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Invoices in the digital era: A qualitative study on consumer preferences

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Abstract

The technical conditions have always determined the potentials of the payment systems' development. Since the arrival of the digital era, there have been many new possibilities for the development of payment methods. In this study we investigated how the digitization affects our invoicing systems with the purpose to enlighten the effect of digitization on our payment systems.

We set up a theoretical framework that was to be the foundation of how we view a consumer in this matter. Our results are based on interviews with 16 consumers who answered questions about their invoicing habits and preferences. This information was then analysed with help from the theoretical framework and compared to earlier studies. A discussion is presented in the analysis on the different effects that the digitization has had on the consumers' invoicing habits and along with our findings we also generated hypotheses that can be used in future research.

In its whole, the respondents were fairly uneducated on the subject and only a few knew the underlying reasons of their own invoicing habits. The most striking result was that there is a large gap between how the respondents perceive the electronic invoice and how it actually is, making them less eager to try it. Nonetheless, the respondents were interested in trying a digital alternative to the paper invoice. The respondents older than 40 years old perceive the electronic invoice to be more difficult to use than the younger respondents. Furthermore, security was very important for the respondents when they shop online. It is clear though that more consumers would use electronic invoicing if they got to talk more about it or if they would get regular and coherent information about electronic invoicing.

Since the digitization is a growing phenomenon we believe that this is very important to study in order to understand how our payment systems are affected. Furthermore, we believe that the electronic invoice is an innovation that is perfect to investigate in order to further grasp how consumers and companies think when an existing product or service is digitized.

Sammanfattning

De tekniska förutsättningarna har alltid avgjort betalningssystemens möjligheter och utveckling. Sedan inträdet av den digitala eran har det funnits många nya möjligheter för utveckling av betalningsmetoder. I denna studie har vi undersökt hur den pågående digitaliseringen påverkar våra faktureringsystem i syftet att belysa hur digitaliseringen har påverkat våra betalningssystem.

Vi satte upp ett teoretiskt ramverk som skulle vara grunden för hur vi ser en konsument. Våra resultat bygger på intervjuer med 16 konsumenter som svarat på frågor om deras faktureringsvanor och -preferenser. Denna information har därefter analyserats med hjälp av den teoretiska referensramen och jämförts med tidigare studier. I analysen diskuteras de olika följder som digitaliseringen har haft på konsumenternas faktureringsvanor och tillsammans med våra resultat har vi också genererat hypoteser som kan användas för framtida forskning.

I sin helhet var de intervjuade ganska utbildade i ämnet och bara ett fåtal kände till de bakomliggande orsakerna till deras egna faktureringsvanor. Det mest slående resultatet var att det finns ett stort gap mellan hur de intervjuade uppfattar den elektroniska fakturan och hur den egentligen är, vilket gör dem mindre angelägna att testa det. Trots detta var de intervjuade intresserade av att testa ett digitalt alternativ till pappersfaktura. De intervjuade som var äldre än 40 år uppfattade den elektroniska fakturan svårare att använda än vad de yngre gjorde. Säkerheten var dessutom mycket viktig för respondenterna när de handlar på nätet. Det är däremot uppenbart att fler konsumenter skulle använda elektronisk fakturering om de fick prata mer om det eller om de skulle få regelbunden och enhetlig information om elektronisk fakturering.

Eftersom digitaliseringen är ett växande fenomen anser vi att det är mycket viktigt att utreda det, för att förstå hur våra betalningssystem påverkas. Vidare anser vi att den elektroniska fakturan är en innovation som är perfekt att undersöka för att ytterligare förstå hur konsumenter och företag tänker när en befintlig produkt eller tjänst digitaliseras.

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1 Introduction

The first chapter will introduce the research problem and show why it is interesting to explore. Furthermore, it will be discussed what has been examined in earlier studies on the subject and how this has come to shape the purpose of our research.

1.1 Research problem

Different payment systems¹ have always been dependent on technical conditions and sometimes the technical development has either enabled or disabled the further development of the payment systems. When the computer arrived on a larger scale and later on the creation of the Internet with its immense growth, the payment systems were introduced to a whole new world. Banks all over the globe could communicate and shopping had never been easier for the consumers. Before the digital innovations came we went to the bank to make payments, we used checks when we wanted to pay directly but on credit and we received our invoices through the mail. In light of the digital innovations, many new payment methods² were introduced such as credit cards, Internet banking and more recently e-invoicing³. Furthermore, the newest thing is the mobile payment methods that have emerged the last years. All these new ways of payment raises the question: how does this digitization affect our payment methods?

To order a product using invoicing as payment type⁴ is not anything new and has been used by everyone at least at one point in life. Not long ago the digital invoice⁵ was unheard of but lately it has begun to grow as a payment type and in

¹ See Payment system in Appendix A – Definitions.

² See Payment method in Appendix A – Definitions.

³ See Electronic or e-invoicing in Appendix A – Definitions.

⁴ The payment type is how a customer will be charged, either by invoice or upon order.

⁵ See Digital invoice in Appendix A – Definitions.

the form of electronic invoice it has even developed into a payment method. Earlier, when choosing invoicing as payment type, the invoice was received after a few days in the mailbox. On this invoice all the important information regarding the purchase was described but it was still necessary to go to the bank or the seller to make the payment. Bank, cash or check was in that case the possible payment methods. Later, it was possible to log in on the Internet bank to pay the invoice. As of recently, the invoice can be received and paid for using e-invoice. This paper treats the adoption of e-invoices in Sweden and refers to the aforementioned problem formulation. The larger research problem is: how does this digitization affect our invoicing system?

The cost saving quality, both in terms of money and time, speaks for a diffusion of electronic invoices among companies (Suominen, 2012) and consumers are expected to choose this over the invoicing alternatives (Byström & Lund, 2006). Empirical studies have shown that the transition to electronic invoices has not gone as rapidly as expected and therefore, in this paper, the private consumers' attitudes toward invoices are investigated.

1.2 Earlier studies

Electronic invoicing has been used in Sweden since 1997 and for example SEB⁶ was actually pressured by their Internet users to introduce it in 1998 (SEB, 2013). In 2006 the breakthrough of electronic invoicing had still not come and even though the use of it kept increasing it was still not at the expected rate, which led to research on the subject, e.g. Fernström (2006) and Byström & Lund (2006). Fernström and Byström & Lund wanted to seek out the factors that affected the use of electronic invoicing in order to conclude why it had so few users. In Fernström's research he interviewed three employees, each one at different companies where two of them were at least partially responsible for the electronic invoices and the last one responsible for customers. Since his research is done from the companies' viewpoint it cannot speak for the specific

⁶ SEB is today one of the largest banks in Sweden.

factors influencing consumers' use of e-invoicing but conclusively he states that it is an expensive investment for companies but the consumers' demand play a big part of the slow adoption.

Byström & Lund (2006) had another approach where they wanted to look more at the problem from the consumers' perspective. In their research they sent out electronic surveys to electronic invoicers⁷ with questions regarding the companies' perception of how well the adoption of the electronic invoicing system had advanced for them. In conclusion they found that there is a catch-22 because the companies are cautious to adopt the e-invoicing system for its initial costs since the interest of the consumers is not obvious and at the same time, the consumers are waiting for more companies to adopt the system in order for them to be interested. Meanwhile, the research was only based on the invoicers' opinions and not the consumers'; hence, their suggestion is to investigate what would make consumers interested in electronic invoicing.

In his research, Suominen (2012) looked at the use of electronic invoices by smaller companies in Finland and how they perceive e-invoices. He finds that the use of e-invoices saves time, money and reduces carbon emission but that the diffusion of the new system has not had the breakthrough that was expected. Furthermore, he argues that the main reason for this is the negligible money saving quality of e-invoices for smaller organisations since they almost only save on the office supply and postal costs. For larger organisations the cost savings have been much larger since the bookkeeping becomes more automatic and efficient. This also explains why telephone operators, energy companies and insurance companies were among the first in Finland to adopt the electronic invoicing system and actively encouraged their customers to desist using paper invoices. Lastly, he points out that the inexperience and lack of knowledge are the reasons behind the smaller companies' reluctance to use electronic invoicing.

⁷ Electronic invoicers are the companies providing the possibility to use e-invoice.

Dahlberg & Öörni (2007) found in their study on mobile and e-invoice payments that the most important factor for payment methods is trust. Their study was quantitative and done from a consumers' perspective but with the main focus on mobile payment methods. Today, most e-invoice payments are made through Internet banks and the trust for the Internet banks are relatively high. Whereas trust was deemed very important, they also found that it was not as important to have compatibility between the e-invoicing system and the consumers' current payment methods. They conclude that there has been a substantial growth in the use of Internet banking to pay for invoices and only few go to the bank office. Furthermore, they see that there is a clear connection between age (younger are more willing) and the intention to increase the use of electronic invoices and also that high income is positively correlated with the actual use.

Elestedt (2007) investigated the electronic invoice users' attitude toward the newly introduced e-invoicing system at Karlstad's University. According to her research, the interviewed individuals usually use Internet bank to pay for their invoices and their attitude towards it is that the Internet bank is easy to understand and to use. It is shown that it is not easy for everyone to use e-invoicing and even though time can be gained by some, others find it very time consuming. The main problem derives from the use of e-invoices in an organisation, which is the investigated problem in her paper. The general opinion of the interviewees in Elestedt's (2007) research is that the electronic invoicing system in its whole is very appreciated.

In their paper, Johansson & Rutgersson (2007) studied whether the extra invoice fee⁸ meant to cover the administration costs, reflected the actual cost of creating and handling an invoice. According to their study it was clear that when a company introduce an extra invoice fee there is a shift towards the use of digital

⁸ Sometimes there is an extra-fee introduced for using paper invoices instead of electronic invoices.

invoices. They argue that the reason could be either because the customers wanted to avoid the extra cost or because they noticed there were other types of payment, but since the study was done from a company's perspective this conclusion is mere speculation. In most cases, the customers that failed to make their payments on time were using paper invoices, although in some cases they used e-mail invoicing. In conclusion it was stated that the company made a profit from introducing the extra invoice fee.

In his research Böhling (2010) wants to find in what way the choice to start using electronic invoices has affected the three interviewed companies. He only investigates the electronic invoicing B2B and his results do not take the private consumers into account. One of the companies received 95% of all its invoices electronically but had not start sending e-invoices at all. The reason was that the company mainly had private customers and these did not use e-invoicing. Saving time and lowering costs are the common denominators for the three companies since they started using electronic invoicing.

All these studies investigated the use of electronic invoicing, some from a consumers' perspective and others from a company's perspective. The two studies that investigated the consumers' viewpoint either asked the invoicers and not the consumers or focused the research on mobile payments. Moreover, both those reports are based on a quantitative research design, leaving no room for discussion with the consumers in question.

In light of the information acquired from earlier studies in combination with the aforementioned larger research problem this study's problem formulation is defined by the following question: How does the digitization affect our invoicing systems? This will be investigated from a consumer's perspective with a qualitative approach to add new information on the subject.

1.3 Purpose and research questions

This paper is meant to examine invoices in relation to technological development. Previous studies have shown that the adoption of electronic invoices has not accelerated as expected and we aim to investigate the underlying causes, but from a consumers' perspective. In order to partially show how the digitization has affected our invoicing system but with another approach, in comparison to earlier studies, we have chosen to conduct a qualitative study and generate hypotheses that in addition to an analytical discussion will offer plausible answers to the following specific research questions:

1. Why has the innovation of electronic invoices not had its expected breakthrough?
2. Why do more people not use invoices when shopping online?
3. How competitive is the electronic invoice in comparison to the paper invoice?

1.4 Target group

This paper is primarily interesting for companies that have their main businesses to act as online invoice managers⁹. Furthermore, companies that have consumers as their target group and that charge them by invoice can find this paper valuable because it describes consumers' preferences for invoices. This paper includes hypotheses and analyses that offer a good base for further study or research.

⁹ See Online invoice managers in Appendix A – Definitions.

2 Method

In this chapter we will start by describing what an invoice is per definition. This affects the choice of our research methodology because it grants us a greater understanding of what will be researched. Furthermore, a description of our chosen research methodology will be presented in high detail.

2.1 An invoice: defined by laws

This section will describe those parts of invoicing that are governed by Swedish laws and that are important to this research according to us. Even though this is a paper on consumers' preferences and behaviour it is important to understand the laws and legislations that set the rules for what is an invoice. If an individual wants to change something with his or her invoicing procedures that would not be legally possible to ensue, this would be interesting to look further at. Maybe there are even certain things that are perceived by consumers as something they cannot change even though they would like to. The Optical Character Reading (OCR) number for example is included on most invoices from larger companies but is not needed by law; rather it is used to facilitate their bookkeeping and organising. It is possible that consumers assume that they need to use these OCR numbers when it really is just a reference number to make it easier for the company to keep track of the paid invoice.

Furthermore, in this section we will describe the definition of a paper and an electronic invoice according to the Swedish laws and also what a consumer would expect existing on a received invoice. The following definition is what will be referred to as an invoice in this research.

An invoice is defined as a document or message in paper or electronic form where the following points are included^{10 11}:

- The date on which the invoice was issued.
- A sole unique serial number for each invoice based on one or numerous series.
- The seller's VAT registration number.
- The seller's and the buyer's names and addresses.
- The services' or products' more precise specifications.
- The date on which the products were sold, or the services were carried into effect or fully finished.
- If a pre-payment has been made: the date of payment, if it can be determined when and is different from the invoice's issue date.
- The taxable basis for each tax rate or exemption, the price per unit exclusive VAT and made price reductions or discounts, if there are any, that are not included in the price per unit.
- The applied VAT rate.
- How much VAT to pay if the sale is not VAT exempt.

An electronic invoice is defined the same way as a paper invoice but is delivered and received in electronic form. Another major difference is that the recipient needs to accept receiving the invoice in electronic form but for a physical invoice that is not a requirement.

¹⁰ These points are simplified and translated from the original legislations Mervärdesskattelag (1994:200). Only the points relevant to this paper are included (for the full and original list see 11 kap. 8 § in Appendix C – Applicable Laws).

¹¹ If the invoicing laws of another EU country are applicable these will govern the definition of an invoice (see 1 kap. 17 § Appendix C – Applicable laws).

2.2 Choice of sample

In order to understand the consumers' preferences in more detail, which is a main part of the purpose, interviewing the consumers themselves was found to be a good method. We decided to use the *Strategic Sampling Method* (see Trost, 1993 p. 70) to choose our respondents. Earlier studies have shown that to explain consumer behaviour the most important demographics are sex, age, education, income level and profession (Venkatesh et al., 2003). We deem these factors realistic but have chosen to focus on only four criteria when choosing our sample group: (1) Region, (2) Sex, (3) Age and (4) Education level. The reason we focused only on these four criteria was because we found them sufficient and reasoned that income level and profession are in many cases dependent on education level. The idea is that since the respondents were chosen based on the four criteria it would give a wide sample and furthermore render many different opinions.

(1) Every sample subject is currently living in Västra Götaland, Sweden, to maintain more control over the research and not get too much spread. Since it was unsure if geography would be an important demographic factor, it was chosen as a factor to be narrowed down to a certain region to assure that the results did not vary.

(2) Half of the sample population is male and half is female because it reflects the general division in Sweden.

(3) Age is chosen as a sample diversifier because of how the number of handled invoices, monthly but also in total, is assumed to differentiate depending on the age of the respondents. There are two main groups to distinct different ages, older and younger; these are subsequently divided into four different age groups meant to spread the ages even more, to obtain a higher validity of the research. Older is herein referred to as an age more than 40 years old but not seniors and the younger samples are under 40 years old but have finished *gymnasium*¹². The limits were set to diversify the sampling.

¹² Swedish equivalent to high school. Year 10-12 of school.

(4) It is interesting to look at the education level of the respondents since it is possible there would be a difference between those who start working at a young age and those who start later on in life. People with a lower education level could be introduced to invoices earlier in their life and on a larger scale because normally they start working full-time at a younger age. This segment is graded by highest obtained level of education. The sample group is divided into higher or lower education level where higher level of education means studies after *gymnasium* and lower level means studies at *gymnasium* or lower.

Dahlberg and Öörni (2007) found that age and profession were differentiating factors when conducting their research on mobile technology and electronic invoices. This is applicable also in this research and although education level and profession are not the same factors, they are herein believed to be highly correlated. There were 16 respondents equally divided among these criteria because it was deemed sufficient for this research, and they were chosen from the vicinity of the authors. Every individual that was asked to be interviewed is believed to be representative for his or her sample group and all of them accepted the request. Each of the 16 respondents was given an ID (a letter from A-P) to keep them anonymous (see Table 1).

Table 1: Sample tree describing the diversification of the 16 respondents.

Region	Västra Götaland															
Sex	Male								Female							
Age	40+				39-				40+				39-			
Education level	High		Low		High		Low		High		Low		High		Low	
Respondents	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P

2.3 Constructing questionnaire

After choosing which population that should be sampled a questionnaire that would be relevant for this research needed to be created. To make this form relevant, the goal of the paper needed to be formulated and divided into discussion points. These discussion points outlaid the base for the questionnaire and with relevant sub questions they were meant to lead to satisfying answers helping to enlighten the main problem and fulfilling the paper's purpose.

The questions and discussion points were formed with inspiration from an interview with Jonas Edlund, business manager at Pagero AB. Pagero is foremost an online invoice manager, making Jonas' insights very valuable. Online invoice managers like Pagero really show the importance to investigate the digitization of invoices. During the interview with Jonas we learned that there are three main categories to help understand a consumers' invoice handling: (1) Choice of payment type, (2) invoice reception and (3) invoice organising. The three categories were used to form the structure of the questionnaire.

When discussing the choice of payment type, mainly the differences between electronic and paper invoicing, it surfaced that many consumers have a problem with the aforementioned OCR number. Moreover, we recognised this from what we have heard from people over the years and therefore it got a small section of its own in the questionnaire. We are certain that it is interesting to investigate but understand that including such a specific question might make the answers slightly biased.

To make it possible for further research and quantification on this matter, the research was chosen to be on a qualitative basis but the problem to be approached in a more nomothetic manner (Lantz, 1993 p 29). Hence, the questions were to be open and able to lay a foundation for the main problem, but still closed enough to examine the respondents' specific behaviours.

Furthermore, the lack of earlier interviews with consumers on the subject leads to more of an inductive research, firstly specific observations in where patterns can be found and from which hypotheses can be generated. The questions are outlaid in a way to make it easy to compare and find patterns for the specific research questions.

Moreover, the interviews were semi-structured having certain questions that needed to be answered but enough room left for discussion on the different topics. This enables an in-depth analysis in addition to a shallower overview because of the well-structured interview material.

2.4 Test interviews

To ensure the validity and reliability of the interview material and the used interview techniques, four test interviews were conducted as proposed by Lantz (1993, p66). The goal of these interviews was for the interviewees to criticize the interviewer and the material used in order to improve this for future interviews. Furthermore, the data processing strategy was also tried and thereof refined.

At the beginning of these interviews the respondents were informed that it was a test interview and that they were to answer all questions truthfully and that they should also evaluate the questions and interviewer in order to give feedback at the end of the interview. After the first interview there were many changes made to the questionnaire since it felt incomplete on some points as well as redundant on others. After the second interview, the feedback was mainly focused on the interviewer's technique and not as much on the questions. During the first two interviews both authors were present but only one of them interviewing. There was an intimidating feeling of two-against-one during those sessions and from thereon only one of the authors was present, always the same author. After the third and fourth interview no significant critique was given, ascertaining the choice that four trial interviews would suffice.

2.5 Conducting the interviews

There were 16 conducted interviews and the results from these were reviewed step-by-step in order to discover new possibilities to develop or adjust the research. The created questionnaire, after being further developed at the test stage, was used to cover the basic questions and a deeper discussion was based on a few more open questions and discussion points. The interview was in some way led in a predetermined direction by the interviewer but was still allowed to cover more than the exact questions.

Before the interviews the respondents were given a background briefing on the subject and also the boundaries of discussion¹³. The questions cover the respondents' economic situation, which in many cases is a sensitive subject, and therefore the interviewed are completely anonymous and were not recorded. They were told this before the interview so it would not affect their answers. All interviews were conducted in Swedish. According to Lantz (1993, p111) the interviewers need to evaluate the trade-off of not recording and doing so. Thereof, another reason none of the interviews were recorded was because the respondents should feel as comfortable as possible and the possibility that they would talk about their actual feelings was deemed higher without a recording machine. The quality of the data processing was considered to be rather unaffected by this choice.

Most of the interviews were made face-to-face in a calm area where the respondent could feel comfortable. Because of the time limit and the busy schedule of some respondents there were two interviews made by telephone and the respondent was then asked to sit down in a calm and peaceful place through the whole interview.

¹³ E.g. the respondents are only viewed as private consumers and should therefore only answer in a way that supports that viewpoint.

2.6 Theoretical framework and source criticism

As shown earlier, there have been previous studies on this subject but none of them were done from a consumer's perspective nor based on interviews with consumers. Therefore, we have chosen to set the standard by introducing our own theoretical framework. To understand the consumers and to be able to look underneath the surface we needed theories that we believed reflect how consumers think. For the rational choice theory we have chosen to use a relatively modern viewpoint because it has been a growing concept for almost a century (Scott, 2007). Since it has been developed through the years there is no *first* source that we have based our research on but instead the sum of all its parts. For the theory of learning by doing we used the same approach and interpreted the theory for the modern world. Furthermore, the adoption of new technologies is vital to this research so theories handling consumers' willingness to adopt new innovations were needed. The theoretical framework will be presented in detail in the following chapter.

The theoretical framework is based on theories that have been used in many other studies that look at the adoption of new technology from consumers' perspective, but never on this particular subject. Therefore, we believe that the theoretical framework would be relevant and reliable. The earlier studies that are presented in the first chapter are to be used in the analysis to evaluate whether our research has presented similar results but they are never the sole reason for any of our conclusions. Finally, the statistics that are presented in chapter 4 stem from reliable sources and will show a more numeric side to the analysis.

2.7 Results and analysis

The process of using the data collected from the interviews is divided into two steps: (1) Extracting results and (2) Analysing results. The questions are formed in a way to make it easy to extract the results and analyse them. The extracted results from the interviews were analysed within the theoretical framework to answer the specific research questions stated in the purpose.

- (1) After the interviews the results¹⁴ from these were transferred from the interviewer's notes to an excel-sheet. The answers were rewritten to shorter and more comparable responses. An ID was also given to the respondents, for example A, which would be a male in Västra Götaland with a high education level and older than 40 years (see Table 1).
- (2) During the analysis phase the extracted results were examined and reviewed by the authors within the boundaries of the theoretical framework. The analysis is made, in guidance of the theoretical framework, based on the authors' experience and knowledge on the subject, and the transferred results. From this analysis hypotheses were generated to address the purpose of the paper.

2.8 Limitations

A limitation with the chosen method is that it will not show the general opinion of the Swedish population. The sample groups do not include people less than 20 years old or seniors and therefore these sample groups' opinions will not be represented. The analyses and hypotheses generated in this study will be limited to the opinion of sixteen respondents chosen based on four criteria¹⁵.

Furthermore, the research will partially be limited by the created questionnaire¹⁶ and information that comes from discussing together with the respondents. Since the respondents all are from a local region in Sweden the research will be on Swedish invoices restricted by Swedish laws. The goal of this paper is to illuminate the problem formulation and will therefore only look at the preferences from private consumers' point of view and not the one of companies. This research is also based on the idea that the respondents were understood correctly and that their answers were honest.

¹⁴ The answers to the questions, discussion points and the interviewer's perception of the interview.

¹⁵ See section "3.1 Choice of sample" of the paper.

¹⁶ See Appendix B – Questions.

3 Theoretical framework

The following theories are chosen to facilitate analysing the results and contribute to understand consumer behaviour. They will be used as some sort of benchmark for the results from the conducted interviews.

3.1 Rational choice theory

When a rational consumer makes a choice it believes that it will increase profit, social exchange, self interests or minimize losses (Scott, 2007). That humans are rational beings is nothing new but the rational choice theory excludes any possibility that human actions derive from anything but a rational and calculative choice. Other social science theories on this matter tend to include non-rational choices in human actions (Scott, 2007).

The rational choice theory assumes that individuals will anticipate the outcomes of all different situations and act according to where they would gain the most satisfaction (Scott, 2007). It is important to remember that these rational choices are based on the information given to the individual, meaning that sometimes these rational choices occur under uncertainty.

3.1.1 Rational choice theory under uncertainty and/or risk

Firstly, it is important to understand the difference between choice under uncertainty and under risk. In this research we define uncertainty as the probability of an outcome and the risk as the negative consequence. An example could be an individual wanting to buy a product on credit and pay by invoice. The rational choice is based on which product and from where it is purchased because the individual wants to minimize costs and maximize satisfaction. Also, the extra-fee for paper invoice, depending on how large it is, could influence the decision. Since the product is purchased on credit the uncertainty and risk are needed to take into account. We assume that the uncertainty is based on the given credit time, the total charged amount and on the individuals' other expenditure and income, i.e. the probability that the individual will be able to pay

within the credit time. The risk would be defined as how the individual would be penalized if not able to make the payment in time, i.e. late payment fee in terms of money, and depending on other uncertainties, the risk to get banned from the shop in the future or that the case would be referred to the Enforcement Service.

If an individual wants to buy a product and can choose from four different locations where credit time, price and late payment fee are different. This will render different uncertainties and therefore also the real costs will differ. The real costs are dependent on the different costs and the probability of paying the late payment fee. To illustrate this in an example we have constructed the scenario in Table 2.

Table 2: An individual's purchase options under uncertainty and risk.

Location	Credit time (days)	Cost (SEK)	Extra-fee (SEK)	Late payment fee (SEK)	Uncertainty (probability)	Real cost (SEK)
A	20	10000	70	300	0,2	10060
B	15	9900	70	300	0,5	10100
C	30	10100	70	200	0,05	10110
D	30	10100	70	400	0,05	10120

Comparing the options suggests that the individual will most likely get enough money for the purchase within 30 days and to minimize the risk location C should be chosen ($200 \times 0,05 = 10 \text{ SEK}$). To minimize costs the individual should choose the product from location A. Whether location A or C is the most rational choice depends on the individual's preferences and earlier experiences.

3.1.2 Incomplete information

Products are usually chosen based on their price and/or quality where the price is quite straightforward but the quality more difficult to estimate (Tellis & Gaeth, 1990). Adding the credit time and late payment fee will increase the uncertainty to both the price and ability to pay. According to Tellis & Gaeth (1990) consumers purchase products with incomplete information, and even though the

buyer has the possibility to find how much the late payment fee is or how long the credit time is, this is certainly a case where the consumers do not know all the facts.

Assuming the customer is unknowing of the credit time and late payment fee, these can be removed from the equation in Table 2, hence, also removing the perceived risk since there would be no perceived direct punishment for not paying on time and there is no direct time limit to consider. Since the credit time would be non-existent and consequently the level of uncertainty would be irrelevant. The only thing left to compare for the customer would be the given prices thus making location B the optimal choice being the cheapest. Hence, having incomplete information would enable a rational individual to choose the location with the highest real cost, location B.

3.2 Learning by doing

The learning by doing theory tells us that an individual will make different choices depending on the complexity of the decision. If a person experience that it is very hard to make a rational decision, the person will instead decide depending on what feels best and then learn from the result (MacLeod, 2000). Therefore, according to MacLeod (2000), using tic-tac-toe as an example, time pressure and inexperience can lead to mistakes, simply because the player finds it difficult or does not have the time to make a rational decision.

In the case of invoices and credit purchases, individuals can find it difficult to understand all the rules and terms. They could even have difficulties knowing how they would like to receive and organise their invoices. Therefore, they could make irrational choices from which they could learn, e.g. throwing their first invoices only to realize later on that they would prefer to keep them, perhaps to be able to make tax deductions when in the future selling their house.

3.3 Technology acceptance model

The technology acceptance model (TAM) is used to explain why individuals accept or reject information technology and is based on the theory of reasoned

action (TRA) (Legris et al., 2001). The theory of reasoned action is based on the idea that behavioural intention is dependant on the individual's subjective norm and attitude towards the behaviour. The subjective norm reflects the individual's perception of what the people most important to him or her thinks he or she should or should not do (Fishbein & Ajzen, 1975). An individual's actual behaviour is therefore affected by what the individual thinks about the behaviour and what he or she thinks other people would think of him or her if the behaviour were carried out. Once the behavioural intention is established this leads to the actual behaviour in most cases.

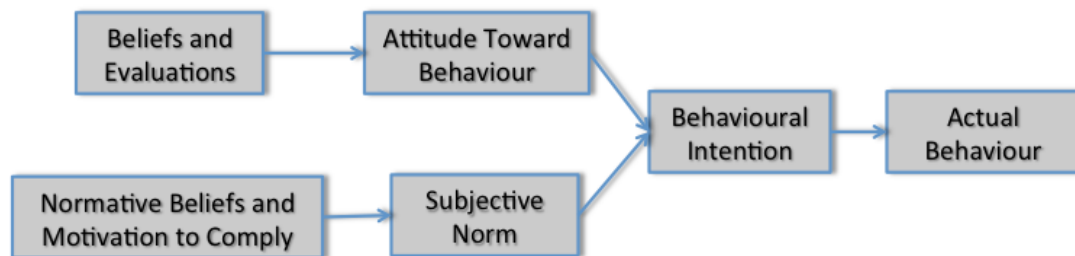


Figure 1: Theory of Reasoned Action
Source: (Legris et al., 2001)

According to the technology acceptance model, there are a few things influencing if, when and how an individual would use the newly introduced technology. In TAM the perceived usefulness and perceived ease of use are introduced as two new factors affecting technology acceptance. The perceived usefulness is described as how an individual thinks applying the new technology will improve his or her work performance. In this case, *work performance* could be replaced by performance in everyday life in regards to invoices, which is also suggested by Zmijevska et al. (2004) where they replace work by everyday life in regards to mobile payments. The perceived ease of use is rather explained as at what degree the use of the new technology would be free from effort. Although it is not showed in Figure 2, the behavioural intention to use a technology is arguably also affected by the subjective norm mentioned earlier according to the later version of TAM (TAM2) by Davis and Venkatesh (2000). A third version has also

been introduced, known as TAM3 adding factors affecting the perceived ease of use (Venkatesh, 2013).

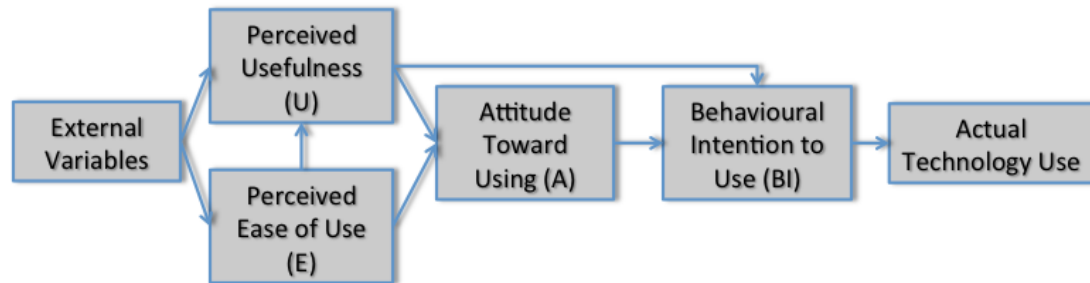


Figure 2: Technology acceptance model

Source: (Legris et al., 2001)

Another factor that could be added to the equation is the perceived cost, which is indicated by Zmijevska et al. (2004) to be important for the use of mobile payments. The perceived costs would not only include monetary costs but also social risks. This could be a situation when an individual feel that there is a risk that he or she will forget to make the credit payment on time, if e-invoice is chosen as payment type. To not risk the failure, in this case that would be the feeling of failure that is important and not the monetary cost directly dependent on that failure, he or she would choose either to pay directly and not on credit or to not buy the product at all.

In light of earlier studies that have used this model for similar research this model will be used to explain the actual use of e-invoices by the respondents and to see if there might be a connection between the perceived values and the actual use.

3.4 Diffusion of innovations

There is a classic example of how long it can take an innovation to spread and be used in a larger extent. Going back to the year 1601, when scurvy was by far the greatest reason of death at sea, James Lancaster started researching if lemon juice could prevent scurvy. The experiments were successful but the British Navy did not follow up on the research. Almost 150 years later, James Lind was

successful with his research as well but still the British Navy refused to adopt the cure. Another 48 years later, in the year 1795, the British Navy started using lemon juice in the sailor’s diets (Mosteller, 1981).

Of course it is ridiculous to suggest that it would take about 200 years for a cure to go from a successful experiment to be adopted in today’s society but the point is that the adoption and diffusion of innovations has certain lag from the point in time they are discovered. This diffusion can be defined as the process that communicates the innovation through the social system to its members (Rogers, 2003). Dissemination will be the systematic and planned efforts to enable this spread throughout the system to its members. The different outcomes of diffusion of innovations can be explained by three groups of variables, (1) characteristics of the innovation, (2) characteristics of adopters and (3) features of the setting (Oldenburg & Glanz, 2008).

(1) Characteristics of the innovation

The Table below illustrates how to analyse the characteristics of an innovation, and in this paper the e-invoice would be the innovation in question.

Table 3: Characteristics of Innovations That Affect Diffusion

Attribute	Key Question
Relative advantage	Is the innovation better than what was there before?
Compatibility	Does the innovation fit with the intended audience?
Complexity	Is the innovation easy to use?
Trialability	Can the innovation be tried before making a decision to adopt?
Observability	Are the results of the innovation visible and easily measurable?

Source: Oldenburg & Glanz (2008:319)

(2) Characteristics of adopters

The adopters of an innovation are placed under five categories, (1) innovators, (2) early adopters, (3) early majority adopters, (4) late majority adopters and (5) laggards (Oldenburg & Glanz, 2008). The further they are placed to the left in the model, the easier the different adopters will accept and use new innovations. Being able to classify which groups and segments that belong to which category would make it easier to target these groups.

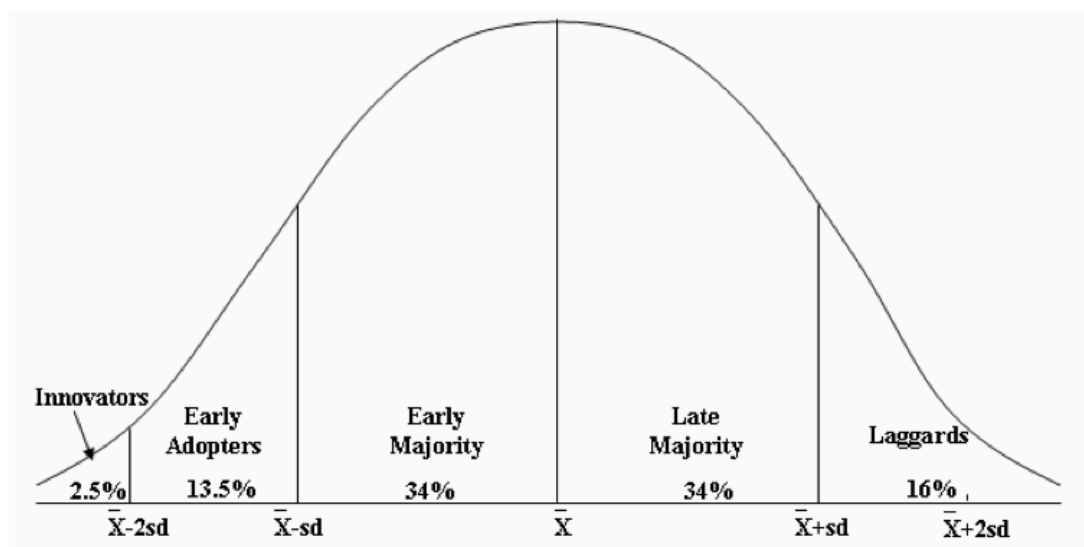


Figure 3: Categorization of adopters, dependent on their innovativeness

Source: (Sahin, 2006:19)

(3) Features of the setting

Different forms of settings can make dissemination easier or more difficult depending on four features, (1) geographical settings, (2) societal culture, (3) political conditions and (4) globalization and uniformity (Oldenburg & Glanz, 2008).

The theory of diffusion of innovations will be used to understand the adoption curve of e-invoice both from the perspective of the consumers but also looking more at the characteristics of the innovation e-invoice.

3.5 Concluding the theoretical framework

Combining these theories and models will set up the theoretical framework that will be used to analyse the results. Firstly, every individual is assumed to be rational and always make a calculative choice that would serve the individual in order to maximise his or her satisfaction. Furthermore, he or she will act based on emotions when they find it difficult to make a rational choice. The individual will adopt an innovation if the perceived satisfaction of adopting it is greater than if he or she would not adopt the innovation. The perceived satisfaction is affected by how the individual perceive the innovation's ease of use and usefulness. Additionally, depending on what type of adopter the individual is, he or she is more likely to try the innovation at an early stage. Lastly, the setting in which the individual is in will influence how the innovation is perceived. We are certain that this is a good viewpoint and that it reflects the actual choice theory of consumers.

4 Invoicing: background

In this chapter statistics will be presented to give a background on the emergence of electronic invoicing. The statistics are procured from research done by Swedish banks, government agencies and private companies. The data will be used to further assist the analysis process later in the thesis.

4.1 Payment statistics

Invoicing is an old payment type that has been adapted to fit the digital world and the e-invoice system has grown with 19 % during 2012 and the total growth since 2006 has been 718 %. Furthermore, 20 % of all Internet payments were made by e-invoice in 2012 (Svenska e-fakturabolaget AB, 2013). According to Wallin Consulting's research, among those companies that use e-invoices, 20.4 % of all their invoices were electronic in 2011. In Figure 4 it is shown how the use of e-invoices has grown with about 10 million a year since 2006.

Ekonomistyrningsverket (2005) argues that the diffusion curve of the electronic invoice will follow the curve in Figure 5. Their report was written in the end of 2005 as a recommendation to adopt electronic invoice throughout all government agencies. In 2006 the diffusion was somewhere between phase 1 and phase 2 and was expected to have an exponential growth the coming years. This seems to correspond well to both to an early stage of the adoption curve presented in the diffusion of innovations model and to the actual adoption curve in Figure 4.

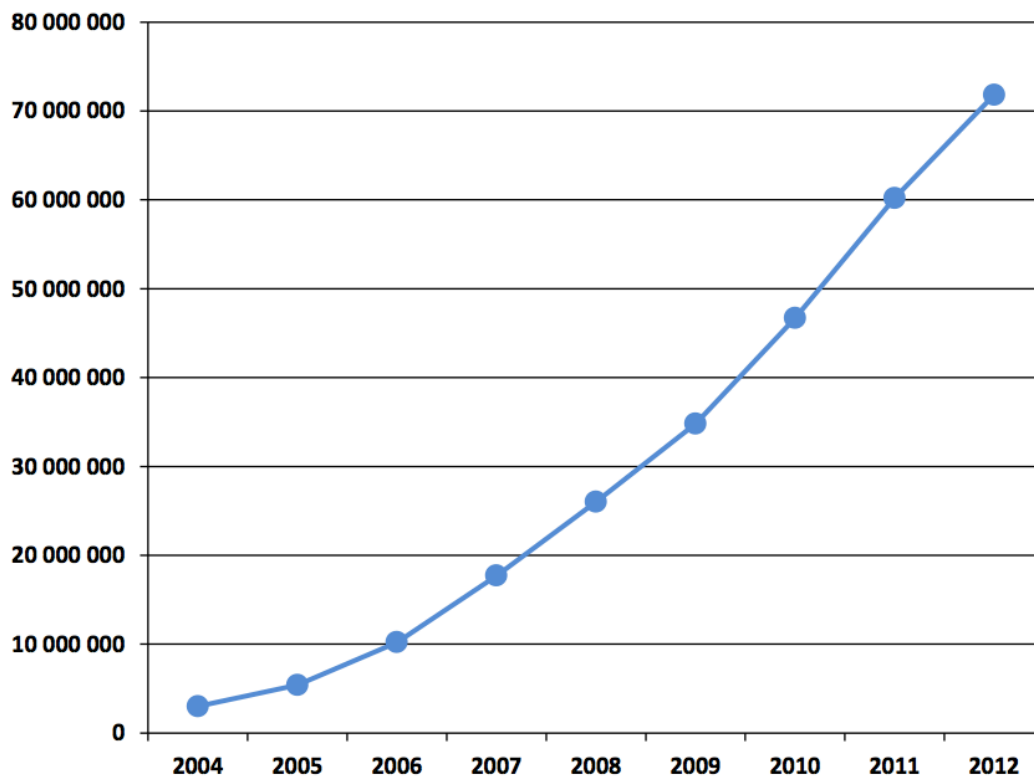


Figure 4: Number of e-invoices used 2004-2012

Source: (Svenska e-fakturabolaget AB, 2013)

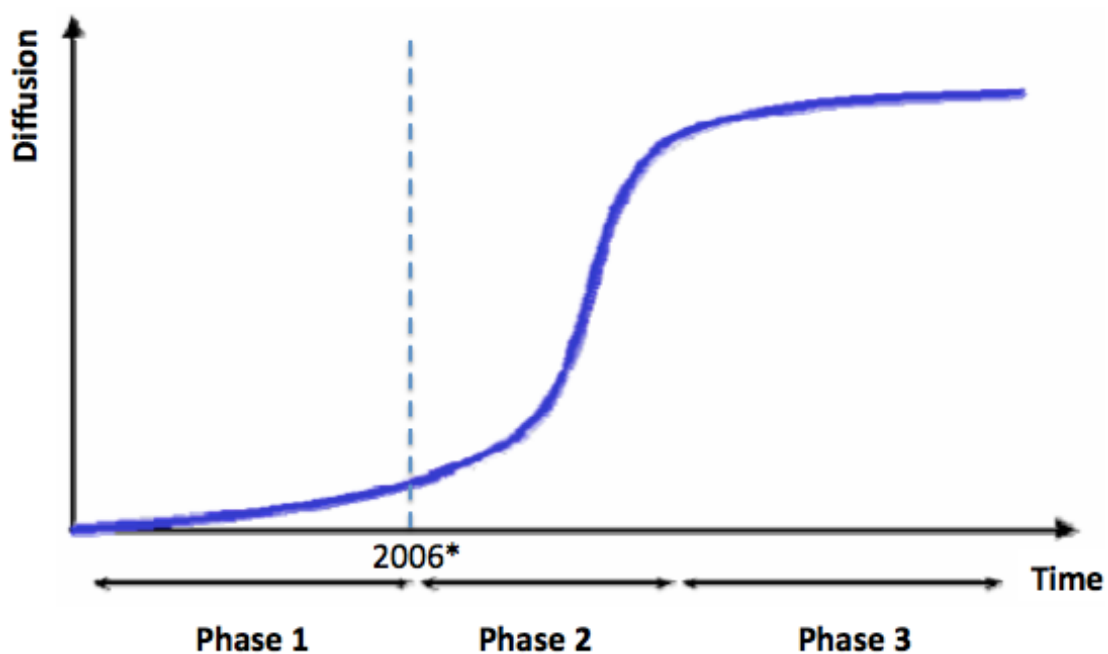


Figure 5: The projected adoption of electronic invoices in Sweden

Source: (Ekonomistyrningsverket, 2005)

It is easy to pay for a product or a service today and you often have the opportunity to decide by yourself how to pay for it. In Figure 6, the number of transactions made through banks in the year 2011 are presented and divided by payment method (SBA, 2012).

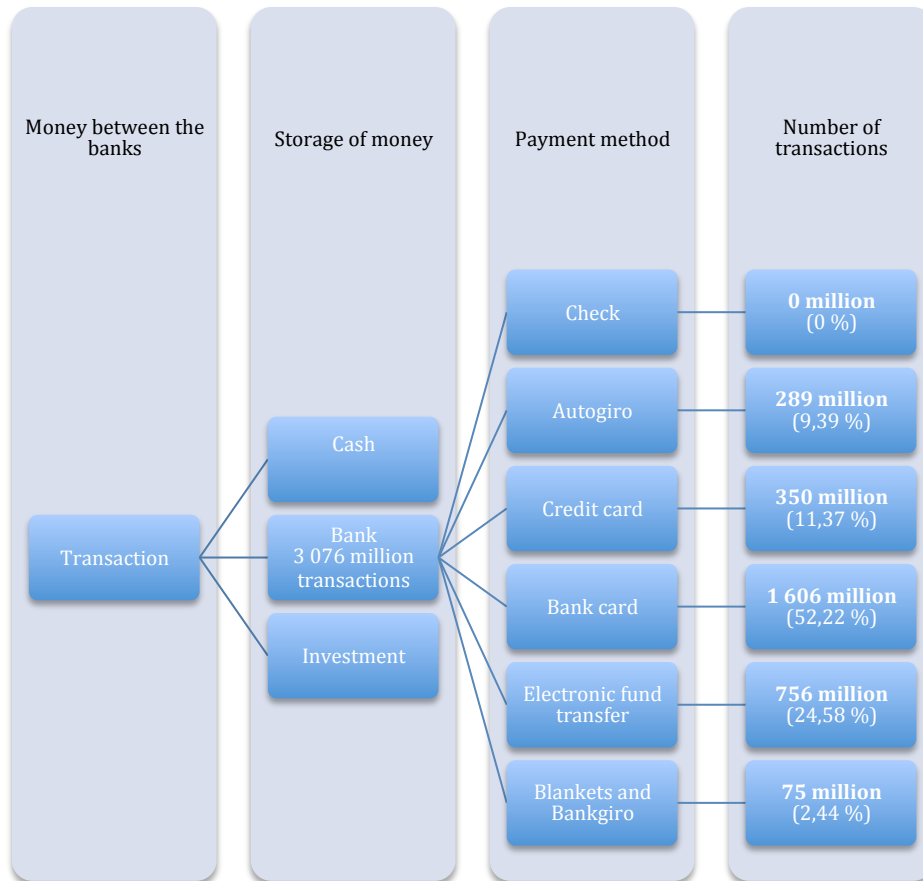


Figure 6: Number of transactions made through banks, in the year 2011, separated by payment method

Source: (SBA, 2012)

4.2 The digitization of payment

The market of invoices is growing exponentially. Nowadays, it is possible to receive the invoice not just on paper but also by e-mail or through online invoice managers. Since the world is injected by a lot of new technology, the market of payment methods is changing. If a company decides to use an invoice system they will have to decide what type of invoice they shall use, which is not the easiest of choices because they all have different points of usefulness.

Generally an electronic-based payment costs only from a third to half as much as a paper-based payment. On a large-scale, electronic payment systems, when efficient, are more cost efficient than paper-based payment systems (Humphrey et al., 2003 p. 14). Therefore, the drive towards a more electronic-based system seems natural.

All companies have to invest in one or more payment systems to charge their customers and the systems are often expensive. If the companies know how the consumer would like to pay, they could invest in the correct system and they could tailor their business model after the preferences of their customers.

Because of the growth in the digital market the payment methods are about to change. More and more people are using digital alternatives while fewer and fewer are using cash. The market of e-invoices has been growing with a mean of around 40 % per year during the last six years and there is also a growth in online shopping (Svenska e-fakturabolaget AB, 2013). Because of the growing demand of digital payment methods many companies have to change their business models. There are mainly two different ways to make Internet payments for online shopping. Internet bank payment is the most common one with an 80 % share of all Internet payments. When paying a paper or e-mail invoice, the Internet bank is used as payment method and also when choosing direct Internet bank payment. The second way to make an Internet payment is by electronic invoicing, which stands for 20 % of all Internet payments (SBA, 2012). Online shopping can also be done by credit card but is not considered an Internet payment.

Invoicing is an old payment type and can be split into two different types of invoices. The first one is *paper*, which can be sent by post either to the client's home or to an invoice manager that scans it and thereby making it digital which leads to the second option. The other alternative is a *digital* invoice, it will either be sent to the client's e-mail address as a .pdf or to the client's online invoice manager as an e-invoice. The alternative with e-invoice is becoming more

common and today it is mostly Internet banks that are acting as online invoice managers but there are also other companies that are offering the same service.

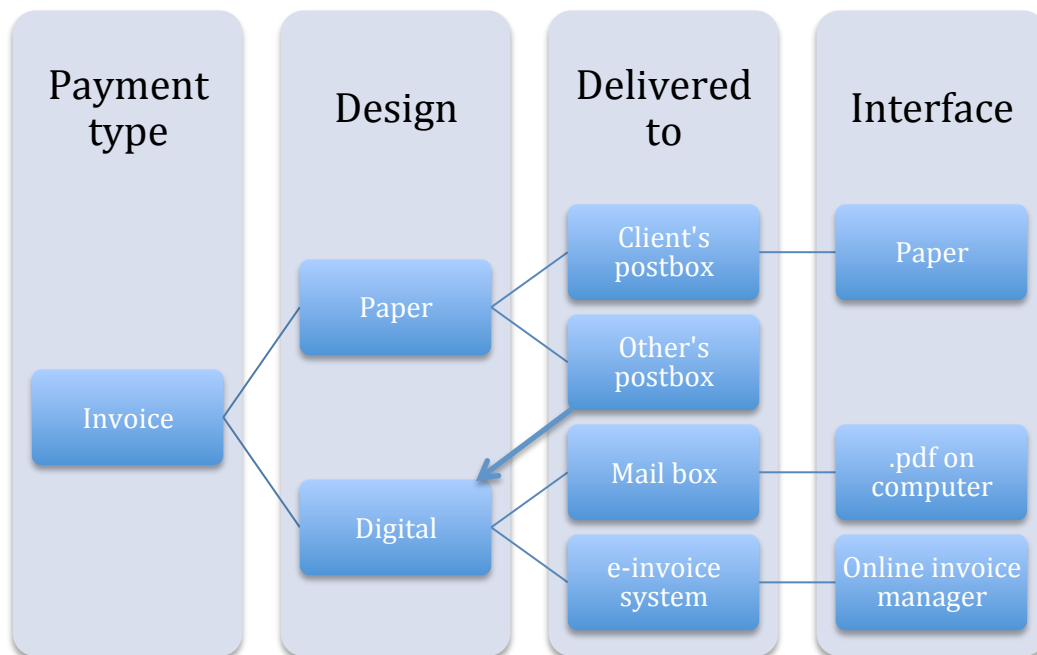


Figure 7: Different options of how clients can receive invoices.

Because of all the companies that are making big investments when they are deciding what type of payment method and type they shall offer their customers, they are very interested in knowing how their target group prefers to pay. It is also very interesting for them to know what characteristics a good payment method has according to their target group.

When individuals make a decision, the decision depends on their own preferences and they will always, when possible, make a rational choice. They can also be influenced by the taste and experience of others (Yang & Allenby, 2003). When they are introduced to a new innovation their intention to use it is affected by the perceived gain of doing so. This is really important to have in mind when new innovations are being launched; success is dependent on what the user perceives and not always what the innovation actually is.

When consumers are about to pay for their consumption they have to decide what payment type and/or method is preferable. How consumers decide will affect the companies' profitability and efficiency. According to associate Professor Niklas Andersson during a lecture at Gothenburg University (2013-04-08) the world is moving to a more digital society and cash is becoming less popular to use. He believes that Sweden will develop into a cashless country, but not before 2030. This gives good reason to believe that the further development of payment systems will move toward fewer solutions including cash, and rather toward more digital solutions.

5 Results

In this section the results from the interviews will be presented in a descriptive manner. The results consist of the respondents' answers to the questions¹⁷ that were asked during the conducted interviews. There were too many questions and respondents to present each answer and question in the results. Therefore, the different questions are grouped and structured under four headlines; (1) The form and function of an invoice, (2) Order and delivery of an invoice, (3) Payment process and (4) Storage of invoices.

5.1 The form and function of an invoice

The respondents were asked what type of invoicing method they disliked and their main answer was invoice sent by mail, on second place came paper invoice and lastly the electronic invoice being the one they disliked the least. The reason that some of the respondents did not like invoices sent by mail was that they found them easy to lose or felt that the mail client's security level was not high enough. The reason respondents did not like the paper invoices was because they either found them easy to lose or because they felt that paper is too old of a method. The respondents that did not like the electronic invoices found them complicated to use and were inexperienced with them. No correlation between the sample groups was found.

When the respondents were asked if the form and layout of an invoice was important to them most answered that the form and layout was not important at all and this opinion came especially from the respondents under the age of 25. Those who said that form and layout was important had some different opinions on what they considered important whereas the majority meant that the invoice should be simple and easy to read while others meant that it is fun with a good-looking invoice. Lastly, some respondents said that if an invoice is excessively designed it made them curious.

¹⁷ See Appendix B – Questions.

There were two different answers given on the question about how much details the respondents want on their invoices. The big majority's answer was that the invoices should be easy to overview and the details should be available elsewhere instead, in places such as on the website of the company who sent it. The second answer was that the invoices should be as detailed as possible, which was the opinion mostly from people with an age over 40 years.

The respondents' opinions about the OCR number differed and two different answers were given. The dominating opinion was that the OCR number is too long and complicated. The other one was that it does not bother them at all since they use electronic invoicing, which was the answer only from respondents under an age of 40 years. Respondents that thought the OCR number was too long had some different ideas on how to make it better. One suggestion was to group the numbers into pairs and the second proposal was to create a scanner to read the OCR number and transfer it to the computer digitally. There were also a third group of respondents that had no suggestion on how to make the OCR number better.

5.2 Order and delivery of an invoice

All the respondents receive at least one paper invoice per year, but not all of the respondents receive electronic invoices or invoices by e-mail but most respondents had tried it. Most respondents receive invoices by paper post instead of through a digital medium because they have not taken the time to change or been given the option to change. Only a few answered that they do not want to receive them in any other way but by paper and that opinion especially came from respondents below 40 years old.

When asked if they would use a cloud service to receive, pay and store their invoices if they were offered to do so, the majority said that they would try it while a few said that they would not. All those who said they would not had a higher education level.

How the respondents feel when they receive an invoice were quite different. Respondents over 40 years felt almost nothing, some of them opened the envelope to see if the invoice was correct and some just waited to open it until the 25th. Respondents in the age of 30 to 40 years old often became happy when they received the invoice, the reason could be either because they know they have bought something they like or they just would be happy just because they received post. The respondent females under 30 years old felt a bit of stress in the fact that they have bought something that was not paid for yet.

5.3 Payment process

All respondents pay invoices by Internet bank and they are satisfied with the bank system and especially they do not know any other way to pay for their invoices. Female respondents under 30 years old with a high education level had a request to pay the invoices with their mobile phone instead of with the Internet bank on a computer.

The respondents with a high education level and an age over 40 years agrees that it is acceptable that companies add an extra fee for paper invoices, but the males only think it is tolerable if the company offers an alternative way to pay.

The respondents were asked about their opinion on the late payment fee and they had some different answers. All respondent males agree that the late payment fee for an unpaid invoice is completely logic. Most of the responding females think that the companies send the late payment invoice with the extra fee to early.

When the respondents are shopping online they prefer to pay with credit card most of the time. They also use Internet bank quite often but all respondents have tried invoice as payment type for online shopping. The responding males over 30 years old with a high education level use invoice when they buy things from websites that they find insecure and most of the respondent males that are highly educated use invoice when they buy things they find expensive.

The respondents rarely talk about electronic invoicing and during the interviews they showed an interest in using electronic invoicing as payment method although they never thought about it on forehand.

5.4 Storage of invoices

Out of the respondents it was mostly the highly educated males independent on their age and the highly educated females over 50 years that stored their invoices. The reasons were mostly because they wanted to keep control over their economy and have proof that they have paid for what they have bought. One common reason is also to have the possibility to make a tax deduction when selling their house.

The respondents that store their invoices show a trend that the older the respondents are, the longer time the respondent store the invoices. What is the same for all respondents that store invoices is that they store them in a binder.

None of the respondents with a low education level print their digital invoices to store them together with the paper invoices but half of the respondents with higher education level print their digital invoices.

6 Analysis

In this section the results will be analysed and reviewed and the theoretical framework will set the boundaries for the analysis and it will be used to support or reject the results as a possible generalization. On one hand the analyses will be based on the theory of rational choice meaning that all respondents are viewed as rational individuals. On the other hand, it is recognized that sometimes a choice can be too difficult to make rationally and in those cases it is herein assumed that those choices are made irrationally and based on emotions.

6.1 Analysis of an electronic invoice's characteristics

Answering the questions below helps identifying the characteristics of an innovation, in this case electronic invoices. This is a part of the diffusion of innovation model presented in the theoretical framework.

Is the innovation better than what was before?

The respondents in this research that are using electronic invoices are satisfied with the system. The respondents that do not use electronic invoices are not happy about how the paper invoice system works in its whole and are interested in trying a digital option. In light of the interview results, electronic invoicing is perceived as a better innovation than paper invoice.

Does the innovation fit with the intended audience?

Private consumers have tried electronic invoices for a few years and for the last six years it has had a stable growth as predicted by Ekonomistyrningsverket (2005). We are now in a digital era and according to this study most of the people who use paper invoice are interested in trying digital invoicing. Today, there might still be a barrier to start use electronic invoices but that barrier is getting thinner and thinner for every day.

Is the innovation easy to use?

The people that have used electronic invoicing find it easy to use, but people that have not tried it seem to believe that it is harder to use than it actually is. That could be because of a fear of new technology that is more common for older people. The service is also getting easier and more useful for every day that passes because right now, there are around 1 000 companies in Sweden offering the possibility to use electronic invoices but for every day more companies adopt it (Svenska e-fakturabolaget AB, 2013).

Can the innovation be tried before making a decision to adopt?

An individual is able to start and stop using e-invoices at any time, which can be seen as a possibility to try. Of course, there is a possibility to start using electronic invoices for one service while still using paper invoices for other services.

Are the results of the innovation visible and easy to measure?

The results deriving from start using electronic invoices instead of paper invoices are on one hand that the consumer will not have to type in the OCR number anymore or receive any invoices by paper post. On the other hand, the consumer will have to log into the Internet bank to see the invoice. The time it takes to make a payment can be measured and so can the amount of paper post. Also, there will be no more extra invoice fee.

In conclusion the electronic invoice seems to be a good innovation with much prospect. The greatest obstacle is the consumers' perceived usefulness and ease of use of electronic invoicing, which is too far from the actual ease of use and usefulness. The usefulness of the electronic invoice can be developed at a much greater extent than for the paper invoice, which at some degree has reached its end of development. The digitization offers infinite ways to develop the invoice, from receiving the invoice to retrieving its information and storing it. It is important to disseminate the electronic invoice properly and with coherent and useful information, and the main responsibility to spread this information should

lie on the e-invoicers and other distributors such as banks. If disseminated correctly, the perceived ease of use and perceived usefulness will be coherent with the actual characteristics.

6.2 Research questions: a discussion

Question 1: Why has the innovation of electronic invoices not had its expected breakthrough?

During 2011, 17 % of all the Internet payments were done by e-invoice (SBA, 2012). The results from the interviews indicate a similar answer. Some respondents use electronic invoice regularly, but most of them do not use it at all or receive only a few. Almost all respondents explained that they would like to receive all their invoices in a digital way. The reason they do not receive invoices digitally today, even though they want to, is according to them because they have not made an active choice. From the interviews it is clear that the reason they have not made an active choice is because there is a lack of interest or an anxiety to use new technology. The benefits of electronic invoices were never advertised during the interviews, but after the sessions the respondents often felt enlightened and more comfortable with the idea to try it. This behaviour was mainly based on earlier lack of thought by the individuals, realising during the sessions that most of the benefits of the e-invoice corresponded to the characteristics that they described as optimal for an invoice.

It could also be explained by the earlier study by Suominen (2012) that is based on primary data on companies with two employees or less. Therein he examines how small companies experience the transition from using paper invoice to electronic invoice. He explains that the reason they do not start using e-invoice is because they do not see the benefits and that this is the result of not having enough knowledge about how it works or that they are anxious to adopt it. Suominen's (2012) study shows a very similar result compared to this study even though his study was made on smaller Finnish companies. Furthermore, a problem that was pointed out by Suominen (2012) was that the banks spread different and confusing information about e-invoicing. This is supported by our

results since the respondents did not have enough clear information as of how electronic invoices would benefit them. Based on this discussion, the null hypothesis can be stated as:

H1: Most consumers not using electronic invoicing do not perceive the usefulness of it to be too low to use. The alternative hypothesis is that most consumers not using electronic invoicing perceive the usefulness of it to be too low to use.

By rejecting the null hypothesis it is implied that consumers that do not use electronic invoicing perceive the usefulness of the electronic invoice to be too low to use. As we have already concluded in our analysis of the electronic invoice as an innovation, the innovation in itself is useful. Therefore, by rejecting the null hypothesis we will see that there is a gap between the perceived usefulness and the actual usefulness. To test these hypotheses, a significant population of consumers need to answer if they use electronic invoicing and if they find/believe it to be useful enough to use. Only the consumers that do not use electronic invoices should be included in this test, since it only concerns the perceived usefulness. This leads to another null hypothesis:

H2: Most consumers using electronic invoicing do not find the actual usefulness larger than how they perceived it before they started using it. The alternative hypothesis is that most consumers using electronic invoicing find the actual usefulness larger than how they perceived it before they started using it.

These hypotheses can be tested in various ways. We recommend using the same sample group twice but with a certain time between the queries. These checks should also include a scale on which the respondents mark either the perceived or actual usefulness of the electronic invoice. Rejecting the null hypothesis would further strengthen the suggestion that there is a gap between the perceived and actual usefulness.

By analysing the results from the interviews it is possible to see a trend showing that it is more common for the interviewees under 40 years old to use electronic invoicing, which according to us seems reasonable since they have grown up during the times of a digital boom. They have learnt from a young age to adapt quickly to new trends and machines, making them less anxious about new technology. Furthermore, in the study by Dahlberg & Öörni (2007) it is also explained that low age and intention to increase the use of electronic invoices are highly correlated.

Most respondents explained that they were interested in using a digital technology for receiving invoices, which suggests that they have a positive attitude toward using digital invoices in accordance with the technology acceptance model (TAM). The respondents said after the interviews that they had understood their wants and needs concerning invoices merely by discussing and talking about it. The common idea was that electronic invoicing would be a really good alternative for them and they seemed to have moved toward the stage behavioural intention to use in TAM. Normally, the step between intention to use and actual technology use is a small one and if the perceived ease of use, which seemed to be the major negative factor on their attitude toward using, would be improved the respondents would most likely adopt the technology.

The reason why the dissemination of e-invoices has not functioned better is because of (1) characteristics of the electronic invoice, (2) characteristics of adopters or (3) features of the setting (Oldenburg & Glanz, 2008). In the analysis of the electronic invoice's characteristics above we can see that it has a good potential to grow. Therefore, it is either the characteristics of the adopters or the features of the setting that would influence the failed dissemination. In our analysis we do not include the features of the setting, instead we focus on the adopters. Older people tend to use invoicing more than younger people and are also the largest target group for electronic invoicing. Earlier it was said that the older are more anxious to adopt e-invoices and if this is the case, one reason why

e-invoicing has not had its expected breakthrough could be that the largest target group perceives the innovation more difficult to use than it is. This claim can also be deducted from the research done by Ekonomistyrningsverket (2005). The discussion here suggests:

H3: Most consumers of 40 years old or over that are not using electronic invoicing do not perceive electronic invoicing to be more difficult to use than consumers under 40. The alternative hypothesis is that most consumers of 40 years old or over that are not using electronic invoicing perceive electronic invoicing to be more difficult to use than consumers under 40.

The choice of 40 years old as a breaking point is based on the results of our research. To test these hypotheses the respondents need to fill out their age, if they use electronic invoicing and grade their perception of the electronic invoice's ease of use on a scale. If this null hypothesis can be rejected it would mean that older people that are not using electronic invoicing most likely perceive it to be more difficult to use than younger people. Furthermore, if the null hypothesis is rejected it could as aforementioned, partially explain the failed dissemination, leading to another null hypothesis:

H4: There are on average more or equally as many invoices issued to consumers under the age of 40 years old as to those who are older. The alternative hypothesis is that there are on average more invoices issued to consumers at the age of 40 years old or over than to those who are under.

If the null hypothesis can be rejected it would mean that consumers at the age of 40 years old or over are part of the largest strategic segment group for electronic invoicing, since they are using invoicing more. This could be tested by looking at how many invoices the respondents receive yearly and also by taking age into consideration. If the older consumers in fact are part of the larger segment group

it would be interesting to know how saturated the electronic invoicing market is for those of 40 years old or more. Would further research show that they do not use electronic invoicing in most cases this would suggest that the electronic invoice has a huge growth possibility in that segment.

Question 2: Why do not more people use invoices when shopping online?

All hypotheses in this section are implicitly about online shopping. There are mainly three different ways to pay for online shopping, (1) making an Internet bank payment, (2) using electronic invoicing as payment method or (3) paying by credit card.

The respondents answered that they use invoice when shopping online in cases where they do not trust the webpage. Dahlberg & Öörni (2007) say that trust is one of the most important characteristics of a payment system according to consumers. This is interesting since the consumers do not use invoicing for online shopping if they do not have to, but still invoicing is the method they trust the most according to our results. The question is; why do they not like to use invoices even though they highly trust it? On one hand, the interviewer's impression was that the respondents did not like the payment process, i.e. the perceived ease of use was too low. Moreover, they found it irritating to first order the product and then having to log into the Internet bank to pay for the product and at that time, also having to type in the long and complicated OCR number. On the other hand, when they bought something expensive they were not willing to risk typing the credit card number or their code to their Internet bank so they used invoice instead. To clarify, the consumers' perception of the invoicing method is that it is difficult and complicated to use. This leads to a low behavioural intention to use but as soon as trust is an issue the usefulness of the invoicing method becomes more important and in some cases weighs up for the negative aspects induced by the perceived difficulty to use.

To summarize, consumers often see invoicing as a secondary payment type. They do not prefer it, but they are content that it exists because if they do not trust the alternative payment methods they can always choose invoicing. The discussion here suggests:

H5: The more consumers trust a website, the more likely are they to use invoicing as payment type. The alternative hypothesis is that the less consumers trust a website, the more likely are they to use invoicing as payment type.

Testing these hypotheses might be difficult considering their vague nature. Nonetheless, it is possible; our suggestion is to let consumers mark different websites on a scale regarding their trust in these. Furthermore, they should choose which payment alternative they would choose for each website. The websites that are chosen should span over different business segments and price ranges, since those might be significant factors as well. If the null hypothesis is rejected it shows that consumers use invoicing more often when they do not trust websites, indicating it to be perceived as a secure payment method. Consumers often use the same website numerous times and many times trust might not be an issue, which in addition to earlier discussion leads to the null hypothesis:

H6: When trust is not an issue, most consumers do not prefer other payment alternatives to invoicing. The alternative hypothesis is that when trust is not an issue, most consumers prefer other payment alternatives to invoicing.

By rejecting the null hypothesis it is implied that when trust is not an issue most consumers prefer other payment alternatives to invoicing. The level of trust must be the same for all the consumers participating in the research when testing these hypotheses, in order to take it out of the equation. This could be

achieved by choosing a website which is deemed secure by all consumers participating. The next step in testing would be to, as in H5, choose their preferred payment alternative. Lastly, the discussion here suggests:

H7: Most consumers do not perceive other payment alternatives easier to use than invoicing. The alternative hypothesis is that most consumers perceive other payment alternatives easier to use than invoicing.

To test these hypotheses, the consumers need to be asked to rate the perceived ease of use of the different payment alternatives and invoicing, suggestively on a scale. If the null hypothesis can be rejected, it is suggested that consumers perceive the other payment alternatives to be easier to use, which in combination with aforementioned hypotheses hopefully can lead to an understanding of the underlying reasons to why more consumers do not use invoicing when shopping online.

Question 3: How competitive is the paper invoice in comparison to the electronic invoice?

The amount of electronic invoices that is issued in Sweden has been increasing with a mean of around 40 % every year the six last years (Svenska e-fakturabolaget AB, 2013) showing that the demand for electronic invoices is increasing. Why the demand for electronic invoices is increasing is difficult to answer but the respondents gave a couple of reasons.

The respondents using paper invoicing found the OCR number too long and complicated. They all wanted to simplify it and some of them had ideas on how to do so. A proposed option was to develop a scanner for OCR numbers to make it possible to transfer the number automatically to the computer. This sort of invention already exists, but was not known to most of the interviewees (Handelsbanken, 2013). Another idea was to pair up the numbers and use spaces in between the pairs to make it easier to read. A few respondents said that if they

started to use electronic invoice they would be happy not having to deal with the OCR number at all. Since some questions were directly aimed to understand the respondents' opinions on the OCR numbers the answers could somewhat be biased, but it is clear that the OCR number plays a major part in the lowering of the perceived ease of use.

Most respondents want to receive invoices that show a good overview of what have been purchased. It was important for the respondents to have the possibility to view a more specific edition of the invoice, for example by logging into a website and reach it online. There is an obvious trend among the respondents; the older the respondents are, the more important it is that the invoice is specific.

In the technology acceptance model it is described how the perceived ease of use influences the individual's attitude toward using a technology. Furthermore, the theory of diffusion of innovations affirmed the importance of a technology's perceived ease of use in order to be adopted. That means that the easier it is to use the new technology, the higher probability that the potential user actually will use it.

During the interviews the respondents got an opportunity to talk about electronic invoices, which they seldom do normally. These discussions made them more conscious about their payment choices and after the interviews they were in most cases more keen to try electronic invoicing. That was mainly because they had understood what their actual opinions about invoices were. In reference to the technology acceptance model it could be said that they perceived electronic invoices easier to use than before the meeting. They understood that the new technology could solve some of their problems without being complicated to use. Overall, the users of paper invoices found invoicing more complicated than the e-invoice users. The first null hypothesis can be stated as:

H8: Most consumers using both electronic and paper invoicing do not prefer electronic invoicing. The alternative hypothesis is that most consumers using both electronic and paper invoicing prefer electronic invoicing.

By rejecting the null hypothesis we will see that consumers that are using both electronic and paper invoicing prefer electronic invoicing out of the two alternatives. These hypotheses can easily be tested by asking the consumers that are using both alternatives, which one they prefer. Furthermore, the discussion leads to this null hypothesis:

H9: Most consumers that use both electronic and paper invoicing do not find electronic invoicing easier to use than paper invoicing. The alternative hypothesis is that consumers that use both electronic and paper invoicing find electronic invoicing easier to use than paper invoicing.

If the null hypothesis can be rejected it would suggest that consumers find electronic invoicing to be easier than paper invoicing to use. When testing the hypotheses, the participating consumers simply need to be both electronic and paper invoicing users and answer which alternative they find the easiest to use.

The electronic invoice can also be seen as more competitive than paper and e-mail invoice since it is a service that is easy to develop depending on the demand. According to this research the respondents are interested in a simple solution with a function that reminds them to pay the invoice in time, it should be easy to use and they shall not have to type the OCR number. They also want to receive all different invoices in one specific place. What is interesting is that online invoice managers today, such as Pagaró AB, offer all those things that the respondents wanted. That gives the market of electronic invoices a big advantage compared to paper invoices and it is easy to visualise that electronic invoices will keep growing in use even more than it does right now.

The statistics offer many interesting facts indicating that the growth will continue (Svenska e-fakturabolaget AB, 2013). The number of companies that offer their customers the possibility to use electronic invoices increased with 17 % compared to last year. If the growth continues, the consumers will see how their favourite companies start offering them the possibility to pay with electronic invoice; the likelihood that the consumer will take the step and start using electronic invoices increase. Byström & Lund (2006) found that there is a catch-22 whereas the companies are waiting for more consumers to start using electronic invoicing and the consumers are waiting for more companies to join in, both parties perceive the usefulness as too low. Although this catch-22 might be slowing the adoption of electronic invoices down, it has so far had an exponential growth that also follows the prediction made by Ekonomistyrningsverket (2005). Every year for the last six years, the amount of issued electronic invoices increased exponentially with a mean of about 10.3 million per year and during 2012 alone there were 71.8 million electronic invoices issued. Most respondents are interested in a digital solution for their invoices and the statistics are pointing toward a continuous growth.

A difference between paper and electronic invoicing is that the consumer has to make an active choice to use e-invoicing but not to use paper invoicing. The active choice has mattered to the respondents and some have not started using e-invoicing yet, even though they have the behavioural intention to do so. Not knowing which companies that issue electronic invoices could also influence the lack of an active choice. This discussion suggests:

H10: Most consumers that only use paper invoicing have not found a reason good enough to adopt electronic invoicing. The alternative hypothesis is that most consumers that only use paper invoicing have found a reason good enough to adopt electronic invoicing.

The meaning of rejecting this null hypothesis is to show that the need of an active choice is important; even though the consumers have found a good enough reason to use electronic invoicing, the need of an active choice or the lack of opportunity (for instance if no invoicer they use offers e-invoicing) has them to still only use paper invoicing. By asking the respondents only using paper invoicing if they would like to use electronic invoicing, we would know if they have found a good enough reason. To make this testing even more accurate, the respondents included should all be consumers that have the possibility to use electronic invoicing, in order to exclude the lack-of-opportunity factor.

6.3 Concluding the analysis

In order to understand the respondents' invoicing habits we looked at their answers concerning their preferences on this subject. Since we interviewed only 16 consumers we cannot make a generalization that should be considered how every consumer in Sweden think, but we managed to find similarities and differences among the respondents aiding us to generate hypotheses. These hypotheses are meant to enlighten the larger research question; How does the digitization affect our invoicing systems?

These hypotheses can be tested one by one or in combination to see if there is a connection between them. For instance, a combined hypothesis could be; *Consumers using only paper invoicing perceive the usefulness of electronic invoicing to be too low and thusly have not made an active choice to change.*

Testing combined hypotheses would aid understanding the underlying reasons of the consumers' preferences even further. First step in combining the hypotheses is to be able to reject the null hypotheses, so that the alternative hypothesis can be used in combining a new valid hypothesis. The goal of combining the different hypotheses is to find correlation between them. For instance, suppose we can reject the null hypotheses of H8 and H9, this could suggest:

H89: Consumers that do not prefer electronic to paper invoicing are more likely to find electronic invoicing easier to use. The alternative hypothesis is that consumers that prefer electronic to paper invoicing are more likely to find electronic invoicing easier to use.

The testing would be based on the results from the earlier testing and if the null hypothesis can be rejected the outcome would be an understanding of one of the factors that make consumers prefer one alternative to another. The generated hypotheses offer a good starting point for a more quantitative study on the subject and in combination with other studies generalizations can be made about invoicing habits, thereby enlightening how the digitization affects our invoicing systems.

7 Conclusion

In this section we will shortly present the study's method and purpose.

Furthermore, the findings of this study will be précised and to conclude this paper we will state what further research on this subject we would find interesting.

In this study we set out to investigate how the on-going digitization affects our invoicing systems with the purpose to enlighten the effect of digitization on our payment systems. To contribute with new information on this subject we chose to do a qualitative study on consumers' invoicing preferences, which in our opinion can aid further research on both of the larger research problems.

Furthermore, we set up a theoretical framework that was to be the foundation of how we view a consumer in this matter. Our results are based on interviews with 16 consumers who answered questions about their invoicing habits and preferences. This information was then analysed with help from the theoretical framework and compared to earlier studies that were done from different viewpoints on the subject. In the analysis we discussed different effects that the digitization has had on the consumers' invoicing habits and along with our findings we also generated hypotheses that can be used in future research.

In its whole, it could be said that the respondents were fairly uneducated on the subject and only a few were well versed with the underlying reasons of their own invoicing habits. Firstly, we analysed the electronic invoice in itself as an innovation to be used by consumers, and we found that it has great potential. The perceived ease of use and the perceived usefulness of the innovation are two recurring things affecting the adoption curve. The largest problem seems to be that the perceived innovation is too different from the actual innovation, making the consumers less eager to adopt it. All of the respondents that habitually use electronic invoicing find it very easy and useful but still the other respondents that do not use it as much or at all could not see either the usefulness nor the ease of use of the electronic invoice at first. The dissemination has somewhat failed since the perception is not coherent with the actual innovation, but this

could be helped if the banks and e-invoicers all disseminated the same useful information.

It was obvious that the respondents would benefit from using electronic invoicing instead of paper invoicing and almost all of them said that they were interested in trying a digital alternative. When describing what characteristics they wanted in a digital invoicing system most of them described a system, which is already an existing alternative offered by online invoice managers. There is a clear trend suggesting that the respondents over 40 years old perceive the electronic invoice to be more difficult to use than the younger respondents. This could also partially explain why the innovation has not had its breakthrough yet, since they are the largest target group of the electronic invoice.

When shopping online the respondents prefer to use other payment systems than invoicing because they perceive them to be easier, but the respondents deem trust important and if they feel that they are at risk of being duped they choose invoicing instead. This is because the perceived usefulness of the invoice is higher when risk is involved since they do not need to type any sensitive information. Apparently, trust is so important that it renders the ease of use much less important to the respondents as to what they normally would find.

That the respondents would not need to be bothered with an OCR number makes the electronic invoice's perceived ease of use even higher. The older the respondents were the more they wanted specific information to be obtainable. Here, the electronic invoice has a great advantage since it is digitized making it easy to make the information available online, which further would increase its usefulness. The electronic invoice is expected to have a continued exponential growth but a problem is that there are too few e-invoicers and consumers using electronic invoicing introducing a catch-22 where neither of them wants to adopt the innovation until there are more users. Also, the fact that the consumers need to make an active choice, by law, to use electronic invoicing disables the growth further. It is clear though that more consumers would use electronic invoicing if

they got to talk more about it or if they would get regular and coherent information about electronic invoicing.

In this study we have provided several hypotheses that can be tested in future research and with the information provided herein, in addition to other studies, more extensive conclusions can be drawn which would help enlighten the larger research problem as of how the digitization affects our invoicing systems. Furthermore, this study contributes to understanding consumer behaviour in large, as well as the more specific consumers' invoicing preferences. Since the digitization is a growing phenomenon we believe that subject is very important and even vital to study in order to understand how our payment systems are affected, but maybe even more so our systems in whole. Furthermore, we believe that the electronic invoice is an innovation that is perfect to investigate in order to further grasp how consumers and companies think when an existing product or service is digitized and to investigate how a typical adoption curve for such a product or service would evolve and also the underlying reasons.

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Appendix A - Definitions

Payment type

The payment type is how a customer will be charged, either by invoice or upon order.

Payment method

The payment method is what medium the consumers decide to use to pay for the order. There are a few payment methods, most common are: bank, Internet bank, card, check, e-invoice or cash.

Payment system

Payment system is the system that transfers the money from the buyer to the seller. Examples could be a clearinghouse or cash register.

Online invoice manager

Online invoice manager is a system letting the user overview and pay its invoices. Internet banks are one example.

CTD – Certified Technical Distributor

CTDs are companies working with distribution of companies' e-invoices to their customers via the customers' Internet banks. Businesses using these CTDs normally pay a fee of 2-4 SEK per distributed e-invoice along with extra fees (Svenska e-fakturabolaget, 2013).

Electronic or e-invoicing

E-invoicing is the electronic transfer of invoicing information such as billing and payment. A company can bill a customer using e-invoice and the customer can use this e-invoice's information to pay the company for the provided service (European commission, 2013).

Digital invoice

A digital invoice is an invoice in digital form, normally an electronic invoice or invoice received by e-mail.

Appendix B - Questions

Hur tas fakturorna emot idag?

Varför tas de emot så?

Finns det en vilja att ha all fakturahantering digitalt? Varför?

Är det viktigt att ha något fysiskt att hålla?

Vilken typ av fakturametod ogillas och varför?

Hur betalar du dina fakturor idag?

Varför använder du det alternativet?

Skulle du vilja ha det på ett annat sätt?

Sparar du dina fakturor eller slänger du dem?

Varför gör du så?

Hur länge sparar du dem?

Förvarar du dem spritt eller samlat? Hur?

Varför gör du så?

Skriver du ut digitala fakturor?

Skulle du vilja hantera och spara dem i en molntjänst? Varför?

När du tar emot en faktura, hur känner du då?

Känner du någon stress i att du köpt saker på kredit?

Är designen viktig?

Hur detaljerade fakturor vill du ha?

Vad skall tydligt framgå på fakturan?

Vad tycker du om OCR-numret?

Skulle OCR-numret gå att förenkla?

Vad tycker du om kredittiden?

Vad tycker du är en lagom lång kredittid?

Hade du använt faktura mer om kredittiden var längre än vanligt?

Vad tycker du om fakturaavgiften som kan tillkomma?

Skulle du köpa mer via faktura om avgiften inte fanns?

Låter du ibland bli att köpa med faktura pga avgiften?

Vad tycker du om påminnelseavgiften?

Borde den vara högre ju dyrare saker man köper?

Känns avgiften rimligt hög?

Hur betalar du onlineshopping?

Varför gör du så?

Använder du faktura i något fall när du handlar online?

Har du några egna önskningar om hur metoden faktura kan utvecklas?

Vad är din generella åsikt om metoden faktura?

Appendix C – Applicable laws

Mervärdesskattelag (1994:200)

1 kap. Inledande bestämmelser

17 § Med faktura avses dokument eller meddelanden i pappersform eller i elektronisk form som uppfyller villkoren för fakturor i 11 kap. eller, om faktureringsreglerna i ett annat EU-land är tillämpliga enligt vad som följer av artikel 219a i rådets direktiv 2006/112/EG av den 28 november 2006 om ett gemensamt system för mervärdesskatt, som uppfyller villkoren för fakturor i det landet. Lag (2012:342).

17 a § Med elektronisk faktura avses en faktura enligt 17 § som utfärdas och tas emot i ett elektroniskt format. Lag (2012:342).

11 kap. Fakturering

6 § Elektronisk faktura enligt 1 kap. 17 a § får utfärdas endast om mottagaren godkänner det. Lag (2012:342).

8 § Fakturor som utfärdas i enlighet med 1 eller 7 § ska, om inte annat följer av 8 a eller 9 §, innehålla följande uppgifter:

1. datum för utfärdandet,
2. ett löpnummer baserat på en eller flera serier, som ensamt identifierar fakturan,
3. säljarens registreringsnummer till mervärdesskatt under vilket varorna eller tjänsterna har omsatts,
4. kundens registreringsnummer till mervärdesskatt under vilket han förvärvat varorna eller tjänsterna, om han är skattskyldig för förvärvet av varorna eller tjänsterna eller det är fråga om en unionsintern varuförsäljning enligt 3 kap. 30 a eller 30 b §,
5. säljarens och köparens namn och adress,

6. de omsatta varornas mängd och art eller de omsatta tjänsternas omfattning och art,
7. datum då omsättningen av varorna eller tjänsterna utförts eller slutförts eller det datum då sådan förskotts- eller a conto-betalning som avses i 3 § erlagts, om ett sådant datum kan fastställas och det skiljer sig från datumet för fakturans utfärdande,
8. beskattningsunderlaget för varje skattesats eller undantag, enhetspriset exklusive skatt enligt denna lag, samt eventuell prisnedsättning eller rabatt om dessa inte är inkluderade i enhetspriset,
9. tillämpad mervärdesskattesats,
10. det mervärdesskattebelopp som ska betalas, såvida inte en särskild ordning tillämpas för vilken denna lag utesluter en sådan uppgift,
11. när faktura utfärdas av köparen enligt 4 §, uppgiften självfakturering,
12. vid undantag från skatteplikt, en hänvisning till
 - a) den relevanta bestämmelsen i denna lag,
 - b) den relevanta bestämmelsen i rådets direktiv 2006/112/EG, eller
 - c) en annan uppgift om att omsättningen är undantagen från skatteplikt,
13. när köparen är skyldig att betala mervärdesskatten, uppgiften omvärd betalningsskyldighet,
14. vid leverans av ett nytt transportmedel till ett annat EU-land, de uppgifter i 1 kap. 13 a § som avgör att varan ska hänföras till ett sådant transportmedel,
15. vid tillämpning av vinstmarginalsystemet i 9 b kap., uppgiften vinstmarginalbeskattning för resebyråer,
16. vid tillämpning av vinstmarginalsystemet i 9 a kap., den eller de av följande uppgifter som är relevanta:
 - a) vinstmarginalbeskattning för begagnade varor,
 - b) vinstmarginalbeskattning för konstverk, eller
 - c) vinstmarginalbeskattning för samlarföremål och antikviteter. Lag (2012:342).