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# Electronic invoicing in the VAT reporting process of small and medium size companies in Finland

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<p>Organizations in both the private and public sectors strive to improve their organizational processes by utilizing information and communication technologies (ICTs). In the business to business (B2B) sector the sharing of information and data in real time has proven to be an essential strategy for improving business processes and facilitating activities along different businesses' value chains. Despite the availability of technological resources and frameworks for integrating information amongst organizations, few governments and businesses integrate information sharing platforms on a business to government (B2G). A process such as reporting value added tax (VAT) requires interaction and sharing of information amongst businesses and governments.</p> <p>The scope of this research is two-fold, first, to depict the processes and activities of VAT reporting including all organizations involved in the process; second, to analyze the impacts of electronic invoicing in the VAT reporting process for three SMEs operating in Finland. Both goals of the research were achieved by collecting qualitative data through questionnaires, interviews and secondary data with two accounting companies, two operators, three SMEs and one e-mail interview with the Finnish Tax Administration.</p> <p>The results for the first research question are illustrated in a process map which shows the interaction of the firms involved in a VAT reporting process. Findings of the impact of e-invoice on the case companies illustrate that two case companies in the construction and manufacturing industries prefer not to utilize e-invoice because of its high costs for establishing an operator address. Additionally the most recognized burden for all the case companies when reporting VAT is the gathering and archiving of receipts for VAT reporting purposes.</p>	
Keywords	VAT, e-invoice, SCF, IS, SCM, e-VAT, process automation, B2B, B2G, e-receipts.

## Contents

1	Introduction	1
1.1	Real Time Economy Program	1
1.2	Targets and Scope of thesis	2
1.3	Methodology	3
2	Invoicing and VAT reporting	4
2.1	VAT	4
2.2	VAT reporting	6
2.3	Invoicing Process	7
2.4	Invoicing Standards	10
2.5	EDI vs E-invoicing	11
3	Supply chain finance (SCF)	14
3.1	Supply Chain Finance	14
3.2	Interorganizational processes	17
3.2.1	IT capability	18
3.2.2	Process management	19
3.2.3	Productivity paradox and IS success	20
4	Data collection and methodology	23
4.1	Data collection	23
4.2	Qualitative Data analysis	26
4.3	Reliability and validity of data	27
5	Discussion and Results	29
5.1	Background research results	29
5.2	Case companies results	34
5.2.1	IT Capability Results	36
5.2.2	Process managing capability results	38
5.2.3	Performance	40
6	Conclusions	42
6.1	Limitations and suggestions	43
7	References	44

## Appendices

Appendix 1 Case company interview questions

Appendix 2 Vero Interview questions

Appendix 3 Accounting companies' interview questions

Appendix 4 Operators' interview questions

List of tables and figures

Figure 1. VAT reporting process adapted from VERO 2014.....	5
Figure 2 Typical trade process. Source: EBA and Innopay (2010) .....	8
Figure 3 Distribution of physical invoices. Source: EBA & Innopay (2010) .....	9
Figure 4 Invoicing cycle adapted from EBA & Innopay (2010).....	10
Figure 5 IOS Migration: From Proprietary Standard to Open Standard. Source: Zhu & Xu (2006).....	11
Figure 6 Sending invoices in a micro company. Source: Penttinen (2008).....	13
Figure 7 SCF process flow. Source: ACCA (2014).....	15
Figure 8 Supply Chain Finance Ecosystem. Source: EBA (2014) .....	16
Figure 9 IT infrastructure integration for SCM framework. Source: Rai et al. (2006)....	17
Figure 10 Research model of the thesis adapted from Rai et al. (2006).....	18
Figure 11 Information management and firm performance. Mithas et al. (2011) .....	19
Figure 12 Information processing theory. Source: Prekumar et al. (2005).....	20
Figure 13 DeLone's and McLean's original success model. Source: Petter and McLean (2009).....	21
Figure 14 "IS business value". Source: Cronck and Fritzelgard (1999) .....	22
Figure 15 Interpretive case research roadmap adapted from Eisenhardt, 1989. Source: Tesch 1990.....	24
Figure 16 VAT reporting process view results. Adapted from EBA 2014.....	33
Table 1 Rates of VAT. Source: VERO 2015.....	5
Table 2 EDI vs open-standard IOL. Source: Penttinen (2010).....	12
Table 3 Background of the research interviewees.....	23
Table 4 Background information for Case companies .....	25
Table 5 Criteria for validating qualitative data. Source: Bhattacharjee (2012) .....	27
Table 6 Background Research interview details .....	29
Table 7 Case companies' profiles .....	35

Table 8. Constructs and questions on the impact of e-invoice on the VAT reporting process.....	36
Table 9. IT capabilities results for Case companies 1-3 .....	37
Table 10 Process management capabilities for case companies 1-3 .....	38

## List of Definitions

ICTs: Information communication technologies

B2B: Business to business

B2G: Business to government

VAT: Value Added Tax. Tax that is imposed by tax authorities with every transaction in the B2B and B2C market. Registration and administration of this tax is subject to legislation and regulations from the tax authorities in question

E-invoice: An electronic invoice is a document in electronic form representing an invoice. The electronic invoice can be in a human or in machine readable format, or in a combination thereof.

Electronic Data Interchange (EDI): An electronic transfer of data from computer to computer using an agreed structured format that can be read by a computer and processed automatically.

ERP: Enterprise Resource Planning Systems that contain many of the tools and software to create account for and manage invoices as part of wider corporate processes.

AS: Accounting software

Invoice: The invoice is a document or a data set formally specifying details of a (or part of a) trade and all settlement related information for the (or part of the) trade, explicitly and separately stating the applicable tax.

IOS: Inter-organizational systems

ISO: International Organization for Standardization. A non-governmental organization responsible for international standardization and normalization, consisting of representatives from national normalization institutes.

XML: Extended Mark-up Language. Standard for structuring content. XML is a mark-up language, which means that the content elements are defined by labels, making them recognizable to any application familiar with the labels in question. Agreements about a specific set of labels lead to specific versions of XML

Supply Chain Finance (SCF) Combination of open account and trade financing products, services and technology applications that provide for the financing of receivables, payables and inventory based on the occurrence of multiple supply chain events and typically implemented on a collaborative basis

Supply Chain Integration: The activity of integrating processes that take place along a supply chain, both within and between entities.

IT capability: Information management capability is the ability to provide data and information to users with the appropriate levels of accuracy, timeliness, reliability, security, and confidentiality

Information processing theory: Information processing theory (IPT), identifies three important concepts: information processing needs, information processing capability, and the fit between the two to obtain optimal performance

Productivity paradox: Productivity paradox of -information technology refers to the early literature seeking a correlation between productivity and IT

## 1 Introduction

Invoices play a vital role in the VAT system since they serve as evidence which the purchaser can present in order to deduct the charged VAT. In compliance with the Recital 10 of Directive 2010/45/EU (2011)...

“Invoices must reflect actual supplies and their authenticity, integrity and legibility should therefore be ensured. Business controls can be used to establish reliable audit trails linking invoices and supplies, thereby ensuring that any invoice (whether on paper or in electronic form) complies with those requirements”.

E-invoicing has been recognized as one of the most important sources of increasing productivity in Europe (EC 2007). According to the European Association of Corporate Treasurers (EACT), the benefits of moving from paper invoice to electronic invoicing have resulted in costs reductions totaling 243 billion Euros in the supply chain expenditures across Europe. The Finnish State Treasury and some Finnish companies have estimated that an incoming paper invoice incurs costs amounting to thirty to fifty Euros to the receiver company. By moving to electronic invoicing, these costs can be lowered to 10 Euros by semi-automating the invoice process and to 1 Euro by fully automating the process (Penttinen 2008). Additionally there are considerable environmental effects as the movements towards a paperless invoicing process would save over 14 million trees in the EU alone (Tenhunen and Penttinen 2010)

On January 2009 the European commission adopted a proposal to change its VAT Directive (2006/112/EC) in regards to the invoicing rules with an aim to reduce burdens on businesses, support small and medium sized enterprises (SMEs), help Member States to tackle fraud and promote technological developments in the field of electronic invoicing (e-invoicing). The recent changes in legislation that permitted e-invoicing in Member States in which e-invoicing was previously prohibited, have simplified cross-border invoices for enterprises established in different EU Member States. As a result, series of studies and projects in European countries have been initiated to analyze the current legislation in all member states and to provide recommendations for a more harmonized and modern set of VAT invoicing rules (EU Commission 2015).

### 1.1 Real Time Economy Program

In Finland the Real-Time Economy Program (RTE) has been developed to create different projects which aim to develop a rational and understandable electronic financial reporting infrastructure for all kinds of business reporting. The SME50 is a RTE project that aims at cutting administrative costs of enterprises by developing service models and concepts in the field of automation and digitalization of the financial value chains. The RTE program's goal is to encourage the digitalization of financial business processes in order to increase automation and enable real-time processes and services. This makes it possible to move towards automated accounting processes such as electronic archiving, electronic book-keeping, electronic reporting and electronic VAT reporting.

## 1.2 Targets and Scope of thesis

This research has two main targets: to illustrate the processes and activities of organizations involved in the VAT reporting process of SMEs in Finland, and secondly to identify the impact of e-invoicing on the VAT reporting process of three SMEs when reporting VAT in Finland.

The research consists of background research interviews with organizations involved in the VAT reporting value chain and an interpretive case study of how three SMEs operating in Finland are able to report value added taxes (VAT) to the Finnish Tax Administration (VERO). The background research interviews will be helpful in addressing the first goal of the research and the multi-case study will be conducted to address the second goal of this research.

The theoretical framework for this research emerged from three fields of literature: information systems science, supply chain finance and supply chain management. Given that the research aim is to map the VAT reporting process and identify the value of utilizing e-invoicing in VAT reporting the following research questions are provided:

1. What are the processes, activities, and organizations involved in the VAT reporting process in Finland?
2. What is the impact of electronic invoicing in the VAT reporting process for small and medium size companies in Finland?

### 1.3 Methodology

The research questions were analyzed through face-to-face interviews with two accounting companies, two operators and three case studies of SMEs operating in Finland. In addition one interview with Finnish Tax Administration is conducted through e-mail. The respondents and sites (case companies) for this research were selected based on the size of organization and the respondent's involvement in sending and receiving invoices as well as their participation in VAT reporting activities and process.

The first goal of this research was achieved by conducting face to face interviews with two accounting companies, two operators and one e-mail interview with the Finnish tax administration. This was done to collect background data that was useful to draw a value chain process map of reporting VAT in Finland. The second goal of the research was achieved by making analysis based on face-to-face interviews with the three case companies. Prior to the interviews the respondents were given the list of open-ended questions which were helpful in opening the discussion under investigation; electronic invoicing and its role in the VAT reporting process. The purpose of this was to be able to describe the case companies' perspective of e-invoicing in their VAT reporting process.

This thesis is structured in the following order. Chapter 2 explores the VAT reporting process and describes electronic invoicing in more detail. Chapter 3 presents the research framework which is utilized for the research. Chapter 4 presents the data collection and methodological approach used in this research. Answers to the research questions are addressed in chapter 5 by presenting the results and discussions of the collected data. Lastly chapter 6 presents the conclusions made, the limitations of the research and suggestions for future research on automation of financial processes in Finnish SMEs.

## 2 Invoicing and VAT reporting

This chapter will commence the literature review to describe invoicing and value added tax in more detail (VAT). First VAT and e-invoicing are defined from the perspective of the EU commission. Secondly, the parties involved in a VAT business transaction and their processes are described. Finally a comparison of the various processes involved in the reporting of VAT is depicted and described.

### 2.1 VAT

According to the European Union Council Directive (2006), VAT is

“A general tax on consumption applied to commercial activities involving the production and distribution of goods and the provision of services. The VAT Directive codifies the provisions governing the introduction of the common system of VAT in the European Union”.

VAT is charged every time a sale of goods or services occurs. However, VAT is designed to be paid by the consumer therefore the seller has the right to deduct the input VAT of his purchases of goods and services for business purposes, if another VAT registered business has supplied them to him. The VAT that is included in the actual consumer prices is only the VAT of the last seller in the supply chain (VERO 2014). In Finland firms which operate a business for which VAT is payable must register as VAT payers.

In Finland a company that is entered in the VAT register, will be expected to submit Periodic tax returns to report all VAT information for each taxable period. Additionally each company is expected to remit the amount of VAT payable to the tax authorities (VERO 2014). VAT reporting from a business perspective includes two steps: VAT reporting on sales, and VAT reporting on purchases. The reporting process can be done either monthly, quarterly or annually depending on the size of the business and on the regulations imposed by the tax authorities where a business operates. To report VAT companies must calculate the amount of payable VAT by subtracting the total input VAT on monthly purchases from the sum total of VAT that has been added to the prices of sold goods and services during the month. The VAT information must be included

on all sales and purchase invoices as proof that VAT has been paid by the buyer and can be claimed back from the tax authorities. Figure 1 represents a simple process view of how VAT is followed on the value chain of a product or service on a B2B transaction. The process repeats itself until it reaches the final consumer.

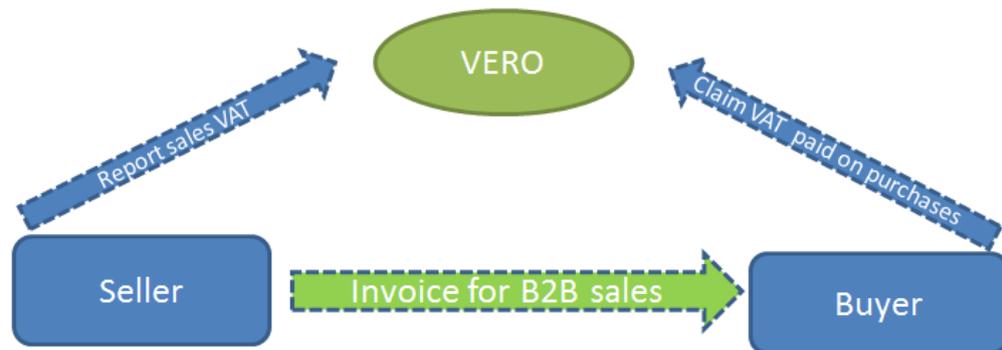


Figure 1. VAT reporting process adapted from VERO 2014

The Finnish Tax Administration (2014) requires that an invoice is in accordance with section 209 b of the Value-Added Tax Act which mandates that the invoice must include structured information including the price(s) exclusive of VAT per rate of VAT, displaying the unit price and any rebates, discounts and credits (if not included in the unit price), the rate of VAT chargeable, the VAT payable in respect of the supply of the goods or services and the VAT registration numbers of both the seller and the buyer. Table 1 shows the different VAT percentages that apply to different types of goods and services.

Table 1 Rates of VAT. Source: VERO 2015

Rates of VAT	
General rate of VAT, effective for most goods and services	24%
Food, animal feed, restaurant services, meal catering services	14%
Books, medicine, services relating to physical exercise and sports, movies, entrance to cultural events and to entertainment events, transport of passengers, accommodation, and TV licenses.	10%

To figure out the amount to add to the net price, the seller should multiply the tax base with the applicable rate. Tax base is the price payable by the buyer, in which no VAT is included.

Although figure 1 displays a simplistic approach to the VAT reporting process it provides ground for understanding how businesses rely heavily on the invoicing practices to undertake their bookkeeping and VAT reporting responsibilities. The process for submitting a VAT reporting statement of goods sold and goods purchased to the tax authorities can be done manually or electronically by each VAT registered company. This procedure requires that invoices for goods sold or purchased are processed on a monthly, quarterly or yearly basis (Respondent 1 2014). Two of the three case companies presented in this research outsource these activities to accounting and bookkeeping experts.

## 2.2 VAT reporting

The VAT reporting process for businesses includes various accounting activities (Respondent 1 2014). According to (Respondent 2, 2014) companies must report sales by the correct VAT percentage, and then report purchases as a total amount regardless of which percentage applies to the purchases. Companies must then report purchases within EU and separate those between service and product purchases. If the company has a large volume of either goods or services purchased then it must submit a detailed report based on those purchases. However, if it is a small amount of transactions it is sufficient to do the totals on a monthly report. Once the VAT reports have been submitted to the tax authorities companies receive either a payable or refundable amount of VAT.

Some businesses in Finland choose to outsource these accounting activities and processes to accounting firms in order to maximize their core competences. VAT can be filed for companies by their accounting partners as long as consent is authorized and the company is a registered VAT payer (Respondent 3 2014). When companies decide to outsource their accounting activities such as VAT reporting to third parties, it is necessary that invoicing information for sales and purchases is transparently shared between the business and its accounting partner/s. Exchanging sales and purchasing invoices can be done in a few ways (Respondent 2, 2013):

1. Invoices can be mailed to the recipient through physical mail
2. Invoices can be physically delivered personally
3. Invoices can be scanned and shared through electronic mail

4. Invoices can be shared on a data base (accounting software) to which both the firm and the firm's accounting partners have access to

While there are various ways of exchanging information between firms and their accounting partners the processing of invoices is a time-consuming task that involves decoding information on invoices.

Whether a firm outsources its accounting duties or not the correct information on an invoice must be archived then decoded and reported to the tax authorities through a hard copy form or electronic form (Respondent 1). Archiving this information is an important task for accountants and firms as they must access this information at the time when they must report VAT to the tax authorities. E-invoice makes it easier for an auditor or tax auditor to read and access those invoices that are in electronic form because the information is much more standardize and is easy to find (Respondent 2 and Respondent 3, 2014).

Chapter 2.3 explains the processes involved in the invoicing cycle and types of invoicing in more detail.

### 2.3 Invoicing Process

The invoicing process has been part of a wider set of business processes including the placing and acceptance of an order fulfilment, delivery and payment (EBA & Innopay 2010). Sagner and Lubas (2001) refer to these processes as the "invoicing cycle" since invoicing requires the assembling of data which is handled within the operational, financial and legal activities of trading firms. An invoice is traditionally a commercial document used by buyers and sellers of goods and services and is typically generated after a sales and contracting process has been completed thus typically leads to a series of physical and financial supply chain activities. Figure 2 illustrates a simple overview of the trade process which involves the invoicing intertwined supply chain activities.

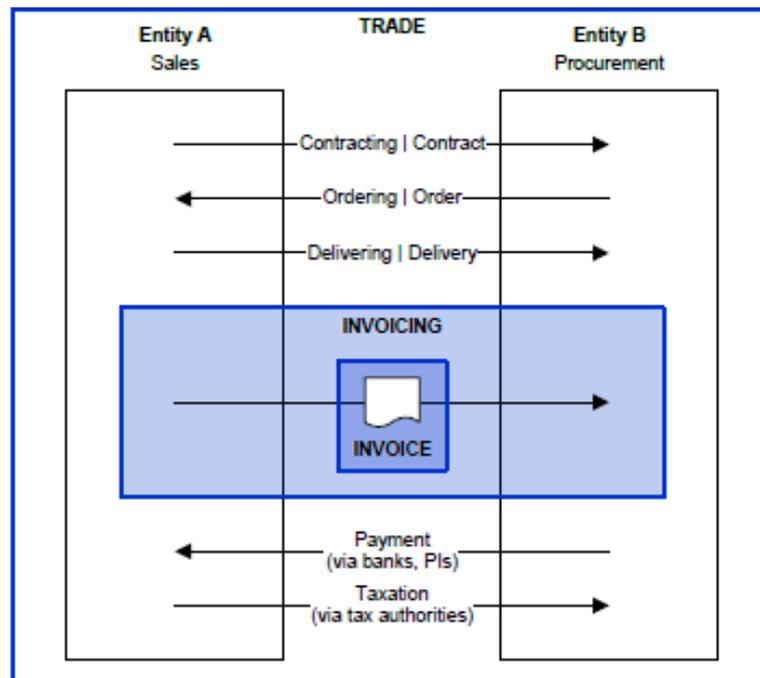


Figure 2 Typical trade process. Source: EBA and Innopay (2010)

The physical supply chain activities involve order process, fulfilment and delivery while the financial value chain activities involve trade enablement and trade settlement, the latter includes the exchange of invoicing (EBA & Innopay 2010). This illustration of the invoicing process presents a simplistic example to the related physical and financial value chain processes that occur when firms perform trade. Although figure 2 maps out a simplistic approach to the processes involved in the invoicing cycle, it illustrates how invoicing leads to the exchange of information on a B2B and B2G level. According to EBA and Innopay (2010), invoicing has grown through custom and practice over time but it has traditionally been imposed with a number of legal requirements, the most significant in Europe being related to VAT.

Businesses based in the EU pay VAT at each stage of the production process, up to and including the sale to the final consumer, that VAT is chargeable on most of those sales and purchases except on exports outside the EU (VERO 2014). Because VAT is added to the price of the goods or services that are traded in the invoice, the invoices play a vital role in the VAT system since they serve as evidence which the purchaser can present in order to deduct the charged VAT. The necessity to exchange information in an inter-organizational level through invoicing means that the invoice must contain structured data in order to facilitate the processes involved in the invoicing cy-

cle and in the VAT reporting process. The Finnish Tax Administration (2014) requires that an invoice is in accordance with section 209 b of the Value-Added Tax Act which must set out the following particulars:

- The date of issue of the invoice,
- a sequential number, based on one or more series, which uniquely identifies the invoice,
- the VAT number (Business ID) of the seller
- the buyer's VAT number when reverse charge is applied, and in the case of intra-Community trade,
- full names and addresses of Seller and Buyer,
- quantity and nature of goods supplied or the extent and nature of the services
- the date on which the goods or services were supplied or the date on which a prepayment on account was made,
- the price(s) exclusive of VAT per rate of VAT, displaying the unit price and any rebates, discounts and credits (if not included in the unit price),
- the rate of VAT chargeable,
- the VAT payable in respect of the supply of the goods or services,
- indications of any VAT exemption or reverse charge

The trading of invoices between the organizations involved in the invoicing cycle can occur in various ways. Figure 3 displays the most common ways for paper invoice exchange.

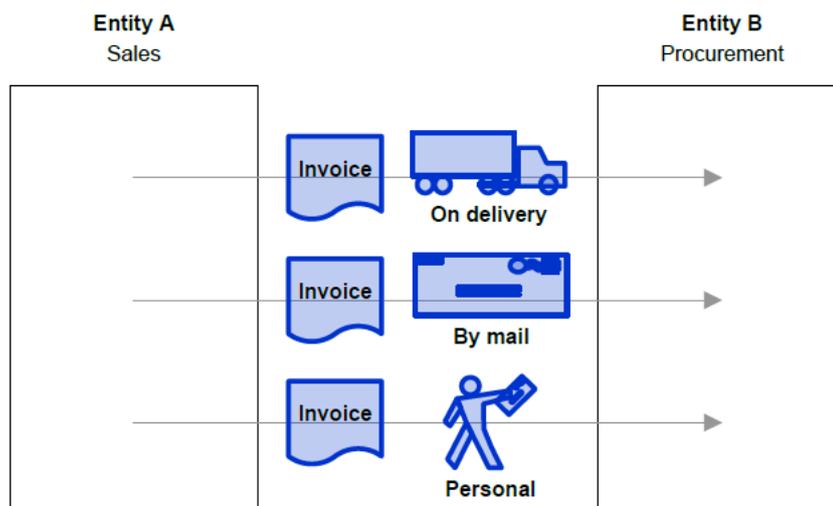


Figure 3 Distribution of physical invoices. Source: EBA & Innopay (2010)

Figure 3 illustrates that paper invoicing is a logistical operation based on the capabilities of the postal system and courier services. These operations result in timely and costly processes which organizations undertake in order to assemble data when sending an invoice and to decode the data when receiving an invoice. A typical invoicing cycle is depicted in figure 4.

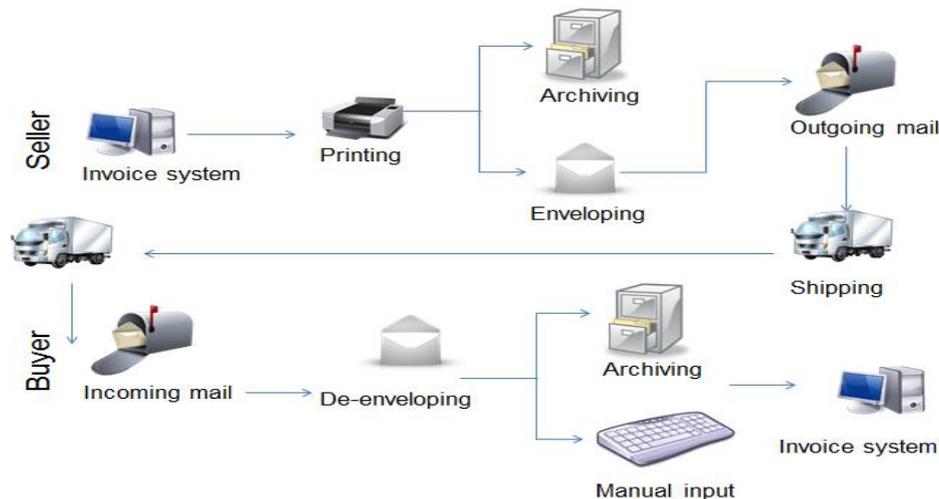


Figure 4 Invoicing cycle adapted from EBA & Innopay (2010)

The exchange of invoices between organizations has evolved and available technologies have influenced the way organizations exchange invoices. Regardless of the method of invoice arrival (e.g. e-mail, fax, electronic invoice etc.), the electronic accounting reference is used in the processing of incoming invoices (Penttinen 2010).

## 2.4 Invoicing Standards

Inter-organizational systems (IOS) are built on standards with relatively different degrees of openness (Zhu & Xu 2006). According to Johnston and Vitale (1988), an IOS can bring significant competitive advantages including lower costs, tighter links to customers, and increased differentiation. A typical IOS consists of three parts: content platform, delivery platform, and trading partner base. Figure 5 illustrates examples of IOS (Analytical Systems Automated Purchasing, Electronic Data Interchange and Internet based IOS) and their characteristics.

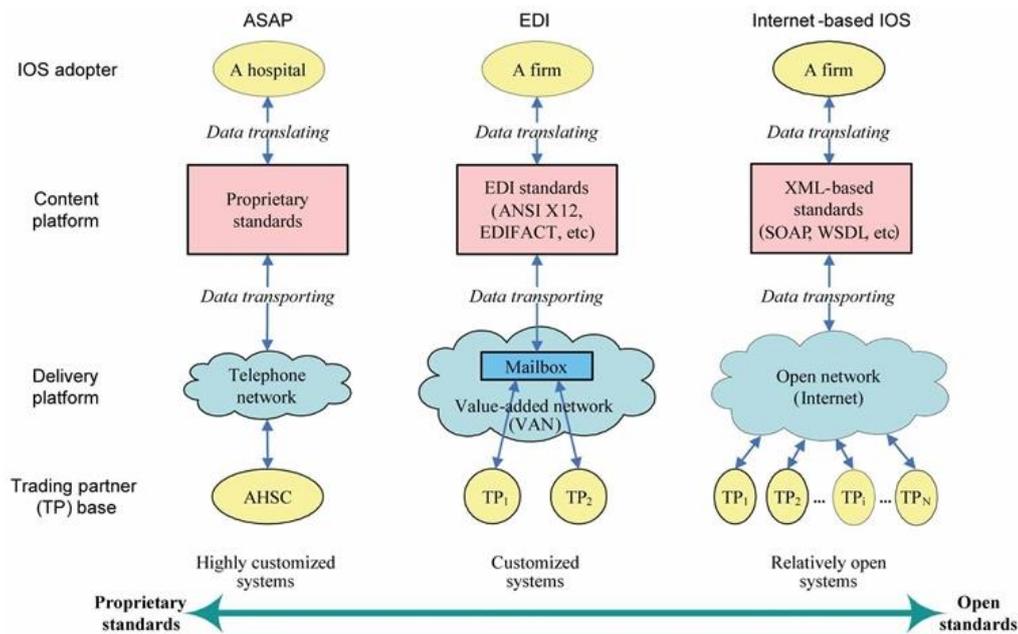


Figure 5 IOS Migration: From Proprietary Standard to Open Standard. Source: Zhu & Xu (2006)

As illustrated in figure 5, IOS vary in degree of openness which derives from the standards on which the IOS is built on (Zhu & Xu 2006). Zhu & Xu define IOS standards as a set of technical specifications that are agreed upon and used by IOS developers to describe data formats and communication protocols, which enable computer-to-computer communications. Johnston and Vitale argue that IOS are the best known and most successful examples of information systems since they link a company to its suppliers, distributors, and/or customers enabling them to move information across organizational boundaries.

## 2.5 EDI vs E-invoicing

Invoice data has been electronically exchanged between organizations through inter-organizational systems (IOS) such as electronic data interchange (EDI) since the 1970s (Penttinen 2010). EDI has proven to significantly reduce costs in communications and facilitate collaboration with trading organizations (Murray 2012, Hacki and Lighton 2001). EDI is a standard format for exchanging data and is used throughout business to move data from one company to another and enabling standard documents such as purchase orders, shipping notices and invoices to be exchanged electronically between trading partners (Murray 2012). IOS standards have played a significant role in the adoption and diffusion of IT in organizations. More recently the development of open standards such as the Transmission Control Protocol (TCP/IP) and

eXtensible Markup Language (XML) has popularized internet-based systems such as e-invoice for inter-firm coordination (Zhu et al. 2006). Zhu et al. refer to open-standards as a type of IOS that uses, XML-based data standards and TCP/IP as the communication protocol and that is built upon a public, open network (i.e., the internet). This definition of open-standards is useful in order to differentiate the types of IOS utilized as a form of inter-organizational coordination (i.e., exchanging of invoices). Recent technology has enabled companies to move from the EDI-based, highly partner-specific, point-to-point IOS to the open-standard, less partner-specific network models using XML (Zhu et al. 2006). Table 2 shows the differences between EDI and open-standard IOS.

Table 2 EDI vs open-standard IOL. Source: Penttinen (2010)

EDI vs Open –standard IOL		
	EDI	Internet-based IOL
Data Standards	Open Standards (e.g. ANSI X12, EDIFACT), but less open than XML	Open standards (XML-based standards, ebXML)
Complexity	High	Low
Customization	Highly partner-specific	Less partner-specific
Communication protocols	VAN (private)	Internet (open, TCP/IP based)
Interoperability	Low	High
Communication costs	High	Low
Scope	Relatively narrow, with existing partners	Broad with existing and new partners, hence strong network effects

As illustrated in table 2 EDI invoicing differs significantly from e-invoicing. The EU VAT Directive (2010) defines e-invoicing as an invoice that contains the information required in the most current EU VAT Directive, and which has been issued and received in any electronic format. The definition of e-invoicing by the EU conflicts with the technical difference outlined by Zhu et al. (2006). Penttinen (2008) examined the process of sending and receiving invoices in paper format vs electronic format in order to roughly estimate how much time and money is spent by the entrepreneur in handling paper invoices vs electronic invoices. The results are illustrated in figure 6.

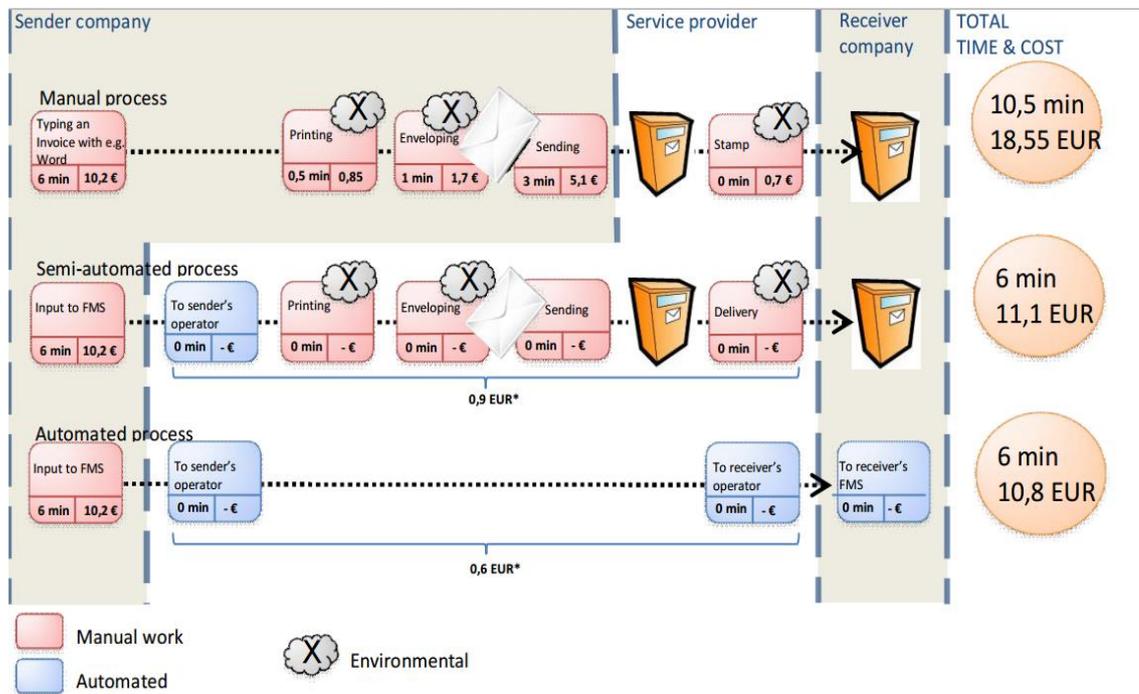


Figure 6 Sending invoices in a micro company. Source: Penttinen (2008)

Figure 6 was useful when building the hypothesis on the impact of e-invoice during the VAT reporting process. Figure 6 explains how e-invoice can significantly reduce the time and costs spent on sending a paper invoice versus sending an e-invoice in a micro company. However it does not take into consideration the utilization of ICTs in the invoicing process of SMEs. The three case company studies presented in Chapter 5 will discuss the use of ICT's in the invoicing practices of the three companies used for this research.

### 3 Supply chain finance (SCF)

This chapter presents the theoretical framework and research model developed for this research. The model is influenced by literature and theories of Supply Chain Finance (SCF), Supply chain Management (SCM), Quality management, information processing theory, productivity paradox theory and Information systems (IS) business value literature. Additionally the components of the research model and justifications for adapting the model to suit this research are presented.

Reporting VAT is a financial process that involves information flows and financial flow between businesses and tax authorities. To achieve the first goal this chapter analyses the relatively new literature of SCF and presents a model that could be used to map a process view of the organizations involved in the VAT reporting process. In order to identifying the value of utilizing e-invoicing when reporting VAT, it is important to consider supply chain management (SCM) and information system (IS) models and theories that can determine the benefits behind the usage of such technology in business processes.

#### 3.1 Supply Chain Finance

The automation of businesses supply chains has been enabled by an ever increasing deployment of IT-based solutions available for SCM. Innovations such as bar codes, cross docking and just in time delivery have impacted businesses supply chains (Wuttke et al. 2013). While SCM automation has been traditionally limited to managing physical inventory and information flows, the emergence of Supply Chain Finance (SCF) has raised interest in the third logistical flow of supply chains; the financial flow of supply chains (Wuttke et al. 2013). SCF emerged as a necessity to harmonize financial and physical supply chain flows in Europe (Aberdeen Group 2007). According to Protopappa-Sieke and Seifert (2010) SCF provides a pathway for short-term liquidity and a reduction for the long-term financial burden in businesses' supply chains. SCF is defined by the Association of Chartered Certified Accountants (ACCA) as

“The use of financial instruments, practices and technologies to optimize the management of the working capital and liquidity tied up in supply chain processes for collaborating business partners. SCF is largely ‘event-driven’. Each intervention (finance, risk mitigation or payment) in the financial supply chain is driven by an event in the physical supply chain. The development of advanced technol-

ogies to track and control events in the physical supply chain creates opportunities to automate the initiation of SCF interventions” (ACCA 2014).

The increasing use of IT based business tools for automating SCM processes on a B2B network can be utilized as a framework for the automation of SCF offerings. According to the Euro Banking Association the ability to shorten the invoicing cycle times in a B2B transaction is a key aspect to the concept of SCF and it is considered that e-invoicing is the game changing tool that is capable of being an enabler for the concept of SCF (EBA 2014). Although SCF is a concept centered on shortening invoicing cycles and tackling the credit and liquidity constraints of SMEs it can be utilized as a concept for understanding the importance of automating the invoicing intertwined activities which were described in figure 1 of this research. Figure 7 explains a simple approach to the concept of SCF process flow.

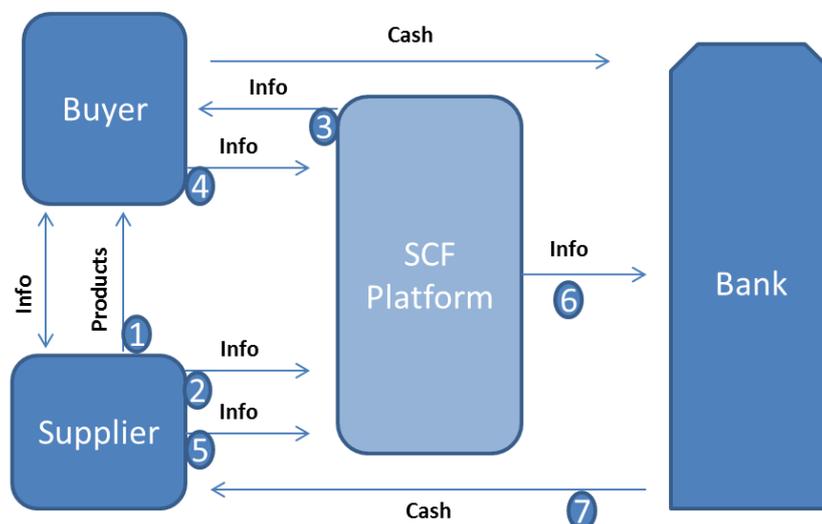


Figure 7 SCF process flow. Source: ACCA (2014)

1. The SCF process flow demonstrates the B2B transaction activities of SCF enabled firms: the invoice for the transaction is submitted to the buyer by the supplier
2. The buyer receives and archives the invoice
3. Electronic communication between the supplier and buyer is supported by the platform. As soon as the buyer has approved the invoice/account payable, the approval is communicated via the SCF platform
4. The buyer allows the supplier to see the payment transaction. It is the up to the supplier either to wait until the payment term expires and the buyer pays the invoice, or to request finance from the bank

5. The bank receives this request via the SCF platform
6. Bank pays the supplier for the invoices, withholding the agreed discount
7. When the agreed payment term expires, the buyer makes a payment to the bank, after which all obligations have been met.

EBA (2014) provide a more complex approach and view of SCF platforms and describe it as a potential ecosystem that could evolve as link between all key intermediaries of the SCF ecosystem. In theory the SCF ecosystem proposed by EBA (2014) could provide financial intermediation services for process management and multi-level transparency and reporting. The SCF ecosystem concept is illustrated in figure 8 and is adapted from EBA (2014).

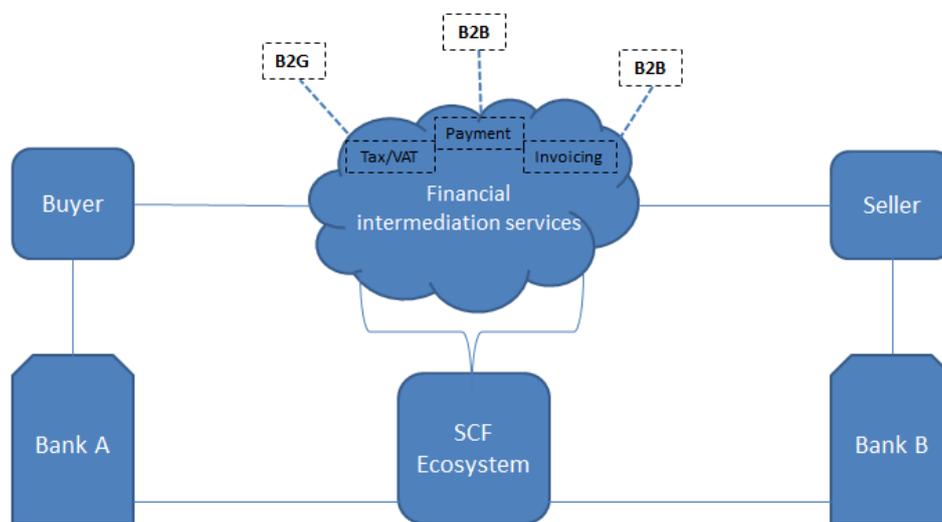


Figure 8 Supply Chain Finance Ecosystem. Source: EBA (2014)

While the process flow demonstrated by the ACCA provides a process view for understanding the activities and parties involved in the exchange of invoices and financial information, it does not take into consideration that the invoicing cycle also involves a taxation process. The SCF ecosystem is composed of other intermediaries that are essential in all processes of the invoicing cycle including a taxation process. Figure 8 is more suitable for understanding the activities of all parties involved in the VAT reporting process.

This research will utilize the SCF ecosystem model to address its first goal by examining the activities and intermediaries involved in the SCF ecosystem suggested by EBA (2014). Specifically, the aim is to concentrate on the VAT reporting process within the

concept of SCF. Chapter 3.2 concentrates on addressing the second goal of the research which is to analyze the impact of e-invoicing in the VAT reporting process.

### 3.2 Interorganizational processes

The research model for the second research question is built from the IT infrastructure for SCM framework presented by Rai et al. (2006) and it attempts to capture and measure the value of e-invoicing when reporting VAT from a process-level view while maintaining the assumption of inter-organizational activities in context. The IT infrastructure integration for SCM research framework (Rai et al. 2006) provides enough criteria to measure the impacts of e-invoicing on the VAT reporting process. The VAT reporting process involves inter-firm activities because the three case companies must exchange information with other organizations including accounting partners and VERO when undertaking a VAT reporting process.

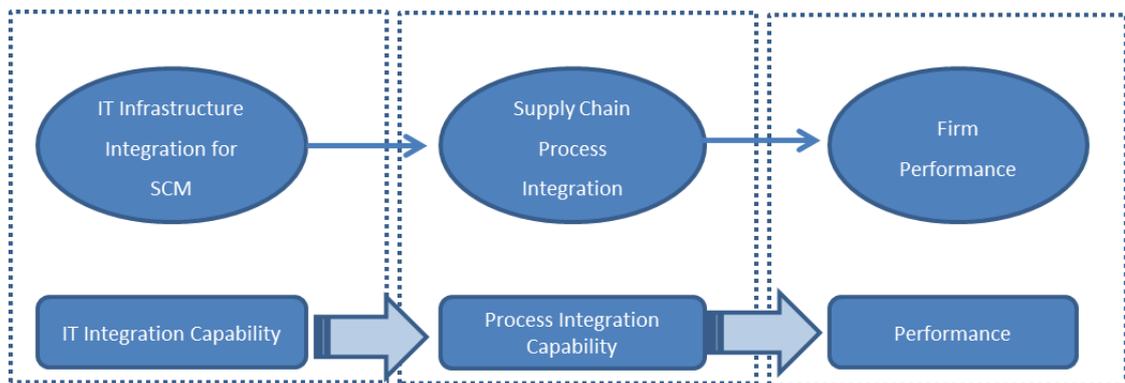


Figure 9 IT infrastructure integration for SCM framework. Source: Rai et al. (2006)

Figure 9 presents the suggested framework for this research. Rai et al. 2006 aim to address three important questions regarding IT enabled supply chain integration:

1. What key properties define process integration capabilities?
2. How does ICT infrastructure impact processing capabilities?
3. What are the performance impacts of IT on IT enabled processes for a firm?

Although Rai et al. present a supply chain process perspective the framework can provide useful guidance for building a proper research model to study the impacts of e-invoicing when the focal firms interact with their partners and VERO.

The most influential factor for selecting this framework however has been to provide a simple picture of the VAT reporting process that can be utilized by other researchers

seeking to extend research of electronic VAT reporting in Finland from a process perspective. The research model built for this research is presented in the figure 10.

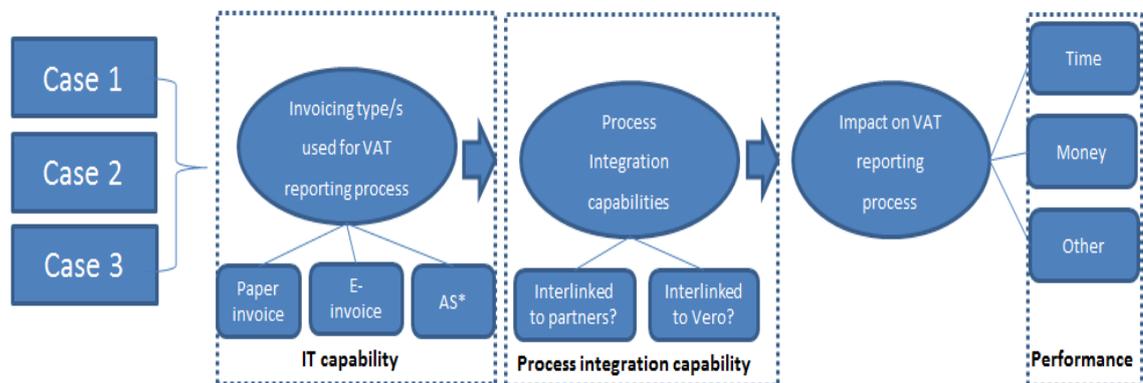


Figure 10 Research model of the thesis adapted from Rai et al. (2006)

The proposed research model is adapted from Rai et al. (2006) IT infrastructure for SCM framework. Various reasons were considered for adapting this research model including the previously reviewed literature. Rai et al. (2006) utilized the IT infrastructure for SCM framework in a quantitative research to study the performance gains for firms' based on their IT capability and process integration capabilities with their partners. While Rai et al. utilized this framework in a supply chain management process point of view they suggest that the framework could be adapted mainly for studying capabilities of inter-organizational processes requiring information exchange. The components of the research model presented in figure 10 derive from various theories. The following sub-chapters 3.2.1, 3.2.2 and 3.2.3 explain the constructs and define the components of the research model.

### 3.2.1 IT capability

The IT capability construct of the research model derives from quality management and resource-based theory perspective. Quality management literature has been influential for researchers seeking to measure performance excellence in firms (Mithas et al. 2011). Mithas et al. (2011) present a research framework based on the role of information management capability in influencing organizational capabilities and firm performance. Figure 11....

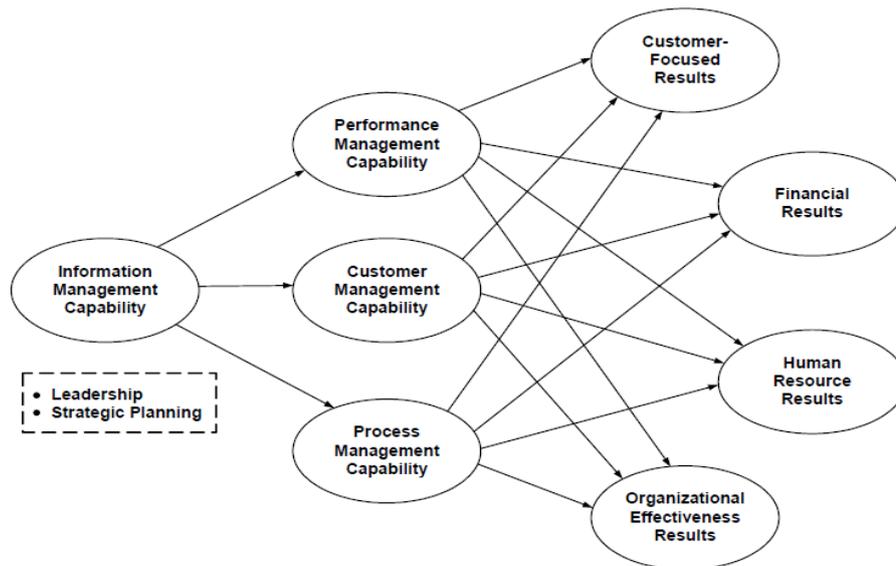


Figure 11 Information management and firm performance. Mithas et al. (2011)

Mithas et al. propose that information management capabilities influence three significant organizational capabilities: customer management capability, process management capability and performance management capability. This model is useful to consider the impact of information management capability construct on the process management capability construct of the proposed research model. Mithas et al. (2011) provide the following definition of information management capability: “Information management capability is the ability to provide data and information to users with the appropriate levels of accuracy, timeliness, reliability, security, and confidentiality.” The information management capability construct is useful to measure the invoicing capabilities of each of the case companies by identifying their invoicing modes and their motives for choosing those specific invoicing modes.

### 3.2.2 Process management

The process management construct of the suggested model was influenced by the Information processing theory. Information processing theory (IPT), identifies three important concepts: information processing needs, information processing capability, and the fit between the two to obtain optimal performance (Premkumar, Ramamurthy and Saunders 2005). Figure 12....

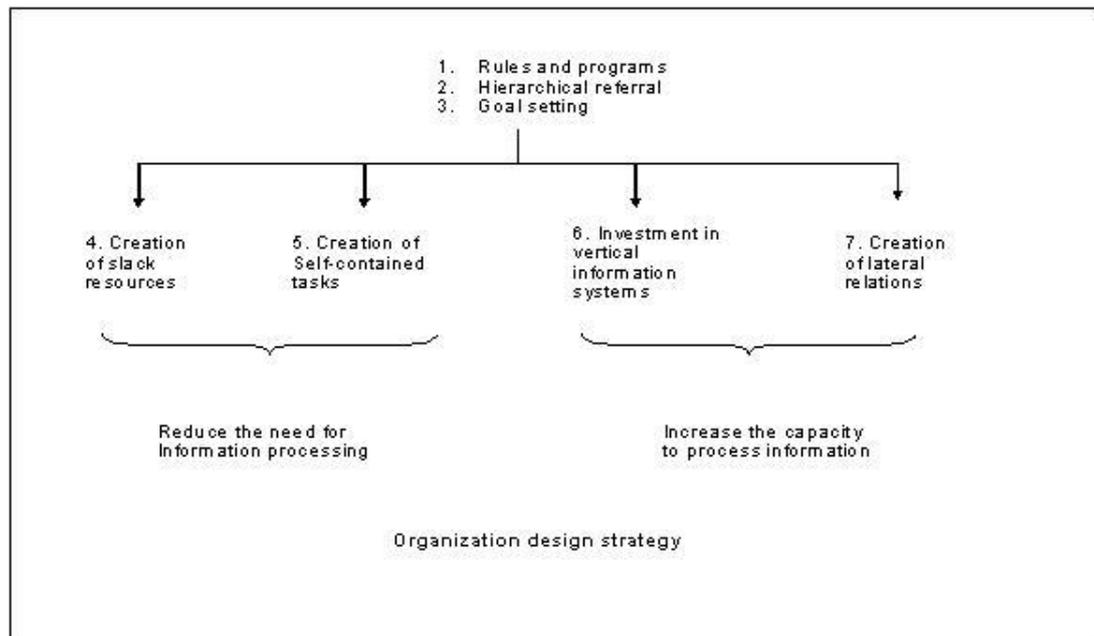


Figure 12 Information processing theory. Source: Prekumar et al. (2005)

Premkumar et al. (2005), argue that organizations need quality information in order to cope with environmental uncertainty and improve decision making. The concepts identified in the OIPT framework explore the effects when organizations utilize ICTs for processing needs and how the results obtained from this influence the firm's performance. The process management capability construct of the suggested research model will help to analyze how each of the case companies leverage their invoicing capabilities and their information exchange capabilities with their accounting partners and VERO.

Wang et al. (2013) suggest that firms can improve their coordination and control capabilities by adopting systemic control, information transparency and accurate forecasting; this can be achieved by inter-firm coordination. The process management construct will help identify if the case companies are interlinked with their partners or VERO in order to exchange information for VAT reporting purposes.

### 3.2.3 Productivity paradox and IS success

The performance construct of the proposed research model is influenced by productivity paradox theory and IS business value literature. Productivity paradox of -information technology refers to the early literature seeking a correlation between productivity and IT, this area of research exists in two levels: first is at the industry- or economy-wide level, the second exists at the company level (Dehning and Richardson 2002).

According Dehning and Richardson`s (2002) early studies of the second part of the productivity paradox have concluded in either no relation or slightly negative relation between firm-level spending of IT and firm performance. However, by the late 1990`s several studies emerged concluding positive correlations between IT investment and firm performance. Consequently additional controversy arose on how to effectively measure success of ICTs in business processes.

DeLone and McLean (1993) introduced the framework, IS success model which yields six variables of IS success: System Quality, Information Quality, Use, User Satisfaction, Individual Impact, and Organizational Impact. According to Petter and McLean (2009) DeLone and McLean identified categories for system success by mapping a variable of IS success to each of Mason`s (1978) IS effectiveness levels and Shannon and Weaver`s (1949) communication effectiveness. By utilizing their initial taxonomy they established theories of communication adapted to the IS field. The original “IS Success Model” is illustrated in figure 13.

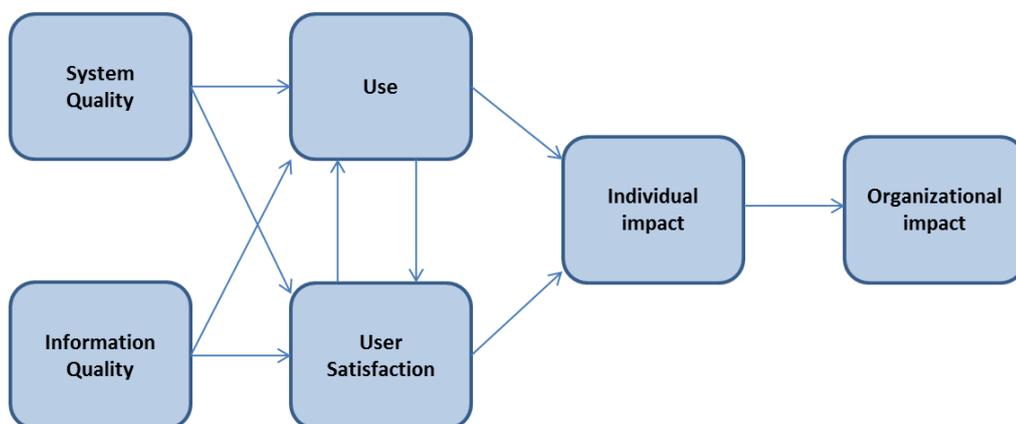


Figure 13 DeLone’s and McLean’s original success model. Source: Petter and McLean (2009)

DeLone and MacLean’s model was widely accepted and used in the field of IS to identify the impact of various ICT’s during inter-firm processes. Furthermore DeLone and McLean’s model was later altered or extended by several researchers and was also applied in different fields of research such as knowledge management and e-commerce systems. DeLone and McLean modified their model with an aim to address the limitations of the original model by including a Service Quality variable, and eliminating the Individual Impact and Organizational Impact as separate variables and replacing them with Net Benefits. By modifying their IS Success Model, DeLone and

McLean sought to address the criticism that IS can affect additional levels other than at the individual and organizational levels (Petter and McLean 2009). Cronck and Fritzelgard (1999) support their definition of IS business value by presenting a model construct for understanding IS business value in figure 14...

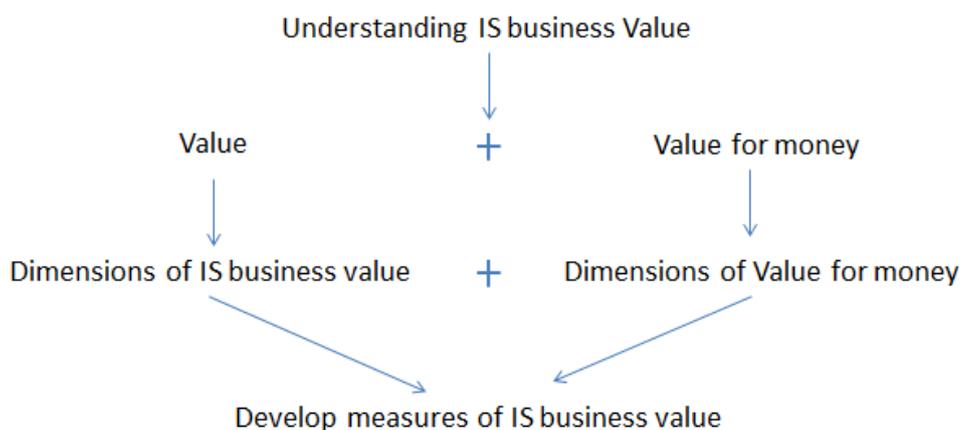


Figure 14 "IS business value". Source: Cronck and Fritzelgard (1999)

The IS business value proposed by Cronk and Fritzelgard helps understand that there are different perceptions and variables that can be used to measure the impact of IS in business processes. Other researchers such as Melville (2004) have focused on defining IS and IT value in terms of performance and linking performance to efficiency. This approach can contribute to this research by narrowing the scope of identifying the motives for which organizations decide to utilize IS such as e-invoicing in business processes like VAT reporting. Melville et al. (2004) define business value of IT as "organizational performance impacts of information technology at both the intermediate process level and organization-wide level, and comprising both efficiency impacts and competitive impacts". Melville's definition emphasizes the words process and efficiency. In this context performance comprises of business processes as well as organizational performance and is measured in terms of efficiency. The definition of IS business value proposed by Melville et al (2004), can be used to consider the process of filing VAT by utilizing ICTs such as e-invoicing and its impact on the organization. DeLone and McLean's (1993) success model can contribute to building an appropriate research model because it helps researchers understand that ICT's can have individual impacts and organizational impacts when utilized in business processes. Cronk and Fritzelgard's (1999) IS business value model has been useful to understand that value can be created from ICT utilization in forms other than monetary value.

## 4 Data collection and methodology

### 4.1 Data collection

The first part of this research was based on an interpretive research approach. According to Bhattacharjee (2012), interpretive research relies heavily on qualitative data and is well-suited for exploring hidden reasons behind complex, interrelated, or multifaceted social processes, such as inter-firm relationships. To address the first goal of the research it was important to utilize interpretive research in order to explore the interrelated activities and processes of the firms involved in a process such as VAT reporting.

Bhattacharjee suggests that interpretive data collection can be conducted using three techniques: interviews, observation and documentation. Interpretive data collection is most frequently done through interviews (face-to-face, telephone or focus groups). Two techniques were utilized for the interpretive data collection of this particular research: Interviews and documentation. Table 3 shows the interpretive data collection interviews held with different organizations involved in a VAT reporting process. The interviews were conducted by e-mail and face to face.

Table 3 Background of the research interviewees

Company name	Company type	Interviewee	Duration of interview	Type of interview
Tax Authority	TAX Admin	Respondent 1	-	e-mail
Accounting Company 1	Accounting	Respondent 2	1.05:01	Face to face
Accounting Company 2	Accounting	Respondent 3	48:42	Face to face
Operator 1	Operator	Respondents 4a and 4b	56:57	Face to face
Operator 2	Operator	Respondent 5	44:45	Face to face

In Chapter 2 of this research the VAT reporting process was depicted in figure 1. However, the process is more complex than the illustration provided. The case companies outsource their accounting activities, such as VAT reporting, to accounting companies and those two are inter-linked through the accounting software services provided by

the operators. It was important to conduct qualitative interpretive research in order to get a clear description of the entire VAT reporting process and the organizations involved in the process.

The second goal of the research was to measure the value of electronic invoicing in the VAT reporting process. There were three case companies which were the case companies that report VAT to the tax authorities in Finland. Creswell (2003) suggest that case studies and grounded theory are qualitative data collection methods by which processes, activities and events can be explored. Case research is a more popular method of case research in business research and is often used in an interpretive manner to build theories or in a positivist manner to test theories (Bhattacharjee, 2012). This research takes an interpretive approach for the case study in order to build on existing theory in the field of IS. According to Bhattacharjee (2012) interpretive case research is an inductive technique where data is collected from one or more case sites and is systematically analyzed and synthesized to find concepts and patterns for building on existing theory.

Eisenhardt (1989) suggests a roadmap for building theory through interpretive case research. Figure 15 presents a nine step roadmap adapted from Eisenhardt's roadmap for building theory. The first five steps of the roadmap lead the researcher to define the research scope, select appropriate cases and begin the data collection in a more systematic approach. The remaining steps are part of the data analysis process and they are discussed in chapter 4.2

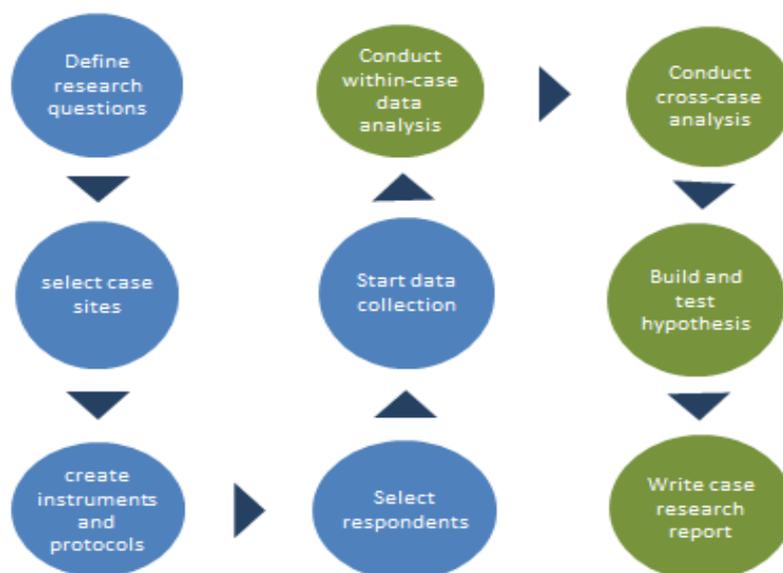


Figure 15 Interpretive case research roadmap adapted from Eisenhardt, 1989. Source: Tesch 1990.

The research questions were defined and adjusted as the research evolved according to the roadmap above this is only acceptable in interpretive case research. In this research the research questions were adjusted to narrow the scope of the research. Eisenhardt (1989) suggests that creating structured open-ended questions should be designed to guide the interview process and that firms be selected to fit within the scope of the research and that respondents be selected based on their personal involvement with the subject under investigation.

Prior to the interviews the respondents were given the list of open-ended questions which were helpful in opening the discussion under investigation, electronic invoicing and its role in the VAT reporting process. The respondents and sites (case companies) for this research were selected based on the size of organization and the respondent's involvement in sending and receiving invoices as well as their participation in VAT reporting activities and process. According to Tesch (1990) it is a good idea to electronically record interviews for future reference and the entire interview should be transcribed into a text document for the data analysis. Information about the three case company interviews are presented in table 4

Table 4 Background information for Case companies

Case company	Core business	Interviewee	Duration	Type of interview
Case Company 1	Manufacturing	Respondent 6	23:25	Face-to-face
Case Company 2	Event planning	Respondent 7	25:05	Face-to-face
Case Company 3	Construction	Respondent 8	27:42	Face-to-face

The main criteria for choosing the three case companies for this research were to satisfy the research questions and scope. In this case the scope of the research was to study the VAT reporting process for SME's operating in Finland and reporting VAT to the Finnish tax authorities. Secondly the research questions were addressed by studying how effectively e-invoicing was to the case companies when reporting VAT to the Finnish tax authorities. The three case companies provided interviews which were recorded electronically and were later transcribed for data analysis purposes. The interviewees were involved directly in the invoicing and VAT reporting activities of their or-

ganizations. Chapter 4.2 describes how the collected data was synthesized and analyzed.

## 4.2 Qualitative Data analysis

Qualitative analysis is defined by Bhattacharjee (2012), as the analysis of the qualitative text data from interview transcripts. Tesch (1990) argues that data analysis is a complex process that involves at least two main operations; data organizing and data interpretation. Tesch (1990) refers to data organizing as the preparation for data interpretation and concludes that without data organizing interpretation is nearly impossible. Data preparation involves dividing text data and segmenting it into groups; this process is known as de-contextualization and is the first process of interpretive data analysis. Lastly the re-contextualization process is the way to assemble and interpret the segmented data into a theory-building.

Grounded theory is utilized for the analysis of the collected data. Grounded theory was developed by Glaser and Strauss (1967) as a process of classifying and categorizing text data segments into concepts, categories or relationships (Bhattacharjee 2012). According to Bhattacharjee (2012) data analysis is done in two stages: within case analysis and cross case analysis. During the first stage the researcher should make sense of the research problem and use her/his personal experience at the case site/s. In the second stage of the data analysis the researcher should look for similar concepts and patterns between the different cases sites whilst ignoring contextual differences that may lead to bias conclusions. Because the interpretative data is highly dependent on the author's interpretation, coding technique can be useful to lessen the manipulation of the collected data. Strauss and Corbin (1998) identify three coding techniques for analyzing text data; open coding, axial coding, and selective coding. Flick (2009) argues that these techniques should not be viewed as independent procedures or phases for decoding data but rather should be used as interrelated processes for classifying and categorizing text data. These three processes allow the researcher to segment the collected data into categories or constructs to decode empirical data.

Open coding guides the researcher to explore new concepts that can be useful to develop the research scope and build on existing theory. Axial coding is used to link together the concepts and constructs that have been decoded. Lastly, selective coding, should be utilized to present and describe the "story" of the interpretive research

(Bhattacharjee 2012). According to Flick (2009) in the last coding process the results that are presented should reflect or address the research scope and questions. In the case of this research there were two research questions that developed the research scope. For the first question a story was decoded and interrelated processes were explained for the firms involved in a VAT reporting process. For the second research question which sought to find the impact of e-invoice in the VAT reporting process, the questions and data were aligned with the research model presented in the previous chapter. The research model included three constructs: information management capabilities, process management capabilities, and performance. The questions used for the interviews were organized accordingly and the data analysis followed key information that would address each construct for each of the case companies.

#### 4.3 Reliability and validity of data

As discussed in chapter 4.1 of this chapter, qualitative research is interpretive and subjective. The dependability on the researcher's point of view makes qualitative research be seen less reliable than quantitative research. According to Yin (2009) the reliability of qualitative data can be improved by providing a systematic description of the methods used for data collection purposes and carefully transcribing and referencing the collected data. Bhattacharjee (2012), suggests a set of criteria that could be useful in validating qualitative data. The criteria are shown in table 5.

Table 5 Criteria for validating qualitative data. Source: Bhattacharjee (2012)

Criterion	Condition
Dependability	Other researchers using same data conclude similar findings
Credibility	Readers find the results credible
Confirmability	Participants confirm the findings
Transferability	Findings can be utilized for building on research

The methods of data collection and analysis were influenced and guided by the contents of this chapter. The collected data for this research was done through qualitative face-to-face interviews which were recorded digitally, transcribed and systematically analyzed as suggested by Yin (2009). Participants of the interviews were given the questionnaires in advance before the interviews and were selected by their ability to address the questions sent to them prior to the interviews. In addition the overall goal of this research is to contribute to existing research on e-invoice and VAT reporting

with the aim that the results found for this research can be used to build on existing research regarding the digitalization and automation of accounting processes.

## 5 Discussion and Results

This chapter presents the results and discussion of the collected data through the qualitative interviews. Chapter 5.1 provides background of the organizations interviewed for background research purposes as well as background information on the three case companies. In chapter 5.2 of this chapter the goals of the interviews and research are summarized. In chapter 5.3 the collected data is organized and categorized. Lastly conclusions about the interviews are presented.

### 5.1 Background research results

There were a total of five background research interviews that were helpful in mapping a SCF view of the VAT reporting process for companies reporting VAT through their accounting partners. The background research interviews included the Finnish Tax Administration, two accounting companies and two operators. For this part of the research it was important to investigate the roles of each company regarding VAT reporting processes. The interview with the Finnish Tax administration was limiting as they did not agree to provide a face-to-face interview and did not address all of the questions through e-mail. Table 6 summarizes the background research company interviews in more detail.

Table 6 Background Research interview details

	Tax Authority	Accounting Company 1	Accounting Company 2	Operator Company 1	Operator Company 2
<b>Interview objective</b>	Background research	Background research	Background research	Background research	Background research
<b>Interviewee</b>	Respondent 1	Respondent 2	Respondent 3	Respondent 4a /4b	Respondent 5
<b>Gender</b>	Female	Female	Female	Male/Male	Male
<b>Core business</b>	Taxing	Accounting services	Accounting Services	Software Development	Software Development
<b>VAT process role</b>	Tax authority	Accounting partner	Accounting partner	Operator	Operator

In order to analyze the process of reporting VAT this research viewed the invoicing process of case company 1 which outsources its accounting services to its accounting partner. The research led to an interview with two accounting companies which provide accounting and bookkeeping services for firms. During the interviews with the two accounting companies two main subjects emerged: the role of accounting software for

conducting the accounting companies' services and the importance of operators have for enabling inter-connectivity among bank institutions, financial administration institutions and government organizations. The role of the operators were also analyzed as a result of the interviews with the accounting companies. Lastly an interview by email with the Finnish tax administration was conducted to view the role of the tax authorities in the SCF ecosystem proposed by EBA (2014).

The interview with the case company 1 is used as an example of how a firm in the manufacturing business might conduct its VAT reporting duties. When asked about how Respondent 6 performs his VAT reporting duties he replied that the accounting company is taking care of the VAT reporting duties and he only provides the necessary documents. Citing respondent 6,

“When I started the company I handled myself the purchasing side of the company so I put all the purchasing invoices into the ERP system and also the sales invoices. Sales invoices come automatically so they give automatically the amount of VAT we have to pay. We don't have to do anything for that. Earlier I also did the VAT of purchases when I handled it myself and I had to input different VAT amounts for the purchasing side. Now it's different how the VAT is reported. Now the bookkeeping company is taking care of handling the purchases and they are making the calculations. I only need to provide the VAT amount for sales for them...”

Respondent 6 outsources all of his accounting and bookkeeping activities to his firm's accounting partner. The respondent 6 has to communicate and exchange invoicing activity for sales and for purchases through an accounting software system and e-mail and the accounting firm does the rest. Respondent 6 mentioned that he only handles the receiving invoices to make sure that the amounts charged are correct. Citing respondent 6,

“I have provided a forwarding address which is for our accounting company. So the receiving invoices are sent straight there. I only have to check that the amount is correct so then I don't care what happens after that.”

For this reason it was important to interview accounting companies to find out more about how the exchange of invoicing information was handled between a firm and its accounting partner. The idea for this was to understand the intermediators between a firm and the tax authorities for VAT reporting. Although the accounting companies that were interviewed for this research were not providing services for case company 1, the accounting companies provided background information and technical information on how they utilize IT for automating their accounting processes. Both accounting companies operate in Helsinki Finland and they utilize accounting software (AS) for automating their accounting processes. The accounting software providers connect accounting

companies to operators which are considered the gateway for inter-connectivity for bank institutions and electronic invoicing. Accounting Company 1 respondent 2 described how they handle a VAT reporting process for their partners.

“Vat Reporting is a monthly quarterly or yearly service we do for our customers. It is a basic report that comes out of all the accounting data that we have assembled for our customers. When the accounting is done we check that all the balances are correct so that the alibi is looking correct and that the income statement is also in order so that the bookkeeping material is handled on time. We then send either an electronic report to the tax website or then we fill in a form on behalf of our customers

According to respondents 2 and 3 Accounting companies are reporting sale by the VAT percentage, then reporting purchases as a total amount regardless of which VAT percentage applies. The next step is to report purchases within EU and separate them by services and products purchased including receipts for smaller purchases. Lastly the accounting companies submit a payable or refundable amount of VAT on behalf of their clients.

The accounting companies rely heavily on getting the accurate information from their customers in order to build a VAT report on a monthly, quarterly or yearly basis for their clients. Respondents 2 and 3 emphasized the importance of invoice data for the VAT reporting process.

“Invoices are our most important source of information. Everything is based on that. Of course there are small receipts that people have which accumulate hundreds of euros worth of VAT but it’s all based on sales and purchase invoices whether is foreign or local of course we have to deal with also the VAT free invoices and make sure that they are dealt with correctly those are also used for VAT reporting although the end sum is zero but still it’s all based on the invoice.”  
–Respondent 2

“the role of invoices is the most important source of information and that is why the legislation is pretty strict what the content needs to be and that is also our job to assure that the invoices and the receipts that the customers provide us are in order and fill the requirements of the legislations. Otherwise they have to get new ones or correct the information on the invoices” –Respondent 3

Both accounting firms utilize accounting software, provided by accounting software providers, the software is then interlinked to the services provided by operators which are interoperability and e-invoicing capabilities. The accounting software capabilities cannot be fully utilized for processing accounting and bookkeeping activities unless it is connected to all banking institutions and provided e-invoicing capabilities. The interviews with the accounting companies led to the interview with operators which are firms

that provide accounting software resellers with the capabilities of interoperability and e-invoicing. Respondent 5 addressed a question regarding the activities of operators.

“If the customers are not able to produce all of the content on invoice message which is the requirement from the invoice receiver we are able to help. The receiver has requirements for the invoice content and it has to be fulfilled and is mandatory in order to automate the invoicing process between the sender and the recipient. We are able to help the sender so that we can basically act as a missing content on the invoice message and we are able to maintain that data content on behalf of our customers.” -Respondent 5

The role of operators is to open connectivity links to financial institutions and other operators so that e-invoicing can be utilized, standardized and automated regardless of which AS, e-invoice standard, or banks are being used by the end customers. The role of operators is to sell their services to accounting service providers so that they can integrate their accounting software which is used by the accounting companies and large private firms that internalize their accounting activities. Respondents 4a and 4b described operator 1 company’s customer profile.

“Our customers use our integration services. They use our billing distribution as a capability to integrate with their customers. We are also doing the payment traffic and doing the proper connectivity with the banks and do all kind of integration for what we call the traditional supply chain. Order confirmation, delivery notices, and invoicing etcetera. We provide the service so that companies can exchange communication with their clients. We also have the required tax and legal required services in place and we have connectivity to all the banks and all the other operators and that gives good value for our customers. When our partners open connectivity to us they open connectivity to the whole country. That means flexibility and agility to the market and our customers can meet their customers’ demands. If customers want to consolidate the vendor numbers we can act as a one stop support for providing the business partner connectivity not only in supply chain but also in payments and bank integration.”

The role of operators is significant to the SCF ecosystem proposed by EBA because they have the resources and capabilities for developing IT infrastructure that is reliable and secure. Both Operator Company 1 and Operator Company 2 described the role of invoicing in the services they provide as a standardized message type which serves as the infrastructure for their services.

Although the Finnish Tax Administration did not address all questions asked Respondent 1 was able to clarify that VERO is not interlinked to any private firms or banking institutions for security reasons. However the Finnish Tax Administration provides e-services for VAT reporting in which invoices can be uploaded and VAT can be reported electronically if needed.

All background research interviews were useful in understanding how each of the interviewed organizations are inter-linked and their role in the SCF ecosystem proposed by EBA (2014). As explained in the data collection and methodology chapter it was important to utilize interpretive research in order to explore the interrelated activities and processes of the firms involved in a process such as VAT reporting. Adapted from interpretive research, face to face interviews were useful to build on the theory of SCF ecosystem and explore the interrelated processes involved in a VAT reporting process. The results for the first research questions are illustrated in figure 16 adapted from the EBA (2014) SCF ecosystem.

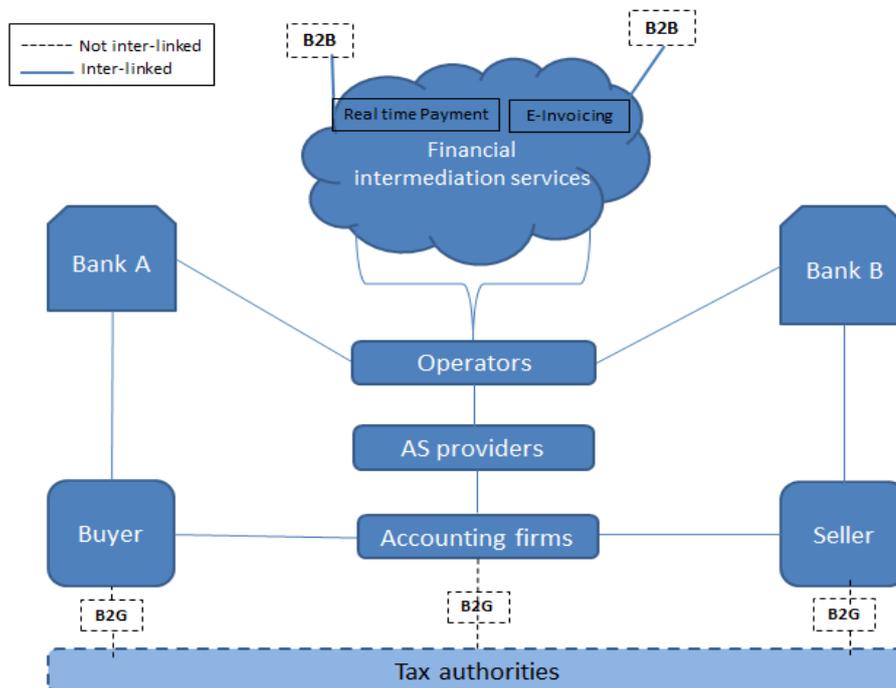


Figure 16 VAT reporting process view results. Adapted from EBA 2014

Figure 16 illustrates the results of the background research interviews. Using Case Company 1 as an example was useful to creating a process model of how VAT can be reported to the tax authorities. The role of invoices is important because it carries structured data that is necessary for the VAT reporting process. E-invoicing plays an important role in the automation of SCF processes such as payment processing and exchange of invoices in real-time. Operators provide these capabilities for bank-interoperability, messaging capabilities and e-invoicing even if firms are not inter-linked on a B2B level.

Accounting software providers are mediators between accounting companies and operators, they provide accounting companies with a portal capability for managing, archiving and building financial reports. Companies in this case a buyer or seller are required to submit a monthly, quarterly, or yearly VAT report to the Finnish Tax Authorities through a paper report or electronic report provided by the tax authorities. However, firms can outsource this process to accounting companies which are able to handle those firms' invoicing and VAT reporting activities on behalf of their clients. The process of exchanging information between a firm and its' accounting partner for VAT reporting purposes can be automated by being interlinked through accounting software because e-invoices can be forwarded and archived into the accounting software. However neither the accounting companies or firms are able to be inter-linked to VERO so the sharing of information between private firms and the tax authorities cannot be automated.

The results illustrated in figure 16 show that VAT reporting cannot be fully automated on a B2B and B2G level as suggested by EBA's SCF ecosystem model. The results however illustrate how most of the VAT reporting process can be automated before the B2G level if firms utilize e-invoicing. In chapter 5.2 the results of the three case companies are presented to illustrate the impact of e-invoice in the VAT reporting process for each of the case companies.

## 5.2 Case companies results

There were a total of three case research companies. The interviews were done with three SME companies operating in different industries in Finland. All respondents of the case companies were founders or co-founders of their companies and were involved in their organization's invoicing and VAT reporting activities. For this part of the research it was important to find out the invoicing capabilities for each of the case companies and if they outsourced any accounting processes. It was also relevant to find out which type of invoicing practices they preferred and how those affected their VAT reporting processes. The backgrounds of the case companies are presented in table 6.

Table 7 Case companies' profiles

	Case1	Case2	Case3
<b>Interview objective</b>	Case research	Case research	Case research
<b>Interviewee</b>	Respondent 6	Respondent 7	Respondent 8
<b>Age</b>	52	25	48
<b>Gender</b>	Male	Male	Male
<b>Core business</b>	Manufacturing	Event Planning	Construction
<b># of employees</b>	7	6	3
<b>Estimated revenue (mil. €)</b>	1,5	0,1	0,14
<b>Invoice type used (% estimate)</b>	E-invoice (10%) PDF (90%)	E-invoice (95%) PDF (5%)	PDF (100%)

By utilizing the research model presented in figure 10 the research aimed to analyze how the case companies performed their VAT reporting duties and how they managed their invoicing capabilities. As a result the research aims to conclude how their invoicing and process integration capabilities impact their firms' VAT reporting processes.

As suggested by axial coding technique the collected data was categorized into the three constructs presented on the research model; Information management capabilities, process managements capabilities, and performance. This was useful for identifying patterns regarding invoicing capabilities, integration capabilities and how those impact the VAT reporting process in each of the case companies. Table 7 illustrates how the questions were categorized according to the constructs presented in the research model figure 10.

Table 8. Constructs and questions on the impact of e-invoice on the VAT reporting process

Construct	Context of interview	Interview questions
IT Capability	Type of invoice used.  Type of software used.	1. What kind of software or technology do you use for invoicing purposes? 2. How do you archive your invoicing activities. 3. Do you send or receive paper invoices? a. How much outgoing/incoming %? 4. Do you send or receive electronic invoices? a. How much outgoing/incoming %? 5. If you don't utilize e-invoicing, can you describe why that is?
Process integration Capability	Integration capabilities.  Process management.	6. Do you outsource financial accounting processes to accounting companies?  15. If you don't have an accounting partner, how do you submit your VAT report to VERO and how often do you do that?  12. If you have an accounting partner how do you exchange invoicing activity for them?  14. Are you interlinked to any of your business partners including your accounting partner?
Performance	Impact of current IT capabilities and Process integration capabilities on VAT reporting process.	19. What benefits can you identify from the current way you file VAT reports? 20. Can you identify any benefits or constrains from the current invoicing used for reporting VAT?

The first two constructs, IT capability and process integration capability are interrelated and sought to find answers regarding the invoicing and IT capabilities of each case company. It was challenging to address the last construct, performance, in a qualitative data approach because the interviewees did not have specific measurements or criteria for identifying the value of their invoicing capabilities in the VAT reporting process. The results are presented in sections 5.2.1, 5.2.2 and 5.2.3.

### 5.2.1 IT Capability Results

Table 8 presents the answers to questions categorized in the IT capability construct. The table presents the most relevant questions for data analysis purposes of the IT capabilities for the three case companies.

Table 9. IT capabilities results for Case companies 1-3

IT Capability			
Interview Question #	Case Company 1 Respondent 6	Case Company 2 Respondent 7	Case Company 3 Respondent 8
1. What kind of software or technology do you use for invoicing purposes?	ERP, AS, e-mail	AS, e-mail	PDF, MS word, Printer, e-mail
2. How do you archive your invoicing activities?	AS, ERP	AS	Computer hard-drive
3. Do you send or receive paper and pdf invoices?	No	No	Yes
4. Do you send or receive electronic invoices?	Yes	Yes	No
5. If you don't utilize 100% e-invoicing, can you describe why that is?	I try not to use it because its too expensive	I try to only use e-invoice but not everyone accepts it.	No knowledge of e-invoice

Case company 1 utilizes ERP, AS and e-mail for invoicing purposes. Case company 2 only uses AS for invoicing purpose since all invoices are received and sent directly through the AS. However Case Company 3 does not use any software for invoicing purposes it is only capable of sending and receiving pdf invoices through email or paper. Respondent 6 mentioned the following about why he prefers not to use e-invoice

“Yeah I have the possibility to change to only e-invoice but I have not done that because I have calculated that it's not economically smart for us. For us is cheaper to send 90% of invoices as a pdf and when I have to send the e-invoice then I do. When we started I used to send them through paper now I can just e-mail”.-Respondent 6

While Case Company 1 has the possibility to be sending only e-invoice Respondent 6 prefers not to send e-invoice because he considers it too costly. The ERP system that is utilized in their activities has been automated to calculate inventory and produce invoice that includes VAT of sales. Respondent 6 only uploads the sales invoices to the accounting software so that the accounting partner is able to process the company's VAT reports on a monthly basis.

Case Company 2 has attempted to only utilize e-invoices. Respondent 7 emphasized their aim for being one hundred percent digital in the invoicing process. Case company 2 utilizes a software called Procounter were all of their incoming invoices are directed too and archived in. By forwarding all the invoices to their accounting partner Case Company 2 is able to have a digital accounting reference for all invoicing traffic. How-

ever Respondent 7 mentioned that most of the invoices coming from outside the EU are in paper format and their accounting partner charges extra for processing and archiving paper invoices.

Case Company 3 is the least IT capable case of the three case companies presented in this research. Respondent 8 is the CEO and founder of the company and had decided to stop outsourcing his accounting services because he found the accounting services too expensive. For invoicing purposes Respondent 8 utilizes a Microsoft word Document which is then saved in PDF format and then sent to his customers and partners through e-mail or physical mail. Respondent 8 was not familiar with e-invoice in anyway and he was

The IT capability construct was useful to identify the types of ICTs utilized for invoicing purposes in each of the case companies. Additionally each respondent was able to discuss the motives for their invoicing practices and initiate conversation on how they archive their invoices for VAT reporting purposes.

### 5.2.2 Process managing capability results

The results for the Process management capability are presented in table 9. Case companies 1 and 2 are both interlinked to their accounting partners while case company 3 does not have an accounting partner.

Table 10 Process management capabilities for case companies 1-3

IT Capability			
Interview Question #	Case Company 1 Respondent 6	Case Company 2 Respondent 7	Case Company 3 Respondent 8
1. What kind of software or technology do you use for invoicing purposes?	ERP, AS, e-mail	AS, e-mail	PDF, MS word, Printer, e-mail
2. How do you archive your invoicing activities?	AS, ERP	AS	Computer hard-drive
3. Do you send or receive paper and pdf invoices?	No	No	Yes
4. Do you send or receive electronic invoices?	Yes	Yes	No
5. If you don't utilize 100% e-invoicing, can you describe why that is?	I try not to use it because its too expensive	I try to only use e-invoice but not everyone accepts it.	No knowledge of e-invoice

Only Case Company 1 and Case Company 2 outsource their accounting activities to accounting companies. Case Company 3 handles all of its accounting activities independently. In the previous section the invoicing capabilities for each case company were discussed. The process management capability construct was useful to determine how each case company manages its VAT reporting process and how their IT capability is useful in the process.

Case companies 1 and 2 are interlinked to their accounting partners through accounting software. The accounting software allows the companies and their accounting partners to electronically view, archive and share data contained in the sales and purchase invoices. Case companies 1 and 2 only view the incoming invoice amounts to make sure it's correct and their accounting partners handle decoding the information for VAT reporting purposes.

Case company 3 does not outsource any accounting activities. Each month Respondent 8 gathers the company's purchasing and sales invoices and archives them by scanning them into digital form and storing them in a computer. Respondent 8 mentioned that the VAT reporting process is relatively easy because it can be done through the e-VAT reporting services provided by the Finnish Tax Authorities. However Respondent 3 mentioned that it is time consuming and it can be difficult to report VAT if the receipts for purchases and invoices are not gathered and archived on a weekly or daily basis.

As for case companies 1 and 2 the VAT reporting process only involves reviewing that all numbers on the incoming invoices are correct and they must confirm that amount of VAT sales to their partners. While it seems that everything is automated for case companies 1 and 2, constraints for their VAT reporting process are put on their accounting partners if e-invoice is not utilized. Respondent 2 of Accounting Company 1 responded that processing their client's invoices in PDF or paper format are more challenging than processing e-invoices.

"PDF and paper invoices make it a lot more difficult and inefficient and slow and yeah usually when we do reporting like that it takes more time. In e-invoice the invoicing rows are readily to use then we get the VAT information better and is more efficient but from that invoice onwards it's just similar data as everything else sum up together and report it as a total. Of course it's easier for an auditor or tax auditor to come and see the invoices that are in electronic form because the information is much more standardized and is easy to find and you don't have a lack of information in the electronic invoice." –Respondent 2

The process management capabilities of company case 1 and 2 are similar because of their use of accounting software and their capability to share information with their accounting partners in real time. However the usages of non e-invoices only affect their accounting partners during the VAT reporting process. One of the common constrains found in all case companies is the time consumed from archiving receipts for VAT reporting purposes. The following section will describe how the case companies' IT and process management capabilities impact their firms.

### 5.2.3 Performance

The performance results were based on the questions nineteen and twenty presented in table 7 of chapter 5.2.

Respondent 6 of Case Company 1 mentioned that the main constrain for him when reporting VAT comes when gathering and archiving the receipts for small purchases. He mentioned that it is time consuming and that it is difficult to archive them and that sometimes receipts for purchases can be lost. As for the invoicing impacts on the VAT reporting process he mentioned that PDF invoices send through e-mail are his preference because they are not expensive like e-invoices. He mentioned that some customers only accept e-invoice and that he tries to avoid sending e-invoice unless it is necessary due to its high cost.

Respondent 7 of Case Company 2 found one constrain from using e-invoice for a newly acquired customer. He mentioned that when billing first time customers through e-invoice it is sometimes challenging to find the customer's operator address. In dealing with new customers he mentioned it is sometimes easier to make a PDF invoice and send it through e-mail. The constrain mentioned by Respondent 7 in regards to VAT reporting is the time consumed for gathering and archiving receipts. He mentioned that some of his peers utilize phone applications for digitalizing their receipts.

Respondent 8 of the case company 3 encounters uncertainty problems when sending a paper and e-mail PDF invoice. He mentioned that in the construction business "you have to push people to pay you" because some people do not pay their invoices on time and in a few cases it is hard to tell if the customers have actually received the paper or e-mail invoices.

When I send a paper invoice and they pay. You don't have any way to know when they have paid unless you have invoice software then you can know. Then I have to reach them to know if they have paid so I can report the VAT for that month.-Respondent 8

Respondent 8 mentioned that the uncertainty and overdue invoices make it difficult to report VAT for the month in which those sales were supposed to be accrued. In addition to uncertainty Respondent 8 faced an even greater problem than the other two case companies when gathering and archiving receipts. He mentioned that as a construction service provider he must sometimes make up to 15 or 20 small purchases per day for tools and products used in construction. Archiving all those receipts brings a significant burden if those receipts are not archived on a daily or weekly basis.

Respondents 6 and 7 found that the VAT reporting process was relatively automated thanks to the accounting software they use to communicate with their accounting partners. However Respondent 7 has identified one important constraint from the e-invoice process. When he searches an e-invoice address for a new customer he considers it more time consuming than sending a paper invoice. The common denominator for all three case companies was that during the VAT reporting process all three case companies encounter time and efficiency issues in the process of gathering and archiving all receipts.

## 6 Conclusions

The first goal of this research was achieved and it was presented in figure 16. The process of reporting VAT to the Finnish Tax Authorities. The process map illustrates the role and activities for each of the interviewed companies presented in this research.

The second goal of this research was to identify any impact of e-invoice on the VAT reporting processes of the three case companies. While there was no significant impact from e-invoice in the VAT reporting process of the case companies an important constrain for all companies VAT reporting activities was identified. Receipts seemed to have been the most troublesome constrain for all companies when reporting VAT even for the two case companies that outsource their bookkeeping activities. All three case companies had different invoicing preferences for invoicing their customers. For case companies 1 and 2 the accounting software seemed to have a positive impact on time and efficiency for VAT reporting purposes.

Respondent 6 of Case Company 1 mentioned that e-invoice is too expensive to use and he only uses it when his customers require e-invoice. When asked if he would consider switching to e-invoice he mentioned that he would have to modify his production software to integrate e-invoicing options and it would be too costly and time consuming.

Respondent 7 of Case Company 2 prefers to utilize e-invoice for invoicing preferences. Respondent 7 emphasized that the use of e-invoice impacts his invoicing processes by significantly reducing the time allocated for handling and archiving outgoing and incoming invoices. However Respondent 7 mentioned that it is not possible to be using only e-invoice because not all recipients accept e-invoices. In addition Respondent 7 identified a restrain when using e-invoice; finding the e-invoice address for first time customers.

For respondent 8 of Case Company 3 the only invoicing method is using a PDF invoice and sending it by e-mail or physical mail. One constrain identified by Respondent 8 from using paper invoice is the uncertainty for knowing when and if his customers received the invoice and when he will receive a payment. The uncertainty made it difficult

for the entrepreneur of Case Company 3 to report VAT for some transactions on the right month. In cases when the payments are not received in time he has to report VAT for that transaction on the following month.

The most significant finding however was that all three case companies mentioned that the biggest constrain in VAT reporting comes from collecting and archiving receipts. Respondent 8 for example mentioned that his purchases for providing construction services require that he buys small tools or products that are used in construction and some weeks he accumulates up to 15 receipts per day. Although there were no questions asked regarding receipts, this was a relevant topic for all three interviewees.

### 6.1 Limitations and suggestions

The limitations for this thesis arose from two main sources: lack of existing research and sample size. The lack of research based on financial processes in VAT reporting made it difficult to collect data and establish a suitable approach for including a B2G analysis of the VAT reporting process. Although the interviews provided suitable data for this thesis the sample size of case companies was small. The most significant challenge however was the lack of cooperation from the Finnish Tax Authorities for providing a face-to-face interview since they were a vital part of the research topic.

The results presented in this research can help illustrate the processes involved in VAT reporting for SMEs operating in Finland. This can set ground for further research regarding the electronic vat reporting automation and value measurement of electronic invoicing from a supply chain finance perspective. One suggestion would be to initiate research on the digitalization of e-receipts and its impact on the VAT reporting process. A supply chain finance perspective could be useful to explore the digitalization of receipts and how e-receipts could impact the VAT reporting process for SMEs in Finland.

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## Interviews

Tax Authority, Respondent 1, 23.04.2014, e-mail

Accounting Company 1, Respondent 2, 10.08.2014, 01:05:01

Accounting Company 2, Respondent 3, 10.08.2014, 00:48:42

Operator 1, Respondents 4a and 4b, 20.08.2014, 00:56:57

Operator 2, Respondent 5, 05.09.2014, 00:44:45

Case Company 1, Respondent 6, 20.03.2015, 00:23:25

Case Company 2, Respondent 7, 27.03.2015, 00:25:05

Case Company 3, Respondent 8, 31.03.2015, 00:27:42

## Appendix 1 Case company interview questions

### Background:

Company  
Position  
Tasks  
Age  
Industry?  
Type of company?  
How many employees?  
Revenue?

### IT capabilities:

1. What kind of software or technology do you use for invoicing purposes?
2. How do you archive your invoicing activities.
3. Do you send or receive paper invoices?
  - a. How much outgoing/incoming %?
4. Do you send or receive electronic invoices?
  - a. How much outgoing/incoming %?
5. If you don't utilize e-invoicing, can you describe why that is?

### Process management

6. Do you outsource financial accounting processes to accounting companies?
7. How long have you been a client for them?
8. Why did you decide to outsource?
9. How was the accounting done prior to having an accounting partner?
10. How much do you pay for them per month?
11. What kind of services do they provide for you?
12. If you have an accounting partner how do you exchange invoicing activity for them?
  - a. Do they have accounting software or platform where they communicate info with you?
  - b. What is the name of the software?
13. If you receive or send paper invoices how much time does it take on average for you to archive/handle one invoice?
14. Are you interlinked to your any of your business partners including your accounting partner?
15. If you don't have an accounting partner, how do you submit your VAT report to VERO and how often do you do that?

### VAT:

16. How often does you company report/claim VAT?
17. What activities do you undertake to report VAT?
18. Approximately how much time does it take per month/week?
19. What benefits can you identify from the current way you file VAT reports?
20. Can you identify any benefits or constrains from the current invoicing used for reporting VAT?

## Appendix 2 Vero Interview questions

### BACKGROUND INFORMATION

Name

Position

Number of years in position

Briefly describe your tasks

### TAX REPORTING IN FINLAND

Briefly describe the activities of VERO as an organization

What are some of the “customers” which exchange financial information with VERO?

Can you briefly outline the process of VAT reporting by firms to VERO?

What steps are taken by the reporting organizations?

What steps are taken by VERO when the report is received?

How often is VAT reported by firms?

Can you briefly describe the role of invoices in the VAT reporting process?

Can you describe the difference between paper and electronic filings from perspective of VERO?

Which type of invoice formats does VERO accept in VAT reporting? (electronic vs paper)

In your experience what is the estimated number of electronic VAT filings compared to paper filings?

Can you describe how e-invoices are processed by VERO? (e.g. how data in the invoice is reviewed)

Can you explain the different way which firms use to send e-invoices? (information systems or e-mail etc.)

Are there differences on how VERO processes the various types of e-invoices?

Are there any internal or external issues related to the processing of e-invoicing which makes processing more challenging?

## **Appendix 3 Accounting companies' interview questions**

### **Background:**

Name and size of organization?

Name and position of interviewee

Could you describe your organization's activities and industry?

Could you briefly describe your role in the organization?

What are the services you offer to your clients?

Could you give an example of how you create value for your clients?

### **Vat Reporting:**

Could you briefly describe the VAT reporting process?

Are there different ways of reporting VAT?

What is the role of an invoice in the VAT reporting process?

How often is the process done in a monthly/or yearly basis?

What type of interaction or cooperation do you have with the Finnish Tax Authorities (VERO)?

Are there any limitations or constrains in the information supply chain when exchanging important documents or other information with VERO/Clients?

Can you identify any technology related restrains in the current VAT reporting process?

What is your opinion on the idea of using e-invoice to fully automate the VAT reporting processes between companies and VERO?

How do you think that full automation would affect your organization?

Does your organization use e-invoicing for VAT reporting purposes?

- Could you describe the type/s of e-invoice standard used in VAT reporting?
- Could you describe the difference of reporting VAT with e-invoice vs reporting with other types of invoice?

Does your organization use any inter-organizational systems to exchange VAT reporting information with VERO/customers?

How dependent is your organization on IT for the VAT reporting process?

Can you identify any unexpected problems or benefits caused by e-invoice when reporting VAT?

### **Environment**

Can you identify any factors that influenced the use of e-invoicing for VAT reporting purposes?

Can you identify any factors that have influenced the VAT reporting process?

How do you think Finland's IT infrastructure has influenced the utilization of e-invoice?

## **Appendix 4 Operators' interview questions**

### **Background:**

Name and size of organization?

Name and position of interviewee

Could you describe the organization's activities and industry?

Could you briefly describe your role in the organization?

What are the services you offer to your clients?

Could you give an example of how you create value for your clients?

### **E-invoice:**

Could you briefly describe e-invoice?

Are there different kinds of e-invoice?

What is the role of an invoice in the services you provide?

What type of interaction or cooperation do you have with the Finnish Tax Authorities (VERO)?

Can you identify any technology related restraints which affect your services/products?

What is your opinion on the automation of financial services?

### **IT**

Does your organization use any inter-organizational systems to exchange financial information with VERO/customers?

Do you provide any solutions for automating the VAT reporting process?

Can you identify any technology related restraints that are common when providing services to a customer?

Can you describe how your organization measures the value of IT applications/systems?

Can you identify any factors that have influenced the development of your services?