2006:082 CIV

MASTER'S THESIS

Adoption of Electronic Invoicing in SMEs

Jessica Sundström

Luleå University of Technology

MSc Programmes in Engineering
Computer Science and Engineering
Department of Business Administration and Social Sciences
Division of Industrial marketing and e-commerce

2006:082 CIV - ISSN: 1402-1617 - ISRN: LTU-EX--06/082--SE

Acknowledgements

This Masters Thesis was written during the period September 2005 to January 2006 and concluded my Master of Science degree. Writing this thesis has been both interesting and challenging. There are several people who have provided help and support during this period. To these people I would like to extend my gratitude.

First of all, I would like to thank my supervisor, Assistant Professor Åsa Wallström, for providing me with valuable help, guidance and comments throughout the writing process. I would also like to thank Mr. Tommy Nilsson at Exait AB for his support, as well as the rest of the staff at Exait for making me feel so welcome. I would also like to thank the respondents, for contributing to this thesis by showing their interest and taking time to answer my questions.

Finally, my family and friends have been of great importance to me, not only while writing this thesis but also throughout my student days, therefore I would like to express my gratitude for your love and support during this time.

Luleå, January 2006

Jessica Sundström

Abstract

There has been an increasing interest in the area of electronic invoicing and more and more organisations send their invoices electronically. Today it is mostly large organisations and the public sector that utilise e-invoicing. Small and medium sized enterprises (SMEs) have not adopted e-invoicing to the same extent, even though new, simpler and more affordable techniques for e-invoicing have been introduced. The purpose of this study was to gain a better understanding of the adoption of electronic invoicing in SMEs, by describing the factors that affect the adoption of electronic invoicing in SMEs and how adoption of electronic invoicing can be facilitated. In order to provide understanding of the subject, case studies of three SMEs were made. The SMEs studied were: NKV, J. Petterssons Chark and BD Fisk.

The findings of this thesis indicate that there are several factors that affect adoption of e-invoicing in SMEs. Pressure from customers is considered to be an important factor for e-invoicing adoption in SMEs. Furthermore, the SMEs perceive that adoption of e-invoicing can be beneficial, and lead to increased internal efficiency as well as impact on business processes and relationships. The innovativeness of the owner/manager was also found to influence adoption of e-invoicing. The results from this study also indicate that technologically, the SMEs are ready for an adoption of e-invoicing and in general the SMEs in the study also have enough financial resources to adopt e-invoicing. However, technological and financial assistance and coercive methods are considered to facilitate adoption of e-invoicing in SMEs.

Sammanfattning

Intresset för elektronisk fakturering har ökat den senaste tiden och fler och fler organisationer väljer att skicka sina fakturor elektroniskt. Än så länge är det mest stora företag och offentlig sektor som har introducerat elektronisk fakturering och det har visat sig att små och medelstora företag inte har börjat skicka elektroniska fakturor i samma utsträckning, trots att nya, enklare och billigare tekniker för detta har kommit ut på marknaden. Mot bakgrund av denna situation var syftet med denna studie att öka förståelsen för adoption av elektronisk fakturering i små och medelstora företag, genom att beskriva de faktorer som påverkar adoption av e-fakturering i små och medelstora företag samt genom att undersöka hur adoption av e-fakturering kan underlättas. För att uppnå detta genomfördes fallstudier av tre små och medelstora företag; NKV, J. Petterssons chark och BD Fisk.

Resultatet från studien visar att det är flera faktorer som påverkar introduktion av elektronisk fakturering i små och medelstora företag. Påtryckningar från kunder har visat sig vara en betydelsefull faktor för introduktion av elektronisk fakturering. De små och medelstora företagen upplever också att elektronisk fakturering kan innebära flera fördelar, som kan leda till ökad effektivitet samt påverka affärsprocesser och affärsrelationer. Karakteristiska hos ägaren/VDn i små och medelstora företag, såsom hur innovativ ägaren/VDn är, tycks också påverka introduktion av elektronisk fakturering. Generellt sett har de små och medelstora företagen i denna studie tillräckliga finansiella resurser för att introducera elektronisk fakturering, och de är även redo tekniskt sett för att introducera och använda en e-faktureringslösning. Finansiellt stöd och teknisk hjälp, liksom påtryckningsmetoder tycks underlätta introduktion av elektronisk fakturering i små och medelstora företag.

Table of Contents

1. INTRODUCTION 1

1.1 BACKGROUND 2
1.1.1 Information Technology 2
1.1.2 E-Business and E-Commerce 3
1.1.3 Electronic Invoicing 3
1.1.4 SMEs Importance and Characteristics 4
1.2 PROBLEM DISCUSSION 6
1.2.1 Research Problem 6
1.2.2 Demarcations 6

2. THEORETICAL REVIEW 7

2.1 DIFFERENT TECHNIQUES FOR ELECTRONIC INVOICING 7
2.1.1 EDI 7
2.1.2 Invoice Portals / Web-EDI 8
2.1.3 Invoice Hubs 8
2.1.4 Self-Invoicing 8
2.1.5 Virtual Invoice Writer 8
2.1.6 Summary of Different Techniques for E-Invoicing 9
2.4 ADOPTION OF ELECTRONIC INVOICING 9
2.4.1 Perceived Benefits of E-Invoicing 10
2.4.2 External Pressure to Adopt E-Invoicing 11
2.4.3 Organisational Readiness for Adoption of E-Invoicing 12
2.4.4 Owner/Manager Characteristics 13
2.5 STRATEGIES FOR FACILITATING ADOPTION OF E-INVOICING 14
2.5.1 First Strategy: Financial and Technological Assistance 14
2.5.2 Second Strategy: Incentives 15
2.5.3 Third strategy: Coercive Methods 15

3. RESEARCH QUESTIONS AND FRAME OF REFERENCE 16

3.1 RESEARCH QUESTIONS 16
3.1.1 Research Question One 16
3.1.2 Research Question Two 17
3.2 FRAME OF REFERENCE 17
3.2.1 Factors Affecting Adoption of E-Invoicing 17
3.2.3 How to Facilitate Adoption of E-Invoicing 20

4. RESEARCH METHOD 22

4.1 RESEARCH PURPOSE 22
4.2 RESEARCH APPROACH 23
4.2.1 Inductive versus Deductive Research Approach 23
4.2.2 Qualitative versus Quantitative Research Approach 23
4.3 RESEARCH STRATEGY 24
4.3.1 Case Study 24
4.3.2 Selection of Case Study Firms 25
4.4 DATA COLLECTION 26
4.5 ANALYSIS OF COLLECTED DATA 28
4.6 VALIDITY AND RELIABILITY 29

5. EMPIRICAL DATA 31

5.1 CASE ONE: NKV KONTORSVAROR AB 31
5.1.1 Company Background 31
5.1.2 Factors Affecting Adoption of E-Invoicing 31
5.1.3 How to Facilitate Adoption of E-Invoicing 33
5.2 CASE TWO: J. PETTERSSONS CHARK AB 34
5.2.1 Company Background 34

5.2.2 Factors Affecting Adoption of E-Invoicing *34*
5.2.3 How to Facilitate Adoption of E-Invoicing *36*
5.3 CASE THREE: BD FISK AB 36
5.3.1 Company Background *36*
5.3.2 Factors Affecting Adoption of E-Invoicing *36*
5.3.3 How to Facilitate Adoption of E-Invoicing *38*

6. ANALYSIS 39

6.1 WITHIN-CASE ANALYSIS OF CASE ONE 39
6.1.1 Factors Affecting Adoption of E-Invoicing *39*
6.1.2 How to Facilitate Adoption of E-Invoicing *41*
6.2 WITHIN-CASE ANALYSIS OF CASE TWO 41
6.2.1 Factors Affecting Adoption of E-Invoicing *42*
6.2.2 How to Facilitate Adoption of E-Invoicing *44*
6.3 WITHIN-CASE ANALYSIS OF CASE THREE 44
6.3.1 Factors Affecting Adoption of E-Invoicing *44*
6.3.2 How to Facilitate Adoption of E-Invoicing *46*
6.4 CROSS-CASE ANALYSIS 47
6.4.1 Factors Affecting Adoption of E-Invoicing *47*
6.4.2 How to Facilitate Adoption of E-Invoicing *50*

7. DISCUSSION, CONCLUSIONS AND IMPLICATIONS 52

7.1 DISCUSSION AND CONCLUSIONS 52
7.1.1 How can Factors Affecting Adoption of E-Invoicing in SMEs be Described? *52*
7.1.2 How can Adoption of E-Invoicing in SMEs be Facilitated? *54*
7.1.3 Final Conclusions *54*
7.2 IMPLICATIONS 54
7.2.1 Implications for Management *54*
7.2.2 Implications for Theory *55*
7.2.3 Suggestions for Future Research *55*

REFERENCES 56

APPENDICES

Appendix I: Interview Guide – English Version
Appendix II: Intervjuguide – Svensk version

LIST OF FIGURES

Figure 1.1 Buying Process 1
Figure 1.2 Relation between Key Terms 2
Figure 2.1 Bilateral and Intermediary E-Invoice Solution 7
Figure 2.2 Perceived Benefits of E-Invoicing 11
Figure 2.3 External Pressure to Adopt E-Invoicing 12
Figure 2.4 Organisational Readiness for Adoption of E-Invoicing 13
Figure 3.1 Factors Affecting Adoption of E-Invoicing 18
Figure 3.2 Strategies for Facilitating Adoption of E-Invoicing in SMEs 20

LIST OF TABLES

Table 3.1 Conceptualisation and Measures to Describe the Factors that Affect Adoption of E-Invoicing in SMEs 19
Table 3.2 Conceptualisation and Measures to Describe How to Facilitate Adoption of E-Invoicing in SMEs 21
Table 4.1 Relevant Situations for Different Research Strategies 24
Table 4.2 Overview of the Selected Cases and Their Generic Characteristics 26
Table 4.3 Six Sources of Evidence: Strengths and Weaknesses 27
Table 4.4 Case Study Tactics for Four Design Tests 29
Table 6.1 Overview of Perceived Advantages 47
Table 6.2 Overview of Perceived Risks 48
Table 6.3 Overview of External Pressure 49
Table 6.4 Overview of Organisational Readiness 49
Table 6.5 Overview of Owner/Manager Characteristics 50
Table 6.6 Overview of How to Facilitate Adoption of E-Invoicing 51

1. Introduction

This chapter will introduce the subject of research, starting with a background that will help the reader to get a better understanding of the subject and how it fits into its broader context. The problem discussion will then be used for narrowing the subject and directing the focus towards the specific research problem.

The globalisation of markets, technology and competition has increased business' requirements for flexibility, quality, cost-effectiveness and timeliness. As a way of meeting these requirements, *information technology* (IT) has transformed the way business is done (Burgess, 2002). *E-business* is one area of IT that has progressed in the past decade, with the increased use of the Internet. *Electronic commerce* is said to be "one of the most important forces shaping business today" (Watson, Berthon, Pitt & Zinnkhan, 2000, p.43). Both businesses and consumers are buying and selling goods and services on the Internet or via other electronic networks. The largest part of e-commerce is the buying and selling between businesses (B2B) (Fredholm, 2002). Dykert and Fredholm (2004) describe common buying processes in a B2B context. A common buying process can be seen in Figure 1.1.

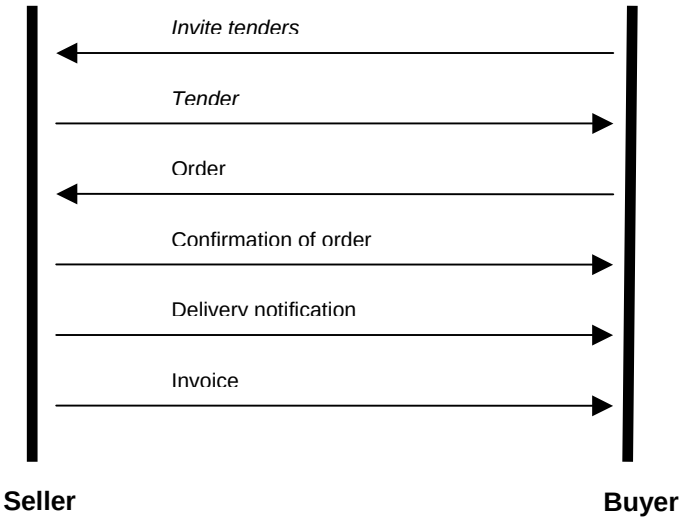

Figure 1.1 Buying Process.
Source: Translated from (Dykert & Fredholm, 2004, p. 11)

Businesses are trying to automate processes between buyers and sellers by introducing electronic orders, electronic order confirmation and electronic payment procedures, in order to increase their efficiency and effectiveness (Morrell & Ezingeard, 2002). Fredholm (2002) argues that even though it might be beneficial for companies to automate all their processes, it could be advisable to begin with one or a few. The invoice process has large savings potential (ibid). Some organisations, mainly large companies and municipalities have invested in *e-invoicing*, but many organisations are still sending their invoices the traditional way (Dykert & Fredholm, 2004).

To clarify the relation between the key terms IT, e-business, e-commerce and e-invoicing, a schematic illustration is shown in Figure 1.2 on the next page . The illustration shows that e-invoicing is a part of e-commerce, because e-commerce can be explained as a business transaction carried out over an electronic network (Fredholm, 2002). E-business is often used

as a broader term than e-commerce because it encompasses all business processes, not only transactions (ibid). E-business is one of the main areas of IT (Fredholm, 2004).

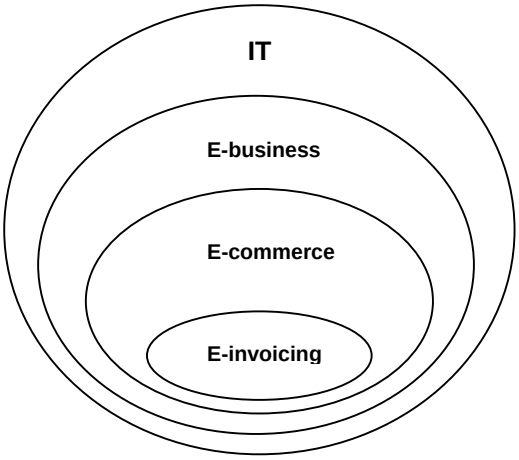

Figure 1.2 Relation Between Key Terms

It has been shown that it is mostly large organisations that have introduced e-invoicing and that small and medium sized enterprises (SMEs) are lagging behind in this process (Al-Qirim, 2004; MacGregor, 2004). SMEs are recognised as important by governments all over the world because "in aggregate they are big buyers, big sellers and most important big employers" (Taylor & Murphy, 2004, p. 280). SMEs have special characteristics that make it important to consider their special needs, knowledge and resources when introducing electronic invoicing (Fillis, Johannson & Wagner, 2004; ESV, 2005).

1.1 Background

The following sections will provide a background to the area of information technology, electronic business and electronic invoicing, and describe how these areas are used by small and medium sized enterprises.

1.1.1 Information Technology

Junghagen (1998) describes Information Technology (IT) as a wide term that is used to apply to everything concerning computers, networking, and information systems. The evolution of IT is usually described by innovative changes in hardware, where the last innovative change was the introduction of personal computers in the mid 1970s. However, the evolution of IT should not only consider hardware innovations but also the use of new technology. The fast evolution of new software since the 1970s has caused a gap between the technical evolution and the actual needs and utilisation of IT (ibid).

The term IT can be divided into some main areas, namely infrastructure, hardware, communication, office systems, business systems, production systems, home environment and e-business (Fredholm, 2004). Junghagen (1998) describes that IT encompasses all forms of technology used to create, store, exchange and use information through telecommunication and computer technology. There is however other definitions of the term, some of them focus

more on the utilisation than the actual technology. The following definition implies that information technology is of strategic importance:

"Information technology is the application of technology to business processes, gathering data and creating information that is valuable to managers who make business decisions."
(Daniels, 1993, p. 36)

1.1.2 E-Business and E-Commerce

Fredholm (2002) reports that electronic business, in its early forms, has existed since computers have been used for administrative applications. In the late 1960s, organisations started to exchange files electronically. The first standard, for this file transfer (EDI[1]), was developed in the 1970s. The early EDI solutions were complex and expensive and therefore best suited for large companies. With the increased use of the Internet in the mid 1990s, and new standards such as HTML[2] and XML[3], new simpler and less expensive solutions were developed. It became possible to build applications for e-commerce that were more suitable for smaller organisations. This was also the start for selling goods and services via the Internet to both businesses and consumers (ibid).

Fredholm (2002) describes that some authors are using the terms *e-business* and *e-commerce* interchangeably while others state that e-business is a broader term. Electronic commerce (e-commerce) focuses on business transactions carried out over an electronic network. The broader term electronic business encompasses all business processes not just transactions (ibid). E-business is defined as "any business carried out over an electronic network" (Fillis et al., 2004, p. 179). The largest application of e-commerce is within business to business (B2B) and this segment is projected to be the largest in the future as well (Fredholm, 2002).

1.1.3 Electronic Invoicing

One of the large areas of use for e-commerce is payments (Junghagen, 1998). *Electronic invoices* can be deduced from the late 1970s when organisations started to exchange invoice files (Dykert & Fredholm, 2003). There was no standard for the exchange and the business systems were not adjusted to the demands that were needed to pursue this work, therefore large volumes were needed for the investment to be profitable. New technological solutions and standards, such as XML have created new possibilities and made the process easier (ibid). The advantage of XML over EDI is that it is less rigid, less expensive and can be used over the Internet (Morrell & Ezingeard, 2002).

Electronic invoicing/billing[4] refers to the sending and receiving of invoices by electronic means. There are different technical solutions for this, such as EDI-invoicing, self-invoicing,

[1] EDI stands for Electronic Data Interchange and is a standard for information exchange between computers (Fredholm, 2004).
[2] HTML (HyperText Markup Language) is a standard for website creation (Fredholm, 2004)
[3] XML (eXtensible Markup Language) is a standard from W3C (World Wide Web Organization) for structuring data (Fredholm, 2004).
[4] The terms e-invoicing and e-billing are used interchangeably in the literature. In order to keep consistency, the term e-invoicing or electronic invoicing will exclusively be used throughout this thesis

invoice portals and invoice hubs (Fredholm, 2002; Dykert & Fredholm, 2004). In Sweden there has been an increasing interest in the area of electronic invoicing, which can be seen in technology journals (Brundin, 2005; Cooke, 2005) and government reports (ESV, 2005).

Robinson (2001) has identified some problems with adoption of e-invoicing that the B2B sector has experienced; both buyers and sellers are waiting until a critical mass is reached and buyers wait for sellers to take on e-invoicing at the same time as sellers wait for buyers to do the same. Fredholm (2002) and Dykert and Fredholm (2004) report that mostly large organisations have invested in electronic invoicing with the purpose of cutting costs for their administrative work, while the suppliers do not see the same benefits with introducing electronic invoices. Organisations which have invested in an e-business system may experience problems with smaller suppliers that do not use a compatible e-business solution (ibid). Within industry sectors with a large number of competing suppliers and high bargaining power of buyers, the buyers have a greater chance to persuade the suppliers to commence e-business services, such as electronic invoicing (Fredholm, 2000). This is a phenomenon that can be seen in the car manufacturing industry (Iacovou, Benbasat & Dexter, 1995; Al-Qirim, 2004) where large manufacturers have more or less forced their smaller suppliers to introduce e-commerce.

ESV[5] (2005) reports that the public sector, including several municipalities in Sweden have invested in systems for sending and receiving electronic invoices and are experiencing that many of their smaller suppliers are still sending their invoices the traditional way. The potential of an e-invoicing system is not being fully exploited and manual routines for ordering and payment are still needed (ibid). Since the public sector handles large amounts of invoices, vast savings can be made if more suppliers begin sending their invoices electronically (ibid). ESV (2005) calculates that introducing electronic invoices in the public sector in Sweden has the potential of saving almost four billion SEK over a five-year period. Other Scandinavian countries such as Finland and Denmark recognized the potential in e-invoicing earlier than Sweden. These countries have used different approaches to get organisations to use e-invoicing. In Denmark a new law was introduced in February 2005, which requires the public sector to send and receive electronic invoices. Instead of using coercive measures, Finland has used another approach, based on recommendations and willingness (ESV, 2005).

1.1.4 SMEs Importance and Characteristics

It was in the 1970s that researchers began to take interest in SMEs (Small and Medium sized Enterprises) and their importance for economic development and industry dynamics (Al-Qirim, 2004). Thong and Yap (1995) highlight the importance of small businesses as significant creators of employment and contributors to national economies. Matlay (2000) states that SMEs conduct more than 99 percent of all business activities in the European Union, and account for 68 percent of total employment and 63 percent of business turnover. According to Iacovou et al. (1995), SMEs are also vital for introducing new inventions and innovations.

[5] Ekonomistyrningsverket, a Swedish central administrative agency under the ministry of finance

There is no standard definition of SMEs. They are usually defined by the number of employees, however this number varies from study to study (Fink, 1998). This thesis will follow the 2005 European Commission's definition of SMEs which states that SMEs are autonomous, partner or linked enterprises with 10 to 250 employees and a total turnover of less than 50 Million EUR or a Balance Sheet total less than 43 Million EUR (European Commision, 2005).

Smaller firms share some common attributes with their larger counterparts, such as the need for long-term profitability, but in many respects they are run in a distinctly different manner (Hansemark, 1998). Ballantine, Levy and Powel (1998) and Hansemark (1998) highlight some characteristics of SMEs:

- Lack of business and IT strategy
- Limited access to capital resources
- Influence of major customers
- Limited information skills
- The owner/manager exerts a high degree of locus of control in decision making

It has been stated that small businesses are not using information technology to the same extent as larger firms (Junghagen, 1998). IT adoption in SMEs became an issue in the 1980s when the emergence of personal computers provided smaller firms with the opportunity to introduce computer hardware and packaged systems to lower costs (Fink, 1998). Al-Qirim (2004) reports that despite the relatively high adoption rates of e-mail and websites, SMEs are lagging behind large businesses in terms of e-commerce adoption and its use in business. Even among the SMEs themselves, larger SMEs are more likely to implement e-commerce than smaller SMEs. According to ESV (2005), Swedish municipalities have found that SMEs do not have the knowledge and the incentives for adopting e-commerce. This is consistent with Stefansson (2002), who states that small companies often lack the basic IT platform that is required to implement e-commerce, and hence expose themselves to the risk of permanent exclusion from the supply chain. Fredholm (2003) on the other hand claims that SMEs might even have better conditions for successful e-commerce implementation, than larger organisations, because SMEs can quickly develop and follow a new strategy.

It appears as if the characteristics of SMEs are influencing their IT adoption decisions in several different ways (Chen & Williams, 1998; Stefansson, 2002; ESV, 2005; Fredholm, 2003). SMEs' lack of business and IT strategy leads to a short-term view of IT adoption and implementation. Influence of major customers/suppliers usually makes SMEs' approach toward e-commerce adoption more reactive than proactive, generally doing just enough to meet their customers/suppliers' needs (Chen & Williams, 1998). It has been shown that IT adoption decisions in small businesses are typically made by a single owner/manager[6] (Riemenschneider, Harrison & Mykytyn, 2003). This makes it important to study owner/manager related factors such as attitudes, behaviour, competence, culture and values (Fillis et al., 2003, 2004). Furthermore, Fillis et al. (2004) argue that in order to provide appropriate assistance for SMEs, when introducing e-business systems (such as e-invoicing), that understanding of the characteristics of SMEs' which affect e-invoicing adoption must be achieved.

[6] In the literature several different terms are used interchangeably for describing the main decision maker in a small firm (e.g. owner/manager, CEO). In order to keep consistency, the term owner/manager will be used exclusively throughout this thesis.

1.2 Problem Discussion

The interest in the area of electronic invoicing has increased because of the potential for resource savings (Dykert & Fredholm, 2004; ESV, 2005). However it is not an area that has been well researched since no study has been found about SMEs' adoption of e-invoicing specifically. Studies of the factors influencing SMEs' IT adoption in general or other areas of e-commerce such as EDI are more common, e.g. (Iacovou et al., 1995; Thong & Yap, 1995; Premkumar & Roberts, 1999).

Profits that can be made in the B2B sector are much larger than those that can be made in the business to consumer (B2C) sector because of sheer volume in the B2B sector (Amor, 2000). The public sector, i.e. municipalities handles large amounts of invoices, and could save a lot of money on invoice handling if their suppliers would send their invoices electronically. E-invoicing does not seem to have taken off in the B2B sector even though new, simpler and more affordable techniques for e-invoicing have been introduced (Dykert & Fredholm, 2004). Some of the reasons for this might be that a critical mass of e-invoicing users has not yet been reached and smaller suppliers do not see the same benefits with electronic invoicing as larger organisations (Fredholm, 2002).

SMEs are not using e-business systems like e-invoicing to the same extent as larger organisations (Al-Qirim, 2004; Fillis et al., 2004; Grandon & Pearson, 2004). When studying SMEs it is important to consider that they are not just scaled down versions of larger companies, they have different characteristics that affect adoption of information systems e.g. e-invoicing (Kuan & Chau, 2001).

1.2.1 Research Problem

The increasing interest in the area of electronic invoicing, experienced problems with adoption of e-invoicing and the special characteristics of SMEs, have been discussed in the background and problem discussion above. These facts, together with the limited amount of research about adoption of electronic invoicing, have given rise to the research problem of this thesis:

To gain a better understanding of the adoption of electronic invoicing in SMEs.

1.2.2 Demarcations

Adoption of electronic invoicing in SMEs is an extensive area. Due to limited time and resources this study will focus on the adoption of electronic invoicing from the perspective of the invoicer, which is the company that sends the invoice. The handling of received invoices will not be considered in this study.

2. Theoretical Review

In this chapter, an overview of theories judged to be relevant for the research problem is presented. First different techniques for e-invoicing are briefly described. Then different IT adoption theories are explained.

2.1 Different Techniques for Electronic Invoicing

There are a few standardized solutions for electronic invoicing (Fredholm, 2002; Dykert & Fredholm, 2004). Some of the solutions involve sending the invoice directly between the invoicer and the invoice receiver (bilateral solutions), while others are using an external service for exchanging the invoices (solutions using an intermediary). The difference between these two types is described in Figure 2.1.

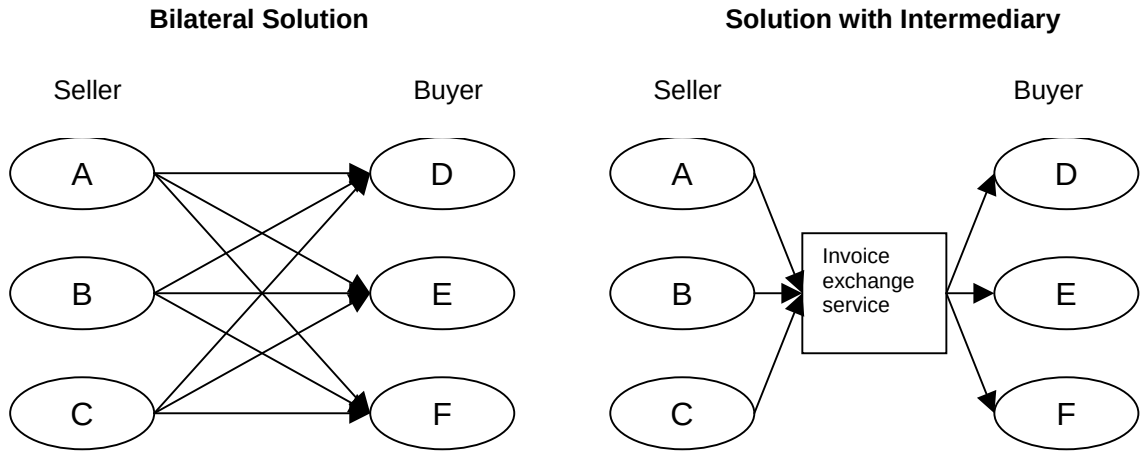

Figure 2.1 Bilateral and Intermediary E-Invoice Solution.
Source: Adapted from (ESV, 2005, p. 52).

2.1.1 EDI

Fredholm (2004) describes EDI as an electronic exchange of B2B information sent between computers in standardised formats. A prerequisite is that the business partners use an agreed standard for the exchange, typically Edifact[7] or XML. The essence of EDI is that two business systems communicate directly with each other, which reduces the need for manual routines. To fully exploit the potential of EDI, most businesses use the concept to exchange several business transactions, where the invoice is one of them. Dykert and Fredholm (2004) highlight some advantages and disadvantages with EDI. The advantages of EDI are that it offers a high level of automation, reduces errors, offers several industry specific options, is a standardized solution for the whole business process, and is beneficial for both buyer and seller. The disadvantages include lack of a unified standard and difficulties for small

[7] Edifact (Electronic Data Interchange For Administration, Commerce and Transport is a document standard for EDI-messages.

businesses, because EDI requires certain volumes and entails high investment and integration costs.

2.1.2 Invoice Portals / Web-EDI

According to Dykert and Fredholm (2004), an invoice portal is a service where the supplier fills in a web form, which is then sent electronically to the customer in a specified format. Web-EDI is a good complement for organisations that have invested in an EDI-system, because it is a solution that can be used by their smaller suppliers as well. The solution is most beneficial for the buyer whose manual work is reduced. For the supplier, on the other hand, some manual routines are still needed (ibid).

2.1.3 Invoice Hubs

An invoice hub, also called invoice transaction hub, is a service offered by an intermediary which directs electronic invoices and converts them into different formats (ESV, 2005). Dykert and Fredholm (2004) give a description of this process: an invoice is sent electronically from the business system of the invoicer, via the invoice exchange service directly to the business system of the invoice receiver or is printed by the intermediary and sent to the invoice receiver by mail. This solution is easy to implement with low investment costs (ibid).

2.1.4 Self-Invoicing

Dykert and Fredholm (2004) describe the process of self-invoicing where the customer creates the invoice instead of the traditional way where the supplier is the invoicer. Self-invoicing is most suitable for purchases where prices are agreed and updated in the buyer's system, which makes self-invoicing difficult to use for all invoices. When using self-invoicing, the seller is the one verifying the invoice, in contrast to other modes of invoicing where the buyer is the verifier (ibid).

2.1.5 Virtual Invoice Writer

ESV (2005) describes a virtual invoice writer as an application that makes it possible to create electronic invoices, and instead of printing the invoice, it is sent to the invoice receiver by email. Dykert and Fredholm (2004) argue that the potential for this solution is not as good as the potential for the other solutions because the buyer often prints the invoice and handles it manually. The potential savings include postage, paper and envelope costs for the seller. There are some risks with this solution; it is not appropriate to send document types which can be altered or use document templates where previous versions can be traced. What also needs to be considered is that invoices need to be saved in the original version (the received invoice file) for at least three years (ibid).

2.1.6 Summary of Different Techniques for E-Invoicing

The solutions described in the previous sections are often used to complement each other. Large organisations, which handle vast amounts of invoices from various types of suppliers, might initially need to have different solutions for their trading partners (Fredholm, 2002). The technical solution that is most suitable depends on invoice volumes, level of inter-organisational cooperation and financial resources (ESV, 2005). There are also other solutions for e-invoicing than the ones described above, such as scanning of paper invoices (Dykert & Fredholm, 2004). This specific solution is not described here because it involves sending invoices the traditional way.

A comparison between the techniques for e-invoicing concludes that EDI, invoice portals/ web-EDI and invoice hubs are the techniques that can be used by a supplier to send an invoice directly to the customer's business system. However, EDI and invoice hubs also support scalability, these solutions can be used for other transactions in the buying process other than just e-invoicing. (Dykert & Fredholm, 2004; ESV, 2005)

2.4 Adoption of Electronic Invoicing

Studies of the adoption of IT in general and EDI adoption indicate that SMEs are likely to consider several factors when deciding to introduce e-invoicing or related technologies (Grandon & Pearson, 2004). Adoption of EDI has a lot of similarities with the adoption of e-invoicing because of its networking characteristics, both technologies are used to connect trading partners. The main difference is that EDI is more complex and expensive than the simpler techniques of e-invoicing (Dykert & Fredholm, 2004).

Adoption of electronic invoicing can be seen as an *innovation* for SMEs based on the argument that an innovation is something that is new to the adopting organisation (Mehrtens et al., 2001). Thong and Yap (1995) state that "technological innovations present potential adopters with new means for solving problems and exploiting opportunities" (Thong & Yap, 1995, p. 430). Kuan and Chau (2001) refer to Tornatzky and Fleischer (1990) who describe a general framework in innovation studies consisting of three contexts that may influence the process by which technological innovations are adopted and implemented: the *technological context*, the *organisational context* and the *environmental context*. Several studies have used the framework by Tornatzky and Fleischer (1990), although the studies have focused on different factors within the contexts. Premkumar and Roberts (1999) studied factors influencing adoption of various communication techniques, by using a model consisting of innovation characteristics (relative advantage, cost, complexity, and compatibility), organisational characteristics (top management support, IT expertise and size) and environmental characteristics (competitive pressure, external support and vertical linkages). The results from the study show that relative advantage, top management support, organisational size, external pressure and competitive pressure are important determinants of adoption (ibid).

Some studies of IT adoption by SMEs have focused on the adoption of particular types of information technology, e.g. EDI. Iacovou et al. (1995) conducted a comprehensive study of EDI adoption by small firms using three major factors, namely *perceived benefits* of EDI, *organisational readiness* and *external pressure* to adopt EDI. Perceived benefits of the technology innovation are consistently singled out as important for IT adoption.

Organisational readiness is found to be an important factor because of the low level of IT sophistication and resource availability of SMEs. The fact that SMEs often have weak market positions that make them sensitive to pressure from customers, together with the network nature of the technology, makes external pressure a vital factor for influencing EDI adoption (Iacovou et al., 1995). The factors *perceived benefits, organisational readiness* and *external pressure* are used in several other studies of EDI and IT adoption with similar results, e.g. (Chwelos et al., 2001; Mehrtens et al., 2001).

2.4.1 Perceived Benefits of E-Invoicing

Iacovou et al. (1995) describe that ***perceived benefits*** refer to managers' perceptions of the relative advantages of EDI. Perceived benefits are considered to be an important factor for businesses to adopt new information technology (Premkumar & Roberts, 1999).

Driving forces for e-business as well as IT in general can be divided into *direct and indirect advantages*. Direct advantages refer to increased internal efficiency of the organisation, such as cost and time savings. Indirect advantages refer to the impact of electronic invoicing on business processes and relationships. These are mostly tactical and competitive advantages (Fredholm, 2002).

Often the benefits for the invoice receiver are discussed, but the invoicer can also benefit from electronic invoicing (Dykert & Fredholm, 2004; ESV, 2005). Advantages of e-invoicing for the invoicer, are listed below (Fredholm, 2000; Robinson, 2001; Dykert & Fredholm, 2004; Fredholm, 2004; NEA, 2006):

Direct Advantages:

- Cost savings can be achieved by time savings, reduced paper usage and reduced costs for postage
- Automation frees staff resources for other tasks
- Interest revenues and less invoice reminders are needed (because of the reduced handling time for the invoice receiver, the invoice is more often paid on time, which leads to interest revenues for the invoicer and a reduced need for sending invoice reminders)

Indirect Advantages:

- Reduced paper handling is beneficial to the environment
- Using modern, rational and environmentally friendly techniques, can be good for organisations from a public relations perspective
- Strengthening of customer relations often leads to long-term partnerships
- The closer collaboration between supplier and buyer leads to improved customer loyalty.

Kuan and Chau (2001) highlight that for a small firm commencing on IT adoption there is a lot of uncertainty and risks involved, because of inadequate resources and limited knowledge about new technology. Fredholm (2000) describes some *risks* and obstacles with an introduction of electronic invoicing, which are listed below.

Risks:

- Social aspects - By rationalising manual processes, some administrative staff members will be relocated or possibly made redundant.
- Technical obstacles - Integration with the organisation's existing business system is often required. Outdated and often self-developed business systems make this process complex and expensive.
- Competence requirements - New e-invoicing techniques e.g. new software, system integration and data communications demand knowledge about the new techniques
- Possibly high investment and integration costs - The introduction of e-invoicing implies an initial cost. Depending on what technical solution the organisation has chosen, however the introduction cost varies.
- Security issues – The e-invoicing system must be constructed in a way that ensures operational reliability and minimizes the risks for communication breakdown, unauthorized accessibility and manipulation of information.

If the owner/manager of the small firm perceives the direct and indirect advantages of IT adoption to outweigh the risks, then the business is more likely to adopt IT (Thong & Yap, 1995). Furthermore, Iacovou et al. (1995) add that small firms with management that recognise the benefits of electronic invoicing will be more likely to adopt e-invoicing and enjoy higher impacts than those firms whose owner/manager has a lower level of recognition of the perceived benefits. Based on the above discussion, the relationships of the key terms described in this section are illustrated in Figure 2.2.

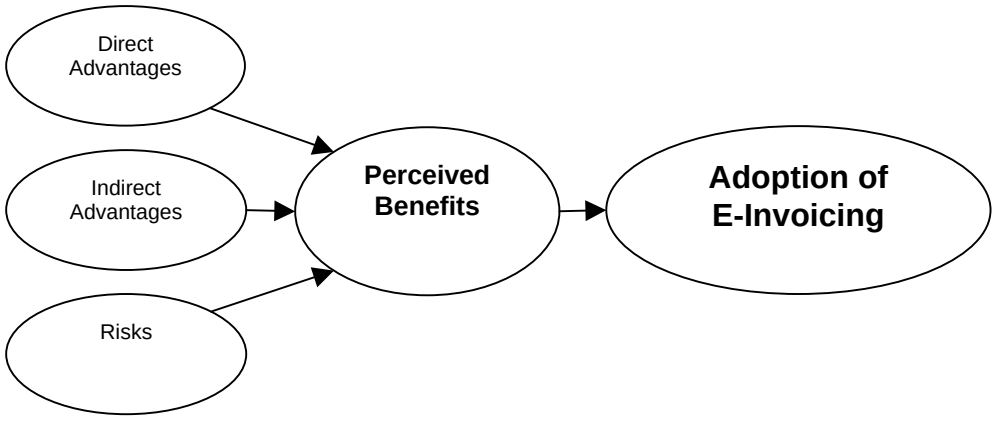

Figure 2.2 Perceived Benefits of E-Invoicing

2.4.2 External Pressure to Adopt E-Invoicing

External pressure to adopt electronic invoicing refers to influences from the organisational environment and has been found to be the most influential factor of IT adoption in several studies (Iacovou et al., 1995; Mehrtens et al., 2001). Pressure can be exerted from both trading partners and competitors. The *pressure from trading partners* has been shown to be a critical factor for the implementation of inter-organisational systems such as EDI in SMEs (Iacovou et al, 1995). Small organisations are often the weaker part in a business relationship which makes them more susceptible to pressures by the stronger organisation in the relationship (ibid). Influential trading partners consume a large proportion of sales or generate

a large portion of the SMEs' profits (ibid). The level of dependency can be calculated by the percentage of sales derived from that customer. Raymond and Blili (1997) state that it is common for SMEs to have more than 50 percent of their sales derived from one major customer.

The *competitive pressure* refers to the level of IT capability within the industry and more specifically the capability of a firm's competitors (Iacovou et al., 1995).

According to Iacovou et al. (1995), external pressure to adopt e-invoicing consists of pressure from the firm's trading partners and pressure from the firm's competitors, which is shown in Figure 2.3.

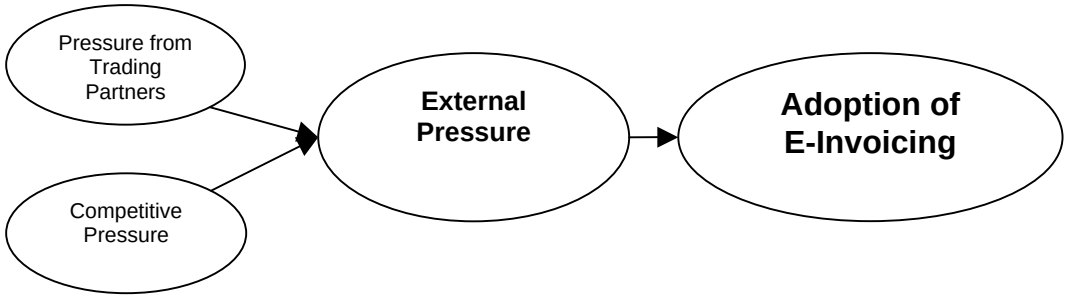

Figure 2.3 External Pressure to Adopt E-Invoicing

2.4.3 Organisational Readiness for Adoption of E-Invoicing

Iacovou et al. (1995) describe ***organisational readiness*** by means of the level of *financial and technological resources* of the firm. This factor is important to consider because SMEs tend to lack the financial and technological resources that are necessary for IT investments (Ballantine et al., 1998; Stefansson, 2002). According to Iacovou et al. (1995), the *financial resources* are the resources available to pay for installation of the e-invoicing system, costs associated with the introduction and the ongoing expenses. *Technological resources* refer to the level of sophistication of IT usage and IT management within the organisation (ibid). Firms with high levels of sophistication are usually less likely to feel intimidated by new technologies. Organisations with highly integrated, computerised processes are better prepared for inter-organisational IT projects, which increase the impact of the technology and provide greater benefits (ibid).

Iacovou et al. (1995) argue that firms with higher organisational readiness for e-invoicing will be more likely to adopt and enjoy higher benefits than firms with low levels of readiness. The organisational readiness is composed of the financial and technological resources of the organisation (Iacovou et al., 1995), which is depicted in Figure 2.4, on the next page.

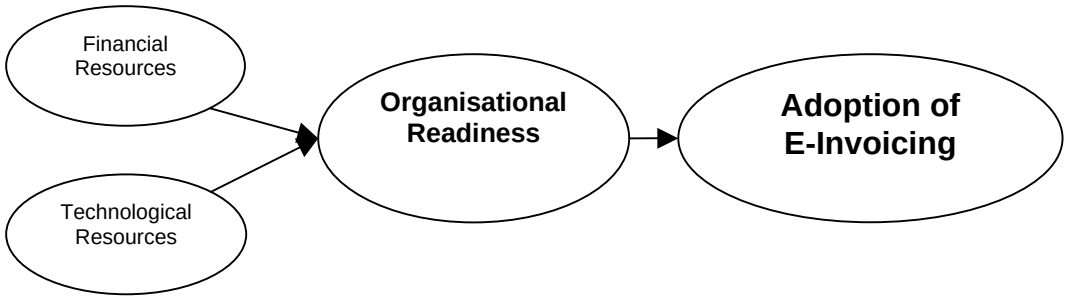

Figure 2.4 Organisational Readiness for Adoption of E-Invoicing

2.4.4 Owner/Manager Characteristics

Thong (1999) concludes that four elements of context can be identified in technological innovation theories; characteristics of the organisational decision makers, characteristics of the technological innovation, characteristics of the organisation and characteristics of the environment in which the organisation operates. According to Hansemark (1998), the owner/manager of a small firm exerts a high degree of locus of control in decision making, which makes it valuable to study owner/manager related factors when studying IT adoption decisions in SMEs (Thong, 1999; Riemenschneider et al., 2003). Researchers who have studied SMEs' adoption of IT and related technologies (e.g. Thong & Yap, 1995; Junghagen, 1998) have studied a few different factors applicable to the framework by Thong (1999). Junghagen (1998) constructed a theoretical model where small businesses strategic dispositions to IT, were dependent on manager's individual characteristics, perceived attributes of IT, actual use of IT and perceived internal and external situation.

Thong and Yap (1995) studied three attributes of ***owner/manager characteristics***; *innovativeness*, *IT knowledge* and *attitude towards adoption of IT*. The owner/manager characteristics are depicted in Figure 2.5 below. The result from Thong and Yap's (1995) study indicates that small businesses with owners / managers who are more innovative, possess more positive attitude towards adoption of IT and are more knowledgeable about IT are more likely to adopt IT (ibid).

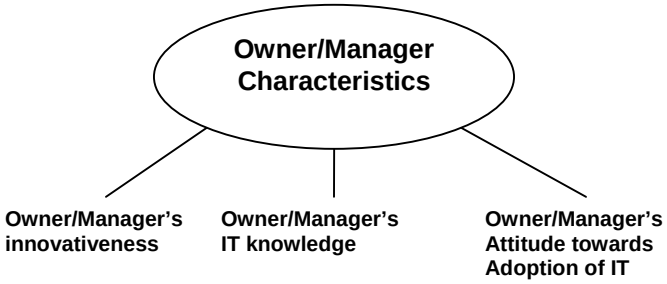

Figure 2.5 Owner/Manager Characteristics

Owner/Manager's Innovativeness

Thong and Yap (1995) report, that innovative owners/managers are more willing to take the risk of adopting IT, while less innovative managers will more likely look for less radical and less risky solutions. Furthermore, Premkumar and Roberts (1999) add that certain personal characteristics (e.g. level of education) of owners/managers make them more innovative than others.

Owner/Manager's IT Knowledge

According to Thong and Yap (1995), owners/managers with a high level of IT knowledge are more likely to adopt IT because with greater knowledge the owner/manager is more likely to be aware of the potential benefits, and uncertainty and risks involved in IT adoption will diminish.

Owner/Manager's Attitude towards Adoption of IT

Furthermore, Thong and Yap (1995) conclude that SMEs with an owner/manager who has a positive attitude towards adoption of IT is more likely to adopt IT, and in turn perceive the adoption of IT to be economically and strategically beneficial to their business.

2.5 Strategies for Facilitating Adoption of E-Invoicing

Larger organisations can promote adoption of e-invoicing by recognising critical success factors and how they can be influenced. To facilitate adoption, Iacovou et al. (1995) suggest that powerful trading partners may pursue three different strategies based on *financial and technological assistance*, *incentives* and *coercive methods*.

2.5.1 First Strategy: Financial and Technological Assistance

The first strategy described by Iacovou et al. (1995) for facilitating adoption of e-invoicing is based on financial and technological assistance. By providing adequate information, training or resources the powerful organisation can facilitate an introduction of electronic invoicing (ibid). Raymond and Blili (1997) point out that economic support such as discounted software, hardware and training can be used to overcome problems with lack of financial resources and to facilitate the development of internally integrated systems which leads to higher benefit for the adopting SMEs. Raymond and Blili (1997) further suggest that technological assistance can be offered to overcome technical obstacles and obstacles related to knowledge. Because SMEs often lack internal IT expertise, regular contact with an outside expert such as a vendor or a consultant facilitates IT adoption (Fredholm, 2002). Fink (1998) and Premkumar and Roberts (1999) highlight that owners/managers play a significant role in the successful adoption of IT in SMEs. As the main decision-makers, their individual characteristics, attitude to IT, innovativeness and IT knowledge are powerful determinants of IT adoption. Their attitude towards e-invoicing will consequently determine if e-invoicing will be introduced in the organisation. A more positive opinion about e-invoicing would obviously increase the probability for an introduction (ibid). For SMEs that are unaware of the benefits of electronic invoicing, larger trading partners are recommended to actively communicate the benefits of electronic invoicing to the SMEs by visits, seminars and presentations (Raymond & Blili, 1997).

2.5.2 Second Strategy: Incentives

A second strategy is to use incentives such as rewards and discounts to facilitate adoption of e-invoicing in small organisations (Iacovou et al., 1995). Iacovou et al. (1995) suggest that larger trading partners can pursue promotional efforts to improve their smaller partners' perception of the benefits of e-invoicing. Raymond and Blili (1997) find this to be an effective tactic for increasing the perceived benefits and state that it generally leads to faster adoption.

2.5.3 Third strategy: Coercive Methods

The third strategy for facilitating e-invoicing adoption is based on threats, such as discontinuance of the partnership or other sanctions (Iacovou et al., 1995). According to Raymond and Blili (1997) fewer advantages are obtained from inter organisational e-business systems when it is imposed upon a firm. Iacovou et al. (1995) have come to a similar conclusion; unless SMEs perceive the benefits and are ready for the introduction, SMEs that are pressured into adopting EDI will do just enough to meet their buyer/supplier's needs, resulting in non-integrated systems and processes. The use of threats should therefore be avoided if the organisational readiness is low and the owner/manager does not perceive the benefits (ibid).

3. Research Questions and Frame of Reference

In this chapter, based on the research problem and the theoretical review, the research questions will be developed and discussed. Then a frame of reference for this study is developed from the research questions and theories, presented in Chapter Two.

3.1 Research Questions

In section 1.2.1 the research problem of this thesis was stated as:

To gain a better understanding of the adoption of electronic invoicing in SMEs

The adoption e-invoicing will be studied from the perspective of the invoicer. To be able to answer the research problem, it needs to be further developed into research questions. The aim of the research questions is to divide the research problem into manageable parts that when examined, together will provide a comprehensive answer to the research problem (Miles & Huberman, 1994).

3.1.1 Research Question One

Previous studies have identified different factors as important for the introduction of e-business systems and IT. It has been argued that adoption of electronic invoicing can be seen as an innovation for SMEs (Mehrtens et al., 2001). Innovation studies can be described by a number of contextual variables. Kuan and Chau (2001) describe three contexts that may influence the adoption of technological innovations; the technological context, the organisational context and the environmental context. Thong (1999) concludes that a fourth context, characteristics of the owner/manager, can be added to the framework described by Kuan and Chau (2001). According to Thong (1999) and Riemenschneider et al. (2003), IT adoption decisions in SMEs are often made by the owner/manager, which highlights the importance of Thong's fourth context, namely characteristics of the owner/manager. Previous studies (e.g. Iacovou et al., 1995; Thong & Yap, 1995; Premkumar & Roberts, 1999) have studied different factors within the general contexts described by Thong (1999) and Kuan and Chau (2001).

As mentioned in the first chapter, most previous studies have investigated SMEs adoption of IT in general or EDI (Grandon & Pearson, 2001), studies of electronic invoicing specifically are less common. The different factors that affect the adoption of electronic invoicing in SMEs would be interesting to study, thus the first research question:

RQ 1. How can factors affecting adoption of e-invoicing in SMEs be described?

3.1.2 Research Question Two

Iacovou et al. (1995) suggest that depending on the factors affecting SMEs' adoption decision, different strategies can be used to facilitate a more successful implementation of inter organisational information systems (e.g. e-invoicing). Iacovou et al. (1995) and Raymond and Blili (1997) discuss three different strategies that can be utilised to facilitate adoption of e-invoicing. The first strategy is based on recommendations and focuses on information, training and financial and technical support. In Finland an approach based on recommendations is used (ESV, 2005). A second strategy is to use rewards and discounts as incentives for the adopting organisation (Raymond & Blili, 1997). The third strategy is based on coercive methods, such as discontinuance of partnership or other sanctions. This strategy is used in Denmark where a law that requires the public sector to receive and send their invoices electronically has been introduced (ESV, 2005).

Different approaches and strategies for facilitating adoption of electronic invoicing have given rise to the second research question:

RQ 2. How can adoption of e-invoicing in SMEs be facilitated?

3.2 Frame of Reference

The purpose of this section is to build an appropriate frame of reference for the study of e-invoicing adoption in SMEs, based on the theory overview and the presented research questions. According to Miles and Huberman (1994), a frame of reference explains and depicts the main things to be studied, in order to guide the data collection. Consequently, the frame of reference presents the theories and models that are most suitable for answering the research questions and it also describes the relationships between the theories (ibid). According to Zikmund (2000), the concepts relevant to the research problem of the study must be identified before the measurement process can be carried out. Concepts can be defined as "abstract notions which bundle related ideas together in a shorthand form" (Curran & Blackburn, 2001, p. 37). The concepts also need to be made operational in order to be measured (Zikmund, 2000).

3.2.1 Factors Affecting Adoption of E-Invoicing

The first part of the frame of reference focuses on the factors that affect SMEs' adoption of e-invoicing. As mentioned earlier, different factors affecting IT and e-business systems adoption have been investigated in previous research. Most studies including (Iacovou et al., 1995; Premkumar & Roberts, 1999; Chwelos et al., 2001) have used factors related to the general framework by Thong (1999) but the studies have used various factors within the technological, organisational and environmental contexts. The study conducted by Iacovou et al. (1995) has been referred to and tested in later studies (Chwelos et al., 2001) with similar results.

Iacovou et al. (1995) studied three major factors in their study of EDI adoption of small firms, namely *perceived benefits*, *external pressure* and *organisational readiness*. The first factor, perceived benefits, is included because the IT utilisation in SMEs is generally low. The

network nature of electronic invoicing together with the weak market positions of small firms, make it important to study external pressure to adopt e-invoicing. Organisational readiness is considered because of the low levels of IT sophistication and the limited resources of small firms (ibid). These factors are applicable to the general framework by Thong (1999) since perceived benefits refer to the technological context, organisational readiness belong to the organisational context and external pressure is a factor in the external context.

Kuan and Chau (2001) argue that it might not be enough to use the three contexts described by Thong (1999) because of the large impact of the *owner/manager* in a small firm. The importance of the owner/manager of an SME has also been identified in other studies e.g (Riemenschneider et al., 2003; Fillis et al., 2003, 2004). Iacovou et al. (1995) have not considered the fourth context described by Kuan and Chau (2001), which are the characteristics of the owner/manager of the small firm. Iacovou et al. (1995) have only recognised some aspects of the owner/manager's impact on the adoption decision, as the factor perceived benefits refer to managers' perceptions of the relative advantages of EDI.

The discussion above leads to an emerged frame of reference where the main factors that will be studied are; perceived benefits of e-invoicing, external pressure, organisational readiness and owner/manager characteristics. The sub factors that constitute each factor, and the relationship between the factors are illustrated in Figure 3.1.

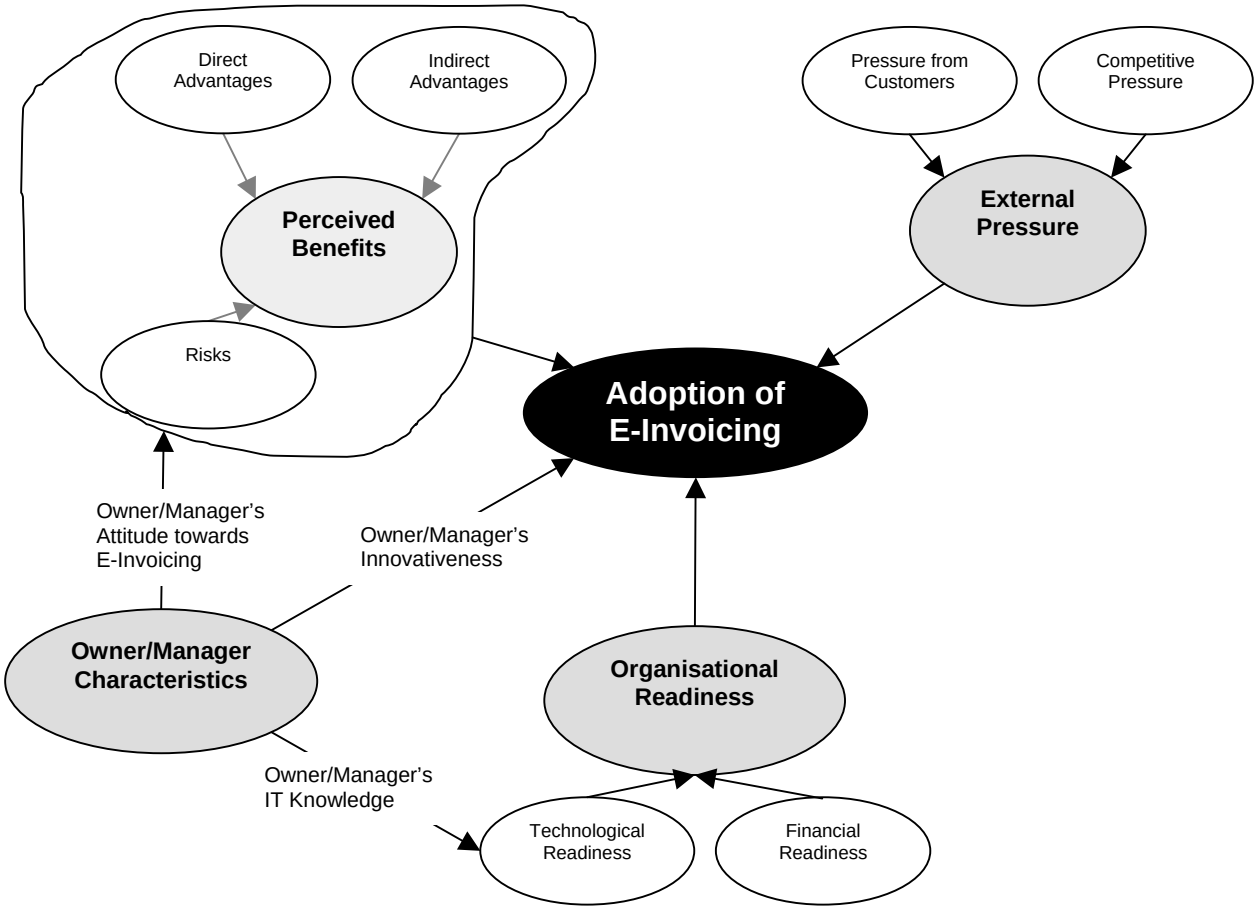

Figure 3.1 Factors Affecting Adoption of E-Invoicing

The conceptualisation and the measures that will be used in this study to study the factors that affect adoption of e-invoicing in SMEs are presented in Table 3.1.

Table 3.1 Conceptualisation and Measures to Describe the Factors that Affect Adoption of E-Invoicing in SMEs.

Conceptual Area	Concept	Further Development of Concept	Conceptualisation	Measure
Factors Affecting Adoption of E-Invoicing in SMEs	Perceived Benefits	Direct Advantages	Advantages that lead to increased internal efficiency of the organisation. Listed in section 2.4.1 (see p. 10)	Assessment of advantages related to increased internal efficiency as a factor affecting adoption of e-invoicing (as perceived by the respondents)
		Indirect Advantages	Advantages that impact on business processes and relationships. Listed in section 2.4.1 (see p. 10)	Assessment of advantages referring to the impact of e-invoicing on business processes and relationships, as a factor affecting adoption of e-invoicing (as perceived by the respondents)
		Risks	Risks associated with the introduction of e-invoicing, as described by Fredholm (2002) in section 2.4.1 (see p. 11)	Assessment of the risks associated with an introduction of e-invoicing, as a factor affecting adoption of e-invoicing (as perceived by the respondents).
	External Pressure	Pressure from Customers	Pressure to adopt e-invoicing exerted by the SME's customers	Assessment of the level of pressure to adopt e-invoicing exerted by customers and its importance as a factor affecting adoption of e-invoicing (as perceived by the respondents).
		Competitive Pressure	Pressure to adopt e-invoicing depending of the e-invoicing capability of the SME's competitors	Assessment of the level of e-invoicing capability of the SME's competitors and its importance as a factor affecting adoption of e-invoicing (as perceived by the respondents).
	Organisational Readiness	Financial Readiness	The financial resources available to pay for the e-invoicing system, costs associated with the introduction and ongoing expenses	Assessment of the financial resources available to pay for the e-invoicing system, costs associated with the introduction and ongoing expenses and its importance as a factor affecting adoption of e-invoicing (as perceived by the respondents).
		Technological Readiness	Level of sophistication of IT usage and IT management within the organisation	Assessment of the level of sophistication of IT usage and IT management and its importance as a factor affecting adoption of e-invoicing (as perceived by the respondents).
	Owner/ Manager Characteristics	Innovativeness	Owner/manager's level of innovativeness (Kuan & Chau, 2001)	Assessment of how innovative the owner/manager is and its importance as a factor affecting adoption of e-invoicing (as perceived by the respondents)

3.2.3 How to Facilitate Adoption of E-Invoicing

Iacovou et al. (1995) suggest three different strategies for facilitating adoption of e-invoicing. The strategies are based on *financial and technical assistance*, *incentives* and *coercive strategies*, and which strategy is suitable, depend on the factors affecting the adoption decision. A strategy based on *financial and technological assistance* is beneficial to increase the *organisational readiness* (ibid). The organisational readiness is composed by the technological and financial readiness (ibid.). The technological readiness can be increased by providing technological assistance such as adequate information, training or resources (Raymond & Blili, 1997). Since the SMEs themselves often lack internal expertise within the field, technological assistance is often provided by vendors or consultants (Fredholm, 2002). Iacovou et al. (1995) suggest that economic support can be given to increase the small firm's financial readiness. The second strategy is based on *incentives* in the form of promotional efforts like rewards and discounts (Iacovou et al., 1995). Incentives can be an effective tactic for increasing the *perceived benefits* (Raymond & Blili, 1997). Iacovou et al. (1995) have also described a third strategy, which is based on c*oercive methods* or threats, such as discontinuance of partnership or other sanctions. This strategy can be used by powerful trading partners to increase the *external pressure* (ibid.). Iacovou et al. (1995) further state that unless SMEs perceive the benefits and are ready for an introduction; they will benefit less from adopting e-invoicing.

The three strategies for facilitating adoption of e-invoicing in SME's that will be included in the frame of reference are; *financial and technological assistance*, *incentives* and *coercive strategies*. The mentioned strategies and the factors these strategies can influence are illustrated in Figure 3.2.

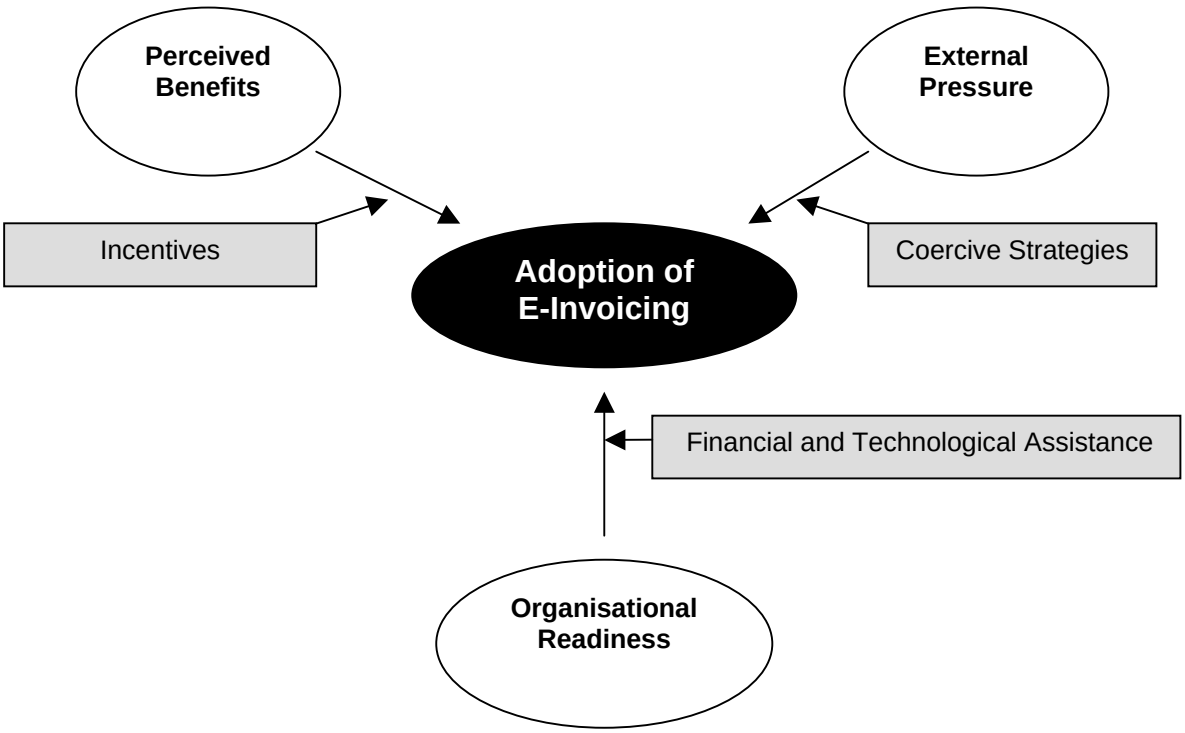

Figure 3.2 Strategies for Facilitating Adoption of E-Invoicing in SMEs. Source: Adapted from Iacovou et al. (1995, p. 480).

The conceptualisation and the measures that will be used in this study to describe how adoption of e-invoicing in SMEs can be facilitated are presented in Table 3.2.

Table 3.2 Conceptualisation and Measures to Describe How to Facilitate Adoption of E-Invoicing in SMEs

Conceptual Area	Concept	Conceptualisation	Measure
How to Facilitate Adoption of E-Invoicing in SMEs	Financial and Technological Assistance	Financial and technological assistance such as training, support and information.	Identification of how to facilitate adoption of e-invoicing by training, support and information.
	Incentives	Incentives in the form of rewards and discounts.	Identification of how to facilitate adoption of e-invoicing by using incentives in the form of rewards and discounts.
	Coercive Strategies	Discontinuance of partnership and other sanctions.	Identification of how to facilitate adoption of e-invoicing by discontinuance of partnership and other sanctions.

4. Research Method

This chapter describes the research method used in this study. To start with, the research purpose is presented, followed by the research approach, research strategy, sample selection and data collection methods, and furthermore a description of how collected data was analysed. Finally a discussion about validity and reliability is presented. Justifications of the choices made regarding the research method of this study is presented in each section.

4.1 Research Purpose

Research can be categorised into different types depending on the nature of the purpose or research problem. The purpose of a research study can be classified as being *exploratory*, *descriptive* or *explanatory* (Yin, 1994). Saunders, Lewis and Thornhill (2000) argue that more than one purpose can be employed in a study and Yin (1994) highlights that the boundaries between the categories are not always clear. The three categories are described below:

Exploratory Research

According to Zikmund (2000), exploratory research is conducted to clarify and reach a better understanding of the nature of a problem. Consequently, exploratory research is appropriate to use when there is little prior knowledge of the problem researched. The purpose of exploratory research is to provide insight and understanding, not conclusive evidence (ibid).
Saunders et al. (2000) argue that exploratory research is advantageous because it is flexible and adaptable to change. Flexibility in this case means an initially broad focus, which becomes gradually narrower as the research progresses (ibid).

Descriptive Research

Unlike exploratory research, descriptive research studies require prior knowledge of the subject of research before collecting data (Saunders et al., 2000). Descriptive research can be defined as "to portray an accurate profile of persons, events or situations" (Robson, 1993, p. 4). According to Zikmund (2000), descriptive research will answer who, what, where and how questions, and not give any explanations for the cause of the findings. A descriptive research study may be a precursor to, or an extension of exploratory research (Saunders et al., 2000).

Explanatory Research

The emphasis, of explanatory research studies, is on studying a problem or a phenomenon in order to establish causal relationships between variables (Saunders et al., 2000). Explanatory research is sometimes also referred to as casual research (Zikmund, 2000). Normally, exploratory and descriptive research is conducted first and then explanatory research tries to establish and explain patterns related to the phenomenon of interest (Saunders et al., 2000).

The purpose of this study was to gain a better understanding about adoption of e-invoicing in SMEs. Since little research about SMEs adoption of electronic invoicing, specifically, has been conducted, the research purpose of this study was *exploratory*. However, since existing theories within the area of IT, e-business and e-commerce were used to provide a rich description of how different factors are affecting SMEs' adoption of e-invoicing, the research

purpose and the empirics were also *descriptive*. In other words, the research purpose was both *exploratory* and *descriptive*.

4.2 Research Approach

Zikmund (2000) discusses two main aspects regarding research approach, the theoretical approach and the methodological approach. The theoretical approach is *inductive* or *deductive* and the methodological approach is *qualitative* or *quantitative* (ibid).

4.2.1 Inductive versus Deductive Research Approach

The two theoretical research approaches propose two different ways of drawing conclusions when conducting research. The *inductive* research approach can be defined as "the logical process of establishing a general proposition on the basis of observation of particular facts" (Zikmund, 2000, p. 43). The inductive approach involves collecting data and developing theory as a result of the data analysis (Saunders et al., 2000). The *deductive* research approach can be defined as "the logic process of deriving a conclusion from a known premise or something known to be true" (Zikmund, 2000, p. 43).

When deciding what research approach to adopt, Saunders et al. (2000) suggest a number of criteria. The first and perhaps the most important criterion is the nature of the research topic. If there is a lot of literature about a topic from which a theoretical framework can be defined, it is often suitable to use the deductive approach. In opposition, when researching a topic that is new and little existing literature can be found, it may be more appropriate to use an inductive approach. The time available for the study is another factor that needs to be considered. Inductive research is often more time consuming because it is based on a longer period of data collection and analysis, and the ideas emerge gradually. The risks involved can also be an issue. The inductive research approach involves the risk that no useful data patterns and theories will emerge. The deductive research approach is usually a lower-risk strategy, even though there are some risks, such as non-return of questionnaires. Finally, there is the question of audience, depending on the preferences of the audience, different approaches can be appropriate (ibid).

This study uses a *deductive* research approach, because theories exist within the area and conclusions were drawn from the theories. The deductive research approach is also appropriate because of the limited time available for this study and the lower risk involved.

4.2.2 Qualitative versus Quantitative Research Approach

Zikmund (2000) explains that the two methodological research approaches propose two different ways of collecting information. The *qualitative* approach means collecting qualitative data, which is often referred to as "soft" data, containing information about actions or functions. Qualitative data is often presented as words and observations. In contrast, the *quantitative* research approach involves collecting quantitative data, which implies "hard" data. Quantitative data will often determine the quantity or extent of some phenomena, and is mostly presented as numbers and figures (ibid).

A *qualitative* approach was the most appropriate to use in this study, because the purpose of the study was to gain a better understanding of adoption of e-invoicing in SMEs, and the answers could not be quantified or measured in numbers or figures.

4.3 Research Strategy

So far this research study has been shown to be both exploratory and descriptive and also deductive, since conclusions are drawn from existing theories. Furthermore, a qualitative approach has been selected dictating what data to collect. Now it is time to look into which research strategy is most suitable for providing answers for the research questions. Yin (1994) lists five major research strategies for reaching an intended research purpose, namely *experiments*, *surveys*, *archival analyses*, *histories* and *case studies*.

According to Yin (1994), there are three conditions that distinguish the different strategies:

- The type of research question posed
- The extent of control a researcher has over actual behavioural events
- The degree of focus on contemporary as opposed to historical events

The conditions above need to be considered to be able to select the most suitable strategy for a research study. Table 4.1 presents the five research strategies in connection to the three conditions proposed by Yin (1994).

Table 4.1 Relevant Situations for Different Research Strategies

Strategy	Form of Research Question	Requires Control over Behavioural Events	Focuses on Contemporary Events
Experiment	How, why	Yes	Yes
Survey	Who, what, where, how many, how much	No	Yes
Archival Analysis	Who, what, where, how many, how much	No	Yes/No
History	How, why	No	No
Case Study	How, why	No	Yes

Source: Yin (1994, p.6)

This study focused on contemporary events and did not require control over behavioural events, hence history or experiment strategies were not appropriate. The research questions of this study both started with “How”, which implies that experiment, history or case study strategies are recommended. Consequently, a case study is the only alternative where all three conditions are fulfilled. Therefore, the *case study* technique is the most appropriate research strategy, and this specific research strategy has been used in this study.

4.3.1 Case Study

Robson (1993) defines case study as the “development of detailed, intensive knowledge about a single case or a small number of related cases” (Robson, 1993, p.40). Saunders et al. (2000) argue that a case study is suitable if the purpose is to gain a rich understanding of the subject of research and is further a good way of exploring or challenging existing theory and provide a source of new hypotheses. According to Yin (1994), case studies can be *single* or *multiple case studies*. Both methods are frequently used; however there are certain distinct advantages

of using multiple cases rather than single ones. Multiple cases are often considered to be more robust than single cases, and allow comparisons between cases (ibid).

The purpose of this study was to gain a better understanding of the adoption of electronic invoicing in SMEs, which makes it appropriate to study a number of SMEs. Since multiple cases are considered more robust than single ones, *multiple case studies* have been used in this study.

4.3.2 Selection of Case Study Firms

Zikmund (2000) presents two major techniques for selecting an appropriate sample; *probability sampling* and *non-probability sampling*. Probability sampling gives every element of a population a known, nonzero probability of selection, whereas in non-probability sampling the probability of each case being selected is not known beforehand. Non-probability sampling includes a range of various sampling techniques based on subjective judgement. According to Saunders et al. (2000), probability sampling is mostly associated with the survey research method and generally requires a certain sample size. Qualitative studies generally use small samples, which tend to be suited for the purpose of the study (Miles & Huberman, 1994). Saunders et al. (2000) argue that the choice of sampling techniques is dependent on the feasibility and sensibility of collecting data to answer the research questions. If the research questions require statistical estimation of the characteristics of the population, probability samples will be needed. If the research questions do not require such generalisations, non-probability sampling techniques are adequate. The sampling technique is also dependent on the availability of financial resources and time available for selection, data collection and analyses. The size of the sample is also dependent on the time available for collection and the sampling technique used (ibid).

In this study non-probability sampling has been used. The purpose of the research questions is not to be able to generalise about the findings of all SMEs. In order to be able to obtain answers to the research questions, the first selection criterion for the sample of this study was that the companies had to be SMEs, as defined by the 2005 SME definition of the European Commission (see section 1.1.5). The second sample criterion entailed that the SMEs had enough invoice volumes to be able to benefit from e-invoicing adoption. The third criterion was that the companies had to be located near Luleå University of Technology, due to limited time and financial resources. Moreover, in relation to the limited time available for case selection, data collection and analysis, it was decided that three cases, was a reasonable amount to include in this study. Potential companies for the study were found by searching the Internet and by discussion with people knowledgeable on e-invoicing and the business life in Luleå and its surroundings. By contacting the potential companies one by one, three suitable SMEs were finally identified, namely: NKV, J. Petterssons Chark and BD Fisk. The companies represent two different industries; NKV sells office supplies, while J. Petterssons Chark and BD Fisk represent the food industry. An overview of the companies selected for the case study and their generic characteristics is shown in Table 4.2, on the next page.

Table 4.2 Overview of the Selected Cases and their Generic Characteristics

Selected Cases	Generic Characteristics
NKV Kontorsvaror AB	NKV is a supplier of office products and has 55 employees and a total turnover of between 100 and 120 million SEK per annum.
J. Petterssons Chark AB	Manufactures and sells cured meat, sausage, pâté and similar products. J. Petterssons Chark has approximately 30 employees and a total turnover of 46 million SEK per annum.
BD Fisk AB	BD Fisk is a seller and distributor of fresh, frozen and processed fish. BD Fisk has 22 employees and an approximate turnover of 60 million SEK per annum.

4.4 Data Collection

Zikmund (2000) classifies collected data as *primary* and *secondary* data. Primary data is gathered and assembled for a specific research, while secondary data has already been collected for other purposes. Primary data can be collected by e.g. interviews or surveys, and it might be expensive and time consuming to collect. Secondary data can be gathered from libraries or the Internet etc. Secondary data is often less expensive and easier to collect than primary data, however, there is a risk that secondary data might be out of date or might not meet the needs of the researcher (ibid).

Yin (1994) presents six sources of information to rely on when conducting a case study, namely *documentation*, *archival records*, *interviews*, *direct observations*, *participant observation* and *physical artefacts*. The sources are complementary to each other and in order to assure a high quality case study, it should include as many sources as possible (ibid).
Yin (1994) describes the strengths and weaknesses of the different sources of information and by considering these; appropriate data collection methods for this study can be selected. An overview of the strengths and weaknesses of the different sources of information is presented in Table 4.3, on the next page.

According to Yin (1994), one of the strengths of using archival records as a collection method is that it is quantitative. Since this study has a qualitative approach, this method is not suitable. Direct observations and participant observation are time consuming and costly data collection methods (Yin, 1994). Due to the limited time and financial resources available for this study, these data collection methods were inappropriate. To use physical artefacts as a source of evidence was also not suitable, since this study was not intended for providing deeper insight into cultural features or technical operations which is the purpose of using physical artefacts according to Yin (1994). Yin (1994) further argues that interviews are one of the most important sources of case study information. Consequently, *documentation* and *interviews* were the most appropriate data collection methods for this study; hence both these methods have been used.

Table 4.3 Six Sources of Evidence: Strengths and Weaknesses

Source of Evidence	Strengths	Weaknesses
Documentation	Stable- can be reviewed repeatedly Unobtrusive- not created as a result of the case study Exact- contains exact details and references Broad coverage in terms of time, events and settings	Retrievability- can be low Biased selectivity, if collection is incomplete Reporting bias- recflects bias of author Access- may be deliberately blocked
Archival Records	(Same as above for documentation) Precise and quantitative	(Same as above for documentation) Accessibility due to privacy reasons
Interviews	Targeted- focuses directly on case study topic Insightful- provides perceived casual inferences	Bias due to poorly constructed questions Response bias Inaccuracies due to poor recall Reflexivity- interviewee gives what interviewer wants to hear
Direct Observations	Reality- covers events in real time Contextual- covers context events	Time consuming Selectivity- unless broad coverage Reflexivity- event may proceed differently because it is being observed Cost- hours needed by human observers
Participant Observation	(Same as above for direct observations) Insightful into interpersonal behaviour and motives	(Same as above for direct observations) Bias due to investigator's manipulation of events Possible ethical dilemmas and high levels of role conflict for the researcher (Saunders et al., 2000)
Physical Artefacts	Insightful into cultural features Insightful into technical operations	Selectivity Availability

Source: Adapted from Yin (1994, p. 80)

Interviews can take several forms. Yin (1994) distinguishes three types of interviews, namely *open-ended*, *focused* and *survey* interviews. Open-ended interviews are performed in a conversational manner where the respondents may provide opinions about events. In a focused interview, the interviewer is following an interview guide, however an informal conversation can still be attained. When conducting survey interviews, a more structured questionnaire is followed throughout the interview (ibid). Saunders et al. (2000) use a similar typology, also based on the level of formality and structure of the interviews and differentiate between *structured*, *semi-structured* and *unstructured* interviews. According to Saunders et al. (2000), the use of different interview types can be linked to the research strategy of the study. Saunders et al. (2000) argue that structured interviews are often used when the study is of a descriptive or explanatory nature. Semi-structured interviews are mostly conducted if the research is exploratory or explanatory, and unstructured interviews are helpful in order to find out what is current and to seek new insights when conducting exploratory research. Saunders et al. (2000) further state that a research study may incorporate more than one type of interview, as well as, a combination of styles can be used within one interview. According to Saunders et al. (2000), there are two different types of individual questions, *open* and *closed questions* (also referred to as open- and close-ended questions). In semi-structured interviews when the research purpose is exploratory, open questions are often used to get in-depth answers (Saunders et al., 2000). Saunders et al. (2000) further argue that closed questions are easier to compare with previous research findings because the alternatives have been predetermined.

The research purpose of this study was both exploratory and descriptive, which by following the discussion by Saunders et al. (2000) made it appropriate to use a combination of styles within the interviews. Therefore, the interviews that were conducted in order to collect *primary data*, could be described as both *structured* and *semi-structured*. An interview guide was developed for the interviews, where some questions were *closed*, and the respondents

could choose between two or more possibilities, which is suitable for the descriptive purpose. Most questions were *open*, supporting the exploratory nature of this research. On-site personal interviews were conducted with representatives from of each company, using the interview guide as a base for discussion. The interview guide was constructed based on the frame of reference and it was made both in a Swedish and an English version (See Appendices I and II). Noting however that the Swedish version was the one used in all interviews since Swedish is the mother tongue of all the respondents as well as for the interviewer. The English version was useful for the translation of the answers and the data presentation.

The respondents at each company were all in the positions to be able to answer the questions. The first interview was conducted at NKV's head office in Luleå, with the Financial Manager of the company and the interview lasted one hour. The second company visited was J. Petterssons Chark, which is located in Boden, where an interview was held with the Managing Director. This interview lasted 45 minutes. The third and final interview was conducted during one hour with the Financial Manager of BD Fisk. The interview was held at the company's head office in Luleå.

Mainly primary data was collected for this study, however some *secondary data* was gathered to complement the interviews. The *documentation* used includes companies' web sites and annual reports. However, the information from the companies' annual reports and web sites were checked with the respondents in order to assure that the information was correct and updated.

4.5 Analysis of Collected Data

According to Saunders et al. (2000), the analysis of qualitative data entails a demanding process. Saunders et al. (2000) argue that the nature of qualitative data requires the data to be classified into categories before it can be meaningfully analysed. Miles and Huberman (1994) reinforce this point by arguing that structure is important when analysing data. Saunders et al. (2000) describe three ways of categorising data. This can be done by utilising terms that emerge from the collected data, by categorising based on terms used by the respondents or by using terms from existing theory. When using a deductive research approach, categories for analysis will emerge from the nature of the interview-questions, which in turn are based on existing theory (ibid).

Yin (1994) proposes two methods for analysing the empirical findings in a multiple-case study, namely *within-case analysis* and *cross-case analysis*. In the within-case analysis, data found in each case is analysed at a single-case level, whereas in cross-case analysis data from the cases are compared with each other (ibid).

In this study, the collected data was initially structured, categorised and presented under headings following the research questions. Since the research approach used in this study was deductive, the headings were related to terms described in the frame of reference. As proposed by Yin (1994) both a within-case and a cross-case analysis were conducted in this study. First the within-case analysis was performed where the collected data from each case was compared to the frame of reference. The three within-case analyses were then followed by a cross-case analysis where the data from the different cases was compared.

4.6 Validity and Reliability

To assure a high quality of research, some aspects need to be considered, i.e. the validity and the reliability (Yin, 2003). According to Yin (2003), four tests are commonly used to establish the quality of any empirical social research, namely *construct validity*, *internal validity*, *external validity* and *reliability*. Construct validity is about establishing correct operational measures for the studied concepts. Internal validity is about establishing a casual relationship, whereby certain conditions are shown to lead to other conditions. Yin (2003) further describes that external validity refers to, whether the results from the research can be generalised beyond the specific case study. An overview of these tests and their utilisation can be found in Table 4.4.

Table 4.4 Case Study Tactics for Four Design Tests

Tests	Case Study Tactic	Phase of Research in which Tactic Occurs
Construct Validity	• Use multiple sources of evidence • Establish chain of evidence • Have key informants review draft case study report	⇒ Data collection ⇒ Data collection ⇒ Composition
Internal Validity	• Do pattern-matching • Do explanation-building • Address rival explanations • Use logic models	⇒ Data analysis ⇒ Data analysis ⇒ Data analysis ⇒ Data analysis
External Validity	• Use theory in single-case studies • Use replication logic in multiple-case studies	⇒ Research design ⇒ Research design
Reliability	• Use case study protocol • Develop case study database	⇒ Data collection ⇒ Data collection

Source: Yin (2003, p. 34)

To improve the *construct validity* of this study, some actions have been taken. First of all, conceptualisations and measures used to capture the research problem were developed (see Chapter 3). Secondly, additional sources of evidence such as annual reports were used to complement the interviews. According to Yin (2003), *internal validity* is only used for explanatory studies, where researchers try to determine casual relationships. Since this study was exploratory and descriptive, this aspect of validity will not be considered. The intention with this research was not to be able to generalise the findings to all SMEs, whereby the *external validity* was not considered in this study. Yin (2003) also stresses the importance of having key informants, reviewing drafts of the case study report. When the empirical data presentation was concluded, a draft was sent to the respondents for review.

Reliability refers to whether the findings and conclusions would be the same if another researcher conducted the same case study again, and it is also about minimising errors and biases (Yin, 2003). Zikmund (2000) defines reliability as “the degree to which measures are free from error and therefore yield consistent results” (Zikmund, 2000, p. 280). Yin (1994) states that a requirement, for allowing other researchers to repeat a case study, is that the procedures that have been followed are stated clearly. Saunders et al. (2000) highlight that lack of standardisation in semi-structured interviews may lead to concerns about reliability. Furthermore, Saunders et al. (2000) argue that the findings from this type of research are not necessarily intended to be repeatable since the focus is on contemporary events which are complex and dynamic. Saunders et al. (2000) discuss several types of bias to consider when conducting semi-structured interviews and suggest a number of points that need to be

considered in order to overcome sources of bias. The first bias to consider is related to interviewer bias, where the comments, tone or body language of the interviewer creates bias in the way that the respondents answer the questions. It is also possible that the interviewer expresses bias in the way the answers are interpreted. Interviewee or response bias may be caused by perceptions about the interviewer or because the respondent might be sensitive to in-depth exploration of certain topics. Saunders et al. (2000) suggest that the interviewer listens actively and avoids the type of behaviour that can lead to bias during the interview. To promote credibility, the interviewer should be well prepared and knowledgeable about the topics discussed. By providing the respondents a list of interview themes before the interview, the respondents will also be more prepared. Assurance from the interviewer that no sensitive information will be used or assurance about anonymity can reduce the possibility of interviewee or response bias (Saunders et al., 2000).

Regarding the *reliability* of this study, several issues can be highlighted. The research method used in this study is described and justified in this chapter, which makes it easier for other researchers to conduct the same case study again. To minimise errors, the supervisor of the thesis, revised the interview guide and the chapters throughout the research process. The interviews were carried out in Swedish, which reduced the risk for misinterpretations. Since the answers have been translated into English the reliability may have been affected, however the translation was done carefully, using the terms from the English version of the interview guide with the purpose of avoiding translation errors. A tape recorder was used during all interviews, which made it possible to listen actively, focus on understanding the respondents' answers and asking follow-up questions, which can reduce the risk of interviewer bias. To minimise interviewee or response bias, a list of interview themes were sent to the respondents before the interview and the respondents were given the option of being anonymous. Yin (2003) suggests that a case study protocol and a case study database can be used in order to increase the reliability. The purpose of a case study protocol is to make the research process as operational as possible (ibid). This chapter can be considered to fulfil the purpose of a case study protocol since it clarifies how the study was conducted. No formal case study database has been used during this study, but the researcher has saved the material used, which supports the purpose of a case study database.

5. Empirical Data

This chapter outlines empirical data from the three cases. Each case will start with a brief introduction about the respondent as well as the company, followed by data describing the factors that affect adoption of electronic invoicing. Finally, data regarding how adoption of e-invoicing can be facilitated is presented.

5.1 Case One: NKV Kontorsvaror AB

Empirical data presented in this section, was collected through an interview with the Financial Manager of NKV, who is also a member of the board (NKV Annual Report, 2004). The Financial Manager has been employed since 1985, although his responsibilities have developed as the company has grown. He also handles environmental issues.

5.1.1 Company Background

NKV is a supplier of office products and is located in five Swedish cities. The head office is situated in Luleå. The company was founded in 1975 and has grown to approximately 55 employees and a total turnover of between 100 and 120 million SEK per annum (NKV Annual Report, 2004). NKV has a wide range of customers, including micro companies, large multimillion corporations, municipalities and government agencies (NKV Web Site, 2006).

5.1.2 Factors Affecting Adoption of E-Invoicing

A few years ago, NKV got indications from their sales force that customers began to show interest in electronic invoicing. NKV strive to keep a high level of service to their customers by offering services requested by them. The company tries to be proactive and decided to develop a solution for electronic invoicing before customers requested it, so when customers started to ask for e-invoicing, NKV was prepared. Today, invoices are only sent electronically to one major customer. This customer is the only one that has requested electronic invoicing so far. NKV does not however force their customers to accept electronic invoices, but if a customer requests this service, the company has the system to offer it. The Financial Manager of NKV believes that e-invoicing is increasing and compares it with online shopping which also had a slow start.

Perceived Benefits of E-Invoicing

The customer that required electronic invoicing would only have selected NKV as their supplier if NKV was able to invoice them electronically. The introduction of e-invoicing is therefore perceived as a competitive advantage for the company. When discussing other advantages of electronic invoicing, the Financial Manager of NKV admits that cost and timesavings can be achieved by using electronic invoicing. The company saves money on postage and the timesavings will allow resources to be allocated to other tasks. The Financial Manager states that NKV has not investigated if the introduction of e-invoicing would give more interest revenues and a reduced need for sending invoice reminders. However the Financial Manager agrees that this is likely and added that the customer who receives

electronic invoices is approved and no credit would be given otherwise. In the long run, the Financial Manager also sees the reduced paper handling that e-invoicing implies, as an advantage. However, right now this is not the case because the company only sends electronic invoices to one customer, and still prints a paper copy of the electronic invoice, to assure its correctness. To use modern, rational and environmentally friendly techniques is seen as a competitive weapon for the company. The Financial Manager of NKV also believes that if they can offer the services that customers request, will lead to loyal customers and long-term partnerships. The Financial Manager pinpoints that NKV's customers are more loyal than the industry average, something that he believes can be derived from their high service levels and the ability to meet their customers' needs.

When discussing whether adoption of electronic invoicing involves any risks, the Financial Manager says that he personally is a bit concerned about security issues. However, the company has not experienced any major security problems so far; neither with their e-invoicing system nor with their other IT systems. NKV's way of dealing with security concerns is to develop and invest in very secure and reliable applications. It often implies higher costs, but the company believes it is better in the long run. The Financial Manager states that NKV does not consider the possibility that administrative staff members may be relocated as a risk because of e-invoicing. The Financial Manager emphasises that employees today need to be flexible, and able to change work tasks and procedures. To conquer technical obstacles, the company employed an experienced IT Manager more than ten years ago and is also not reluctant to turn to IT consultants when they do not have the expertise in-house. The Financial Manager has observed that many companies seem to be afraid of new technology and only see the costs associated with it. This is not the way NKV looks at it. The owner/manager of NKV sees new technology as something that is necessary for the firm and when it comes to the costs for the investment and integration of the new technology, these costs are seen as long-term investments. As long as the techniques are tested and provide benefits for their customers, the company does not see that many risks with their adoption of e-invoicing. The company thinks that the benefits of e-invoicing outweigh the risks, and believes that e-invoicing will take off in the near future.

External Pressure

NKV has experienced that when customers send invitations to tenders they sometimes specify that electronic invoicing is desirable or even required. So far only one customer has required electronic invoicing, but NKV believes that more customers will do the same shortly. The company has also experienced pressure adopt other techniques such as online orders and environmental certification. The risk of losing major customers, if their requirements are not fulfilled, has made NKV prefer to be ready to meet the requirements even before customers request it. By reading industry journals and collecting information from their sales force, the company receives indications if a new technology, such as electronic invoicing, can become requested by their customers in the near future.

The Financial Manager of NKV believes that their larger competitors have invested in electronic invoicing. Many smaller competitors however have not adopted electronic invoicing yet. The threat that NKV may lose customers to their e-invoicing capable competitors has made it important to them to offer this service.

Organisational Readiness

The company is ready for the utilisation of e-invoicing, and this has been shown since they are already sending electronic invoices to one customer. The development and utilisation of new technology is a prioritised area, and economic resources are allocated to this development accordingly. The cost is not an issue in this case, to build a proper system and integrate it is more important than selecting a less expensive solution.

The company has an IT Manager who is responsible for IT operations and develops IT systems. Before he was employed, consultants took care of IT operations, and consultants are still sometimes brought in if needed. In general, the IT usage and knowledge within the firm is better among the younger employees. The older generation are not as interested in IT and do not adapt to technological changes easily, but they have enough knowledge to use IT in their daily tasks. NKV strives to computerise their manual processes; one example is the process of handling incoming invoices, which is done manually at this point but will be computerised in the near future.

Owner/manager Characteristics

According to the Financial Manager, the owner/manager of the company has a positive attitude towards the use of electronic invoicing and IT in general. Moreover, the Financial Manager explains that the owner/manager is interested in IT and believes that the company should be prepared for adopting new technologies, regardless of the usually high investment costs. The owner/manager is familiar with IT, he sometimes follows the IT Manager to IT related events and reads IT journals and magazines in order to observe what is going on in this area. The Financial Manager describes the owner/manager as very innovative and an early adopter of new technology.

5.1.3 How to Facilitate Adoption of E-Invoicing

NKV did not need any financial support for their adoption of electronic invoicing. However, the Financial Manager recognises that other small firms might need financial help to be able to adopt the new technology. The Financial Manager highlights some actions that can be made by larger companies, municipalities and organisations which help small businesses. The first suggestion is that if a large customer has a business relationship with a smaller supplier, then the larger customer can provide help investing in IT solutions. Companies can also apply for financial aid for competence development from the EU. Since the application procedure for these aids is difficult, the Financial Manager of NKV thinks it would be helpful if municipalities or organisations for small business development could provide help and assistance with the application. Municipalities and small business organisations can also provide information about the technology as well as financial and technological assistance. When it comes to technological assistance, the Financial Manager says that the IT Manager of NKV has been helped by knowledgeable people within the area of e-invoicing in order to get the competence needed for the technological aspects of an adoption of e-invoicing. The Financial Manager of NKV sees discounts, rewards or any type of aid as positive because adoption of electronic invoicing can be expensive and technologically challenging for small companies. NKV has adopted electronic invoicing mainly because their customers requested this service. If more and more customers requested it, the company’s utilisation of electronic invoicing would increase.

5.2 Case Two: J. Petterssons Chark AB

The empirical data has been gathered from an interview with the Managing Director of J. Petterssons Chark. He has been working for the company since it was established in 1996, first as a consultant, then as Financial Manager and in May 2005 he was appointed Managing Director of the company. He is also a member of the board and handles administrative duties such as budgeting, calculation and invoice handling.

5.2.1 Company Background

J. Petterssons Chark i Boden AB manufacture and sell sausage, cured meat, pâté and similar products, mainly to local customers, such as grocery stores. The company was founded in 1996 and had at that time three employees (J. Petterssons Chark Web Site, 2006). Since then, the company has grown to around 30 employees and has a total turnover of 46 million SEK per annum (J. Pettersson Chark Annual Report, 2004).

5.2.2 Factors Affecting Adoption of E-Invoicing

J. Petterssons Chark's customers i.e. municipalities and large grocery stores have indicated that electronic invoicing is an emerging field and this has been the main reason for the company to start thinking about adopting e-invoicing. The company is now at the starting point for evaluating which e-invoicing solution may be most suitable for their needs. This will be done by contacting their industry organisation in order to find out which solutions are currently used and most recommended in their industry. The company is also looking at new administrative systems that are capable of e-invoicing.

Perceived Benefits of E-Invoicing

When discussing what advantages electronic invoicing can imply for the company, the Managing Director of J. Petterssons Chark hopes that the adoption of e-invoicing will lead to a simplified handling of invoices, rationalisation and ultimately cost savings, which are very important for the company. It would also be beneficial to them if the e–invoice solution automatically registers payments. Furthermore, the Managing Director sees a faster process from order to invoice payment as a very important advantage, because it leads to interest revenues and a reduced need for sending invoice reminders. The Managing Director of J. Petterssons Chark hopes that an adoption of e-invoicing will also lead to reduced paper usage, which is good from an environmental point of view. The company sees the environmental benefits of e-invoicing in a positive light and would like to focus on this aspect even more as it is an important part of the company's image. By adopting e-invoicing, J. Petterssons Chark can also demonstrate for suppliers and customers that the company is active, ambitious and adopts the latest technology, which is seen as a competitive advantage. The Managing Director does not think that the time saving aspect of e-invoicing will be that advantageous to the company as invoicing, using the current system is not that time consuming. The Managing Director does not see that an adoption of e-invoicing would lead to improved customer relations. Electronic invoicing is considered a service to the customer, but customer relations are built on personal contacts according to J. Petterssons Chark. To some extent the customer

may be more loyal because payments are easily made and less invoice reminders will be needed, which hopefully leads to less irritation.

When discussing potential risks associated with the adoption of electronic invoicing, the Managing Director highlights the security aspects involved while using IT systems. Examples of security concerns are that unauthorised persons might hack the system, viruses, backup routines etc. Another concern is the operational reliability during major power failures. Technological obstacles can be a risk with introducing an e-invoice solution if no suitable, simple and specific solutions for their company or industry can be found. Competence requirements on the other hand are not considered a risk. J. Petterssons Chark believes they have sufficient competence for an adoption of e-invoicing, and more importantly, the will to learn. Social aspects such as, that some staff members might have to change work tasks or possibly be out of work is not considered a risk. The Managing Director emphasizes that the company needs to accept the entrance of new technologies that change the work procedures and adapt to these new ways. The cost of an introduction and implementation of an e-invoicing system is not seen as a risk, as long as the investment is lower than the perceived benefits. J. Petterssons Chark assesses that the benefits of e-invoicing outweigh the risks of an adoption, because adoption of e-invoicing would improve the invoicing process the company has today and the risks can be managed by technical solutions.

External Pressure

Large customers have expressed their interest in electronic invoicing. They have not demanded the use of electronic invoicing, but requested this service in the near future. J. Petterssons Chark has also experienced that when customers from the public sector send invitations to tenders they sometimes specify that e-invoicing capability is desirable.

The Managing Director does not believe that any competitors have invested in electronic invoicing so far. According to the Managing Director of J. Petterssons Chark, a possible explanation for this can be that it is a conservative industry where the companies try to protect industry traditions. If competitors would adopt electronic invoicing, that would also push J. Petterssons Chark to adopt e-invoicing quickly. J. Petterssons Chark hopes to be an early adopter of electronic invoicing within their industry.

Organisational Readiness

The Managing Director perceives that the company is ready for an adoption of e-invoicing. Improvements in the processes of the company have been made one process at a time. It is now time to improve the administrative processes, which entails the invoicing process. An adoption of electronic invoicing is a prioritised area and the company has enough financial resources to cover this investment. J. Petterssons Chark AB does not have an IT department, the Managing Director himself is responsible for IT related issues and the company hires external consultants for their IT operations and IT security. The IT usage level within the firm is high among the administrative personnel. The IT knowledge is varied but good enough for using the required applications. The company has computerised many of their administrative processes e.g. orders.

Owner/Manager Characteristics

According to the Managing Director, the owner of the company is not knowledgeable about IT, but he has made sure that he has got staff members that are more skilled in IT, than him. Further the Managing Director describes the owner of the company as somewhere in between innovative and conservative when it comes to adoption of new technology. The board makes

decisions regarding adoption of new technologies such as e-invoicing. Within the board there are both innovative and more conservative persons, in its entirety the board can also be described as somewhere in between innovative and conservative.

5.2.3 How to Facilitate Adoption of E-Invoicing

The company does not need any financial support to be able to adopt e-invoicing, but financial aids are still considered positive by the Managing Director of J. Petterssons Chark. Technological support is needed, both in the pre-adoption phase where a preliminary study and analysis needs to be done, as well as in the implementation phase. J. Petterssons Chark believes that if the company received help with finding a suitable e-invoicing solution this would facilitate adoption of e-invoicing. Since the company does not have the time and competence for searching and finding the most suitable solution themselves, it would be appreciated if for example a university student could write a thesis related to the subject. If a customer requested electronic invoicing or even threatened to change supplier if J. Petterssons Chark could not send their invoices electronically, the company would consider adopting electronic invoicing. However, the customer has to be important and generate enough sales volumes to make an adoption of e-invoicing worthwhile. The Financial Manager does nt perceive that incentives in the form of discounts or rewards will increase the company's interest in e-invoicing.

5.3 Case Three: BD Fisk AB

The empirical data has been collected through a personal interview with the Financial Manager of BD Fisk AB. She has been employed as a Financial Manager at BD Fisk AB for the last five years. She is also a member of the board and her work involves accounting and business controlling among other things.

5.3.1 Company Background

BD Fisk AB is a seller and distributor of fresh, frozen and processed fish. Their customers are mainly grocery stores and catering facilities. The company has a production center in Storön, Kalix, sales and distribution centres in Luleå and Sundsvall, and a head office located in Luleå (BD Fisk Web Site, 2006). BD Fisk AB is owned by 43 shareholders, 36 of them are fishermen (BD Fisk Annual Report, 2004). The company has 22 employees, a number which increases to around 30 in peak times depending on the season. The total turnover is approximately 60 Million SEK per annum.

5.3.2 Factors Affecting Adoption of E-Invoicing

A few years ago the company was involved in a project with the municipality of Luleå regarding e-invoicing. The project never got off the ground. However, the municipality has restarted this project again, and BD Fisk awaits the final tests. The municipality of Luleå is one of their customers, and have requested e-invoicing. BD Fisk is has not taken any of their own initiative in this question but are hoping to be aided by the municipality's project or

implementing e-invoicing only when demanded to do so by their customers. The e-invoicing solution that BD Fisk is interested in is an EDI-solution, since the company does not believe that simply introducing electronic invoicing would generate a profit.

Perceived Benefits of E-Invoicing

BD Fisk considers e-invoicing to be a service for their customers, and would make it easier to do business with their larger customers. If the e-invoice solution is integrated with the company's business systems, the Financial Manager of BD Fisk recognises that time savings can be made and staff resources can be freed for other tasks. The Financial Manager also believes that e-invoicing can lead to a lower error rate, which would be considered positive. Reduced paper handling which is beneficial from an environmental aspect is also considered an advantage. The company has to compare the investment cost for an e-invoicing solution with the labour savings an adoption of e-invoicing can result in. At present, BD Fisk does not see that an adoption of e-invoicing would lead to cost savings, because of the high investment costs. The fact that e-invoicing may lead to interest revenues and a reduced need for sending invoice reminders is not seen as an important advantage at this point because BD Fisk has outsourced the sending of invoices. Hence, there would not be any change in invoice remainders or interest revenues. The use of modern, rational and environmentally friendly techniques can be good from a public relations perspective but is not something that BD Fisk has thought about. The Financial Manager further clarifies that public relations and marketing is not one of BD Fisk's strengths. Electronic invoicing and ultimately EDI will change the way the company communicates with their customers and the company doubts whether it can improve customer relations. It is possible that relationships of the people involved in contract negotiations will be improved, but the Financial Manager of BD Fisk also sees a risk that there might be less personal contact. Improved customer loyalty could be an advantage from the beginning but if more and more companies introduce e-invoicing, this advantage can diminish.

When discussing the potential risks of adoption of electronic invoicing, the technical obstacles involved are seen as a problem. According to the Financial Manager, the IT knowledge within the firm is low, which makes the company dependent on external suppliers and consultants, and an adoption of e-invoicing would augment this dependency and also lead to increased costs. Possibly high investment and integration costs are seen as a disadvantage. BD Fisk has accounted for losses the last two years, and therefore is hesitant to make a major investment, such as e-invoicing, if it is not absolutely necessary. That e-invoicing would require certain competence requirements, is not seen as a risk since the company is only required to be able to make use of the system. The security concerns that an e-invoicing adoption may involve are not considered as more concerning than the ones the company is dealing with today. The Financial Manager of BD Fisk does not see the possibility of staff members being relocated or made redundant as a risk; this is rather seen as an opportunity for the applied staff members to dedicate themselves to sales promotion. If the company had enough financial resources for this investment, they would adopt e-invoicing immediately, because of the perceived benefits.

External Pressure

Two major customers have requested e-invoicing but on the other hand BD Fisk has many smaller customers that can not accept electronic invoices. One of BD Fisk's former customers invested in an EDI-solution last year and required all their suppliers to send their invoices by this standard. This caused some of BD Fisk's competitors to adopt web-EDI. BD Fisk did not

do this because the customer was not buying enough volumes to cover the cost for the double routines. That some competitors actually did introduce this solution has not affected BD Fisk.

Organisational Readiness

While discussing the organisational readiness for adoption of e-invoicing, the Financial Manager of BD Fisk believes that it would take time to adjust to the new work procedures. As the situation is today, BD Fisk would invest in EDI and not only in electronic invoicing because the company wants a solution for the entire business process. The fact that BD Fisk has accounted for losses the last two years together with the high cost for an EDI-solution are some reasons why BD Fisk is waiting. Once the large operators within the industry have selected which solutions and standards they will use, then BD Fisk will prioritise this investment.

The company does not have an IT department and all IT operations are outsourced to application service providers (ASPs). According to the Financial Manager, the IT knowledge level within the company is low. They use IT systems in their daily work, but the Financial Manager believes that the company could utilise the IT applications more, which would be easier if some of the employees were more skilled in IT and could teach the others. Most processes are computerised but there are still processes that could be more efficient, i.e. the handling of orders, where the order is written on paper and then typed into the computer.

Owner/Manager Characteristics

The management of the company is perceived as positive to IT usage, as long as the costs are not too high. Generally there has to be a very high benefit from a new investment to motivate the costs for it because of the company's financial situation. According to the Financial Manager, the management is not very knowledgeable of IT and the initiative for IT investments usually comes from the people working within the firm and not from management. The board has not expressed specifics regarding an adoption of electronic invoicing. Overall, the management of BD Fisk can be described as conservative when it comes to introduction of new technology.

5.3.3 How to Facilitate Adoption of E-Invoicing

Financial support would be desirable for BD Fisk and would increase the chances for an adoption of e-invoicing. The technological support that BD Fisk would need, is help with finding out if there are other alternatives other than the alternatives based on the company's existing business system as well as an evaluation of the different alternatives would be appreciated. The Financial Manager also recognises that technological assistance in the implementation phase would be of great help. Discounts or rewards from suppliers of e-invoice solution would also increase the company's interest in e-invoicing. The company would consider adopting e-invoicing if a customer requested it, as has been the case with the municipality of Luleå. BD Fisk would also consider adopting e-invoicing if a customer threatened to change supplier, given that it is an important customer. Of course, the cost for an adoption of e-invoicing needs to be taking into consideration and compared with the potential benefits of the e-invoicing solution.

6. Analysis

In this chapter an analysis of the empirical data outlined in the previous chapter is presented. Initially within-case analyses are presented, where the collected data from each case was compared to the frame of reference. The three within-case analyses are followed by a cross-case analysis where the data from the different cases was compared.

6.1 Within-Case Analysis of Case One

In this section the empirical data from the first case, NKV Kontorsvaror AB, will be analysed based on the frame of reference regarding the factors that affect adoption of e-invoicing and how adoption of e-invoicing can be facilitated.

6.1.1 Factors Affecting Adoption of E-Invoicing

The first company interviewed, NKV Kontorsvaror AB, has already adopted electronic invoicing, however the company only sends electronic invoices to one large customer currently. The factors that have affected NKV's adoption of e-invoicing are analysed in the following sections.

Perceived Benefits of E-Invoicing

Overall NKV perceives most direct advantages described by Fredholm (2004) such as cost savings and timesavings as important advantages of electronic invoicing. The advantages of interest revenues and a reduced need for sending invoice reminders that, Dykert and Fredholm (2004) highlight, has not been considered by NKV. However, the Financial Manager of NKV finds it likely to become an advantage since the one customer to which NKV sends e-invoices has been credit approved, which makes it more likely that the customer will pay their invoices on time according to the Financial Manager. Right now, NKV does not see reduced paper handling as an advantage because the company still prints a paper copy of their electronic invoices. However, in the long run, this is an advantage that is considered significant because it is beneficial to the environment, which is in concordance with the theory (NEA, 2006). That the use of e-invoicing, which is a modern, rational and environmentally friendly technique, can be good for companies from a public relations perspective is also important for NKV and the Financial Manager adds that this is seen as a competitive weapon. Hence, the case applies to the theory (NEA, 2005). NKV also applies to Fredholm (2000) who states that strengthening of customer relations often leads to long-term partnerships and Robinson (2001) who claims that the closer collaboration between supplier and buyer leads to improved customer loyalty. NKV further adds that e-invoicing is seen as a competitive advantage for them. This is an advantage of electronic invoicing that is not explicitly mentioned in the literature; even though Fredholm (2002) states that the indirect advantages are mostly tactical and competitive advantages.

In general, NKV does not see many risks with their adoption of electronic invoicing. Therefore, NKV does not apply to Kuan and Chau's (2001) statement that there are a lot of risks involved when a small firm adopts IT, because of inadequate resources and limited knowledge about the new technology. Fredholm (2000) has described some risks and

obstacles to consider; social aspects, technical obstacles, competence requirements, high investment and integration costs and security issues. NKV does not perceive the social aspects (i.e. staff members will be relocated or possibly made redundant) as risks, instead they stress the importance of flexibility of employees. The technological obstacles have been few since the company has a skilled IT Manager. The high investment and integration costs have not been an issue. The Financial Manager himself is concerned with the security issues, and for that reason prints a paper copy of e-invoices. Consequently this case does not support most of the risks described by Fredholm (2000). The only risks that the Financial Manager of NKV identifies are security issues, hence the case is conformable to the security issues described by Fredholm (2000).

Thong and Yap (1995) stated that if management of a small firm perceives the advantages of IT adoption outweigh the risks then the firm is more likely to adopt IT. This case supports that statement, since NKV thinks that the direct and indirect advantages of e-invoicing outweigh the risks and thus has already started to adopt electronic invoicing.

External Pressure

NKV adopted electronic invoicing when the company got indications that this technique would become desirable by their customers. The company was well prepared when the first official request came. Since only one customer has requested electronic invoicing so far, the pressure from customers can be judged as fairly low, but NKV prefers to work proactively in order to be prepared for increased pressure. Consequently, the case applies to Iacovou et al.'s (1995) findings that pressure from trading partners has been shown to be an important factor for the implementation of inter-organisational systems.

The level of e-invoicing capability among competitors has also been considered a significant factor since NKV may lose customers to their e-invoice capable competitors if the company cannot offer this service. Competitive pressure is a factor that is highlighted by Iacovou et al. (1995). Consequently, NKV applies to the theory by Iacovou et al. (1995).

In general the external pressure can be considered as an important factor for NKV's adoption of e-invoicing even though only one major customer has requested electronic invoicing thus far and not all competitors are e-invoicing capable. This is in line with previous research studies that have found external pressure to be the most influential factor of IT adoption (Iacovou et al. 1995; Mehrtens et al., 2001).

Organisational Readiness

Iacovou et al. (1995) describe organisational readiness by means of the level of financial and technological resources of the firm. NKV has proved that they are ready for an adoption of e-invoicing since the company has already adopted the technology and sends electronic invoices to one large customer. Financial resources have been allocated to this investment as it is a prioritised area and the costs have not been a problem, which implies that NKV has enough financial resources for this adoption as described by Iacovou et al. (1995). Regarding the level of technological resources of the firm, NKV has a skilled IT Manager and sometimes makes use of external IT consultants when needed. In general all employees have enough knowledge for using IT in their daily work. The technological resources of the company can be considered as sufficient, when compared with Iacovou et al.'s (1995) description of the level of sophistication of IT usage and IT management within an organisation. This case also supports the findings of Iacovou et al. (1995) that organisations with highly integrated, computerised processes are better prepared for adopting inter-organisational IT systems since

NKV strives to computerise their manual processes and to build proper and well-integrated systems.

When discussing the overall organisational readiness, NKV has a high level of financial and technological resources and consequently a high organisational readiness, which confirms Iacovou et al.'s (1995) proposition that firms with a higher organisational readiness will be more likely to adopt electronic invoicing.

Owner/Manager Characteristics

The owner/manager of NKV is described as very innovative, which confirms Thong and Yap's (1995) statement that innovative owner/managers are more willing to take the risk of adopting IT systems. Furthermore, the owner/manager of NKV is knowledgeable about IT which makes it more likely that he is aware of the potential benefits of e-invoicing and knows how to deal with the risks (Thong & Yap, 1995). NKV's awareness of the potential benefits is high and possible risks are taken care of (described in a previous section), which validates Thong and Yap's (1995) theory.

6.1.2 How to Facilitate Adoption of E-Invoicing

The first strategy to facilitate adoption of electronic invoicing, which is described by Iacovou et al. (1995), is financial and technological assistance. NKV themselves have not needed any financial support for their adoption of e-invoicing but financial support is still considered positive. The IT Manager of the company has received technological help from people knowledgeable in the area of e-invoicing, which supports Fredholm's (2002) statement that contact with an outside expert facilitates IT adoption. Consequently the only financial and technological assistance, as described by Iacovou et al. (1995), that NKV has needed is technological information. However, the Financial Manager suggested a number of actions related to the financial and technological assistance as described by Iacovou et al. (1995) and Raymond and Blili (1997). When discussing rewards and discounts which is the second strategy described by Iacovou et al. (1995), NKV considered this or any type of aid as positive as an adoption of electronic invoicing can be expensive for small firms however this was not the case for NKV. The third strategy described by Iacovou et al. (1995) is coercive methods. This strategy has shown to be important since NKV has adopted e-invoicing mainly because customers requested this service. The coercive methods also include discontinuance of partnerships and other sanctions, but these methods have not influenced this case.

NKV did not discuss anything that can be referred to other strategies for facilitating adoption of e-invoicing other than the ones included in the frame of reference.

6.2 Within-Case Analysis of Case Two

In this section the empirical data from the second case, J. Pettersson Chark AB, will be analysed based on the frame of reference, regarding factors affecting adoption of e-invoicing and how to facilitate adoption of e-invoicing.

6.2.1 Factors Affecting Adoption of E-Invoicing

The second company interviewed, J. Petterssons Chark AB has decided to adopt e-invoicing and is now at the starting point for searching and evaluating what type of e-invoicing solution that is suitable for their needs.

The factors affecting adoption of e-invoicing that were discussed during the interview with the Managing Director of J. Petterssons Chark are analysed in the following sections.

Perceived Benefits of E-Invoicing

When discussing the direct advantages, J. Petterssons Chark considers most of the advantages described by Fredholm (2004) to be important for the company, such as cost savings. The interest revenues and a reduced need for sending invoice remainders that Dykert and Fredholm (2004) highlight are also very important for J. Petterssons Chark. Contrary to what is stated by Fredholm (2004), the company does not consider the possibility that staff resources can be reallocated for other tasks as an important advantage because of the limited time required for invoice sending. Some advantages that J. Petterssons Chark perceives with an adoption of e-invoicing refer to the impact of e-invoicing on business processes and relationships. The positive environmental effects that e-invoicing may lead to are important for J. Petterssons Chark, which is consistent with what is stated by NEA (2006). NEA (2006) further highlights that the use of modern, rational and environmentally friendly techniques can be good for companies from a public relations perspective, which is something that J. Petterssons Chark agrees with and further adds that it can be considered a competitive advantage if the company is active and adopts the latest technology. That e-invoicing can be a competitive advantage is not explicitly mentioned in the literature; even though Fredholm (2002) states that the indirect advantages are mostly tactical and competitive advantages. J. Petterssons Chark believes that customer relations are based on personal contacts and cannot be improved by sending electronic invoices, which is not accordant with Fredholm (2000), who claims that e-invoicing can improve customer relations. To some extent J. Petterssons Chark agrees with Robinson (2001) who states that customers may become more loyal. The company believes that since payments are easily done and less invoice remainders will be sent, hopefully frustration can be reduced and hence customer loyalty may be improved.

Fredholm (2000) has described some risks and obstacles related to adoption of electronic invoicing, namely social aspects, technical obstacles, competence requirements, high investment and integration cost and security issues. J. Petterssons Chark is somewhat concerned about the security issues and highlight potential problems like virus, hackers and power failure. Technical obstacles can also become important for the company if no simple and suitable solutions for their company and industry can be found. The other risks described by Fredholm (2000) such as social aspects, competence requirements and the costs for e-invoicing adoption, are not considered important by J. Petterssons Chark.

Thong and Yap (1995) stated that if management of a small firm perceives the advantages of IT adoption to outweigh the risks then the firm is more likely to adopt IT. J. Petterssons Chark believes that the direct and indirect advantages of e-invoicing outweigh the risks and the company has decided to adopt electronic invoicing in the near future. Consequently, J. Petterssons Chark applies to the findings of Thong and Yap (1995).

External Pressure

The level of pressure to adopt e-invoicing exerted by the customers of the firm has been found to be an important factor for J. Petterssons Chark's decision to adopt e-invoicing. Even though a few customers have requested e-invoicing, there is no customer that has demanded e-invoicing yet. Consequently, the level of pressure can be estimated as moderate. Iacovou et al.'s (1995) findings show that pressure from trading partners is a critical factor for the implementation of inter-organisational systems. J. Petterssons Chark applies to the findings by Iacovou et al. (1995). None of the company's competitors have invested in electronic invoicing so far, according to the Managing Director of J. Petterssons Chark. If competitors would adopt electronic invoicing, that would also push J. Petterssons Chark to adopt e-invoicing, which confirms the importance of competitive pressure for adoption of e-invoicing, described by Iacovou et al. (1995).

The external pressure can be considered a very important factor for J. Petterssons Chark's decision to adopt electronic invoicing which is in line with previous research studies that have found external pressure to be the most influencing factor of IT adoption (Iacovou et al. 1995; Mehrtens et al., 2001).

Organisational Readiness

Organisational readiness is described by Iacovou et al. (1995) as the level of financial and technological resources of the firm. When discussing the financial resources available for an adoption of e-invoicing, the company has enough financial resources to cover this investment. J. Petterssons Chark perceives that they are ready for an adoption of e-invoicing, improvements in the company's processes have been made one process at a time and now it is time to improve the invoicing process. The company has already computerised many of their administrative processes e.g. orders, which is in line with the findings of Iacovou et al. (1995) that organisations with highly integrated, computerised processes are better prepared for adopting inter-organisational IT systems, such as e-invoicing. Even though the company does not have the in-house expertise for developing and managing an e-invoice system, the IT usage and IT knowledge level is sufficient for learning and using a new system. The fact that the company has enough financial resources to pay for the investment and ongoing expenses, together with the technological readiness make the total organisational readiness for e-invoicing adoption relatively high. Hence, J. Petterssons Chark applies to the findings of Iacovou et al. (1995) that firms with a higher organisational readiness will be more likely to adopt electronic invoicing.

Owner/Manager Characteristics

Thong and Yap (1995) state that if the owner/manager of the company is knowledgeable about IT, it is more likely that the company is aware of the potential benefits of e-invoicing and knows how to deal with the risks. In this case, the owner of J. Petterssons Chark is not perceived to be knowledgeable about IT, but he has made sure that he has got staff members that are more skilled in IT than him. This is probably the reason for the company's awareness of the potential benefits of an e-invoicing adoption as well as it can explain the company's ability to consider and manage the possible risks involved. Thong and Yap (1995) state that innovative owners/managers are more willing to take the risk of adopting IT systems. Even though the management of J. Petterssons Chark is not described as specifically innovative the company has decided to adopt e-invoicing, which neither confirms nor contradicts Thong and Yap's (1995) findings.

6.2.2 How to Facilitate Adoption of E-Invoicing

Iacovou et al. (1995) suggested that the first strategy for facilitating adoption of e-invoicing is financial and technological assistance. J. Petterssons Chark does not need any financial support to be able to adopt e-invoicing, but financial aids are still considered positive by the company. J. Petterssons Chark believes that if the company received help with finding a suitable e-invoicing solution this would facilitate adoption of e-invoicing, hence technological support is needed, both in the pre-phase where a preliminary study and analysis need to be done, and in the implementation phase. Consequently, the first strategy described by Iacovou et al. (1995) is to a large extent comparable with what J. Petterssons Chark believe would facilitate adoption of electronic invoicing. The second strategy described by Iacovou et al. (1995), incentives, would not increase the company's interest in electronic invoicing. If a customer requested electronic invoicing or even threatened to change supplier if J. Petterssons Chark could not send their invoices electronically, the company would consider adopting electronic invoicing, which is in line with the third strategy described by Iacovou et al. (1995), coercive methods.

Petterssons Chark did not discuss anything during the interview that can be referred to other strategies for facilitating adoption of e-invoicing than the ones included in the frame of reference.

6.3 Within-Case Analysis of Case Three

In this section the empirical data from the third case, BD Fisk AB, will be analysed based on the frame of reference regarding factors affecting adoption of e-invoicing and how to facilitate adoption of e-invoicing.

6.3.1 Factors Affecting Adoption of E-Invoicing

The third company interviewed, BD Fisk AB, waits for a project regarding e-invoicing to start. The e-invoicing solution that BD Fisk mainly is interested in is an EDI solution.

The factors affecting adoption of e-invoicing that BD Fisk discussed during the interview are analysed in the following sections.

Perceived Benefits of E-Invoicing

When discussing the advantages of e-invoicing that relate to increased internal efficiency, BD Fisk perceives that e-invoicing may lead to time savings, so staff resources can be freed for other tasks, which is in line with the theory by Fredholm (2004). At present, BD Fisk does not see that an adoption of e-invoicing would lead to cost savings, because of the high investment costs, which contradicts the theory by Fredholm (2004). Furthermore, the company does not see interest revenues and a reduced need for sending invoice reminders as an important advantage at this point since the company has outsourced their invoicing, which is not in line with Dykert and Fredholm (2004). BD Fisk considers e-invoicing as a service for their customers that would make it easier doing business with their large customers. This advantage is not explicitly expressed in the literature. Another advantage that BD Fisk highlights is that e-invoicing may lead to a lower error rate, which by Dykert and Fredholm (2004) is mentioned as an advantage of EDI, but is not mentioned in the literature about e-invoicing in

general. When analysing the indirect advantages of e-invoicing, BD Fisk sees that the reduced paper handling is beneficial from an environmental aspect, which is concurrent with theory. However, it is also mentioned in the literature that the use of modern, rational and environmentally friendly techniques can be good from a public relations perspective (NEA, 2006), which is not something that BD Fisk has considered. Further, the company does not believe that e-invoicing can improve customer relations in general, maybe the relationships of the people involved in contract negotiations will be improved, but the company also sees a risk that there might be less personal contact, which is not concurrent with the theory by Fredholm (2000). BD Fisk highlights that improved customer loyalty could be an advantage from the beginning but if more and more companies introduce e-invoice, this advantage will diminish, which is only partially in concordance with Robinson (2001).

When discussing the potential risks of adoption of electronic invoicing, the technical obstacles are seen as a problem, which is consistent with Fredholm (2000). Furthermore, is possibly high investment and integration cost also seen as a disadvantage, which is in concordance with Fredholm (2000). BD Fisk does not consider security concerns, competence requirements and social aspects as risks, in opposite to the findings of Fredholm (2000).

At this point the high investment and integration cost hinder the company from adopting e-invoicing. If BD Fisk had enough financial resources for this investment, they would adopt e-invoicing immediately, because of the perceived advantages. BD Fisk does therefore apply to the literature provided by Thong and Yap (1995), that if management of a small firm perceives the advantages of IT adoption to outweigh the risks, then the firm is more likely to adopt IT.

External Pressure

BD Fisk has experienced pressure to adopt electronic invoicing from some customers; a few of them have requested e-invoicing and one customer, who invested in an EDI-solution, required all their suppliers to send their invoices by this standard. The pressure from customers, such as the municipality of Luleå, influenced BD Fisk to join a project together with the municipality of Luleå regarding e-invoicing, which suggests that pressure from customers is an important factor for adoption of e-invoicing. BD Fisk applies to the findings of Iacovou et al. (1995) that pressure from trading partners is a critical factor for the adoption of inter-organisational systems like e-invoicing. However, BD Fisk has also many smaller customers that cannot accept electronic invoices.

Some competitors adopted web-EDI when the large customer demanded it. This has not affected BD Fisk. BD Fisk does not apply to the theory by Iacovou et al. (1995) that competitive pressure affects adoption of inter-organisational systems like e-invoicing.

Organisational Readiness

According to Iacovou et al. (1995), organisational readiness can be described as the level of financial and technological resources of the firm. The financial resources of the firm are limited and the investment costs for an adoption of EDI, which is the e-invoicing solution that BD Fisk would prefer, are high. These conditions makes BD Fisk wait for the large operators within the industry to decide what solutions and standards they are selecting before the company prioritizes this large investment. Iacovou et al. (1995) describe technological resources as the level of sophistication of IT usage and IT management within the organisation. The IT knowledge level within the company is low, the employees are using IT systems but could utilise the IT applications more if they had more knowledge about them.

The company does not have an IT department and all IT operations are outsourced to application service providers (ASPs). Altogether, the technological resources of BD Fisk can be judged as low. Most processes are computerised but there are still processes that can become more efficient, i.e. the handling of orders. This does neither confirm nor contradict the findings of Iacovou et al. (1995) that organisations with highly integrated, computerised processes are better prepared for adopting inter-organisational IT systems.

The limited financial and low technological readiness, together with the that BD Fisk is waiting with an introduction of e-invoicing, does not contradict the findings of Iacovou et al. (1995) that firms with a higher organisational readiness will be more likely to adopt electronic invoicing.

Owner/Manager Characteristics

According to Thong and Yap (1995), it is more likely that the company is aware of the potential benefits of e-invoicing and knows how to deal with the risks if the owner/manager of the company is knowledgeable about IT. In this case, the management of BD Fisk is not described as very knowledgeable about IT, and the board has also not expressed any specifics regarding an adoption of e-invoicing. The initiative for IT investments usually comes from the people working within the firm and not from the management. When it comes to introduction of new technology, the management of BD Fisk can be described as conservative. According to Thong and Yap (1995) innovative owners/managers are more willing to take the risk of adopting IT systems, which is not contradicted by this case.

6.3.2 How to Facilitate Adoption of E-Invoicing

Financial support would be desirable for BD Fisk and would increase the chances for an adoption of e-invoicing. BD Fisk applies to the findings of Raymond and Blili (1997) that economic support can be used to overcome financial problems and to facilitate the development of internally integrated systems which leads to higher benefit for the adopting SMEs. BD Fisk would also appreciate to get technological support, such as help with finding alternative solutions, evaluation of the different solutions and technological assistance in the implementation phase. The need for technological assistance together with the low technological readiness of the company is consistent with Raymond and Blili's (1997) findings that technological assistance can assist with overcoming technical obstacles and obstacles related to knowledge. In total, BD Fisk applies to the findings of Iacovou et al. (1995) that financial and technological can facilitate an introduction of electronic invoicing. Discounts or rewards from suppliers of e-invoice solution would also increase the company's interest in e-invoicing, which applies to the second strategy for facilitating e-invoicing adoption, as described by Iacovou et al. (1995). The company would consider adopting e-invoicing if a customer requested it, such as the municipality of Luleå has done. BD Fisk would also consider adopting e-invoicing if a customer threatened to change supplier, given that it is an important customer. Hence, this case applies to the third strategy described by Iacovou et al. (1995), namely coercive methods.

BD Fisk did not discuss any additional strategies for facilitating adoption of e-invoicing than the ones included in the frame of reference.

6.4 Cross-Case Analysis

Based on the results of the within-case analyses, a cross-case analysis where all three cases are compared will be presented in this section. In the cross-case analysis, major characteristics of the within-case analyses are highlighted to identify similarities and differences between the cases, regarding each research question.

6.4.1 Factors Affecting Adoption of E-Invoicing

Perceived Benefits of E-Invoicing

All companies have identified both direct and indirect advantages from an adoption of e-invoicing, even though the companies perceive different advantages to be important. All advantages that are discussed in the theory are to some extent identified by the companies studied. An overview of what advantages the companies perceive from an adoption of electronic invoicing is presented in Table 6.1, where a cross means that the company considers it to be an advantage, a cross in brackets means that the company considers it to some extent to be an advantage and a horizontal line means that the company does not consider it to be an advantage at all.

Table 6.1 Overview of Perceived Advantages

Advantages	**Theory References**	**Case 1:** *NKV Kontorsvaror AB*	**Case 2:** *J. Petterssons Chark AB*	**Case 3** *BD Fisk AB*
Cost savings	**X**	**X**	**X**	-
Staff resources can be set free for other tasks	**X**	**X**	-	**X**
Interest revenues and less invoice remainders needed	**X**	*Not mentioned*	**X**	-
Reduced paper handling is beneficial for the environment	**X**	-	**X**	**X**
Using modern, rational and environmentally friendly technique can be good from a PR perspective	**X**	**X**	**X**	*Not mentioned*
Strengthening of customer relations	**X**	**X**	-	-
Improved customer loyalty	**X**	**X**	**(X)**	**(X)**
Competitive advantage	*Not mentioned*	**X**	**X**	*Not mentioned*
Lower error rate	*Not mentioned*	*Not mentioned*	*Not mentioned*	**X**
Service for the customers which makes it easier doing business	*Not mentioned*	*Not mentioned*	*Not mentioned*	**X**

All three companies perceive both direct and indirect advantages of e-invoicing adoption. It can be highlighted that both NKV and J. Petterssons Chark consider e-invoicing to be a competitive advantage, which is not explicitly mentioned in the literature. The lower error rate that BD Fisk perceives as an advantage has not been mentioned in the literature about e-invoicing in general, but it is considered an advantage of EDI (Dykert & Fredholm, 2004). However, it is noticeable that BD Fisk perceives fewer advantages with e-invoicing than the other two companies.

All analysed cases agree, to some extent, that there are risks involved in the adoption of e-invoicing, even though there are differences between the cases regarding what risks the companies perceive as important. Security issues, technical obstacles and high investment and integration costs, which are described by Fredholm (2000), are the only risks that are considered important by the SMEs subjected to this study. Additionally, it can be highlighted that none of the companies consider social aspects or competence requirements as risks with the adoption of e-invoicing, which is contrary to the theory by Fredholm (2000). An overview of what risks the companies perceive from an adoption of electronic invoicing is presented in Table 6.2. A cross means that the company considers it to be a risk, a cross in brackets means that the company considers it to some extent to be a risk and a horizontal line means that the company does not consider it to be a risk at all.

Table 6.2 Overview of Perceived Risks

Risks	**Theory References**	**Case 1:** *NKV Kontorsvaror AB*	**Case 2:** *J. Petterssons Chark AB*	**Case 3:** *BD Fisk AB*
Social aspects	**X**	-	-	-
Technical obstacles	**X**	-	**(X)**	**X**
Competence requirements	**X**	-	-	-
High investment and integration cost	**X**	-	-	**X**
Security issues	**X**	**(X)**	**X**	-

It can be highlighted that NKV, which is the only company that has adopted electronic invoicing is the company that perceives least risks with the adoption of e-invoicing. All companies perceive the technical obstacles and security issues to be manageable. BD Fisk however perceives that the high investment and integration costs hinder the company from adopting e-invoicing. Altogether, the cases, only to a small extent apply to the statement by Kuan and Chau (2001) that there are a lot of risks involved for small firms commencing on e-invoicing. In general, all companies perceive that the direct and indirect advantages of e-invoicing outweigh the risks. It can be clarified that even BD Fisk believes that if the company had enough financial resources to cover the investment costs, the company would adopt e-invoicing directly because of the advantages. Hence, all cases apply to Thong and Yap's (1995) statement that if management of a small firm perceives the advantages of IT adoption to outweigh the risks then the firm is more likely to adopt IT.

External Pressure

All analysed cases have experienced external pressure to adopt e-invoicing, pressure mainly from customers. In two of the cases, the pressure from customers has solely been shown as

requests. In the third case, one customer demanded electronic invoicing. The analyses indicate that all companies have considered adopting e-invoicing because customers have requested it, which is consistent with theory (Iacovou et al., 1995). Regarding the competitive pressure, some differences between the cases can be detected. NKV and J. Petterssons Chark consider the e-invoicing capability of their competitors as an important factor, while the competitive pressure has not affected BD Fisk. Consequently, the cases only partially apply to Iacovou et al. (1995). Generally, the level of external pressure is considered an important factor for the adoption of e-invoicing in all analysed cases, and therefore the cases apply to the theory by Iacovou et al. (1995). An overview of the level of external pressure to adopt e-invoicing the companies perceive is presented in Table 6.3. A cross means that the company considers it to be an important factor, a cross in brackets means that the company considers it to some extent to be important and a horizontal line means that the company does not consider it to be important at all.

Table 6.3 Overview of External Pressure

External Pressure	**Theory References**	**Case 1:** *NKV Kontorsvaror AB*	**Case 2:** *J. Petterssons Chark AB*	**Case 3:** *BD Fisk AB*
Pressure from customers	**X**	**X**	**X**	**X**
Competitive pressure	**X**	**X**	**X**	-

Organisational Readiness

A comparison between the organisational readiness of the three companies shows that the financial and technological resources of the companies differ. Regarding the financial resources, NKV and J. Petterssons Chark have enough financial resources to adopt electronic invoicing and they also prioritise this investment. BD Fisk does not have the same financial resources and does therefore not prioritise this investment right now. The level of technological resources differ between the companies, NKV has a high level of IT utilisation and IT knowledge, while the other two companies have sufficient IT utilisation or knowledge level for using an e-invoicing system. It can be highlighted that NKV had enough technological resources for introducing a self-developed e-invoicing system. The analyses imply that organisational readiness is an important factor for e-invoicing adoption, since the level of financial resources enables or disables e-invoicing adoption and the technological resources affect adoption in terms of which e-invoicing solution to select, which is in accordance with theory (Iacovou et al., 1995). An overview of the level of organisational readiness for adoption of e-invoicing is presented in Table 6.4. A cross means that the company has a high readiness, a cross in brackets means that the company is ready to some extent and a horizontal line means that the company has a low level of readiness.

Table 6.4 Overview of Organisational Readiness

Organisational Readiness	**Theory References**	**Case 1:** *NKV Kontorsvaror AB*	**Case 2:** *J. Petterssons Chark AB*	**Case 3:** *BD Fisk AB*
Financial Readiness	**X**	**X**	**X**	-
Technological Readiness	**X**	**X**	**(X)**	**(X)**

Owner/Manager Characteristics

The analyses of the different companies subjected to this study indicate that the innovativeness of the owner/manager is an important factor for adoption of electronic invoicing, which is in line with the findings of Thong and Yap (1995). The level of the owner/manager's innovativeness differs between the companies. The owner/manager of NKV is described as very innovative, while the management of J. Petterssons Chark is described as in-between innovative and conservative, and the management of BD Fisk is described as conservative. An overview of the owner/manager characteristics is presented in Table 6.5. A cross means that the owner/manager can be described as innovative, a cross in brackets means that the owner/manager of the company is somewhere in between innovative and conservative and a horizontal line means that the owner/manager can be described as conservative.

Table 6.5 Overview of Owner/Manager Characteristics

Owner/Manager Characteristics	**Theory References**	**Case 1:** *NKV Kontorsvaror AB*	**Case 2:** *J. Petterssons Chark AB*	**Case 3:** *BD Fisk AB*
Innovativeness	**X**	**X**	**(X)**	-

6.4.2 How to Facilitate Adoption of E-Invoicing

In spite of the fact that the companies show similarities in how they perceive the adoption of electronic invoicing and how it can be facilitated, differences are detectable. Neither NKV nor J. Petterssons Chark need any financial assistance for their adoption of e-invoicing, but financial assistance is nevertheless considered positive. BD Fisk would appreciate financial assistance, which would increase the chances for an adoption of e-invoicing. Hence, financial assistance described by Iacovou et al. (1995) is considered positive by all cases studied. Technological assistance with finding and evaluating a suitable e-invoicing solution is to some extent needed by all companies, which is in concordance with Iacovou et al. (1995). It can be highlighted that both J. Petterssons Chark and BD Fisk would appreciate technological assistance with finding and evaluating possible e-invoicing solutions as well as technological help in the implementation phase. NKV and BD Fisk consider incentives in the form of discounts or rewards as positive, but it would not increase J. Petterssons Chark's interest in e-invoicing. Consequently, the cases are only partially in accordance with Iacovou et al.(1995). As regards the third strategy described by Iacovou et al. (1995), coercive methods would facilitate adoption of electronic invoicing and all three companies would consider adopting electronic invoicing if a customer requested electronic invoicing or threatened to change supplier. However, both J. Petterssons Chark and BD Fisk highlight that the customer has to be important enough to justify the investment for the e-invoicing solution. It can further be highlighted that none of the SMEs discussed any additional strategies for facilitating adoption of e-invoicing than the strategies included in the frame of reference.

An overview of the companies' perception of how the adoption of e-invoicing can be facilitated is presented in Table 6.6 on the next page. A cross means that the company consider the strategy to facilitate their adoption of e-invoicing, a cross in brackets means that it is not a necessity for their company's adoption but still considers it to facilitate adoption of e-invoicing, and a horizontal line means that the company does not consider the strategy to facilitate adoption of e-invoicing.

Table 6.6 Overview of How to Facilitate Adoption of E-Invoicing in SMEs

Strategies for Facilitating Adoption of E-Invoicing	**Case 1:** *NKV Kontorsvaror AB*	**Case 2:** *J. Petterssons Chark AB*	**Case 3:** *BD Fisk AB*
Financial Assistance	**(X)**	**(X)**	**X**
Technological Assistance	**X**	**X**	**X**
Incentives	**(X)**	-	**X**
Coercive Methods	**X**	**X**	**X**

7. Discussion, Conclusions and Implications

In this chapter, a discussion based on the research questions and purpose of this study is presented. The discussion is combined with conclusions that have been derived from the analyses in the previous chapter. Furthermore, implications for management and theory, as well as suggestions for further research are presented at the end of this chapter.

7.1 Discussion and Conclusions

The purpose of this study was to gain a better understanding of the adoption of electronic invoicing in SMEs. In order to achieve this purpose two research questions were formulated:

RQ 1. How can factors affecting SMEs' adoption of e-invoicing be described?
RQ 2. How can SMEs' adoption of e-invoicing be facilitated?

The research method used in this study has been described in Chapter Four and the findings of the study should be considered in relation to this. The conclusions are valid for the sample of this study, generalisations that are applicable to all SMEs are not possible to make since only a small number of cases have been investigated. Nevertheless, this study provides some clarity about the adoption of electronic invoicing in SMEs and provides support to many of the theoretical variables examined.

7.1.1 How can Factors Affecting Adoption of E-Invoicing in SMEs be Described?

The result from this study indicates that several different factors affect the adoption of electronic invoicing in SMEs. Generally, the factors described by Iacovou et al. (1995) together with the owner/manager characteristics highlighted by Kuan and Chau (2001) have been proved useful when describing the factors that affect adoption of e-invoicing in SMEs.

Perceived benefits of e-invoicing are concluded to affect SMEs' adoption of electronic invoicing. All the SMEs in the study perceive advantages with electronic invoicing, although the SMEs perceive different advantages and risks with e-invoicing. Advantages described in the literature, which relate to increased internal efficiency such as cost savings and interest revenues are identified as important by the SMEs. Moreover, advantages that have an impact on business processes and relationships are also identified as important by the SMEs. Electronic invoicing is considered a competitive advantage by two of the three companies studied. This advantage has not been explicitly expressed in the literature. A possible explanation could be that it is a general description and consequently all indirect advantages could be considered as competitive advantages. In general, the SMEs in the study believe that the advantages of e-invoicing outweigh the risks, and the benefits the companies perceive with an adoption of e-invoicing is a factor which affects adoption of e-invoicing in SMEs.

The external pressure factor has been found to be the most influential factor affecting adoption of e-business systems in other studies e.g. (Iacovou et al, 1995; Mehrtens et al., 2001) and this factor is concluded to be an important factor for e-invoicing adoption in this

study as well. The result shows that the SMEs subjected to this study have experienced external pressure to adopt e-invoicing, mainly from customers that have requested electronic invoicing and hence made the SMEs consider adopting e-invoicing. The majority of the SMEs also consider the competitive pressure, which is the e-invoicing capability of the firm's competitors, as a factor affecting adoption of e-invoicing. It can be noted that these SMEs also consider e-invoicing to be a competitive advantage. The SME that did not identify electronic invoicing as a competitive advantage did not consider the e-invoicing capability of their competitors as an important factor either.

On an organisational level, the result indicates that the organisational readiness for adoption of electronic invoicing was generally sufficiently high for e-invoicing adoption. The resource poverty of SMEs is widely described in the literature, by e.g. Ballantine et al. (1998) and Hansemark (1998), but was only identified in one of the cases where limited financial resources was considered an obstacle for adoption of e-invoicing. In general, the cost for the e-invoicing solution is not concluded to be an obstacle as long as the adoption is well motivated through a good understanding of the benefits of e-invoicing. The technological resources of the SMEs vary, but is generally enough to be able to adopt and use an e-invoicing solution. It can be concluded that the IT knowledge within the firm might influence the ease of e-invoicing adoption as well as the type of e-invoicing solution adopted. Since the only SME that had a high level of IT knowledge was also the only SME that had already adopted an e-invoicing solution, a solution that was developed in-house.

When discussing the importance of the owner/manager's characteristics for adoption of e-invoicing, it can be concluded that the more innovative the owner/manager is, the more likely it is that the SME adopts e-invoicing. The reason for this is probably that innovative owners/managers are more willing to take the risk of adopting electronic invoicing, as stated by Thong and Yap (1995).

More specific conclusions can be drawn from the above discussion regarding factors affecting adoption of electronic invoicing in SMEs. However, the conclusions are valid for the sample of this study and cannot be generalised. The conclusions are listed below:

- There are several factors that affect adoption of e-invoicing in SMEs
- The result shows that SMEs perceive advantages with electronic invoicing that relate to increased internal efficiency
- SMEs subjected to this study perceive advantages with electronic invoicing that have an impact on business processes and relationships
- The result indicates that electronic invoicing can be a competitive advantage for SMEs
- The SMEs in this study consider the advantages of e-invoicing to outweigh the risks of an adoption
- SMEs subjected to this study have experienced pressure to adopt electronic invoicing from customers
- The result indicates that the technological resources of SMEs are generally sufficient for adopting and utilising an e-invoice solution
- It is also concluded that the innovativeness of the owner/manager affects adoption of e-invoicing in SMEs

7.1.2 How can Adoption of E-Invoicing in SMEs be Facilitated?

In order to facilitate adoption of electronic invoicing in SMEs, the SMEs subjected to this study propose a number of suggestions. The result from this study shows that the strategies described by Iacovou et al. (1995) for facilitating adoption of inter-organisational e-business systems cover the suggestions from the SMEs.

First of all, it can be concluded that financial support is considered positive for facilitating adoption of e-invoicing in SMEs. Two of the companies in this study did not need any financial support for adoption of e-invoicing, however, the companies considered financial support as positive. Secondly, technological assistance is also concluded to be important for SMEs. The SMEs need technological assistance to find and evaluate different e-invoicing solutions as well as assistance with implementation. Financial and technological assistance can be provided by e.g. large customers, municipalities and organisations for small businesses. In general, it can also be concluded that incentives, in the form of discounts or rewards, are considered positive. Furthermore, the result indicates that coercive methods used by the SMEs' customers facilitate adoption of e-invoicing and pressure the SMEs to adopt e-invoicing quickly. However, the customer has to be important for the company in order to make the investment worthwhile.

7.1.3 Final Conclusions

The purpose of this thesis was to gain a better understanding of the adoption of electronic invoicing in SMEs. In retrospect to this purpose, it can be concluded that there are several factors that affect adoption of e-invoicing in SMEs. In general, the result from the study indicated that SMEs are experiencing pressure to adopt e-invoicing from their customers. The SMEs also perceive that adoption of e-invoicing can be beneficial, and lead to increased internal efficiency as well as impact on business processes and relationships. Technologically, the SMEs are ready for an adoption of e-invoicing and in general the SMEs subjected to the study have enough financial resources to adopt e-invoicing. Furthermore, this study concluded that technological and financial assistance and coercive methods are important strategies to facilitate the adoption of e-invoicing in SMEs.

7.2 Implications

In the following sections implications for management and theory are presented, as well as suggestions for future research.

7.2.1 Implications for Management

This study has shown that characteristics of the owner/manager, such as innovativeness, are of great importance for the adoption of e-invoicing in SMEs. For owners/managers of SMEs it is therefore important to be aware of their impact and influence on their company's adoption of e-invoicing.

Further this study concluded how the adoption of e-invoicing in SMEs can be facilitated. In order to increase the financial and technological readiness of the SME, a suggestion is for the SME to seek financial and technological assistance for the adoption of e-invoicing. Help to find and select the most suitable e-invoicing solution, as well as help with the implementation. Assistance could be provided from different companies and organisations e.g. municipalities, organisations for small business development, IT consultants and large customers.

That pressure from customers makes SMEs consider an adoption of e-invoicing, has been discussed in this study. It is important that the SMEs perceive the benefits of e-invoicing and is ready for an adoption, otherwise the company will probably do just enough to meet their customer's needs and the adoption of e-invoicing will not be as beneficial as possible. The focus is not supposed to be on the e-invoicing technique, rather on what benefits an adoption of electronic invoicing can bring to the organisation, in terms of increased efficiency and impact on business processes and relations. To adopt e-invoicing should not be seen as a goal in itself, rather as a means to achieve the perceived benefits of the adoption of e-invoicing.

7.2.2 Implications for Theory

As have been mentioned earlier, the findings of this thesis could not be generalised to all SMEs. However, this study has given some added validity to previous research regarding adoption of inter-organisational e-business systems like e-invoicing. The factors affecting adoption of EDI described by Iacovou et al. (1995) have in this study been found to be applicable to e-invoicing as well. The importance of owner/manager characteristics, which is discussed by Kuan and Chau (2001), has also been found to be an important factor for the adoption of e-invoicing. According to Iacovou et al. (1995), there are three strategies for facilitating adoption of EDI; financial and technological assistance, incentives and coercive methods. These strategies have also been found useful in this study in order to facilitate the adoption of e-invoicing in SMEs. It was concluded that the SMEs considered electronic invoicing a competitive advantage, which has not been explicitly expressed in the theory. Contrasting to the literature, the result from this study shows that the SMEs did not perceive a lot of risks with an adoption of e-invoicing. Moreover, the result indicates that most of the SMEs in the study are ready for an e-invoicing adoption, which is not in line with the resource poverty of SMEs described in the theory.

7.2.3 Suggestions for Future Research

This study has provided some insights into adoption of electronic invoicing in SMEs, however since adoption of e-invoicing is a new and emerging field, more research about adoption of e-invoicing is needed in order to provide further clarity to the topic. This study captured opinions before an introduction of e-invoicing. Further research could be conducted in order to see if there is any difference in opinion before and after an introduction of e-invoicing. It would also be interesting to conduct a quantitative study to find out if the results from this study could be applied to a larger number of SMEs. Furthermore, it would be interesting to focus on a specific part of the adoption process, e.g. the implementation of electronic invoicing.

References

Al-Qirim, N. A. Y.(Editor) (2003) *Electronic Commerce in Small to Medium-Sized Enterprises: Frameworks, Issues and Implications.* Hershey, PA: Idea Group Inc.

Amor, D. (2000). *The e-business revolution: living and working in an interconnected world.* Upper Saddle River: Prentice Hall

Ballantine, J., Levy, M. & Powel, P. (1998) Evaluating information systems in small and mediumsized enterprises: issues and evidence, *European Journal of Information Systems*, Vol. 7, Issue. 4, pp. 241-251

BD Fisk Annual Report (2004), retrieved from Affärsdata, Accessed 09/01/2006

BD Fisk Web Site, http://www.bdfisk.se/, Accessed 09/01/2006

Brundin, S. (2005) E-fakturering kan bli obligatorisk, *Computer Sweden*, Vol. 23, Issue 92, p. 4

Burgess, S. (Editor) (2002) *Managing Information Technology in Small Business: Challenges & Solutions*, Hershey, PA: Idea Group Publishing

Chen, J., & Williams, B. (1998). The impact of EDI on SMEs: Summary of eight British case studies. *Journal of Small Business Management*, Vol. 36, Issue 4, pp. 68-72

Chisnall, P. M. (1997). *Marketing Research* (5th ed.). Cambridge: University Press

Chwelos, P. Benbasat, A. & Dexter, A. (2001) Research report: empirical test of an EDI adoption model, *Information Systems Research*, Vol. 12, Issue 3, pp. 304-321

Cooke, J. (2005) Rätt stöd för e-fakturor, *Computer Sweden* (Specialbilaga, Tema Integration), Vol. 23, Issue 93, p. 12

Curran, J. & Blackburn, R. A. (2001) *Researching the Small Enterprise*, London: Sage Publications

Dykert, L. & Fredholm, P. (2004) Elektroniska fakturor – en rapport om elektronisk fakturahantering från GEA Retrieved 2005-10-05 from http://www.gea.nu/pdfer/einvoic/Elektroniska%20Fakturor%20.pdf

ESV, Förstudie om e-fakturering för statliga myndigheter http://www.esv.se/download/18.108ea49104651bee7d80001014/ESV%202005-21.pdf Accessed 05/12/2005

European Commission's 2005 SME Definition http://europa.eu.int/comm/enterprise/enterprise_policy/sme_definition/index_en.htm Accessed 01/11/2005

Fillis, I. Johannson, U. & Wagner, B. (2003) A conceptualisation of the opportunities and barriers to e-business development in the smaller firm, *Journal of Small Business and Enterprise Development*, Vol. 10, Issue 3, pp. 336-344

Fillis, I. Johannson, U. & Wagner, B. (2004) Factors impacting on e-business adoption and development in the smaller firm, *International Journal of Entrepreneurial Behaviour & Research*, Vol. 10, Issue 3, pp. 178-191

Fink, D. (1998) Guidelines for the Successful Adoption of Information Technology in Small and Medium Enterprises, *International Journal of Information Management*, Vol. 18, Issue 4, pp. 243-253

Fredholm, P. (2000), *Elektroniska affärer* (4th ed.), Lund: Studentlitteratur

Fredholm, P. (2002), *Elektroniska affärer* (5th ed.), Lund: Studentlitteratur

Fredholm, P. (2004), *99 koncept – för dig som vill använda IT för verksamhets- och affärsutveckling*, Lund: Studentlitteratur

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

Hansemark, O. C. (1998), The effects of an entrepreneurship programme on need for achievement and locus of control of reinforcement" *International Journal of Entrepreneurial Behaviour and Research*, Vol. 4, Issue 1, pp. 28-50

Iacovou, A. M., Benbasat, I. & Dexter, A. (1995) Electronic data interchange and small organizations: adoption and impact of technology, *MIS Quarterly*, Vol. 19, Issue 4, pp. 465-485

J. Petterssons Chark AB Annual Report (2004), Retrieved from Affärsdata, Accessed 09/01/2006

J. Petterssons Chark AB Web Site, http://www.petterssonschark.se/, Accessed 09/01/2006

Junghagen, S. (1998) *Strategiska förhållningssätt till informationsteknik i små företag*, Umeå, Umeå Universitet

Kuan, K. K. Y. & Chau, P. Y. K. (2001) A perception-based model for EDI adoption in small businesses using a technology-organization-environment framework, *Information & Management*, Vol. 38, Issue 8, pp. 507-521

MacGregor, R. C. (2004) Factors associated with formal networking in regional small business: some findings from a study of Swedish SMEs, *Journal of Small Business and Enterprise Development*, Vol. 11, Issue 1, pp. 60-74

Matlay, H. (2000) Training and the small firm, in S. Carter and D. Jones-Evans (eds.) *Enterprise and Small Business*, Harlow: Financial Times/Prentice Hall, pp. 323-336

Mehrtens, J., Cragg, P. B. & Mills, A. M. (2001) A model of Internet adoption by SMEs, *Information & Management*, Vol. 39, Issue 3, pp. 165-176

Miles, M. B., & Huberman, A. M. (1994). *Qualitative Data Analysis: An Expanded Sourcebook* (2nd ed.). Thousand Oaks, SAGE Publications

Morrell, M. & Ezingeard, J-N. (2002) Revisiting adoption factors, *Logistics Information Management*, Vol. 15, Issue 1, pp. 46-57

NKV Annual Report (2004), retrieved from Affärsdata, Accessed 03/01/2006

NKV Web Site, http://www.nkv.se/, Accessed 03/01/2006

NEA (Nätverket för Elektroniska Affärer) Web Site, http://www.gea.nu, Accessed 27/02/2006

Premkumar, G. & Roberts, M. (1999) Adoption of new information technologies in rural small businesses, Omega: The International Journal of Management Science, Vol. 27, Issue 4, pp. 467-484

Raymond, L. & Blili, S. (1997) Adopting EDI in a network enterprise: the case of subcontracting SMEs, *European Journal of Purchasing & Supply Management*. Vol. 3, Issue 3, pp.

Riemenschneider, C. K., Harrison, D. A. & Mykytyn Jr., P. P. (2003) Understanding it adoption decisions in small business: integrating current theories, *Information & Management*

Robinson, T. (2001). End the b2b paper chase. *Internet week*, Issue 881, pp. 33-34

Robson, C. (1993) *Real World Research: a Resource for Social Scientists and Practioner-Researchers*, Oxford: Blackwell

Saunders, M., Lewis, P. & Thornhill, A. (2000) Research Methods for Business Students (2nd ed.), Essex: Pearson Education

Stefansson, G. (2002) Business-to-business data sharing: A source for integration of supply chains, *International Journal of Production Economics*, Vol. 75, Issue 1-2, pp. 135-146

Taylor, M & Murphy, A. (2004) SMEs and e-business, *Journal of Small Business and Enterprise Development*, Vol. 11, Issue 3, pp. 280-289

Thong, J. Y. L. (1999). An integrated model of information systems adoption in small businesses, *Journal of Management Information Systems*, Vol. 15, Issue 4, pp.187-214

Thong, J. Y. L. & Yap, C. S. (1995) CEO Characteristics, Organizational Characteristics and Information Technology Adoption in Small Businesses, *Omega*, Vol. 23, Issue 4, pp. 429-442

Tornatzky, L. G. & Fleischer, M. (1990) *The Processes of Technological Innovation*, Lexington MA: Lexington Books

Watson, R. T., Berthon, P., Pitt, L. F., Zinnkhan, G. M. (2000), *Electronic Commerce the Strategic Perspective*, Orlando FL: The Dryden Press

Yin, R. K. (1994) *Case Study Research – Design and Methods* (2nd ed.), Thousand Oaks, CA: Sage Publications

Yin, R. K. (2003) *Case Study Research: Design and Methods* (3rd ed.). Thousand Oaks, CA: Sage Publications,

Zikmund, W. G. (2000) *Business Research Methods* (6th ed.), Fort Worth: Harcourt College Publishers

Interviews

Financial Manager, NKV Kontorsvaror AB, 060105
Managing Director, J. Petterssons Chark AB, 060111
Financial Manager, BD Fisk AB, 060111

Total interview time: 2 hours and 45 minutes

Appendix I

Interview Guide – English Version

Introductory questions about the company and the respondent

How many employees does your company have?

What is your position at the company?

What are your duties and areas of responsibility?

How long have you been working for the company?

How long have you been working at your current position?

Have your company considered adopting electronic invoicing?
If yes: Why?

Have your company evaluated different solutions for electronic invoicing?
If yes: How?

Is your company using electronic invoicing?
If yes: What type of e-invoicing solution and to what extent?

Questions regarding factors affecting adoption of e-invoicing:

Perceived benefits

Have you reflected whether electronic invoicing can result in any advantages for your company and in that case, what advantages?

By the following possible advantages that an adoption of electronic invoicing might result in, which ones do you consider important for your company, and in what way and why are they important?

- Cost savings
- Staff resources can be set free for other tasks
- Interest revenues and a reduced need for sending invoice remainders because the invoices are more often paid on time
- Reduced paper handling, which is beneficial for the environment
- The use of modern, rational and environmental friendly technique can be good in a public relations perspective
- Strengthening of customer relations
- Improved customer loyalty

Are there any additional advantages of e-invoicing that are important for your company?

Are any of the discussed advantages more important than others? Why?

Have you reflected whether electronic invoicing can result in any disadvantages or risks for your company, and in that case what disadvantages or risks?

By the following possible disadvantages and risks with an adoption of electronic invoicing, which ones do you consider important for your company and in what way and why are they important?

- Social aspects- some administrative staff members will be relocated or possibly out of work
- Technical obstacles
- Competence requirements
- Possible high investment and integration cost
- Security issues

Are there any additional disadvantages or risks of e-invoicing that are important for your company?

Are any of the discussed disadvantages and risks more important than others? Why?

On the basis of all the discussed advantages, disadvantages and risks, does your company perceive the advantages of electronic invoicing to outweigh the disadvantages/risks or vice versa? Motivate.

External pressure

Have your company experienced external pressure to adopt electronic invoicing? How?

Have your company experienced that customers have shown their interest in electronic invoicing?
If yes:
To what extent and in what way have they shown this?

Are any of your competitors capable of sending electronic invoices?
If yes:
In what way have this affected the actions of your company?
If no:
How do you think that your company would react if one of your competitors adopted e-invoicing?

Are there any additional environmental factors that have pressured your company to consider adopting e-invoicing?

Organisational readiness

Do you consider your company to be ready for an introduction/evaluation/usage of electronic invoicing? Why?

Would you consider your company to have enough financial resources for investing in e-invoicing and is this area prioritized?

Does your company have an IT department?

How is the IT usage and IT knowledge levels generally within your company?

To what extent are work processes done manually and to what extent are work processes computerised?

Is the owner/manager of your company knowledgeable about IT / interested in IT/ positive to IT usage?

Owner/manager characteristics

How would you describe the owner/manager of your company when it comes to introduction of technological innovations?

What attitude does the owner/manager has towards e-invoicing?

If you would describe how innovative or conservative the owner/manager is based on a scale, ranging from very conservative to very innovative, where on the scale would he/her end up?

After having discussed the different factors that affect adoption of electronic invoicing;

Have you come up with any additional factors?

Which factors do you consider to be important? Is one factor more important than the other? Motivate.

Questions regarding how adoption of e-invoicing can be facilitated:

What would make it easier for your company to adopt electronic invoicing?

Financial and Technological assistance

Does your company need financial support to be able to adopt and implement e-invoicing? If yes: What kind of financial support would you prefer?

Does your company need technological assistance (i.e. information, training) to be able to adopt and implement e-invoicing? If yes: What kind of technological assistance would you need?

Incentives

Would discounts or rewards increase your company’s interest in e-invoicing?

Coercive strategies

Would your company consider adopting e-invoicing if a customer requested that?

Would your company consider adopting e-invoicing if a customer threatened to change supplier?

Have you come up with additional ideas that would make it easier for your company to adopt electronic invoicing?

Final Questions:

Do you have any additional questions or anything you want to add to this interview?

If necessary, would you consider answering additional questions by phone or email?

Appendix II

Intervju Guide – Svensk Version

Inledande frågor om företaget och respondenten:

Hur många anställda har företaget?

Vilken är din position inom företaget?

Vilka är dina arbetsområden och arbetsuppgifter?

Hur länge har du varit anställd inom företaget?

Hur länge har du arbetat på din nuvarande position?

Har ni funderat på att introducera elektronisk fakturering?
Om ja: Varför?

Har ni utvärderat olika lösningar för elektronisk fakturering?
Om ja: Hur?

Använder ni elektronisk fakturering?
Om ja: Sedan när? Vilken typ av elektronisk faktureringslösning? I vilken utsträckning?

Frågor gällande faktorer som påverkar adoption av elektronisk fakturering:

Upplevd nytta

Har ni reflekterat över huruvida elektronisk fakturering kan medföra några fördelar för ert företag och i så fall vilka?

Av följande tänkbara fördelar som en introduktion av elektronisk fakturering möjligtvis kan medföra, vilka anser ni vara viktiga för ert företag och på vilket sätt och varför är de viktiga i så fall?

- Kostnadsbesparingar
- Att resurser kan frigöras för andra uppgifter
- Ränteintäkter och minskat behov för påminnelsefakturor eftersom räkningarna oftare betalas i tid
- Minskad pappershantering, vilket är bra för miljön
- Användning av modern och miljövänlig teknik kan vara bra ur ett PR perspektiv
- Förbättrade kundrelationer
- Ökad kundlojalitet

Kan du komma på några ytterligare fördelar som känns viktiga för ert företag?

Av alla fördelar som diskuterats är det någon eller några fördelar som känns allra viktigast (och varför)?

Har ni reflekterat över huruvida elektronisk fakturering kan medföra några nackdelar eller risker för ert företag och i så fall vilka nackdelar eller risker?

Av följande tänkbara nackdelar eller risker som en introduktion av elektronisk fakturering möjligtvis kan medföra, vilka anser ni vara viktiga för ert företag och på vilket sätt och varför är de viktiga i så fall?

- Sociala aspekter, viss administrativ personal tvingas byta arbetsuppgifter eller möjligtvis bli av med sitt jobb
- Tekniska hinder
- Krav på kompetens
- Möjlig hög investerings och integrationskostnad
- Säkerhetsaspekter

Kan du komma på några ytterligare nackdelar/risker som känns viktiga för ert företag?

Av alla nackdelar och risker som diskuterats är det någon eller några nackdelar eller risker som känns allra viktigast (och varför)?

Utifrån alla diskuterade fördelar och nackdelar/risker, vad anser du totalt sett väger tyngst, för- eller nackdelar? Motivera varför.

Externa påtryckningar

Har företaget upplevt tryck från omgivningen på att introducera elektronisk fakturering? Hur?

Har ditt företag upplevt att era kunder visat intresse för elektronisk fakturering?
Om ja: I vilken utsträckning och på vilket sätt har de visat detta?

Känner ni till om någon av era konkurrenter har infört elektronisk fakturering?
Om ja:
Hur har det påverkat ert företags agerande?
Om nej:
Hur skulle ditt företag agera om någon av era konkurrenter införde elektroniska fakturor?

Är det ytterligare något i omgivningen som du kan komma på som har gjort er uppmärksamma på elektronisk fakturering?

Organisatorisk beredskap

Anser du att företaget är redo för en introduktion/utvärdering/användning av elektronisk fakturering? Varför?

Anser du att företaget har tillräckligt ekonomiskt investeringsutrymme för att investera i en elektronisk faktureringslösning och är detta ett prioriterat område?

Har ditt företag någon IT avdelning?

Hur ser IT användningen och IT kunskaperna ut generellt i företaget?

Hur stor del av arbetsprocesserna inom företaget sker manuellt och hur stor del är datoriserat?

Är ditt företags ägare/VD kunnig vad gäller IT/ intresserad av IT/ positiv till IT användning?

Karakteristika hos ägare/VD

Hur skulle du beskriva företagets ägare/VD när det gäller introduktion av nya tekniska lösningar?

Vad är företagets ägare/VD inställning till elektronisk fakturering?

Om du skulle beskriva hur innovativ eller konservativ företagets ägare/VD är på en skala från mycket konservativ till mycket innovativ, var hamnar han/hon då på skalan?

Efter denna diskussion kring olika faktorer som påverkar adoption av elektronisk fakturering;

Kan du komma på ytterligare faktorer som påverkar ert företag?

Vilka faktorer är viktiga för ert företag? Är det någon faktor som är allra viktigast? Motivera varför.

Frågor gällande hur adoption av elektronisk fakturering kan underlättas:

Vad skulle kunna göra det lättare för ditt företag att introducera elektronisk fakturering?

Finansiell och teknologisk hjälp

Behöver ditt företag ekonomiskt stöd för att kunna genomföra en introduktion av en ny elektronisk faktureringslösning samt efterföljande kostnader? Om ja: Vilken typ av ekonomiskt stöd skulle ni föredra?

Behöver ditt företag teknologisk hjälp (till exempel information och utbildning) för att kunna introducera elektronisk fakturering?
Om ja: Vilken typ av teknologisk hjälp skulle ni behöva?

Incitament

Skulle rabatter eller premier öka företagets intresse för elektronisk fakturering?

Tvingande strategier

Skulle ditt företag överväga att introducera elektronisk fakturering om någon kund starkt efterfrågade denna möjlighet?

Skulle ditt företag överväga att introducera elektronisk fakturering om någon kund hotade med att söka en annan leverantör?

Kan du komma på ytterligare något som skulle underlätta för ert företag att introducera (eller öka användningen av) elektronisk fakturering?

Avslutande frågor:

Har du någon ytterligare fråga eller något att tillägga?

Vid behov, skulle du ha möjlighet att svara på ytterligare frågor via telefon eller e-post?