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THE IMPACT OF IMPLEMENTATION OF THE
ELECTRONIC PURCHASE INVOICE SYSTEM ON A
COMPANY ON THE EXMPLE OF HAHLE GROUP

Bachelor's thesis

International Business Administration, Finance and Accounting

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ABSTRACT

The title of the thesis is The Impact of implementation of the Electronic Purchase Invoice System on company on the example of the Hahle Group Nowadays it is very important for a competitive company to cut expenses as much as possible and speed up operations in order to achieve the maximum benefit from the business markets. The transition to an electronic financial administration is not just a matter of accounting automation and the utilization of electronic channels. In addition to streamlining operations and lowering costs, the transition to an electronic purchase invoice system enables flexible organization of the entire company's operations and new, up-to-date, knowledge-based management.

The objective of this thesis is to identify the main flaws that an electronic purchase invoice system can achieve for a company. The paper considers, what an electronic purchase invoice system is and how it works in general. The paper also states what e-invoicing is and how does it differ between Finland and Europe. Further the thesis presents the findings of an interview and open e-mail questionnaire which handle questions about the new system of the case company. The interview has been conducted with the financial manager of the case company and the questionnaire has been answered by five employees that work with the new system in the case company.

The results showed that shifting to an electronic purchase invoice system in the case company was a reasonable decision and everything went well from start till end without any major issues. The electronic purchase invoice system enables better reporting timeliness, eliminates duplication of work and makes the whole process a lot faster. It also eliminates the need for storage space, and material is available regardless of location and time. As a result, electronic purchase invoice system has found more benefits than disadvantages in the case company.

Keywords: E-Invoicing, Electronic purchase invoice system, management , e-finance

INTRODUCTION

Nowadays speed and cost-efficiency are major factors for companies. Organizations strive to achieve cost reductions in every possible way in order to get their businesses more profitable. Shifting to an electronic financial administration is said to be one of the means for enhancing their business and achieve cost reductions. According to the Billentis report Finland is considered to be one of the most sophisticated e-finance countries. However, the first e-invoices were sent out in Finland only about 15 years ago, although the technology existed from electronic commerce since 1980s. Electronic financial administration has become more common in recent years. Today a new business cluster can emerge around the digital financial administration in Finland, which could be exported abroad. There are many actors in Finland and service providers around e-finance.

The subject of this Bachelor's Thesis is the transition to an electronic purchase invoice system in a company. The author ended up with the subject because he worked in the company for accounting purposes and the company wanted to introduce an electronic purchase invoice system.

The topic electronic purchase invoice system is relevant for companies and therefore is also interesting for research. In this work, the author is researching why an electronic billing system should be introduced in a company. The transition to an electronic purchase invoice system is also described in order to identify the challenges and benefits of the transition, and to explore user experiences from the new system.

The aim of the thesis is to determine the main flaws of the purchase invoice system the case company started using and to find out how the workflow of the company has changed since the transition.

The subject of the thesis has been approached through the following research questions:

- How does an electronic purchase invoice system work?
- What are the benefits of switching to an electronic purchase invoice system?
- What are the challenges of switching to an electronic purchase invoice system?
- What can be improved after the transition has been done?

The research problem is, why an electronic purchase system should be used in the company and what benefits or challenges arise from the point of system users. Also research tasks has been set to achieve the objective and research questions. They are as follows:

- to study the principles of electronic financial administration through literature;
- to study the history and the present of e-invoicing in Europe and Finland;
- to describe how the new purchase invoice system works at the company;
- to interview the employee who was in charge of the introduction of the new purchase invoice system;
- to send an e-mail questionnaire to the employees of the company who use the new system in order to find out positive and negative effects the system has brought;
- to observe the new system during work-time.

The empirical part of the thesis has been implemented through a company called Hahle Oy, which just recently had a transition towards an electronic purchase invoice system. It consists of interviews, documents and an e-mail questionnaire. This section covers both the first steps of the project, the introduction and the benefits of the system. The conclusions section includes consideration of the success and the immediate benefits and challenges of the project.

The thesis also includes the theoretical review of electronic and digital financial management and purchase invoices of course. It deals with electronic and digital financial management as well as processes related to the purchase invoice processes, including the recycling, acceptance, etc. Lastly, the theoretical part will explain e-invoicing in Finland and in Europe. Also benefits and the situation of e-invoicing in

Finland and Europe g are explained. The theoretical part of the thesis is collected from source literature, scientific industry journals and web sites.

1. THEORETICAL REVIEW OF E-INVOICING AND E-FINANCE

1.1 Electronic financial administration

Before starting to determine the term electronic financial administration, it should be understood what financial management and digitalization means. The term electronic financial administration has had a number of different definitions in the past years. Some of these definitions consider electronic financial administration not only as sales and purchase invoices, but also as the host language bank statement transaction. On the other hand, part of the definitions emphasizes technology, which is used for e-invoicing standards and data description languages. Lahti and Salminen (2014) claim that at the turn of the 2000s electronic financial administration was regarded as paperless accounting and after 2008, the term electronic financial administration, however, has become well established.

Lahti and Salminen (2014) stated that financial administration means system that allows a company to keep track of financial events. It allows reporting of economic events to the company's stakeholders. In regard to stakeholders' financial administration can be divided into two categories: external and internal accounting. External accounting, or general accounting provides information to the external stakeholders of the company, like customers, public authorities, owners, employees and suppliers. Internal accounting, or management accounting provides information to the company's management, which is being used for making decisions. In modern times, external and internal accountings have been integrated close to each other (Salmony & Harald 2010, 372).

From the perspective of the information systems, financial administration is a system consisting of different components. The components work together to produce a

particular result. Components are for example. hardware, software, data entry, printouts, data, people and procedures. The result produced by the system can be the monthly report on the results. At the strategic level, financial administration means a business process or one of the company's functions (Lahti & Salminen 2014, 16).

Electronic financial administration is a modern alternative for treating the tasks a financial management. It can also be described as an automatic financial administration, because in a digital financial management accounting and the treatment and formation of the sub-processes take place as automatically as possible. When a company or organization strives to shift to an electronic financial administration, should all the financial data be able to be managed electronically with all stakeholders. The electronic financial administration is also described as the term integrated financial management, as it tightly integrates with the real-time processes of the company. This way the company is able to avoid handling digital forms manually several times (Helanto *et al.* 2013, 18-24).

Lahti & Salminen (2014) claim that the aim of electronic financial administration is to remove all the unnecessary and redundant steps in the processing of materials. It is also a process that involves the work done by people, the organization of work, information systems, IT solutions and straightforward operation chains. It is not only modelling and recovering of a decline in the standard. It is essentially linked to the development and redesign of the financial processes in order to avoid unnecessary work phases and that the processes would operate as automatically and standardized as possible.

Eikebrokk mentioned that Electronic financial administration does not necessarily mean the same thing than "paperless accounting". It basically means that the presentation of accounting statutory documents is in an electronic form. The small amount of paper allowed to enable a manual and inefficient management process when the supporting documents are changed to an electronic form afterwards. However, in that case it is not called an electronic financial administration (1997, 641).

1.1.1 Digitalization and electronic transactions

Digitalization is referring to processing, transferring, storage and presenting data in an electronic form. The data is located in different databases and the structure of data will be defined with database software's. Software applications or programs are being used to transfer and process electronic data. The electronic data is moving in data networks by using wireless and wired networks. Data, which is in digital form, is easier, faster and more efficient to address, transfer, display and store than data that is in a physical form. (Willmott & Markovitch, 2014).

Data transfer between companies has been possible for over three decades, but the use of the appropriate technology has not spread as expected. Data transfer between companies is referring to the specified format, automated and electronic data exchange between companies. The benefits of this kind of data exchange are related to data processing, business and interest groups. The benefits are faster data processing, error reduction, reduction in costs and improved data management. However, as problems can be seen the lack of information, the cost of deployment, technology complexity and the incompatibility of existing information systems. It is certain that data exchange between companies is getting more common in the next few years (Helanto 2013, 20-22; Lahti & Salminen 2014, 21).

Then there are electronic services. These are for example transactions that are made through e-mail or the internet. E-business and digital services mean electronic servicing inside of companies and organizations. The most common digital services are banking and insurance services as well as various public information services, such as the tax administration. The electronic services started to become more common in the 1990s. The important factor in electronic services is the identification of the person or the company. Consumers authenticate into banks official services with their e-banking ID. Authentication into informal services is possible via e-mail address or by creating a user. Companies authenticate into official services with a look-tag that is being provided by the Tax Administration like in Finland. It has been created so that companies can authenticate themselves into electronic services of authorities (Lahti & Salminen 2014,22).

1.1.2 System and software selections

All companies and organizations, regardless of the size, are using one specific financial management system. Financial management information solutions are classified into two main categories. Separate systems of financial management and comprehensive integrated ERP systems. ERP systems usually include financial management modules. The system that is more suitable for a company, depends on the situation and the need of the company. For example, globally operating companies needs in terms of a financial management system can be extensive and diverse. But small local companies that operate in the metropolitan area have much more standardized and limited needs regarding a financial management system. (Lahti & Salminen, 2014, 21). The industry has also an effect on financial management processes: manufacturing companies needs differ from the service ones. The most significant differences are found in the sales invoice and reporting processes and also in the integration of financial management to company's business processes (Sabri *et al.* 2007, 160).

Small businesses use an accounting system, either through an accounting firm or as a cloud service. The needs of a small business are usually recovered by standard accounting software, which is running a customer database, sales invoicing, accounts payable, main accounting operations as well as the basic reporting. In Europe, the software market has a lot of standardized types of software that are aimed at small businesses, some of which include in addition a simple inventory management. The users are not usually allowed to make any changes. Most commonly, companies use from their own software package mainly sales invoicing functionality and other services are purchased directly from an accounting firm. While electronic financial administrations are getting more and more common, small companies are moving towards a system, where the company and the accounting firm are able to use the same software via the internet (Sabri *et.al.* 2007, 161).

When a company grows in size, the needs are growing as well. The financial management software designed for medium-sized enterprises, have significantly more functionality than the software's for small businesses. There are lighter comprehensive ERP systems that include various business activity processes.

Medium-sized companies are also able to obtain access to stand-alone software. When comparing small and medium-sized companies, medium-sized company is characterized with more prior a more comprehensive management reporting. Therefore, better reporting of subsidies is more important for the software designed for medium-sized companies (Kurki *et al.* 2011, 12.). According to Sabri *et.al* 2007 large companies are using any form of the ERP software available on the market or an specific operational system that is used for their own targeted sector. Large companies tend to acquire, in addition to the main system, a variety of plug-ins, that are integrated to be compatible with each other.

There are 10 steps for a successful software selection and implementation (Sabri *et.al* 2007, 161-162).

1. Begin with the end in mind
2. Gauge process maturity and supplier capabilities
3. Stay focused on the end goal
4. Ensure that the selection team has decision-making authority
5. Insist on a demo and have it on your terms
6. Negotiate the terms and conditions
7. Make a decision and communicate it to suppliers and stake holders
8. Select a service provider
9. Seek help when needed during implementation
10. Implementation

The size of the company and therefore the drop in volumes affects the choice of software massively. Different software types are available for companies of different size ranging from the solutions provided by the accounting firms to the solutions of software vendors and operators.

1.2 Main principles of e-invoicing

In this section the author will go through e-invoicing from different angles. The theory focuses mainly on Finland.

The companies are encouraged to use e-invoices since their use is a cost-effective solution. Electronic invoicing removes the manual steps, which means that the accounting of a company is getting more automated. This way it is possible to receive real-time information about the financial situation in the company.

(Cloudtrade, 2017).

E-invoices have all the same information's than a paper bill, but is presented in electronic form. E-invoices can be sent to both, business and consumers. Generally, companies receive invoices for the purchase of recycling and processing system. Processing and recycling systems are referring to the electronic invoice inspection and approval process. E-invoices are sent and received via operator or bank (Lahti & Salminen 2014 56-58).

E-invoice and electronic invoices do not mean the same thing. E-invoice is being created in a billing program and will be sent via e-mail to the recipient. Then, the recipient has to pay and archive the invoice using traditional methods. The purpose of e-invoices is to maintain the bill in a electronic form during the whole billing process, from the preparation of the bill till the payment. By operating the bill both sender and the recipient will benefit from the new operating model, (Dandapani 2017, 615).

The two sides that participate in the transmission of e-invoicing are the biller, as well as the recipient and banks of each party. Data of e-invoice can be delivered to the bank and picked up from the bank and the operator of each party, accounting firm or other corresponding material nurse. Customers also use e-invoices. In general, consumers are more familiar with electronic invoicing, in other words e-billing.

1.2.1 Commissioning of e-invoicing

The use of e-invoicing in a company does not require any more than a connection with internet and an agreement with the e-bank. E-invoice also offers other possibilities, and a company can for example outsource invoicing. E-invoices are made with a billing software, via online bank or network portal. After this the bills are transferred through an intermediary to the recipient for approval. The software of the recipient generates a paper-like display of the invoice, whereby the bills can be accepted as before (Caluwaerts 2010, 232.)

Prices of e-invoicing software's have differences. For a company, that sends and receives 10000 e-invoice copies, costs approximately between 500-5700 euros. Bank services costs are between 1550-4990 euros. If the number of invoices is less than 100 units per month, the costs are approximately between 5-360 euros and bank services between 21-49 euros (Kurki *et al.* 2011, 15).

In Finland e-invoicing can be presented in three different ways: Finvoice, eInvoice. TEAPPS. Minimum information of e-invoices is determined by the VAT Act. The following information must be stated in a e-invoice (Lahti & Salminen 2014, 15):

- The date the invoice was issued
- The unique identifier of the invoice
- The buyers VAT identification number
- The name and address the seller and buyer
- The amount and nature of the goods and the extent and nature of services
- The date of delivery of the goods, the settlement date or the date of pre-payment
- The tax base, tax-free price (to which VAT is added), unit price without tax and rebates and discounts
- Tax rate
- The amount of tax due
- The establishment of a suspension or reverse charge mechanism.

In special cases, the invoice needs to have other information as well. If the company is uncertain about what information the invoice needs to have it should be applied to VAT Act. Credit card payments for financial services will draw up an exceptional case. Credit card invoice does not belong to value added tax law. Namely it is tax-exempt financial service (Lahti & Salminen 2014, 15).

E-invoices must remain confidential, which requires a high level of data security. In Finland, the corresponding security service provider is Tieto Corporation. The agreement on information security is based on agreements between parties, such as the service provider, bank, recipient of the bill and the appellant. Every bank and service providers are responsible for the performance of the security network. Data

security is based on identification. VPN connection in Finland means data security connection between operators and clients and to get access to an unprotected connection, username and password is needed. Unprotected connection is not recommended. Banks always require a secure connection and e-mail invoices are on an encryption level low compared to e-invoices (Tieto 2017). For e-invoicing in other countries in Europe it is required an electronic signature to ensure the data security. In Finland there is no need for electronic signatures, however the recipient of the invoice may require a duplicate invoice on paper. The general rule is that the law is complied.

Every information in e-invoicing is in digital format. The European Commission states that this is one of the reasons that why it is providing significant advantages over paper invoicing. This will shorten payment times, reduce errors, reduce print and postal costs, and integrate invoice handling. The automation capability is closely related to e-invoicing when invoices are sent in structured form, i.e. e-invoices can be automatically generated and transferred directly from the invoice issuer or service provider's financial supply chain systems to the recipient's corresponding systems. Most of the economic benefits of e-invoicing are not based on printing and billing costs, but on the fact that the process between the trading partners can be automated and integrated entirely by order until the invoice is paid.

Using e-invoice enhances recycling, checking, approving, and archiving. The e-invoice significantly improves the processing of invoices. Employees can invest more in customer service. Invoicing costs are reduced and e-invoicing also allows an electronic archive of bills.

It is recommended to go through the financial management functions when the company implements e-invoicing. Financial management works most efficiently when all phases work automatically for data transfer and avoid manually entering (Lahti & Salminen 2014, 49).

The data of the invoices enables the automation of the bill, so that the records and transactions are automatically stored in the software and data network the company is using, wherein the scanning step of the bill will be left out. In 1997 Finland made it possible to legislate the electronic financial administration and the paperless

accounting. At the same time, it enabled the banks to uniform standards, by automatic processing of transactions through references (Lahti & Salminen 2014, 58).

According to Hill (2015) the biggest benefits of e-invoicing is the paperless and automation during the invoice processing stage. Automatic handling of invoices reduces the workload of an employee and speeds up the whole process as well. In theory, the invoice can be paid within a few minutes after the transmission of the invoice. At the moment e-invoices are being sent and received by almost every big company, because of the recognized benefits. Hill also believes that federal agencies, suppliers and taxpayers can benefit of e-invoicing. (2015, 54). “There is growing momentum for e-invoicing among federal agencies and their commercial suppliers. So far, 11 of the CFO Act agencies have established e-invoicing capabilities, five more have plans to implement within the next two years and the rest are evaluating e-invoicing solutions”. (Hill 2015, 54) However Philippe Caluwaerts thinks that the biggest benefit that can be gained from e-invoicing is cost reductions. (2010, 233).

Table 1 table confirms that savings from dematerialization of e-invoices in the strict sense can reduce costs by €10-25 per invoice, depending on the level of automation.

Table 1. Cost Savings potential invoice

Level of automation	Cost of sending an invoice, EUR	Cost of receiving an invoice, EUR	Total costs, EUR
Paper invoicing	28.80	18.55	47.35
Semi-automated invoicing	18.00	11.10	29.10
Automated	3.30	10.80	14.10

Source: (Caluwaerts 2010, 234).

E-invoices cost only a third of a paper invoice and the Finnish government agencies and departments have moved fully to electronic invoicing in 2010. The Finnish state has shortened payment dates from 30 to 21 days, since they moved to e-invoicing. The implementation of the software is the largest e-invoicing investment, but it will return in less than two years, assuming that the billing volume is high. Small and medium-sized companies need to carefully consider whether the benefits of obtaining an e-billing system outweigh the outsourcing of the entire service.

1.2.2 SEPA (Single Euro Payments) and EDI (Electronic Data Interchange)

SEPA means Single Euro Payments Area and it is a project developed by European banks, the European Central Bank and the European Commission to create a single Euro Payments Area. It aims to make the payment transactions between European countries more coherent and faster. SEPA is accompanied by the Payment Services Directive, which clarifies and verifies payment transactions with the laws of all the participating countries. In Finland SEPA credit transfers has been possible to use since 2008, but it got mandatory in November 2011. Finland is part of the Single Euro Payments Area. After the introduction of SEPA, the account numbers changed to the international IBAN format and the bank code was used as BIC and the standard for payment transfer was ISO20022. SEPA credit transfer is based on the UNIFI (ISO20022) XML message standard. The purpose of SEPA is to enable automatic payment processing. This would eliminate the need for manual handling and achieve significant economic benefits. The speed of SEPA payment transfer is the + one business day. SEPA has replaced old debit cards, i.e. debit cards and credit cards with a chip that replaces the signature with a personal PIN. (Penttinen *et.al* 2009, 34). The benefits of SEPA are standardized standards that allow for faster payment transfer and simplified processing. This enhances cash management. Companies get reduced costs and it is easier to expand into new markets. The same payment method in your home country as well as in other EU countries can be used. Credit transfers are transferred so that no sums have been deducted from any expenses. The invoice payer as well as the recipient only pay for banking services to their bank (Poutiainen 2012, 157).

EDI is the use of standard electronic formats for the creation, transmission and storage of documents, such as purchase orders and invoices. It replaces mailed documents, phone calls, and faxes. It is the oldest standard for e-invoicing. EDI has been in use for a long time in data transfer between large companies. EDI is suitable for handling large masses, and the material is easy to customize or complement according to the needs of the recipient (Owens & Levary 2002, 201). The introduction of the EDI standard is expensive compared to the e-invoice. Implementing EDI requires tailor-made solutions and the compatibility of two companies' information systems at three different levels. E-invoicing and EDI invoice are other supporting billing methods, but they work differently. An EDI invoice is used when the bill needs to be modified

or supplemented. An EDI invoice requires an electronic order. An e-invoice is a typical invoicing form for consumer, goods, or purchase invoicing (Penttinen, *et al.* 2009, 42). According to Owens and Levary the benefits of EDI include (2002,201).:

- improvements in staff efficiency;
- reduced communication time lags between entities; and
- fewer errors and reduced costs.

Co-operation with e-invoice providers require financial management software that combine customer interfaces or different applications within the enterprise. This makes it possible to create, send and receive e-invoices. On the one hand, financial management software can be the company's current software. On the other hand, new software can also be invested. There are differences in financial software's and can be based on the kind of e-invoice formats supported by such software. E-invoice operators provide additional services on the use of e-invoices. Additional services include printing and mailing of paper invoices. Invoices can also be passed on to the customer's desired print service, recipient and invoicing activation service, and invoice archiving. As an additional service, an e-invoice operator can provide, *inter alia*, service testing, invoice reporting, and invoice pictures as a pdf file.

The task of electronic invoicing operators is to clarify the interdependence between standards. E-invoicing operators receive the material in an agreed format and modify them to fit the recipients of the invoices. Namely Dandapani (2017) believes that businesses need to send e-invoices both to the software and to the operator. The most suitable option for micro-businesses as well as for low-billing companies is the simple transmission and reception of e-invoices through carrier relaying. In this option, the entrepreneur has to enter the e-invoice information on the e-invoice operator's form. Such a solution is inexpensive and suitable for those with low number of bills. However, this solution does not remove duplicate entries, i.e. the entrepreneur has to write down the invoices to the billing system and the bank's system.

1.2.3 Processes of a purchase invoice system

In Finland, more than 70 percent of companies have moved to send and receive e-invoices, and the number of these companies is increasing constantly. The benefits of

e-invoicing, not only in terms of time efficiency, but also in terms of cost reductions, are undeniable. Purchase invoice processing is usually the most resource-intensive process in the finance department, so its efficiency and automation are usually the biggest benefits. When switching from a traditional paper process to an electronic processing system, it can save up to 90 percent in the cost of a chain of events (Wright 2017, 31).

From the perspective of the financial services, the purchase invoice process starts when the invoice is received at the company and ends when the invoice has been paid, archived and recorded in the bookkeeping.

The traditional purchase invoice process (Lahti & Salminen, 2014, 48):

1. purchase invoice arrives on paper;
2. the invoice is exported or mailed to a specialist;
3. the inspector shall issue the invoice an acceptance mark;
4. an expert shall take or send the invoice to the acceptor;
5. the Acceptor shall accept the invoice;
6. the acceptor shall take or send by mail the invoice to the purchase ledger manager;
7. the purchase ledger manager manually saves the basic invoice information as well posting of the invoice to the accounts payable;
8. the purchase ledger manager archives the paper invoice to the folder;
9. payment information is made up from the invoice, which is transferred to the bank.

Wright is of the opinion that problems with the traditional paper buying process are: slow invoice rotation, loss of invoices, vision of the invoice in accounting only after acceptance round, manual work steps and recording. In addition, invoices are archived in a map to a specific location, so if someone wants to check the invoice afterwards, he or she needs find the invoice from the map with the actual number. This leads to the fact that billing inspectors and authorized persons generally keep their own archives of purchasing invoices by taking copies of them (2017, 31).

The electrification of invoice processing enhances the handling and recycling of purchase invoices, speeds up the purchase invoice time and improves control. Basic invoice data no longer need to be saved manually, but can be read automatically from Optical Character Recognition (OCR) invoice form or from the electronic invoice

system. In addition, invoices are in the database since they arrived, so their data will be available for accrued payments even before they are finally approved (Menard 2008). This is certainly an important advantage for foreign suppliers and for certain invoices, where the approval procedure may be very slow. The invoices are stored in an electronic archive, from which they can be searched for, among supplier, account or billing information. Invoice inspectors and authorized persons have an electronic archive of their invoices, so invoices and their own paper archives are not required (Lahti & Salminen 2014, 49).

The steps of the electronic purchasing process are as follows without the integration into purchase orders or contracts (Lahti & Salminen 2014, 49):

1. The purchase invoice is received on paper and is scanned into the purchase invoice processing system or the purchase invoice is received directly into the processing system as an e-invoice. The basic information on the invoice is stored in the same way.
2. Purchase invoice is posted in the system manually or automatically.
3. The purchase invoice shall be sent for the electronic control and approval cycle either manually or automatically according to the specified recycling rules.
4. The invoice inspector and the acceptor shall accept the bill on the display after that the invoice will be returned to the administrator for approval.
5. The Purchase ledger managers updates the approved invoices automatically in accounts payable.
6. From the accounts payable is formed payment information that transferred to the bank.

The efficiency of invoice processing is significantly affected by the fact that the purchase invoice contains the necessary references for the purpose of allocating and identifying the invoice. Especially in large organizations, it is impossible to find the inspector and the acceptor of invoices if the invoice contains no information on the order, the subscriber or even the subscriber organization. Additionally, assigning invoices to a wrong company, for example a subsidiary, is confusing and takes time. Suppliers should always require order number of the invoice if the company uses the purchase order system. In case invoice not involved in a subscription is stored in the system, it should have at least the name of the subscriber, as well as any other internal

placement information such as Cost Center or Project Number. Incomplete invoices should be returned to the supplier for corrections (Lahti & Salminen 2014, 50).

Receipt of purchase invoices to an electronic invoice processing system takes place either through scanning paper invoice, e-invoice or EDI connection. In B2B invoicing, the software serving the recipient has a variety of financial administration programs or ERP applications that include the electronic processing of purchase invoices. The ERP system is an integrated and real-time information system that manages the core business processes of a company. Small businesses typically use the applications provided by the accounting firm or the web banking application (Cotteleer 2007, 58-59). According to the CEO of Basware, Finland Basware has released a cloud-based automated invoice service called InvoiceReady. With the software the main users can check their invoices, travel plans, travel and expense claims, contracts and requisitions from their own smartphones. (Roos 2013). "Access via any phone that can support a browser removes the hassle of invoice handling, ensuring you can manage your cash better and can get on with servicing customers. This means your workforce can focus on the truly value-adding work, quickly and easily handling their invoice-related tasks during moments of downtime, while business leaders gain the confidence in cash flows required to drive their business forward"(Esa Tihilä 2013, CEO of Basware, Finland).

Most of the electronically handled invoices in Finland have been scanned into the processing system. Scanning can be performed manually or automatically for data extraction. Manual scanning means that the process is being done by scanning a simple bill image and all basic information of the invoices. After that everything is manually saved by the scanner or other processor. Intelligent scanning automates a substantial part of the work, that is traditionally done manually. Scanning is nevertheless a risk of error compared to genuine e-invoices; in addition, scanning is a completely unnecessary workflow that is not needed to handle e-invoices. After the scanning, paper purchase invoices can be destroyed because purchase invoices are archived electronically. Ordinarily, paper purchase invoices are retained after scanning for some security time before the destruction so that any flawed scanned documents can be recovered in paper. The Accounting Act requires that the constantly electronically archived data can be assured. Generally, this is accomplished by storing

the accounting records on two single-time data media. They are usually backups and the actual use of archives is controlled on the workstation or the server hard disk or in bigger companies with more sophisticated storage systems (Lahti & Salminen 2014, 56-59).

The main task of the purchase invoice system is to allow invoice receipt, accounting, possible reconciliation to order / agreement, approval and process management. Once the purchase invoice has been checked and approved for a refund, the invoice can be forwarded. Without invoice handling and approval no invoice will move forward. An invoice circulation program has been created for recycling of invoices and this is used to convey a bill to the invoice auditor and the authorizer when the invoice has arrived. Accounting accounts, cost centers, and project numbers can be changed when checking and accepting invoices (Lahti & Salminen 2014, 52).

Once the purchase invoice has been received, the invoice has usually every detail of the invoices, either from the e-invoice or by scanning. The purpose of the brokerage trustee is to check the information, execute the accounting including VAT processing and send the invoice to the acceptance cycle. Once the purchaser has completed this, a message will be sent to the Authorizing Officer about the transaction, indicating that the invoice is awaiting processing (Wright 2017, 33).

The Accounting Act requires that the records are based on a document dated, numbered and verifies the transaction. It is not necessary to make records if the logs are clear from the bookkeeping. Electronic archiving requires data media whose contents cannot be changed. Allowed media are single-time CD, DVD and Blu-ray discs. Information that is located on a computer can also be interpreted so that it is not possible to change or delete them. The data storage medium should contain the time and date information, such as Timeout and Document Numbering (Murphy 2014).

The billing processing system is usually defined as a two-stage approval procedure, whereby the invoice is first checked by the subscriber and then accepted by another person. It is possible to store the approval limits according to the company's acceptance policy or to apply from another system in which organizational structures, roles and accreditation rights are maintained. It is sensible to automate repeated bills based on a contract. Contracts have already been approved at the stage of the contract

and there is no need to separate approval for each invoice. Such recurring expenses include, for example, rentals, leasing payments, and fixed service charges (Kurki *et al.* 2011, 24).

It is possible to set automatic reminders for invoice processors if it has been waiting for them to be processed for a certain period of time or if there is a invoice that is already overdue. An invoice can also be set up with a substitute function that automatically transfers the invoice to the fellow approval if the person has not responded to the invoice in sufficient time or is on vacation.

The best part of electronic processing is that purchasing invoices are archived electronically. Usually, purchase invoice processing systems have an archiving functionality that allows users to find their own previously processed invoices directly from the electronic archive. Administrators and other persons have the right to apply for, or report, different bills within their rights (Lahti & Salminen 2014, 63-65).

Since purchase invoices have been approved either for purchase order, based on contract, or for purchase invoice processing system, it is not necessary to accept approval for the installment at the payment stage. Payment of purchase invoices are usually distinguished from the control of the supplier's job description.

Outgoing payments are made in many companies every day. By reducing the number of repayments by one or two times per week, work time and at the same time facilitate cash management are going to be saved. The rapid turnover of the purchase invoices facilitates the shift to fewer payments, since many payments are often due to the need for a fast payment bill that has been in the approval cycle for as long as it has matured (Basware 2017).

Accounts Payable are reconciled to the main accounts by running a list of all open purchase invoices and comparing them to the balance of the account of purchase department. In addition, the balance of the purchase interim account has to be regularly monitored to ensure that all payments sent from the accounts payable have been debited from the bank account and that the exchange rate differences caused by the foreign currency invoices have been processed. Daily account handling also ensures this.

Due to tight reporting schedules, the accounts payable must be closed early so that all purchase invoices included in the month have not arrived to the accounts payable. This may be due to a delayed invoice sent by the supplier or that the invoice is still in the acceptance cycle (Lahti & Salminen 2014, 65).

The most attractive part of electronic processing is that purchasing invoices are archived electronically. Usually, purchase invoice processing systems have an archiving functionality that allows users to find their own previously processed invoices directly from the electronic archive.

1.3 E-invoicing worldwide and in Europe

In this section, the general level of the European Commission directive concerning e-invoices and the Value Added Tax (VAT) are stated. The Billentis report from Bruno Knoch is also reviewed, which has reported the current state of e-invoices in the world and in Europe.

Finland has about 500 million invoices in a year, of which 200 million are between two or more companies. In Europe has been estimated that 30-40 billion bills are moving around. By automating invoices, companies can reduce the number of unproductive work significantly.

E-invoicing reduces costs 50-80 percent compared to paper-based invoice handling process. The investments will pay back in about half a year, after a company has moved to e-invoicing. More companies have introduced electronic processes, and the number is getting bigger and bigger every year. The public sector could reduce costs, if they automate electronic processes. In Europe, optimization opportunities in the public sector are only a minimum of 40 billion euros. More and more customers want an invoice in an electronic form and e-invoice occupancy rate of growth is 20 percent in the coming years (Hill, 2015, 55).

1.3.1 E-invoicing in an international environment

40 percent of the large companies are estimated to be capable of sending and receiving e-invoices, but the corresponding proportion for companies in metropolitan area is about 20 percent (Kurki, Lahtinen, Lindfors 2011, 12).

The international development of e-invoicing is focused on developing different practices and standards. At European level the development has been slow. E-invoicing does not have a direct legislation, but it is regulated by the VAT Directive (European Commission, 2017).

The European Commission represents and upholds the entire interests of EU and is one European institution. The commission will draw up proposals for the EU legislation and manages the EU's policy in the practical implementation and use of related tasks. According to the European Commission introduction of e-invoices in a larger-scale instead of paper invoices could bring savings at the European level up to 240 billion euros. The objective of European commission is to widespread the use of e-invoices and that e-invoicing would be the main method of invoicing by 2020. Carbon dioxide emissions could decrease million tons per year because of e-invoicing.

E-invoicing could bring savings of 60-80% compared to paper billing. In general, it can be said that the transition to e-invoicing would pay back after 0,5-1,5 years. It is estimated that in 2016 was sent worldwide 500 billion invoices, of which 40 billion were e-invoices. They consist of 14 billion consumers and 26 million businesses, as well as contributions from States. The number of Latin American e-invoices is 25 billion, 7 billion in North America and Europe 6 billion (Billentis 2016).

The number of invoices will increase by 2-3% per year, and the reasons for that are the increase of people, homes and businesses. Producers do not give credit to customers but will send an invoice with the order. The European Union claims that the bill must be sent within 15 to 30 days after the product has reached the customer. E-invoices are inexpensive to send, which is why they are popular in enterprises (Billentis 2017).

Figure 3 shows, which countries are most advance in e-invoicing. As it can be seen, Finland and Sweden are one of the leaders in that category. Also the Latin America is one of the leaders.

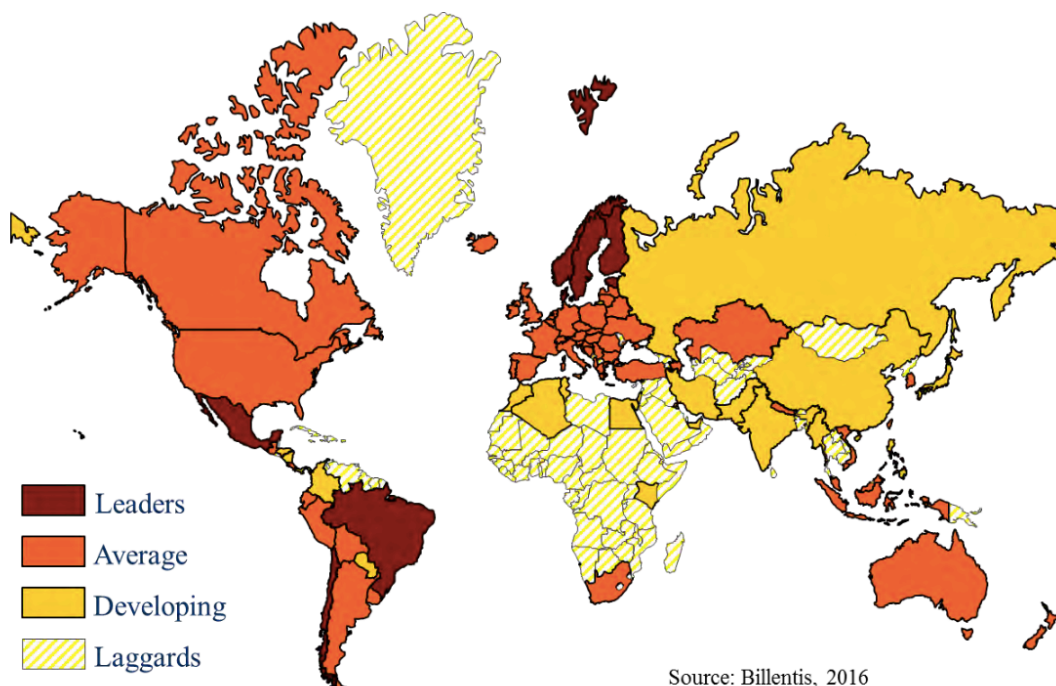


Figure 1. The market leader countries in electronic invoicing
Source: Billentis (2016, 3).

In Finland, e-invoicing was initiated in 1999. Finland was the leading country for e-invoicing. In 2005, 8.82 million e-invoices were conveyed in Finland, which was about 2% of all invoices forwarded. E-invoicing has hit itself best on the B2B market due to the large drop in numbers. In the B2B market, e-invoicing is used not only for billing services or wholesale purchases, but also in a regular online store. Companies can buy e-commerce products with an automatic e-invoice without the vendor having to bill them. Such services are provided in Finland by such companies like Enterpay and Maksuturva. In addition to e-invoices, electronic invoices are widely conveyed as EDI messages. There are 23 e-invoicing brokers in Finland with different operating models: some of the brokers convert their customer's electronic invoice format to

another while keeping the message contents essentially unchanged. Some of the dealers require that their client software has the capability to operate in standardized form.

1.3.2 Reaping the benefits of electronic invoicing in Europe

The European Commission decided in 2010 that the European Commission will establish European multilateral forum concerning e-invoicing. Its task is to follow up the development of e-invoicing market and the extent of the use of e-invoicing industry and service sectors in all Member States. The task of the stakeholders is, inter alia, to launch the exchange of experiences and good practices. The purpose of this is to facilitate the emergence of interoperable solutions, as well as to highlight the problems and make decisions. Stakeholders task is also to implement a standard data model e-invoicing. And they need to take into account the results of previous activities, work in progress, as well as existing solutions (Billentis 2017).

The European Commission has a Europe 2020 strategy to exploit all the economic and social interests of the digital society. E-invoicing is one of the flagship initiatives and is part of the European Digital Agenda. The purpose of the Digital Agenda for Europe is to create a digital internal market and to remove the regulatory and technical barriers that hinder the introduction of large-scale e-invoicing. E-invoicing is regulated in different ways in different Member States, and the opportunities offered by e-invoicing have largely remained unused and this is disadvantageous for both consumers and businesses. For SMEs, sending and receiving e-invoices is too complicated and costly. The goals of e-invoicing are primarily legal certainty and a clear technical environment. For e-invoicing, open and compatible solutions based on a common standard are needed, especially in line with the needs of SMEs. The introduction of e-invoicing must be supported through the establishment of national e-invoicing forums, a European stakeholder forum and other similar structures (European Commission 2017).

The European Commission has set up an e-invoicing expert group to look at market needs and stakeholder requests that slow down e-invoicing in the European Union. The final report, published in 2014, states that efforts must be made to meet the needs

of SMEs by focusing on specific business requirements. Legal development and VAT developments should be harmonized and clarified throughout the EU. It should be assumed that paper invoices and e-invoices have to be treated equally, using the code of conduct developed by the expert group. John Rampton thinks in his work that an ecosystem should be created where interoperability and coverage are as great as possible. Private and public sectors would adopt a common invoice content standard and a data model for UN / CEFACT Cross-Industry Invoice (CII) v.2. An organizational approach should be created to implement the European legal framework for e-invoicing at Member State and EU level (Rampton 2017).

The Billentis report also stated these topics to be the changes and trends for the next two years (2017):

- Many new government initiatives resulting in B2B and B2G e-invoicing, e-reporting and e-auditing requirements are forcing large international invoice issuers in particular to act.
- The business models and IT systems of most organisations evolved in decades characterised by the use of paper-based processes. Businesses are required to become more agile. They are recommended to replace their traditional models with disruptive innovations and to re-engineer the processes.
- Pure e-invoicing services are no longer sufficient. The demand to support additional documents, processes and value added services is increasing substantially.
- Accurate data build is the pre-requisite for automated processing of invoices and other business documents. Improving the data accuracy is also increasingly required to be fully tax compliant.

The popularity of e-invoicing is the highest in a industry, where three out of four companies manage their billing online. The largest growth has been noted in the field of trading, where a half-year growth has been approximately 6 percent's. Basically it can be stated that e-invoicing is more popular for companies that have a larger scale. 90 percent of companies with over 250 employee use e-invoicing (Harald 2012).

In conclusion it can be stated that electronic financial administration allows, for example, the increase of efficiency in accounting firms and better customer service.

However, these cannot be achieved without any changes. Improved customer service and higher operational efficiency creates value for the customer and the accounting firm. Challenges include the exchange of software, as in an accounting firm the accountant needs to learn how to use the software. Purchase invoices are a vital part of the financial administration of a company. That is why a company will gain significantly advantage if the selection and the execution of a financial system strategy is well carried out. The transition to e-invoicing is becoming more and more common, but it seems to be difficult, especially among small and medium-sized businesses in Europe. However, it seems that companies in the northern Europe and South America are advanced if it comes to e-invoicing. The next chapter of the thesis will show how the empirical part of the study is carried out and what is found out.

2. RESEARCH AND RESULTS

2.1 Presentation of the research

The empirical part has been implemented through a company called Hahle group, which made a transition to an electronic purchase invoice system in the beginning of March 2017. Hahle is a Finnish furniture industry operator and provider of comprehensive storage solutions. The wide selection consists of domestic products and high quality European supplies. High quality materials and continuous product development ensure that the company can respond more and more to the customers' needs and wishes.

The Hahle Group's story begins in 1964, when Hahle Oy started its operations as supplier, marketer and importer of the furniture industry. In 1989, the group was associated with the Ecolam factory, which is known for its very high quality work pieces, and in 1999 the door manufacturer Josador Oy from Kangasniemi, established in 1980, was incorporated into Hahle's ownership. The newest member of the group is Otsoson Oy, provider of bathroom solutions and kitchen sinks, which joined the Hahle Group in spring of 2012. In the Baltic market Hahle is represented by Hahle Eesti Oü.

Hahle OY has been a supplier of furniture and accessories for the furniture and furniture industry since 1964. The product range includes hinges, slide rails, metal boxes and mechanisms. The Hahle Group's own production range also includes high quality Ecolam countertops, cabinet-sliding doors, Josadori's solid wood and MDF doors as well as Otsoson bathroom furniture and pools. Their customers are mainly kitchen, bathroom, office furniture and furniture manufacturers. For a woodcutter and furniture manufacturer, they offer a wide range of doors, levels and fittings in one place (Hahle Oy, 2017).

An Interview was conducted 15.08.2017 with the financial manager of Hahle Oy, as he was in charge of the implementation of the new purchase invoice system. The interview was performed face to face and lasted approximately 30 minutes. The author chose to use an open interview, where questions were open and their functions were to guide the discussion. The purpose of the interview was to highlight all what is vital about the new purchase invoice system. For this reason, the open interview was chosen as it gives the opportunity to ask additional questions. An open interview also gives the interviewee the opportunity to share thoughts that are not directly asked and therefore the data is more wide and profound than it could be in a form of inquiry or theme interview. The strength of the open interview is flexibility. In an open interview an important role is played in the interaction of the interviewer and interviewee. In addition, the open interview gives a possibility to ask retrospectively for clarification if something remains unclear. Another strength of the open interview is that the interviewee has the opportunity to present his or her own thoughts and things, which the interviewer might not have figured out to ask. The interview was recorded with a microphone and at the beginning of the interview, the purpose of the interview and how the material is being used in the future was clearly explained. After that the interview was transformed into a text format. The author has littered the interview, one question at a time.

The second research method was a qualitative one also – author has distributed an e-mail questionnaire. The questionnaire was sent to seven employees in Hahle Oy who are working with the new purchase invoice system. The questionnaire itself can be found in the appendix 2. The questionnaires were sent in beginning of October. The aim of the questionnaire was to find out the trends the new purchase invoice system has brought to the company. The questionnaire consisted of seven open questions about the new purchase invoice system and one statista

The third and the last research method was observation. The author tried to observe and learn about the new system as much as possible during work-time in the company. This part did not create much information, however it enabled to discover couple of important issues.

2.2 Analysis of the results

The analysis of the results was divided into two chapters. In the first chapter it is stated why and which system the case company has chosen. Information for this chapter was mainly received from the interview and from own observations of the author. The second chapter outlines the main benefits and challenges of the new system. Information for this chapter was mainly received from the questionnaire.

2.2.1 Selection and description of the new purchase invoice system

Hahle competed three different kinds of purchase invoice software's in December 2016. The main criteria for Hahle were real-time and electronic, the price and the fast implementation of the software. Hahle decided to make a contract with one system, Basware. Basware has already taken care of the sales invoices for a year in Hahle and that is why it was an easy choice, because there was no need to create new contacts with the system.

The introduction of the systems to the company was easy and fast. It was a positive, easy and a compact process and the fact that they can still use their old suppliers and information, is a major benefit. The introduction occurred smoothly without any major problems. As main users, charts of accounts were already there so basically after a week it was possible to launch the new system without no additional workload and quite fast. The most important thing for the CEO of Hahle was to execute the project as fast as possible.

After signing the contract in December, Hahle started straight away and it took two months to explore the systems, calculating possible costs and already in the beginning of March the systems were ready to use. Everything started with Hahle and after that their four other companies have started the preparation for the transition to the new system. Nobody came up with anything that could have resisted the introduction of the systems. After every company had implemented the system, the company got its own billing and payment system. So basically now Hahle has an concentrated function, which enables to enter their own system. After that everyone makes their own inspection and finally everything will be summed up.

The process flow is similar to the one of the old system. The difference is that the approval of the invoice can be done immediately. Also the system will automatically send the invoice into the general ledger for payment and there is no need to enter it manually. However, if an invoice arrives via e-mail, it must be entered manually into the system and also a paper invoice has to be scanned first and then entered into the system. It is a longer process but everything ends up with the same ultimate outcome. After that, the suppliers of the invoices can have a default, who will approve and check their invoices. Every time an invoice has been received into the system, each invoice controller and acceptor will get a notification on their work list and after that they can check or accept it whenever they want. Invoices are checked and approved the same way as before, however no papers or documents move physically inside the company. So basically, the inspector for the Purchase Invoice checks that the invoice is in accordance with the contract, also, that the goods have arrived. Then he also makes accounting entries (Cost Center and the VAT code), the electronic check mark down NAN and sends the invoice forward to the system to the acceptor of the invoice. The acceptor accepts the invoice at it is, returns it to the inspector for further information and at last takes responsibility of the whole information on the invoice.

The system has its own control and Hahle has also assigned main users who can control the whole process and check which invoices still need to be accepted. For example, if an invoice is closing on due date, the main user, in this case the CEO and the financial manager, can immediately see it and remind the acceptor of the invoice to check it. The acceptors can add comments, account statements, and attachments to the invoice. They can accept or reject the invoice or mark it as a pending. If the invoice is declined or is put on hold, the acceptor must add a comment. If the acceptor has received an invoice that does not belong to him, he / she can remove himself / herself from the recycling of the invoice and he / she must also decline the invoice and add a comment containing the reason for the rejection. The main user of the system then sets a new acceptor for the invoice. After the acceptance has been made, the system will transfer the invoice automatically into the accounts payable. Once the invoices have been transferred to the payment system, there is no possibility for changes. The corrections have to be made by means of documentary evidence.

However, if invoice transactions are changed, a comment in the archive must be added.

2.2.2 Benefits and challenges

According to the Financial Manager of Hahle, the biggest reason for automating the purchase invoice process was that every invoice should have a default acceptor and inspector. And now after Hahle has calculated and decided who the default invoice inspectors are, it has helped and made the whole process much more easier. In the old days the CEO of Hahle might have gotten some random invoices and had to inspect and accept them. But now since every invoice has assigned inspector there are no confusions anymore. Also one other reason of the transition was the extremely heavy and time-consuming old billing process. The event chain is described by the Financial Manager as follows:

1. Invoice arrives at the office.
2. Stamping (Date).
3. Checking Invoice Information (the right company, VAT ID) - a possible credit note request and a new invoice if the company is wrong.
4. Content verification.
5. Sending a bill with the internal mail to the inspector, according to the pad including possible abnormal acceptance of the practice.
6. After the invoice has arrived from the inspector, sending Authorizing / approvers.
7. Checking the Marks - If the project code is missing, contact the person concerned.
8. Accounting.
9. Recognition of bills of exchange.
10. Payments.

All in all, according to comments of the employees that were involved in this project, the process of the old system was very time and effort consuming and contained many exceptions, which were often at the risk of memory. Disappearing of invoices, bad debts or lack of project codes employed a lot of unnecessary work. In order to receive invoices in time, copies of invoices were required, since usually the acceptance cycle took longer than due date. Some suppliers were even asked for longer payment terms because the rotation was impossible to take less than 14 days. The challenges of lap

time monitoring are also indicated by the fact that bills on or off the tables were usually noticed until the payment reminder. In practice, the time spent solely on this process was, in the worst possible case, one person's entire working day. Often, the introduction of new systems may cause a negative change response simply due to the current workload the company is having. Everyone works hard and the end is not foreseen. The introduction requires re-thinking of processes and system learning. According to the Financial Manager, the response for the project was not noticeable, and the re-thinking of processes helped instantly to learn and develop new ideas.

According to the answers from the employees, everyone stated that the expectations of the project were positive. They felt that the implementation of the system was ultimately limited by minor problems and happened quickly, even before the expected timetable, excluding a few minor components of the software (e.g. contracts). Some stated that in case of preparations of new similar projects in the future, more employees should be involved in the whole project, to understand the whole concept of the project better. Most of the answers showed that the new system has made the whole project easier and faster, since everything could be found online and employees do not have to deal with paperwork anymore. It is also easier to track purchased goods and amounts.

During the interview, the Financial Manager provided the author with some estimated information concerning the time distribution of the old purchase invoice process and the new purchase invoice process. Figure 2. below shows the time distribution of the old billing process. The total used time is 350 minutes.

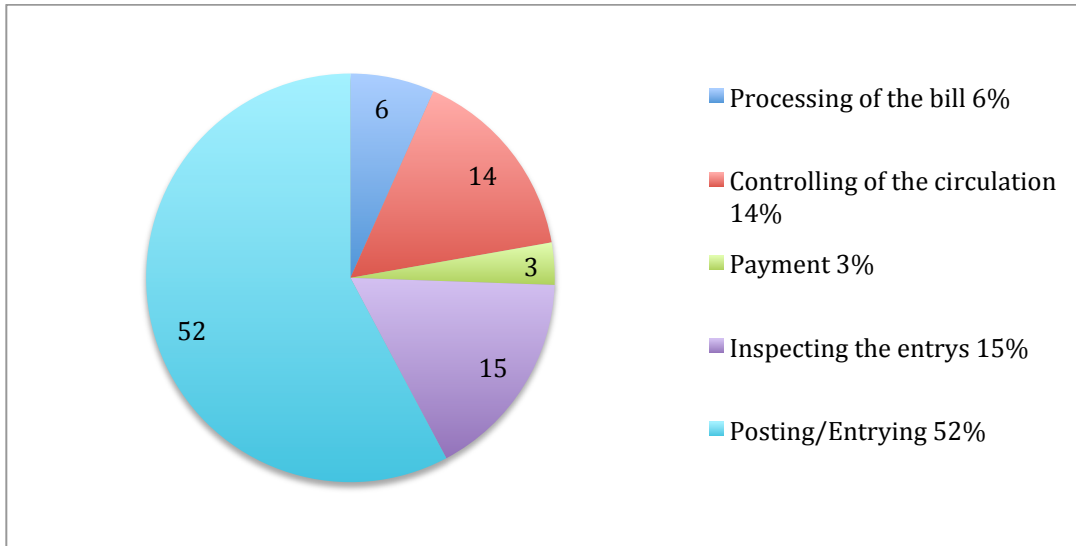


Figure 2. Time distribution of the old billing process.

Source: prepared by Author

It is obvious that most of the time was spent on entering and posting the invoice to the accounts payable (52%). Subsequently, the largest areas were rotation control (14%) and inspecting the entries (15%). The least time was spent on the payment section, which is logical, since normally paying the bill doesn't take a lot of time.

However, the time distribution two months after the introduction of the new system looked completely different. Figure 3 demonstrates the time distribution of the new system billing process. The total used time is 270 minutes.

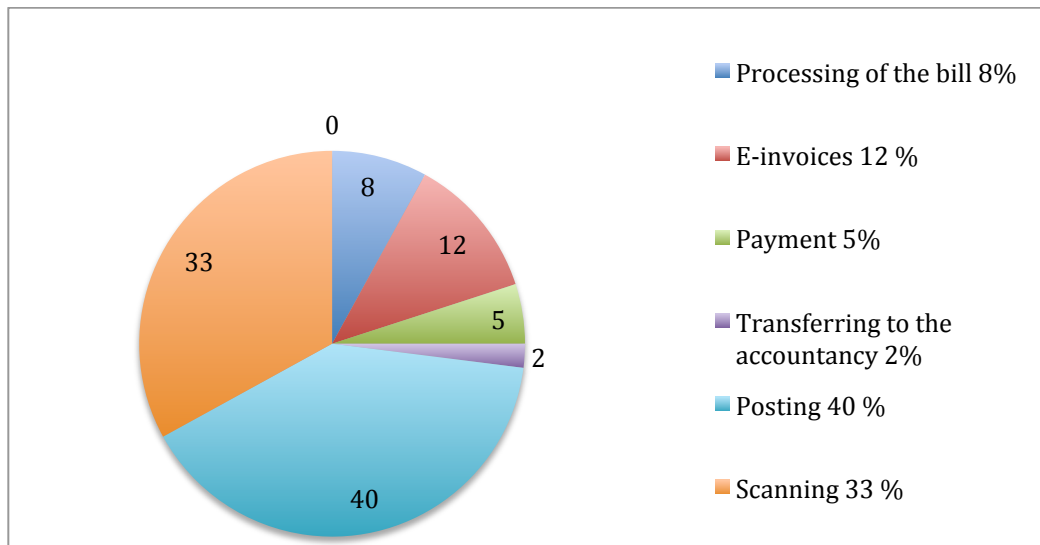


Figure 3. Time distribution of the new system billing process.

Source: prepared by author

Data of figure 3 clearly demonstrates that scanning (33%) and posting (40%) are the most time consuming phases in the process. Scanning also includes the entry of the billing information that was previously performed when registering it to the accounts payable.

According to the Financial Manager the movement over phases will get faster with time. Approximately after a year, when the system is operated at a full level, every supplier should have his or her default invoice handler. By asking about the time distribution in the survey, it revealed how challenging the controlling of purchase invoices actually was before the implementation of the new system. Comparison of used time makes this difference. Under the old system the time required for the whole process was about 5.8 hours per day, while after the new system was introduced, the whole process took about 4.5 hours per day. In addition to the fact that the work time is now about two hours more for other jobs, the whole invoice cycle is much faster than before. To get an even better idea of why this project was started, the number of purchase invoices per month is shown on the Figure 4. The author got the rights to use the figures from the archives of the case company.

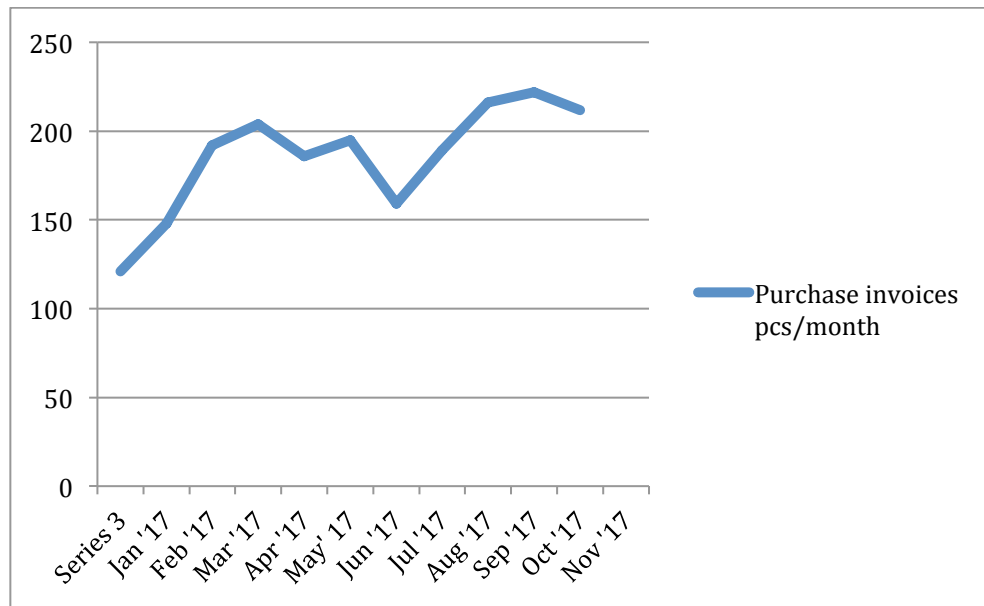


Figure 4. Purchase invoices per month.

Source: prepared by author

Figure 4 clearly demonstrates that the number of purchase invoices have been in a growing motion for a long time. The more invoices a company has, the easier it is to process them, if they are in a electronic form.

From the survey it also became clear, that suppliers invoice entries are increasingly tightened under the new system in order to keep the processing of invoices as automated and less time consuming as possible. That is also why less bills are missing. Also if some markings are missing from the bills, they can be promptly requested without any delays. All this speeds up the invoice processing. Also united opinion about the new system was that, it is important that the new system shifts workload of employees from paper rotation to productive work. They also have access to the required bills while being outside the office. This also affects the speed of the invoice handling chain and the recording of the expense to be charged to the customer. Due to this feature, the system has received recognition even after a short period of use. Below is a summary of the most significant benefits and challenges as seen by the respondents.

The introduction was fast and according to the schedule. In generally, users are satisfied with the electronic purchase invoice system. Telecommuting is now possible,

because of the implementation of the new system. Applying for a single invoice is significantly faster and no folders or archives are no longer needed. Nor do the experts need to keep copies of the invoices. All in all the processes have become accelerated and the rotation is transparent all the time. Information on the location of the invoices is getting easier, for example, invoices won't disappear and return to their handlers. Controls were also seen to improved, as the invoices are now always assigned to two handlers. The circulation has also accelerated the active participation of users, which facilitates the role of the administrator.

Challenges and developmental points were also outlined by users. The system didn't have a test period, which made the introduction phase more complicated. The company trusted the new system, since it has a contract with the same company on sales invoices. However, it was tested directly in in operation. This affected the learning of the program and for some employees it was hard to switch immediately to this new system. Another challenge was that the system did not support data transfer to Excel. However, that problem is adjustable. This feature might make it easier to handle some invoices. In addition, inside the system there were noticed some thought-out errors. Some of the search criteria section did not work and the suppliers' data were missing, for example, from the archive search.

Also one problem outlined by respondents was, that there are some suppliers who have many orders and rows on their invoices. Processing these invoices is challenging and time-consuming. With such long invoices, the most convenient way is to print an invoice and mark the lines in the output. According to the financial manager one challenge is, among others, the cost of licenses that limits the number of users. The company's invoicing policy would require more people to access the purchase invoice system. On the other hand, this helps to keep the number of inspectors / approvals at a moderate level and, consequently, to the manageability of the personal profiles. However, simplified rights, which would not be licensed, could be a good improvement, for which a lower price can be charged. Changing of the entries of invoices was also difficult according to the respondents, since first the acceptor has to note the line as a minus sign on the original account and cost center and then afterwards as a plus sign on the other account and cost center. Also one of the problems that emerged was that a single line could not be accepted before all the lines

of the invoice are correct. This will become a problem if the invoice has more than one cost center and, therefore, several lines of approval.

Results and analysis provided in this chapter made it clear how important it really is for a company to plan and execute a project in a proper way. In conclusion it can be stated that after the transition to the electronic purchase invoice system, the transparency of invoice processing has improved – the information is correct and easily available. It is possible to view purchase invoices from the new system regardless of time and place. The possibility of misuse is reduced and the procedures of internal control is made easier. Also 6 out of 7 employees, who answered the questionnaire were satisfied with the outcome of the new purchase invoice system.

2.3 Conclusions and suggestions

The aim of this thesis was to determine the main flaws of the purchase invoice system, which is implemented by the case company and to find out how the workflow of the company has changed since the transition. The results were received by interviewing the financial manager of the case company, because he was in charge of the introduction of the system, and by sending an e-mail questionnaire to five employees, who work with the new purchase invoice system. The purpose of the study is to identify the advantages and disadvantages of the new process. The work provides suggestions for development, whose reflection on implementation will be a subject to possible further studies.

For the case company the purchase invoice process was overall a positive change. In general, everything went well - from the introduction till the ultimate outcome. The purchase invoice process became considerably faster when the invoices are in electronic form, because everyone in the company is able to check them from the electronic software anytime, anywhere. Also an accountant can handle invoices as soon as they enter the system, and there is no need to wait for the imported paper bills at the end of the month. It is also not necessary to enter the invoices manually into the account ledger, excluding certain cases. This saves time and reduces errors. The results of the research also showed that the electronic purchase invoice system has a

positive impact on the company's decision-making process. It makes this process significantly easier and is based on up-to-date information. Decision-making is now based on the actual relevant information and therefore decisions are certainly justified and appropriate. Under the old system the purchase invoice reports and statistics for each month could have been viewed almost two months behind the real time. With the help of the new system, the case company has the opportunity to see directly from the system a fully up-to-date situation that makes it easier to set up decision-making.

Time was also an essential issue which was revealed during this research. Namely everyone who was involved in this project, stated that the purchase invoice process has become much faster since the transition, which is also confirmed by the data on figure 2 and 3. It can also be noted that scanning and posting of entries are the most time consuming steps in the purchase invoice cycle. However, it is still possible to influence the time used for scanning and posting of entry, which were the most time consuming steps in the cycle. A simple way to save scanning time is to increase the volume of e-invoices. However, increasing the amount of e-invoices is a hard task. One suggestion would be, that the case company would inform the suppliers that their company can only receive e-invoices. Nowadays it is a quite common practice for a company. It forces smaller businesses to switch to e-invoicing. The case company should not wait till every supplier independently shifts to the electronic system. But, they should initiate this process by bringing up the reason for the change and demand the invoices electronically. In addition, the automation of data identification further reduces the time spent on both scanning and accounting. The variability of bills and the need for control, however, makes it impossible to reduce the time used for endless accounting purposes. Also movements within every section will get more fast and easy, when every supplier of the invoices can have a default invoice inspector.

Usually when a company is changing something it will cause some reorganization of tasks inside the company. When some of the work steps go away, working time is released to the rest, which in turn will cause work to be rearranged. However, the case company enables to handle the same work steps with less resources and more results. It also simplifies the whole process, since no new huge work steps are created.

However, it should be noted some challenges occurred as well. The system had some minor dysfunctionalities and the learning of the system took time since, it was used immediately in operation without any test session. The need for trainings of employees to operate under this system would be essential. That is why for future projects it would be useful to set up training sessions before starting operating the new system. The training would harmonize business practices related to the certain project. In addition, the work of each employee would be enhanced. In order to improve the efficiency of the billing process, it would be useful for the company to record practices and information on paper that current handlers and acceptors have. Training the new handlers and acceptors and moving to a task is easier when other important issues concerning the new system are available in printed form. Additionally, this helps a new employee in a situation where no help and training from another person can be obtained. The issued to be summed up and printed out should be set up by the company itself.

To conclude the work, it can be stated that electronic purchase invoice system is far more than just receiving invoices in electronic form. It is important to determine the benefits and challenges a new project might cause for a company. Many companies are not currently taking advantage of the opportunities offered by electronically working systems, but continue to use old operating models. The author is satisfied with the outcome of the present research since aim was achieved and the research task were fulfilled. The results of the research will also be forwarded to the case company for consideration.

LIST OF REFERENCES

- Basware. (2017). e-Invoice Sending. [online] Available at: <https://www.basware.com/en-us/solutions/network-services/invoice-sending/e-invoice-sending>
- Caluwaerts, P 2010, 'Towards a European electronic invoicing framework: Why businesses, service providers and consumers should switch to e-invoicing', *Journal Of Payments Strategy & Systems*, 4, 3, pp. 231-241, Business Source Complete, EBSCOhost.
- CloudTrade. (2017). What is E-invoicing?. [online] Available at: <https://www.cloudtradenetwork.com/resources/what-is-e-invoicing>
- Cotteleer, M, Cotteleer, C, & Prochnow, A 2007, 'CUTTING CHECKS: CHALLENGES AND CHOICES IN B2B E-PAYMENTS', *Communications Of The ACM*, 50, 6, pp. 56-61, Business Source Complete, EBSCOhost,
- Dandapani, K. (2017). Electronic finance – recent developments | *Managerial Finance* | Vol 43, No 5. [online] Emeraldinsight.com. Available at: <http://www.emeraldinsight.com/doi/full/10.1108/MF-02-2017-0028>
- Eikebrokk, T, Iden, J, Olsen, D, Opdahl A, (2011) "Understanding the determinants of business process modelling in organisations", *Business Process Management Journal*, VOL.17 Issue: 4, pp.639-662
<https://doi.org/10.1108/14637151111149465>
- European Commission. (2017). e-Invoicing - Growth - European Commission. [online] Available at: http://ec.europa.eu/growth/single-market/public-procurement/e-procurement/e-invoicing_fi
- Hahle Oy (2017) <http://www.hahle.fi/etusivu>
- Harald, B. (2017). Networked Economy - Bo Harald. [online] Boharald.blogspot.com. Available at: <http://boharald.blogspot.com>
- Helanto, L., Kaisaniemi, T., Koskinen, K., Kuntola, K. & Siivola, M. 2013. Taloushallinto. Nyt. Tilitoimistoammattilaisen opas sähköiseen taloushallintoon. ProCountor International Oy. Espoo.

- Hill, JB 2015, 'e-Invoicing: the Next Frontier', *Journal Of Government Financial Management*, 64, 4, pp. 54-56, Business Source Complete, EBSCOhost.
- Knoch, B. Billentis report (2017). [online] Available at:
http://www.billentis.com/einvoicing_ebilling_market_overview_2017.pdf
- Knoch, B. Billentis report (2016). [online] Available at:
http://www.billentis.com/einvoicing_ebilling_market_overview_2016.pdf
- Kurki, M., Lahtinen, M. & Lindfors, H. 2011. Verkkolasku käyttöön!
- Lahti, S. & Salminen, T. 2014. Digitaalinen taloushallinto. Helsinki: Sanoma Pro Oy.
- Menard, B 2008, 'Optical Character Recognition', *Quality*, 47, 5, pp. 18-20, Business Source Complete, EBSCOhost.
- Murphy, M. (2014). How to prepare for auditing in a digital world of Big Data. [online] *Journal of Accountancy*. Available at:
<https://www.journalofaccountancy.com/news/2014/oct/201411104.html>.
- Penttinen, E., & Hallikainen, P., & Salomäki, T (2009) *Impacts of the Implementation of Electronic Invoicing on Buyer-Seller relationship*, IEEE Publisher
- Poutiainen, E. (2012). The implications of SEPA for e-invoicing. [online] Available at:
<http://onlinelibrary.wiley.com/doi/10.1002/9781119942634.ch17/summary>
- Rampton, J. (2017). State of Invoicing for 2017 - Due. [online] Due. Available at:
<https://due.com/blog/state-invoicing-2017/>
- Roos, G 2013, 'Basware Delivers On-the-Go Invoice Processing', *Eweek*, p. 1, Business Source Complete, EBSCOhost.
- Sabri, E, Gupta, A, & Beitler, M 2007, *Purchase Order Management Best Practices : Process, Technology, And Change Management*, Ft. Lauderdale, FL: J. Ross Publishing, eBook Collection (EBSCOhost), EBSCOhost.
- Salmony, M, & Harald, B 2010, 'E-invoicing in Europe: Now and the future', *Journal Of Payments Strategy & Systems*, 4, 4, pp. 371-380, Business Source Complete, EBSCOhost.
- Stephen F. Owens, Reuven R. Levary, (2002) "Evaluating the impact of electronic data interchange on the ingredient supply chain of a food processing company", *Supply Chain Management: An International Journal*, Vol. 7 Issue: 4, pp.200-211, <https://doi.org/10.1108/13598540210438944>
- tieto.fi. (2017). Tiedon verkkolaskupalvelu, Laskuhotelli. [online] Available at:
<https://www.tieto.fi/palvelut/liiketoimintaprosessipalvelut/business-information-exchange/verkkolaskutus-palvelun-ohjeita-ja-kuvauksia>

Wilmott, P. and Markovitch, S. (2017). Accelerating the digitization of business processes. [online] McKinsey & Company. Available at: <https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/accelerating-the-digitization-of-business-processes>

Wright, S 2017, 'Invoice Processing - Is It Working for You or Against You?', *Credit Control*, 38, 1/2, pp. 30-34, Business Source Complete, EBSCOhost.

APPENDICES

Appendix 1. Interview transcript

Haastattelu, Ville Niemenlehto Talousjohtaja Hahle Oy, 15.08.2017

BP: Elikäs, haluaisin kysyä teiltä kysymyksiä tästä teidän uudesta ostolasku systeemistä. Haastattelu kestää noin 30-40 minuuttia. Onko Ok?

VN: Kyllä se passaa mainiosti, mitä haluaisit tietää?

BP: Minkä nimiseen ohjelmaan päädyitte loppujenlopuksi?

VN: Päädyimme Basware nimiseen ohjelmaan. Oli helppo valinta, koska Basware on hoitanut meidän myyntilaskujamme myös jo pari vuotta.

BP: Miten päädyitte tähän tiettyyn systeemiin?

VN: Joulukuusa saatiin sopimus jonka jälkeen aloitettiin ja 2 kuukautta opeteltiin järjestelmää ja maaliskuussa aloitettiin. Basware on hoitanut myyntilaskuja jo vähän yli vuoden. Oli kaksi vaihtoehtoa Heeros ja Basware mutta kun oli basware jo olemassa niin ei tarvi uusia yhteyksiä luoda. Me ei nähty tavetta kansainvälisystimeen mutta kuitenkin päädyttiin baswareen koska oli aikasemmin ollut käytössä.

BP: Monta systeemiä kilpailutitte?

Appendix 1 continued

VN: 2 tuli tarjouskilpailuun. 3 oli midän erp systeemin kanssa tehty järjestelmä ruotsissa, mutta sen edustaja suomessa ja se kieltäytyi.

BP: Oliko systeemeillä mitään erilaisia toimintatapoja vai toimivatko kaikki samallailla?

VN: Ne hoitaa itseasiat iha saman tehtävän, ovat vertailukelpoisia. Hinnoittelu oli vähän erilaiset, mutta sitten laskettiin oletuksilla vuosikustannus ja päätettiin että isoja eroja ei ole ja ne painottuu vähän erilailla. Perus maksut ja luottomaksut.

BP: Vositteko kertoa tarkemmin, miten Ostolaskujen kulku toimii nykyään?

VN: 3 vaihtoehtoa. Koko konsernille tulee laskut yhteen paikkaan verkkolaskuina. Konsernin eri yrityksillä on omat verkkolasku osoitteet. Tai, sitten koko konserniin yhteen osoitteeseen, tai sitten paperi lasku jos ei pysty e- laskua lähettämään, siinäkin tarkoitus että tulee kaikki yhteen osoitteeseen.

BP: Toimiiko laskun tarkistus ja hyväksyntä erilailla?

VN: Kyllä. Saatetaan järjestelmään ekana. Hyväksyntään verkkolasku menee suoraan, sähköposti pitää sinne itse laittaa sisään ja paperilasku pitää skannata ja lukea sitten järjestelmään sisään Se on vähän pidempi prosessi mutta kaikki päättyy samaan lopputulemaan. Sen jälkeen toimittajalla voi olla oletuksena, että ketkä tämän toimittajan laskuja tarkastaa ja hyväksyy. Että sitten kun olemme kunnolla käynnissä, sanotaan puolen vuoden päästä, toimittajalle pitäisi olla oletus käsittelijät valmiina, aina kun lappu on saatu järjestelmään. Tomii niin että kun on tarkastajia ja hyväksyjä niin se tulee heidän omaan työlistaan ja sitten sen kautta prosessi jatkuu. Eli jokainen pystyy katsoa millon mikäkin työ on tehty.

BP: Miten teidän ostolasku prosessi toimi ennen?

Appendix 1 continued

VN: Täysin paperinen, kierrätetään joko sähköpostilla tai sitten fyysinen paperi kiertää pöydältä pöydälle. Ja jos laskun saaja ei ole paikalla, saattaa se jäädä pidemmäksi aikaa lojumaan pöydälle. Sitten kun paperi on hyväksytty siihen tehdään tiliöinti ja viedään

reskontraan ja naputellaan lasku sinne sisään. Sitten ollaan makstatuksen kanssa samassa tilanteessa mitä tämä järjestelmä hoitaa. Eli se hoitaa sen että lasku tulee automaattisesti maksatukseen eikä sitä tarvi itse kukaan näpytellä sinne

BP: Kauan tama uusi systeemi on ollut käytössä?

VN: 1.3 aloitettiin.

BP: Miten on muuttanut työnkulkua?

VN: Samat henkilöt tarkastaa, mutta mitään fyysisesti ei liiku enää ympäri firmaa. On valvonta järjestelmässä, eli pääkäyttäjä pystyy katsomaan ja tarkistamaan missä mennään, eli jos eräpäivät esimerkiksi lähestyvät pystyy hän muistuttamaan henkilöä kellä lasku on, koska näkee järjestelmän kautta kenellä se on. Tämä on todella läpinäkyvää,

BP: Oliko ajankohalla väliä million järjestelmän ajoitte ottaa käyttöön?

VN: Oli tavoitteena saada järjestelmä mahdollisimman nopeasti käyttöön, ei nähty riskiä, koska jos ei toimisi niin vanha toimii ihan hyvin myös, periaatteessa tämä ei poista vanhaa vaan tekee siitä vaan helpompaa. Eli lähdimme tähän prosessiin sillä periaatteella , että mikään liiketoiminta vaarantuisi tai maksuliikenne vaarantuisi. Vanha ihan manuaallinen.

BP: Onko raportointi parantunut uuden systeemin jälkeen?

Appendix 1 continued

VN: Raportointi on silleen hyvää, jos puhutaan siitä seuranta raportoinnista, analyysi raportointia ei niinkään ole mitä on tapahtunut, koska meillä ei oikeastaan ole vertailua vielä onko tämä parantunut meidän kassa-alennuksen saantia tai lyhentänyt käsittelyaikoja koska meillä ei ole ennen ollut tällaista eikä pysty vertailemaan. Seuranta raportointi eli operatiivinen raportointi, eli kun se lasku menee järjestelmään tämä tulee etupainotteiseksi eli laskun voi hyväksyä heti kun se on hyväksyttävissä, kun perinteisellä tavalla sen voi hyväksyä kun on viimeinen päivä hyväksyä, koska kukaan ei näe laskua kunnolla. Mutta nyt kun lasku näkyy järjestelmässä, hyväksyjä pystyy katsomaan järjestelmästä ja tehdä sen heti tai sitten joku muu tulee kehottamaan.

BP: Onko laskun kirjaukset pysyneet samallaisina?

VN: Samat kirjat tulee ja ne hoituu tarkastuksen puolella, että täällä voidaan se tiliointi suorittaa ja täsmäyttää ja kuka sen menee kasaa niin kirjanpidossa ei ole ongelmia. Aikaisemmin se työllisti reskontran hoitajaa, joka kävi läpi tiliöinnin ennen maksatusta. Nyt on vielä reskontran hoitaja, mutta hän saa kaiken valmiina, eli helpottaa todella paljon hänen työtä. Hänen tarvitsee enään toimittaa ja maksaa laskut.

BP: Onko systeemi otettu käyttöön kaikissa Hahlen yrityksissä vai vaan Hahle groupissa?

VN: Alkoi hahlesta, yksi lähti, toinen tuli heti perään, hahle, hahle grouppi, ja sen jälkeen käytiin starttaamassa jos adoria ja m-light sai samalla tiedon että starttaa ensiviikolla ellei oo minkäläistä näkemystä että onko riskiä. Kenelläkään ei ilmaantunut mitään, joka voisi vastustaa käyttöönottoa. Sitten sen jälkeen kun kaikki on sananut käyttöön järjestelmän. Jokasella firmalla on ollut oma laskujärjestelmä ja maksaminen. Nyt meillä on periaatteessa keskitetty toiminto, joka saattaa ne tähän omaan yhteen järjestelmään, sen jälkeen kukin tekee itse tarkastuksen ja sitä ei voi muuttaa, ja sen jälkeen kaikki kasataan taas yhteen. Mahdollistaa sellasen palvelu keskusken.

Appendix 1 continued

Eli kun otetaan sieltä tarkastuksesta, sen jälkeen nämä ovat ihan geneersiä hommia ja laksun järjestelmään laittaminen on geneeristä , mutta itse tarkastaminen joutuu tehdä itse.

BP: Tuleeko nykyään vielä paljon nykyään paperisina muotoina laskuja?

VN: Ei järjestelmään asti, papereita, tulee mutta järjestelmään asti ei.

Oikein positiivinen, helppo pieni kompakti järjestelmä ja prosessi, pystytään hyödyntämään vanhoja toimittajia ja tietoja. Käyttöönotto tapahytui helposti, Perustetaan käyttäjät, tilikartat on olemassa, samat toimittajat, kalenterissa menee viikko niin se on käytössä. Työmääränä ei ole pitkä prosessi.

Suunnittelu muodossa oli vaan tärkeä että mahdollisimman nopeasti tämä saadaan tapahtumaan. Joulukuussa saatiin sopimus jonka jälkeen aloitettiin ja 2 kuukautta opeteltiin järjestelmää ja maaliskuussa aloitettiin. Basware on hoitanut myyntilaskuja jo vähän yli vuoden. Oli kaksi vaihtoehtoa Heeros ja Basware mutta kun oli basware jo olemassa niin ei tarvi uusia yhteyksiä luoda. Me ei nähty tavetta kansainvälisysteimeen mutta kuitenkin päädyttiin baswareen koska oli aikasemmin ollut käytössä .

BP: Monta systeemiä kilpailutitte?

VN: 2 tuli tarjouskilpailuun. 3 oli midän erp systeemin kanssa tehty järjestelmä ruotsissa, mutta sen edustaja suomessa ja se kieltäytyi.

BP: Toimiiko teidän mielestä tämä uusi systeemi nopeammin kuin vanha?

VN: Kyllä ehdottomasti. Me testasimme itseasiassa jokasen vaiheen kestoja vanhan systeemin loppupuolella ja nyt pari viikkoa sitten testasimme saman uudella systeemillä. Ja uus oli selvästi nopeampi.

Appendix 1 continued

BP: Onko teillä tuloksia niistä testeistä?

VN: Kyllä ne ovat tässä minun koneellani, voin näyttää.

Ennen Baswarea koko laskun prosessiin meni 350 minuuttia. Mutta, uuden systeemin jälkeen prosessiin meni vain 220 minuuttia, joten selvästi on nopeutunut laskutus prosessi.

BP: Hienoa, tämä olikin sitten tässä. Kiitos!

VN: Eipä mitään, tuu kysy jos tulee vielä jotain.

Hahlen uuteen ostolasku systeemiin liittyvä kysely

Oletko ollut tyytyväinen uuteen ostolasku systeemiin/prosessiin?

Oma vastauksesi

Miten siirtyminen tähän uuteen ostolasku systeemiin sujui mielestäsi? Oliko ongelmia? Mikä sujui hyvin?

Oma vastauksesi

Onko sinun työ muuttunut paljon, sen jälkeen kun uusi systeemi on otettu käyttöön? Jos on, niin mikä on muuttunut?

Oma vastauksesi

Onko uusi ostolasku systeemi nopeuttanut vai hidastanut prosessia yrityksen sisällä?

Oma vastauksesi

Pidätkö paperittomuutta yrityksen sisällä hyvänä vai huonona asiana? Miksi?

Oma vastauksesi

Appendix 2 continued

Onko ilmennyt mitään ongelmia systeemin järjestelmässä tai käytössä? Mitä?

Oma vastauksesi

Onko jotain mitä itse haluaisit muuttaa nykyisessä ostolaskuprosessissa?

Oma vastauksesi

Kokonaisuudessaan, oletko tyytyväinen uuteen systeemiin?

- Kyllä
- En
- Samat fiilikset kuin ennen
- Muu: _____

LATAA

Älä koskaan lähetä salasanaa Google Formsin kautta.