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FROM REACTIVE TO PROACTIVE BANKING

Connecting with customers with context-aware mobile technology

Master´s Thesis
in Information Systems Science

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28.02.2013
Turku

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1 INTRODUCTION

1.1 Finnish financial industry service models

Sometimes people may think that Finnish banking with its online and mobile banking channels is somewhat revolutionary – after all, it turned money from physical to digital. Even though this, of course, holds true and all Finnish banks today offer online banking services and most of them also some kind of mobile banking services, the banking industry can still largely be regarded as conservative in its business approach – the customer does not enjoy high quality customer service and newest technology is not fully exploited. Especially e-mail and mobile phones are tools that are exploited barely at all – many mobile services that could facilitate consumers' daily banking processes either do not exist or they have been made costly to use.

What does this conservatism mean in practice? Apart from some functions enabled by the current online and mobile banks, such as basic transactions and most common loan applications, most other banking services still have to be carried out in the traditional bank branch. The customer needs to enter the branch physically, therefore, stopping his process of doing something else. Even though a number of services such as bank statement requests are available also in the online bank, these services still need to be initiated by the customer and they usually require complicated identification codes. These codes, in turn, are not recommended to be kept in one's wallet or any other place from where they may get stolen. It can be said that the importance of good customer service is emphasized in Finnish banking handbooks but banking is still all about self-service – the Finnish banks are really bad at pushing services to their customers.

When it comes to banking, security is probably the most important thing. This is not difficult to justify, as people generally save their assets in bank accounts in western economies like Finland. The Finnish banking systems are, in fact, very secure, and they largely enjoy consumers' trust. However, a question can be raised whether or not they are user-friendly: Research has shown that consumers often prefer convenience over an extremely high level of security, when it comes to for example banking authentication (see for example Weir, Douglas, Carruthers and Jack 2008). As a practical example can be given the success of services such as PayPal – PayPal is currently the world's leading online payment service with its 123 million active users and with a revenue of 5.6 billion dollars made in 2012 (About PayPal). PayPal allows its users to make payments by only feeding in an e-mail address and password, which makes it faster than credit card payments.

Even though banks have been relatively slow when it comes to utilizing mobile channels, there seems to be a shift towards a more mobile way of banking. This

conclusion can be drawn at least from the expectations and investments of the biggest banks in the world. Currently, the top banks in the world, such as BNP Paribas, Credit Agricole Group and Bank of America are investing up to several trillion dollars in mobile banking and mobile banking is considered one of the most important IT initiatives of these banks, together with mobile payments. Altogether, mobile banking, online banking and mobile payments are the main target of many bank's announced IT initiatives. (Furlonger & Newton 2011.) However, so far, banks have only used their assets in developing mobile applications that enable approximately the same services as in the online bank, even though the mobile phone supports many new means of service delivery. It should be noted that investments in online banking are not considered as important as investments in mobile banking anymore (Furlonger & Newton 2011). This tells something about the considerable interest towards mobile banking services.

Another example of the shift towards more mobile banking is that Finnish banks have recently announced that they will start having meetings with their customers online. In the new service, private customers can conduct all their loan and investment issues through a secured online bank connection and a phone, without visiting a branch. The service has been implemented because of both customer feedback and cost savings. (Hakala 2013.)

Interestingly – but probably not unexpectedly – mobile phone operators are also interested in mobile payments. Elisa, one of the three mobile phone operators in Finland, recently signed a contract with Oy Suomen Lyyra Ab or Lyyra, a company that administers a large share of the student card business in Finland. Together with Elisa, Lyyra aims at turning the Finnish student cards into mobile payment devices. This is to be made by utilizing the contactless Near Field Communication (NFC) technology. The student cards are designed to work anywhere where NFC is supported – from university cafeterias to supermarkets. (Opiskelijat edelläkävijöinä kontaktittoman maksamisen aikakauteen, 2012.) It is interesting to see how the other two Finnish mobile phone operators, DNA and TeliaSonera, will react to this recent announcement, as well as how the students will react to this unparalleled payment solution.

Even though banks have been investing in the development of mobile banking already for a while, these services have not been adopted as widely as expected so far, especially in highly developed countries. According to various studies, the main reasons why people adopt or reject mobile banking services are their ease of use and usefulness, or lack of them (see for example Luarn & Lin 2005; Lin 2011). This means that the reason why these services have not been adopted as fast as has been hoped for seems to be that mobile banking services simply neither offer enough utility for their users nor are easy to use.

As it was not enough to make mobile banking more desirable, the whole banking sector needs to change – this is a view commonly presented in both scientific and non-

scientific material in western countries. Elements of this change include for example that the focus in banking will turn from transactions to customers. Proactivity, customer empowerment, mobility and personalization are also among the top trends for banking. When it comes to these concepts, one service approach arises above everything. This is a proactive approach from the bank which means becoming more tightly involved in and simplifying the customer's life by offering the customer context-aware services at the right time and place – an approach that is both enabled and required by today's mobility. The concept of context-aware services is defined more closely in 1.4.2.

In principle, the approach is not new. In Asia, there has been development towards more context-aware service experiences already for a while. For example the Japanese NTT DoCoMo, one of the largest mobile phone operators in the world, currently offers a location-based service called i-area as a part of its mobile Internet service. i-area has existed since 2001 and information typically provided by this service is recommendations about nearby restaurants and weather information. (NTT DoCoMo: i-mode history.)

However, it has also been claimed that people could regard a more proactive, context-aware approach as an intrusion or become annoyed by the proactive course of companies (see for example Crosman 2012b). For this reason it is also important to find out what the people living in a country where mobile technology is extremely advanced think about this potential new way of doing banking services – do they appreciate the new involvement in their lives or do they rather want to keep their relationship with the bank traditional, where the customer needs to find a branch in order to conduct many of his finances. It is also interesting to find out what kind of potential threats there could exist for the widespread adoption of context-aware mobile banking services.

1.2 Earlier empirical studies on proactive banking, context-aware services and mobile banking adoption

Mobile banking is not a new phenomenon – in fact, more or less sophisticated mobile banking services have existed for 15 years, also in Finland. However, scientific research about mobile banking has mainly concentrated on a few major areas of interest. Among these areas are factors that define mobile banking adoption rate and speed, the role of mobile banking in the emerging economies, and attitudes towards mobile banking in different geographical areas. Therefore, even though there is a moderate amount of research available, the scale of the existing research is not very wide. This, considering the great public interest towards mobile banking, raises a large interest towards further research.

Not only mobile banking, but also the future of the financial sector as a whole is a common topic of interest when one takes a look at scientific journals, trade journals or for example research made by consultants. It has, however, so far appeared to be very difficult to find any recently published scientific material regarding the future of Finnish financial industry from the service perspective. The Federation of Finnish Financial Services and the Aalto University Service Factory have filled the gap partly by their recent publications *Finanssialan kyvykkyydet 2020* (Finanssialan kyvykkyydet 2020) and *The Future of Banking Services* (Aspara, Rajala & Tuunainen 2012) that identify some upcoming trends in the banking industry. However, while both publications name mobile banking as one of the upcoming trends, neither of them has a deeper focus on mobile banking and mobile payments and what they can concretely offer customers in the near future.

Also the way mobile banking is handled in the majority of studies may not fully respond to today's demand. What is characteristic of the earlier research is that different mobile banking services have rarely been handled as separate services – same measures have been used for all of them, from SMS requests to monetary transactions and stock exchange requests. Some of the studies distinguish between mobile banking and mobile payments but most do not. Typical statements asked in surveys concerning mobile banking include *"adopting mobile banking is useful for managing my finances"* and *"learning to use mobile banking is easy for me"*, even though mobile banking is an entity formed by several services that make up the a whole channel. Especially emerging technologies such as NFC, location recognition and mobile wallets make mobile banking very hard to fit in one sentence. Earlier research has usually been quantitative and consisted of consumer surveys and it has mostly been based on well-known technology acceptance theories.

With regard to this new approach, research is also lacking when it comes to the utilization of emerging technologies, such as context-aware advertising, new identification technologies and location-based services, in the banking industry, even though the use of these technologies has been researched in the context of other industries close to banking industry. Not even consumers' opinions towards NFC have been mapped extensively, even though the technology is already in use in Finland, also in payments. The few results that exist implicate that these technologies have potential, and some of them, such as contactless payments, are estimated to change the way people conduct their daily shopping. This is why it is interesting to see that there is so little scientific evidence supporting the development of these expensive, high-risk technologies, although the theme is regularly present in trade journals and research made by consultants.

Even though the idea of investigating desirable characteristics for mobile banking services and their adoption is very interesting, developing individual services may not

be enough to achieve satisfactory results – as mentioned in 1.1, it has been presented that a complete change in the service model is needed, in order for banks to survive. Mobile banking, a currently underused channel, and other electronic channels are seen as means of making this change happen. However, the problem is that banking is usually regarded as conservative and nobody really knows what kind of an approach, conservative or innovative, is actually appreciated in the banking industry by those who finance the bank – the customers.

All in all, it is perhaps contradictory that literature generally suggests that banks need to change and even where they need to change, but there is still no research available on what needs to be done in practice: Where would customers want their bank to simplify their life? What kinds of services can be used for simplifying a customer's life? And, ultimately, do customers want their bank to become more proactive and tightly involved in their life? All these are very relevant questions when examining the topic.

1.3 Objectives and structure of the study

The objective of the study is to explore the possibilities of mobile banking in the near future. The interest is especially in a new service approach that is currently used by the most innovative companies in the world, and a mobile phone's role in this approach. The study has been made as a commission to Tieto Finland Oy which is the leading IT service company in Northern Europe.

As the purpose of the study is to map possibilities for a totally new way of doing things, at least three involved parties must be heard – experts working in the financial sector, consumers who use a bank and an authority that allows this all to happen, that is, regulates the financial sector. With regard to experts, the interest is mainly in their opinion towards a more context-aware approach as well as how they see the role of mobile banking in the near future. Consumers, in turn, are mainly asked about their attitudes towards banks becoming more involved in their lives, as well as what would make them adopt mobile banking services or use them more. The role of the authority, the last party interviewed, is to take a stand on how mobile banking services, both current and future, look from an authority's point of view.

Both expert and authority interviews work as a base for the consumer interviews. This means that ultimately, the study is aimed at exploring young adults' attitudes towards banking that is not conservative and reactive but proactive and based on context-aware services that are delivered especially through a mobile phone. Young people can be considered as the most likely target group for mobile services because these people have grown up with Internet and mobile phones and, therefore, are likely to be the most active Internet and mobile phone users. A great deal of the earlier research

also supports the assumption of the youth being among the most potential emerging technology adopters. In this thesis I endeavor to answer the following main research question as well as two sub questions:

- What kinds of mobile services does the Finnish banking industry currently offer for consumers and what expectations do experts and consumers have towards them?
    - What is consumers' attitude towards a context-aware service approach in the banking industry and what are the suggested tools for it?
    - What factors define clients' adoption intentions towards the new context-aware service approach? Which factors do they consider most important?

This thesis consists of two parts, a theoretical and an empirical part. In the theoretical part, the development of banking services, and especially that of mobile banking, is covered in order to better understand the concept of service in the banking industry. Some expectations towards the future of banking are presented in the form of visible trends and concrete service examples. Also the present state of Finnish mobile banking is analyzed especially from the point of view of new technologies. In addition, the theoretical part covers the discussion that has been going on around mobile banking adoption recently – the factors that are believed to affect the adoption of mobile banking services.

The empirical part of the document consists of two main parts – expert interviews and consumer interviews. The expert interviews can further be divided into expert and authority interviews. The results emerging from the expert and authority interviews have been used to plot interesting topics for consumer interviews, as well as to ensure that the ideas presented in journals and other publications are in line with the expectations of people developing and supervising these services. The experts interviewed are Finnish financial and IT experts who work with mobile banking issues in their everyday work and are well aware of the upcoming trends in the banking industry. A Finnish authority was included in the interviewed persons especially in order to explore factors that might be problematic when it comes to banking with mobile devices. The authority was also well aware of mobile banking supervision in both Finland and European Union (EU).

1.4 Definition of key concepts

1.4.1 Mobile banking and mobile devices

As this study is about mobile banking, it is important to define the concept of mobile banking. This is not uncontroversial, as mobile banking has historically been defined in various ways – a universal, accurate definition still does not exist. Therefore, it is most fruitful to present several definitions that commonly stand out in the literature.

Singh, Srivastava and Srivastava (2010, 55) refer to mobile banking as a channel through which the customer is in connection with his bank via a mobile device, such as a mobile phone or a personal digital assistant (PDA). This definition is wide as it does not directly exclude any way of communication, for example mobile payments or a call. In addition, it does not define the word mobile device, which means that a lot of devices, practically anything that can be carried around, can be considered to fit in the category.

Valentine (2011, 34) has a stricter line on defining mobile banking. According to her, mobile banking is in many ways an extension of online banking to a mobile device. She excludes mobile payments from mobile banking services, considering these two as totally different services. This is another relatively common definition in the literature, and there are a number of studies that concentrate on either mobile banking or mobile payments adoption – not both.

Riquelme and Rios (2010, 329) provide a third approach which is very similar to that of Singh et al. According to them, mobile banking can be defined as *"electronic banking that uses mobile phone technology (or other wireless devices) to deliver electronic financial services to consumers"*. The main difference to the other two definitions is that Riquelme and Rios target these services solely for consumers. However, the definition is very similar to that of Singh et al., as also Riquelme and Rios define the concept very broadly. The different definitions describe well the fact that mobile banking can be seen defined loosely or strictly – whether mobile payments are counted as a part of mobile banking or treated as a separate service depends on the researcher.

As new tablet computer devices are gaining popularity, the discussion on what is mobile banking becomes even more complicated. This far, mobile phone and computer could have been thought as separate devices, meant for different purposes. However, new tablets, such as Apple's iPad, are basically like large smartphones – some of them, such as ASUS PadFone, even carry a smartphone inside. This enables the tablet user to do anything one can do with a mobile phone. One of the Finnish banks, Danske Bank Finland, has also developed a mobile banking application that has been designed for

tablets. The user interface is designed so that it takes advantage of the specific characteristics of a tablet, such as the large screen (web page of Danske Bank Finland). Of course, also the smartphone versions can be accessed through a tablet.

In this master's thesis, I refer to mobile banking services as all mobile services that can be used for the interaction between a bank and its customer, including for example mobile payment systems, SMS services, service requests and transactions. These services can be accessed either by a mobile phone or a tablet computer. In this case, laptop computers are excluded from this study, as they are generally not mentioned in the scientific research on mobile devices. Figure 1 further clarifies the field of available banking service channels in Finland.

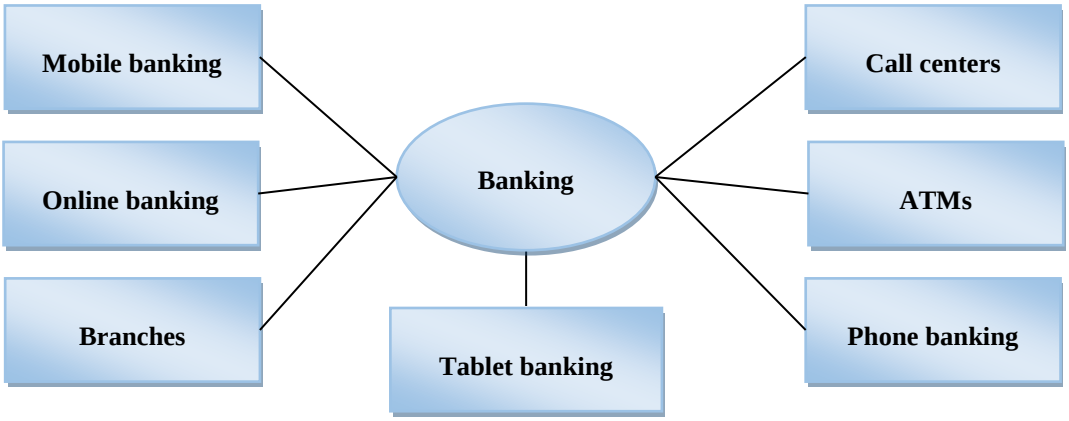

Figure 1: Banking channels in Finland

Figure 1 presents seven different types of banking. It must be noted that tablet banking is an emerging banking channel whose significance is likely to grow in the future as the Finnish tablet penetration rate grows. The other six channels are currently used by almost every Finnish bank.

1.4.2 Supporting consumer's finances and context-aware services

As mentioned earlier, the goal of the study is to explore how mobile banking could be used for achieving a better understanding of a consumer's needs and serving him better. Basically, this means supporting the consumer's current situation in life and predicting his needs – the customer gets what he needs, at the right time in the right place, without needing to proactively contact his bank. In this research, I will call this way of service attitude as context-awareness.

The concepts used for these kinds of services vary somewhat and it is sometimes difficult to realize that they describe the same phenomenon. However, from the literature can be noted that the terms contextualized, contextual or context-based service

are used often, as well as the term context-aware service that has been used in this study. Hoh, Tan and Hartley (2006, 186) define context-awareness as the capability to utilize environmental information together with the user's personal information and preferences. According to Gu, Pung and Zhang (2005, 2), a context aware service is *"a network service which uses various contexts and adapts itself to the change of environment dynamically and automatically"*. Sometimes even the term personalized service is used to describe context-aware services, even though the concept of context-aware services can generally be considered a broader concept. In this study, I will use these definitions of context-awareness and context-aware services.

What combines all context-aware services is that they are tailored to fit the current circumstances of the customer and they are aimed at providing services that are consistent with what the customer wants – the customer does not need to think about the service because it works. For example, a student could be able to receive an offer for a student loan, while a person who has spent lots of time in a car shop recently could be approached with an offer for a car loan. What is important in context-aware services is that they have to be delivered not only for the right person but also at the right time. Simply put, context-aware services predict the customer's interests.

In the literature, context-awareness is frequently mentioned as one of the future courses of action in the financial industry. This is why it is very interesting to explore how it relates to another banking term that is considered to have a big role in the future, mobile banking. Adams (2012, 10) suggests that many banks are currently using an introductory form of context-aware services by providing their customers for example branch locators. However, some banks have gone a lot further. Openstream is a company that specializes in developing context-aware mobile software, which, together with a mobile device's embedded technology, senses a device's location and circumstances. By using the software of Openstream, a bank can for example send marketing messages, alerts, transaction confirmations, or execute security protocols, all based on its customer's location and circumstances. For example, the device can recognize a safe corporate network from a potentially unsafe one, and adjust the level of bank authentication according to the network the user is connected to. (Adams 2012, 10.)

As part of context-aware services, different kinds of recommendation systems exist. Gallego Vico, Huecas and Salvachúa Rodríguez (2012, 74–77) tested consumer attitudes towards a recommendation system that takes advantage of consumers' real bank data. Recommendations were achieved by combining data on social context, such as income class, location context, and user context such as current time. The feedback towards the application was extremely positive, even though there were also some privacy concerns. What the consumers were especially happy about was that the

recommendations were based on their real transaction history, and were therefore reliable and useful.

Currently, it is not known that any of the Finnish banks would take any large-scale advantage of contextual information. Of course, banks group their clients into groups and send personalized messages through their online bank according to these clusters. However, this still requires the customer to visit the online bank which is why it can probably not be considered very proactive or timely. In addition, Finnish banks do not take advantage of customer location data when doing targeted advertising. For these reasons, it can be suggested that Finnish banks do targeted advertising but not context-aware advertising in its wide form.

Even though a personal touch seems to be lacking from the banking industry, many companies and online communities operating in other industries, such as Amazon and Facebook, already utilize these services actively and successfully. For example, the online recommendation system used by Amazon has been proven out to increase consumers' satisfaction with the website and their unplanned purchases. In addition, it has been suggested that it provides a vehicle for better product promotion and improves the product search process. (Hostler, Yoon, Guo, Guimaraes & Forgionne 2011, 341–342.) However, it is still unclear how this kind of a service attitude could work in the conservative banking industry, even though there are also lots of findings that support the establishment of a more context-aware service attitude. It should be kept in mind that in the banking sector, traditional customer service has existed for centuries. Banking services are used by all age groups and some people may be reluctant to change the way they handle their finances. For example, the elderly are not as used to smartphones, the Internet and electronic services as are younger generations. In addition, there may be other kinds of challenges, such as the small amount of potential, interested customers or security concerns towards mobile phone transactions. Another concern is that consumers already experience lots of proactive marketing from other channels, such as e-mail, television and radio, which may affect their willingness to be contacted by their bank.

In spite of the concerns presented above, both scientific and non-scientific research generally suggest that banks need to change the way they handle their customers from reactive to proactive. Context-aware services are the generally suggested tool for providing the customer with this experience. Therefore, the atmosphere towards becoming more involved in consumers' lives must be pinned down, in order to gain further understanding of whether or not there is demand for this kind of approach among Finnish consumers.

The following chapter, Chapter 2, covers the evolution of the Finnish banking sector, from the first automated services to the current service portfolio as well as explores the expectations there are currently for banking in Finland and abroad. These include both

current trends and concrete service examples. The chapter also digs deeper to different kinds of personalized services and other services that are expected to be in use in the banking sector in the near future. Finally, the chapter also covers some challenges there might be towards mobile banking in Finland.

2 THE PAST, PRESENT AND FUTURE OF BANKING SERVICES

2.1 Banking and mobile banking in Finland

2.1.1 Evolution of electronic banking services in Finland

In order to understand mobile banking and other electronic banking channels, it is first important to understand the development of the Finnish banking sector as a whole. One of the most important events that has happened to the Finnish financial sector was the deregulation process that took place between the 1960s and the early 1990s in various parts of Europe. This process had a large effect on the Finnish financial market – during and after the deregulation process, the competition tightened and wider opportunities for gaining competitive advantage emerged through new financial technologies and bank growth. The emergence of bank and debit cards, automatic teller machines (ATMs) and bill payment terminals also changed the role of branch networks, even though branches still remained relatively important. The years of deregulation started a transformation from physical to electronic channels, a trend that has continued since then. (Lähteenmäki 2006, 22–26.) Mobile banking gives this development a natural continuum, and for the first time allows for a banking experience that is totally independent of time and place.

The concept of convenience in the banking industry emerged about 40 years ago, when the first ATMs appeared to the streets of London. Starting from 1971, a few years after the first ATM in London, also the Finnish bank customers have been able to enjoy the convenience of withdrawing cash around the clock (Ensimmäinen pankkiautomaatti Lontooseen 1967, 2006). ATMs were the first electronic banking service and they were generally placed either inside a bank branch or attached to it. Today, there are around 1600 ATMs in Finland and they can also be found further away from branches.

What is interesting regarding ATMs is that their history and present state differ a lot around the world, as do those of mobile banking. In the United States, each bank had its own ATMs until early 1980s (Moschella 2003, 71–72) while in Finland, ATMs were first common but in the 1980s each bank had its own ATM. This was a phenomenon that continued only for a while, as in the 1990s ATMs were made common again. (Ottopisteiden historia.) In some countries, such as Spain and Germany, ATMs are still bank-specific. For example in Spain, it is possible to use another bank's ATM but a fee is drawn from the user's account if he wants to do so.

Finns are known for being forerunners in the telecommunication industry but also their banking services have evolved fast: In 1996, OP-Pohjola Group was the first bank in Europe and the second in the world to announce an online banking service (OP-verkkopalvelut 15 vuotta, 2011). Finland, together with other Nordic countries, worked as a pioneer country in electronic banking and still, Finnish online banking services are among the most advanced worldwide.

Even after online banking became a mainstream service, Finnish banks continued their work on innovative banking solutions. A year after the launch of its online bank, Merita NordBanken, today known as Nordea Bank Finland, published the first mobile-based banking system in the world. This Solo WAP bank is still running, even though its appearance has changed during the years. The mobile bank allowed Merita customers to follow their account and credit card transactions, make transactions, pay bills, as well as shop on a platform called Solo marketplace. (MeritaNordbanken avaa WAP-pankkipalvelut ensimmäisenä maailmassa, 1999). Later, the service also made it possible for its users to trade in the Helsinki stock exchange. Besides WAP, SMS messages were used both in traditional banking services and in payments.

2.1.2 Smartphones and the failure of mobile banking in the 2000s

In the beginning of the 2000s, there were great expectations towards mobile banking in Finland that failed quite dramatically. For example, according to a study conducted by Suoranta and Mattila (2004, 361–362), a considerable amount of people from all age groups and income classes were planning to start using mobile banking services regularly. In some classes, the digits were 100% or close to that and even people aged over 50 years showed a large interest towards these services. That is noteworthy because nowadays it is often discussed how the elderly are being dropped out of the society because these people do not want to learn to use computers and the Internet. This study was conducted at 2002 and even today, mobile banking penetration rate is nowhere near 100%. Similar research results that supported the huge possibilities of mobile banking are not hard to find either.

That is to say, the adoption of mobile banking and mobile payments did not succeed quite as planned. However, even in those days, the problems of mobile banking were recognized. For example Mallat, Rossia and Tuunainen (2004, 46) expressed the need for faster, easier and more convenient mobile payment services even though a lot of potential was seen in mobile payment systems in general. Mobile banking was doing worse: In the US, banks were closing down their mobile banking services even though some European banks had succeeded in developing these services. At that time, Nordea Bank Finland already offered a solution that used WAP over GPRS for conducting such

things as fund transfers, account and credit card transaction details, equity trading and bill payments. The bank also offered access to a virtual marketplace called Solo Market. (Mallat et al., 2004, 45.) However, these services never broke through in Finland at that time. Some of the reasons presented for this are complexity of WAP technology, lack of available financial services, lack of convenience due to long URLs and complicated passwords, and simply, lack of utility for the target group (Birch 2008, 63).

In the end of the 2000s, mobile technology had taken again a step forward: Mobile phones had started to have color screens, services were more affordable than before and mobile features' ease of use had improved significantly. In addition, GPRS, EDGE and 3G data transmission standards had been adopted, which allowed transfer of larger amounts of data. (See for example Goggin 2006.) Laukkanen (2007, 795) suggested that the largest advantages of mobile banking over Internet banking were the ability to use banking services anytime as well as the cost savings mobile banking could create for banks. However, he also expressed that the lack of technology improvements such as bar code reader were likely to hinder wireless service use even though mobile phones would have color displays. Today, many of the mobile banking applications actually come with a bar code reader that can be used for paying bills, for example.

During the last few years, mobile phones have developed even further and they have done it extremely fast. Nowadays, the majority of new mobile phone models are capable of handling applications, while many also support GPS and WLAN. Also mobile phone models that support the fast 4G LTE networks have emerged. These new technologies have also driven banks to develop applications that take advantage of the new technologies – for example some Finnish banks offer a service where the customer can see the nearest ATM through a mobile application (see for example web page of Nordea). In addition, some other new technologies, such as Near Field Communication (NFC), have emerged and huge expectations are placed for these technologies (see for example NFC Forum).

It is also worth mentioning that the amount of smartphones is growing extremely fast which increases the demand for sophisticated mobile software – according to Gartner, world smartphone sales in 2011 totaled 472 million units, up 58% from 2010. In total, they accounted for 31% of mobile device sales (Gartner 2012). In Finland, in turn, mobile phone operators' lists on most sold devices contain almost solely smartphones. Many of these new smartphone models come with a support for 4G networks, which means even faster data connections and support for more complicated applications.

The mobile phone is an extremely useful product since it enables instant communication for everyone, all the time and almost everywhere, as well as provides the possibility to interact with other media. The mobile phone is also a tool that is relatively easy to use, also for people with no prior computer experience. These

characteristics of the mobile phone highlight its suitability for payments and banking services. (Flatraaker 2009, 66.)

What must be noted is that nowadays, Europe lags behind Asia and United States when it comes to mobile service innovation, even though especially Nordic countries have worked as mobile technology pioneers until the late 1990s. Several reasons, such as lack of competition and low level of customer-orientation, have been offered as explanations for this delay. (Weber, Haas & Scuka 2011, 469; 478–479.) The delay can be clearly seen for example in contactless payments that are already used in Japan and in the United States. Also mobile advertising that has not been that popular in Finland is in wide use in Japan. (Liu, Sinkovics, Pezderka & Haghirian 2012, 29.) Even though new technologies have appeared recently, other industries than banking currently take advantage of them. This is especially interesting because banks have probably a larger amount of data of their customers than almost any other industry. For example PayPal offers an easy and convenient way of making mobile payments and also Google joined this group recently with its mobile wallet application Google Wallet. This indicates that there are still lots of unutilized opportunities in the Finnish banking sector.

2.1.3 Mobile phone and mobile banking usage in Finland

Finns have traditionally worked as pathfinders when it comes to mobile phones, even though Finland has not belonged to the most innovative nations recently. In 1984, Finnish Nokia was the first to introduce a transportable phone and has been among the market leaders in mobile phones since then. The market share of Nokia in the end of 2011 was 23.8% which means that it was the market leader in mobile phone sales by sales volume (Gartner 2012). It is worth mentioning that the current share of Nokia is somewhat smaller, due to the difficulties in selling smartphones.

While Finland has a long history in mobile phone manufacturing, also the mobile subscription penetration rate in Finland has always been extremely high, also in comparison with other developed countries: In 1997, the Finnish mobile subscription penetration rate was 40.6% and 11 years later 129.6% (Statistics Finland 2008). This means that in 2008, there were more mobile phone subscriptions than inhabitants in Finland. However, it must be noted that nowadays the mobile subscription penetration in most developed countries is above 100 which means that the lead of Finland has become narrower (see for example The World Bank, 2012).

What is also characteristic of Finns is that they are relatively eager mobile Internet users - according to Statistics Finland (2012a), 28% of Finns used mobile data in 2011. In the age groups of 16–24, 24–34 and 35–44, the corresponding percentages were 39, 48 and 44%. 9% of the population had used their mobile phone for paying during the

preceding three months, but only 1% used it weekly. In general, young people and people with high education were more active in using all these services, but in some cases also people aged 35–44 represented one of the most active parts of the population. In general, men were slightly more eager to use technologies such as the Internet and mobile phones for purposes such as GPS and Internet browsing, but in some cases, use frequencies were so low that it cannot be generalized that men would be more active technology users than women.

Even though Finns have traditionally been relatively eager to use mobile technology, smartphones and the Internet, mobile banking has not received the same enthusiastic reception. The Internet offers lots of predictions for the growth in popularity of mobile banking and these predictions typically suggest that developing countries, Asian countries and the United States have the largest number of mobile banking and mobile payments users per capita. For example MasterCard Mobile Payments Readiness Index by the credit card company MasterCard evaluates the readiness of different markets for mobile payments (see MasterCard Mobile Payments Readiness Index, 2012). Also on this list, European countries generally gain low scores, even though it must be noted that Finland or other Nordic countries are not included in the study.

2.1.4 Finnish banks and their mobile banking services

Finland is a country with a relatively long banking history – in 2011, The Bank of Finland celebrated its 200th birthday and it is the 4th oldest central bank in the world. At the end of 2011, there were 310 banks operating in Finland. These banks possessed in total 1576 branches. Most of these banks were part of some bigger bank group, such as the OP-Pohjola Group. (Pankit Suomessa 2011.)

At the end of 2011, the three biggest banking companies according to their balance sheets were Nordea Bank Finland, OP-Pohjola Group and Sampo Pankki. These companies were the leading banks also if measured by their deposits and loans. Nordea Bank Finland and Sampo Pankki, today known as Danske Bank Finland, are not purely Finnish banks as they are subsidiaries of international banking groups, Nordea and Danske Bank. These groups operate mainly in Nordic countries. (Pankit Suomessa 2011.)

What is characteristic of Finnish mobile banking services is that different banks offer different amounts of features – only the three biggest banks in Finland have a multi-use mobile banking service with lots of features, including a smartphone application. Of course, when it comes to the 310 banks operating in Finland, most of them offer mobile banking services, as for example OP-Pohjola Group consists of around 200 independent banks which all offer the OP-Pohjola Group mobile bank application (web page of

OP-Pohjola Group). What is surprising is that Aktia, with its 4th biggest balance sheet, and Handelsbanken, which is also a relatively large group, do not offer mobile banking services at all in Finland, even though Handelsbanken offers a smartphone application for its Norwegian customers. Even most small bank groups, such as Ålandsbanken and the Finnish Savings Banks Group, offer a browser-based mobile bank that is a simplified version of the online bank, but does not include any features that the online bank does not offer. Thus, these banks do not offer application-based services or other sophisticated mobile banking tools.

It is interesting to take a closer look at the more advanced mobile banking services – namely, those of OP-Pohjola Group, Danske Bank Finland and Nordea Bank Finland. First of all, even though all of the three banks have developed a smartphone application, browser-based mobile bank, telephone bank and SMS banking are still in use and they currently enable a wider range of services than the application-based mobile bank. The features of browser-based banks and applications are to some extent overlapping but there are also some features that are only available through the latter, such as a bar code reader.

It is also worth mentioning that even the banks that have developed mobile banking applications have been relatively slow in launching these services – In Finland, Sampo Pankki was the first, publishing its application in 2010, while OP-Pohjola Group and Nordea followed in 2011. However, these services are developed further all the time and new functions are added to mobile banking applications.

A recent addition to service channels is the tablet bank, a service especially designed for tablet devices. In June 2012, this service was only offered by Sampo Pankki which launched the service in the end of 2011. The tablet bank offered by Danske Bank Finland currently works with the leading tablet operating systems iOS and Android. According to the website of Danske Bank Finland, the tablet bank currently has around 40 000 users, which covers a little less than 1% of the Finnish population (web page of Danske Bank Finland). A special characteristic of the tablet bank is that it is highly customizable – the user can change the way the user interface looks and tailor it according to his needs. What is also new in the tablet bank is that it offers a convenient and illustrative way of following one's investments – almost anywhere, anytime.

2.2 Future success factors in the banking industry

2.2.1 The view of the Federation of Finnish Financial Services

The Federation of Finnish Financial Services (FFI) is a trade body which represents the various actors in the Finnish financial industry and promotes their interests. The organization publishes statistics, presentations and other publications concerning the Finnish financial environment. According to the report Finanssialan kyvykkyydet 2020 (2012) – Financial Expertise 2020, the most important future changes in the Finnish financial industry are caused by three trends:

- Financial industry must be present more than now in the everyday life of customers
- The industry's work culture must become more flexible than it is now
- In the future, financial services will be produced in a network.

Related to these fundamental changes, some of the upcoming issues highlighted by the FFI in its report Finanssialan kyvykkyydet 2020 include a bank which is independent of time and place – a bank that is where the customer is – and a change in the way customer service is conducted. The roles of online chatting, social media and online services are expected to grow substantially, as well as the role of mobile and electronic media as a communication, service, recruitment and information sharing channel. Mobile technology is expected to develop fast. The role of the mobile phone can be described as the platform for services that are completely independent of time and place.

According to the report of the FFI, also a new way of operating is needed in the banking industry. This new way includes considering one's stakeholders, simple customer experiences, customer empowerment, new service and communication channels, fairness and humanity. The role of service will be emphasized, which is expected to be challenging due to pressures for cutting down personnel and margins. (Finanssialan kyvykkyydet 2020.)

FFI also raises the concept of accessibility as a future service trend. The role of contactless payments and mobile identification are discussed, as well as self-service machines which are able to talk. These services are discussed especially from the point of view of people who are hearing-impaired or retired, and they are aimed at simplifying these people's everyday life. (Finanssipalveluita kaikille 2010.)

2.2.2 The Future of Banking Services – View of Aalto Service Factory

The book *The Future of Banking Services* (Aspara et al. 2012), a recent publication in the Aalto University publication series, includes eight stories written by academic scholars from the fields of marketing, information systems and finance. Even though the book is not all about the topic of this study, it offers interesting insights into the future field of banking, including personalization, consumer hopes and expectations towards future banking experiences, as well as use of social media in banking. The ideas offered in the book are new and cover the topic well, especially from a Finnish perspective.

With regard to this study, probably one of the most interesting chapters of the book is the first one, which covers the future of banking services from the consumer perspective. What makes the study even more valuable is that it is one of those few Finnish studies in the field which have been conducted to the youth, people aged between 20 and 30 years. For this study, several aspects are worth special attention.

First of all, the claim that banks would have good intentions towards their customers was strongly questioned by the persons interviewed in the study, Finnish bank customers. According to the study, customers viewed that banks were trying to take advantage of the customer, not working in a way that would benefit the customer the most. It was also questioned whether or not customer service personnel's only goal was to sell products of the bank. These observations suggest that customers do not trust their banks or their banks' customer-centricity. It is also worth mentioning that customers did not seem to trust the technology used in banking, even though it was also mentioned as a good thing that machines, instead of human, managed people's personal information. (Paunonen et al. 2012, 6.) This indicates that there are mixed feelings towards the increasing amount of technology in our everyday banking.

When it came to the banking service itself, people expected three main things – efficiency, simplicity and functionality. These were regarded especially important when it came to everyday banking. The fact that one did not need to be in contact with their bank frequently was regarded as an extremely good thing. It was also mentioned that when one does not need to think about banking, everything works. Online banking was appreciated for its speed and the possibility to choose banking times freely. (Paunonen, et al. 2012, 7.)

Other things towards which the consumers of the study felt positive were possibility for financial education provided by the bank, intelligent and efficient banking that offers the customers the right solutions, anonymous and branchless banking, and personal service. In general, customers were skeptical about any services that were not traditional bank services, such as a bank acting as an intermediate between a car dealer and a customer. It must also be noted that there was a share of customers that appreciated the face-to-face contact between a bank and its customer. (Paunonen et al. 2012, 5–13.)

2.2.3 Other scientific research

Scientific journals offer several critical success factors for the future which are largely in line with those presented by FFI and Aalto Service Factory. Hedley, White, Petit dit de la Roche and Banerjea (2006, 53–54) emphasize the need for banks to respond to the various needs of their customers and to behavior that is hard to predict. A wide range of products and services as well as personalization are mentioned as critical factors, as well as the ability to suggest proactively banking solutions that meet life and lifestyle needs of customers.

Eriksson (2008) who has written a guest editorial in International Journal of Bank Marketing is also placing the customer in the center – according to Eriksson, business practices of banks have been very conservative for a long time which means lots of standard services. However, the evolvement of technology, regulation and economic conditions have shifted the focus of banks in aiming to solving clients' problems as a partner, not solely as a vendor.

In the recent scientific literature, high importance is also placed on customer management, as well as the customer in general. Banks are currently learning how to use their customer data and, with that data, to be able to deliver targeted advertising that is in line with customers' needs. The focus is in improved transparency, simpler products and improvement of customer experience. Personalizing the communication between a bank and a customer is believed to improve customer experience, and the benefits of these tools are achieved by moving closer to the customer. (Bernad 2010, 188, 190.)

Some of the upcoming trends in the banking industry include consolidation, mergers and acquisitions, and tightening of competition. A study by IBM (The paradox of banking 2015, 2005, 3) suggests that in the future, customers will demand a lot more from their bank than they do today. Banks need to be able to respond to their diversified needs and unpredictable banking behavior. This means that banks need to be able to offer their customers more value than their competitors. Offering personalized products and services will be critical but not enough – to really serve the customer, banks need to anticipate and proactively suggest solutions that are in line with the customer's life and lifestyle needs.

All in all, the role of customer-specific solutions is emphasized in recent publications, as well as banks' involvement in customer life. Banks that stay where they currently are will not succeed in case these predictions hold true. This means that a more innovative approach from the banks would be needed in the future, in order for them to stay competitive. Banks must know their customers and be present in their life, but also listen to their customers and their needs. However, what is problematic is that there is very little scientific material available on these needs.

2.2.4 Professional views

The future of mobile banking is also a frequently covered issue in various magazines, blogs and other publications. The predictions on the evolution of mobile banking and mobile payments are, in general, extremely positive. Crosman (2012a, 5), the Editor-in-Chief of the magazine *Bank Technology News*, among others, is sure about the mobile revolution:

> *The right way to handle contactless payments will be figured out and mobile wallet apps will get commonly adopted; people will be tapping their phones at terminals to pay in cabs, on buses, at hotel front desks.*

In non-scientific research, the themes are quite similar to those of scientific research – an interview by Crosman (2012b) reveals thoughts of some American financial experts. The themes that rose out in this 16-person-interview were challenges of the channel structure, how to get closer to one's customer as well as how to differentiate with the mobile channel – how to offer a customer an experience that is truly different. Also context-aware services rose out in the interview, and location-based services as a part of them. Context-aware services were considered very important in the future of banking. However, the interviewees also shared a worry for irritating their customers with these context-aware tools. (Crossman 2012b, 2–5.)

Brett King – a consultant, author of the bestseller book *Bank 2.0* (King 2010), and a regular speaker at global financial services conferences around the world – offers more opinions on the future banking landscape. He belongs to the founders of a new banking concept called Movenbank, which aims at offering simplified and transparent mobile banking services that are all about serving the customer. There are a few reasons why the experience provided by the service is claimed new. First of all, there are no plastic cards or paper – payments happen through a mobile device and statements are available online, not sent to one's home address. Secondly, the bank aims at being extremely transparent towards its customers: Movenbank promises to tell why a request for a credit was denied and tells what it takes to get it approved. It also promises to offer better credit terms or rates as achievements – there is a clear and transparent path to reach these advantages. Movenbank has opened to the public in the early 2013 in the United States. (Website of Movenbank.)

2.3 Tools for context-aware service, customer-centricity and mobility

2.3.1 Mobile identification and authentication

In the previous section, the need for a change in the industry was widely recognized. However, the section did not concentrate on the technologies that help or allow these changes to happen. The following tools represent the ones that are most commonly referred to when it comes to expectations towards mobile banking services. All of them are strongly supported by the mobile phone, and some of them can be only used with it.

The first of the technologies is mobile identification, including mobile authentication. This technology consists of customer identification and transaction authentication by a mobile device. The fear for lack of security is often mentioned as one of the key barriers for mobile banking services. However, discussion about whether mobile banking customers prefer convenience over security or vice versa keeps going on. Advantages of mobile identification over conventional passwords or identification code lists include simplicity and mobility, as well as the conventional advantage of using just one tool, a mobile phone, for many purposes.

As electronic commerce grows constantly, also the security of mobile identification has been discussed. Currently, online authentication in Finnish banks is based on two factors – something the customer knows and something he owns. These two typically include a permanent user name or customer number and a list of one-time access codes. A recent add to the identification methods in Finland is Mobiilivarmenne or the Mobile Certificate, which is an identification accepted by a considerable number of Finnish web services. According to an EU legislative proposal COM/2012/0238, this method also fills the requirements of an advanced authentication method. According to the EU proposal, an advanced authentication method must for example be able to identify the signer of a document unambiguously. (COM/2012/0238, 2012.)

The Mobile Certificate is an information package that is attached to the SIM card of a mobile phone and consists of the SIM card owner's personal data. What makes the Mobile Certificate a safe and strong authentication method is that it works with a PIN code the owner of the SIM card sets and knows. When a sign-in attempt happens through a web or mobile service, the service sends a request for a PIN code to the owner of the corresponding user name or mobile phone number. When the owner of the mobile phone types in the correct PIN code, the mobile phone sends a confirmation of the identification and allows the user to finish his process. The service is extremely safe as long as the user does not tell or share his PIN code anyone, and even if he does, it is still safe unless also the mobile phone is lost. The Mobile Certificate is not operator-

dependent as the three Finnish operators TeliaSonera, Elisa and DNA form a so called circle of trust (CoT), which means that a user can authenticate a transaction with a single code in any service connected to the CoT. (Mobiilivarmenne: Usein kysytyt kysymykset, 2012.)

Even though the Mobile Certificate has been developed by the three Finnish mobile phone operators, there is also some co-operation included between the three operators and banks. Currently, the Mobile Certificate works as an authentication method in one of the Finnish banks which sells authentication for third parties. What is important to know is that the Mobiilivarmenne is currently a method of identification without a payment possibility. This means that it cannot be used for paying one's groceries in a grocery store or for sending money to someone. This currently limits its usage purposes, even though the situation is about to change. Recently, the Finnish mobile phone operator Elisa introduced its Elisa Lompakko mobile wallet that uses mobile identification as the identification and authentication method. The service is first to be piloted by students and it takes advantage of the NFC technology. Elisa Lompakko was originally announced to be launched during fall 2012. However, currently it seems that the service will be launched during February 2013.

There are also other opinions about the future of identification. The boldest scenarios estimate biometric technologies, such as voiceprint authentication to replace traditional authentication methods soon. Miller and Fauve (2012, 7–8) emphasize the future role of multifactor and especially voiceprint authentication in e-commerce and claim that the use of voice authentication in mobile devices is likely to gain popularity fast. According to them, the advantages of voice recognition as an authentication method are that it is quick, convenient and secure. Li, Yang and Niu (2006, 43) mention as good sides of biometric authentication methods that biometric characteristics cannot be lost or forgotten, that they are very difficult to copy, share, and distribute, and that the person being authenticated needs to be present at the time and point of authentication. Of course, technology needs to be very exact in order to avoid misuse by for example voice recording. It must also be noted that a voice can actually be lost temporarily in case of for example illness. None of the Finnish banks have yet published any information regarding these kinds of alternative authentication methods. However, the mobile network operator Digicel Pacific is already using fingerprint authentication as an authentication method when its customers want to send money home in the Pacific region (Digicel Pacific enables fingerprint payments from NZ shops, 2012).

It is natural that the development of mobile phones will strongly affect the evolvement of alternative mobile authentication technologies. Some of the new mobile phone models already feature a number of interesting, new capabilities. For example a recent model from Samsung – Samsung Galaxy SIII – comes with voice and face recognition. Even though recognition technologies currently may not be advanced

enough, the fast development of mobile devices further drives the development of services that take advantage of the latest technology.

2.3.2 Location-based and personalized advertising and services

In the 2000s, the growth in the popularity of information and communication technology has allowed personalization to become an affordable strategy for firms that wish to communicate with their customers in an interactive way. Also in the banking industry, banks have tried to take advantage of personalization. However, personalization efforts of Finnish banks seem to ignore the device that is always with their customers – mobile phone.

There are many definitions to be found for personalization in the literature. However, they all share one presumption – the service provider knows its customer. What is also characteristic of personalization is that its goal is to end up with results which suit the preferences of individual customers (Sunikka and Bragge 2012, 16). Location-based services are a part of personalized services and they can be defined as services that use information provided by devices of their position, in order to track third parties or services (Wagner 2011, 30).

When it comes to personalization in mobile context, location-based services are of special interest as people carry their mobile phones almost everywhere. Some of the Finnish banks have already understood this and are taking advantage of location-based information by providing the users of their smartphone application with a map and a list of nearest ATMs or branches within the user's region. This is illustrates that not all location-based services are about personalized advertising – advertising is just one way of using location-based information.

From a global point of view, this is only a start. An example of innovative use of location-based information is the Card Case App by the American company Square. This application lets people check in to a merchant automatically and purchase things by only saying their name. At the cashier, a photo of the account holder pops up on the screen, which is the way the customer's identity becomes confirmed. (Square Wallet 2012.)

There are various ways in which location-based information and other personalized information can be utilized. That is to say, personalization is not just about marketing. When talking about mobile marketing, personalization has been found to affect positively and strongly the attitudes of consumers towards mobile marketing, also when the original attitude of the respondent towards it has been negative (Jingjun Xu, 2007). There is also Finnish evidence of that, as in a research by Aalto Service Factory,

banking service users appeared to pay more attention to personalized than generic messages (Aspara et al. 2012, vii). This observation was made, even though the people interviewed in focus group interviews also considered personalized messages intrusive (Sunikka & Bragge 2012, 21). In a global study by TNS Gallup, 23% of respondents agreed they would be interested in targeted advertising about something they were interested in, while 21% agreed they would like to receive this kind of advertising related to their location. (TNS Mobile Life 2012, 2012)

It seems likely that banks need to be able to tailor the content of advertising according to the profile of the targeted customer, in order to be successful in mobile advertising. However, it must be noted that the degree of personalization can vary a lot – in some cases, personalization can only mean mentioning the customer by name, while some personalization services aim at understanding the real needs of the customer. The latter is based on highly developed analysis of customer information. (Sunikka & Brygge 2012, 15.) Location-based information can be of great assistance for banks that are trying to target their messages to the right people, as location can sometimes be of great importance when it comes to evaluating what is relevant for the customer for the time being.

It is not only banks that are interested in utilizing location-based and other personalized information. In Finland, one of the two largest retail store chains set up a consumer panel called Viisari where consumers were asked about what innovations they would find the most useful within the retail industry. One of the most useful innovations was the possibility to receive offers from the nearby retail stores, for example when the consumer would be on the road and not know about the local offers. What is remarkable is that there are lots of similar examples to be found in the Internet, which means that the topic is very actual. American companies Google, Loopt with its Reward Alerts program, and AT&T with its ShopAlerts program are some of the examples.

Of course, taking a more personal approach to interaction with one's customer does not come without problems. One of the problems is, of course, privacy. It has been claimed that as personalized advertising becomes a larger part of consumers' daily lives, privacy issues may start to emerge – especially if misuse of personal information occurs. In addition, it must be remembered that banks are not the only players in the field, which means that all involved actors need to work collaboratively and agree on issues such as profit sharing mechanisms, phone user information sharing and tracking, and consumer social networking protection. Another problem is that mobile and Internet databases are currently not connected with each other well enough, which makes it difficult for mobile advertisers to obtain information from the Internet databases. (Chen & Hsieh 2012, 554–555.) This means that more resources are needed, and the appreciation of the potential of location-based information determines whether these resources will ever be found.

The discussion on targeted advertising has mainly concentrated around its good and bad sides as well as the privacy issues that concern this approach. Tucker (2012, 2) states that targeting means *"that advertising needs only be served to people who are potentially interested in making a purchase"*. Earlier research has shown that many people have a positive attitude towards targeted advertising as long as it is not regarded excessive. Moreover, personalized mobile advertising allows consumers to receive detailed information about products easily and advertisers to direct their resources to the right target groups. A properly viewed tailored content has also been claimed to leave a good impression and have a positive effect on buying intentions. (Chen & Hsieh 2011, 13.) However, it has also been pointed out that this kind of an approach can be considered intrusive by recipients (See for example Tucker, 2012).

2.3.3 Contactless payments, Near-Field Communication and mobile wallet

Near-Field Communication, or NFC, is a contactless technology that can be used with any device containing a NFC chip. These devices include mobile phones with either a built-in chip or for example a NFC sticker. The technology is not solely about paying, even though the largest hype currently revolves around NFC as a method of payment. Also from the banking point of view, payments are the most natural way of applying the technology.

Similarly to location-based services, NFC has been popular in Asia already for almost a decade. However, the technology is just starting to gain popularity in Europe. Even though the arrival has been relatively slow, pilots have shown that this payment method could suit European markets as well – for example, a pilot conducted in London by O2 was extremely successful (London's NFC mobile phone pilot judged to be a great success, 2008). Also recent pilot in Oslo showed encouraging results for NFC (Telenor reports results of Oslo NFC payments trial, 2012). In the United States, Google currently uses NFC as a part of its mobile wallet application Google Wallet.

Mobile wallet, such as Google Wallet, is an application that turns a mobile phone into a wallet. Payments are usually made with NFC technology, even though there are also wallets that do not contain any payment capabilities, such as Mobiilikortti (´mobile card`), an application by a Finnish company Sunduka. However, usually mobile wallets are considered to be able to carry out monetary transactions, save personal and sensitive information, such as PIN codes and credit card information (Shin 2009, 1343), as well as store for example concert tickets. In 2011, Google introduced its Google Wallet in the American market. In Japan and other Asia, however, NTT DoCoMo has offered its Osaifu-Keitai service since 2004.

With Google Wallet, payments can be made both online and in brick-and-mortar stores. The downside of the service is that it currently only works with several mobile phone models in places where MasterCard PayPass technology is accepted. The problem is not in the number of places where PayPass is accepted, but rather in the fact that the supported phone models do not have very large market share. However, an improvement to the situation is expected soon as Google has recently announced Google Wallet to become supported by all major credit card companies, as well as many important mobile phone models.

Probably the biggest advantage of the mobile wallet in comparison with a traditional wallet is security – for example, NTT DoCoMo offers a solution for finding a mobile phone in the case the mobile phone is lost. In addition, a mobile wallet can be locked both with the mobile phone PIN code and the mobile wallet's own password, which makes abuse intentions difficult to realize. Also the convenience of a mobile wallet can be seen as its advantage – cards, coupons and other documents are located in the same place and they do not get lost by mistake. (Web page of Osaifu-Kentai; web page of Google Wallet.) However, some studies have shown relatively negative attitudes towards mobile wallets, despite of their high security compared to normal wallets. It has been suggested that the negative attitudes of consumers may stem from the incapability to understand the benefits of a mobile wallet (Swilley 2010, 308–309). Even though these consumers expressed negative feelings towards mobile wallets in general, the biggest concerns fell upon privacy and security issues.

From banks' point of view, NFC offers an extremely convenient mobile payment method. It combines the advantages of contactless payments and mobile phones, which means that payments can be faster than cash or credit card payments, but more controllable and convenient than contactless payments without a mobile phone. Other advantages of NFC technology include that it is safe, as well as that it enables fast data transfer. It is also an advantage that NFC readers do not include any moving parts since this makes the technology last longer. Also the flexibility of the form factor can be seen as a major advantage of the technology. (Birch 2007, 55, 64.) By form factor is meant the way the technology is provided – for example a sticker or a Micro SD card (The Human Chain puts NFC form factors to the test in latest White Paper, 2009).

With a mobile wallet, payments can happen both with a PIN code and without it – it is up to the service provider or the user to define the limit that determines whether PIN code is needed. It is very interesting to observe what kinds of solutions will be offered to consumers in terms of this relationship of convenience versus security - for example in a pilot by Telenor, participants were both happy and worried about the lack of need to enter a PIN code when making transactions (Clark 2012).

NFC is currently used in Finnish short-haul traffic buses for paying the travel. There are several other places that use the technology, too, but the short-haul traffic example is

especially illustrative because that is one of the places where it has been employed the most. The potential of NFC has been proved in many studies (see for example Ondrus & Pigneur 2008) but the technology is still relatively new. During 2011 and 2012, many new mobile phone models with NFC support have been released, but the lack of places where you can use the technology is problematic.

The parent organization of NFC is NFC Forum, which currently has as its members 170 manufacturers, applications developers, financial services institutions and other companies, including for example Nokia, Visa Inc., MasterCard Worldwide, Microsoft Corporation, Google and Sony (Web page of NFC Forum). These organizations work together to make NFC a commonly accepted standard. Future development of mobile payment technologies, such as NFC, is also very interesting since mobile payments are one of the most critical drivers of successful mobile commerce (Yang, Lu, Gupta, Cao & Zhang 2012, 129).

2.4 Challenges for the future way of banking

Even though mobile banking is expected to have a deep impact on the banking industry, there are also concrete and potential challenges associated with these services in Finland. It must be noted that not all of the challenges presented below are likely to affect the industry remarkably, but it is still important to recognize their existence in order to understand that mobile banking is not something that will be adopted in a very short time. The empirical section of the study will present experts' opinions on some of the challenges presented below.

First of all, despite the fact that the attitude towards mobile banking is in general positive, individual Finnish banks have little power over the future form of mobile banking. Finland is a relatively small market, which means that potential mobile banking revenues, compared to the costs of mobile banking development, are modest and uncertain. This means that it can easily turn out unprofitable to develop one's own mobile banking solutions. For example in Sweden, four competing mobile phone operators, Telia, Tele2, Telenor and 3, formed a joint venture and developed a common mobile wallet called WyWallet.

It has already been mentioned earlier that there are common ATMs for all of the Finnish banks. This model is likely to turn out necessary also for mobile payment systems – it is very difficult to image that each bank had its own payment terminals for example using for using NFC, as this would destroy the whole idea of convenience and speed of contactless payments. The other alternative is that a leading company, a bank or someone else, develops a service that everyone else adopts. This, in turn, may create a monopoly problem as it would generally not be accepted that one commercial

company has the only acceptable mobile payment system. Therefore, it is very likely that banks need to cooperate with their rivals and potential rivals, such as mobile phone operators and credit card companies, in order to develop a mobile payment system that reaches the critical mass.

Another challenge associated with mobile banking is that Finland has a comprehensive and secure online banking environment that is also widely used. Existence of the working system may reduce Finns' need for a mobile solution. A fact that supports this is that various mobile banking solutions have existed in Finland for over 15 years but so far the interest in them has not been large. There is also relatively good wireless network (WLAN) coverage in for example the public transport, and many people also possess a mobile broadband connection on their laptop computer. A recent add to convenient payment services is a payment card offered by OP-Pohjola Group that allows small purchases to be made without entering a PIN code, in a contactless way (web page of OP-Pohjola Group). This service may further hinder the need for mobile payment systems unless they can offer something other services cannot, such as improved safety or wallet functionality.

It is also important to notice that Finland is part of the EU, which affects its banking and payment services regulation. The European Commission, the executive body of the European Union, has set a goal for a common home market area for payments traffic inside the Single Euro Payments Area (SEPA). The goal of SEPA is to create uniform basic service standards for payments between banks. SEPA consists of 32 countries, including all EU member countries, Iceland, Norway, Liechtenstein, Monaco and Switzerland. (SEPAn määritelmä, 2012.) The European Payments Council (EPC), a council built around SEPA payments, is currently working together with various mobile payments stakeholders to ensure the creation of necessary standards for creating a secure environment for mobile payments transactions inside Europe (SEPA for mobile, 2012). It remains unsure how the regulation of the EU will affect the development of these services from the Finnish perspective, since it may take time before a comprehensive regulation for mobile banking is established.

In this chapter, both past and future of mobile banking services have been explored. Chapter 3 presents what kinds of features have historically been found to affect adoption of mobile banking services as well as presents an alternative framework for mobile banking adoption.

3 ADOPTION OF MOBILE BANKING AND MOBILE PAYMENTS

3.1 Frameworks for understanding mobile services adoption

3.1.1 Technology Acceptance Model (TAM)

The most common frameworks used in academic research to understand mobile banking adoption are, without a doubt, Davis' Technology Acceptance Model (TAM) and Rogers' Diffusion of Innovations (DoI) theory. In addition, several related theories, such as Fishbein's and Ajzen's (1975) Theory of Reasoned Action (TRA), Ajzen's (1985) Theory of Planned Behaviour (TPB), as well as the Unified Theory of Acceptance and Use of Technology (UTAUT) model by Venkatesh, Morris, Davis and Davis (2003), have been used to describe technology and mobile banking adoption. Even though these are separate models, they are largely based on a similar logic. Some of the mentioned frameworks, such as DoI and TRA, are original theories, and have been used as a base for newer models.

What is noteworthy about scientific research on mobile banking adoption is that the theories presented above have seldom been used in their original form: typically research frameworks mix either two or more of the theories, and also elements from outside these theories are added in the mix. This is usually justified by the nature of mobile banking services and the shortcomings of the existing models when it comes to explaining newer technologies. None of the existing models, neither the original nor the revised, have succeeded very well in explaining mobile banking adoption without any adjustments from other models or research. Some of the adjusted models have in fact been able to increase the coefficient of determination to reasonable levels.

TAM was presented by Davis in 1989 (Davis 1989) and it is one of the most well-known extensions of Fishbein's and Ajzen's theory of reasoned action (TRA). According to TAM, the factors that define a behavioral intention to use a new technology are the technology's ease of use and usefulness (Davis 1989).

Even though some of the most common factors that have been found to affect the adoption of mobile banking are the traditional TAM-variables, perceived usefulness and perceived ease of use, the strong technological focus of TAM is often criticized in mobile banking adoption research. This happens because mobile banking is not solely a technology but a bundle of different services supported by technology. Therefore, lots of other variables, including compatibility, financial cost and risk, have been suggested to complement TAM, as well as completely new models have been developed. It must

be added that TAM has been criticized not only in mobile banking research but also in the case of studies of some related technologies or services – the results of numerous studies show that TAM is not able to explain consumers' decisions to adopt for example Internet banking. This may occur because TAM focuses on the technological aspects of adoption but does not employ social or psychological parameters to explain adoption behavior. (Gounaris & Koritos 2008, 284.) Bagozzi (2007) has criticized TAM as well as TPB, TRA and UTAUT very strongly, claiming that these theories are no longer relevant. He suggests that research approach should be changed entirely. All four theories are strongly related to each other.

3.1.2 Diffusion of Innovations theory

Another well-known theory for predicting mobile banking adoption is Diffusion of Innovations theory which was presented by Rogers in 1962 (Rogers 1983). The theory, also known as Innovation Diffusion Theory, aims at explaining differences in the time that is needed for adopting an innovation. Also the reasons for these differences are addressed. For example, pocket calculators were adopted widely in around five years, while the time needed for the adoption of for example seat belts or the metric system may take decades (Rogers 1983, 14–15). Unlike TAM, DoI includes also non-technological factors, such as compatibility and trialability.

Rogers (1983) divides innovation adopters to five different categories. These categories are labeled innovators, early adopters, early majority, late majority and laggards, and they describe the phase in which an innovation is adopted – for example laggards are slow in adopting the innovation. Early majority is typically the largest individual group, while innovators and laggards are the smallest. According to Rogers (1983), research has shown that early adopters do not differ from late adopters in age, but they have gone through more years of education and have a higher social status. Current mobile banking users can be viewed innovators and early adopters since mobile banking has not reached mainstream users yet in Finland.

In mobile banking adoption research, the most commonly used components of DoI theory are the five innovation attributes presented in Table 1 – relative advantage, compatibility, complexity, trialability and observability. Of these attributes, relative advantage, compatibility and complexity have historically explained mobile banking adoption well, while trialability and observability have not been as successful in explaining adoption in mobile banking research. However, there is also a number of results that support the suitability of trialability and observability when it comes to describing mobile banking adoption. Table 1 presents the five innovation attributes and their definitions.

Table 1: Rogers' (1983, 213–232) innovation attributes

Attribute	Definition
Relative Advantage	Advantage compared to the idea the innovation substitutes
Compatibility	Compatibility with present values, beliefs and experiences
Complexity	The degree of difficulty in understanding and using the innovation
Trialability	The degree of ease of use of trying an innovation
Observability	The degree of visibility of an innovation

The first of the innovation attributes is relative advantage. By this is meant the amount the advantage or disadvantage caused by an innovation adoption (Rogers 1983, 217). This variable has usually been found to describe innovation adoption very well (see for example Cruz, Filgueiras Neto, Muñoz-Gallego & Laukkanen 2010; Sripalawat, Thongmak & Ngramyarn 2011). People who think that mobile payments can deliver additional benefits, as compared to those of Internet or brick-and-mortar payment services, may form a positive attitude towards adopting them (Yang et al. 2012, 131). Yang (2010, 267) found that US consumers were willing to adopt mobile shopping services in the case they believed that the service increased their shopping performance, for example by saving time or making it possible to receive customized product or service information.

Compatibility with consumers' existing values, the second innovation attribute, represents the compatibility of an innovation with users' existing values, past experiences and needs towards innovations. An example of incompatibility with values and beliefs is that farmers in the United States have generally adopted soil-conservation innovations slowly, due to the fact that they place strong value on increasing farm production. Soil-conservation is seen as conflicting with the idea of productivity. (Rogers 1995, 224.) With regard to mobile banking, some consumers are more accustomed to mobile phones and are expected to have fewer problems with mobile banking (Koenig-Lewis et al. 2010, 413). In many studies (see for example Schierz, Schilke and Wirtz 2010), compatibility has been recognized as one of the key factors affecting mobile banking and mobile payments adoption.

Complexity, or in some research ease of use, refers to the degree to which an innovation is perceived hard to use and understand. Some ideas can be regarded as clear in their meaning while others are very unclear. (Rogers 1983, 230–231.) In mobile banking research, complexity is likely to increase the possibility of a system remaining under-used, because people should not put themselves out when they use mobile

banking (Lin 2011, 254). However, there are also some results that do not lend support to ease of use being a significant factor when it comes to adoption of mobile services. For example Yang (2010, 266) found that it was not very important that mobile shopping services were easy to use.

Trialability, the fourth innovation attribute, describes the degree to which an innovation can be tried before the adoption decision. This attribute is based on a view that ideas that can be tried are adopted earlier than those who do not offer the possibility for gradual experimentation. The reason for this is that a less trialable innovation is more uncertain for the user. Trialability is likely to be less important for laggards than it is for early adopters because early adopters are not surrounded by people who have already adopted the innovation. (Rogers 1983, 230.)

The fifth innovation attribute, observability, refers to visibility or observability of an innovation for other people – the implications of some innovations are more easily observable and communicated to other people, while some innovations are difficult to describe for outside parties. Rogers represents an illustrative example of safe sex, which can be understood in a several ways and therefore, has been adopted slowly among the individuals at high risk for HIV/AIDS in the United States. On one hand, safe sex represents abstinence and sexual monogamy and on another hand, a material referent of using condoms. (Rogers 1995, 244.)

The suitability of DoI theory for explaining adoption of innovations has been proved in a number of studies concerning the Internet and mobile banking adoption (see for example Koenig-Lewis et al. 2010; Eriksson, Kerem & Nilsson 2008). However, there are also factors of DoI that have not been found to correlate with mobile banking adoption well, as well as some factors that are not included in DoI but that have been found to affect the adoption of mobile banking. The following chapter presents some of these. Overall, the model has not received as much criticism as TAM, which is why the theoretical framework of this study is very much based on DoI theory. Another reason why the DoI theory was chosen is that, even though the theory has been used in researching mobile banking, it was still relatively easy to find an area where it had not been used. This adds to the novelty value of the study.

3.2 Factors and models derived from DoI theory

3.2.1 The concept of partial adoption

Since it sounds reasonable to assume that there may be factors from outside the DoI theory that affect mobile banking adoption, it was investigated what other factors have

been discovered. It was also mentioned earlier that not all factors of the DoI theory have been able to predict mobile banking adoption very successfully. For these reasons, the original model will be complemented with some additional and substitutive factors. These factors come from existing scientific literature and have succeeded well in predicting mobile banking usage. However, these factors have never been used together – they are a collection of so called best practices that have worked well individually but may not work together. The empirical part of the study will seek to understand which of these factors, if any, are significant for the target population.

Hovav, Patnayakuni and Schuff (2004) have complemented Rogers' Innovation Diffusion Theory with the concept of partial adoption, which means that an innovation is not always adopted completely but users may only use some functions of the emerging technology. Partial adoption can be viewed very characteristic of also mobile banking since people are unlikely to move completely to mobile banking anytime soon. Instead, it is likely that they will use mobile banking together with online banking or other banking channels. There is a number of examples that support this claim.

First of all, even though there were about 3.4 million active credit card accounts at the end of 2011 in Finland, cash has not disappeared (Statistics Finland 2012b). According to Kaupan Liitto, still 35–40% of transactions are paid by cash within the retail industry (Lausunto kuitinantovelvollisuudesta käteiskaupassa, 2012). Also the adoption of online banking has followed the same path – traditional banks are still needed, and people express their concerns about the diminishing availability of traditional services. In 2012, topics frequently appearing in the news have been shutdowns of bank branches as well as the reduced availability of cash.

Another example comes from TNS Mobile Life 2012 Survey, one of the largest annual global studies concerning mobile phones and their use. According to this survey, even though mobile banking use was expected to triple in Finland in the near future, it was not expected to substitute any existing banking channel. According to the survey, 88% of Finns intended to keep using online banks, and 52% branches. 30% of the respondents had the intention of using mobile banking in the future. (TNS Mobile Life 2012, 2012.)

Even though consumers would like to conduct all their banking online, the problem is not only in customers' willingness but also in current online and mobile banking services. Today, it is really difficult to ignore completely all other channels – even application-based mobile banking services typically include only a narrow share of the bank's available services, while online banking succeeds only a little better. Applying video conferencing tools to banking environment offers a potential way of conducting some of the customer meetings online.

That is to say, even though some users would like to conduct all their banking through online or even mobile channels, that is not currently possible. For banks, there

is no point in developing these services before the market is ready, but services also offer no sufficient advantage for customers before a larger amount of services becomes available through a mobile channel. Also for this reason, it seems likely that mobile banking will not become the only banking channel for most consumers anytime soon.

3.2.2 Trust and Risk

A variable that has been presented in many frameworks concerning mobile banking adoption, but has been left out from the DoI theory, is trust. Various ways of handling the concept of trust can be found in literature. For example Lin (2011) has presented the concept of knowledge-based trust, which includes the concepts of perceived integrity, benevolence and competence. Of these variables, benevolence was the only one that proved insignificant when exploring the factors affecting mobile banking adoption. Some researchers, such as Koenig-Lewis et al. (2010), and Zhao, Koenig-Lewis, Hanmer-Lloyd and Ward (2010), have also recognized an indirect effect of trust on mobile banking adoption – according to their research, there was no direct connection between trust and mobile banking adoption intention but trust had an effect on both credibility and risk (Koenig-Lewis et al. 2010) or competence and risk (Zhao et al. 2010).

When it comes to Finnish consumers' mobile banking adoption, trust and risk issues have also been found to be among the top barriers for adopting mobile banking services. According to the TNS Mobile Life 2012 survey, Finnish consumers expressed, for example, the following concerns towards mobile banking: it is not secure (35%), mobile phones can be lost (23%), it is not private or confidential (24%) and that they do not trust mobile networks (26%) (TNS Mobile Life 2012).

Even though not all results support trust being a strong direct indicator of mobile banking adoption intention, it is included in this study because its effect on adoption intentions has been recognized widely, especially when it comes to online banking (see for example Foon & Fah 2011; Chong, Ooi, Lin & Tan 2010). In addition, despite the fact that there are also unsupportive findings on the relevance of this factor, there is still a considerably large number of mobile banking studies that support including trust in mobile banking adoption models.

The concept of risk is closely related to that of trust even though it is sometimes handled separately from trust. Trust has often been considered to decrease the perceived risk of mobile banking (see for example Zhou 2012, 1518). The significance of risk in describing mobile banking adoption has been recognized in various studies (see for example Koenig-Lewis et al. 2010; Yang et al. 2012). The concept of risk is likely to be an important determinant of mobile banking adoption, especially when it comes to

mobile devices, since mobility have been claimed to increase the possibility of security violations. This stems from the characteristics of the infrastructure required for wireless applications. (Riquelme & Rios 2010, 331.) However, like in the case of trust, there is also a number of studies where risk was not found to affect mobile banking adoption considerably. For example Schierz et al. (2010) found the link between the perception of risk and mobile payments adoption to be only moderate and risk definitely not to be among the key determinants.

3.2.3 Environment and subjective norms

The concepts of environment and subjective norms are very similar, which is why they are here presented under the same heading. Both factors reflect the direct role of society in adoption decisions, an issue that has been partly ignored for example in the TAM model.

The influence of environment or alternatively social norms is widely recognized in mobile banking adoption research. By environmental factors is meant the effect that other people, such as friends and family, have in the adoption decision (Riquelme & Rios 2010, 332). This means that a recommendation or anti-recommendation for a service would partly determine whether a potential new user feels positive about adopting the service. In the UTAUT model, the term social influence is used instead of subjective norms but in scientific literature, both concepts are used frequently. For example Yang (2010, 267) found that that consumers were willing to adopt mobile shopping if people close to them believed that they would use the service. For those people who were more independent as decision-makers, there should be product review sites or expert recommendation features available.

By subjective norms, in turn, is meant a person's perception of what other people think about behaving in a specific way (Singh et al. 2010, 59). The effect of environment has also been often recognized in mobile banking adoption research (see for example Schierz et al. 2010). Schierz et al. (2010, 215) are one of those who found subjective norms to be one of the key factors affecting mobile payment services' adoption. This factor cannot be directly affected by bank managers but, by identifying innovation early adopters, companies can facilitate a broader diffusion. Early adopters can spread information about an innovation being worth using and facilitate laggards' adoption of mobile banking services. Of course, it is important for banks is to turn early majority and late majority into innovation users, as these classes represent the largest part of population.

3.2.4 Self-efficacy

Also the effect of self-efficacy has historically been among the most successful measures derived from outside TAM model or DoI theory. By self-efficacy is meant the level of self-confidence to behave in a certain way – in this case, the degree of self-confidence to use mobile banking services. It has been claimed that technology-innovative customer segments are likely to have a higher level of self-efficacy than segments that are not innovative. (Singh et al. 2010, 60.)

As the target consumer group of this study can be regarded as technology innovative, an interesting question emerges – is the target group already so self-efficient that they do not regard their own ability to use products as important, as they consider it unlikely that they would have any problems in using them? In many earlier studies, considerable differences have not been made between different generations or age groups but this does not mean that differences would not exist. Most interviewees are likely to have used the Internet in the primary school and received their first mobile phone a few years later. That is a considerable difference in comparison with those who have received their first mobile phone at the age of 40 or, alternatively, still do not possess one.

Nevertheless, self-efficacy has historically explained mobile banking adoption very well, and it has also been found to affect perceived ease of use (See for example Luarn & Lin 2005; Lin 2011) This sounds like a reasonable assumption, as people who feel they can use a service probably also can use it. As perceived self-efficacy has been found to affect ease of use, it is seems sensible that the level of perceived self-efficacy will have an effect on mobile banking adoption, also when it comes to the most innovative part of the population. This happens because also these people are likely to prefer their service easy to use. Also Yang (2010, 267) found that knowledge about how to use mobile sites or mobile shopping services facilitated using mobile shopping services.

3.3 Framework for understanding mobile banking service adoption intention

The following model is an illustration of the factors that have frequently been found to affect mobile banking adoption. The model uses as its base Rogers' Diffusion of Innovations theory from where relative advantage, complexity and compatibility have been picked. This selection has been made because these three measures have historically been the most successful innovation attributes in predicting mobile banking adoption intentions.

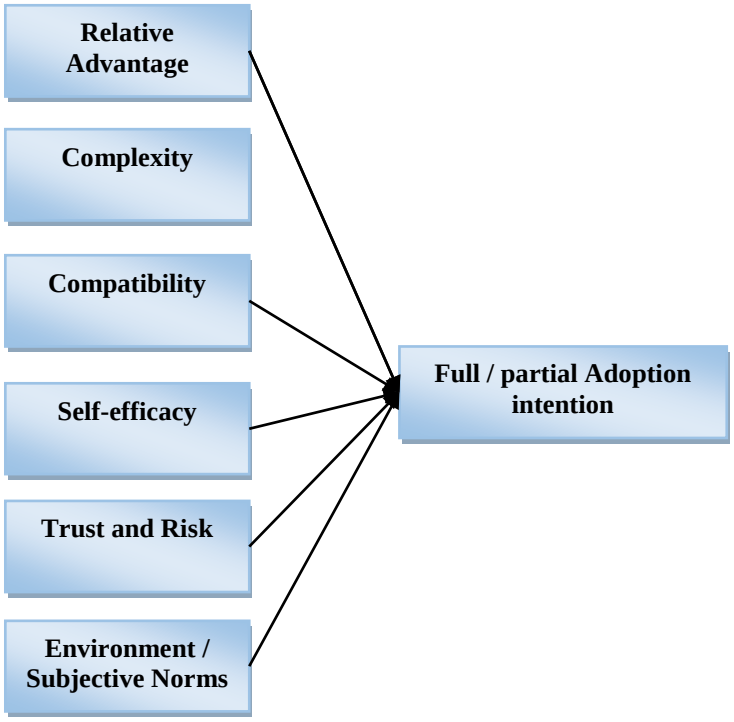

Figure 2: Research model for mobile banking adoption

The research model includes the following hypotheses:

- H1: Perceived relative advantage has a direct effect on mobile banking adoption intention
- H2: Complexity has a direct effect on mobile banking adoption intention
- H3: Compatibility has a direct effect on mobile banking adoption intention
- H4: Self-efficacy has a direct effect on mobile banking adoption intention
- H5: Trust and Risk have a direct effect on mobile banking adoption intention
- H6: Environment and subjective norms have a direct effect on mobile banking adoption intention.

In addition, mobile banking is expected to be adopted either partially or fully. By full adoption is meant that the mobile banking user will abandon other banking channels, such as phone banking, online banking and visiting branches. Partial adoption, in turn, means that other channels will be used alongside the new channel.

Currently, mobile banking can be considered as nowhere near fully adopted – depending on country and study, the estimated usage of mobile banking varies a lot. For example, a study by the American Federal Reserve System showed that 21% of American mobile phone users had used mobile banking within the preceeding 12 months (Federal Reserve System, 2012). The highest percentages have generally been measured in developing countries, where it is not smartphone applications but mobile

money transfer systems that are popular. If these mobile payment tools would be excluded, penetration rates would be much lower also in developing countries.

As the smartphone penetration rate is rising, it is interesting to see how the situation evolves. Currently, there are no signs of mobile banking becoming the sole banking channel for a large share of people. On the other hand, online banking has already decreased the need to visit branches in dramatically and that transition has happened relatively fast.

The next chapter begins the empirical part of the study by presenting the research approach. It then presents the criteria for selecting the interviewees as well as the data analysis tools used in this study. Finally, it evaluates the research, including its validity and reliability.

4 RESEARCH FRAMEWORK

4.1 Research approach

All research data for this study was collected by qualitative means. Typical features of a qualitative research are that data is collected in natural, real situations, it uses methods that enable research subjects' own points of view to come up, and it employs inductive analysis in order to reveal unexpected things. (Hirsjärvi, Remes & Sajavaara 2004, 155.) Therefore, the purpose of the study has not been to test the suitability of existing theories that predict mobile banking adoption, but to build up new theory. The aim is to explore how the selected experts working with mobile banking issues and the selected consumers will react to future channels of mobile banking, as well as evaluate how these attitudes relate to the results achieved so far. In addition, with the help of the theoretical background, people's perceptions of the emerging technologies are explored. These results may be tested in the future by quantitative means.

A qualitative research can be conducted by various methods, including interviewing. Interviewing has been chosen as the data collection method for this study for several reasons (Hirsjärvi, Remes & Sajavaara 2004, 194, 35):

- The area of emerging mobile banking technologies and services has not been mapped thoroughly which is why it is difficult to estimate in advance what the answers will be like
- It is wanted that the role of the interviewee is active and creative, in order to find new visions towards the future of mobile banking
- This method makes asking additional questions possible and ensures that the interviewee understands the question. This is important because it is likely that not all interviewees are equally familiar with mobile banking
- Achieving more in-depth information, for example by asking for explanations is considered important
- It is probable that the topic will bring out multifaceted answers.

There are three commonly identified styles for carrying out an interview: structured, semi-structured and open interview styles. The structured interview style, also known as closed interview style, is conducted using a form, questions are asked in a certain order, and the question form consists of a collection of predetermined questions. This method can be used for testing generalizability of previous qualitative research or formal hypotheses. The data collected by a structured interview can also be easily turned into quantitative form, when needed. However, the concepts and alternatives used by this

approach usually do not reflect the interviewees' world but the researcher's world. (Hirsjärvi & Hurme 2010, 44–45.) In addition, there is a risk that a respondent's answer falls into a certain, unsuitable response category in the case there are large differences in respondents' answers, due to the structured nature of the interview (Hague 1993, 41). Because of these drawbacks, the structured style was not considered for this study.

The complete opposite of a structured interview is an unstructured or open interview. The characteristics of this approach are open questions and dialogic environment – questions are not predetermined but the interviewee's answers lead the interview (Hirsjärvi & Hurme 2010, 45–46). This approach allows a free course for an interview but the interview may turn out hard to control due to the high level of spontaneity (Hague 1993, 42).

In a semi-structured interview, the same questions are asked from all involved people. In order to achieve an equivalent coverage when it comes to comparative analysis, supplementary questions can be presented to the interviewees. Interviewees are also given approximately equivalent times for the interview – in this study, 1.5 hours was the maximum time that could be used for an expert interview and 45 minutes for a consumer interview. Another characteristic of a semi-structured interview is that questions are open – the interviewer does not prompt the interviewee in any situation and the interviewee can answer anything he wishes (Gillham 2005, 70).

It is characteristic of a semi-structured interview that some aspects of the interview have been decided but some of its elements may change – for example the order of the questions or the phrasing of the questions (Hirsjärvi & Hurme 2010, 47). The interviewer is also able to skip some questions that are not relevant for the interviewee, even though a questionnaire is still used. In this approach, the interviewer must be able to cope with the changing situation in each interview, which requires a set of skills. (Hague 1993, 41–42.)

In order to receive answers for the necessary themes, a structured part was involved in the interviews conducted. However, because the study aims at achieving new knowledge about the mobile banking needs of Finnish customers, the attendees also needed to be able to express their thoughts about mobile banking freely and affect the course of the interview, talking about the themes that they considered most relevant for them. In addition, the aim of the study was not to prompt interviewees' answers but to see how they relate to the results achieved in the earlier research. Consequently, a semi-structured interview style was chosen.

4.2 Selecting respondents

4.2.1 Expert and authority selection

Selection of interviewees consisted of expert selection and consumer selection. All of these were chosen by the convenience sampling method but experts and consumers were selected by different criteria. When selecting the experts that would attend the study, diversity was emphasized by choosing representatives from several different types of organizations. In turn, all the selected consumers were young people who either studied or had graduated from a university and were active technology users. These selections were made in order to receive innovative ideas for the future development of mobile banking services.

By convenience sampling is meant that the research subjects are drawn at the convenience of the researcher. An assumption of convenience sampling is that the target population is homogeneous and that the characteristics of the interviewed people are similar to the overall target population characteristics. What must be noted is that neither the data nor the results can be generalized to the target population when convenience sampling is used. (Hair, Bush & Ortinau 2003, 359–361.) However, in a small qualitative study like this, generalizing would not have been possible anyway. As a result, convenience sampling was used in order to ensure that the persons interviewed had required amount of knowledge about mobile banking. The method was also selected in order to find consumers that were innovative enough for the study.

In order to receive different perspectives to the future of mobile banking, several experts were selected for interviews. These people included service managers, risk experts and other people who were in charge of mobile operations and new service development. All interviewees had a high position in the organization they represented. This approach has both good and bad sides: while it ensured that the interviewees had a comprehensive view of the banking industry, it may not bring out so specific answers because the people interviewed were not the people who make the services. However, because the interview questions were rather strategic than technical, experts were chosen as interviewees rather than general employees.

The second reason for the selection of the high-level managers was their inclusive view of the financial industry. The people interviewed were responsible for large parts of the business and knew the strategy of the company very well. They were also considered to be well aware of current and upcoming trends within the financial industry. All interviewees had many years of experience in the financial industry, and up to 15 years in mobile banking.

Experts were contacted in March 2012 and in April 2012 and all of them accepted the request for an interview. The sample consisted of expert interviewees as presented in Table 2.

Table 2: Experts interviewed

Organization	Position	Responsibility areas
Bank 1	Senior Business Developer	Development of mobile and emerging payment products
Bank 2	Chief Consultant	Business Planning
Bank 3	CEO of a Service Company	Product development and services
Federation of Finnish Financial Services	Person 1: Senior Specialist Person 2: Head of Financial Research	Electronic services and payments traffic, service security and infrastructure
Financial Supervisory Authority	Person 1: Risk Specialist Person 2: Senior Risk Expert	Risk Management
Tieto Finland Oyj	Advisor	Development of mobile services, online services, new digital tools

When contacting the potential interviewees, a special emphasis was placed on reaching various points of view – while the role of the banks is to provide a set of services for their customers, Tieto Finland works as a service provider for these banks. The FFI, in turn, works as a lobbyist for financial issues in Finland and could provide this study with a comprehensive view of development of the whole financial industry. The decision of selecting a number of different parties was based on the goal of achieving a truthful view of the Finnish financial industry, a view that would also recognize the drawbacks of and threats in developing mobile banking services.

When it came to selecting the authority, The Financial Supervisory Authority (FIN-FSA) was selected due to the fact that it is a body that has wide and comprehensive knowledge on the industry – the organization was expected to know the financial industry as well as consumer issues, even though the Consumer Agency is principally responsible for consumer protection in Finland. The Financial Supervisory Authority, however, provides the consumer visitors of its website with a large information bank regarding the financial industry, including its products, providers, services, agreements and customer protection issues. It was also considered that The Financial Supervisory Authority would possibly have a more comprehensive image of mobile payments, while the Consumer Agency concentrated on consumer issues as a whole. The final selection was made after the representative from The Consumer Agency had appeared to be unable to participate in this study within the required timeframe.

4.2.2 Consumer selection

When it comes to qualitative research, the target group for a research is normally not selected by random sampling (Hirsjärvi et al. 2004, 155). This is because the aim of qualitative research is not to strive for statistical generalizability but for a deep understanding of a specific event. In addition, discretionary sampling is used in order to find new theoretical insights into events and phenomena. (Hirsjärvi & Hurme 2010, 58–59.) Because the aim of the study is to gain further understanding about consumers' attitudes towards mobile banking, interviewees have been selected according to certain standards. In addition, choosing the interviewees by random sampling would not have added value for the research, because the goal of the study was to find people who all used technology in a quite similar fashion. The final selection consisted of the interviewees presented in Table 3.

Table 3: Consumers interviewed

Gender	Age	Operating system of the main mobile phone
Female	21	iOS
Female	22	Windows
Male	25	Windows
Male	25	iOS
Male	26	Android

20–30 years old current or graduated university students were chosen as the target group of the study. Although Rogers' Diffusion of Innovations -theory does not confirm this, various other studies have found young people to be the most potential innovation adopters (See for example Suoranta & Mattila 2004; Howcroft, Hamilton & Hewer 2002; Karjaluoto, Mattila & Pento 2002). In turn, the most innovative people have often been found to be the earliest adopters of innovations. Among others, Gournaris and Koritos (2008, 297) and Eriksson et al. (2008) have also found that online banking adopters were likely to have higher than average education, which supports the appropriateness of the selected target group.

In some research concerning mobile banking adoption, male persons have also found to be the most likely users of mobile banking services (See for example TNS Mobile Life 2012). However, the majority of these studies have been conducted in emerging economies, where the role of woman can be seen as somewhat different from that in Finland – in Finland both men and women are active technology users and basically all of them have a mobile phone.

Another reason for choosing young adults as the target group is their role in the future. From the banks' point of view, young adults are a very interesting target group

for research, as they are the most profitable customers of tomorrow. In addition, young adults typically have experience of basic banking services but they are not too accustomed to today's service models. (Paunonen et al. 2012, 3.)

Because the aim of the study is to gain deeper knowledge of the usage of mobile banking services, certain limitations were set for the interviewees also regarding the way they do their banking and use communication technologies. The first criterion was that the interviewees possessed or had recently possessed a smartphone that was able to handle applications. In this study, by smartphone is meant a 3G or 4G mobile phone that has Internet access. This limit was set in order to ensure that the user realized how smartphone applications work. Interviewees were also required to have used a smartphone application, not only possessed one. The requirements were set in order to ensure that the interviewee knew what kinds of services can be delivered through a smartphone application, as well as how they worked.

Second, the interviewees were required to be using online bank regularly and understand what is meant by mobile banking, as well as have an opinion on how it differs from online banking. There was no one right answer for this, but it was considered important that the respondents had an opinion. Because mobile banking usage in Finland is low, it was estimated that it would turn out difficult to find an adequate number of people who were using mobile banking actively and willing to share their experiences. The lack of mobile banking use does not still harm the research so much, as many of the mobile banking features take advantage of online banking, that is statistically used by almost every person in the age class. This ensures that the selected people were relatively familiar with the concept of mobile banking, even though indirectly.

Even though there are huge differences between the types of mobile banking services offered by different banks, interviewees were not selected on the basis of their primary bank because they were not required to have used mobile banking services earlier. However, during the interviews it appeared that all of the interviewed customers had actually tried mobile banking services, even though not all of them used it actively.

Finally, the selection of interviewees was made on the basis of being personally familiar with the researcher. As the goal was to find mobile banking innovators and early adopters, it was considered appropriate to utilize the researcher's knowledge of people who could be described as student innovators. The researcher herself has spent four years as a very active member of her student society and, due to her large network of student contacts, has a relatively good image of some of the exceptionally technologically innovative students in the student societies in Finland. A clear selection criterion was not set but as the criterion was used the researcher's personal opinion of the students' enthusiasm about technology, and especially mobile and tablet technology. The enthusiasm was shown for example by active posts in social media (Facebook) and

blogging, as well as by interest in the most advanced mobile phone models and tablets. Also the other sides of innovativeness where considered, such as entrepreneurship or interest towards it. For example, two of the interviewees had companies of their own.

4.3 Data collection

4.3.1 Expert and authority interviews

Individual, face-to-face interviews were chosen as the interviewing method for both expert and consumer interviews. With regard to consumers, also group interviews were considered. However, group interviews, even though they allow for debates and faster data collection than individual interviews, have several drawbacks. One of these is that several people may dominate the interview (Hirsjärvi & Hurme 2010, 63). In addition, some people may not participate at all because of their shyness. It is also possible that participants tend to agree with the group view that is the view that the first speaker presents. (Adams, Khan, Raeside & White 2007, 150.) This could be considered as a serious threat in this research, because some people could possibly have felt that they were less familiar with mobile banking than some of the other participants, as some of the interviewees had probably tried it and some had not. In other words, even though people with similar features would have been selected for the interview, the sample might not have been homogeneous enough to prevent this from happening. Although group interviews would perhaps have enabled a more discursive interviewing environment, individual interviews were chosen as the interviewing method because the greatest interest was towards ideas expressed by individuals about their personal banking needs.

Another question was whether the interviews should be conducted face-to-face or by phone. Face-to-face interviewing was the preferred method, and telephone interviewing would only be used if there was no possibility for a physical meeting with an interviewee. This approach was selected because it allowed interpreting the interviewees' gestures and expressions, as well as made it possible for the interviewees to illustrate their opinions with an example, such as a drawing. In retrospect, this can be considered as a good decision as, during the interviews, many of the interviewees actually wanted to draw a picture or show something with their smartphone or tablet. In addition, some of the consumers were interested to see how mobile identification worked in practice as they had not used it before. These practical examples would also have been very difficult to illustrate remotely. Luckily, it was not necessary to interview any of the respondents by phone.

The interviewing process started by contacting potential interviewees from three Finnish banks, The Federation of Finnish Financial Services (FFI) and Tieto Finland Oyj. These persons were contacted in March and April by e-mail and mobile phone. The purpose of interviewing the experts before consumers was to gain insight into the emerging trends in Finnish financial industry, which would help in forming relevant questions for the consumers.

The interviewees were selected so that they would comprehensively represent the various actors operating in the Finnish banking industry. It was also important to receive versatile approaches towards mobile banking – while bank managers were expected to know the banking industry thoroughly; Tieto Finland Oyj could provide this study with a comprehensive picture of mobile services and their development. FFI, in turn, was contacted because this organization was deemed well aware of mobile banking in general as well as of the potential challenges associated with these services. FFI also works together with various other financial institutions abroad, which is why it was assumed that the organization would be familiar with also international challenges associated with mobile banking.

The interviews were conducted between March and May in the premises of the organizations that the interviewees presented, in the Helsinki metropolitan area. One of the interviews was performed in a public location, because of the wish of the interviewee. The interviewees were informed about the interviewing practices, such as anonymity and confidentiality of the data, with a cover letter before the interview. The participants also received the discussion themes in advance and were able to ask questions about the interview if they wanted to. As a compensation for their participation, the interviewees were promised the final version of this study after its completion. All interviews were conducted in the respondents' mother tongue, Finnish.

Interviewees were offered the possibility to stay anonymous both as persons and as representatives of their organizations because it was deemed likely that that this would create more in-depth answers. Three of the interviewees wanted to stay anonymous. The interviews were recorded and the interviewees were informed about this in advance, as well as about the possibility to refuse from being recorded. Interviewees were also able to stop the recording any time they wished. The expert interviews consisted of three main themes:

- The current state of mobile banking and expectations towards the development of mobile banking services in the near future
- An involving banking experience and developing customer-centricity in the banking industry
- Adoption of the emerging mobile banking services.

After the interviews all interviews were transcribed verbatim to ease up analyzing them. Some of the interviewees had asked to see the final material before it would be published. These interviewees were sent the material regarding their part in its final form. Also other interviewees were asked if they wanted to see the material but not all of them expressed a need for this.

The Financial Supervisory Authority (FIN-FSA), the authority chosen for this study, was contacted in April. From the Financial Supervisory Authority, two people promised to attend the interview. The interviewing questions were sent also to these interviewees in advance. The interview was conducted in May 2012 in Helsinki, in the premises of the Financial Supervisory Authority.

The interview consisted of 11 questions, which were divided into 3 themes:

- Supervision of mobile banking services
- The possible problems and opportunities of mobile banking services
- Consumers and mobile banking services.

The form of the questions was kept relatively open and the interview included a lot of general discussion on the theme. The total length of the interview was approximately 45 minutes.

After the interview, it was evaluated whether the interview with FIN-FSA provided the research with a comprehensive enough view of the topic, thus, that the saturation point was achieved. This was made by exploring the legislation concerning mobile banking services, that is, regulation by the European Union, self-regulation of the financial industry, Finnish state legislation and supervision conducted by The Financial Supervisory Authority. The interview ended up giving an extensive outlook for the regulation of both banking services and mobile services, which together create the legislation for mobile banking services. Thus it was viewed that the saturation point very likely was reached. Some of the expert interviews had taken up some legislative issues, but these issues were in line with the facts provided by The Financial Supervisory Authority.

4.3.2 Consumer interviews

When it comes to emerging technologies, it cannot assumed that consumers can fully understand their functionalities, even though the consumers interviewed were selected so that they would probably be familiar with technologies in general. Therefore, depending on the prior knowledge of the interviewee, short presentations were given about NFC, use of location-based information and examples of how targeted advertising

can be utilized. The interviewees were also able to ask clarifying questions about these services in the case they felt incapable of assessing these services because they did not understand what the services meant or what they allowed. In addition, in most cases an example was presented to illustrate how these technologies could work or worked in practice.

While the expert interviews concentrated mainly on the future of mobile banking services, the purpose of the consumer interviews was to gather information about consumers' adoption of these services and the features they considered important in a good mobile banking service or mobile payments. It was considered that it may be hard for consumers to proactively suggest new ways of doing things because they do not necessarily know what is possible and what is not – a good example of this is the famous quote by Henry Ford:

> *If I had asked people what they wanted, they would have said faster horses.*

A majority of the questions were kept very open, allowing the consumers to express their needs and thoughts towards mobile banking freely. However, due to the possibly limited consumer knowledge about the emerging technologies, there were also questions that were more structured. This made it possible that those customers who had strong opinions towards the topic were able to present them. Also, when a consumer did not have extensive knowledge of a specific service, they received additional support that helped them in forming an opinion towards a service.

The interviews were conducted in August 2012 and September 2012. The average length of an interview was around 30 minutes. In general, interviewees appeared to be quite familiar with mobile banking and had an opinion about it. There were also some people who were quite active mobile banking users. It was interesting to note that the consumers interviewed appeared to have more knowledge of the emerging technologies than expected. It was also interesting to note that some of the interviewees had clear ideas what they wanted from their mobile banking services as well as what would turn them from non-adopters to adopters.

4.4 Data analysis

While the analysis of quantitative data usually follows certain standards, there are a myriad of practices and no clear guidelines concerning the analysis of qualitative data. What is common for all analysis is however that the process of analysis begins early, already when gathering the data. Even though there are no clear guidelines when it

comes to analyzing qualitative data, each case study should still have an analytic strategy. (Yin 2003, 109.) In this study, I have followed the analytic strategy of Yin (2003) that is widely recognized in qualitative research.

Yin (2003, 111–115) presents three general strategies for analyzing qualitative data – relying on theoretical propositions, thinking about rival explanations and developing a case description. For this study, the strategy of relying on theoretical propositions was chosen, for several reasons. First of all: according to Yin (2003, 111), this is the most preferred strategy for analyzing case study data. It helps focusing attention in the relevant data and ignoring the data that is not relevant. In addition, this strategy helps organizing the case study and finding alternative explanations that could be explored.

Besides a general strategy, also a specific analytic technique can be more effective than others in a certain case study. Yin (2003, 116-117) presents five different analytics techniques, namely pattern matching, explanation building, time-series analysis, logic models and cross-case synthesis. Of these, pattern matching was chosen for this study, as it is mentioned as the most desirable of these and it suits well this particular study, as it is also relatively easy to build.

By pattern analysis is meant comparing an empirically created pattern with a predicted one, or several predicted ones. If the patterns show similar results, this strengthens the internal validity of a study. (Yin 2003, 116.) Miles and Huberman (1994, 69) use the term pattern coding for building patterns. According to them, pattern coding has four tasks:

- It reduces large amounts of data into a smaller number of units
- It gets the researcher into analysis during data collection
- It helps the researcher to elaborate a cognitive map
- For multi-case analysis, it facilitates cross-case analysis.

In this research, the predicted patterns were built on the basis of theory concerning the future of mobile banking as well as the factors affecting it. The answers of each expert interviewee were compared to these patterns. Using expert interviews and existing theory, predicted patterns were created for consumers. Then the consumers were compared to these patterns.

Besides following the analysis strategy of Yin, the analysis was facilitated also in other ways. Already before the interviews were made, a special emphasis was put on simplifying the analysis of the data. The interviewing questions were divided into three themes, which were different for the consumers, the authority and the experts. This was done because the focus was on different topics. The division was made according to the

research questions of the study and to ensure that all important themes were covered thoroughly.

Also the possibility of technological problems was considered during the interviews. All main observations, important observations and key words for answers were written down during the interview, in the case something would happen. Due to the fact that some of the interviews happened in a room where other people sometimes passed by, this appeared to be very useful as there was occasional noise. To help analyzing the data, all interviews were recorded and also transcribed verbatim. When the researcher was unsure about a certain word, she highlighted it. The highlighted words were not used if they were relevant when it came to understanding the whole sentence.

After all interviews had been made, there were basically two ways to analyze the data – either by theme or by person. As there were three banks included and all of them wanted to stay anonymous, it was considered that the banks would easily get mixed if they all appeared in the same paragraph. This decision was also supported by the fact that different interviewees put emphases on different issues – some of them wanted to talk more about the context-aware approach, while some had more to say about the mobile technology as an enabling factor. For the consumer interviews, it was considered important that each of the consumers was able to tell their own story which illustrated them as a customer. Consequently, it was decided that the results would be presented by each interviewee, but the main findings would be summed up separately.

To ensure that the data had been analyzed correctly, all experts were provided with the material of this study that concerns them. The experts were given a full permit to suggest changes for their part if they wanted to. This happened partly because of the potential trade secrets they could have revealed accidentally and partly because of the difficult terminology used in the field of operation.

4.5 Evaluation of the research

Even though studies aim at avoiding mistakes, the reliability and validity of research results vary. For this reason it is important to evaluate the reliability of a study, which can be made by using various methods of measure and research. (Hirsjärvi et al. 2004, 216.)

What is characteristic for the evaluation process of qualitative research is that it has no clear guidelines: together with reliability and validity, concepts such as trustworthiness have been offered for analyzing qualitative data. However, in most handbooks that concern the evaluation of qualitative research, at least the concepts of validity and reliability are presented (see for example Alasuutari, Koskinen & Peltonen 2005; Eskola & Suoranta 1998). Even though it is important to evaluate the quality of

the study, it must still be remembered that, in the end, a study exists rather to provide new information than just flawlessness. In addition, it has been claimed that the concepts of validity and reliability do not suit qualitative research very well. (Alasuutari et al. 2005, 253–255.)

In this research, a well-known model by Yin (2003) was chosen to lead the implementation of the study. The model was selected quite early, because the researcher wanted to monitor the quality of the study continuously. This framework consists of four parts and it is used to analyze the quality of a case study. The factors of the model include construct validity, internal validity, external validity and reliability. According to Yin, internal validity is not to be used in descriptive or exploratory studies, which is why this factor has not been analyzed in this study. (Yin 2003, 33–35.)

First of the measures used in this study was construct validity. By construct validity is meant that the investigator develops a sufficiently operational set of measures for the concepts that are studied. One way to increase construct validity is to use multiple sources of evidence. (Yin 2003, 34–35.) This repeated throughout the study, as the interviewee base consisted of very different actors that had very different kinds of interest in mobile banking. In addition, a great deal of theory was presented to support building the questions and themes for the interviews.

The next measure was external validity. Yin (2003, 34) defines external validity as *"establishing the domain to which a study's findings can be generalized"*. One of the challenges of external validity is that critics have frequently stated that single cases do not allow generalization to happen. However, it needs to be considered that a case study does not aim at statistical generalization but rather at analytic generalization. By analytic generalization is meant generalizing a set of results to a broader theory, not other case studies. (Yin 2003, 37-38.) In this case, the results from both expert and consumer interviews followed quite well the earlier technology acceptance models but especially well the one that was built for this study. However, there were also some dissimilarities with the existing models. Overall, it seems that the Finns expected many same things from their banking services than the people overseas.

Last of the measures used for evaluating this study was reliability. The objective of reliability is to ensure that if another investigator conducted the same case study, he would end up with the same findings (Yin 2003, 37). In this study, reliability was increased by documenting carefully each phase of the study, as well as by recording and transcribing the interviews. However, it must be noted that mobile banking is something that is developing very fast, which means that currently uncommon technologies and services may become common for the interviewees. For this reason, if the study was repeated, the interviewee answers would not necessarily be same, as meanwhile the interviewees could have collected more experience on mobile banking.

Overall, the validity of both qualitative and quantitative research can be improved by using several research methods. This is called triangulation. Denzin (1970) has divided triangulation into four groups – data triangulation, investigator triangulation, theory triangulation and methodological triangulation. Instead of the word triangulation, terms such as mixing methods and crystallization have been used. (Hirsjärvi, Remes & Sajavaara 2004, 218.) In this research, especially data triangulation has been taken advantage of – in the case of expert interviews, various different actors in the field have been interviewed. However, with regard to consumers, the aim was at interviewing consumers that had approximately the same amount of experience on using mobile phone and Internet banking, which is why the target population was meant to be as homogeneous as possible. The overall triangulation of the study was improved by interviewing both consumers and experts.

When talking about the general quality of the study, the comprehensive range of different interviewed actors increased the quality of the study a lot. The fields of the expert interviewees include banks, a service provider, an authority, and a lobbyist. This gives a relatively complete picture of the parties working with mobile banking in Finland. It was also deemed likely that including the different sides would lead to the various levels of criticism towards this much hyped topic becoming explicit.

Another thing that can be stated to increase the reliability of the study is that the interviews were conducted within a relatively short time range, expert interviews approximately within six weeks and consumer interviews within eight. This is relatively important in the case of expert interviews, because mobile banking is currently evolving very fast. A longer time range would probably have caused some of the interviewees to have more information available than the others, would something relevant have happened. This would have made it more difficult to compare answers.

The reliability of the study was strictly controlled also when writing the theoretical part. This was made by gathering the majority of information from journals. Non-scientific journals and websites were used when scientific material could not be found. Modern mobile banking is still a relatively fresh phenomenon, which, together with the fact that research processes are typically long, means that non-scientific publications are often more timely than scientific journals. Finnish sources were used when possible, as the situation in mobile banking varies considerably between different markets. In addition, the topic of interest in this study was the future development of Finnish mobile banking market, which is another reason Finnish high-quality material was preferred.

For the consumer interviews, one thing that may potentially have affected the interviews is that the interviewees were familiar to the interviewer. This selection was made to find people as innovative as possible to attend the study. However, it is possible that these people responded in a different way than if they would have been interviewed

by an unknown person. On the other hand – considering the topic that is quite ordinary and non-sensitive, the acquaintanceships between the interviewees and the interviewer were not considered very problematic.

In qualitative research, it is often difficult to estimate the appropriate number of respondents. A common way of estimating the optimal number of respondents is saturation. This means that additional interviews are done as long as they start repeating themselves. For both expert and consumer interviews, it happened during the last interviews that answers began to repeat. Of course, some new things rose up in all interviews, but the last interviews brought up only little new knowledge. Therefore, it can be said that the saturation point was reached in the case of both expert and consumer interviews.

As a conclusion, the reliability and validity of the study can be considered good, taking into account the nature of qualitative research. For this reason, the study is estimated to give a good outlook on the evolution of the market and ideas for at least Finnish people pondering whether they can improve the customer experience with mobile banking services.

The next chapter presents the research findings. First in 5.1 and 5.2, the results from each interview are presented individually. 5.3 presents a summary of the main findings with regard to both experts and consumers.

5 RESEARCH FINDINGS

5.1 Expert and authority findings

5.1.1 Bank 1

The interviewee from the first bank interviewed had around 10 years of experience on the mobile banking field and had worked with both mobile banking and mobile payments. His overall view about mobile services in banking industry was that the demand for them constantly grows, as the smartphone penetration rate grows and smartphones become easier to use. He believed it will probably take a little more than three years for mobile banking to have the same volumes as online banking but not much more. However, there was one need he expressed over everything – mobile banking needed to be the easiest banking channel; otherwise it will most likely never reach the critical mass.

In the interviewee's opinion, the reason why banks invested in mobile services was that consumers have turned to use mobile channels in many of their daily tasks, and banks of course want to be where their consumers are. He also believed that the market was now mature for these services, as devices are finally easy to use and mobile data is very affordable. According to the interviewee, this stands in contrast with the earlier situation when services were hard to understand and costly. Also the need to profile oneself as an innovator was mentioned to play a big role in mobile banking investments:

> *When all the banks develop these services at the same time, of course we want profile ourselves as a modern bank that understands how its customers want to conduct their everyday banking.*

When asking about upcoming mobile banking services, tools for managing customer's daily banking were highlighted above everything. The interviewee expressed that offering a mobile solution in services that were the most important and frequent for most consumers was a good starting point as these services generally had the largest volumes. After daily banking services have been introduced, banks can invest in segment-specific solutions such as investment services. These services are very interesting for some people but not for the majority. Generally, he saw no challenges for banks in developing daily services, but mobile payments were another issue:

> *Payment by an account transfer form from a mobile application or online bank is easy but if I, for example, want to pay you 10 euro and all I got is your phone number – development of this kinds of services requires a bit more complicated infrastructure, as banks need to agree on building a common infrastructure. And that requires time as well as a common view over the market evolution.*

What the interviewee wanted to emphasize was that the mobile payment market was really complicated, and contactless payments, remote payments and peer-to-peer payments all had their own problems and challenges. Planning mobile banking solutions was easy, while planning mobile payment solutions was extremely difficult and time-consuming, as lots of co-operation was needed. In some countries such as Sweden and Great Britain, mobile phone operators have reached a consensus and have begun to develop a common mobile payments infrastructure. The EU was mentioned to affect the development of these services in a theoretical level, but the market was considered more agile than the EU in most cases. This is why the regulation from EU was not seen as a big drag.

Generally, the respondent was interested in and familiar with the technologies presented to him. With regard to NFC, the interviewee considered the Finnish market still immature due to the lack of phone models that supported NFC technology, but expected this technology to arrive soon. He also expressed that, for mobile payments, there needed to be a secure element and currently, mobile phone operators were promoting this secure element to be located on a mobile phone SIM card. Would this happen, it would create a certain level of dependency between operators and banks. With regard to mobile wallets, the interviewee considered they were coming, but that consumers were not necessarily very excited about a mobile wallet that would include just the payment function. Instead, consumers were interested in value-adding functionalities such as bus tickets:

> *Of course some of the consumers will think it's nice that instead of a plastic card, you have the payment function in the mobile phone but I don't think only that will make a very big difference in the consumer behavior.*

He added that marketing of these services played a very big role. Also a possibility of receiving extra discounts or truly relevant offers was believed to raise consumer interest towards a mobile wallet. In the interviewee's opinion, these belonged to the main things that would affect consumer interest towards this kind of service.

The interviewee's general reaction towards mobile identification was very positive. However, he wanted to add that mobile identification would probably work well only in some situations, while traditional bank authentication methods worked better in other situations. He mentioned that in some countries, banks ease up the authentication process by letting their customers do some of their banking – for example view their account balance – with a fixed password. When one wants to do more risky or complicated issues, for example make a transaction, one still needs to use the traditional password list. This method was considered potential for the Finnish market also. Advanced authentication methods such as fingerprint or voice recognition were not considered especially revolutionary or customer-friendly in mobile banking.

The last technology in discussion was usage of location-based information. The interviewee regarded this as a technology with lots of potential and considered it was a great tool for marketing and reaching the customer with truly relevant offers. He added that an American company Square already has a location-based payment service where the customer is recognized when he enters a coffee shop. When the customer is about to make the purchase, he can ask the sales clerk to debit his account, without a need to use any payment instrument. Even though he regarded Square's solution as very innovative, the interviewee added that in the Nordic market, the focus of location-based services is likely to be in marketing rather than in location-based payment services.

When talking about factors that affected mobile banking adoption, the interviewee highlighted the need for easy to use, convenient and fast mobile banking solutions. He also mentioned that evolution of authentication and identification methods is critical, as the method currently used in online banking does not really fit in mobile context. What he thought customers also wanted was that there were lots of places and situations where the solution could be used. The interviewee wanted to add that consumers do not want to change their mobile phone in order to use these services, but they want them to work in their current device. Also sense of security was mentioned as a very important factor.

Personalization and becoming involved in customer's life was the next discussion theme. Altogether, the interviewee felt positive about understanding customer's current situation in life. He argued that currently, branch was still centric in customer service and electronic tools were mainly used for improving customer segmentation. The bank's strategy was, however, to bring all tools to all service channels, from which the customer could choose the ones he preferred. He believed that the role of personalized services will increase especially in online banking, and was excited to see how far the service offering would go in the mobile context as there were clear advantages in personalization:

> *If we understand better what the customer wants, the customer should have in his use the best possible service portfolio with the best conditions possible. So I think it definitely benefits both the customer and the bank when we understand what happens in the customer's life and what is coming up next.*

The interviewee gave a few examples of customer data usage. He explained that currently, customers were segmented according to features such as their service mix, amount of savings and amount of loan. He believed that in the future, targeted marketing would happen in both online and mobile channels. However, marketing would happen by offering the customer some specific services – for example investment services:

> *I think that those products which the customer needs often or where there is a certain time aspect – for example investments – suit well in mobile context. In mobile context, the consumer can react fast to a change while in the online channel, he can be provided with analysis tools in case the customer wants to start investing in a complex new product.*

With regard to personalization, the interviewee added that one needs to be very careful with it. He mentioned that the legislation sets limitations on how to use customer data, but one also needs to avoid doing anything that irritates the customer. A bank needs to have a very clear view when targeting a message, so that it can avoid sending wrong kinds of offers to wrong kinds of people.

Altogether, the interviewee wanted to point out that what works in mobile payments, may not work in mobile banking and vice versa. He believed mobile banking to stay as a supportive channel, a channel for simple transactions, and did not believe branches or online bank to disappear anytime soon. However, he believed mobile banking services may help a bank get closer to its customers, as the bank would always be behind few clicks. He added that this happened only if the service offering was comprehensive enough and was able to assist the consumer in his daily banking needs. Simply said, banks need to be able to simplify their customers' everyday banking, if they want them to adopt mobile banking.

5.1.2 Bank 2

The interviewee from bank 2, a long-term mobile banking expert, saw mobile devices as a tool for improving the overall customer experience. What he wanted to emphasize was

that mobile devices such as tablets were not only a tool for self-service, but they can also be used for improving the physical service experience. As an example, he gave video conference with a tablet, where a customer could receive a notification to their tablet or mobile phone:

> *You have an appointment on your mortgage from 16.30 on. Please log in your online bank. And after logging in, there is a link and you share a screen and the bank clerk starts showing pictures to you and talks about the mortgage and you read and that's it. If you find the conditions appropriate that's it. 10 minutes – ping – that's it. The future mobile is not just paying.*

A problem expressed by the interviewee was that, in his opinion, banks were traditionally organized by channels. The increase in channels has caused that banks need to really think how to create a good customer experience. According to him, a customer should not realize being moved from one channel into another when they conduct their banking, but the process change needs to be invisible. The customer experience needs to be what the customer expects from his bank – seamless. Mobile phone was considered a good tool for offering this kind of service experience:

> *A bank should be able to offer a seamless service experience – you get the service you want. And in a way, you can fit the bank's services into your processes, and don't need to force yourself to fit into the bank's processes. And this small mobile device – it is a very handy thing; it's easy and fast so it's good at supporting those processes.*

When asking why banks were currently investing in mobile banking services, the interviewee suggested the necessity to do so as the biggest reason. As the biggest obstacles he mentioned money and the large gamut of mobile devices – the more different devices, the more expensive developing mobile banking services will be. Another issue he pointed out was that in Finland, mobile devices were still in their infancy. In Denmark and Sweden, for example, there is a lot higher tablet penetration. Even though mobile services in these countries are quite similar, people have adopted new devices a lot faster in Denmark and Sweden. This creates another challenge for building mobile banking services in Finland.

Next up was discussion about future technologies and courses of action. The interviewee's reaction towards NFC was moderate, as he saw that its main advantage was that it slightly speeded up the payment process. He added that NFC has been used

since 1990s in specific cards, and considered there was nothing very magnificent in it. The interviewee's reaction towards mobile wallet was quite similar.

> *Maybe it comes, in Finland we have well-developed payment systems and we use lots of payment cards. That can be an obstacle, it's a small market.*

When talking about mobile identification, the respondent answered he thinks it is coming but it has its problems. He also mentioned that voice and photo recognition evolve very fast, but probably neither eye or movement recognition will be used anytime soon. His overall attitude was more likely that banks gather information on the user and the information matches up with the biological identification information of him.

Location-based information was seen significant especially in real estate business but also the possibility of locating a mobile phone in case of an abuse was mentioned. The interviewee added that currently, the bank he worked for had no intention to develop more location-based solutions to basic services – the growth opportunities were for example in real estate business. When asking about additional trends he considered important to follow up, he mentioned social media, which has changed the way customers behave and what they expect – also from their bank.

The acquisition of data over one's customer was also an interesting topic. The interviewee mentioned that earlier, data collection was very different than it is today in the online banking world. He mentioned that these days, banks have very dedicated systems for marketing and selling to very small segments. Annually, 500 000 customers received targeted advertising via the online bank of the interviewee's bank. The interviewee also considered that nowadays, a letter was not a way of contacting the customer, and e-mail could not be used because of data privacy. That is why online bank is used very much, even though also contact centers are employed. In the future, new devices such as iPad are expected to change the way customer service happens:

> *Think about iPad – it is a whole different customer experience from that of online bank. Although the basic functionalities are the same, the message into the device can be a lot more interesting and better from both visual and content point of view.*

Even though the discussion about emerging technologies raised up many interesting points, what the expert highlighted was supporting one's customers – technologies were just tools for that. According to him, banks currently provide their customers with relevant information, such as how their investment portfolio evolves. The information

provided depends on what the customer wants to know as well as when he wants to know about things. What he wanted to change in the current situation was that at present, customers needed to adapt their process on that of banks'. The products and services offered by a bank needed to support the consumer's ability to control his finances.

> *When we think about any service business, what is important is not products but processes. For example when you go to R-Kioski, the behavior of the merchant affects your overall service experience. The real experience is the purchase process – that is what you have to affect.*

As an enabler of a new kind of banking service, the interviewee said smartphones. He told that these devices enabled a totally new, fresh banking experience that happened when one wanted it and where one wanted it. This happens because of the excellent usability of these devices. He pointed out that it is very hard to give away one's old iPhone even though there would be new models available. Banking services should be made like that too – hard to give up.

> *Processes are hard to copy – you can copy a smile or service hours but the real customer experience is hard to imitate. Let's take an example – you have an Android phone and an iPhone. Android imitates iPhone, but when you compare these two you note that the one is fake and the other isn't.*

When talking about targeted advertising, the respondent felt that customers were not very eager to receive universal, non-targeted advertisements. He felt customers clearly appreciated that advertisements felt like they were not made for everyone but that they considered the receiver and his situation and person. These kinds of advertisements were usually reacted very positively to. The interviewee told that, for targeting advertisements, the bank checked things like what the consumer was lacking, what his situation in life was likely to be and what services the other customers of same age and gender had.

The relationship between a bank and its customer was considered important by the interviewee. He mentioned that all banks were trying to become more active in their customers' life, and also trying to target the services better than before. The aim of the bank is to develop the service process so that the bank can create a more positive customer experience. This includes making the relationship closer, so that the customer would feel their bank is close to them. He felt that the threshold to visit a branch is growing all the time, and the bank's objective is to create alternatives for branches. The

interviewee also pointed out that the tablet's supreme usability in comparison with a large PC screen is likely to move also online bank users into mobile bank users. The mobile phone's largest advantages, in turn were considered its ease of use and speed. He added that ease of use and speed were not present when WAP came, which is why WAP never become a popular banking channel.

> *No one wants to pay bills but I need to do it so I use what is the easiest, fastest and most convenient. Of course when I use it for the first time, everything is wow but soon the wow effect is over, it needs to be that (easy, fast and convenient).*

With regard to mobile banking services, the interviewee highlighted ease of use and usability. Also sense of security was mentioned – mobile banking services were secure but the user also needed to feel they were that. The respondent did not feel, however, that Finns were very worried about security of these services. Also context-awareness was mentioned as an important mobile banking adoption factor, even though the most important was that services worked:

> *Banking is a bit like buying groceries – the everyday thing you just have to do. It needs to work. In a supermarket you get irritated if you want to buy something but you can't get it. It is an enormous momentary frustration. The same when you go to online bank to pay bills and there is interference. It just needs to work.*

One of the main issues the interviewee pointed out was that mobile banking should not be seen from the technical point of view or considered a channel at all. He expressed that the customer does not see mobile banking as a channel, so why should banks see it that way. He added that people want to go to bank, not to a phone channel or branch channel. The problem of channel-thinking was that the customer experience was not regarded as holistic. As an example the interviewee gave mortgages that could be executed in a more clever way:

> *It is a big thing for the customer. For you it is the most important to know what you get, with what kind of conditions, and what the costs of the mortgage are – if we agree on those, everything else is papers. From the bank's point of view, what are important are papers. But if we do it like you would like to do – go home, you can sign debenture tomorrow in the online bank. After you have signed, you can withdraw. You do not have to come to branch and mess your daily processes.*

Altogether, the interviewee had a clear opinion and vision towards a more customer-friendly bank. During the interview, he pointed out multiple times, that technologies were just tools of producing a good customer experience, and banks need to watch out not to get stuck into their channel structure. Mobility was seen as an important enabler of a more customer-centric bank, and adoption of mobile banking will also depend on the ability of these services to take advantage of the customer's context.

5.1.3 Bank 3

The interviewee from this bank had a clear vision on development of mobile banking services. He regarded it as very possible that mobile banking would become the main banking channel for a large share of the population in the near future. He added that it is likely that not everything will turn into the mobile channel, as not everything can be performed in online bank. The reason for this is the lack of routine in the service:

> *Let's take pension insurance. It's an once-in-a-lifetime thing, and you don't do it online. You have no routine how to do it. You need information and discussion, that's how it goes.*

What was centric for the interviewee's bank was increasing the level of memorability in banking. The interviewee considered that currently, his bank was very good in transactions but it should be able to make banking more proactive and memorable for the customer.

> *Our services today are quite reliable transaction machines. If you want to buy shares, pay bills or watch your balance, it works well and reliably. But is it memorable, is it proactive, does if offer you fresh solutions – no. That's why we built up a new unit, gathered the employees and said – now we have a transaction machine, make this more like Amazon.*

By the Amazon example the interviewee referred to the way Amazon proactively recommends relevant products for its customers. The offers are well-targeted, so people enjoy receiving them. The interviewee considered also banks needed to be more proactive in electronic channels, as banking is selling in the end. The proactive service attitude should include all channels, from branches to mobile phones. Automation has decreased online bank use which makes it hard to catch one's customers, so also social media is a relevant channel for offering a more proactive banking experience.

Proactivity as well as becoming more tightly involved in customer's life was considered extremely beneficial for the customer. The interviewee considered it a bit sad that banks were still not proactive enough towards their customers – customers often enter the bank if they have excess money to invest or save, but there is still room for improvement when it comes to banks' activity level of offering customer-centric solutions. He saw no negative things in being proactive, as today proactive actions happen truly for the customer's good. The reason for this was that customers can easily compare which bank offers the most customer-centric solutions.

> *Earlier, we had this sales order. It meant that when a customer entered the bank, we had a list which service was the most profitable for the bank – that was fixed-term deposit. But already for a long time, no one could have worked that way. You need to truly make the recommendation from the customer's point of view, not yours.*

When talking about the way a bank can utilize information about its customers, the interviewee mentioned that banks were not allowed to use very detailed data on consumer purchases. He added that the possibilities of utilizing data were still quite large, but it was difficult for a large company with different operations to take advantage of it. Data was generally in many places and it was hard to combine. In his opinion, the most important was to work as an advisor of the consumer's finance. However, he was not totally happy with his bank's current tools for that:

> *We have some scattered solutions, most typical of them being various need-mapping applications where you ask the customer something and complement that by fetching information from the database – for example about his wealth. And after that we make a proposed decision for the customer.*

All of the presented technologies were interesting to the interviewee. He mentioned NFC was coming during the autumn (2012), and also small discussions about mobile authentication methods had been made. However, the problem in NFC was that it was really difficult to estimate the time frame when a larger amount of the consumers would have a NFC-enabled phone. With regard to mobile authentication, some interesting discussions had already been made:

> *We investigate a technical solution where you take a photo with your phone of yourself and your login to our mobile bank happens through that photo – you don't have to feed in any codes.*

He added, however that this was not happening anytime soon, and the discussion has happened mainly on idea level. About mobile wallets, the interviewee mentioned that even though they were safe, it is a very difficult situation if the phone gets lost, as one loses not only his phone and cash, but also credit and debit cards, keys and identification cards.

The interviewee did not have very high hopes that a bank could become any closer to its customers, even though he added that of course every bank was hoping for it. The reason for this was that, in his opinion, banking was not the most interesting thing for most customers:

> *These (banking services) are kind of low interest things for customers – things need to work, you need to get a loan when you need and payments need to work, but whether a bank could rise into a center of your life from all the commercial companies – I don't know. We, of course, hope for it but I don't know if it's only inside our heads.*

What the interviewee considered important in mobile banking were reliability of operation, ease of use and user-friendliness. He added that the young generation was used to user-friendly mobile applications and wanted also its mobile banking that way. Reliability of operation was considered important because people have already learnt to do their banking around the clock. The interviewee added that one thing that affects mobile banking adoption is also smartphone penetration – people cannot adopt modern mobile banking solutions until they change their old mobile phones into smartphones.

When it came to banking channels, the interviewee believed no channel to disappear anytime soon, even though he believed mobile banking will become a very important channel of daily banking. He added that besides mobile banking, automation of payments will decrease use of online banking, but will not end online banking completely. He considered it beneficial to take advantage of different mobile devices' special characteristics, but considered it also financially challenging – all electronic services needed to share a common platform, as no one could afford developing completely new service platforms.

> *I guess we are insane if we don't try to think whether mobile devices carry such additional features where we could build such services that are not relevant with online bank.*

All in all, the interviewee considered that the financial industry had historically been collectively bad in creating experiences for its customers. He clearly recognized the

advantages of a mobile phone over a computer or branch, but added that whether these characteristics will be taken advantage of depends solely on the innovativeness of the industry. He believed, however, that banks should try to become more proactive and caring towards their customers.

5.1.4 Tieto Finland Oy

The interviewee from Tieto, Advisor Sami Uski, saw two clear trends in development of mobile banking services within the next three to five years. First of them was that mobile banking services were likely to evolve from transaction based to advisory-based services – the services become increasingly proactive and are adjusted to the customer's situation in life. This means that the customer does not have to enter or login to the bank himself but he is rather informed from by his bank.

> *I think lots of context-dependent services will appear, for example when I'm making a purchase decision, how a mobile banking service can help me make the decision and receive the financing for it.*

Another concept presented by the interviewee was that the concept of mobility will disappear – all devices will be mobile, more or less. He believed that also user interfaces will evolve towards a more mobile direction – this means that the user interface is designed to work well with a specific mobile device, for example like tablets and mobile phones have a different set of services or user interfaces.

According to Uski, the first investments in mobile banking were mainly about marketing and improving the bank's image as a pioneer in mobility. Today, many invest of fear – consumers have started to ask for mobile banking services and banks have to offer them or their competitors do. However, Uski added that banks are slowly starting to understand how mobility may also help them improve customer satisfaction rates as well as increase sales through relevant notifications. As an example from abroad, the interviewee took Spanish bank La Caixa that has turned the conservative Spaniards from check users to mobile banking users.

When talking about concrete services of the future, the interviewee mentioned notifications, a thing that was already used in for example Nordea's mobile bank. In Nordea's mobile bank, the user can receive a notification about an electronic bill and pay it with his mobile phone. He also believed that tools for personal finance management that give an outlook of one's banking are likely to increase a lot in the near future. The proposed services are visually good-looking and easy to understand, which makes them very useful.

When presenting the examples from the literature, Uski had mixed thoughts. He was not exactly sure whether NFC would be the best way to deal with contactless payments, even though contactless payments fastened up the service process. The reason for his doubts was that there was no consumer trust towards NFC – according to the interviewee, a technology needed to first become common in other ways before it was adopted as a method of payment – for example, in marketing through augmented reality. He also felt that not all merchants would react positively towards NFC, as it may even slow down the payment process. However, he believed mobile wallets to become popular, even though they come with some challenges, too.

> *I believe mobile wallets will come, the problem is just who can offer the technology. A single bank cannot, because it can only offer its own payment instruments. Then comes the problem – who is a large party I can trust so much I put my loyalty cards and credit cards in my mobile phone – who can create it and work together with all the banks.*

According to the interviewee, mobile identification was currently a big question mark. The interviewee mentioned the already-existing Mobile Certificate by the Finnish mobile phone operators but considered it not consumer-friendly enough due to the fact that issuing of security element to SIM requires a visit to the operator. He added that there was currently no reason why it would supersede the TUPAS system used by Finnish banks, until it becomes adopted by the banks also. Mobile identification and authentication methods were likely to evolve, but the interviewee questioned the added value of for example a fingerprint authentication in case it would be used instead of a PIN code. He considered the way towards a better mobile identification challenging, as mobile phone operators do not want to move the secure elements away from SIM card.

When it came to location-based information, the interviewee considered it more relevant in insurance than in banking. As an example he gave situation where a car driver could receive a pop up when he was approaching a country border, asking if he would like to insure his car for a bigger value. Another example was receiving an offer of travel insurance while approaching an airport, and if the consumer had not one. In banking, location-based information could be used based on where the consumer has been rather than where he was now. The interviewee added that he had discussed with some of Tieto's customers whether it was possible that a consumer could receive an offer when he for example entered a supermarket, but that was not coming yet.

As has been seen, developing mobile banking services does not come without challenges. Overall, the interviewee considered banks used too much time in pondering things such as how many platforms a service should be built on. He also mentioned it was very difficult to find a good business case for mobile banking services, as they do

not create substantial savings through increased self-service levels – in Finland, the level of self-service in banking is already high. In addition, because of the ongoing financial crisis, banks have to invest in what brings money this year and mobile banking does not meet this criteria.

According to the interviewee, the most important mobile banking features are sense of security, proactivity and user interface that has been optimized for mobile environment. In best cases, an application takes advantage of mobile phone features such as camera or location-based information. Also ease of use and context-awareness were mentioned – the mobile phone works best in specific situations, while online bank works quite well in everything. The most important, however, is ease of use:

> *Earlier I thought the change of generations will make people use these services, but there are lots of examples on retirees using these services and they have adopted them faster than working people. So, it's not just that, I guess it's about simplicity and usability – it's just nicer with the phone.*

The interviewee saw lots of advantages in the mobile phone – it usually knows the consumer's location very well, it is almost always with you and it is a personal device. From the bank's point of view, it is practically the only channel to reach the consumer fast and any time, any location. If used correctly, it can work as the bank's media of telling something worthy for the consumer and increasing customer satisfaction. However, he did not believe mobile banking will completely remove any other channel. Mobile banking is not the easiest way of banking when one sits in front of a computer, even though it has the best usability in some situations. The interviewee added that mobile devices bring a possibility that one can have a human-aided service without physically meeting the service clerk:

> *Human-aided does not need I have to walk into a branch but I can interact with a human in my mobile bank.*

The interviewee had a lot so say about context-aware services. His opinion was that someone has to be able to involve in the consumer's life, and the consumer's bank would be a very natural party for that. The ultimate reason was that with his bank's support, a consumer can make more clever purchase decisions. For example, the interviewee mentioned that a bank could send notifications that inform the customer about something he should do or take a look at. It was very important to make these messages relevant, as otherwise the consumer gets frustrated. The interviewee added that in the future, people will be increasingly less dependent on their bank – generations

become wealthier and do not necessary even take a large mortgage – a traditionally long term banking product that has engaged a customer to a bank. The only way to potentially make one's customers more loyal is to offer them something significant.

> *It will not happen again that people would start visiting branches. So, all the time we come to the question of how the digital services evolve, how they become significant for me. They could become significant if they are where I am, and help me to plan my finances.*

In the end, the interviewee added he had himself explored consumer opinions towards a more proactive banking concept. According to him, what rose out were controlling one's daily finances, the possibility of receiving notifications as well as understanding one's finances better. These were also the factors Tieto wanted to focus on when developing its new notification services.

5.1.5 The Federation of Finnish Financial Industry (FFI)

From FFI, two experts attended the interview. These were senior advisor Pekka Laaksonen and Tarja Kallonen, the head of financial research. The overall attitude of the interviewees from FFI was that banks were very interested in developing mobile banking services, simply due to the very good usability of mobile phones and tablet computers. On the development of these services would affect above all development of the core SEPA infrastructure, which works as a base for electronic SEPA or e-SEPA. This means that new services will be built on core SEPA, which enables the existing SEPA infrastructure to be used as a base for additional services.

> *Everyone talks about mobility… That it's worth investing for. But we in Finland are a relatively small market, and here the market possibilities are that we could get public transport with us, so that we could use our mobile phone in public transport. Another important thing is online shopping, and the third is so called peer-to-peer payments.*

There were also other reasons for banks to invest in mobile banking. Among them was the development of mobile devices, such as smartphones and tablet computers. The interviewees also pointed out that consumers were already used to online bank and trusted it, which makes it easy for them to turn into mobile bank users – in their opinion, mobile banking was a natural continuum for online banking. Also cost savings were

mentioned to raise consumer interest towards mobile banking, as branches were in most cases neither cost-efficient nor customer-friendly.

When talking about the concrete upcoming services and technologies, the interviewees saw at least some potential in all of them. However, all of the services have both challenges and opportunities. For example mobile wallet's problems were the already efficient payment infrastructure in Finland, as well as unwillingness of customers to pay for it. However, the interviewees also thought that mobile wallet could be used for hedging risks because people perceived mobile wallet as a separate wallet that could be used for purchases of small value.

> *We had this mobile money in the beginning of the 21st century but the market was immature. The reason why it failed was partly that it was very expensive to implement and partly that the consumer had to move money from an existing account into another. And if it's hard or it needs a login or it raises questions on how the money is used, or it costs money, we have seen that consumers don't really want to buy the idea.*

What the interviewees emphasized was the significance of mobile identification. Their opinion was that mobile identification was a huge issue and it enables a wide range of payment solutions, in case it is solved in a clever way. Laaksonen and Kallonen also pointed out that in the future, mobile phone could include a special identifier which could work as an authentication of a prior agreement. That would simplify the identification and authentication process:

> *Identification is one huge question, and even the European Commission ponders it currently – how to create one congruent, compatible and interoperable identification method so that it could be utilized for example in online shopping.*

The interviewees also saw potential in location-based information, but agreed that in banking, utilization of location-based information was still in its infancy. With regard to location-based information, the interviewees mentioned the significance of data privacy and its evolvement in the future. They mentioned that in Finland, data privacy is very high but in for example the United States, there is no same level of data privacy and people do not necessary understand the amount of data that companies such as Google and Facebook have about them. They thought that future legislation on data privacy will affect whether data privacy works as an enabler or hinder for mobile banking in Finland.

Next theme of the interview was involvement in customer's life. The interviewees' opinion was that banks should absolutely become more involved in their customers' lives, but they added than some of them already did so quite well. They pointed out that a consumer cannot be standardized, which means that information on him needs to be extremely processed, in order to achieve successful personalization. Personalization was also considered expensive, when made carefully.

When it came to involvement and personalization, the interviewees also wanted to point out that customers should be able to define what channels they wanted to use, as there is a fine line between intrusive and interesting. By this they meant that not everyone wants his bank to be proactive, even though a certain share of the population would love that. As an example of a company that listens to its customers, the interviewees took Apple:

> *Let's take Apple. They know all the time what their customers want, they develop services their customers want… But all the time they also know where they want to go. All companies should listen to their customers actively, like Apple does. The customer is always right.*

Even though the representatives from FFI considered involvement and proactivity generally as a good thing, they also found some challenges in it. Among these was the already high level of impulses people received, as well as different consumer opinions towards personalization:

> *I think one problem may be that we already receive so many impulses from everywhere. I do not know if banking is something we want to hear more about or not. Personally I don't mind if the relationship with my bank is minimalistic, but generations change, of course.*

> *What fits one doesn't fit all, and that means that the method of using contextual information needs to be so simple and clear that every user understands why it happens and how he can benefit from it.*

As an example of innovative, new way of communication the interviewees mentioned the possibility of conducting one's banking via a Skype connection. They wanted to point out that currently, contact center waiting times were often quite long and service was somewhat faceless. Banks should think about innovative solutions such as Skype, in order to see whether or not these technologies could improve customer service and therefore, customer experience.

When asking about the future relationship between a customer and their bank, the interviewees did not have a clear answer. They mentioned that customer relationship potentially could be intensified with technology, but reminded of the gap between different generations. The interviewees also believed that the branch will stay as a channel of larger issues, such as loan applications, but the smaller everyday banking will turn to online and mobile bank:

> *The transition needs to happen quite smoothly, so that the customer feels good about it. I think that customer communication should be intensified and banks should make surveys to find out what their customers really want. I guess some big trends could be found that way – 30% of customers want this and 50% of them that, and then the banks can find some large complexes where they want to invest.*

As a general trend affecting mobile banking usage, the interviewees said evolvement of the Finnish smartphone penetration rate as well as features of new smartphones. As the most important features of mobile banking services, they mentioned usability, availability, ease of use, simplicity, speed and visual look. They also emphasized that mobile banking services needed to be optimized for mobile phone and not be copies of the online bank. In their opinion, another important thing was that there was an alternative network in use, would something unexpected happen. Laaksonen and Kallonen also mentioned security, but added that security was not a big issue in Finland as banks already offered a high level of security in their services.

When asking whether or not the interviewees thought consumers were worried about security of mobile banking, the interviewees said that they believed consumers trusted their banks and did not see security as a big problem. However, they were a bit worried about the concept banking Trojans and how it was presented in news, as banking Trojans had nothing to do with banks' systems but they were caused by consumers' carelessness. The interviewees also pointed out that service providers' systems needed to be safe, as hackers were not interested in a single mobile banking transaction but the service providers' systems in general. As an example they mentioned the recent Sony PlayStation breaches. Laaksonen and Kallonen added that there was always a share of consumers that were too anxious to adopt mobile banking, regardless of how safe it was.

The interviewees emphasized that mobile banking should not be regarded as a solution to all problems, even though the mobility of it offers lots of possibilities. There were still many question marks, and the way mobile identification evolves is one of the most significant of them, as services will be developed upon mobile authentication. The

opinion of the interviewees was also that bank-specific solutions should not be made but different parties operating in the industry needed to co-operate in mobile payments.

5.1.6 The Financial Supervisory Authority (FIN-FSA)

Also from FIN-FSA two people attended the interview. These were Markku Koponen and Anne Nisén and they both worked by risk management. In this interview, the especial focus was in legislation concerning mobile banking. According to the interviewees, this legislation consists of multiple parts, both national and international.

EU is the largest actor concerning the legislation of financial services. It provides the market with a certain framework, including directives and regulations. Domestically, the Act on Credit Institutions regulates the players on the market while Consumer Law sets a number of premises for the concrete financial services. The Payment Institutions Act and Payment Services Act, in turn include regulation on payments. FIN-FSA has the right to give legislation-like regulations and guidelines to complete existing legislation that is not detailed enough or alternatively has some other shortages. It is authorized to give both binding regulations and recommendations, and usually also recommendations are very well respected. Also the European Central Bank provides the industry with decrees and recommendations.

In the theoretical part of the study, a suggestion was presented that SEPA could slow down mobile banking development. The interviewees mentioned that SEPA has created an infrastructure which can be used as a base for building services – for example in mobile payments, transactions can be transferred by SEPA infrastructure. However, SEPA itself does not directly affect payment channels, but direct debit, card debit and bank transfers. Therefore, it does not really slow down mobile payments. On the other hand, the interviewees added that it is a certain kind of a problem that EU often comes late into decision-making, as market players rather than EU define the standards of the market.

> *We do not want to prevent innovations to happen, and we are trying to be increasingly proactive. The players are, however, very innovative, so usually we react by post-regulation.*

Another important aspect in financial services legislation is self-legislation. In the financial industry, self-regulation happens as banks cooperate with FFI. What is characteristic for self-regulation is that parties agree on certain infrastructure framework but they can execute the actual service the way they want – that is where the competition happens and differences arise.

The interviewees also pointed out that there were also lots of other organizations working with mobile banking. Among them are European Payments Council and The European Commission. The European Commission has published a green book which contains proposals for action on mobile payments, and European Payments Council has published several white papers over mobile banking and mobile payments as well as implementation guidelines concerning mobile payments.

As the interviewees worked within supervision, it was interesting to find out how they felt about mobile banking and mobile payments. In general, the interviewees did not see mobile banking services as problematic, even though new technologies may always have their teething problems. They added that they were very interested in security of these services but did not want to raise unnecessary worries towards them – the key was in bringing out risks and ensuring that banks controlled these risks. So far, banks and other service providers have controlled their risks well, and also in abroad mobile payments have had fewer problems than card payments, when considering the relative usage frequencies. Of course, mobile devices share some problems with computers – like computer, a mobile device can also be infected by a malware. However, the interviewees added that the Mobile Certificate by the Finnish mobile phone operators has a good chance of increasing the security level of payments. With regard to mobile devices, a specific risk situation was mentioned – this is when people have installed a mobile payment application in their mobile device and change the device for another one:

> *If we think about mobile payments as a concept, it doesn't have any bigger risks than other payment methods. Of course when you download an application, you have to make sure it is from a trusted party and works in a correct way. There is really nothing so extraordinary in mobile payments. It is a channel of using banking services, an advanced one, and it is possible to make it very secure.*

Usage of location-based information was not seen as a problem in the financial industry either – the reason for this was that it was not used very much within the industry. The interviewees were more worried about other service providers that could theoretically sell information for advertising purposes. In the financial industry, usage of location-based information for specific purposes was even seen as a positive thing:

> *In fact, using location-based information can increase security – when for example a mobile device is stolen in Helsinki and used in Tallinn after a few hours, you can locate the abuse.*

With regard to location-based advertising, the interviewees wanted to add that, according to the Finnish law, it is not legal to send marketing material to one's mobile phone unless the owner of the phone has accepted it. However, they added that some service providers turn this rule by making a special offer only available for those customers who have accepted marketing. They considered that some of the Finnish probably would like to receive targeted advertising, but the financial industry has traditionally not used e-mail or SMS for these purposes.

> *Probably banks haven't started this as banks want to emphasize that they do not ask your user name or others by e-mail or SMS, that it is safer that way.*

When it came to mobile identification, the interviewees saw it as a very important factor in the future mobile banking. They considered that mobile identification is likely to become a lot more common than it is now, but apart from it they saw no alternative identification and authentication methods that could compensate the current TUPAS service.

> *The market is not yet ready, technologies are not advanced enough… Banks are more likely to strive for cost-effectiveness – an identification method that is secure enough with moderate costs.*

The discussion continued about NFC. Also this technology was regarded as a safe solution. This was because of the various controls that could be built in NFC solutions. For example, the application can ask a PIN code when the application is used for many times within one day or the payment is of high monetary value. The interviewees also mentioned that wallets that are connected to one's bank account almost always include these security-increasing elements. They thought that the pace merchants renew their payment terminals will considerably affect the adoption of the technology, and it was presented that within 3 to 5 years, all payment terminals in Finland would be NFC-enabled. According to the interviewees, this was the estimation of the payment terminal manufacturers. The overall attitude towards NFC was positive, as the interviewees considered that NFC simplified small purchases.

> *I think it's a very handy way to pay – when you lose a physical wallet, you lose everything but here you can set a limit as well as a PIN code.*

With regard to mobile wallets, Koponen and Nisén had the same opinion. They mentioned that software of a mobile wallet can be as secure as wanted, but that will of

course decrease usability. They emphasized the role of decision between usability and security, and added that often users had the possibility of adding application security by setting additional security codes. It was considered important that also service providers enabled these additional security measures to be used, as this was seen as to add trust towards these services.

Neither of the interviewees had heard about any kinds of complaints towards mobile banking. They argued that most of the complaints came about payment cards and responsibility issues concerning their misuse. They added that mobile banking was a relatively small phenomenon in Finland, which is why it was not surprising that they had not heard about any complaints. However, they also mentioned that their general attitude towards Finns was that they were quite aware of data protection and understood their own responsibility in it. Koponen and Nisén added that also service providers and mobile phone operators work responsibly:

> *We in Finland have such a long history of online banking usage. I think consumers have learned to trust it. I saw this program where they asked Finns whether or not they trusted online banking, and every single one said "yes – why not? I've never had any problems".*

The interviewees added that both mobile and online banking were safe, yet there are certain risk situations when breaches may occur. Consumers also have to take care of their virus protection, as consumers are unlikely to receive any compensation from cyber-attacks if they have not taken care of that. The interviewees added that there are not yet any court cases about such situations, but probably will be in the future.

Mobility has decreased the need of people to enter branches, but this was not seen as a problem from the identification point of view. The interviewees expressed it was in fact easier to receive reliable data on customer by collecting information than by seeing the customer once in a year. They added that every time when a customer makes a transaction, banks receive information about him. What is important is that the customer is identified reliably the first time he visits a branch.

> *I don't see a risk in that the customer visits the branch only every 10 years, as transactions are identified in the online bank - You cannot make any contracts without using a bank identifier.*

With regard to the decreasing need of people to visit branches, also the actual theme of decreasing availability of cash was discussed. The interviewees told that FIN-FSA actively monitors the availability of cash by for example discussing with banks about the theme. They also mentioned that the total number of ATMs has decreased only a

little within the last years, even though in some geographic areas the situation is worse than in others. However, usually there is at least one bank that has a branch so customers can choose to use this bank if they want branch services. It was also pointed out that customers are the ones who pay for the services in the end.

> *It is a two-sided question, who pays the maintenance of the large network of cash. Customers pay it in the end, but no one wants to pay for withdrawing cash. People want ATMs to be placed everywhere but no one wants to pay for it. And that is not good either that people drive 100 kilometers to withdraw cash. There is no right answer for this.*

So far, availability of cash was not seen alarming but the interviewees added that the availability of it should not decrease from what it is now. In the end, the interviewees expressed they were very interested to see what was coming up next in the industry and saw mobile banking as a natural continuum for payments – according to them, it reflected the general change in the society. Everything is turning more and more mobile so it is natural that also the ways banking and payments are made, change. They added that the mobile phone is a very natural device especially for the young generation, and this generation uses it in a large number of purposes.

5.2 Consumer findings

5.2.1 Male, 25 – "Smartphones kill creativity"

The 25-year-old male interviewed for this study preferred computer to mobile phone always when possible. He described himself as an active online bank user with a variety of accounts, cards and a student loan. He had tried mobile banking, but preferred using it only when he was on the move and did not have his computer with. The situations when he had used his mobile bank application were mainly transactions from one account to another. His opinion was that in these kinds of transactions, the mobile banking application was actually quite handy. However, he thought that the excess use of a smartphone killed creativity of human which is why he preferred other devices to mobile phone or tablet, mainly his laptop computer. As his main bank, the interviewee had Nordea.

When it came to the suggested increase in bank's proactivity, the interviewee formed a very positive attitude towards it and welcomed this kind of attitude from the industry. However, he wanted the potential proactive messages or pop-ups to be easily ignored

when wanted. For example, he considered that a phone call would be an annoying way of contacting him because it could not be easily ignored – he needed to answer it, as it could be something important. Instead, an e-mail or an SMS could work, said the respondent.

Next up was discussion about the upcoming services NFC, mobile wallet and mobile identification. The respondent said he knew the main principle of each of these services and had even tried some of them. Especially towards NFC, the respondent had a very positive attitude. His main wish towards the user interface was intuitivism – an ability to do intuitive purchase decisions. When urging about a limit when the interviewee would like to feed in a PIN code, he said 30 euro would be suitable and he would dare to use the service carelessly with that limit.

The respondent was also very familiar with the Mobile Certificate. However, he was not really seeing any advantage in it at its current stake, even though he saw potential in it:

> *I personally think that any new technology that only substitutes the previous one without any major improvements is useless. In addition, currently mobile identification is not even very convenient. It takes time before the SMS arrives and before I have given my PIN code. It could probably increase its usefulness if I could pay with it, now it is only for identification.*

When asking about services that could ease up the interviewee's life, the respondent mentioned a direct access to a customer service whenever he needed it. In addition, he mentioned that a well-integrated mobile wallet would facilitate his life a lot. By this he meant that a mobile wallet must not be only for paying, but it should include for example one's loyalty cards, too.

> *I would like to have a direct access to customer service, for example a chat. A video chat would be even better, absolutely awesome. I would also like to make mobile payments. The thing is, if I only get rid of my wallet, it is just a minor advantage, not really useful… But if I could pay with my mobile phone in such a manner that it would ease up monitoring my daily finances and control how I use my money – that would be a huge improvement!*

When asking what kind of factors the interviewee appreciated in mobile banking, several features came out. In mobile banking services, he mentioned proactivity of service, fluency and ease of use. In addition, he considered it was important that the

services were secure to use. However, when asking whether or not he was worried about the security of these services, the interviewee expressed that he was not. Nevertheless, he added that he was probably a bit naïve in that case – there may be problems. When it came to mobile payments, the respondent wanted to conclude his needs in one sentence – payments needed to be independent of time, place and device. Only then could they gain popularity.

Another factor pointed out by the interviewee was integration – the respondent largely appreciated that banking services would be integrated in real life. By this he meant that, for example, if he had a service in mobile bank where he could monitor his account details, he would like those details to be updated immediately after making a mobile payment via a service provider. The interviewee also mentioned that a recommendation from a trusted party would increase his interest towards mobile banking and mobile payments.

> *A trusted party would be good - If the police said that Nordea has the only safe mobile payment environment in Finland, I would absolutely take it in use because I trust the police.*

However, when asking about whether or not the user could turn completely to a mobile banking user, he did not consider it possible. The interviewee mentioned that there were always situations in life when he would like to see a person, so not even online banking could replace the personal feeling of a physical meeting. For the interviewee it was important to have the physical presence of a bank clerk, and the physical presence could not be provided for him even with a video connection. When asking about situations when he needed a human presence, he mentioned a loan application among them. He also mentioned that still, in the majority of situations he did not want to go to the branch and the overall need for a physical contact with his bank was small, even though it existed.

5.2.2 Male, 25 years – "I haven't seen a good mobile banking application"

Also this interviewee had Nordea as his main bank. He wanted to conduct all his banking in online bank and avoided going to a branch. The reason why he did not like to use Nordea's mobile bank was that he did not consider it sophisticated enough – there were too few things he could do with it. In addition, he thought that a laptop computer was relatively easy to carry with, and banking was currently easier and faster with a laptop. So far, he had used the mobile bank application for transferring cash and paying bills when he did not have any other portable device available.

> *I use my mobile phone when I do not have my laptop with me. But, as soon as it (banking) is easier with a mobile phone than with a computer, I will prefer mobile phone. In some cases we have already reached this situation, but banking is not one of these. I cannot think about one sole situation where banking would be easier with a mobile phone than it is with a computer.*

When it came to the question regarding whether or not his bank recognized the interviewee's current situation in life, he told he was relatively happy with the level of service he received. He thought it was relatively easy to get a student loan and see the instructions on how to apply for it. He also mentioned the check-in program that his bank offered for people less than 27 years old that he regarded as a positive thing. The interviewee added that he had not thought about this question, which is why he thinks the situation is quite good and he does not need any more caring from his bank.

When discussing about a potential proactive approach by his bank, the interviewee was not especially interested in all of the examples offered to him. For example, he thought that promoting student loans was not a bank's responsibility but other organizations should take care of that. However, he felt positive towards receiving well-tailored and exact notifications that would consider him as a person. Would these kinds of contacts come, the respondent mentioned SMS as a bad idea but felt positive towards a smartphone application which he could open and see the message when he wanted.

All in all, the respondent thought that banks currently did not really take advantage of different devices' special characteristics, such as mobile phone's location-based information. He expressed that the mobile phone would offer lots of possibilities, but banks do not take advantage of its features. As an example he mentioned personalized login into a mobile bank, which he would appreciate. The interviewee had a strong opinion that mobile banking currently did not offer any advantages to its user, when compared to online banking. While some banks have tried to put extra features in their mobile bank, this interviewee did not feel very positive towards them either:

> *They have tried to put currency converters and other stupid things in there, but I personally think they are quite useless.*

In turn, the respondent had a really clear vision what he would like to do with a mobile phone. This was paying, both remote and contactless.

Personalized advertising was another thing the respondent felt positive towards. He added that he wanted personalization to be very detailed in order to appreciate it, and

only then would personalization truly ease up his life. He liked the fact that one received support from his bank and did not need to proactively seek for data. However, he preferred this service to be provided by lots of service providers, not only his bank.

> *If the only one that gives me push notifications is my bank, I think I will very soon turn off the push notification.*

The respondent was also aware of the Mobile Certificate developed by the Finnish mobile phone operators and considered it handy. The reason for this was that he carried his mobile phone always with him and that was all he would need for identification. He was also very happy about the idea of getting rid of the traditional key code lists provided by Finnish banks. The interviewee considered the Mobile Certificate so handy that he believed he would use it, even if it would never be part of a larger mobile wallet.

The interviewee was also familiar with contactless payments and had read a lot about them. He expressed an extremely positive feeling towards them, but mentioned that he would like to have a certain limit for paying without a PIN code. This limit would be around 20 euro. He added that he did not see any other future direction for payments than contactless and remote mobile payments ruling the payments industry. The interviewee did not, however, believe everyone would use this channel – payment cards would still continue to exist after that. He also believed in mobile wallet, especially if it could offer him solutions for his problems:

> *Yes, I am feeling extremely positive towards it (mobile wallet). And if someone can make it in a way that it contains descriptive data of the user, that would be great. You know, so that the one who possesses the knowledge can combine data from various sources and offer solutions that are suitable for the customer. I think descriptive data about for example values of the customer is needed for that, otherwise I think they cannot target solutions well enough.*

When it came to important factors in mobile banking services, the interviewee told that he wanted an easy way of asking about banking services. If a mobile banking service was an easy and fast way of asking about them, he would appreciate that a lot. When it came to mobile payments, he valued speed, simplicity, as well as cleverness and added value. As an example of added value he mentioned that it would be a great thing if he needed to feed in less information about himself and the overall process would be simpler than it is currently. He recognized the role of information as an encouraging factor when it came to using mobile banking services and other new

technologies. The interviewee also considered it important that his mobile device's other software or applications supported mobile banking services:

> *Using e-mail, for example, is currently so much easier with a laptop. It is important that mobile banking works well with other programs such as my e-mail, so that I can browse between those two.*

In addition, friends played a large role in, not the adoption decision, but the decision of trying out a device. The interviewee added that a trusted third party would create a good image of the service and he would react even more positively towards a mobile banking application in case it received wide acknowledgement from trusted parties. He was not worried about security of mobile banking applications because he thought there was no use in stressing about such things.

> *I am not worried. In everything where the human is involved, something can go terribly wrong. I don't think is smart to stress about those things – I see more possibilities than problems in mobile banking.*

The respondent saw lots of possibilities in mobile banking as he did not consider it impossible to turn completely to a mobile banking user. The only worry he expressed was that in some situations, being present probably gave him a better position to negotiate about things. This is why he was not sure whether or not he would like to apply for a loan through a mobile or online bank. However, he added that a video connection would compensate a physical person well as long as he was sure his negotiation position stayed good. In everyday banking, the interviewee saw no problems in turning solely to a mobile bank user, as soon as the application would be developed further so that it answers his needs in ease of use and contextual relevance.

5.2.3 Male, 26 years – "I don't want the bank to stare at my transactions"

The 26-year-old young entrepreneur had in his use a wide range of banking services. His main bank was a member bank of the OP-Pohjola Group where he had almost all his assets and liabilities – including investments, loans, insurances and his company's accounts. The interviewee mentioned he used almost all banking channels available but mostly online bank. He added that he used the branch and mobile application approximately the same amount but for very different purposes.

As a mobile phone user, the interviewee was quite active. He had downloaded many applications and his smartphone played a very important role in both his daily chores

and as a method of contact. He used mobile phone especially on the move, but also sometimes when he was at home, for example for reading news or e-mail. He had used mobile bank for transactions, as he sometimes had a situation where he needed to make a transaction right away.

On a general level, the interviewee thought his bank considered him as a person quite well. He received a call every now and then, but felt a little sad that the calls came from a call center, which he considered made the call feel impersonal. He added that what was good in the current situation was that he was not contacted too often, as it might be irritating to receive for example marketing messages every week. However, he pointed out he would be really happy if his bank contacted him when something significant happened in his life – for example, he started studying or had told the bank he was looking for a house. The preferred method of contact for the interviewee was mobile application or online bank in everyday banking and a phone call in more important issues. He added that he did not feel comfortable with being contacted by e-mail or SMS in banking issues.

With regard to proactive personalized messages, what the interviewee regarded as important was that he could decide what information the bank was allowed to use of him. He suggested that a bank could ask its customer what kinds of suggestions he would like to receive, as he did not want his bank to know everything about him. For example, this interviewee was very sensitive towards using any monetary data about him. If he could define what he wanted to hear about, he actually felt positive towards a proactive attitude from his bank:

> *I don't want them to stare at my account transactions and laugh at them, and do marketing according to that.*

The overall attitude of the interviewee towards his bank was that it did not really take advantage of the mobile phone's traits, above all mobility. He added that currently paying was not very convenient with a mobile phone, and this was what he would like to change. He added that also in other daily banking, mobile phone could work better and enable banking on the go more fluently. When it came to non-daily banking such as savings accounts, mobile phone was not considered that beneficial. Currently, he saw mobility as the only advantage of mobile banking – according to him, mobile banking was not convenient, but it was beneficial that it was possible on the whole.

When talking about the emerging new technologies in banking, the interviewee was interested in all of them. He considered especially the Mobile Certificate a very safe and interesting method of authentication, as he only needed to have the PIN code in his head. He added that he would really like to use this method of authentication in contactless payments, as it would make things a lot easier and faster. He felt that he

would like to use NFC above all in bigger purchases, as he considered coins existed for small purchases. However, he had some concerns towards NFC, as he thought mobile phones got lost very often. For this reason, he was of the opinion that the PIN code should be asked always when he wanted to make a purchase, if he wanted to set it that way. Even though he was excited about NFC, he saw a small problem in it – that it was incomplete:

> *NFC itself is very nice and interesting, but it becomes extremely nice only after I have all my coupons in mobile phone – for example the pocket book pass from Stockmann etc. I think it will take time before it's like that.*

Even though the interviewee was very interested in all the technologies presented to him, what really mattered to him was how these services would be like. What would make this person an active mobile banking user was above all that banking services would be convenient, easy to use, cheap, visually clear and up to date. He regarded it as very important that the data in his mobile banking application was always up to date. The interviewee was even ready to pay for some mobile banking services if they really were more convenient than the other options available. When it came to mobile payments, he appreciated ease of use, speed and safety – according to the interviewee, it was really important that he could trust mobile payments. Other things he considered important in mobile payments was that they worked in many places. It was also important that the services fitted in his situation in life and the kinds of things he usually bought. Friend recommendations played a moderate role in the interviewee's decision-making.

When it came to trust, the interviewee considered that he was mainly worried about his own sloppiness in handling his property, such as his mobile phone. However, he added that electronic systems were always a bit vulnerable when they were as complicated as mobile payment or online payment systems. He trusted his bank, but he felt that something could always go wrong:

> *I'm a bit worried. From 1 to 10 I would say 5. I'm worried about the overall vulnerability of the system, not my bank.*

Even though the interviewee was already a mobile banking adopter, he did not see mobile banking to become his only banking channel anytime soon. He considered a mobile bank could easily supersede an online bank, but not the branch. The reason for this was that the things he wanted to do in a branch were such things that happened rarely – for example, applying for a mortgage. He laughed that probably if he was a real

estate developer he would like to do the loan application sitting by a tablet screen, as it would be more convenient that way. Currently, however, he was not, and he appreciated convenience mainly in everyday banking or other routine tasks.

Overall, the consumer was interested in the possibilities of mobile banking and how it could make his everyday banking more convenient. Recommendations, a fast way to pay in mobile browser or store and his bank being involved in his life, were all reacted very positively to. The interviewee was also willing to use these services as soon as they would be convenient enough – he saw no problem in a bank being modern, as long as it did not use the consumer's data without his permission.

5.2.4 Female, 21 years – "Mobile banking should support my daily banking"

This interviewee had in her use a wide range of banking services, including investments, different cards and savings. She logged in to her online bank quite often and had also downloaded a mobile banking application for her smartphone. However, she did not use it very often as she did not find it visually interesting. She mentioned that some other banks offered better-looking mobile banking applications but she could not use them as she was customer to only one bank.

All in all, the interviewee considered herself as an active mobile phone user. In her iPhone, she had a wide range of applications and she used them frequently. In the interviewee's opinion, an application really needs to make things easier than the alternative channel as well as look good, in order to raise her interest. The interviewee added that she liked to use applications but she mainly downloaded high-quality applications. She had no intention to buy a tablet computer anytime soon, even though lots of her friends had one. On one hand, she considered tablets too expensive, and on another hand, she did not have a need for one. Generally, she avoided going to a branch as long as she could – the interviewee mentioned the last time she visited a branch was almost 4 years ago.

In general, the interviewee was quite happy with the way her bank considered her current situation in life. She mentioned she was contacted by her bank often enough and also offered various services frequently. She added that the persons who contacted her seemed to know she studied in a university, which means that they have a quite up-to-date database on her. She mentioned, however that her bank has not approached her about for example student loan or a better account type, which she thinks would be useful as she feels that she does not have enough time to compare different alternatives. Her feelings towards the best contact method were a little bipartite – on one hand, she preferred messages that were easy to ignore, such as an online bank messages, but on the other hand, she felt a physical contact actually made her react to

the message. She also mentioned that an online bank message easily feels impersonal, while a phone call feels like it has been meant to her and carefully thought.

Even though the respondent felt her bank considered her quite well, she did not feel that she could take the most out of her mobile phone when it came to banking. The interviewee mentioned she would like to pay in a more convenient way – as an example she gave fingerprint authentication, even though she was dubious that would be possible currently. She also expressed a need for more convenience in her everyday banking, as currently she saw location-based services such as information on the nearest branches as the only advance in comparison with the browser bank.

> *It would be good if I had for example my friends' account numbers saved, so that I could pay them very fast, for example when we buy a common gift for a friend and one of us pays, the others could pay that one right away. Or I could book a meeting with my bank advisor on a calendar fast – everyday things, pay rent etc. I don't necessary need these investment things – I have shares but I don't follow them so often. The personal finance management is what matters to me.*

This interviewee was not familiar with all the new technologies presented to her, which is why she was shown how some of these technologies worked in practice. The interviewee was quite excited on the Mobile Certificate but also NFC technology. She was not very worried about the security of mobile payments, but mentioned that the limit when one does not need to feed the PIN code needs to be low, as even 20 euro is a lot for some students. She added that she would perhaps use mobile wallet mainly in small or mid-size purchases, as its speed would feel most beneficial in that kinds of situations. With regard to targeted advertising, she reacted very positively towards it as long as she could control what she received and from whom:

> *It would be interesting to receive them (advertisements) and it could be really funny and useful – as long as I don't receive them too often. What is also important is that it is very well targeted – I don't want junk mail but something I could really consider buying.*

The interviewee had both positive and negative feelings towards mobile wallets. She was a bit worried whether someone could hack her phone where she had all her cards, tickets, coupons and money, but she considered it positive if she could get all the cards back easily in case her mobile phone was stolen. On the other hand, she considered she would feel very irritated if she could not get everything back fast. What she highlighted

was that the wallet needed to be extremely safe – so safe that no one could use it in case it would be stolen.

When discussing about mobile banking services in general, the interviewee had a clear vision what the services should be like. She wanted her services safe, fast, visually appealing and easy to use. As an example of a fast process she gave her bus card:

> *It should ease up my life. Like my bus card – just show it to the reader and you are done. I don't need to tap any PIN code at that moment.*

When talking about what would affect her actual usage intention, she mentioned that a recommendation often works, even though she considered herself as a skeptical person in general. She usually trusted her friends and especially father but added that she was very suspicious towards any celebrity or blogger recommendations:

> *I am very skeptical if a blogger praises a thing. Of course it affects if they praise it, but I'm still very critical. You cannot know if the bloggers actually use the products or services or if they only do it because they get it for free.*

She appreciated the same features in both banking and payment services, and added that the most important was that no one could ever abuse your account or credit card. She felt a bit worried about using mobile banking in public, as she felt someone could watch what she was doing and steal her phone. However, her worries targeted to the public location rather than the mobile banking experience itself, which she considered safe. She also trusted her bank fully.

The overall attitude of the interviewee towards mobile banking was very positive. She considered it non-problematic to turn completely to a mobile banking user, as she considered the services she used were quite simple and unproblematic. What was important for the interviewee was that she could conduct her banking in the fastest way possible – the channel did not matter to her. She had no problem towards the thought of doing her banking through a chat or video chat, in case she could get service without queuing more than in the physical branch. She added, however, that anything she could, she would like to do in her online or mobile bank, providing it would develop further to serve her needs better.

5.2.5 Female, 22 years – "I am lost without my mobile phone"

The 22 years old female user described herself as a mobile phone addict that could not go anywhere without her mobile phone. She was eager to search for new applications in the application store, and read most of her e-mails by her mobile phone. She confessed that she hated banking, and especially the way how complicated it was. The interviewee hardly ever visited a branch but did not use mobile banking actively either. The reason for this was that, in her opinion, the mobile banking application provided by her bank today was "pretty-looking but without any truly useful functionalities". She did not like the online bank especially much but she expressed that it was the only sensible way to do some things which is why it was easier to use the online bank in everything.

When asking whether or not her bank takes in account the interviewee's current situation in life, she told that she knew that her bank had a program for young adults but all she got was some discounts on account fees. She could not mention what these advantages were. The interviewee also mentioned that it seemed like her bank loved when she kept her money in her basic account, because it never suggested her anything else. She was thinking that happened because she was a student and did not have as much money as some other people, even though she added she was working part-time, and would also like to put some money aside:

> *It is so hard to start investing when no one tells me about it. I feel like I do not know where to put my extra money. I would like to try, but I do not even know the basic idea how it works. I would appreciate help in that.*

Generally, the respondent felt extremely positive towards a more proactive approach from her bank. In her words, all she needed was the ability to control what she got and when. She did not appreciate phone calls as she felt the timing of them was usually bad, but she would like to receive an e-mail or a notification in her mobile banking application:

> *Yes, I would like personalized services, but I want to keep the power to tell them not to send something. And I don't want them to know everything about me; I want to decide what I give them. But, it would be absolutely fantastic to receive truly relevant offers –I would love if my bank did me suggestions that I could accept by a click or something. Like you said, "do you want to move your money to a better account?"*

For the interviewee, it seemed quite clear what kind of services she wanted. She had used the mobile application provided by her bank a few times but had few positive

words to say about it. She felt that the current services were not truly useful even though the user interface was good-looking and the application worked without problems. For her, it was important that mobile banking services were comprehensive, clever, fast and free (like online banking services) and she seemed to appreciate the same factors in mobile payments. In addition, she mentioned that mobile payments as well as mobile banking needed to be secure, but she believed that was not a problem in Finland – would security breaches occur, she believed someone would compensate for them:

> *I do not use my mobile banking application very often because there are easier ways of doing the same thing. You know, if I want to know where the nearest branch is, I use Google or my navigation service. The same goes for customer service number or value in other currency.*

When asking about external factors that could affect the interviewee's adoption decision, she admitted that even though she was speculative towards any hype in general, she usually tried the things her friends recommended for example in Facebook or in online discussion forums. Even though the respondent described herself as an active mobile user, she was not too confident she could turn completely to the mobile platform in her banking and payments anytime soon:

> *I don't really know… I hate branches in general, but I want to see a person when I am going to apply for a mortgage. And I believe they want to see me, too. A video connection could work in that case, I believe. But I guess I would rather get rid of online banking, and turn to a mobile application if it was better than it is now. I hardly use the browser version at the moment, because I can pay with my mobile application and the rest is automated.*

The interviewee mentioned afterwards that she considered herself more interested in mobile services that most people, and did not think that all people would consider the mobile application useful enough. She also expressed that there should be various channel options available for the customer, because she would like to switch channels. As an example she gave payments, which she thought should be available through her mobile device as well as through the traditional online bank. She also mentioned that it would be useful to have chatting services by which she could talk with a bank clerk when she had a minor issue to handle:

> *IKEA has this chat. I love it; it's so spontaneous and fast, and I've also received really good tips from them.*

The respondent was well aware of NFC and the use of location-based information and she liked the idea that she could get rid of her wallet, as long as it would not raise her costs. When it came to mobile wallet, she added that she would like to pay any purchases below 20 euro without the PIN code, but would also like to have a daily limit of 100 euro for using the wallet without the PIN code. However, when asking about the Mobile Certificate, she told that she did not quite understand this service provided by Finnish mobile phone operators:

> *I have not heard about it – does it have lots of users? It sounds interesting, but if I got it right, you cannot pay with it? I do not know, why should I use something like that if I cannot pay with it?*

In the end, the respondent wanted to add that she did not really enjoy banking, and would like everything – from transactions to mortgage negotiations – to be as easy as possible. She felt these things could possibly become easier when her bank knew her and her needs better. She wanted to highlight that proactivity was only acceptable when it ended up in her benefit, and she was dubious that any bank was currently thinking of more than its own margins. She also mentioned she was dubious banks could innovate, as banks needed to remain old-fashioned, so that the older and more conservative part of the population would still trust them.

5.3 Main findings

5.3.1 Future trends of mobile banking in Finland

According to the interviews conducted in this study, mobile banking is truly in need of new functionalities. None of the consumers interviewed considered mobile banking to be a suitable tool for managing one's finances, even though the general opinion towards mobile banking was very positive. At its current stake, mobile banking was considered to be more or less handy in making transactions, but when possible, all of the interviewees still chose online banking over it in most situations. There was, however, strong interest towards mobile banking – provided it developed further from what it is now.

As expert opinions on most important future technologies for mobile banking seemed to follow those presented in the literature review, consumers were presented the same technologies as experts. Of these, consumers seemed to be most excited over mobile

payments, both contactless and remote. Most of the consumers considered it a safe way to pay, including their PIN code would be asked in larger purchases. The general view among the interviewees was that around 20 euro would be a suitable limit for asking the PIN code but some would like it to be even lower than that. Also when asking spontaneously what would be one banking service the interviewees would like to conduct by their mobile phone, mobile payments rose above everything else. Some of the interviewees considered mobile payments more suitable for small payments, while some of them were ready to use a mobile device for purchases of any value.

Together with mobile payments, also context-aware services, mobile wallet and the Mobile Certificate as a part of mobile identification were generally reacted very positively to. While the Mobile Certificate was considered very safe by everyone, wallet functionality in a mobile phone arose some concerns. Some of the interviewees were worried what would happen if they lost their mobile phone. However, there were also respondents who saw no benefit in paying with a mobile phone unless they could have their loyalty cards, coupons and other wallet content included. Some of the interviewees also mentioned they found it necessary that mobile identification would also work as a payment authentication method.

All in all, all experts seemed to recognize the role of mobile phone when it came to a bank getting closer to its customers. However, many of them did not consider it likely that the relationship between a customer and his bank would become any closer than it is now. Some of the interviewees mentioned that this is, of course, what banks are hoping for, but an overall opinion was that consumers might not regard their bank as personal as some other services – what they needed was that their banking experience was as fluent as possible. It was, however, suggested that mobile phone was one of the few methods to reach the consumer in these days, which is why its potential should be unlocked – with mobile phone, the bank is always behind few clicks, as one of the interviewees said.

One of the reasons for choosing various actors from the financial industry was to ensure that possible problems of mobile banking would be recognized. Perhaps little surprisingly, all interviewees expressed considerable challenges towards mobile banking. Almost all of them deemed that mobile banking was rather a must than a possibility for cost savings or extra revenue. The small volume and therefore profit potential of mobile banking in comparison with other channels was often mentioned, which caused that mobile banking was not considered a top priority for banks in the short run. This was due to the financial uncertainty. Another problem that was mentioned by many experts was that Finns have this far adopted smartphones and tablets more slowly than their Nordic neighbors. Unlike presented in the theoretical part, EU or SEPA were not seen to hurdle mobile banking development in Finland.

5.3.2 Simplifying customer's life and context-aware mobile banking

The general attitude towards context-aware mobile banking services was extremely positive by both experts and consumers. Experts saw context-aware banking as a way to serve their customers better and get closer to them, while consumers saw it as a thing that helped them to do their banking more effectively. However, taking advantage of context-awareness does not seem to be as easy as can be thought, as several challenges were presented by both consumers and experts.

First of all, consumers had a very strict opinion on the way they wanted context-aware banking to happen – or how they wanted it not to. All consumer interviewees expressed a need to be able to control the amount of contacts they received, and some were very strict on usage of their data. For example, one of the consumers mentioned he did not want his bank to monitor his accounts or suggest anything according to his account details. In all cases, mobile phone was seen as a good method of contact. However, some of the consumers preferred phone call to a mobile application as the contact method. E-mail and SMS were not considered very good ways of contacting the customer, as consumers were not used to them. The consumer interviewees did not seem to have any negative attitudes towards using location-based information on them, and they felt positive towards the examples presented to them (see appendices).

Also the experts placed some challenges for taking advantage of contextual data of the customer. Like consumers, experts too expressed the need for customers to control what they received and decline from contacts if they wanted to. Besides that, one of the key challenges seemed to be that it was difficult to create detailed enough customer clusters for advertising. The clusters needed to be so accurate that the customer felt the contact from his bank would consider him as a person. Each customer was an individual, so it was hard to create any segments with the data banks currently had about their customers. One of the consumer interviewees suggested that a bank could ask him what kinds of things he was interested in rather than just send customer offers based on the data the bank had. This could happen for example by a questionnaire form in the online bank that would save the data automatically in a database.

For some of the interviewees, it was easier to propose how a bank could simplify their life than it was for others. For example, one of the consumers mentioned she would like her bank to inform her how she could invest her assets best. Another consumer felt she had not enough time to compare different alternatives when it came to investing money. For this reason she would like her bank to suggest different alternatives. All consumers felt very positive towards a possibility of receiving marketing messages that were tailored to their location and situation in life. What was interesting was that the consumers seemed to appreciate proactive mobile services in

both daily banking and for example investments, even though their mobile banking needs seemed to be mostly in daily banking.

5.3.3 Mobile banking adoption

The third theme of expert and consumer interviews, mobile banking adoption, revealed that the interviewees considered mobile banking as a useful but non-exclusive banking channel. Experts seemed to agree on advantages of mobile banking over online banking and did not regard mobile banking as an easy solution for every banking need – there were situations where mobile banking worked and some where it did not. Also consumers seemed to share the opinion – they preferred using mobile phone on the move and a laptop computer when they were at home.

The first thing the experts seemed to agree on was that mobile banking would not become the only banking channel anytime soon. They seemed to share the opinion that, in the future, people will only visit a branch in very significant and complicated issues, and most people do not want to conduct their daily banking in a branch. Human-aid, however, was still needed and consumers also wanted to have it available when they needed it. This was the general opinion of the experts. Some of the experts added that tablets might be able to replace some of the branch visits in the near future. The consumer interviewees were asked about their feelings towards this kind of a service, and some of them felt excited about it.

When asking about characteristics of a good mobile banking service, lots of adjectives arose. From the experts' side, ease of use was probably the most commonly mentioned feature of a good mobile banking service. Also usability or convenience of the service rose out, as well as sense of security. Context-awareness was mentioned by two respondents, and one also mentioned proactivity towards the customer as an important factor. Two respondents considered that mobile banking services needed to work fast. Mobile banking services were also required to work in many places. Apart from these, features such as visual look, simplicity, reliability of operation, and evolution of mobile identification methods were mentioned among the experts.

When interviewing the consumers, it turned out that they shared many of the characteristics of a good mobile banking service with the experts but there were also some characteristics that were not mentioned by the experts – for example, cost of these services. One respondent was ready to pay for some mobile banking services but not all; another one wanted all her mobile banking services free. In addition, consumers wanted their banking data to be always up-to-date and integrated into their real life. Where the consumers mostly agreed with the experts were importance of ease of use, convenience and security, as well as speed of service. Two of the interviewees mentioned that mobile

banking should be clever, by which they meant that it should be able to predict their needs. The concept seemed to be quite close to that of proactivity, which was also mentioned by one consumer.

It was interesting to note that some of the innovation adoption model characteristics were not mentioned by any of the interviewees. For example, self-efficacy was mentioned by neither consumers nor experts. Compatibility was mentioned by one consumer, who mentioned he would use mobile payments if he was in such a situation in life where he needed a fast and convenient way to pay. A potential explanation was presented earlier – it is possible that the respondents already felt they were capable enough to use mobile banking services. This explanation makes sense, as all of the respondents had at least tried the mobile banking application provided by their bank. In addition, many of them were also familiar with majority of the services and technologies presented for them. When it comes to compatibility, it is likely that mobile banking is not too far from their values, as they have tried it and many of the interviewees also said they would like to use it if it developed further. On the other hand, many of them did not use mobile banking actively, even though they had tried it. This may be a problem of either relative advantage or compatibility. According to the results of the study, the following features should be taken into account when designing mobile banking services.

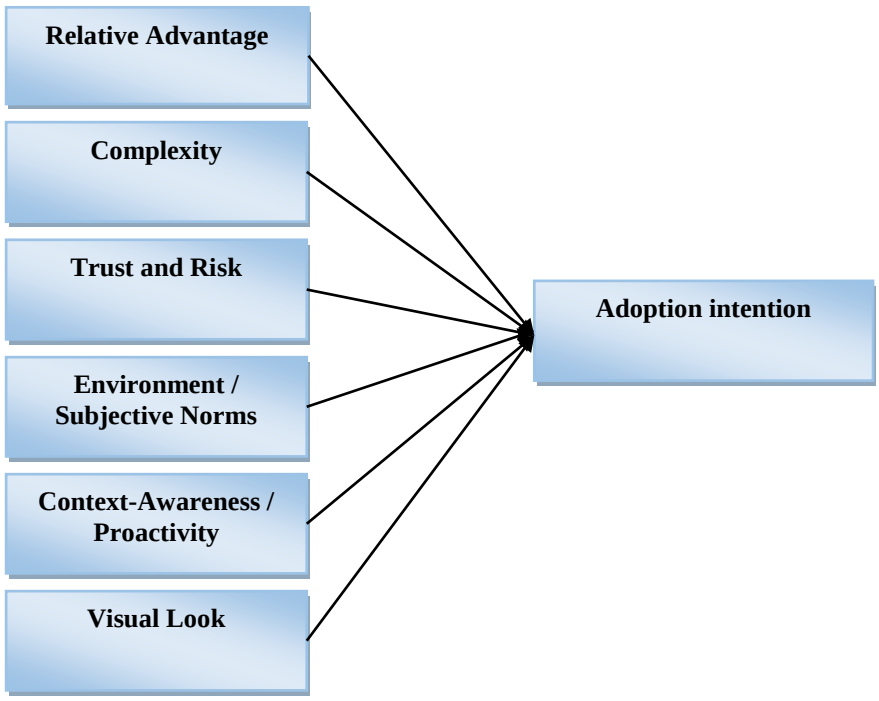

Figure 3: Main factors increasing the adoption intention of the interviewees

According to the interviews, there are also some features that could be added to the framework proposed in 3.3. One of them is proactivity, a feature that was mentioned by

both experts and consumers. As mentioned earlier, the interviewees mentioned several terms that were close to context-awareness – including proactivity and cleverness. All of these fit under the term context-aware, as context-aware services are at their best both proactive and clever.

Another factor that is clearly missing from the original model is visual look. Under this term can be placed both the actual design of the application and the way functions are presented – for example, what is on the start page. Also this characteristic was considered very important by both interviewees and experts. For one consumer interviewee, the unpleasant visual look of the mobile banking application caused especially negative feelings, as she mentioned it made the whole application uninteresting.

The final chapter of this study, Chapter 6, aims at presenting managerial implications as well as implications for further research. In addition, the findings of the study are compared to the theoretical part of the study.

6 RESEARCH CONCLUSIONS

6.1 Theoretical discussion

As a base material for this study, both theoretical frameworks and predictions concerning the field of operation were used. When it came to the field of operation, discussions were made mainly with experts, while the main focus with the proposed mobile banking adoption framework was in consumer interviews.

The experts mainly shared their opinions towards the development of banking services. A common view among the banks was that they needed to understand their customers better, and move to the channels where their customers spent time. In the literature review, one of the key points presented was also that banks need to be able to accept that the customer empowerment is constantly growing. One of the interviewees mentioned this by saying that today his bank needs to sell services that are truly the best ones for the customer, not those that are the most profitable for the bank.

The literature review also predicted a strong growth in popularity for mobile banking. This may become possible in the near future, as all consumer interviewees were principally interested in conducting their banking mobile – the current services just did not offer the tools for it. For some of the interviewees, it was very difficult to go anywhere without their mobile phone, and all of the interviewees were currently using some applications in their smartphones.

The literature review also suggested a change is needed in the banking industry, in order for banks to survive. This remains still unclear – even though consumers were generally excited about the thought of their bank taking better care of them, most of them did not claim about the current situation. Their banks gave them a call every now and then and that was regarded as a good thing. Of course, the interviewees wished a bank could help them in managing their finances as well as simplify their life, but that seemed to be rather a wish than a criterion for choosing one's bank.

Even though the challenges of mobile banking were many, mobile banking was still considered something that was coming. The problems expressed by the interviewees followed quite well those presented in the literature review – money and the excellent online banks, mostly. However, unlike presented in the theoretical part, the role of EU was not seen as very significant, mostly due to the fact that EU was considered too rigid to truly affect the market formation.

When comparing the results of this study with those of the proposed mobile banking adoption framework, there were both similarities and differences. Ease of use was regarded as extremely important and was mentioned by all interviewees, both experts and consumers. The term relative advantage was not directly mentioned, but many

terms that fit under it, such as speed, convenience and added value were mentioned. Also the role of environment was suggested to affect the adoption intention – while many admitted that recommendations from their friends played a role, a recommendation from an authority or other trusted party was mentioned to further increase the intention of using mobile banking in many of the cases.

Also security was considered extremely important by the respondents. However, most of the interviewees did not worry about security of these services. Explanations for this varied – one of the interviewees considered himself a naïve person because he was not worried about security, while another one felt that the society would do something, would abuses occur. One of the respondents, in turn, considered that as long as there was a human involved, something could go wrong. The interviewees who were worried about the security of mobile banking seemed to be rather worried about using mobile banking in public situations than mobile banking itself. One of the interviewees also mentioned that if a mobile phone had wallet functionality and if it was stolen, one would lose everything.

6.2 Managerial implications

According to the results from this study, banks should above all develop mobile banking services that assist people in their everyday banking. This is probably the most important finding of the study, as it sets a clear direction for these services. In practice, this means that banks should focus more and more in personalized offering that helps people manage their everyday finances.

Related to this, one of the most important findings of the study was also that consumers warmly welcomed a more proactive, context-aware approach from their bank. For this reason, it seems that banks need to focus on not only services that assist people in their daily banking, but also make these services work in a proactive way. Many of the suggestions coming from consumers actually combined these two factors. Of course, a proactive attitude from a bank did not seem to please customers completely without reservations – it was considered very important that the customer was able to control the amount of contacts they received from their bank. For this reason, banks need to be careful in developing these services, in order to not irritate their customers. It is also important that banks assist their customers in using these services – for example, how to decline from recommendations.

The technologies presented awoke very positive feelings in many of the consumers – for example, mobile authentication was generally regarded as a service with high potential, even though its current state was also criticized. Also carefully targeted advertising was reacted very positive to, as well as other kinds of notifications from a

bank. Many of these technologies were also seen to simplify customer's life, which indicates that they may be suitable to be used as supporting technologies when it comes to deploying a completely new service approach. In general, experts found more use cases for these services than consumers, which is not surprising as many of them had worked 10–15 years with mobile banking.

The results from this study propose that there is a strong interest towards mobile banking in Finnish consumers. However, the challenge is to raise consumer awareness towards it. Even though all the interviewees had tried mobile banking, many of them were surprised about all the functionalities mobile banking offered. These people had mainly used mobile banking for monetary transactions such as paying a bill. In addition, many of them were very excited about almost all the services offered to them – one of the consumers was willing to start using the Mobile Certificate right away.

As some of the respondents saw risks in mobile banking, it is very important that banks can convince their customers about the safety of mobile banking. Many of the interviewees mentioned that a trusted party who would feel positive towards mobile banking would increase their trust and therefore willingness to adopt these services. The police was mentioned as an example of a trusted party.

As especially mobile payments are likely to require a significant level of co-operation, managers need to keep this in mind when designing mobile payment applications. A very clear opinion among the experts was that bank-specific solutions cannot be made in the Finnish market. However, another question to think is whether also some other parties should be included in the development work. Mobile phone operators, credit card companies and multinational companies such as Google have also shown their interest towards mobile payments. In addition, many parties from outside the financial industry have already a working application, such as Elisa Lompakko by Elisa or Google Wallet by Google.

As a conclusion, it can be said that a proactive, involving service approach actually seems to have potential in the banking industry, and mobile phone appears to be a very suitable device for implementing this service approach. However, increasing customer interest towards mobile banking remains a challenge, mainly because of the popularity of online banking. This seems to happen partly because people are unfamiliar with functionalities of mobile banking, and partly because they cannot use some services they would like to use, such as NFC payments or video connection to a bank. For this reason, it is important for banks to bring these services into consumers' reach, as consumers clearly recognize the situations where they would prefer mobile banking to online banking.

6.3 Implications for further research

Even though the study contributed to filling the gap when it comes to mobile banking in Finland, more research is still needed about the topic. This happens because the range of studies available is very scarce, and it is very hard to draw conclusions of any kind from the material available. The topic appears to be of large interest for both consumers and experts, so there is a real need to investigate it further.

Even though the topic should be investigated further in general, some observations deserve special attention. First of all, the interviews made to the Finnish young adults revealed that the customers wanted from their mobile bank lots of things that have not been mentioned in the earlier research. For this reason, it is necessary to investigate whether the same result will be achieved also through a quantitative study. It must be remembered that the purpose of the study has not been to evaluate the appropriateness of any of the existing models, but rather see if the results of these models repeat in a qualitative study.

Besides the change in method, another interesting question is what, if anything makes the large adopter categories – early majority and late majority – to adopt these services. In this study, the focus was in innovators and early adopters – two categories that together cover around 16% of the population. However, some of the findings were inconsistent with many earlier findings, even though they seemed quite natural when considering the demographics of the respondents. Among these findings was that neither compatibility nor self-efficacy seemed to have an effect on consumer adoption of mobile banking services. As these factors have been found to be very relevant in earlier research, it would be interesting to test them among for example late majority or laggards.

Another topic of interest is the technologies presented for the interviewees, all of which were reacted very positively to. Mobile banking is currently developing very fast, and according to the expert interviewees, some of the technologies presented in earlier chapters are coming in the very near future. After these technologies have become more common, it would be very interesting to repeat a similar type of study. Even though all the consumers were provided with concrete, clarifying examples on the technologies, it is still easier to estimate these services when you have concretely used them. The results from this study present a preliminary interest towards the ideas, but in order to be adopted, the services need to fill the requirements that consumers have placed for mobile banking services – ease of use and security, among others.

It should also be investigated further whether the technologies presented would truly affect the way consumers feel towards their bank. Even though consumers seemed to appreciate these features and some of them clearly addressed a need for more support from their bank, it is unclear how this new approach can affect the consumers in the

long run. Can a bank ever become close to its customer? Or, is mobile banking application a competitive advantage?

One of the factors not investigated in this study were consumer reactions towards a mobile service that would cost money. It is still unclear how Finnish mobile payment services will build up to be which is why it would be valuable to test consumer reactions towards non-free mobile banking services. The cost has been found to affect mobile banking adoption in some studies, but in this study it was only mentioned an important adoption intention factor by two interviewees. A potential reason is that the interviewees could not imagine mobile payments would cost something – the Finns are used to pay with their credit card without any directly visible transaction fee, as the merchant usually pays the fee.

All in all, there is still a lot to explore when it comes to mobile banking. The meaning of this study has been to provide an outlook on a different service approach on the financial industry, and some very interesting results were achieved. In the literature, the need for mobile banking services is clearly visible and also the innovators and early adopters interviewed warmly welcomed these services. However, how far will banks go – do they see mobile banking as something essential or do mobile banking services stay as a channel only used by the most innovative? And, finally, has the time for mobile banking finally come?

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APPENDICES

Expert interview questions

Taustatiedot:

Nimi ja asema:
Millä tavalla olette tekemisissä mobiilipankkipalveluiden kanssa:
Kuinka kauan olette olleet tekemisissä mobiilipankkipalveluiden kanssa:

Mobiilipankkipalveluiden nykytila ja kehitys lähitulevaisuudessa

1. Miten uskotte mobiilipankkipalveluiden ja -maksupalveluiden kehittyvän seuraavien 3–5 vuoden aikana?
2. Miksi pankit investoivat mobiilipankkipalveluihin tällä hetkellä?
3. Minkälaisia palveluita konkreettisesti pankit tulevat tarjoamaan asiakkailleen lähitulevaisuudessa? Miksi juuri näitä?
4. Mitkä tulevat olemaan mobiilipankkipalveluiden kehityksen suurimmat esteet lähivuosina? Miten nämä esteet voidaan ylittää?
5. Mitä mieltä olette seuraavien teknologioiden merkityksestä osana tulevaisuuden mobiilipankkitoimintaa?
    a. Kontaktittomat maksut (esimerkiksi Near Field Communication) ja mobiililompakko
    b. Matkapuhelimen käyttö tunnistautumisvälineenä
    c. Paikkatiedon hyväksikäyttö (Location-based services)
6. Uskotteko jonkun muun toimintatavan tai teknologian olevan merkittävä lähitulevaisuuden pankkitoiminnassa? Minkä?

Asiakkaan elämään osallistuva pankkitoiminta sekä asiakaslähtöisyyden kehittäminen pankkialalla

7. Missä määrin tietoa asiakkaasta voitaisiin käyttää hyväksi pankkitoiminnassa ja liittyykö siihen mahdollisesti joitakin ongelmia?
8. Koetteko, että pankin ylipäänsä tulisi tukea aktiivisemmin asiakkaansa elämää? Miksi/miksi ei?
9. Mikäli vastasitte edelliseen kysymykseen kyllä, millä tavoin tämän tulisi tapahtua?

10. Minkälaisia konkreettisia, rahamääräisiä ja ei-rahamääräisiä hyötyjä tai haittoja asiakkaalle voi koitua aiempaa voimakkaammasta asiakkaan tukemisesta?
11. Minkälaisena näette ihmisen ja pankin välisen suhteen 5 vuoden päästä? Onko suhde etäisempi vai läheisempi kuin nykyään?

Mobiilipankkipalveluiden omaksuminen

12. Uskotteko, että mobiilipankkipalveluiden käyttö Suomessa tulee lisääntymään? Minkätyyppisille palveluille on eniten kysyntää kuluttajien keskuudessa?
13. Missä määrin uskotte mobiilipankkipalvelun omaksuneiden henkilöiden jatkavan muiden kanavien (esimerkiksi verkkopankkipalvelu tai konttorissa käyminen) käyttöä? Pidättekö ylipäänsä mobiilipankkipalvelua kanavana?
14. Mitkä ominaisuudet ovat mielestänne tärkeitä hyvälle mobiilipankkipalvelulle?
15. Mitkä ovat mielestänne mobiilipankkipalveluiden suurimmat edut verrattuna verkkopankkiin?
16. Minkä tekijöiden uskotte vaikuttavan eniten mobiilipankkipalveluiden omaksumiseen, ja minkälaisissa tilanteissa ominaisuuksien merkitys korostuu? Ovatko ominaisuudet vähemmän tärkeitä esimerkiksi tietylle ikäryhmälle tai tietyntyyppisille mobiilipalveluille?

Authority interview questions

Mobiilipankkipalveluiden valvonta

1. Miten Finanssivalvonta valvoo pankkien mobiilipalveluita?
2. Mikä on Finanssivalvonnan, itsesäätelyn, Suomen lainsäädännön ja EU-lainsäädännön suhde pankkipalveluiden valvonnassa? Kuinka paljon ja millä tavoin sääntelyllä voidaan vaikuttaa mobiilipankkipalveluiden tarjoamiseen?

Mobiilipankkipalveluiden ongelmat

3. Kuvaile yleisesti mobiililaitteella käytettävän pankkipalvelun kuluttajalle koituvia mahdollisia ongelmia
4. Tulevaisuuden mobiilipankkipalveluiden uskotaan käyttävän hyväksi paikkatietoa matkapuhelimen omistajasta. Minkälaisia ongelmia paikkatiedon käyttöön voi mahdollisesti liittyä?

5. Tulevaisuuden mobiilipankkitoiminnan uskotaan myös tukeutuvan entistä enemmän esimerkiksi kasvojen tai äänen perusteella tapahtuvaan tunnistautumiseen. Toisaalta tällä hetkellä käytössä oleva tunnistautuminen tukeutuu kahteen asiaan – johonkin mitä asiakas tietää ja johonkin mitä hän omistaa. Näettekö todennäköisenä, että nykymuotoinen tunnistautuminen tulee muuttumaan seuraavien 3-5 vuoden aikana?
6. Lähitulevaisuudessa mobiilimaksamisessa tulevat painottumaan kontaktittomat NFC-maksut sekä mobiililompakko osana niitä. Millä tavoin kuluttajan turvallisuus varmistetaan käytettäessä näitä teknologioita?
7. Tulevaisuudessa pankkien harjoittama viestintä tulee muuttumaan entistä personoidummaksi ja älykkäämmäksi – asiakkaat voivat esimerkiksi saada tekstiviestitse tarjouksia pankin tuotteista. Minkälaisia ongelmia pankkipalveluiden mobiilimarkkinointiin voi liittyä?
8. Jotkut suomalaiset pankit tarjoavat jo käytännössä kaikkia palveluitaan sähköisesti – osa pankeista vaatii esimerkiksi lainapalveluille vain yhden fyysisen käynnin konttorissa. Toisaalta pankkien tulee tuntea asiakkaansa. Miten uskotte palveluiden sähköistymisen vaikuttavan pankkien kykyyn tarjota asiakkaille sopivia tuotteita?

Kuluttajat ja mobiilipankkipalvelut

9. Oletteko saaneet kuluttajien yhteydenottoja koskien mobiilipankkipalveluita? Mikäli kyllä, minkälaisia yhteydenottoja nämä ovat olleet?
10. Uskotteko, että suomalaiset kuluttajat ovat keskimäärin huolestuneita matkapuhelimen välityksellä tapahtuvien pankkipalveluiden turvallisuudesta? Mikäli kyllä, onko kuluttajien mahdollinen huoli mielestänne aiheellista?
11. Pankit vähentävät tällä hetkellä aggressiivisesti käteisen rahan saatavuutta ja kehittävät aktiivisesti esimerkiksi mobiilipalveluitaan. Miten Finanssivalvonta suhtautuu tähän ilmiöön?

Consumer interview questions

Taustatiedot:

Ikäsi?
Mikä on pääasiallinen pankkisi?
Kuvaile tapaa, miten ja kuinka paljon käytät pankkipalveluita ja eri kanavia:
Kuvaile matkapuhelimen ja muiden mobiililaitteiden käyttöäsi:

Asiakkaan elämään osallistuminen ja sen helpottaminen proaktiivisen pankkitoiminnan kautta

1. Huomioiko pankkisi mielestäsi riittävän hyvin tämänhetkisen elämäntilanteesi? Mikäli kyllä, miten tämä mielestäsi näkyy? Mikäli ei, miksi et ole tyytyväinen pankin toimintaan tämän asian suhteen?
2. Miten suhtaudut ylipäätään siihen, että pankki olisi proaktiivisempi sinua kohtaan, esimerkiksi kertoisi opintolainamahdollisuuksista kun otat vastaan opiskelupaikan tai ehdottaisi sinulle sopivampaa tiliä mikäli huomaisi että käyttötililläsi on tuhansia euroja huonolla korolla?
3. Minkä kanavan kautta näiden yhteydenottojen tulisi mielestäsi tapahtua? (esim. puhelimitse, tekstiviestitse, viesti verkkopankissa, kirjeitse)
4. Minkälaisissa tilanteissa käytät mieluummin matkapuhelinta kuin tietokonetta? Entä tablettia?
5. Onko tämänhetkinen, eri kanavien kautta suorittamasi kanssakäyminen pankkisi kanssa mielestäsi optimaalista, huomioiden kanavien vahvuudet ja mahdollisuudet mahdollisuudet – Käyttävätkö pankit kanavien ja päälaitteiden vahvuuksia tehokkaasti hyväkseen?
6. Tarjoavatko mielestäsi tämänhetkiset mobiilipankkipalvelut etua kuluttajalle verrattuna tavalliseen verkkopankkiin?
7. Nykyisten mahdollisuuksien lisäksi, minkä pankkiasian haluaisit pystyä suorittamaan matkapuhelimellasi/tabletilla ja miten se helpottaisi elämääsi?

Teknologia asiakkaan elämään osallistumisen ja sen helpottamisen takana

8. Kuvitellaan tilanne, jossa voit saada matkapuhelimeesi/tablettiisi autolainatarjouksen vieraillessasi esimerkiksi autoliikkeessä tai ilmoituksen ja kuvan lähellä olevasta kriteereihisi sopivasta asunnosta, mikäli olet etsimässä asuntoa. Olisitko kiinnostunut tämäntyyppisestä mainonnasta pankiltasi?
9. Mobiilivarmenne on suomalaisten teleoperaattorien kehittämä palvelu, jonka avulla maksutapahtuma varmennetaan lähettämällä viesti matkapuhelimen omistajan puhelinnumeroon. Tämän jälkeen mobiililaitteen haltijan on näppäiltävä oikea tunnuskoodi. Koodi vastaa periaatteessa pankkikortin tunnuslukua, paitsi että se ei ole edes operaattorin tiedossa. Miltä tällainen vaihtoehto mielestäsi kuulostaa verrattuna perinteiseen verkkopankkitunnistautumiseen, jossa käytetään avainlukulistoja sekä käyttäjänimeä?

10. Lähivuosina yleistyy tapa, jossa voidaan maksaa pieniä ostoksia esim. Supermarketeissa näpäyttämällä mobiililaitetta maksupäätteen yläpuolella. Tätä kutsutaan lähimaksamiseksi ja sen toimintaperiaate on samankaltainen kuin nykyisissä joukkoliikenteen matkakorteissa. Teknologian avulla puhelinta voidaan mahdollisesti käyttää myös mm. kulkukorttina ja luottokorttina. Millaisia ajatuksia tämä herättää sinussa?
11. Entä miten suhtaudut siihen, että kaikki mitä tällä hetkellä säilytät lompakossasi (kuitit, etukortit, maksukortit, bussikortit, liput jne.) olisivatkin elektronisessa muodossa mobiililaitteessasi?

Mobiilipankki- ja maksupalveluiden omaksuminen

12. Oletko käyttänyt pankkipalveluita matkapuhelimellasi tai tabletilla? Miksi/miksi et?
13. Kerro mahdollisimman kattavasti, mitkä palvelun ominaisuudet ovat mielestäsi tärkeitä sellaisille mobiilipankkipalveluille, joihin ei liity maksamista (esim. tilitietojen tarkistus, osakekurssit, oman talouden seuranta, pankin kanssa asiointi).
14. Kerro mahdollisimman kattavasti, mitkä palvelun ominaisuudet ovat mielestäsi tärkeitä mobiilimaksamisessa? Tällä tarkoitetaan sekä edellä kuvattua lähimaksamista (kysymys 10.), että esim. verkkokaupan tai mobiilipankkisovelluksen kautta tapahtuvia maksuja, ns. etämaksuja.
15. Tuleeko mieleesi muita, itse palvelun ominaisuuksien ulkopuolisia tekijöitä, jotka vaikuttavat halukkuuteesi käyttää mobiilipankkipalveluita? (esim. pankin suositus, kaverit...)
16. Oletko huolissasi mobiilipankin ja mobiilimaksujen turvallisuudesta? Miksi/miksi et?
17. Voisitko kuvitella jonain päivänä siirtyväsi hoitamaan pankkiasioitasi kokonaan matkapuhelimella tai tabletilla?