant developments, as earlier mentioned, many new suppliers and systems are launched on the market. This makes a tougher competition among suppliers and the selection for buyers wider and more confusing.

1.2. Problem area

The choice of E-commerce (EC) technology is a complex and important decision to make. It is not made easier with such a large range of supplier alternatives to choose from; only in Sweden there are more than thirty different e-commerce platforms (Ottosson, 2014). Because of the large variety of e-commerce solution alternatives on the market and the importance of such a decision for the e-tailer in question (Sarkis & Talluri, 2004), it would be interesting for

the e-commerce suppliers to get a deeper understanding of the decision process amongst e-tailers. There is a lot of research done about several aspects of e-commerce technology (e.g. Grandon & Pearson, 2004; Regan & Wymer, 2013), but more research is needed on Swedish companies.

1.3. Purpose and Research question

The aim of this thesis is to examine the decision-making behind the choice of e-commerce solutions in big Swedish e-commerce companies, and identify which aspects that are of most importance for such a decision. Our research question therefore is:

> What aspects are most influential for e-tailers' choice of e-commerce solution?

1.4. Limitations

The study is focused on large Swedish e-commerce companies. All companies participating meet the requirements of the definition by "Bolagsverket" of what a large company is (Bolagsverket, 2012).

1.5. Definitions

This section contains descriptions of commonly used concepts and terms throughout this thesis, to ease further reading.

CMS - *Content management system,* a system for creating digital content (almost always web-based), such as text, photos, videos and audio.

CRM - *Customer Relationship Management,* a system for handling customer related activities, such as analysis, reports, marketing, sales and service.

E-commerce - *Electronic commerce.* Digital commerce, buying and selling of goods and services, or the transmitting of funds or data, over an electronic network, primarily the internet.

EC technology - *E-commerce technology.* Technology that supports e-commerce processes.

E-tailer - *Electronic retailer,* a retailer selling goods via electronic transactions on the Internet.

ERP - *Enterprise Resource Planning,* a system for handling core business activities, such as finance, inventory, product planning, orders, administration etc.

M-commerce - *Mobile commerce.* Commerce via wireless handheld devices.

Omnichannel - *Multi-channel retailing.* Used to increase a seamless user experience across both digital and physical stores.

PIM - *Product Information Management,* a system for handling product information, such as photos, text and videos, for different media.

SaaS - *Software as a Service*, a cloud based software that is owned, delivered and managed remotely by one or more providers.

SME - *Small and medium-sized enterprise.*

1.6. Disposition

In chapter 2 the **Theory** related to this study is presented. The theory chapter gives an insight into the concept of e-commerce, and a deeper understanding of what an e-commerce solution consists of. It includes different implementation alternatives for an e-commerce solution, and a theoretical framework consisting of factors influencing the choice of solution. Lastly, the result of a previous study including the framework is presented. Chapter 3, describes the **Method** of this study, and gives insight into the choice of theoretical and practical approach. It provides an insight into the choice of data collection method, interviews, and how the study was performed.

Chapter 4, **Result**, consist of the result of the interviews, their answers are presented under various categories, which were described during chapter 2. Chapter 4 lays the foundation for the analysis, in chapter 5, **Analysis and discussion**. The chapter focuses on some of the most important factors influencing the choice of e-commerce solution in regards to the theory presented earlier in the thesis, which is analysed with the result from the interviews. Chapter 6, **Conclusion**, answers the thesis main question, paired with a summary of the main findings of the thesis. Lastly, chapter 7, **Reflections**, gives closing thoughts on the study's transferability, relevance, and suggestions on further research questions.

2. Theory

This chapter introduces the reader to the concept of e-commerce, what an e-commerce solution consists of, and the different implementing alternatives for an e-commerce solution. It also contains a theoretical framework with factors influencing the choice of e-commerce solution.

2.1 E-commerce

Essentially, e-commerce means transactions or trade over the Internet, but most e-commerce businesses have several other components in common as well (Yu & Ni, 2013). Customer service, marketing, shipment, and interaction with suppliers and partners are some of the extended e-commerce components. They all depend on a reliable information flow and economic activities (Bhasker, 2013). E-commerce is an intricate concept to frame, because it varies a lot from case to case, but several attempts to do so have been made. The most understandable description on an overall level is the framework by Kalakota and Whinston (Chan & Swatman, 1999). The Kalakota and Whinston framework was improved by Turban into the "Turban model" or "Pillars model" which added further structure to the framework (Yu & Ni, 2013). The Pillars model is constructed of three layers according to Yu and Ni (2013); E-commerce Applications, E-commerce Pillars, and E-commerce Infrastructure, which are all controlled by E-commerce Management. The layer of E-commerce Applications includes customer-oriented activities such as customer service, marketing and online publishing. The second layer; E-commerce Pillars, consists of the five pillars: People, Public Policy, Marketing and Advertise, Support Services, and Business Partnership (Yu & Ni, 2013). Together the pillar components include maintenance of internal and external activities. The E-commerce Infrastructure layer encompasses all types of technologies, e.g. networks, software, and hardware (ibid).
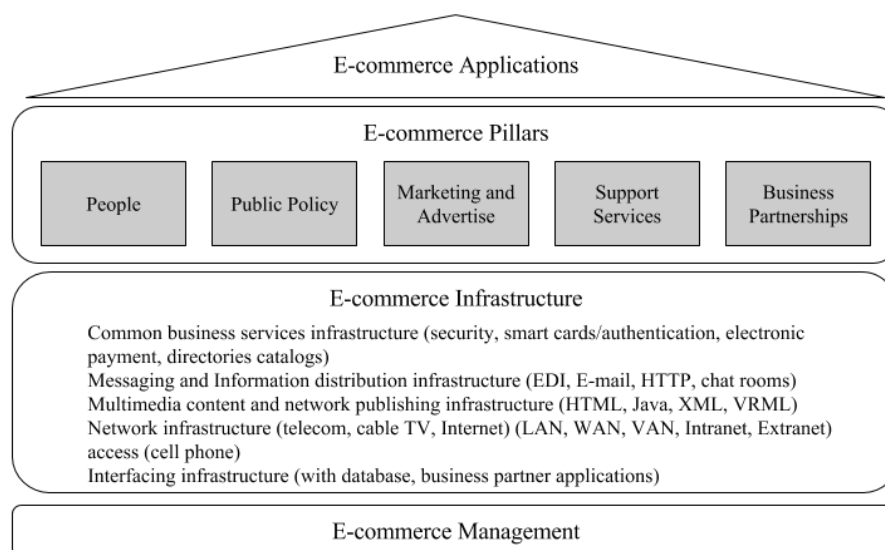

Figure 1. Turban model of e-commerce framework (Yu & Ni 2013, pp.2)

2.2. E-commerce solution for business to customer

The Internet and the World Wide Web is the core of e-commerce, without it e-commerce would not be what it is today (Laudon & Traver, 2014). The exact systems an e-commerce has varies depending on what the business model looks like, however there are certain standard components that every e-commerce contain (Jackson, Harris & Eckersley, 2003). Aside from an Internet-connection with related protocols for sending information over the Internet, and an intranet to communicate internally there are also a few information systems and added functionality that form an e-commerce solution (Watson, Berthon, Pitt, Zinkhan, 2007). Towards the customers a web site is the focal point, which is linked to a web server as well as a database server and databases that contain for example product and customer information (Laudon & Traver, 2014). Additional functionality that Jackson et al. (2003) says further adds on to an e-commerce solution is good integrations with other internal information systems e.g. Enterprise Resource Planning (ERP), Product Information Management (PIM) and Customer Relationship Management (CRM), data-mining techniques, web site evaluation software and payment systems. It is important to use web-technology in a way that do not increase the complexity for the web site users, but rather simplify functionality such as payment that they are inclined to come in contact with (ibid). The security aspect needs to be considered and dealt with in order to protect the systems, customer's personal information and credit card numbers. Encryption and firewalls are some of the technology that can be used (Jackson, Harris & Eckersley, 2003). The security aspect requires the technology to maintain certain standards in order to process data safely according to regulations such as the new General Data Protection Regulation (GDPR) (Trunomi, n.d.).

2.2.1 Implementation alternatives

Due to the many parts and layers of an e-commerce system landscape there are oftenly not only one e-commerce solution that suits all kind of businesses. An e-commerce solution can be shaped in many different ways dependent on e.g. already existent systems within an organization (Laudon & Traver, 2014). Some organizations choose to obtain the different system parts, which an e-commerce solution contains, from separate suppliers while others choose an overall solution from one supplier. Systems function and complement each other differently depending on what the infrastructure in an organization looks like and how the organization prioritize (Sarkis & Talluri, 2004). There are plenty of solution alternatives, some suppliers specialize in one system of an e-commerce solution and some offer a whole platform solution (Laudon & Traver, 2014). Many e-commerce companies have different systems for every business area, e.g. an ERP system, a CRM system, a logistics system, a Content management system (CMS), a PIM system, all from different suppliers, and a separately built web site and web server (ibid). Many others settle with an ERP system from where they handle all product enrichment, financial and customer related activities and order data, only supplemented with a web site and web server.

Regardless of which systems an e-commerce company includes in their e-commerce solution there are three ways to procure a system component; there is the option of building the system yourself (in-house) or the alternative to outsource it (Laudon & Traver, 2014). Outsourcing means hiring an outside vendor to build and provide the solution (Fu-quan, Di & Shi-xin, 2013). There is also the alternative to use open source, which is a combination of in-house and outsourcing solution.

In-house

An own built solution requires that the company has or procures staff with specific skills in developing and maintaining e-commerce software. Beneficial with this type is that the company can customize the software after their specific needs, and easier adapt to and take advantage of existing internal systems (Bustos, 2009). Downsides with this type of solution are that the implementation often takes a long time, and that the expenses often come to be very high (ibid).

Outsourcing

There are two ways to obtain an outsourced solution; buying with a one-time cost or renting with e.g. a monthly fee. Buying an on-premise e-commerce system is one way, and normally includes a one-time investment that the company install locally on its hardware (Bibi, Katsaros & Bozanis, 2012). It often involves a large upfront purchase, including the software licenses, but also installation services, and management and maintenance of the software (NetSuite, 2017). It also includes ongoing costs for e.g. hardware maintenance, data storage, security, backups, and software upgrades and support (ibid). Another way to outsource is by renting a solution, and the most common is by partner up with a Software as a Service (SaaS) provider. SaaS is a cloud service where the software is owned, delivered and managed by one or more providers (Benlian & Hess, 2011). The provider hosts and manages the software, and the payment is often predictable with a pay-as-you-go subscription model (ibid).

Open source

Another alternative; open source, can be a combination of both an in-house and an outsourcing solution. Open source is a software where the source code is accessible for the users (Madey, Freeh & Tynan, 2002). The code is written and supported by programmers, and is usually distributed free of charge. Open source provides the freedom to customize the software as wanted (ibid).

2.3 Theoretical framework

A literature study by Regan and Wymer (2013) identifies 25 frequently mentioned factors that are influential for companies when choosing E-business and E-commerce Information Technology (EEIT)/EC technology (further, only the term EC technology will be used), and examines whether they are perceived as barriers or incentives. For a clearer structure the 25 factors are divided into four categories; *Environmental factors, Knowledge factors,*

Organizational factors, and *Technology factors*.

Code	Factor name	Factor description as it appears in survey instrument
Environmental factors		
a	Competitive Pressure	Competitive pressure from other Internet adopters within my industry
b	Government	Government rules and regulations
c	Market	Viable market or customer base for e-commerce
d	Partners/Vendors	Availability of the right partners with whom to work
e	Supplier Readiness	Readiness of suppliers for electronic business
Knowledge factors		
f	Change Experience	Employee experience with making major changes
g	Executive Experience	Experience of top executives with computers and the Internet
h	Innovativeness	Your company's willingness to adopt new technology
i	Models	Models of successful use in my industry
j	Need	Perceived need for change or implementation of Web and Internet Technologies
k	Prior Experience	The Company's prior experience with new technology implementations
l	Trust	Trust or confidence in Web and Internet Technologies
m	Understanding	Understanding of available opportunities and options with e-commerce
n	Value	Perceived value or relevance to the business
Organizational factors		
o	Capital	Access to capital for start-up
p	Employee Reduction	Resulting reduction in number of employees
q	Priority	Priority relative to other projects that require existing resources and time
r	Profitability	Projected profitability of e-commerce
s	Technical Expertise	Availability of technical staff or consultants with web-skills
Technology factors		
t	Cost	Cost to setup and maintain
u	EC Technology	Technology for selling products or services online

v	Infrastructure	Access to network services or infrastructure to support Web and Internet Technologies
w	Reliability	Reliability of Web and Internet Technologies
x	Security	Security issues
y	Technology Availability	Availability or adequacy of existing technology and tools
z	Other	Other…………………….

Table 1. Factors influencing EEIT adoption decisions, and the description of the factors as they appear in the survey instrument (Regan & Wymer 2013, pp. 64).

2.3.1 Environmental factors

The category consisting of environmental factors concerns external influences such as suppliers, partners, customers, competitors and government. Pressures from rivals on the market can affect an EC technology adoption in different directions, very much like the need that potential customers experience that they have (Regan & Wymer, 2013). According to Al-Qirim (2004) is Small and medium-sized Enterprises (SMEs) no longer in control of their traditional markets, and the e-commerce have given the power from the sellers to the buyers. Al-Qirim also identified environmental and industry factors, such as competition. The range of EC technology that the suppliers on the market can offer is an inevitable factor in the adoption of one such technology (Regan & Wymer, 2013). Furthermore, there are laws and regulations to consider. All these factors are beyond the organization's control.

2.3.2 Knowledge factors

The knowledge factor category is about the experience and understanding of technology associated with change, among both executives and employees within an organization. Knowledge factors deal with matters such as how open a company's attitude is about change in technology and working processes, which relates to other aspects like the willingness to invest resources and the perceived need for a change (Regan & Wymer, 2013). Other knowledge factors regard the management and business- and Information System (IS)/Information Technology (IT) strategy. They concern the management's familiarization of IS/IT in general and with value and opportunities with a new technology, as well as other options on the market. The top management's support of new technology, and focus on the future, is a prerequisite that encourage EC technology adoption (Paper, Pedersen & Mulbery, 2003). To summarize this category, it is about internal knowledge, values and previous experience within the company. Factors within this category are the most frequent ones in literature about adopting new EC technology (Regan & Wymer, 2013).

2.3.3 Organizational factors

Availability and use of internal resources is what concerns the category of organizational factors. These factors are related to, among other aspects, the size of the enterprise, and type

of products and services it offers (Regan & Waymer, 2013). According to Caldeira and Ward (2002) SMEs have, compared to large enterprises, poor management skills, lover technical expertise and fewer financial resources. Al-Qirim (2004) also identifies managerial variables, such as the management commitment and enthusiasm. In this category five organizational factors affecting an EC technology adoption decision have been described (Regan & Wymer, 2013). First described is *Technical Expertise*, which refers to availability of technical staff or consultants with web-skills. Further described is the factor *Priority*, it means resources and time available based on priority of other projects. Next is *Employee Reduction*, which is based on the number of employees and if any reduction in such is necessary. *Profitability* is another factor, which refers to projected profitability of e-commerce. Lastly, is the access to *Capital* for start-up of a procurement of EC technology (ibid).

2.3.4 Technological factors

The technology factors category includes aspects regarding an organization's already existing technologies, e.g. the capabilities and adequacy of such. It is also about how added technologies measure up in quality, compatibility and reliability both with the already existing technologies and with any expected additions (Regan & Wymer, 2013). The study by Al-Qirim (2004) identified that e-commerce application variables, such as costs, ease of use, and perceived benefits, influence the adoption. How secure a technology is and what support and expertise can be offered are also of great concern, as well as costs related to setup and maintenance (Regan & Wymer, 2013).

2.3.5 Empirical study by Regan and Wymer

Regan and Wymer (2013) tested their framework in an empirical, quantitative study where they presented all 25 factors, supplemented with a number of questions concerning for example IT use and business information, in a survey that 284 owners or senior executives at SME:s in Kentucky responded to. The respondents were asked to evaluate whether each factor was an incentive or a barrier. The result of the survey showed that out of all the 25 factors there were two that did not show any particular significance, those were *Understanding* and *Market*. Sixteen factors were significant to all of the respondents:

- *Value*
- *Innovativeness*
- *Need*
- *Competitive Pressure*
- *EC Technology*
- *Technology Availability*
- *Supplier Readiness*

- *Models*
- *Prior Experience*
- *Executive Experience*
- *Employee Reduction*
- *Security*
- *Priority*
- *Capital*

- *Reliability*   - *Cost*

Seven factors showed significance to some of the respondents:

- *Profitability*   - *Technical Expertise*

- *Infrastructure*   - *Trust*

- *Government*   - *Partners/Vendors*

- *Change Experience*

The survey showed some meaningful conclusions, for example that non-manufacturing businesses have a tendency to adopt new EC technology more frequently than manufacturing businesses. Other conclusions were that company size affect the amount of EC technology adoption, large companies adopt more than small, but that no significant increase in adopting new EC technology as a company's geographic market expand was shown. It was also revealed that the *Cost* factor was the only one perceived as a barrier by all respondents (ibid).

2.4 Use of theory

The theory in this chapter is used to gain an understanding for the field and to help give an answer to the research question. The first part of the chapter describes the concept of e-commerce and the complex range of e-commerce solutions on the market. The theoretical framework is the base of this study, and the factors in the framework are used as a basis to form interview questions used to find and explain the aspects that influence e-tailers' choice of e-commerce solution.

3. Method

This chapter contains a description of the study method that will give the reader a understand of the approach and the process of the study. It consists of the scientific- and the practical approach. Also it contains a detailed description of the data collection method, how it was performed, and the target group the data was collected from. At last this chapter presents an reliability- and validity evaluation of the study.

3.1 Research approach

This study was made with a qualitative view. The qualitative approach is according to Bell and Waters (2016) suitable when examining how people think and act to analyse their behaviour. The goal with this study was to gain an understanding for why companies make their choices the way they do; therefore a qualitative approach was well applicable.

A hypothetic-deductive working process was used in this thesis. The deductive working process means that the researchers initially base their conclusions on predefined theories and test their hypotheses in the empiricism in their study (Patel & Davidson, 2016).

3.1.1 Interviews

Interviews were the chosen data collecting method for this study. An interview is a great tool to collect more profound reflections (Patel & Davidson, 2016). Semi-structured interviews were held with the target group in order to examine their thoughts regarding what factors are of importance when choosing an e-commerce solution. The goal was to interview at least five different companies in favour of a wider range of opinions and views on the matter.

Semi-structured interviews with a so called "funnel-technique" was suitable to first offer a considerable amount of room for the interview object to comment on general questions, and then get more specific questions answered (Patel & Davidson, 2016). The opportunity to both ask preformed questions as well as beforehand unpredictable follow-up questions is given through semi-structured and semi-standardized interviews (ibid). These interview formats are convenient to collect a knowledge base that is as comprehensive as possible (Bell & Waters, 2016). The interview questions were based on the theory chapter in this study.

3.2 Practical approach

This study was initiated by researching related work to gather an understanding for the field, and a theoretical framework to create the foundation for the empirical study. After finding a suitable framework, the process of collecting data began. Interview questions was written based on the framework; factors were composed into sets and formed more summarized questions. These questions were supplemented with general queries about the interviewees

roles and companies. See *Appendix 1. Interview questions.* In order to find companies and suitable candidates to interview, the companies' websites were used to access contact information. Approximately fifty companies were contacted by email, out of which, five were interested in participating. One interview took place in person and the others via Voice Over IP (VOIP), and they lasted between thirty to fifty minutes. All interviews were held in Swedish. Each interview began with an explanation of the study and its purpose, and what the desired gain from the interview was. According to Patel and Davidson (2016), it is important to begin an interview by clarifying its meaning, and emphasizing the contribution of the individual and its importance. The question of anonymity is also important to clarify. Some of the interviewees had a desire to be anonymous; therefore, we decided to present all companies anonymously. All interviewees were beforehand asked about giving their permission for us to audio record the interviews, to simplify the collection and transcript of the data.

After conducting interviews, transcripts of the audio recordings were made to produce the result of the interviews. According to Bell and Waters (2016) the data will mean nothing if it is not categorised somehow; a way to do this is to look for differences, similarities, grouping, and patterns. The result was produced by reading the transcripts from the interviews, and extracting the most relevant aspect for the question formulation. By categorising the result with help from the theoretical framework, the process of analysing the data was simplified. Both the result and the analysis are presented according to the four main categories of the framework; *Environmental factors, Knowledge factors, Organizational factors,* and *Technological factors,* for a clear structure. Each factor in the framework was presented, although not all of them was mentioned by the interviewees. The result chapter and the analysis chapter include a number of quotes from the interviews, which highlight and clarify the messages.

Based on the result chapter, we analysed and discussed our findings and linked them to the theory chapter and the theoretical framework. The most important factors were systematically analysed and discussed. The conclusion, and the answer to the research question, was based on the number of interviewees who considered the factor as important. The aspects that were considered important by all of the interviewees became the final result of the study and answer to the research question.

3.2.1 Selection

The selection of respondents was based on their knowledge of the company's technical e-commerce solution. We therefore aimed at senior employees within the area, or those who make decisions in such a process. The respondent had to be well aware of the company's technical solutions and have extensive knowledge of the business strategy, to answer questions about IT management and decision-making. Below, the various respondents and companies will be described.

Interviewee 1: *Chief Executive Officer (CEO) at a hunting and gardening company.*
The interviewee has been the CEO of the company for two years, and was the one who managed the decision to acquire their newest e-commerce solution. The company was established in the early 1900s, and is a family business in the second generation. They mainly deal with retailing within Sweden, both physical commerce and e-commerce. The company's biggest area of expertise is hunting, but they also focus on garden, forest and outdoor. The company have in the past few years developed and grown to be one of Sweden's leading companies in their area of expertise. Today, they are also working to expand their sales to the Scandinavian Countries. The present e-commerce solution was implemented in 2016.

Interviewee 2: *Co-Founder of a company selling a slew of resourceful items.*
The interviewee is one out of two who started the company in the early 2000s, and has been a part of the company since then. The interviewee has played a big part in the company's decision-making concerning different e-commerce solutions. The company's goal is to offer their customers the coolest, prettiest, and most innovative stuff on the market. The company is placed in Sweden and is primarily an e-tailer, but have one physical store in southern Sweden. They ship products from their premises to customers in Sweden, Denmark, Germany, Norway and Finland, which all have their local sites. The company also recently developed an english site where they ship to customers all over the world. The company has an internal IT department.

Interviewee 3: *Business IT Manager at a pharmacy.*
The interviewee has been at the company for some months, and is in charge of the e-commerce platform, customer contact, and the customer club. The company have approximately 400 physical stores, but the interviewee objects responsibility is the digital part. The company is one of Sweden's largest pharmacies, and is from the beginning a physical retailer with only a few years on the electronic market. Their e-commerce solution is about four to five years old, but one and a half year ago some bigger adjustments were made to the solution.

Interviewee 4: *IT and Business Consultant at a footwear brand.*
The interviewee has been working as a consultant for the company since one year, and is hired to modernize the e-commerce business by improving the frontend part, and how to work with business development. The interviewee has earlier experience working with e-commerce at large retailers, and played a big part setting their requirements for implementations of new systems. The company is a footwear brand from Sweden, and their products are sold in 40 countries worldwide and in 16 of these through their e-commerce. Their first e-commerce solution was implemented in 2007, then a change, to the current solution, was made four to five years ago.

Interviewee 5: *E-commerce Manager at a clothing brand.*
The interviewee started an e-commerce agency five years ago, with the purpose to help companies with the choice of e-commerce platform. The interviewee is hired by the clothing company and is responsible for their e-commerce as a temporary assignment. The company is a Swedish clothing brand founded in the early 90's, and the brand is today selling world wide. It was not until 2014 that the company started with e-commerce and today sells to the whole of Europe through their site, with plans to launch the e-commerce globally within 2017. In the present situation, the company is in the initial phase of purchasing a new e-commerce platform.

3.3 Reliability and Validity

Audio recordings were used to control the reliability of the interviews. To "store the reality" through recording is a good method for assuring accuracy (Patel & Davidson, 2016).The participating interviewees were well suited for the study, and represented retailing and e-commerce well through their different organizational roles and retail focuses. All companies met the requirements for what a large Swedish company is, which was the selection.

The interviews were held in Swedish and the quotes used in the thesis were translated into English. During this process we tried to maintain the meaning but some interpretations might have been made, therefore the original swedish quotes are included in *Appendix 2. Original quotes*. When transcribing the interviews we were very detailed to keep the interviews intact. Body language, mimics etc. were lost during transcriptions but we made sure to keep pauses and grammatical flaws in the text. Patel and Davidson (2016) says that by maintaining these flaws and avoiding influencing the content of the interviews during the transcriptions good validity is maintained.

Triangulation has been practiced through the use of several interviewees from different companies, questioned about the same problem area. Triangulation is used to gather a fuller understanding of the area (Patel & Davidson, 2016).

4. Result

This chapter contains the result from the five interviews. First, added descriptions of the interviewees are given. Then, influential aspects of an EC technology adoption mentioned in the interviews are presented, categorised by the factors and factor categories from the theoretical framework. Framework factors not mentioned in the interviews and newly identified aspects not included in the framework are also addressed in this chapter.

Interviewees description

Below, all the interviewees are presented by interviewee number, position, industry, type of solution, implementation year for the existing solution, and lastly, revenue.

	Interviewees position	Industry	Type of existing solution	Year of implementation	Revenue
1	CEO	Hunting and gardening	*Jetshop Commerce* SaaS platform integrated with Pyramid ERP system	2016	158 MSEK (2016)
2	Co-founder	Resourceful items	Own build e-commerce solution integrated with a *Navision* (NAV) ERP system	2004	157 MSEK (2016)
3	Business IT Manager	Pharmacy	*EPiServer CMS* and *Commerce* platform integrated with other supporting systems, e.g. inRiver PIM, Unifaun (transport), plus a number own-developed systems and other purchased systems. Total around thirty systems.	Around 2012 – 2013 (bigger changes the past 1,5 year)	12 531 MSEK (2016)
4	Consult	Footwear	*EPiServer CMS* and *Commerce* platform integrated with a *Navision* (NAV) ERP system, have an ongoing procurement of an PIM system	Around 2012 – 2013	764 MSEK (2015)
5	E-commerce Manager	Clothing	*Magento* platform integrated with their ERP and other supporting systems, e.g. WMS (warehouse) and TA-system (transport)	2014	656 MSEK (2015)

Table 2. Presentation of the interviewees.

4.1 Environment

Competitive Pressure

Four of the interviewees mention aspects of the factor *Competitive Pressure.* Interviewee 1, 2 and 5 think that competitor's choice of e-commerce web solution can affect their decision. Interviewee 5 believes that competitors can influence the decision both positively and negatively, competitors may have the similar functionality developed as required, and

together they may achieve better functionality. On the other hand, it might be negative having to compete for the supplier's developers. The fact that competitors within the industry adapt e-commerce, is something interviewee 3 and 5 believe influences the choice for themselves to lay more focus on e-commerce adoption.

Government
Some industries are governed by rules and laws regarding data and the management of data. The Swedish authority "E-hälsomyndigheten" regulates all Swedish pharmacies and ensures certain standards in the technology, interviewee 3 says. The new European regulation "General Data Protection Regulation" (GDPR) is another example of a governmental aspect that affects the choice of a new e-commerce system according to interviewee 3.

Market
Three of the interviewees mention aspects from the market as influential on the choice of solution. Interviewee 1 means that it is important for the e-commerce solution to be able to handle the market's expectations. According to interviewee 3 the customers' needs and expectations are important aspects to why they should focus more on e-commerce adoption. Interviewee 5 also points out that it is important to understand the customers' needs, and therefore focus more on e-commerce.

> *"[...] so if we had the same solution we had that time today, we probably would have had an impact on the sale. That our website was not what the market requires today, and the market demands a lot today."*
> *– Interviewee 1 ([01](#)).*

Partners/Vendors
Interviewee 1 and 4 mention the importance of finding the right people and the right culture in a new business partner when entering a new partnership. It is important to receive a very good first impression, according to interviewee 1. Interviewee 4 also points out how evaluating different alternatives can affect the final decision. Interviewee 3 thinks that the partnerships an organization keeps influence future technological decisions a great deal. Both interviewee 1 and 4 mention the crucial aspect of easy access to a partner/supplier. It is important to be able to get in contact, most importantly via the phone, but interviewee 1 also adds the advantage of being close geographically.

Supplier Readiness
All of the interviewees points out influential aspects with the factor *Supplier Readiness*. When it comes to the supplier's characteristics, qualities and knowledge, interviewee 2 thinks that the supplier's range of functionality is an important aspect, and interviewee 3 thinks it is interesting to look at the supplier's skills and previous capacity.

> *"[…] so it is interesting to see what they have done earlier, and evaluate their capacity and ability to handle and leverage e-commerce."*
> *– Interviewee 3 ([02]).*

Interviewee 1 thinks the supplier's capability to handle large flows of data is an important aspect. According to interviewee 4 it is important to find the right supplier, with the suitable and right visions regarding technology. In that context, interviewee 4 also points out the importance to evaluate several alternatives for a suitable solution. The supplier's ability to give good support is also an important aspect, according to interviewee 3 and 5. Interviewee 3 believes that the supplier's ability for innovation influences the choice, interviewee 5 also points out the importance of a partner with large focus, and hard work, on development.

4.2 Knowledge

Change Experience
Interviewee 4 says that it is important for the organization to have a culture that is overall supportive and positive to change, in order to handle technological changes better.

Executive Experience
Interviewee 2 believes that the executive's prior experience of technology can be of importance when choosing e-commerce solution. Interviewee 4 says that the company's executives need to understand that IT requires a change in attitude, and that the fear of IT-projects as very complex investments influences executives in their decisions.

Innovativeness
The company's attitude towards new technology is important to interviewee 2, 3 and 5. Interviewee 3 says it is essential to be open minded in terms of EC technology and try to think ahead for what could possibly be relevant in the future. Interviewee 2 thinks that whether the employees attitude towards technology is positive or negative affects the decision of an e-commerce web solution. According to interviewee 5 it can also be a whole industry's relationship and attitude towards technology that can influence the choice of EC technology.

> *"And then I would also say that the fashion industry is, well this is not allowed to say, but it is rather anxious and pays a little too much attention to what others are doing, and is not an industry with a reputation of being especially technical or leading edge when it comes to such elements."*
> *– Interviewee 5 ([03]).*

Realization of the fact that the company needs technological change, and who possess that realization is influential in a decision, according to interviewee 5. Interviewee 5 continues to explain that the understanding of the necessity of change as a necessity needs to permeate the whole organization to avoid opposition.

"Everyone needs to be more 'digital first' in their mindset."
– Interviewee 5 ([04](#)).

Models

Interviewee 2 believes that a study visit is a great way to get an impression of the solution in conjunction with the industry, that it can be good to observe how the solution alternative works within a comparable e-tailer. Interviewee 4 thinks it is very important to talk with reference customers to get an impression of the solution.

> *"[...] talking with reference customers I believe is very important. The non-competing companies, so you can talk to people 'well you have this solution, what do you think, how did the implementation go, how does it work today', so more network so that you can learn from each other." – Interviewee 4 ([05](#)).*

Need

Being able to see and understand the company's needs is an important aspect according to interviewee 3, and that new emerged needs can be a crucial aspect for an e-commerce solution adoption. Interviewee 5 believes that it is important that the management sees the need for change in conjunction with technology.

Prior Experience

Experience from prior technology implementations is something interviewee 1 thinks is important, and that it definitely affects the EC technology adoption decision. Interviewee 5 says that *Prior Experience* is a factor that has great influence on the choice of solution.

> *"[...] you get an idea of the platforms you have worked with, and it is clear that it will affect the choice ahead, I would say." – Interviewee 5 ([06](#)).*

Prior experience of building an e-commerce solution is something interviewee 3 says is important. Interviewee 3 points out that there are a large number of different solution alternatives, and ways to combinate the solutions, and the cost to integrate and build everything is extremely high.

> *"[...] you would like to do smart choices, and the experience is a strong contributing factor to success." – Interviewee 3 ([07](#)).*

Trust

Not mentioned as an influencing factor in any of the interviews.

Understanding

All interviewees experience *Understanding* as an influencing factor. They all mention that possibilities such as extending sales globally can influence the choice of EC technology, for example, and interviewee 3 adds the new focus on omnichannel and mobile commerce (m-commerce).

Value

All of the interviewees mention aspects with the *Value* factor as important when adopting new e-commerce solution. The fact that investing in EC technology is a large and important decision to make according to interviewee 4, may influence the choice. Interviewee 1 sees the opportunity to increase sales through a new system as an aspect of increased value. Interviewee 2 and 3 sees another opportunity for creating value for the business by maintaining and improving internal processes, through a new system. Interviewee 4 also mentions that it can affect a decision regarding EC technology if the future users are allowed to see and test it beforehand, to realise the potential value with it. The ability of the company as a whole, to see the value of an EC technology investment, is something interviewee 5 thinks is an important aspect of the factor.

4.3 Organization

Capital

The financial risk is something interviewee 1 thinks is important. Interviewee 1 describes that the financial risk is based on the start-up costs, which diversifies the different types of solutions. If the start-up cost is low, and the project fails, then the loss will be low. The fact that investments associated with IT-solutions almost always goes over budget, is something that interviewee 4 says is important to consider. Interviewee 4 sees the choice of solution as an important and great investment to make, and realising that can influence the decision.

Employee Reduction

Not mentioned as an influencing factor in any of the interviews.

Priority

Only three of the interviewees mention *Priority* as an influential factor. Interviewee 3 mentions that it is important to keep the time frame of an implementation project in mind. Interviewee 4 says that the access to internal resources for such a project affects a decision because it is important to keep knowledge within the company, even if external help is necessary as well.

> *"[...] you will either have to make them available and risk your operation, or take in or buy external project managers, but then you will lose the knowledge of your own company. So it is a huge challenge to find resources within, and also outside, and to have people who understands your industry."*
> *– Interviewee 4 (08).*

Interviewee 5 thinks that it matters what attitude a company has towards e-commerce. Some companies see e-commerce as an easy investment and some realize the complexity of it, both views affect a decision of choosing EC technology.

Profitability
Not mentioned as an influencing factor in any of the interviews.

Technical Expertise
Interviewee 4 says that the availability of good developers is very important. Interviewee 5 also says that the availability of in-house expertise is important for the decision, and influences how important it is to, for example, automate different processes and flows within the organization.

> *"Depending on what type of specialities you have in-house, it can be variedly important with different types of automated processes and flows."*
> *– Interviewee 5 (09).*

4.4 Technology

Cost
The factor *Cost* is something all of the interviewees say have great influence on the decision, but with different important aspects of the cost. Together with the low financial risk with start-up, interviewee 1 thinks that the cost is an important aspect when evaluating different e-commerce solutions. Interviewee 2 thinks that the economical aspect plays a very important part when choosing solution, and interviewee 3 and 5 says that the costs can influence the decision.

> *"Then there is also to what price you can negotiate, what license costs there are over time.[...] So that kind of factors can matter." - Interviewee 3 (10).*

Interviewee 3 also points out that how flexible the supplier is with their business model in relation to the cost, can be an influencing aspect. Interviewee 4 believes that it is important to see the cost as a whole, and all the aspects that can affect the choice.

> *"Of course the cost, both the cost of licenses, that is the whole model; how they charge, the cost to get it implemented, does integration cost, what is the cost of*

the licenses, how much ahh… yes, so that you get the full picture […]"
– Interviewee 4 (11).

EC Technology
To all the interviewees there are many aspects of *EC technology* that is of great importance. Interviewee 4 mentions that there are benefits of using technology specifically developed for e-commerce. The existence of good functionality is important to interviewee 1, 3 and 4, and especially backend functionality to interviewee 4. Interviewee 3 thinks it is very important that the EC technology includes good quality APIs and is innovative.

It is not only technology customized for e-commerce in general that affects decisions regarding web solution, but according to interviewee 2 and 3 also functionality that supports certain activities that is important to the company in question, whether that be logistics, deliveries, campaigns or customer behavior analysis. To offer personalized experiences for the customers are significant for interviewee 3 and 5. How complex and intricate an e-commerce web solution is can also affect the decision of whether or not to choose it, according to interviewee 3 and 4.

Interviewee 1 mentions that it matters how much a company is willing to compromise with their expectations and requirements, for how the decision turns out. Interviewee 1, 2, 3 and 5 express that flexibility is a desired trait in a solution. The interviewees are aware of that in most cases special adjustments are needed, so that possibility is favourable. Interviewee 1 and 4 state that continual updates of EC technology and code is important.

One aspect of e-commerce is to expand the business internationally. Interviewee 1, 2, 3 and 4 mention the need for technical support for different countries and currencies. Interviewee 5 thinks it is important to be able to adapt a solution internationally.

> *"We [sell to] 40 countries, and 16 e-commerce countries. So this is an international [platform], so it was also a requirement, that it can handle multiple countries and currencies." – Interviewee 4 (12).*

Interviewee 3 thinks it is important to work with m-commerce, since many customers use mobile phones for browsing and buying goods today. Interviewee 5 also talks about the importance of adapting the technology for different devices, and thinks it matters which tools to use for presenting content on the web.

Infrastructure
All of the interviewees mention important aspect of the factor *Infrastructure.* To get a total impression of how the system infrastructure will look like is an important aspect for some of the interviewees. Interviewee 3 thinks it is important to get a clear picture from the start of how the solution will fit into the company's system infrastructure. Interviewee 4 thinks it is

important to look at the entire system landscape, at the surrounding systems for the different processes that is needed in the business, and not lay all the focus at the e-commerce platform. Interviewee 4 also believes that the decision can be affected by how complicated or simple the solution is.

All of the interviewees think that the solution's ability to integrate with other systems is an important factor. Interviewee 1 says that the integration between the ERP and the web solution is extremely important. Interviewee 2 and 3 think that the integration with already existing systems is very important, interviewee 3 also points out that the solution should be able to integrate with possible future systems, and to get outputs and inputs from it. Interviewee 4 believes that the integration is important to discuss when evaluating different solution, and that a simple integration is important.

Reliability

Interviewee 2 thinks it is important with a large, stable and reliable solution, to be able to rely on and trust the technology is very important. Interviewee 1 also mentions the significance of having a robust solution, that can handle large pressure and traffic. The importance of good sync of data and real time updated data, is something interviewee 2 and 3 believe influences the decision. The solution's performance and ability to handle large amounts of data, is also of importance for interviewee 3. Interviewee 3 continues to say that it is important with fast delivery of information.

Security

One essential aspect to interviewee 3 is that the code and technical parts are secure. Due to the fact that the pharmacy industry is controlled by regulations to protect personal information regarding prescriptions, it is important that all technology and code are secure. Interviewee 2 also thinks that high security is something to aim for, and is an aspect that can influence the choice of e-commerce solution.

Technology Availability

Interviewee 4 believes it is important to keep the existing systems within the company in mind, and that they should work together with the new system efficiently. Interviewee 3 also points out the importance of being able to adapt the solution to existing systems. Further, interviewee 4 thinks it is significant to think about the data, having qualitative data so that the solution can transfer, convert and translate the data, and not be locked to e.g. an old format.

> *"[...] the problem is that you drive a Rolls Royce and have a horse-and-buggy behind you. Then you will not be able to exploit the functionality that exists in front of the e-commerce system. I think so many people forget, that they use a lot of powder on the choice of e-commerce platform, but do not think about the need of both good data and good functionality in the backend parts."*
> *– Interviewee 4 (13).*

4.5 Newfound aspects

This section involves aspects that was found in the interviews, but that do not exist in or can be applied to the framework. The aspects have been sorted into five categories, which are: other *Technological* aspects, other *Supplier* aspects, aspects regarding *Type of business*, *Evaluation* aspects, and *Recommendation aspects*.

Technological

All of the interviewees mention one or more newfound technological aspect that is influential on choice of EC technology. One of the technological aspects found was the importance of the solution's usability, that it should be simple to work with, simple to learn and use. This was something interviewee 3, 4 and 5 paid attention to. Interviewee 2 thinks that it is important to receive training in the system.

Other technological aspects that emerged from interviewee 3 was how often and how complex it is to update the system. Interviewee 3 thinks that the choice of solution is influenced by how extended the updates of the solution are, that if it requires a close down of the e-commerce during the update or if it is possible to make smaller updates and keep the business up and running as normal. According to interviewee 3 the choice can also be influenced by whether the company itself updates and administers the solution, or if it is done by the supplier or partner. Interviewee 1 thinks it is significant to be able to have control over the solution themselves.

One thing interviewee 5 points out, that can affect the choice, is what the expected plans of a partner's future look like, and how the platform is planned to stand for the years ahead. It can be crucial if the code of a solution can be predicted to be "out of date" within a few years, and for that reason require a major update, or at worst, a complete replacement.

Supplier

Interviewee 2 believes that the decision of adopting a new EC technology is influenced by how well the supplier markets and sells themselves and their product.

Type of business

Interviewee 4 believes that the different aspects identified influences companies differently depending on the type of business, especially when it comes to size. According to interviewee 4, larger companies put more focus on the e-commerce solution choice than smaller companies, and do more research because they have bigger amounts of resources for it. Interviewee 3 believes that the size of a company might influence what type of technical solution is selected, many different smaller systems or few larger systems. The same interviewee speculate that smaller companies are more likely to choose the latter alternative.

> *"Yes, if I were a smaller e-tailer then I probably would think that it would be convenient with a large, a larger apparatus that can handle [everything]."*
> *– Interviewee 3 ([14](#))*

Evaluation

Several of the interviewees point out the importance of a formal evaluation process, based on the fact that e-commerce system adoptions often are very large investments. Interviewee 3, 4 and 5 think it is good to include all future users within the company in the process of assembling requirements. Interviewee 4 says that finding an evaluation process that takes all of the department's interests into account is important. The same interviewee continues to say that a massive research of potential alternatives would be preferable.

Recommendations

Interviewee 3 says that recommendations from others can be an influential aspect for an adoption decision. Interviewee 1 also points out that recommendations can be crucial in the choice of EC technology.

4.5 Summary of the result

To summarize what aspects the interviewees mention as influential, the table 4.2 below, will give an overview of how many interviewees mention each factor. The table 4.2 will give an overview of the findings in the result, and give an insight into the most important factors, the non mention factors, and other newfound factors. It will provide a great introduction to the analysis and discussion chapter. The most important factors are those that all the interviewees mention as influential aspects, six of them are factors from the theoretical framework and one a newfound aspect. These seven are *Supplier Readiness, Cost, EC technology, Infrastructure Understanding, Value,* and the newfound *Other technological.* Factors that none of the interviewees mention as influential are *Employee Reduction, Profitability* and *Trust.* Further, sixteen of the factors in the theoretical framework only some of the interviewees point out as influential for an EC technology adoption. Lastly, there are five newfound aspects; other *Technological,* other *Supplier, Type of business*, *Evaluation* and *Recommendations*.

Factor:	Mentioned No. of times:	Factor:	Mentioned No. of times:
Environmental factors		***Knowledge factors***	
Competitive Pressure	4	Change Experience	1
Government	1	Executive Experience	2
Market	3	Innovativeness	3
Partners/Vendors	3	Models	2

Supplier Readiness	**5**	Need	3
Organizational factors		Prior Experience	3
Capital	2	Trust	0
Employee Reduction	0	Understanding	**5**
Priority	3	Value	**5**
Profitability	0	*Other aspects*	
Technical Expertise	2	Technological	**5**
Technology factors		Supplier	1
Cost	**5**	Type of business	2
EC Technology	**5**	Evaluation	3
Infrastructure	**5**	Recommendations	2
Reliability	3		
Security	2		
Technology Availability	2		

Table 3. Presentation of the result.

5. Analysis and discussion

This chapter contains the analysis and discussion of the result found in the interviews. The most important aspects from the result will be discussed, together with other interesting findings from the interviews. The analysis is presented in the factor categories from the framework; Environmental, Knowledge, Organizational, and Technology.

5.1 Environment

The environmental factors include external aspects that can affect the choice of e-commerce solution within a company. Three of the interviewees say that the competition is a significant aspect of adopting new EC technology. Two of the interviewees choose to focus more on e-commerce because the competitors do so, and because they believe it exists an expectation and need of e-commerce for the customers. The companies that are most influenced by the factor *Competitive pressure*, are those that were physical retailers from the start. Given the growth of e-commerce in the past few years, and the fact that some of these companies started to focus rather late on e-commerce, can a conclusion of that these companies have been more or less forced to develop along with the market, be drawn. According to PostNord (2017) the Swedish e-commerce has grown around 15% per year in the last few years, which proves the pressure from the market.

Another aspect is the governmental rules and regulations. Only one of the interviewees says that *Government* is an influential factor. This is linked to the interviewees industry, which requires the e-commerce solution to follow regulations regarding handling of safe customer information and prescriptions. None of the other interviewees mentioned any particular regulation they were controlled by, so the extent of aspect really depends on which industry is discussed. All businesses within EU need to follow regulations like the future GDPR though, no matter the industry (Trunomi, n.d.).

The most significant result from the environmental factors category is the importance of *Supplier Readiness*. All of the interviewees think that several aspects of choosing the right supplier is important and something that can be very influencing when determining an EC technology. First of all did three of the interviewees point at the importance of finding right partners to work with, but all of the interviewees talked about the importance of the supplier's knowledge, characteristics and qualities. To find a suitable supplier for the electronic business is one of the most mentioned factors in the result. It is clear that the supplier's capability to fulfil the interviewees technical requirements is important.

5.2 Knowledge

The company's willingness to adapt to new technology is an influencing aspect that three of

the interviewees point out. Interviewee 5 is one of them, and also say that the fashion industry (which it works within) do not have a reputation of being very technical, and choose to increase the focus on e-commerce for two reasons, none of which originated by their own interest and enthusiasm for it. The reasons are because their competitors do so, and that the future development of business processes and increased sales require a more extensive use of IT. The fact that interviewee 5 also talks about the importance of including the whole company in the decision of new EC technology, especially future users, seems imperative in an industry where people generally are against new technology.

All of the interviewees believe that seeing the potential value of a solution is an important requisite when choosing technical e-commerce solution. Several different aspects of the factor *Value* is mentioned as important, e.g. the possibility to increase the sales through e-commerce, and the ability of improving internal processes with new EC technology.

The survey by Regan and Wymer (2013) resulted in the conclusion that manufacturing companies, such as fashion brands for example, tend to adopt less EC technology than non-manufacturing companies. This conclusion is explained by the statement that the fashion industry is not very technical, by interviewee 5. One discovery we made is that the only two IT consultants among our interviewees work at the only two companies, among the five that were represented in our study, that operate within the fashion industry. This might be related to the same fact, that the fashion industry is not particularly technical, and therefore they obtain their technical e-commerce expertise externally.

None of the interviewees mention the importance of the factor *Understanding* of opportunities and options with e-commerce per se, but several statements with aspects dealing with this factor can be found, and thereby involves all the interviewees.

5.3 Organization

The organizational factors concern how a company's internal resources are valued. The most important organizational factors found by the interviewees are *Capital, Priority*, and *Technical expertise*. Two of the interviewees discuss the importance of access to capital for start-up, one mentions the financial risk, and the other mentions considering IT-investments as always going over budget. Interviewee 1 runs the company with one of the smaller revenues in this study, and it can be concluded that the financial risk is an important aspect for this company. The existing type of solution at this company is a SaaS solution, which require a smaller start-up cost then some of the other solution alternatives. Important for this interviewee is to not set the company at risk, because of the small start-up cost will the company be able to survive even if the investment fails. Some of the other companies in this study, with higher revenue, might afford to give a bigger start-up cost - and thereby a larger financial risk.

Priority of internal resources, is pointed out as important for three of the interviewees. All three mentioned different aspects of *Priority*; first, to have the time frame of an implementation in mind, second, the importance of including internal resources and knowledge about the company in the implementation process, and third, to make the organization to see it as a large and prioritized investment. The attitude towards e-commerce is mentioned as a problem by interviewee 5, some companies see the e-commerce solution investment as an easy one-time implementation. This can be connected to the industry, like mentioned in section 5.2, and the fact that the fashion industry is not very technical. The factor *Technical expertise* was also found important to interviewee 4 and 5. As pointed out by interviewee 5, the need of *Technical expertise* will depend on availability of internal resources:

> *"Depending on what type of specialities you have in-house, it can be variedly*
> *important with different types of automated processes and flows."*
> *– Interviewee 5 ([09]).*

Both of the mentioned interviewees have extensive experience within e-commerce. The importance of *Technical Expertise* can thereby be based on prior experience. Interviewee 3 do not mention the importance of *Technical expertise*, but seem to have the most complex e-commerce solution. Interviewee 3 have a combination of own-built and purchased systems, and says that the solution consists of around thirty different systems in total. It is noticeably that interviewee 1 does not mention this internal aspect. The reason for that may be their type of solution, which is based on outsourcing, and is more of a partnership where the *Technical Expertise* is included as a service.

5.4 Technology

Technological aspects are considered to be most important when analysing the result from the interviews. *Cost* is a factor that all of the interviewees' businesses are controlled by when choosing an e-commerce solution. Regan and Wymer (2013) concluded in their study that all of their respondents evaluated the cost as a barrier. It is interesting to notice that the aspect of cost was considered important for the majority of our interviewees, but for some reason less significant than in their study, as shown by interviewee 3:

> *"Then there is also to what price you can negotiate, what license costs there*
> *are over time.[...] So that kind of factors can matter." - Interviewee 3 ([10]).*

One reason for this difference might be that Regans and Wymers respondents were company owners or senior executives, and in our study the respondents were IT or e-commerce managers. A company's executives might have a larger focus on costs and a company's IT or e-commerce manager might be more focused on the value and quality of EC technology. This conclusion reflects the result of this study, where it is clear that the interviewees are more

focused on the e-commerce solution's technology, rather than the cost. They all say that the cost can influence a decision regarding an e-commerce solution, but aspects of EC technology are more definitive for the final choice.

EC technology was the factor with most mentioned aspects regarding choice of e-commerce solution. All of the interviewees pointed out at least one important requirement that the solution's technology should be able to fulfill. The majority of the interviewees mentioned the solution's available functionality, and some, the importance of a flexible solution. Another important aspect was the possibility to expand the business internationally, which almost all of the companies work on today. Interviewee 5's company aims to have global sales by the end of 2017, while interviewee 1 says that its company aims to expand its sales in all of Scandinavia in the next few years. Interviewee 2 implemented an English web page hardly one year ago, and the company of interviewee 4 already has an international e-commerce. It is interesting to associate this with the *Value* factor, where the aspect of the ability to increase the sales through e-commerce is mentioned. E-commerce gives the opportunity to expand the sale globally, and is therefore an easier way to increase and brand the business outside of Sweden.

Two aspects seem as the most influencing ones when it comes to *Infrastructure.* All of the interviewees say that integration is very important, and some mention the complexity that most often occurs in the e-commerce system landscape. These two aspects are rather dependent on each other, the more complex an e-commerce solution becomes, the higher the need for good integrations.

Security was only mentioned by two interviewees as an influencing factor, whereof one as a result of a controlling market. According to Jackson, Harris and Eckersley (2003) the security of EC technology requires a certain quality to handle all the customer and business information correctly. Considering this statement and the importance of it, an assumption that all companies and interviewees regard security as an important and influencing aspect when associated with EC technology, but might forgot to mention it because it is perceived as self-explanatory.

5.5 Newfound aspects

Several influencing aspects not included in the framework was interestingly discovered in our study. These new aspects, that was not applicable under any existing factor in the framework, were found, despite using only 5 interviews as foundation. Possible explanations might be that: a) the framework is based on often mentioned factors in earlier literature, maybe our new aspects were mentioned sometimes too, just not that frequently as the ones that qualified into the framework, b) our study has been performed a few years later, and in another country than from where the factors were gathered c) Regan and Wymer did their study as a quantitative survey while we did qualitative interviews, if they had done qualitative

interviews as well they might have found some of these new aspects.

Other *Technological* aspects mentioned are the solution's usability, how often and how complex it is to update the system, and the partner's future plans. As many as four of the interviewees discuss the importance of good usability, and that the employees that are going to use the EC technology are able to understand how to effectively use it. According to Jackson et al. (2003) it is important to adapt the EC technology to make it easy for customers to use the web site. The statements from our interviewees indicates that it is also, if not more, important with good usability for internal users of the e-commerce solution.

Type of Business is one of the newfound aspects. The interviewees that mention this aspect foremost mention how they believe that the business's size influence the type of EC technology and e-commerce solution that is selected. Regan and Wymer (2013) made the conclusion in their study that size of the company does matter and that small companies adopt far less EC technology than large ones.

To have a formal *Evaluation* process is a factor three of the interviewees pointed out as significant. We see that some of these interviewees have years of experience within the e-commerce industry, and their prior experience of evaluating different requirements seem to affect their opinions about how to manage an evaluation process and which aspects to involve.

5.6 Not mentioned aspects

Three factors from the framework are not mentioned in the interviews and those are *Trust, Profitability* and *Employee reduction.* Conclusions drawn from this might be that trust in web and Internet technologies are more or less a self-evident for our interviewees since they work with IT, e-commerce and in technical environments. *Employee reduction* might not be a factor of importance because the focus is about making internal processes more effective and not reduce employees, which some of the interviewees have pointed out. It is found in some of the interviews that the goal of investing in e-commerce is to increase sales, which may be a reason for why the focus is not on reducing the business resources, but rather on increasing them. These three are also one and the same factors that showed no significance in Regans and Wymers study. Lastly, there is the factor *Profitability*, and reasons for why this was not mentioned might be that aspects regarding this was mentioned when discussing the factor *Value,* these two somewhat interfuse together.

6. Conclusion

In this chapter the conclusion of the analysis and discussion is presented. It gives a summary of the findings, and an answer to the question formulation.

The purpose of this thesis was to examine what is important and influence the decision process of large Swedish e-tailers when they adopt new EC technology and e-commerce solutions. The result chapter presents what framework factors are most influential and serve as a base for the answer to our question formulation, which was: *What aspects are most influential for e-tailers' choice of e-commerce solution?*

From studying the opinions and knowledge of our five interviewees we can conclude that there are four aspects that are the most influencing one's for large e-tailers when adopting a new e-commerce solution. The following influential aspects were found significant; *Technology*, *Supplier's competence*, *Cost* and *Comprehension*, regardless the focus of trade.

Technology and functionality stand out as the most complex aspect. The EC technologies need to meet the end consumers expectations to a certain degree, but some sacrifices are acceptable to make. It is very common that e-commerce companies have very intricate infrastructures, therefore qualitative integrations are necessary in order to maintain and develop the business. A user-friendly e-commerce solution is highly valued for the sake of an effortless implementation and less resistance among the employees. Together with *Technology* the *Supplier's competence* is very important, both vision-, skill- and moral vise. *Cost* is an important factor in any business. The total cost of all systems and EC technology included in the e-commerce solution is something that needs to be considered and plays a decisive part. To have *Comprehension* for what value means and how to achieve it is significant to match the business with the correct EC technologies.

7. Reflections

This chapter includes a description of the study transferability and relevance. Examples of further research is given, and at last, a final reflection of the study.

7.1 Transferability and relevance

Relevance

This study is more relevant due to the low amount of existing research about large Swedish e-tailers, and their decision-making of e-commerce solution. This study can be a help for e-commerce solution suppliers to come to an understanding of what e-tailers might base their decisions upon when choosing a solution and EC technology.

Theoretical framework

The theoretical framework by Regan and Wymer was used in this study, and chosen because of its meticulous research to identify previously mentioned factors in the literature. The framework is focusing on SMEs according to US definitions. Sweden, Europe and the USA all have different definitions of what small and large companies are. A large business have to meet at least two of these three criterias according to the Swedish definition: have more than 50 employees, have a balance sheet total of more than 40 million SEK, or have a turnover more than 80 million SEK. Listed companies are also considered as large businesses, everything else is called a small business (Bolagsverket, 2012). The European Union (EU) definition for a small to medium business is having less than 250 employees and a turnover of 50 million EUR or less, or a balance sheet total of 43 million EUR or less, everything larger is considered a large business (European Commission, 2017). The US definition for a small to medium business is dependent on several factors, but number of employees normally is less than 500 (Small Business Administration, 2016). A large Swedish business can thus be the same size as a small American business. This makes the framework relevant for our study as well.

Interviews

The completed amount of interviews held was appropriate for the time frame and scale of this study. There is a possibility that the result would have been different if each factor was allocated its own interview question, although that would not have been a good interview structure.

7.2 Further research

The framework by Wymer and Regan was written some years ago and e-commerce has evolved considerably since then. Further research can explore if the newfound *Other* factors are significant outside of this study.

References

Ahmad, S. N. & Laroche, M. (2017) Analyzing electronic word of mouth: A social commerce construct. *International Journal of Information Management*, 37(3), pp. 202-213.

Al-Qirim, N. A. (2004) *Electronic Commerce in Small to Medium-Sized Enterprises: Frameworks, Issues and Implications.* Idea Group Publishing.

Bell, J. & Waters, S. (2016). *Introduktion till forskningsmetodik*. 5th ed., Lund: Studentlitteratur.

Benlian, A. & Hess, T. (2011). Opportunities and risks of Software-as-a-Service: Findings from a survey of IT executives. *Decision Support Systems*, 52(1), pp. 232-246

Bhasker, B. (2013). *Electronic commerce: framework, technologies and applications*. 4th ed. New Delhi: Tata McGraw-Hill Education.

Bibi, S., Katsaros, D., & Bozanis, P. (2012). Business application acquisition: on-premise or SaaS-based solutions?. *IEEE software*, 29(3), pp. 86-93.

Bustos, L. (2009) The New Ecommerce Dilemma: Buy, Build, or Leverage?. *GetElastic* http://www.getelastic.com/webinar-recap-the-new-ecommerce-dilemma-buy-build-or-leverage/ [2017-04-20]

Bolagsverket (2012) *Större och mindre företag.* http://www.bolagsverket.se/ff/foretagsformer/aktiebolag/arsredovisning/storre-1.3317 [2017-05-14]

Caldeira, M. M. & Ward, J. M. (2002) Understanding the successful adoption and use of IS/IT in SMEs: an explanation from Portuguese manufacturing industries. *Information Systems Journal,* 12(2), pp. 121-152.

Chan, E. & Swatman, P. M. (1999). Electronic Commerce: A Component Model. In *Proceedings of the 3rd Annual CollECTeR Conference on Electronic Commerce,* Wellington, New Zealand 29. Nov, pp. 1-15.

European Commission (2017) *What is an SME?* http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_en [2017-05-15]

Fu-quan, S., Di, C., & Shi-xin, L. (2013). E-commerce outsourcing service decision-making methods and strategy for small and medium-sized enterprises. In *Control and Decision Conference (CCDC), 2013 25th Chinese*, pp. 1710-1713.

Grandon, E. E. & Pearson, J. M. (2004) Electronic commerce adoption: an empirical study of small and medium US businesses. *Information & Management*, 42(1), pp. 197-216.

Rosenström, M. (2016). *Tar e-handeln över?* Handelsanställdas förbund. https://www.handels.se/globalassets/centralt/media/pressrum/rapporter/2016/2016---tar-e-handeln-over.pdf

Hultman, J., Fuentes, C., Hjort, K., Johansson, U., & Tarnovskaya, V. (2017). *Handeln rustar för multi-kanal* (Handelsrådet R 2017:1) Lund: Handelsrådet. http://portal.research.lu.se /portal/files /21812969/2017_Handeln_rustar_f_r_multikanal_Hultman_et_al.pdf

Madey, G., Freeh, V. & Tynan R. (2002) The Open Source Software development phenomenon: An analysis based on Social Network theory. In *Eighth Americas Conference on Information Systems,* pp. 1806-1813.

NetSuite (2017) *Should you choose a Cloud or On-Premise E-commerce Platform?*. http://www.netsuite.com/portal/resource/articles/ecommerce/should-you-choose-cloud-on-premise-ecommerce-platform.shtml [2017-04-18]

Ottosson, F. (2014) Att välja plattform för sin ehandel. *Nordic eCommerce Forum,* 5. February. http://nordicecommerceknowledge.se/att-valja-plattform-for-sin-ehandel
[2017-05-10]

Jackson, P., Harris, L. & Eckersley, P. M. (2003). *E-Business Fundamentals*. London: Routledge.

Laudon, K. C. & Traver, C. G. (2014) *E-commerce, business. technology. society.* 10th ed. Pearson Education.

Paper, D., Pedersen, E. & Mulbery, K. (2003) An E-commerce Process Model: Perspectives from E-commerce Entrepreneurs. *Journals of Electronic Commerce in Organizations,* 1(3), pp. 28-47.

Patel, R. & Davidson, B. (2016). *Forskningsmetodikens grunder – Att planera, genomföra och rapportera en undersökning*. 4th ed., Lund: Studentlitteratur.

Postnord (2017), *E-barometern - årsrapport 2016* http://pages.postnord.com/rs/184-XFT-949
/images/e-barometern-arsrapport-2016.pdf [2017-03-08]

Regan, E. & Wymer, S. (2013) E-Commerce for Organizational Development and

Competitive Advantage. In Khosrow-Pour, M. (Eds.) *Influential Factors in the Adoption and Use of E-Business and E-commerce Information Technology (EEIT) by Small and Medium Businesses.* Morehead State University, USA, pp. 58-84.

Sarkis, J., & Talluri, S. (2004) Evaluating and selecting e-commerce software and communication systems for a supply chain. *European journal of operational research*, 159(2), pp. 318-329. DOI: 10.1016/j.ejor.2003.08.018

Small Business Administration (2016) *Summary of Size Standards by Industry Sector*. https://www.sba.gov/contracting/getting-started-contractor/make-sure-you-meet-sba-size-standards/summary-size-standards-industry-sector [2017-05-15]

Trunomi (n.d.) *GDPR Key Changes*. http://www.eugdpr.org/the-regulation.html [2017-05-15]

Watson, R. T., Berthon, P, Pitt, L. F., & Zinkhan, G. M. (2007). *Electronic Commerce: The Strategic Perspective*. N.p.

Yu, J., & Ni, J. (2013). Development Strategies for SME E-Commerce Based on Cloud Computing. In *IEEE, Seventh International Conference on Internet Computing for Engineering and Science,* Shanghai, China 20-22 Sep. 2013, pp. 1-8. DOI: 10.1109/ICICSE.2013.9

Appendix 1: Interview questions

1. Kan du berätta lite om dig själv, och vilken roll du har i verksamheten?
2. Vill du ge en kort beskrivning av er verksamhet?
3. Hur stort är fokuset på e-handeln i er verksamhet?
4. Kan du beskriva vilken typ av teknisk e-handelslösning ni har?
    a. Kan du beskriva vad det finns för funktionalitet?
    b. Hur är e-handelslösningen integrerad med verksamhetens övriga system?
    c. Hur mycket kontroll har ni över lösningen/systemet?
5. När implementerades den nuvarande lösningen?
    a. Är det den första, eller hade ni någon annan lösning innan den?
6. Var du med vid implementationen av er nuvarande lösning?
    a. *Om ja:* Vill du i så fall beskriva vilken roll du hade?
    b. *Om nej:* Har du inblick i hur implementationen av nuvarande lösning gick till?
        i. *Om nej:* Om ni skulle göra ett nytt byte idag, vilka faktorer skulle vara viktiga då? *Fortsätt med fråga 9.*
7. Hur gick ni tillväga för att välja vilken typ av lösning?
    a. Fanns det en formell process för att värdera och välja lösning?
    b. Vilka lösningar stod det mellan?
    c. Vem fattade beslutet?
8. Varför valde ni just den? Vilka faktorer är/var de viktigaste vid val av lösning?
9. Hur påverkade marknaden och den externa omgivningen ert val av lösning?
10. Vilka interna resurser har påverkat ert val av lösning?
    a. Kan du beskriva hur?
11. På vilket sätt påverkade tidigare erfarenheter och kunskap ert val (av lösning)?
12. Hur påverkades valet av verksamhetens inställning till förändring i samband med teknologi?
13. Kan du beskriva hur verksamhetens uppfattning om ökat värde och möjligheter i och med en ny lösning påverkade valet?
14. Vilka tekniska aspekter har påverkat ert val av lösning?
    a. Kan du beskriva på vilket sätt de har påverkat valet?
15. Hur påverkades valet av verksamhetens intresse av att använda omnichannel?
16. Om ni skulle göra ett nytt byte idag, skulle något gjorts annorlunda? Vilka faktorer skulle vara viktiga då?

Appendix 2: Original quotes

01. **English:** *"[…] so if we had the same solution we had that time today, we probably would have had an impact on the sale. That our website was not what the market requires today, and the market demands a lot today." – Interviewee 1*

    a. **Original (Swedish):** "[…] så hade vi legat på den lösningen vi hade då, idag, då hade vi nog fått konsekvenser på försäljningen. Att vår hemsida inte håller det som marknaden kräver idag liksom, och marknaden kräver sjukt mycket idag."

02. **English:** *"[…] so it is interesting to see what they have done earlier, and evaluate their capacity and ability to handle and leverage e-commerce." – Interviewee 3.*

    Original (Swedish): *"[...]så det är intressant att se vad de har gjort tidigare och bedöma deras kapacitet och kompetens för att klara av och leverera e-handel."*

03. **English:** *"And then I would also say that the fashion industry is, well this is not allowed to say, but it is rather anxious and pays a little too much attention to what others are doing, and is not an industry with a reputation of being especially technical or leading edge when it comes to such elements." – Interviewee 5.*

    Original (Swedish): **"**Och sen skulle jag också säga att modebranschen är, ja så här får man inte säga, men den är ganska ängslig av sig och kollar ju lite överdrivet mycket på vad andra gör, och är inte en bransch som har ett rykte av sig att vara särskilt teknisk eller i framkant när det gäller sådana delar."

04. **English:** *"Everyone needs to be more 'digital first' in their mindset." – Interviewee 5*

    Original (Swedish): "Alla behöver ju bli mer 'digital first' i sitt mindset."

05. **English:** *"[…] talking with reference customers I believe is very important. The non-competing companies, so you can talk to people 'well you have this solution, what do you think, how did the implementation go, how does it work today', so more network so that you can learn from each other." – Interviewee 4.*

    Original (Swedish): "[…] prata med referenskunder tror jag är jätteviktigt. Dom icke konkurrerande företagen, så att man pratar med folk 'jaha ni har denna lösningen, hur tycker ni, hur gick implementeringen, hur funkar den idag', alltså mer nätverk så att man kan lära av varandra.

06. **English:** *"[…] you get an idea of the platforms you have worked with, and it is clear that it will affect the choice ahead, I would say." – Interviewee 5*

Original (Swedish): "[…] man bildar sig en uppfattning om de plattformar man har jobbat i, och det är klart att det påverkar ju valet framåt, det skulle jag säga."

07. **English:** *"[...] you would like to do smart choices, and the experience is a strong contributing factor to success." – Interviewee 3*

Original (Swedish): "[…] man vill ju gärna göra smarta val, och då är ju erfarenheten en stark bidragande faktor till att man lyckas. Så det är ju viktigt med erfarenhet."

08. **English:** *"[...] you will either have to make them available and risk your operation, or take in or buy external project managers, but then you will lose the knowledge of your own company. So it is a huge challenge to find resources within, and also outside, and to have people who understands your industry." – Interviewee 4.*

Original (Swedish): "[…] och då får du antingen frigöra dom och så kan du riskera din drift, eller så tar du in eller köper projektledare utifrån, men då tappar du kunskap om ditt eget företag. Så det är en jätteutmaning att hitta resurser innanför, och även utanför, och ha folk som förstår din bransch."

09. **English:** *"Depending on what type of specialities you have in-house, it can be variedly important with different types of automated processes and flows." – Interviewee 5.*

Original (Swedish): "Beroende på vilken typ av specialiteter som man har inhouse, så kan det ju vara olika viktigt med olika typer av automatiserade processer och flöden."

10. **English:** *"Then there is also to what price you can negotiate, what license costs there are over time.[...] So that kind of factors can matter." - Interviewee 3.*

Original (Swedish): "Sen är det ju också till vilket pris man kan förhandla, vilka licenskostnader som är över tid. [...] Så såna faktorer kan ju spela in då."

11. **English:** *"Of course the cost, both the cost of licenses, that is the whole model; how they charge, the cost to get it implemented, does integration cost, what is the cost of the licenses, how much ahh.. yes, so that you get the full picture [...]" – Interviewee 4*

Original (Swedish): "Givetvis kostnaden, både kostnaden på licenser - alltså hela modellen; hur man tar betalt, kostar det att få det på plats, kostar integrationen, vad kostar licenserna, vad kostar ahh.. ja så man har en totalbild."

12. **English:** *"We [sell to] 40 countries, and 16 e-commerce countries. So this is an international [platform], so it was also a requirement, that it can handle multiple countries and currencies." – Interviewee 4*

Original (Swedish): "Vi har 40 länder, och 16 e-handels länder. Så det här är en

internationell, så det var ju också ett krav, att den kan hantera multipla länder och valutor."

13. **English:** *"[...] the problem is that you drive a Rolls Royce and have a horse-and-buggy behind you. Then you will not be able to exploit the functionality that exist in front of the e-commerce system. I think so many people forget, that they use a lot of powder on the choice of e-commerce platform, but do not think about the need of both good data and good functionality in the backend parts." – Interviewee 4*

   Original (Swedish): "[…] problemet blir ju då att man kör en Rolls Royce och så har du en häst och vagn bakom dig. Och ja, då blir det ju att man inte kan utnyttja den funktionaliteten som finns front i e-handelssystemet. Det tror jag många glömmer, att man lägger väldigt mycket krut vid valet av e-handelsplattform, men man tänker inte på att det måste finnas både bra data och bra funktionalitet i backend delarna."

14. **English:** *"Yes, if I were a smaller e-tailer then I probably would think that it would be convenient with a large, a larger apparatus that can handle [everything]." - Interviewee 3*

   Original (Swedish): "Jo, om jag vore en mindre e-handlare så skulle jag nog tänka mig att det vore skönt med en stor, en större låda som klarar av."