



LUND UNIVERSITY
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MODERN PAYMENT METHODS

Factors considered by financial entities in a world moving towards electronic payment



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ABSTRACT

Title:	Modern Payment Methods – Factors considered by financial entities in a world moving towards electronic payment
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Key words:	Cashless society, near field communication, mobile banking
Purpose:	Our purpose is to define and explain which variables and innovations will have the greatest effect on today's payment methods in the Swedish financial market. The findings shall with theoretical background create a framework for understanding how the industry is likely to develop over time.
Theoretical Studies:	The theoretical perspective that has been based on behavioral studies. A framework centered by absorptive capacity and ability to assimilate new knowledge has been prepared and also includes theories of individuals' and organizations' ability to adapt to new technologies and conditions.
Methodology:	The study is based on qualitative information collection. Semi-structured interviews were conducted with individuals working in the financial sector in Sweden. These are individuals that are working with issues related to modern means of payment. The essay research approach has been abductive and descriptive.
Conclusions:	The main factors driving the development of modern means of payment is people's attitudes, the integrity aspect and international influence. People have an instinctive belief that change is synonymous with deterioration. Realizing a cashless society requires a change in the willingness to change and improve. For the development of new payment methods it will eventually be necessary for increased political impetus as well.

SAMMANFATTNING

Titel:	Moderna Betalningsmetoder – Faktorer som driver utvecklingen mot moderna betalningsmedel i finansiella företag
Seminariedatum:	2010-01-15
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Författare:	Måns Mannerfelt Martin Mellberg Magnus Tunbjörk
Handledare:	Prof. Thomas Kalling, PhD Carl Cederström
Nyckelord:	Kontantlöst samhälle, near field communication, mobile banking
Syfte:	Vårt syfte har varit att definiera och förklara vilka variabler och innovationer som kommer att ha störst effekt på dagens betalningsmetoder på den svenska finansmarknaden. Resultaten skall med teoretisk bakgrund skapa en ram för att förstå hur marknaden utvecklas över tiden.
Teori:	De teoretiska perspektiv som har använts grundar sig i beteendevetenskapliga studier. Ett ramverk kring assimilationsförmåga har upprättats och omsluts av även av andra teorier om individers och organisationers förmåga att anpassa sig till nya teknologier och förutsättningar.
Metod:	Studien baseras endast på en kvalitativ informationsinsamling. Semistrukturerade intervjuer har genomförts med individer som arbetar inom den finansiella sektorn i Sverige. Individerna arbetar alla med frågor som relaterar moderna betalningsmedel. Uppsatsens forskningsansats har varit abduktiv och deskriptiv.
Slutsatser:	De huvudsakliga faktorer som driver utvecklingen av moderna betalningsmedel är människors attityder, integritetsaspekten och internationell påverkan. Människor har en instinktiv tro att förändring är synonymt med försämring. För att kunna driva frågan om ett kontantlöst samhälle vidare krävs en förändring i viljan att förändra och förbättra. För utvecklandet av nya betalningsmetoder kommer det så småningom även att krävas politiska drivkrafter.

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DEFINITIONS

Near Field Communication

Near Field Communication is a wireless connectivity that uses a short-range high frequency technology, which enables devices to exchange data between each other over a 10 cm distance.

Mobile Banking

A technique where you are using your cell phone to make financial transactions from your bank. Activities such as viewing account balances, making transfers between accounts, or paying bills will be done with your cell phone.

Surcharging

Dealing with cash or electronic payments will have different cost structures. Surcharging takes this into consideration meaning that you will end up paying a different amount for a certain product or service depending on your choice of payment.

ABBREVIATIONS

IT – Information Technology

NFC – Near Field Communication

PEoU – Perceived Ease of Use

PU – Perceived Usefulness

TAM – Technology Acceptance Model

TRA – Theory of Reasoned Usage

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1 INTRODUCTION

In the introduction chapter the reader will be given a background to our choice of subject and why we believe it to be an interesting study. We will discuss what questions are answered, the study purpose and to whom we are aiming our research. Our intention with this passage is to present our subject and justify our research questions.

1.1 BACKGROUND

“The only ones that really need cash are criminals and your grandmother.”¹

Those are the words of Bengt Nilervalls, responsible for payment related questions at Swedish Trade Federation, an organization that argues for the reduction of cash usage. In March 2007 VISA Europe chief executive Peter Ayliffe said that:

“Paying for goods with notes and coins could be consigned to history within five years.”²

Whether or not these statements are reliable or even likely, the thought of a cashless society is not that unlikely anymore. There are even studies showing a support for the absence of cash possibilities³.

Today you can walk through ticket barriers in Hong Kong and buy fast food with a swipe of your Octopus cash-card. If you go to Finland you can pay for your car to be washed using your phone. In the US, Qpass lets you pay for articles from the online Wall Street Journal. Mobile-phone owners in Germany, Austria and Spain can, in theory, use Paybox to

¹ http://www.e24.se/business/bank-och-finans/artikel_1602221.e24, 2009-11-10

² <http://www.independent.co.uk/news/business/news/cashless-society-by-2012-says-visa-chief-439676.html>, 2009-11-12

³ <http://www.dagenshandel.se/dh/DagensH.nsf/0/C955E2905F53BB49C12575D30031ECFE?open>, 2009-11-12

pay for a taxi ride, or to send money to people in those countries. Collaterally, virtual currencies are more common than ever, beenz, flooz, e-gold and Idollars are just a few⁴.

There are many good arguments as to why cash payment should disappear, being replaced by more sophisticated payment methods. One is that the Financial Sector Union of Sweden estimates that cash transactions costs more than 100 million euro every year. That's only in Sweden⁵. Whether it is actually 50, 100 or 200 million euro that is spent on cash transaction we can easily establish that it is a lot of money that could be utilized for something more useful.

The Economist wrote in their February edition 2009 that "Several Japanese businesses are already giving discounts for customers using electronic payment. Others will follow"⁶. Some Swedish companies (especially banks and trade organizations) are urging the development of a cashless society. The reasons are mainly security⁷, effectiveness⁸ and the removal of a black market⁹.

As there are pros there are also cons. The implementation of such a system would be massive - large in costs and large in scale. "A small price to pay for security" says the innovator, "a first step towards the restraint of personal integrity" says the antagonist. The realization of a cashless society is not only a new economic system; it is also a control structure. Cash is anonymous - electronic payment is not. Removing the possibility to pay using cash means enabling the possibility to keep track of every payment made. Thus, the adaption process for organizations, societies as well as individuals is very extensive.

Today our society is run by computers and the money markets have followed. Standing in line at the bank is becoming a thing of the past. We know that everything on a computer can be traced creating a paradox since privacy is also an important part of our lives.

The progress of world unanimity is inevitable. The Länsförsäkringar Alliance is a proof of that. At the end of last year, the alliance sent a letter announcing that with the beginning of

⁴ The Economist (2001) Finance and Economics: Dreams of a cashless Society

⁵ <http://di.se/Avdelningar/Artikel.aspx?ArticleID=2005\11\15\165045>, 2009-11-15

⁶ The Economist (2001) Finance and Economics: Dreams of a cashless Society

⁷ <http://www.finansforbundet.se/Resource.phx/pubman/templates/1.htx?id=2450>, 2009-11-12

⁸ <http://www.finansforbundet.se/Resource.phx/pubman/templates/8.htx?id=2408>, 2009-11-10

⁹ http://www.riksbank.se/upload/Dokument_riksbank/Kat_publicerat/Tal/2008/080205.pdf, 2009-11-10

spring 2009 “all of our customers will receive new credit cards that corresponds with the new world standard”¹⁰. It is more and more common that stores in France, Germany and Great Britain only accept these sorts of cards; a first step towards “a new world order”.

While this study is not exhaustive, covering all the areas of a potential cashless Swedish society, it does give the reader a good idea of some of the factors that will influence the future of this area.

1.2 DISCUSSION OF PROBLEMS

As globalization keeps expanding the development of new markets and new areas of interest keeps growing. Payment methods and money transaction is one of the sectors that are expected to change in near future. How the change will be realised and what impact the change will have, one can only speculate about. The implementation is believed to take quite some time but many experts agree that a cashless society is no longer a question of “if” but rather a question of “when”.¹¹

The idea of abolishing cash in favour of electronic currency strikes many people as peculiar since the system today seems to run smoothly. Nevertheless, many economists believe that the world is hardly getting along just fine with cash. David R. Warwick emphasizes crime reduction as one of the consequences of a cashless society but he also focuses his study on the money that could be saved due to tax revenues and currency handling¹².

Electronic payment will keep increasing. The Electronic Payments Association NACHA reported in February 2009 an increase of 4.5% in Q4 2008 as compared to the same period the year before¹³. Janet O. Estep, NACHA president says that “the continued growth of electronic payment during a period of intense economic pressures speaks to the

¹⁰ http://www.lansforsakringar.se/privat/bank/internet_o_telefon/sakerhet_pa_internet/sidor/default.aspx, 2009-11-20

¹¹ <http://www.metro.se/se/article/2008/12/02/09/4320-68/index.xml>, 2009-11-20

¹² Warwick, David R. (2004) *Towards a cashless society*, p. 39

¹³ <http://www.nacha.org/News/news/pressreleases/2009/News%20Release%20Q4%202008%20ACH%20Volume.pdf>, 2009-11-15

fundamental value that financial institutions, businesses, governments and consumers recognize in electronic payment.”

Previous research examining today's payment methods include Garcia-Swartz, Hahn, and Layne-Farrar, which through an empirical study examined the move towards a cashless society using a cost-benefit framework. Their study was somewhat unique by taking into account both private and social perspectives such as the cost-benefit aspects. They found that cash and checks were even more costly than previous studies suggested whereas the benefits were difficult to quantify since they differ among certain groups.¹⁴ Bergman, Guibourg, and Segendorf have estimated private and social cost of cash, debit and credit card payments in Sweden in 2002. The main finding was especially the cost for the different payment alternatives, which they explained by a threshold when it was more costly for individual and/or society to pay cash than by debit or credit card. Their conclusion confirmed a too extensive use of cash relative to card payments from a cost perspective.¹⁵ Singh unlike the other researches examined the emergence of e-commerce. Instead of focusing on the just the cost perspective, Singh analyzed the differences between each electronic payment system. Singh concluded that the user base is most important, and added that it also depends on consumer preferences, ease of use, cost, industry agreement, authorization, security, authentication, non-refutability, accessibility and reliability and anonymity and public policy.¹⁶

While previous research have principally studied the cost perspective except Singh, this thesis will examine the problem for financial institutions on the Swedish financial market to decide which factors should be considered when forecasting the development of electronic payments. Are we actually moving towards a cashless society or are we just at a point in time where elaborating electronic transactions is topical? This Master's thesis is not about examining the effects of a cashless society or the likelihood of us approaching such a society. This study is rather about studying what drives the processes within financial

¹⁴ Garcia-Swartz, Daniel D. et al (2006) *The move towards a cashless society: A closer look at payment instrument economics*

¹⁵ http://www.riksbank.se/upload/Dokument_riksbank/Kat_publicerat/WorkingPapers/WP212.pdf, 2010-01-15

¹⁶ Singh, Sumanjeet (2009) *Emergence in payment systems in the age of electronic commerce: The state of art*

institutions towards increased electronic payment and how to prepare for these drivers. It is a forecast of which technological innovations will affect the future of our payment transactions. What will be the presumed effects of mobile banking, NFC and novel credit cards? There is reason to believe that some new technologies will be introduced in the Swedish monetary market since some are already being, or are (successfully), implemented elsewhere.

A challenge also lies within predicting human behaviour. How will the population adapt to changes in this area? Is the adoption process a barrier to the implementation and realisation of a cashless society? We know that people do not know what they want until they have got it. You can put up with the banks taking three or four days to clear a payment as long as it is expected to take that long. If there existed more convenient solutions, people would demand more convenient solutions. Credit cards on the other hand have been established as an easy means of virtual payment, particularly across borders. Yet for consumers and merchants they are expensive both for very small and large payments. Besides, fraud is common in this area, especially considering the Internet.

The future of money transactions is uncertain. What is certain on the other hand is that we are dealing with a dynamic market in constant change. We will provide a good idea of which factors and variables will shape the future of the Swedish monetary market. By proclaiming these variables, we will be able to foresee the effects of change and new obstacles in this industry.

1.3 RESEARCH QUESTION

Which are the factors and variables within the financial industry leading the development of modern payment methods in Sweden?

1.4 PURPOSE

Our purpose is to define and explain which factors and variables will have the greatest effect on today's payment methods in the Swedish financial market. The findings shall with

theoretical background create a framework for understanding how the industry is likely to develop over time.

1.5 TARGET GROUP

Our study is primarily aimed towards the organizations within the financial sector. They have an apparent reason to be interested in the results of our investigation: Factors that are considered influential to their industry should be of certain importance when preparing for the future. If security is important, how do the entities work with securing new systems? If personal integrity is important, how can banks ensure privacy in electronic payments?

All the organizations within the study have a good knowledge of cash and electronic transactions but might lack knowledge of how the other organizations view cash handling, increased electronic payments and ultimately; the thought of a cashless society. This study will give a good idea of how the main operators in the industry interpret information and relate to each other.

The study could also be of interest to people interested in the development of money transactions in general. The financial industry has such an important role in this area that the progress of money transactions will likely shape the future of the money market. Knowing what factors are important to these organizations will give a good idea of what development to expect. In other words, the study does not only create a plan of which factors to consider, but also presents a framework for understanding and interpreting.

1.6 LIMITATIONS

We have executed this study with delimitation to organizations within Sweden. We have also only conducted interviews with companies that are related to the financial industry. Due to lack of time and schedule conflicts we have not been able to research other industries that could have been of interest. The financial industry is however, the industry shaping the money market and therefore of greatest interest.¹⁷

¹⁷ https://www.deloitte.com/assets/Dcom-UnitedStates/Local%20Assets/Documents/us_fsi_bs_BUSchoolLawReview%20BankingGlobal%20Financial%20Reform_vol%2028_2009.pdf, 2009-11-20

1.7 THESIS OUTLINE

1 INTRODUCTION

In the introduction chapter the reader will be given a background to our choice of subject and why we believe it to be an interesting study. We will discuss what questions are answered, the study purpose and to whom where aiming our research. Our intention with this passage is to present our subject and justify the research question

2 THEORETICAL FRAMEWORK

The chapter introduces the reader to the theoretical framework that this thesis is built upon. The theories are classical and well known. They are used both to understand the background of the market but also to explain the statements given by the respondents.

3 METHODOLOGY

The methodology chapter describes the methodology used to achieve the objective outlined in the introductory chapter. Procedures are specified, relevant approaches are presented and the method is legitimized. We end the chapter by constructively criticize and question how the method is interpreted.

4 RESULTS

This chapter presents the results of the data collection undertaken for this thesis using the previously described methodology. In this chapter the qualitative interviews that has been conducted is summarized. The results are presented differently for each interview subject, depending on what was brought into light for each one.

5 ANALYSIS

This section analyzes the information generated by the study's results. By presenting results from a theoretical framework, we want to explain the statements of our respondents and give room for individual interpretations.

6 CONCLUSION

After the results are presented and analyzed, a summary and conclusion follows where our research question will be answered. The chapter ends with suggestions for further research.

2 THEORETICAL FRAMEWORK

The chapter introduces the reader to the theoretical framework that this thesis is built upon. The theories are classical and well known. They are used both to understand the background of the market but also to explain the statements given by the respondents.

2.1 CHOSEN THEORIES

The theories used in this chapter are considered to be significant to define and explain the variables and innovations that will have the greatest effect on today's payment methods in the Swedish financial market. The theories partially provide an explanation for how the financial sector is functioning in today's society but they also provide an insight into how modern payments may be seen as a strategic tool. Lastly, they explain the different obstacles that exist in a technological society. The theories used are: Absorptive Capacity, Internal Stickiness, Technology Acceptance Model (TAM) and Diffusion of innovations. Absorptive capacity is our general theoretical base. The theory states an organization's ability to identify, assimilate and exploit knowledge from external sources. The investigation is through how individuals, organizations and environment interface in an intensive, changing market. To apply this in a framework of modern payments the theory is used to explain how these segments assimilate and absorb the developing technology. However, absorptive capacity has certain limitations why other theories have been used as a complement, but also to give the theoretical framework additional dimension.¹⁸ Internal Stickiness in turn tells us the difficulties of transferring knowledge within an organization. It fills the gap left from absorptive capacity in viewing the underlying processes but also presents a knowledge aspect. TAM is used to explain the acceptance when to adopt new technology. Similar to absorptive capacity TAM focuses at improving our understanding of user adoption behaviour. However TAM does not only create a framework predicting

¹⁸ Lane, Peter J. et al. (2002), *A thematic analysis and critical assessment of absorptive capacity research*, p. M1-6

behaviour, that absorptive capacity does, it also creates a framework for explaining behaviour¹⁹. Finally, diffusion of innovations explains in broad terms through various economic, social and cognitive factors how innovations get adopted in a social system. While the other models have a focus in the organizational context, diffusion of innovations theory approaches adoption from a social system on an individual level. To apply this in a framework of modern payments the theory explains the possibility to implement such a system is as dependent on the willingness of our individuals as our organizations.

2.1.1 Absorptive Capacity

Cohen and Levinthal studied the organizations' ability to take advantage of external information²⁰. This contributed to a new perspective on learning and innovation which became known as, absorptive capacity. The theory intends to improve the organization by assimilating external information to a new, well adapted internal knowledge. Cohen and Levinthal argued that this process is essential for each organization's innovation.

Absorptive capacity is controlled by the interface between the organization and its environment, but also between individuals in the organization who are involved in the learning process. One problem, however, may arise due to an organization's varied background knowledge. This means that if the knowledge that is absorbed, differs from the knowledge that an organization already possesses, probably required a centralized interface to the outside world. In cases where the external information is not different from the knowledge the organization already possesses, rather than operate in a decentralized interface to the outside world.

Robert M. Grant studied how a firm coordinates and integrates specialist knowledge to its members²¹. Grant uses theories of absorptive capacity when discussing an individual's ability to add new knowledge to existing knowledge. Jeffrey H. Dyer and Harbir Singh applied absorptive capacity when studying companies' ability to develop alliance partners or networks to gain competitive advantage. Dyer and Singh believed that if individual

¹⁹ Adams, Dennis A. et al. (1989), *Perceived usefulness, perceived ease of use, and user acceptance of information technology*, p. 227-247

²⁰ Cohen Wesley M. & Levinthal Daniel A. (1990), *Absorptive Capacity: A New Perspective on Learning and Innovation*, p. 128-152

²¹ Grant Robert M. (1996), *Toward a Knowledge-Based Theory of the Firm*, p. 109-122

companies can learn from other organizations, it is possible to apply the same thinking on alliance partners.²²

In cases where the absorption of the information is not of a decentralized nature, complications may arise. This is due to the dissemination of information is of a different nature, since it is more unknown and unfamiliar to the employees and organization units and thus difficult to perceive. What is important to remember is that absorptive capacity not only focuses on the assimilation of information it also includes the organization's ability to exploit it.²³

2.1.2 Internal Stickiness

Gabriel Szulanski explains the problems behind the ability to transfer best practices internally within a firm to build competitive advantage. Internal transfers are hindered by less confidentiality and legal obstacles than external transfers, implicating that internal transfers will run smoothly. However, experience show that the reality is not the same.²⁴

Reasoning regarding internal stickiness has been frequently used in other studies. Brown and Duguid use theories of stickiness to explain the social perspectives that exist within an organization.²⁵ Dyer and Sings use stickiness to explain how a firm's critical resources may cause a broadening of the boundaries.²⁶

Szulanski describes four sets of factors he believe are the major explanation for the difficulty of transferring knowledge within a firm; *Characteristics of the knowledge transferred, characteristics of the source of the recipient, characteristics of context and characteristics of the source of knowledge.*

²² Dyer, Jeffrey H. and Singh, Harbir (1998), *The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage*, p. 660-679

²³ Cohen Wesley M. & Levinthal Daniel A. (1990), *Absorptive Capacity: A New Perspective on Learning and Innovation*, p. 128-152

²⁴ Szulanski G. (1996), *Exploring Internal Stickiness: Impediments to the Transfer of Best Practice Within the Firm*, p.27

²⁵ Brown John Seely & Duguid Paul, *Knowledge and Organization: A Social-Practice Perspective*, *Organization Science*, p. 198-213

²⁶ Dyer, Jeffrey H. and Singh, Harbir (1998), *The Relational View: Cooperative Strategy and Sources of Interorganizational Competitive Advantage*, p. 660-679

“Characteristics of knowledge transferred” is related to casual ambiguity. Casual ambiguity in a work situation creates an irreducible uncertainty that obstructs the possibility to transfer knowledge.²⁷ The scenario of people being restricted to share knowledge is related to the “characteristics of the source of knowledge”. Having the ownership or superiority of information could be more beneficial than actually sharing. Such a source will encounter difficulties being transferred because he or she is not seen as trustworthy or knowledgeable.²⁸ “Characteristics of the recipient of knowledge” is associated with the well known NIH-syndrome (Not-invented-here) that is the unwillingness of absorbing new knowledge.²⁹ The syndrome increases the difficulty of adapting new innovation and information.³⁰ “Characteristics of the context” refers to the outcome when transferring knowledge inside a firm that may be different depending on the context. The arduous relationship between the knowledge exchanges may also increase the difficulty in the transfer.³¹

Prior common knowledge claims that internal stickiness almost exclusively exists because a lack of motivational factors, however, Szulanski’s main findings is that knowledge-related barriers – recipient’s lack of absorptive capacity, casual ambiguity and the inevitable relationship between source and recipient – are the most important holdbacks to knowledge transfer within the firm.³²

2.1.3 Technology Acceptance Model (TAM)

A lot of research has been done on the subject of user acceptance. Davis et al declared the reasons to why people will accept or refuse information technology. They created the Technology Acceptance Model (TAM) which can be applied to already existing systems. In further research Davis stated that there are more variables that could have effect on TAM. Therefore this model has been revised by many researchers, among them Robinson et al

²⁷ Lippman S. A. & Rumelt R. P. (1982), *Uncertain Imitability: An Analysis of Interfirm Differences in Efficiency under Competition*, p. 418-438

²⁸ Ibid

²⁹ Zaltman et al (1973), *Innovations and Organizations*, p. 479-480

³⁰ Glaser et al (1983), *Putting Knowledge to Use*, p. 452-453

³¹ Szulanski G. (1996), *Exploring Internal Stickiness: Impediments to the Transfer of Best Practice Within the Firm*, p.32

³² Ibid p.37

where *individual difference variables* and *environmental variables* have been added.³³

When management of a corporation has decided to use new IT, it is up to every individual to decide how it will be used and for what purpose.³⁴ Whether the individual will accept the new IT and to what extent is hard to foresee, however using TAM will increase the predictability of the outcome.

The idea of TAM is to clarify the relationship between the user's attitude, view, beliefs and the final use of the system.³⁵ The model is a redesign of Fishbein & Ajzens Theory of Reasoned Action (TRA) which derives from the social psychology.³⁶ TRA was developed to handle humans controlling behaviour and the intention of acting in a certain way. This behaviour is decided by a person's attitude and subjective norms.³⁷ Both TAM and TRA assumes that behaviour and intention will decide the usage of IT, but TAM also focuses on a person's attitude to the usage of IT.³⁸ The idea of TAM is therefore that it should be used as a tool to predict both the user's intention and attitude, but also its actual usage.³⁹

Davis's findings have been used by, among others, Adams et al to test the validity of the ease-of-use and usefulness scales.⁴⁰ Another study made by Goodhue & Thompson uses TAM to look at the linkage between information technology and the individual performance.⁴¹

One of the goals Davis tried to achieve with TAM was to create a framework that does not only predict a behaviour, it also could be explained, something that prior studies were lacking. To fulfill this goal Davis used a smaller number of fundamental variables, variables that were discussed in prior studies dealing with the emotional and cognitive determinants

³³ Robinson, L. Jr. et al. (2005), *Sales Force Use of Technology: Antecedents to Technology Acceptance*, p. 1623-1631

³⁴ Ibid

³⁵ Davis et al (1989), *User acceptance of computer technology: A comparison of two theoretical models*, p. 982-1003

³⁶ Ibid

³⁷ Ibid

³⁸ Money William & Turner Arch (2004), *Application of the Technology Acceptance Model to a Knowledge Management System*, p. 8-26

³⁹ Ibid

⁴⁰ Adams, Dennis A. et al. (1992), *Perceived Usefulness, Ease of Use, and Usage of Information Technology: A Replication*, p. 227-247

⁴¹ Goodhue Dale L. & Thompson Ronald L. (1995), *Task-Technology Fit and Individual Performance*, p. 213-236

of computer acceptance, together with the usage of TRA as a theoretical background to create the theoretical relationships between the variables.⁴² It is not only valuable to predict and give explanation for a system in theory; there is also a value in practical terms. For system developers it is important to know, as early as possible, whether the users will accept the new product or not. It will become an advantage in a user oriented organisation when to decide what system that will be purchased.⁴³

The main question behind TAM is as prior said what makes people accept or refuse the usage of IT. To determine this there are above all mainly two variables of importance. The first variable refers to that people tend to use or not use a tool to the extent that they find it useful, something that is called perceived usefulness (PU).⁴⁴ Davis defines PU as:

“Perceived usefulness is defined as the prospective user's subjective probability that using a specific application system will increase his or her job performance within an organizational context.”⁴⁵

The second variable is that potential users might believe a new application is useful, but at the same time the effort of learning the new application might be too high, something that is called perceived ease of use (PEoU).⁴⁶ Davis defines this variable as:

“Perceived ease of use refers to the degree to which the prospective user expects the target system to be free of effort.”⁴⁷

TAM is therefore said to be an intentions based model, meaning that it is build upon a person's intention to use IT, both in matters of predicting and explaining the usage.⁴⁸ The relationship between PU and behavioural intention is based upon the idea that people in an organisational context, creates intentions to a behaviour that they believe will increase their

⁴² Davis et al (1989), *User acceptance of computer technology: A comparison of two theoretical models*, p. 982-1003

⁴³ Dillon A. (2001), *User Acceptance of Information Technology*, p. 3-32

⁴⁴ Davis et al (1989), *User acceptance of computer technology: A comparison of two theoretical models*, p. 985

⁴⁵ Ibid

⁴⁶ Ibid

⁴⁷ Ibid

⁴⁸ Ibid

performance, regardless the positive or negative feelings it might develop in the behaviour itself.⁴⁹

The other variables TAM is built upon are *external variables, attitude towards using, behavioural intention to use* and *system usage*. External variables consist of events that have external influences on PU and PEOU. The events derives from the own organisation such as support and organisational innovation.⁵⁰ Attitude towards using in turn is about a person's attitude towards using a certain product. For example this could be whether a user finds it a good idea to use technology for the ongoing work or not and if it will be a gain for customers and executives.⁵¹ Behavioural intention to use is a reaction that has followed the user's attitude against usage. It treats the intention of the user to use a certain product as soon as it is available. A user might see the usefulness but still there is no guarantee that he or she will use it. Finally, the results of all the factors that TAM describes will be carried out in the actual usage of the product. This last variable is called system usage.⁵²

There are several limitations of TAM. Researchers claim that the problem derives from the underlying studies that TAM is build upon, namely the theory of reasoned action (TRA) and the theory of planned behavior (TPB).⁵³ The author Bagozzi argues that there are five problems which can make the model limited in its use:

“There are two critical gaps in the framework - the absence of a sound theory and method for identifying the determinants of PU and PEOU, as well as other bases for decision making - the neglect of group, social, and cultural aspects of decision making - the reliance on naïve and over-simplified notions of affect or emotions - the over dependence on a purely deterministic framework without consideration of self-regulation processes.”⁵⁴

⁴⁹ Robinson, L. Jr. et al. (2005), *Sales Force Use of Technology: Antecedents to Technology Acceptance*, p. 1623-1631

⁵⁰ Ibid

⁵¹ Ibid

⁵² Davis, Fred D. (1989), *Perceived Usefulness, Ease of Use, and Usage of Information Technology*, p. 985

⁵³ Bagozzi, Richard P. (2007), *The Legacy of the Technology Acceptance Model and a Proposal for a Paradigm Shift*, p.244

⁵⁴ Ibid p.245

2.1.4 Diffusion of Innovations

Rogers describes diffusion as follows:

"Diffusion is the process by which an innovation is communicated through certain channels over time among the members of a social system. It is a special type of communication, in that the messages are concerned with new ideas".

Gary C. Moore and Izak Benbasat studied the development of an instrument to measure the various perceptions an individual may have of adopting an IT innovation. To accomplish the study, Moore and Benbasat used parts of Rogers' Diffusion of innovations theory to describe different characteristics that affect an individual's decision to adopt or reject an innovation.⁵⁵ Frank M. Bass used Rogers' Diffusion-of-innovations theory to study which factors that affect the adoption of new products as an interaction between individuals. This outcome was a model (the Bass Model) that has become well known in the marketing industry.⁵⁶

Communication is about exchanging information in order to mutually reach a common understanding. However, in this context communication is not a simple form of exchange of information. It is rather more like a two-way process of convergence.⁵⁷ This can be explained by a situation where an agent and a client exchange information and where the agent tries to persuade a client to adopt an innovation. The thing is that the communication act is usually just a short part of a longer process that tends to involve several cycles. For that reason, diffusion is a special type of communication. The interaction involves some degree of uncertainty that can lead to a lack of predictability. But there is possibility to reduce this uncertainty by adding more extensive information.

Rogers have divided the diffusion of innovations theory into four different elements. The first element innovation, describes the object or idea that is new to the individual. But the innovation does not have to be new; it is even mentioned to be new if it is the first time

⁵⁵ Moore, Gary C. & Benbasat, Izak (1991), *Development of an Instrument to Measure the Perceptions of Adopting an Information Technology Innovation*, p. 192-222

⁵⁶ Bass, Frank M. (2004), *Comments on "A New Product Growth for Model Consumer Durables": The Bass Model*, p. 1833-1840

⁵⁷ Rogers, Everett M. (1995), *Diffusion of innovations*, p. 1-37

discovered by the individual. The innovation can also be counted as new if the individual obtain new knowledge of the innovation.

There are five different characteristic that helps to explain a different rate of adoption. The first characteristic is *Relative advantage*, telling if an innovation is perceived better than the innovation it replaces. The relative advantage can be measured by various variables, but some significant variables that are mentioned are economic terms, social prestige, convenience, and satisfaction. What is important is not whether the innovation has an objective advantage, but if the individual perceives the innovations advantageous. The second characteristic is the *Compatibility* reflecting how an innovation is compatible with the existing values and norms. An innovation that is not compatible with existing values and norms of a social system are adopted more rapidly. The third characteristic is *Complexity* which refers to how difficult an innovation is to use and understand. Even in this case, the innovation that is less difficult to use or understand is more rapidly to adopt. The fourth characteristic is the *Trialability*, which affects the extent an innovation can be tried before installation. The fifth and final characteristic is *Observability*, which indicates how visible the innovation is for others. The probability of you to adopt an innovation is most likely if you have seen the results before.

The second element describes the communications channels. It is the way a message goes from one part to another. For instance, mass media communications to large groups are very effective when it comes to informing potential adopters. But, when it comes to persuading individuals to accept new innovations, interpersonal channels are to be recommended.

The third element, time, is what determines the length required to go through the innovation-decision process. This process consists of the five different parameters knowledge, persuasion, decision, implementation, and confirmation. The first step of the process is to obtain knowledge to create an attitude towards the innovation. Thereafter the next steps are to adopt or reject the implementation and confirmation of an innovation. Innovativeness determines at what degree an individual or other unit adopts a given innovation. The model is divided into five different levels: Innovators, early adopters, early majority, late majority, laggards. Innovators are the first to adopt a given innovation while the laggards are the last individuals or units of adoption.

The fourth element, a social system, is made up of several interrelated units to jointly accomplish a common objective. The system structure is set up to maintain stability and to provide space to the individuals. Furthermore will the structure facilitate or obstruct diffusion and innovations in the system. There are three main innovation-decision that influences a social system and they are optional innovation-decisions, collective innovation-decisions, and authority innovation-decisions. These three innovation-decisions range the extent to which the adopting individual has responsibility for the decision himself or if it is determined by the authority decisions.⁵⁸

2.2 FRAMEWORK

Absorptive capacity is our general theoretical base, referring to an organization's ability to identify, assimilate and exploit knowledge from external sources. The theory investigates how individuals, organizations and environment interface in an intensive, changing market. In terms of modern payment methods the theory is used to explain how these segments assimilate and absorb this developing technology. It encompasses possibilities, threats as well as problems when approaching change. Like any theory, the theory of absorptive capacity has limitations. Lane et al proclaims that absorptive capacity focus too little attention to the underlying processes, few attempts to measure it outside research-and-development context and limited attempts to revise the definition. Our study uses three underlying theories to complement absorptive capacity, partly to cover for these limitations but also to give the theoretical framework additional dimension.⁵⁹

The theory of internal stickiness focuses on the underlying processes and how knowledge is transferred within these processes. It fills the gap left from absorptive capacity in viewing the underlying processes but also presents a knowledge aspect. The knowledge concept is very important when approaching new payment methods as it is often referred to as one of the barriers to a cashless society.⁶⁰ Lastly, the origin of stickiness could, unlike absorptive capacity, be measured⁶¹.

⁵⁸ Rogers, Everett M. (1995), *Diffusion of innovations*, p. 1-37

⁵⁹ Lane, Peter J. et al. (2002), *A thematic analysis and critical assessment of absorptive capacity research*, p. M1-6

⁶⁰ <http://www.finansforbundet.se/Resource.phx/plaza/content/publik/pdf/uppsats2.pdf>, 2009-11-30

⁶¹ Szulanski, Gabriel (1996), *Exploring Internal Stickiness: Impediments to the Transfer of Best Practice Within the Firm*, p. 27-43

Technology Acceptance Model is like absorptive capacity aimed at improving our understanding of user adoption behaviour. Unlike absorptive capacity, TAM has been revised several times and has therefore become a more modernised approach to technological adoption⁶². Furthermore, Technology Acceptance Model is not only designed to create a framework predicting behaviour, but also a framework for explaining behaviour. Something that absorptive capacity lacks⁶³. As our purpose is to explain and define rather than predict the important factors leading the development of modern payments, TAM is an important complement to absorptive capacity.

Diffusion theory does also have an important role in our theoretical framework. While the other models have an origin in the organizational point of view, diffusion theory approaches adoption from a social system on an individual level. Relating to the thought of a cashless society, the possibility to implement such a system is as dependent on the willingness of our individuals as our organizations. The characteristics of innovations, as perceived by individuals, will therefore be as important to understand when explaining the different rate of adoption.

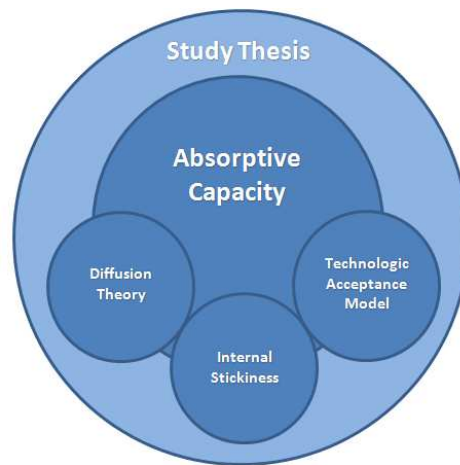


Figure 2.1, *Theoretical Framework*, source: own illustration

⁶² Davis, Fred D. & Venkatesh, Viswanath (1996), *A critical assessment of potential measurement biases in the technology acceptance model: three experiments*, p. 19–45

⁶³ Davis, Fred D. (1989), *Perceived Usefulness, Ease of Use, and Usage of Information Technology*, p.

3 METHOD

The methodology chapter describes the methodology used to achieve the objective outlined in the introductory chapter. Procedures are specified, relevant approaches are presented and the method is legitimized. We end the chapter by constructively criticize and question how the method is interpreted.

3.1 RESEARCH APPROACH

We have in this study, first studied public data on some of the financial companies and organizations most affected by a dynamic money market, but we have also conducted interviews with a number of individuals within these organizations in order to obtain information on their thoughts of the development in Sweden. The collected data were mainly used as a basis for selecting the companies that were most interesting to interview but also to justify the information derived from the interviews. With this approach, we're conducting a study based on qualitative research.

Research can either be based on theory placed in relation to empiricism or vice versa, using empirical evidence as a base and then comparing with existing theory. The former approach is referred to as a deductive approach and means that the researcher first forms a view on reality and then examines how well the reality is consistent with this view. The latter approach is called an inductive approach and means that the researcher first collects information about reality and then systematizes this information. The goal of the inductive approach is that the researcher should be able to draw generalized conclusions from the observations made⁶⁴. However, neither one approach on its own is appropriate for our research. A theoretical base to lean on for our data collection is necessary, being aware of the theory before the empirical data is compiled. At the same time, it is not our intention to test these theories against reality, but the intention is to create an understanding of the problem without any expectations of the results.

⁶⁴ Bryman & Bell (2005), *Företagsekonomiska Forskningsmetoder*, p. 23-25

Research that combines deductive and inductive method is called an abductive research. Using this approach means developing the empirical scope gradually while the theory is adjusted and refined. Unlike the above approaches this one focus on understanding. In an abductive approach you combine empirical analysis with theoretical studies which allows detecting certain patterns⁶⁵. An abductive approach means that the researcher uses existing knowledge and frame of reference to find the theoretical patterns and structures that can explain the empirical patterns. An abductive approach enables capitalizing on the benefits that both the deductive and inductive approach offers.

A study can be either prescriptive or descriptive. The first type of study is designed to promote improvement, namely to explain how something *should* be. The second set of studies is designed to operate explanatory, in other words; to describe how something *is*⁶⁶. The study is descriptive in nature because we want to describe the situation as it is today and provide an explanatory picture of how the case organizations see the future of payment transactions. The goal is not to solve a problem, but rather to create an understanding of the relationship between cash and electronic payments in Sweden of today.

3.1.1 Qualitative Study

Qualitative research implies a greater importance attached to words and interpretation rather than quantification in gathering and analyzing data. In this type of research we avoid a scientific and positivistic approach and rather focus on the interpretations of a social reality that can be perceived differently depending on who is studying it. Instead of a deductive approach you mainly use an inductive one in which priority is to interpret the data to generate new theories⁶⁷. In this study the efforts are dedicated to provide qualitative research and the empirical evidence mainly constitutes personal interviews.

⁶⁵ Alvesson & Sköldberg (1994) *Tolkning och Reflektion – Vetenskapsfilosofi och kvalitativ metod*, p. 42-44

⁶⁶ Artsberg (2005) *Redovisningsteori, Policy och Praxis*, p. 31-32

⁶⁷ Bryman & Bell (2005) *Företagsekonomiska Forskningsmetoder*, p. 40

3.2 DATA COLLECTION

Before initiating the data collection, an observation of the topic-related literature and articles from journals related to monetary transactions and cash handling, was made. This gave an overall picture of the market in general and the importance of these transactions to financial organizations in particular. This was made to get a knowledge base before the qualitative research was conducted. This type of information, known as secondary data, consists of information that is not self-produced by the researcher⁶⁸. The advantages of this type of data is that it is already collected and compiled, which means that it demands less time and resources to obtain information on the topic⁶⁹. Limitations on the other hand, are that the material is not known from the beginning, so the person researching it needs to spend time familiarizing with it.

After taking note of this information a review of the financial organizations, which are substantially affected by the dynamic money market, was carried out. This review was used as a basis when selecting the companies that we considered relevant to interview.

To analyze the importance of payment instruments and the relationship between the organizations, the core of this study is the primary data collected from interviews with representatives of these organizations. Primary data is information that the researcher himself collects, especially adapted to a particular issue or problem⁷⁰. To obtain a versatile picture of the financial industry we have endeavoured to carry out interviews with people working with these questions on an every day basis.

It is often advantageous to use various types of data, both primary and secondary, because they can both verify and complement each other. If multiple types of data are used, they may well prove each other but they may also seem contradictory, which can provide interesting contrasts within the research⁷¹. For this paper, it is considered worthwhile to use both types of sources since the results from this research can be compared with previous studies in the subject.

⁶⁸ Bryman & Bell (2005) *Företagsekonomiska Forskningsmetoder*, p. 230

⁶⁹ Ibid, p. 231

⁷⁰ Jacobsen (2002) *Vad, Hur och Varför?* p. 153

⁷¹ Ibid, p. 153

3.2.1 Selection

When selecting the companies that were relevant for the study a population of all the companies and organizations belonging to the Swedish financial market (private and public), were considered. When choosing which of these companies to interview a complete overview of the units in this population is made since this information is readily available.

After this a selection was made as to which companies would be suited for interviews. When choosing these companies we limited our search to firms that publicly revealed a specific interest in the relationship between cash and electronic payments. The reason for this separation was mainly the limitation of time. We considered it more convenient to directly approach the companies that had a documented interest in money transactions. All selected companies were asked about the interview, and six out of nine companies were willing to attend to these interviews.

The companies that were in our selection process were Swedish Trade Organization, Bank of Sweden, Panaxia Security, SEB, Handelsbanken, Swedish Bankers Association, Financial Sector Union, VISA and MasterCard. The companies that did not agree to attend our interviews were Handelsbanken, VISA and MasterCard.

3.2.2 Interviews

In this paper, open individual interviews have been conducted as deemed appropriate when relatively few units will be investigated. The individual's words are the interesting part and when an individual's interpretation and perception of a particular phenomenon is of certain interest⁷². When these types of interviews are performed, there is a possibility to either implement these face-to-face or via telephone. As far as possible, the possibility to meet the respondents face-to-face was extended. The intention was therefore that all interviews were conducted in this manner.

⁷² Jacobsen (2002) *Vad, Hur och Varför?* p. 160-161

The advantage of using face-to-face interviews is that the interviewer and the respondent can more easily get a personal contact. This enables for more sensitive information to come up during the interview. The disadvantage of this type of interview is the so-called interview effect. This means that the interviewer affects the respondent with their physical presence (body language or facial expressions).

However, not all the respondents had the opportunity to participate in a personal meeting due to time constraints. Thus, to obtain details of these individuals, we chose to interview them over the phone. The advantage of telephone interviews is that they can reduce the interviewer effect since the interview form becomes more anonymous. The downside is precisely this anonymity which does not create the same intimate atmosphere. This means that the amount of information generated during a telephone interview is less than that derived from the personal interviews⁷³.

The interviews were semi-structured in their design. This means that we predetermined a set of questions given to all respondents. The questions were open in nature and designed so that the respondent would be given the opportunity to provide more flexible responses rather than just being able to answer yes or no. The type of information provided in such interviews are known as soft data and is suitable for collecting information on more qualitative conditions. In addition, during the interviews, we asked follow-up questions that were not determined in advance, but adapted to the response we received at the predetermined questions⁷⁴. We believe that this form of interviewing is most appropriate for our research because it maximizes the amount of information from respondents and does not limit their answers to the standardized questions.

From the companies that decided to attend our interviews we chose the following persons: From the Financial Sector Union we interviewed Leif Karlsson, head of communications. When meeting with Bank of Sweden we talked to Svante Bågstam in the Payment System Committee. From Swedish Trade Federation we interviewed Bengt Nilervall, head of payment systems. When visiting Panaxia Security we discussed our research question with the board member Gunnar Forss. From Swedish Bankers' Association we meet with Leif Trogen, head of financial infrastructure. Lastly, we also interviewed Sven Estwall who is

⁷³ Jacobsen (2002) *Vad, Hur och Varför?* p. 160-161

⁷⁴ Lundahl, U & Skärvad P-H (1990) *Utredningsmetodik för samhällsvetare och ekonomer*, p. 91-92

responsible for cards and payment systems at SEB. Estwall has worked at both MasterCard and VISA as a regional director which made up for not getting an interview with any one of them.

3.3 CREDIBILITY

Whatever the choice of methodology in an essay, it is important to question the data collected. Is it likely that other researchers would have achieved the same results? Is the data collected synchronized with what is to be achieved? Are the results reliable and consistent? The following section discusses these issues and argues for the value of these dimensions.⁷⁵

3.3.1 Validity

Validity means the absence of bias, in other words, how well we can rely on the data collected. Within the concept of validity there is a distinction between internal and external validity. Internal validity is making sure that the study is using the right measurements, asking the right questions and asking these questions to the right people. External validity involves the ability to make generalizations based on specific study. In our case this concerns how well the respondents represent the population examined⁷⁶.

Approaching the internal validity, semi-structured interviews were conducted with most of the respondents in our study. These types of interviews and the selected respondents were well balanced. It should also be noted that the ability to decide which specific individuals to interview in the selected firms has been present. This gives confidence to the internal validity since the likeliness of interviewing the "right" person increases.

Concerning the external validity, the people that we have interviewed are all very familiar with the developments occurring in payment transactions throughout Sweden. This in turn would indicate that they are good representatives of the financial industry within this area.

⁷⁵ Svenning, C (2003), *Metodboken*, p. 63

⁷⁶ Svenning, C (2003), *Metodboken*, p. 64-66

These reliable interviews allow making general assumptions related to the answers. The answers often correspond so well that a pattern can be distinguished, suggesting a satisfactory external validity.

3.3.2 Reliability

Reliability, however, is about how reliable and consistent the measurements are. The term implies that the outcome of the research is reliable. A reliable examination should if repeated, show the same results. High reliability is also important to be able to make generalizations based on the results.⁷⁷

In the event that someone would repeat our investigation and collect the same data, it is likely that the same result would be achieved given the same circumstances. Since the money market is extremely dynamic and changing, information of today becomes old tomorrow. However, the quantitative part of the investigation is believed to be the same since the content of the data we studied would be unchanged. Regarding the interviews we conducted the outcome is not as certain to be as equivalent. Nevertheless, we are confident that the respondents would give the same answer if the same questions were asked a second time.

3.3.3 Representativity

Representativity measures how well the chosen interview targets are representing the sector investigated. As we have head hunted our targets from all parts of the industry, public and private, associations and companies, we believe our representativity to be high. These people have been selected because they work with problems related to our research questions on a day to day basis.

⁷⁷ Svenning, C (2003), *Metodboken*, p. 67

3.3.4 Sources

In addition to interviews the study uses primary sources of information that are publicly available on the chosen organization's websites but it also takes note of other materials such as investigations and opinions. All of these sources can be considered as neutral in their content and, therefore, there is no good reason to doubt the credibility of them. Secondary sources, such as literature and articles are written by credible individuals and have been used exclusively to reflect the history and the present on the subject of payment types. It is unlikely that any of these sources would not be credible or objective. The material gathered from electronic sources is taken from genuine and reputed domains.

3.3.5 Alternatives

A possible alternative methodology in the study would have been the use of standardized questionnaires rather than semi-structured interviews. The advantage of this methodology is that it requires less time and resources. It could have given us the opportunity to explore more units. However, we believe that our method of choice gives us better information since it creates an opportunity to ask supplementary questions in the interviews and let the interview objects themselves focus on what they think is important. The study could have had only telephone interviews which would also enable more respondents. But at the same time, information communicated at a personal meeting is generally superior to that of telephone interviews.

4 RESULTS

This chapter presents the results of the data collection undertaken for this thesis using the previously described methodology. In this chapter the qualitative interviews that has been conducted is summarized. The results are presented differently for each interview subject, depending on what was brought into light for each one.

4.1 QUALITATIVE DATA

Since we decided to abolish quantitative data we present our qualitative findings below. Those consist of six interviews with the representatives from six organizations within the financial industry, all of which are directly dependent on the development of our payment methods. The interviews are presented in chronological order, starting out with the Bank of Sweden, ending with Skandinaviska Enskilda Banken (SEB). The chapter is ended by a table, recapitulating the most important questions.

4.1.1 The Financial Sector Union

Leif Karlsson, Chief of Communications

The Financial Sector Union of Sweden is a trade union for employees in the financial sector in Sweden. One of the union's tasks is to centrally negotiate wages and employment conditions. Through the union secretary office the members are offered help in all matters relating to their situation at work.⁷⁸

Leif Karlsson is chief of communication of the union and since one and half year involved in the project called kontantfritt.nu, which particularly operates with partners such as The Swedish Trade Federation and Swedish Hotel and Restaurant Association.

⁷⁸ <http://www.finansforbundet.se/Resource.phx/plaza/content/omoss/index.htm>, 2009-12-10

The project's primary function is to reduce the number of bank robberies that each year affects all union members. The main concern regarding these problems, Karlsson says, is cash. In the long run the organization hopes to achieve a cashless society - reducing these robberies. Just reducing cash would however have the opposite effect. "If cash were to be reduced in bank offices, cash would instead be transferred to supermarkets where the staffs are even less protected". This creates a paradox, implying that it would have to take a legitimate amendment for a total expiration of cash.

Karlsson says there are enough solutions and technologies to make it possible to completely abolish cash. But he still sees two substantial problems. The first relates to people with poor credit history and those who lack personal or coordination number. In the current situation, these groups do not always have access to bank cards and online banking. Secondly, there is no good answer to the integrity issue to be handled. But in response to this, Karlsson says they have managed to get a representative of the Swedish Parliament to submit a proposal to discuss the privacy issue further.

In addition to what has been said previously, Karlsson says "if we want the cashless society to become reality, our main priority is to change people's attitudes towards cash." He says that many people should be more afraid paying cash than with credit cards. "If you lose your cash you won't get them back, but if you lose money linked to the debit card the bank will normally compensate you."

Karlsson says that it is not possible to consolidate the abolishment of cash, but it should rather be a financial incentive to do so. He says that banks have now realized that cash management is a costly business, and that they are keen to reduce the cash usage. The trade begins to see the result of lower card fees that normally has been detrimental to the development of less cash usage. According to Karlsson, the current technology has to be improved and more secure, "the technology is out there, but it has not yet been implemented". Karlsson also emphasises the importance of active lobbying if a cash-free society were to be realized. "The execution is not carried out over night".

In conclusion, Karlsson believe that cash will be completely abolished within a period of 20-25 years. The requirements are to solve the integrity issue, there have to be financial

incentives, the technology have to be improved, an active lobbying, and perhaps above all, a change in the attitude of every individual.

4.1.2 Bank of Sweden

Svante Bågstam, Payment System Committee

The Bank of Sweden (Riksbanken) is Sweden's central bank and under the authority of the Swedish parliament (Riksdagen). The Bank of Sweden is responsible for the monetary policy of maintaining price stability. The bank is also responsible for promoting a safe and efficient payment system⁷⁹.

In the Payment System Committee the representatives are discussing future construction and organization of the central payment system. They also discuss altered arrangements for settling transactions in Swedish interest-bearing securities in order to eliminate certain systemic risks and measures for making more efficient use of liquidity in the payment system⁸⁰.

Svante Bågstam is the secretary of this committee and well grounded in the Swedish monetary system. He starts out by ascertaining us that our society wouldn't work without cash as it is today. "There are much too many operations that depend on the existence of cash payment". He continues: "Despite what you might think, people are in general more secure and comfortable when paying with cash as compared to electronic payment".

He accentuates that he does not see a cashless society within the near future. Even though we see a trend in the increased use of electronic payment the realization of such a society will take time. Bågstam does see a potential in a cashless society and relates the scenario to the abolishment of the cheque. Even though paying with a cheque is still doable the use of cheques have been significantly reduced since the beginning of the 21st century. The reason is initially that SEB put a fee on the distribution of these cheques. Soon after the other banks followed and today almost no one uses cheques.

⁷⁹ <http://www.riksbank.com/templates/SectionStart.aspx?id=10601>, 2009-12-15

⁸⁰ <http://www.riksbank.com/templates/News.aspx?id=4353>, 2009-12-15

Bågstad was also asked if there would be any certain changes in the financial sector that would severely increase the likelihood of moving towards a cashless society. He then refers to conference he attended in the United States a few weeks back. "Surcharging and transparency in markets are very hot topics over there at the moment". When elaborating on this we understand that there is a commission from the ministry of finance that could enable the possibility for banks to use surcharges when withdrawing money. "The execution, if decided, would not take place for many years though".

Bank of Sweden do not introduce any new payment instrument, however, it can alert the society of new means of payment if it believes that there is a need, if there is a need. Mobile payment is one example that is certainly a very probable way of handling payments in a near future. Certain requirements must however be met in order for Bank of Sweden to back up a such a new payment instrument: the payment has to be made in real time, the system have to add some comfort level and it must be available to all.

When asked about the bank's standing, cash or no cash, he says that the Bank of Sweden was initiated to serve the demand of the people. Because of that, the bank does not operate towards a certain form of payment method but would rather be considered neutral in this matter. The Bank of Sweden is supposed to analyze, evaluate and secure the money market, which is, "letting the market speak for itself".

4.1.3 Swedish Trade Federation

Bengt Nilervall, Head of Payment Systems

The Swedish Trade Federation (hereby referred to as STF) is working with industry and employers' policy issues for the Swedish trading companies. It is a member-driven organization representing companies in the wholesale and retail business. STF works both nationally and internationally where the goal is a world of free trade without barriers. STF is also partner with the Financial Sector Union that runs the forum kontantfritt.nu.

Bengt Nilervall works at STF as the Head of Payment Systems. He has long experience and insights into how payments have looked historically, how it is evolving, and how the market works in general.

STF's interest in the question of a cashless society is derived from the crime factor, bringing down crime and thus improving the safety of the individual companies. Trying to reduce the black market is not a focus for STF but there are likely implications for that society. The Swedish police are also flagging for a cashless society. Nilervall says that County Police Commissioner Karin Götblad has stated "One of the most effective steps against organized crime is the removal of cash".

Nilervall says that today's major problem is that most companies that STF corporate with include one to 50 employees, where the cost of cash is not made visible. "It is easier for the big enterprises with great cash handling to see the actual cost that arise". The problem is therefore to demonstrate the cost of managing cash compared to cards for smaller companies.

The contribution from STF is that they are pushing for an increase in card using, which in turn leads to reduced cash needs. STF is therefore actively working to bring down the card rates which is a major contributing factor to the resistance in using credit cards instead of cash, says Nilervall. In the current situation, it is sometimes too expensive to accept cards, since the charge takes too much on the margin. However, he points out that STF is primarily working against corporate card usage not against individuals using cards, but progress within this area becomes both parties' interests.

STF is also striving to find new business models for purchases up to 150 SEK. These purchases still have a majority of cash as payment. "If we can achieve better business models for these small purchases it is likely that cash usage decreases drastically," says Nilervall. A possible comeback of the Cash Card for those types of purchases he sees as a possibility, despite the big failure last time. "The timing was wrong that time".

Nilervall can see a trend of increased card usage among the Swedish population. In some industries the usage of cards has been around 85% of payments. Even so, "No major player dares to step forward and become completely cashless".

Another problem the usage of cards faces is the narrow number of companies dealing with credit cards. The two largest, VISA and MasterCard, are huge entities with almost monopolistic position in the market. An attempt to enter this market would be extremely

difficult. The competition is therefore limited and as a result of this, Nilervall says, negotiating the premises is limited.

Furthermore Nilervall does not believe in surcharging. Such a system would only become more complicated and moreover, the fee to pay with debit cards is only 68 cents per transaction. Instead, trying to press both VISA and MasterCard to lower their fees would be a suitable solution. However, we must distinguish between debit and credit cards, such as American Express, Diner etcetera, he says. These credit cards both have a starting fee and a percentage fee on the total amount - making them a lot more expensive for the terminal owner than the debit cards.

“Mobile payments are approaching”, “Today there are many projects out”. One example he mentions is the Tap-and-Go system, which is a sort of NFC-like system where you sweep the device over a sensor to pay. Similar payment methods are coming, he says, but there are mainly mobile solutions that are communicated today.

As a closure Nilervall states that the STF’s vision is primarily to reduce the use of cash rather than to see it disappear completely. However Nilervall believe it possible that, within a period of 20-30 years, people will be able to live in a cashless society.

4.1.4 Panaxia Security

Gunnar Forss, Board member

Panaxia Security is a security group that offers a range of services in the field of security and logistics. Panaxia is involved in banking, corporate and commercial clients as well as municipalities and county councils throughout Sweden. Panaxia Group is established in 23 locations across the country and has approximately 900 employees and 400 security vehicles. The headquarters are located in Stockholm.

Gunnar Forss is currently working in the Board of Panaxia Security. Except his commitment in Panaxia he is also the president of Gunnar Forss AB. His assignments in Panaxia are to act as a consultant in management issues. Forss has great knowledge in cash management and a lot of experience from the Swedish monetary industry.

When discussing the possible elimination of cash Forss is very doubtful. Using cash is completely anonymous, this anonymity will disappear with the removal of cash, he says. Making payments by card or any other electronic payment will always leave electronic footprints why the anonymity will disappear. A major contributing factor to why this is a problem is the mistrust of the government system we have today. The implementation of the Swedish FRA law, Forss believes will make people more restricted against surveillance. "People do not want to be supervised at all levels. It is a question of integrity". There is also a symbolic value of cash. The feeling of having a note in your hand compared to see the digits on a screen are totally different, he says.

Forss do not see a potential comeback for the Cash card: "It is much easier just to pay with a bill for small amounts than having to fill up another card for the very same payment". Another problem he sees is the fact that banks are not willing to push for a cashless society since the fees they are taking on electronic payment would be highlighted. It will push for a decrease on the fees, in which the banks have no interest, he says.

Forss says that the use of surcharging is neither a good solution. "It would only become more complicated and as of today there is basically the reverse pricing in which the cheapest way is most expensive and vice versa, which may seem strange".

Panaxia always looks for new potentials in the market. One reason for this is to prevent a possible decrease in revenues caused by a decrease in cash deliveries says Forss. This is why Panaxia as of today also delivers medical supplies such as drugs and remedies. A possible scenario Forss states, is a limited need of the security carriers carrying cash, when retail and banks will use more sophisticated payment methods such as payment by cards. However, he believes the amount of cash will still remain the same but they will be used in other areas.

In conclusion, Forss says that he does not think cash will be removed, though it might decrease. The distrust of the system, while the security of cash usage is increasing, will make it a lot safer to use cash in the future. Claims that the criminal world would be reduced by a cashless society Forss finds unlikely; "they will find new ways".

4.1.5 Swedish Bankers' Association

Leif Trogen, Head of financial infrastructure

The Swedish Bankers' Association is an organization in Sweden, representing banks and helps its members in matters of common interest. Members are banks, finance companies and mortgage institutions involved in banking groups. Even branches of foreign banks operating in Sweden are included as members of the Swedish Bankers' Association. Totally there are 28 members; eight of these are foreign banks. The Swedish Bankers' Association works for a well functioning and efficient banking sector and has, among other things, the task of spreading knowledge about the banks and their role in society. The association is also working on development of the banking regulatory framework and common standards in areas such as payments, clearing, security and IT infrastructure.⁸¹

Leif Trogen is head of financial infrastructure and well informed in what factors affect the development of a cashless society. Trogen says "only 30-35 years ago, personnel got their payment in envelopes at the human resources department". Subsequently, Bankgirocentralen facilitated the job in the sense that staff from now could have his or her salary deposit in an account no matter what bank. This reflects the job even today, to have a functioning and efficient payment system. Trogen added that Swedish Bankers' Association is interested in finding different methods of payment for the benefit of the whole society.

When asked why smaller shops sometimes charge a card fee, and therefore may give incentives for consumers to pay with cash, it is a bit confusing, Trogen thinks. He argues that it costs a lot of money for retailers to handle cash. Furthermore, he says that people between 15-30 years old that regularly use bank cards indirectly subsidizes cash management. Trogen says that the competition laws do not allow just any pricing, making it problematic to satisfy all parties. The possibility for banks to charge fees on cash withdrawals Trogen considers less reasonable. He says it leads to an outcry and that it is a pedagogic issue for banks to deal with.

Trogen says that banks have previously succeeded in re-directing customers to new

⁸¹ <http://www.bankforeningen.se/web/bf.nsf/pages/ombank.html>, 2009-12-10

payment options by adding charges. For example, former Savings Bank of Sweden saw their checks fall by 90 % in a short period of time, because of the fees. But Trogen thinks in order to eliminate cash, some kind of legislation would be necessary.

When asked what Trogen think about possible new payment structures, he says he believes that the mobile phone will come as a supplement in a reasonably near future. He argues that it is important to have several different payment methods and adds "all of these methods are of course there to provide security, effectiveness, safety and environmentally friendly method of payment and in that approach, no cash is included".

In conclusion, apart from what has been mentioned above, Trogen thinks anonymity is a central issue that has to be solved, epilating the possibility of tracing transactions. He also believes that the most important factor is the attitude of our younger society, 15-30 years. "Their preferences form our future society".

4.1.6 Skandinaviska Enskilda Banken (SEB)

Sven Estwall, Director of Card Issuing

Skandinaviska Enskilda Banken AB (SEB) is a North-European financial group for corporate customers, institutions and private individuals. Its activities comprise mainly banking services, but SEB also carries out significant life insurance operations and also owns EuroCard. The bank was founded by and is controlled by the Swedish Wallenberg family through their investment company Investor AB.

Sven Estwall is today the director of card issuing at SEB. He has previously been the regional director of VISA and MasterCard in northern Europe. Since Sven is working with mostly card-related issues our questions have mainly concerned the credit card market that exists today, how it is expected to evolve and how the card will be used as a payment method in the future.

Estwall begins by describing the oligopoly that characterizes the card industry. "Today, there are obviously only two principal actors in Visa and Master Card but there is also Diners and American Express." When asked how the relationship between card companies and banks look like he answers that the banks, or users, are treated as customers, "it is a

business-to-business relationship where you as a member pay for the different services that the card companies offer".

Estwall is doubtful to a successful introduction of new credit card at the initiative of the banks in Sweden. The main reason is economies of scale; they would have been forced to produce extreme amounts of cards to be able to compete with the major card companies. "The fees that banks pay to the card companies are so mediocre that it's simply not good enough as an incentive for such a production". Estwall says that the main concern is the absence of customer benefits with such a card.

In principle, he uses the same argument for a possible Europe-card where gathered European banks would drive the progress. "What is the real advantage of such a card? At the heart of this type of development political actors drive the development - forgetting what the customer actually demands". Should any of these proposals be implemented it is necessary to show the positive differences that the new system would bring. Estwall believe that the barriers and challenges that such a system would include are brand building and guarantees. "Visa and MasterCard have such a huge head start, especially regarding the international legislation". Estwall mentions several cases in which holders of VISA and MasterCard, who have lost their money abroad, regained their money because the cards were enveloped within broad international regulations. "Other cards can not get similar agreements".

Estwall believes that card fees will be overhauled. "Within a few years we'll see the implementation of the NFC system that is under development in London and Tokyo". Estwall believe that this innovation will create more effective ways of paying and the banks will pull in short-rates from small shops. "We are not there yet but it is not very far into the future". Banks have not yet accepted that cash is more expensive than electronic transactions. They do not act to reduce the cash but rather waits patiently for the change that takes place. Estwall think it is about politics, it has historically been difficult to implement that kind of change: "No one dares to be first."

Estwall also discusses the privacy point of view in increasing card payments. "Yes, of course card payments leave electronic footprints, but I see no problem with it, quite the contrary. The private person will keep better track of their finances if everything is

computerized, while criminal transactions will become aware more easily. Estwall is well aware of the privacy issue, but believes that electronic footprints rather lead to positive events than vice versa.

Estwall also says that mobile payments will probably be the most important innovation in the short term. He says it is handy to use the phone as a means of payment since you carry it with you every day. "The cell phone is something one carries with daily and could therefore minimize the number of items that people need to keep track of." At the same time Estwall does not think that the phone will knock out card solutions, "mobile payments will become an alternative rather than a complement".

That Sweden will get rid of cash altogether, Estwall is confident will never happen. But we can build systems that go against payment of an increasing number of payment methods. "70 % of all payments today are made with cash, that number will decrease but it will never disappear."

Representatives Organization	Sven Estwall SEB	Svante Bågstam Bank of Sweden	Bengt Nilervall Swedish Trade Fed.	Leif Carlsson Fin. Sector Union	Leif Trogen Bankers' Association	Gunnar Forss Panaxia
Are you actively working for electronic payment towards a cashless society?	They do not work actively towards a cashless society, in terms the follows the market demand.	Bank of Sweden do not work actively at all. Rather follows the demand of the people.	Works actively for a cashless society thru kontantfritt.nu of which they are a member.	Founder of kontantfritt.nu, drives the development of a cashless society.	Electronic payments are an ongoing issue. But most central is a functioning and efficient payment system.	No. Rather the opposite. The business is dependent on a society with cash.
What are the important variables in your sector indicating a realization of a cashless society?	Cheaper payment methods will be important to reduce the cash payments.	The people drive the development of modern payment methods. A demand has to arise.	The main priority is the thought of a society with reduced crime.	The main factor is to reduce the number of bank robberies.	Cash handling costs a lot of money and is therefore an obsolete paying method.	The increased usage of cards that results in a reduced need of security transports.
Do you see any important technical innovations that could change our way of looking at cash?	Mobile payments will have the biggest impact of new payment methods.	Mentions <i>swartnyttig</i> as a possible new technology that is frequently discussed in the United States	The increased use of cards, combined with a possible cash card. Also sees possibilities through mobile solutions such as NFC	Mobile payments will be the most important technology in the near future.	Mobile payments will be an important complement to card-payments.	Today's way of transporting cash is obsolete why new technologies might appear to make the branch more effective
What are the major pros and cons with a cashless society from your point of view?	The pros are easiness to manage your finance. The cons are the unwillingness to move towards such a society.	The pros are mainly related to the increased effectiveness. Cons are naturally the unwillingness to change	The reduction of crime and increased safety are the main pros. The cons are the attitude against removing cash.	The pros are a reduction of bank robberies. The cons are how the integrity issue is to be handled.	The pros are a national economic effectiveness. The cons are how the integrity issue has to be solved.	With larger amounts, card payment might be seen as more convenient. A con is the mistrust against the system - lost integrity.
What development in payment methods can we expect to see in the forthcoming years?	Mobile payments will be used in a greater extent in the forthcoming years.	Bank of Sweden do not elaborate on what the future withholds, rather adjusts to the change.	A cashless society within a 20 year period is not an unlikely scenario.	Mobile payment will grow in importance the next coming years.	Trogen thinks the mobile will be complemented in just a few years. Electronic invoices are also increasing.	The cash will remain for an unspecified period of time even if the usage of cash might decrease.
How interdependent are Sweden? How much are we influenced by countries around us?	We are not that much affected by other Nordic countries.	Compared to similar countries we are quite independent, but of course we are dependent on the world in general	Compared to Europe, Sweden are in the frontline of alternative payment methods, but are lacking behind in Scandinavia.	Norway the make more payments by card, and therefore the use less cash. We can learn from them how to reduce cash payments in some way.	Sweden does not seem to be much affected by the other Nordic countries.	Compared to other countries within Europe, alternative payments are used in a broader way in Sweden.
Which factors are the main drivers of the development of our payment methods now?	New cheaper payment methods will be important such as mobile payments.	Once again, the most important variables are the organizations' and people's requirements.	Marketing the effects of a cashless society. Increased knowledge will increase acceptance.	The attitude is the most important factor. Changed attitude and the awareness of its effects.	The perceived thoughts of our youths will enforce our development towards a cashless society.	For a cashless society to become reality, a faith in the economic system has to be established.

5 ANALYSIS

This section analyzes the information generated by the study's results. By presenting results from a theoretical framework, we want to explain the statements of our respondents and give room for individual interpretations.

5.1 POSSIBILITIES

Only 30-35 years ago, the personnel got their payment in envelopes at the human resources department. This way of handling salaries is today almost hard to imagine, but during that time it was the common way of handling salary payments. Today almost all salaries are paid out through electronic deposits. What has happened since the 1970s is above all that the technical possibilities have improved a lot. But it has also been more accepted to use new forms of technical solutions, which is a critical issue to observe when dealing with different alternatives of payment methods. People's preferences using cards or cash might, however, differ. For example, for amounts over SEK 60, people around 20 years old prefer using a card. For people around 60 years old, the amount is SEK 179. As seen there is quite a difference. This difference all the respondents' claim derives from a social and a cultural complexity. The possibility to change this view depends on the willingness for individuals and organizations to change attitudes.

Bågstam from the Bank of Sweden believes that there will always be a group of people that will refuse the usage of electronic payments implicating that the social and cultural incentives are too strong. As stated through absorptive capacity, the ability to absorb new knowledge partly depends on prior knowledge. In this point of view older people lack the prior knowledge since using cash is the regular payment method. This view raises another question; are organisations willing to take sufficient action for an increased usage of electronic payments? The knowledge how to involve all generations is not unachievable, but could be costly. If people will be forced to switch to card payments this may lead to decreasing revenues as a consequence of the reviewed card fees. Reducing the fees is of course something the banks and card corporations want to avoid, and may therefore be the

natural reason why they have not established a distinct position towards a cashless society, even though they know such a society would be more effective in the long run. But as a result of demographic conditions, the older generation will disappear and leave a younger generation more willing to adopt modern payments behind.

As of today there are also other aspects to keep in mind. The fees for transporting cash are of significant sizes and generally accepted by the people. This combined with the environmental impact of transportation cash, results in people seeking other alternative solutions. Karlsson from the Financial Sector Union states that the usage of cash is an obsolete payment method and that other potential alternatives may well be more effective. Estwall believe that electronic payments can help people to track their economic activities.

A total removal of cash will of course remove the transaction fees for cash, but also mitigate the environmental issues caused by the pollution of the cash and valuables transports. Today's environmental awareness can further be seen as a social construction where people may be more willing to adopt modern payment methods if they can relate to the consequences it involves.

As of today compared to 20 years ago we are more comfortable with the development of new forms of technologies. Most people use computers and mobile phones on a daily basis. Therefore a move towards a cashless society does not necessary need to be that far away. If the perceived usefulness is greater for the electronic payments than for cash, the adoption will be even more likely to occur.

Nilervall from the Swedish Trade Federation believes there must be a reduction of cash usage as a result of the quantity of crimes committed. Such actions will decrease the black market and complicate it for illegal transactions. The question remaining is how and why different payment methods penetrate the market. The explanation can be seen through the internal stickiness theory where knowledge is not transferred in a satisfactory manner or through the acceptance of new technology where social factors will be a part of the answer. The unwillingness to adopt a total cashless society can be derived from the fear of losing potential customers but also because the actual cost of handling cash is not highlighted. However, as stated above, there is a trend towards a greater acceptance to use cards as payment. The simplicity of only bringing a card instead of a lot of cash combined with the

low effort that is needed for the transaction implicates that the barriers of accepting the technology of electronic payments are decreasing. It is further confirmed by Estwall, that people often realize that they miss their mobile phone before they miss their wallet, and it would therefore be a natural transition to switch to mobile payments.

A major contributing factor for the development of modern payments is the personal security issue. There is an incentive for personnel within an organization not to deal with cash since the risk for robbery and personal injuries is still on a high level.

The implementation of surcharging could also be a driver for increased usage of electronic payments. Though there are disagreements among the respondents on this issue, the fact remains that different payment methods have different expenses. But since it can be inconvenient for people having a big variation of prices, it is less likely to be implemented.

5.2 BARRIERS

There are many factors that determine why an individual chooses to adopt or reject an innovation. Karlsson insists getting people to pay by card requires a change in attitude among the population. He argues that the reason why people do not pay by card to a greater extent today completely depends on the fact that they are not sufficiently informed about the consequences. This is described in the diffusion of innovations theory, which reflects the communication problem considering the difficulties to persuade people by mass communication, and especially people that are heterogeneous to the one who tries to inform or persuade the group of people. Karlsson argues in particular that if you lose your money, the probability to get them back will almost be zero, but if you somehow get rid of money linked to your card, the likelihood is very high that you will somehow be compensated by the bank within a couple of days. But this seems to be difficult to assimilate for many, and not at least for the older generation. Especially for people who lack reason and do not want to switch to new alternatives because they are satisfied with the current situation. As said, these people will be almost impossible to persuade as shown in diffusion of innovations theory.

Karlsson also argues for the importance of card terminals to be more user friendly for older people. He says that the reason why older people do not pay by card to a high extent

is linked to the fact that they just cannot see the display, and that the buttons are too small. This problem can be linked to TAM, which deals with the performance-enhancing effects, and to what degree an innovation facilitates the individual's work process.

Estwall believes that it is important for the people developing and implementing new payment methods to evaluate what the customers are looking for. He believes the market does not see it to be a problem that it is today dominated by four big market players. He also argues that it can be expensive for small stores to accept Visa and MasterCard because of their small volumes. But with new payment methods it will lead to lower prices even for these stores.

Except the importance of high volumes and scale of economy, branding has a central aspect on the quality measure. Estwall does not see any further use of national cards such as Dankort in Denmark as a future probable payment method in Sweden. People still want to have the possibility to purchase products and goods internationally. But, maybe the biggest obstacle to overcome is the fact that there already exist established rules and regulations for the present card issuers. It will therefore be a costly and bureaucratic process for new actor's who want to enter the market.

Trogen from Swedish Bankers' Association thinks that it will require some form of legislation to take the next step towards a cashless society. His statement derives from the fact that no market participant, as of today, has in any wider sense managed to convince all individuals to use card as payment. Diffusion of innovations deals with the fact that it is sometimes not enough to persuade a group through a social interaction. It rather requires some form of mandatory action, like in Norway where the card is more frequently used than in Sweden. A possible reason can be the fact that withdrawals are subject to fees in Norway. Trogren says that attempts have been made on the Swedish market but subsequently they were forced to back out because of customers' frustration. For that reason the political aspects may grow in importance in the near future.

Forss from Panaxia Security argues that cash has a great symbolic value and thus would prevent the progress for new payment methods. He says there are studies that confirm people are under the impression of being safer when using cash and feel better when having money in hand rather than having money on the bank, which Karlsson perceives as

completely incomprehensible. Forss believe that cash is a good payment method in the sense that you can be totally anonymous apart from card payments, implying that there are both social and culture obstacles. Because of the difficulties with the anonymity issue, the Swedish Parliament will overhaul the question during the spring of 2010.

The barriers could also depend on the fact that cash payments in some situations are more beneficial than card payments, and people for that reason do not choose to adopt card payments in all situations. Bågstam from the Bank of Sweden thinks that there will always be a group of people that rather pays with cash than by card regardless of other payment methods.

All respondents are aware that the central problem is to solve the integrity issue, which for the Financial Sector Union is their main issue. To solve this problem, Karlsson says it must be possible to buy things without leaving electronic footprints that others will have access to, which Forss mentioned as a big argument. But what Forss says is that a large group of people became frustrated with the implementation of the FRA law, and he thinks people will feel the same about having no alternative to cash payments.

Karlsson is a bit sceptical to the fact that banks are conservative in their actions to develop new payment methods. He believes Swedish banks in some way are satisfied with the current situation. But, he says that they are aware of the problem that it costs a huge amount of money to handle cash that not fully compensates their income generated by card fees. Like the theory about internal stickiness, the answer can be found in the slow movement by bank developments. This could also be seen as why there are above all two dominated card issuers, VISA and MasterCard. But maybe the main argument to way we do not see any removal of cash payments is according to Bågstam, that there are of today no payment methods that could replace cash payments in some areas and it would therefore be problematic within a near future to remove all cash.

5.3 RESEARCH & DEVELOPMENT

In this study the reader has been introduced to many new possible innovations related to modern payment methods. Bengt Nilervall, head of Payment Systems at the Swedish trade federation introduced us to the concept of Near Field Communication. Head of financial infrastructure at Swedish Bankers' Association, Leif Trogen, stressed the importance of electronic invoices. Leif Karlsson, Chief of Communications at the Financial Sector Union presented the thought of a common European debit card. Finally, the mobile banking concept was one of the things that our interview respondents all mentioned.

While electronic invoices and mobile banking are already recognized concepts in Sweden, Near Field Communication and a common European debit card are only at a theoretical stage. Below is a model of how the different technologies are perceived and at what stage they are in.

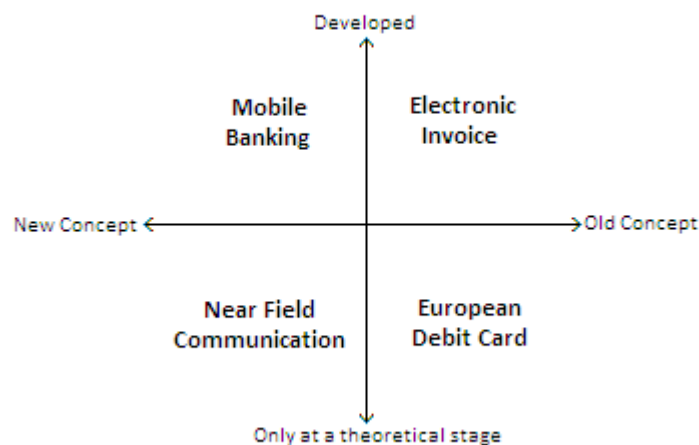


Figure 5.1 R&D model source: own

The electronic invoice has existed in Sweden for more than 10 years but is far from completely implemented. Despite the obvious benefits it has not been accepted to the extent that many had foreseen. Trogen argues that the reason is unwillingness to change – lack of absorptive capacity. The normal exchange of invoices has been around for long and has created a barrier for assimilating external information to new internal knowledge. Bågstam in the Payment System Committee at Bank of Sweden points out that when

unwillingness to change is present the most important adjustments are reduced ambiguity and increased education.

Mobile banking is an accepted technology in many parts of the world today. In Asia, America, Europe and even many parts of Africa, people use their mobile phones to complete money transactions. Mobile banking in Sweden is not as widespread but many experts believe we are heading there. We use our phones to pay for a bus ticket or to get a loan, but the possibilities pretty much stops there. Swedish companies and organizations are already preparing for the mobile banking era that is waiting around the corner, says Trogen. The concept is familiar to consumers but even though we expect a development of the mobile phone, we are not aware of either the new features or the time frame. Nilervall believe that there are many indications that the execution of a mobile banking system will be implemented smoothly to the consumers. One is that the idea of mobile banking has been communicated among members of our society over a long time period. If communicated enough it becomes an expectation rather than a surprise, reducing uncertainty – increasing predictability.

Karlsson says that Mobile banking will be an important component for realising a cashless society. He says that society should not lock itself into any particular form of cashless payment. Mobile payments will, aside card payments, become our most widely used means of payment. The implementation of the mobile payment system will therefore be of the utmost importance to the Swedish money market and the development of modern payment methods.

When it comes to Near Field Communication the technology is yet not known to the average Swede. In Japan the system of microchips as payment identification has been around for quite some time. The technology is not only meant to be a payment method but it also supports identifying tickets etcetera. The technology needs a great deal of acceptance before it could ever be implemented in Sweden because, like the unsuccessful cash card, it demands for customers and stores to be supportive. Nilervall made clear that any such instalment is not planned as for now, but the awareness of the technology is constantly growing. He says that the plan of conducting such a huge reconfiguration of our society and would probably have to be a governmental decision.

Applying Davis characteristics explaining different rate of adoption one can say that the relative advantage is pretty high, especially regarding the effectiveness such a system would bring. The idea is of course quite complex since were observing a system of great magnitude. The compatibility is quite low. Our society might not be ready for such a technological change. Trogen however, believes that the younger part of the population that is now growing up in a computer era will support these types of innovations. So whether or not compatibility is high today, we can expect it to grow over time. Trial ability is quite high, the system has already been implemented elsewhere, so the system could easily be imitated in an attempt to realise the construction here. Considering observability, the innovation would definitely be visible and evaluated by many and make it therefore more smoothly to adopt.

6 CONCLUSION

After the results are presented and analyzed, a summary and conclusion follows where our research question will be answered. The chapter ends with suggestions for further research.

There has been an increased interest among actor's to move towards a cashless society. As a result of large organizations such as The Financial Sector Union and The Swedish Trade Federation are involved in the project kontantfritt.nu, whose ambition is to reduce the cash usage in the long run as a consequence of risk of robberies. But, the actual factors that compel the process of today's modern payments are of different characters and sometimes incomprehensible to fully understand.

Through the interviews can be identified some major factors and variables that have an impact on the development of today's modern payments. First of all, the attitude has a huge effect if people choose to adapt new payment innovations. The adoption phase where people consider switching to new forms of payment methods is therefore the critical moment in the process. What has previously been established is a great acceptance for card payments in most areas. But for some reason there are people who do not want to adopt this form of payment method. This is a result of that people are affected by social and culture factors. Communication and motivation is therefore necessary to persuade people to adopt new forms of payments. But if the implementation cannot be executed in a smooth way, it may be vital to take appropriate and necessary regulations to help and speed up this process as a consequence. Such a mandatory action will not either by itself necessary end up in people start to comply with the regulation, why a combination is to be recommended. This means that surcharging of cash withdrawals will not completely lead to a cash removal. It will instead lead to a decreased cash usage like we see in Norway. To completely get rid of all cash will claim only other payment alternatives to be accepted.

To increase the possibility that people are willing to adopt new payment innovations, it is important for the product developer to evaluate the customer need. Otherwise it is a major risk that the cash card failure will happen once again.

Moreover it is a big obstacle for new actors to overcome that it already exists established rules and regulations for the present card issuers. It will therefore be a costly process for them to enter the market. The situation of today requires economies of scale and a well-known trademark. This claims that today's card issuer's needs to decrease the charging fees if they want to be more accepted by even smaller shops. An alternative is that new innovations will improve the effectiveness and make it cheaper for even smaller amounts.

There is however a paradox that decreased cash handling by banks would not lead to a decreased level cash related crimes. A probable scenario would instead be that crimes transferred to areas with less security were cash is still available. Therefore a complete cash removal might be necessary to get rid of this problem.

The reason of today's situation can also be seen as a result of older generations' lack of absorptive capacity to adopt new innovations. The challenge is therefore to facilitate the willingness to move towards new payments methods. But this process could be slow and complicated.

The anonymity and integrity issue is also of critical nature. Most of our interview respondents' claim that it must be possible to make purchases without stores save or track the electronic footprints. As stated above this issue will be evaluated in spring and the outcome might lead to a progress for new payment methods to take place.

To summarize, the comprehension between product developers and society must be well established to facilitate the adoption of modern payment methods, and for the movement towards a cashless society to continue.

6.1 RESEARCH CONTRIBUTION

The contribution of this Master's thesis is all above defined variables that have an effect today's payment methods in the Swedish financial market. Many of the the variables could be identified by Singh in his study, but differ in the sense that this is a qualitative study limited to the Swedish financial market where no previous study in our knowledge has been accomplished.

6.2 FURTHER RESEARCH

During the work progress we have identified some interesting topics that could be examined in further research. First we believe it to be of interest to examine other countries where modern payments have reached a higher acceptance level, where Japan could be considered.

Another interesting research could be a case study of suitable companies or institutions, which actively work towards modern payments, with the aim to decrease cash usage in the society.

Lastly we believe it would be of interest to further evaluate the work in EU Union with different payment methods, for example to take a closer look at the development process of a European debit card.

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APPENDIX

Interview questions

1. Are you actively working for electronic payment towards a cashless society?
2. What are the important variables in your sector indicating a realization of a cashless society?
3. Do you see any important technical innovations that could change our way of looking at cash?
4. What are the major pros and cons with a cashless society from your point of view?
5. What development in payment methods can we expect to see in the forthcoming years?
6. Which factors are the main drivers of the development of our payment methods now?