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# Factors Affecting The Adoption Of Mobile Banking Services

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## Abstract

This paper focuses on defining the factors influencing mobile banking adoption and aims at forming a model describing consumer behaviour patterns. Thus it also evaluates the applicability of Rogers' (1995) model in this context. In consequence we are able to state what are the drivers and inhibitors of using banking services via wireless delivery channel. A quantitative survey sheds more light on this researched issue. The data was collected in Finland during May-July 2002 and includes 1253 survey responses.

**Keywords:** Mobile banking, innovation adoption, modelling consumer behaviour

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## Introduction

Rapid changes in the financial services environment; increased competition by new players from non-banking sector, product innovations, globalization and technological advancement, have led to a market situation where battle of customers is intense. In order to rise to the challenges service provider are even more interested to enhance their understanding of consumer behaviour patterns. This paper examines factors influencing the adoption of mobile banking services. Recent research in electronic delivery of financial services has largely been conducted in the context of Internet banking, the present study contributes to this research area by exploring wireless delivery channel and services used by mobile data terminal equipment. Marketing implications that can be drawn from the findings will assist service providers in understanding consumers better and making justified marketing decisions. Research findings make a contribution to the theoretical consumer behaviour modelling by extending a traditional theory to a new application area that may give new insights into the theory. Thus, the study contributes both to practice and theory.

## Theoretical background

Adoption of tele-banking (e.g. Al-Ashban & Burney 2001) as well as Internet banking (e.g. Bradley & Steward 2002; Black et al. 2001; Mattila 2001) has received research attention in recent years. Much of the existing research in electronic banking services has adopted an organisational perspective (e.g. Daniel 1999) or a distribution channel perspective (e.g. Black et al. 2002; Thornton and White 2001; Mols 2001). Consumers using these services have been focus in a large body of current research, nevertheless customer behavior in mobile banking context have remained rather uncharted territory. This paper aims at filling that gap by shedding light on the general usage of mobile services and in particular on influence of demographic characteristics on usage. The survey was conducted among Finnish bank customers. The paradigm shift, from traditional branch banking to electronic banking; the newly emerged channels; rapidly increasing penetration rates of mobile phones are among other the motivators of this study. The approach we employ is practical and provides insights drawn from the quantitative empirical survey.

The newly emerged mobile banking services represent an innovation where both intangible service and an innovative medium of service delivery employing high technology are present. Thus, concepts of innovation and diffusion of innovation are even more intricate as technology and service aspects have an effect on the characteristics of mobile banking services. (Mohr 2001). Traditionally research relating to the customer adoption of innovation has tended to concentrate on socio-demographic and psychographic attributes of potential adopters. Even though these kind of personal characteristics of a consumer have found to be predictors of adoption (e.g. Al-Ashban & Burney 2001), an increasing body of research has demonstrated that it is the perceived attributes of innovation itself rather than the personal characteristics that are the stronger predictors of the adoption decision. (Black et al. 2001, 391). In the search to understand consumers' adoption of innovation, and where research has focused on the consumer perspective, Rogers' diffusion model, which originally dates back to 1962, has often been employed. (Howcroft et al. 2002; Black et al. 2001). Within financial services innovation research i.a. Black et al. (2001), Polatoglu & Ekin (2001), Tan & Teo (2000) have applied Rogers' model to Internet banking.

According to Rogers (1995) the perceived innovation characteristics are supposed to provide the framework how potential adopters perceive an innovation. Research that has investigated the product characteristics of innovation has generally endorsed evaluating the innovation along the product characteristics that involve five constructs; relative advantage, compatibility, complexity, trialability and observability. (Moore & Benbasat 1991). Concept of perceived risk is often included as augmented by Bauer (1960). Particularly in banking services the perceived risk associated with the financial product itself as well as with electronic delivery channel is higher than in basic consumer goods, and hence increasing the importance of this attribute of innovation. (Harrison 2000, 242). Ensuring security and confidentiality are the fundamental prerequisites before any banking activity involving sensitive information can take place. (Jayawardhena & Foley 2000). Relative advantage, compatibility, trialability and observability are positively related to adoption of an innovation and the remaining two, complexity and perceived risk, negatively related. (Rogers 1995). These innovation attributes and their influence on adoption of mobile banking services are detailed under empirical implications.

## Mobile Banking

Northern European countries are among the most advanced ones in the adoption to and use of different new mobile and technological appliances and these countries have extended the implementation of technological advancement in banking services (Finland Statistics 2002). In Finland payments and account management products over mobile GSM phones as SMS service have been available over one decade, exactly since 1992, television-based banking since 1998 and banking via mobile Internet WAP since 1999 (Mattila and Pentto 2002). Finnish customers conduct their routine banking mainly via Internet, over 70 % of the customers visit a branch office less than twice a year. The number of branches in Finland has been shrinking in rhythm with increased Internet banking usage (The Finnish Bankers' Association 2002). At the moment Internet is also the leading electronic banking channel elsewhere where the electronic delivery channels have been introduced, although telephone banking seemed to have toehold on the British financial services market. (Howcroft et al. 2002).

As we argued above the landscape of wireless services is presently changing and the expected

improvements in 2.5G and 3G devices and networks will encourage the uptake of mobile banking. Although the densities of fixed and mobile connections are high in all the Nordic countries, the number of most advanced Internet-enabled mobile phones is still fairly low; in Finland 20 % of population has Internet-enabled device. Access to advanced model is slightly more common to men than to women. In addition younger people have advanced mobile phones more often than older people, in fact in the age group 60 years or over as well as among retired persons the access rate is only 3-9 %. Those with tertiary education have more often an Internet enabled mobile phone, but the effect is not as strong as that of age (Statistics Finland 2002). One issue driving future mobile banking is the cost efficiency pressures from supply side. Payment transaction costs vary: manually in a branch from \$2.60 to \$4.40, with automatic teller machine \$0.44 and less than three cents via mobile phone. Quite often wireless capability is built into financial institution's software platform, leaving maintenance and upgrades as the only added costs (Mattila and Pentto 2002; McCall 2002). European IT consultants International Data Corp. expect mobile banking to be the fastest growing sector of total information technology spending on electronic banking, with a 1999 to 2003 compound annual growth rate of 129% (West 2001). Adding digital channels such as mobile and developing more and more commoditized products will clearly help to shift further tasks towards the customer through self-provisioning and thus, will help cutting additional costs (Durlacher Report 2001). Today's banking is thereby not just online and wireless but also interactive.

## Methodology and data collection

The methodological approach in this study is descriptive, because we attempt to identify and explain variables that exist in a given situation and to describe the relationship that exists between these variables in order to provide a picture of a particular phenomenon, but not to ferret out cause-effect relationships (Churchill & Iacobucci 2002). The phenomenon to be studied, mobile banking, is comparatively new in the field of academic research and thereby study aims at increasing the understanding of the current consumer behavior pattern in electronic services era. The research data was collected by means of a traditional postal survey. The pre-tested questionnaire with cover letter and postage paid return envelope was sent to a cross-section of 3000 bank customers. The questionnaire was administered to a stratified sample of Finnish bank customers, selected in terms of their banking habits. Sampling frame from which the sample elements were drawn was a customer database of one major Finnish bank.

After two follow-up mailings 1303 responses of which 1253 were usable were received. The usable response rate amounted to 41.8 percent, which was really satisfactory and above the 20-30 percent rate considered acceptable in economics research. The objective was to gather a highly representative sample that was also attained as the sample represents geographically Finland and the respondent were chosen in terms of their banking habits. The survey sample consisted of three equal-sized segments that were selected according to mobile banking usage experience and density. The non-users (38.8 percent of the respondents) have not ever used permanently any form of mobile banking services, the occasional users (33.2 percent of the respondents) had started to use some form of mobile services and the regular users (28 percent of the respondents) had been using services for a longer period of time.

The questionnaires were also partly tailored respectively. Most of the questions were multichotomous questions; only the questionnaire designed for the regular users included some open-ended questions. Respondents were asked to complete a five to seven point Likert scale on each question or proposition. Scales to measure each of the beliefs and attitudes were developed based on existing scales discussed in relevant methodological literature and in surveys in the research area (e.g. Fishbein and Ajzen 1975; Mattila 2001). This data forms the basis of the whole research of which this paper is one part. Only the selected sections of the survey data will be used in the present paper. According to the chosen methodological research approach the quantitative data was analyzed using statistical methods such as mean, standard deviation, ANOVA, Chi-square, regression analysis, correlation coefficients by SPSS-program. The demographic profile of the respondents is summarized in Table 1.

## Profile of Typical Mobile Banking User

Academic research has been interested in examining socio-economical factors (demographics, psychographics) of consumers adopting new technologies. According to Polatoglu and Ekin (2001) and Howcroft et al. (2002) demographic factors that describe typical electronic banking customers include young, affluent and highly educated. In earlier Finnish studies findings of the typical Internet banking user were somewhat similar and in some respect contradictory. A Finnish study (Mattila 2001) states Internet banking user is middle aged, relative wealthy and highly educated. Interestingly, results from this study indicate that the average mobile banking user's socio-economical factors differ from that of Internet banking user. Gender seemed to have slightly impact on mobile service usage; there were 10 % more men in regular users' group. A user of mobile banking belonged most often to age group 25 to 34 years old. Majority of the so called regular users (43.6 %) were 25 to 34 years old as well as majority (36.8 %) of occasional users, whereas non-users were relatively older compared to the two other groups. Every third of non-users (31.7%) belonged to age group 35 to 49 years old and 25.9 % to 50 to 64 years old.

About one third (38.9 %) of the respondents were married. Majority of the all respondents were workers (40.1%), the second biggest occupation group was white-collar workers (19.6 %) and third students (10.5 %). The result is compatible with the result of background education of the respondents, which was in most cases (25.2 %) secondary level vocational school. These results differ from the earlier finding of electronic (Internet) banking users, who have traditionally had university level education and higher professions (e.g. Jayawardhena et al. 2000). Majority of the respondents (19.1 %) belonged to household income category of 20.001-30.000 euros/year which matches with the average year income of two persons in Finland. To conclude typical user is male, 25 to 34 years old, married, has secondary level education and average income. Almost all of the customers (88%), who are not using mobile banking, did have a fixed-line Internet connection in their use compared to the mobile banking heavy users, of which every fifth (19.3%) did not have a fixed-line Internet connection on use. One might assume that the lack of fixed-line Internet connection is one of the major drivers of mobile banking adoption. In Finland in general over 90% of the population has Internet connection on use.

**TABLE 1 Profile of the respondents**

<b>Demographic Characteristics</b>	<b>Frequency</b>	<b>Percentage</b>	<b>Cumulative percentage</b>
<b>Gender</b>			
Male	634	50.6	50.6
Female	590	47.1	97.7
Missing	29	2.3	100
<i>Standard deviation 0.499</i>			
<b>Age</b>			
Under 18	4	0.3	0.3
18-24 years	226	18	18.3
25-34 years	418	33.4	51.7
35-49 years	370	29.5	81.2
50-64 years	212	16.9	98.1
65 years and over	17	1.4	99.5
Missing	6	0.5	100
<i>Standard deviation 1.026</i>			
<b>Marital status</b>			
Married	488	38.9	38.9
Cohabitation	337	26.9	65.8
Single	322	25.7	91.5
Widow	13	1	92.5
Divorced	75	6	98.5
Missing	18	1.5	100
<i>Standard deviation 1.113</i>			
<b>Occupation</b>			
Executive	70	5.6	5.6
Worker	503	40.1	45.7
Not at work	84	6.7	52.4
White-collar worker	246	19.6	72
Student	132	10.5	82.5

Farmer	29	2.3	84.8
Pensioner	54	4.3	89.1
Entrepreneur	74	5.9	95
Public servant	49	3.9	98.9
Other	5	0.5	99.4
Missing	7	0.6	99.9

*Standard deviation 2.183*

#### **Household income**

Under 10.000 euros	109	8.7	8.7
10.001-20.000 euros	191	15.2	23.9
20.001-30.000 euros	239	19.1	43
30.001-40.000 euros	195	15.6	58.6
40.001-50.000 euros	181	14.4	73
50.001-60.000 euros	130	10.4	83.4
60.001-70.000 euros	67	5.3	88.7
70.001-80.000 euros	34	2.7	91.4
Over 80.001 euros	33	2.7	94.1
Missing	74	5.9	100

*Standard deviation 1.988*

Based on the information received from our empirical data, we know the respondents' main sources of information about mobile banking services; and why the customers tried mobile services in first place. Research results among so called occasional users were consistent with so-called Bass model of innovation arguments. Most of the occasional users, 46.7 %, had been exposed to interpersonal influence, namely recommendations by bank's personnel. Importance of mass media exposure was not equally significant, 16.4 % of respondents were influenced by bank's direct marketing activity (letter) and 15.7 % by bank's advertisement. In the very beginning of the diffusion process it is typical that adoptions are more due to external influence, i.e. mass media, and as the process continues internal influences gain in importance. Occasional users of this survey may be characterized to consist of both innovator and imitators as defined by Bass. In the group of so called non-users 36.3 % of the respondents had heard about mobile banking services through mass media, banks' advertisements. And 26.1 % of respondents have had bank's letter as information source and 19.5 % bank's personnel, in other words, the results confirm the communication source and mode pattern presented in the literature. Our findings are consistent with that of Lee's et al. [21], financial institutions are currently the most active diffusion agents for customers as well as receiving written information from financial institutions is likely to increase the probability of adopting electronic banking innovations such as mobile banking services.

**TABLE 2 Adoption triggers and inhibitors: Summary of means**

<b>Attribute</b>	<b>Importance means</b>	<b>Standard deviation</b>
<i>I would use mobile bank if I could</i>		
Pay bills cheaper	4.38	2.15
Have faster data transmission rate	3.74	2.49
Authenticate with mobile phone to Internet bank	3.67	2.60
Use chip card of mobile phone as bank and credit card	3.56	2.51
Have substantially more versatile services	3.47	2.40
Use services via other mobile device than mobile phone	3.27	2.81
Key code list xxx	3.02	2.51
Control mobile services by voice instead of typing	3.01	2.57
Have personal education	2.61	2.35
<i>If I had problems with usage of mobile banking services they related to</i>		
Slow data transmission	2.01	2.47
Insufficient guidance	1.95	2.44
Malfunction of services	1.91	2.41
Lacking operating instructions	1.76	2.35
Poor user interface	1.44	2.31
Dexterity	1.42	2.28

Lack of time	1.43	2.28
General difficulties in using mobile phone	1.41	2.26

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Notes: Scale ranging from 0= not at all important effect to 6 = very important effect

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The most important attribute in encouraging the use of mobile banking was related to the costs of conducting banking (mean 4.38, standard deviation 2.15). Wish of faster data transmission accounted to the secondly highest importance mean (mean 3.74, standard deviation 2.49). Surprisingly, the third attribute mentioned to boost to mobile banking adoption was authentication with mobile phone to Internet bank (mean 3.67, standard deviation 2.60). Admittedly, the response pattern along different attributes was pretty homogenous. The distinctly most important reason for the trial of mobile banking was the possibility to conduct banking truly regardless of time and place (mean 5.09, standard deviation 1.62). As secondly important was mentioned to be novelty and curiosity towards using the services. These results reflect the fact that mobile banking services are in relative early state in a diffusion path. Often the first adopters of an innovation are motivated by just to get their hands on the latest and greatest innovation, on anything that is truly brand-new (Mohr 2001)



### **FIGURE 1 Factors affecting mobile banking usage via GSM SMS services**

The highest scored importance means relate to the above discussed problem with accelerating pace of development; high-technology services launched in considerably early stage of the product development phase. Consequence is that consumers' experiences with the service may end up being negative. In the end it should be noticed that overall ranging scores to these attributes were relatively slow. The respondents have not had very significant problems with mobile banking services. In our results we have separated the factors affecting primarily the SMS-banking or the WAP-banking. Both are forms of mobile banking, but SMS-banking is accessed by sending text-messages whereas WAP-banking is a

form of mobile Internet service accessed via GPRS (Internet) connection. Customers perceive the SMS-banking to be easier to use compared to WAP-banking. Therefore it is no surprise, that even though the WAP-banking customers would use SMS-banking as a substitute if needed, the SMS-banking customers would use ATM as their substitute delivery channel.



## **FIGURE 2 Factors affecting the mobile banking usage via GSM SMS services**

Exploratory factor analysis was used in order to identify underlying constructs and investigate relationships among key survey interval-scaled questions regarding reasons for adopting and not adopting mobile banking services. Principal axis factoring was carried out, followed by varimax rotation with Kaiser Normalization. The Kaiser-Meyer-Olkin (KMO) measures of sampling adequacy (0.86 and 0.93) were well above the 0.5 recommendation level, and Bartlett's test of sphericity ( $p=0.0$  and  $p=0.0$ ) provided as well support for the validity of the factor analysis of the data set (Malhorta 1999). Varimax rotation facilitated interpretability. In addition, Gronbach's alpha was counted; the scores were above accepted level (Nunnally 1978). Hence, the data set can be defined as reliable. Deciding the number of factors to retain is difficult, but initial runs based on a scree plot and eigenvalues showed support for two factors. The criterion for assignment of reasons to a certain factor was a minimum factor loading of 0.5. The two-factor solution identified explained 59.5 % of the total variance within the first question and 66.3 % of the total variance within the second question.

Examination of the factor analysis for drivers of mobile banking (Table 2) suggests that the first factor, which we labeled "access", accounts for 48.4 % of the total variance and is defined by four variables with factor loadings. Factor one appears to represent variables that constitute value proposition of the wireless delivery channel and nature of a handheld device. Mobile banking allows customers to access their accounts from any location, at any time of the day. Today mobile phone is more often carried always in a pocket and familiarity with the device taken for granted. Independent usage of mobile banking services seems to be valued by the respondents. Previous studies (e.g. Tan and Teo 2000)

have stated likewise that electronic banking gives customers greater control over managing the finances. The second factor accounts 11.1 % of the total variance and exhibits loadings for three variables. We call here factor two "accelerating pace of development, positive effect", as the variable pace of development in mobile banking accounted highest loadings (0.772). Technology has infused to the service encounters of financial institutions. Knowledgeable and demanding customers assume that banking service providers acting in technology driven environment will continue to keep up with the development; apply technological innovation further in service offerings and consequently ease up the everyday lives of the customers. Enthusiasm with technological development itself is obviously a driver for adoption of mobile banking. Advantage in mobile banking is gained also in saving in time and effort.

Factor 1: Access

Factor 2: Accelerating pace of development, positive effect

**TABLE 3 Drivers: Factor analysis**

Reasons for using mobile banking services	Factor 1	Factor 2
Mobile phone is anyway a familiar device	0.540	
Mobile phone is always with me	0.711	
Using mobile banking is independent	0.794	
Service quality does not change, it is routinized	0.645	
Sufficient guidance in using mobile phone for banking		0.546
Conducting banking is fast and effortless		0.634
Pace of development in mobile banking services is fast		0.722
-		
Initial eigenvalue	4.35	1.00
Total variance explained %	48.4	11.1
Extraction method: Principal Axis Factoring		
Rotation method: Varimax		

Cronbach's alpha a = 0.8603

Factor analysis for inhibitors of mobile banking suggests that the first factor accounts for 57.7 % of the total variance and is defined by six variables. Factor one appears to be defined by a mix of items that are reflections of problems in supplier side of the services. The negative effect of accelerating pace of development is manifested in services that are launched in too early stage of development process due to competitive and cost pressures. As a consequence competence of service quality, as defined by Zeithaml et al.(1991), do not reach an adequate level. In addition, emphasizing technology may result in ignoring certain fundamental prerequisites required for acceptance. Technology is enabler; way to build up a new delivery channel, but communicating only technological features elides other elements of service such as service content. Technologically enabled electronic delivery channel do not constitute service offering and create value alone, but service content (e.g. funds transfer or stock trades and quotes) have to function properly and ways of usage have to be known. Factor two accounts for 8.57 % of total variance. There the main impediment seems to be functionality of a mobile phone as delivery medium for banking services. Mobile phone can be considered, to some extent, not to be designed for this type of services, for example keyboard is relatively small, which facilitates possibilities of errors in typing.

Factor 1: Accelerating pace of development, negative effect

Factor 2: Functional issues

**TABLE 4 Inhibitors: Factor Analysis**

Reasons for not using mobile banking services	Factor 1	Factor 2
Mobile banking services are expensive	0.546	
Insufficient guidance	0.588	
Use has been a disappointment	0.683	
Too slow data transmission	0.692	
Use is complicated	0.787	



Mobile banking services are not enough versatile	0.832	
Possibility of errors higher than in Internet banking		0.533
Using key code list with mobile phone complicated		0.538
I do not want to use mobile phone in banking		0.669
Mobile phone is an unpractical device for banking		0.683
-		
Initial eigenvalue	5.77	1.22
Total variance explained %	57.7	8.57
Extraction method: Principal Axis Factoring		
Rotation method: Varimax		

Cronbach's alpha a = 0.6204

### Relative advantage

Relative advantage is concerned with the degree to which an innovation is perceived as being better than the idea it supersedes. The degree of relative advantage is often expressed as economic profitability, social prestige, savings in time and effort, immediacy of the reward or as decrease of discomfort. (Rogers 1995, 212-216). The construct of relative advantage is highly domain specific and thus advantage can be seen differently in context of different innovations and on other hand of different consumer. In the case of mobile banking relative advantage is mainly formed across the mobile value of the new banking service delivery medium. Mobile value signifies the value arising from the mobility of the medium, i.e. making use of electronic services while on the move/road, mobility offers the creation of choice and new freedom. (Anckar & D'Incau 2002, 47). As the major trigger for adopting mobile banking services regular users (85.4 %) and occasional users (77.8 %) named the accessibility and availability of services regardless of time and place. Over half of the regular users (52.1 %) and 43.8 % of occasional users mentioned also savings in time and effort as reasons to adopt as well as savings in financial costs of conducting banking (regular user 44.8 % and occasional user 44.5 %).

### Complexity

The perception of complexity involved when conducting financial transactions via mobile channel is often inversely related to a consumer's experience with technology in general. Adoption of complex products depends on adopter's ability to develop new knowledge and new patterns of experience. This ability can be enhanced by the knowledge gained from related products. (Mahajan, Muller & Srivastava 1990, 45). In Finland usage of Internet banking has already diffused to masses of banking customers, it can be argued that Internet banking is sort of related service. Payments and account management products over mobile GSM phone as SMS have been available in Finland since 1992 too. (Mattila & Pentto 2002). When respondents were asked about problem faced with mobile banking, all the response alternatives got rather low ratings. Regular users mentioned that malfunction of service (12.5 %) had caused some problems, whereas occasional users complained about insufficient guidance (14.6 %) to using mobile banking services.

### Compatibility

The degree to which an innovative channel such as a mobile device is compatible with the individual's past experiences and values appears to have a significant impact on willingness to adopt. Respondents were asked about their attitudes towards technology-based products and services. Every target segment informed with positive mean scores (scale used ranged from -3 to 3) i.a. to mobile phone and services, Internet, personal computer, cable television, e-mail that they were pretty enthusiastic about using technology, except of electronic ID-card (mean scores -0.2 - -0.09). Furthermore 82 % of the respondent had an Internet connection on use. In Finland mobile phone penetration exceeds 85 %, which certainly affect adoption of mobile banking services too. These results are consistent with Rogers' suggestion and previous research (e.g. Tan & Teo 2000) that compatibility of an innovation with previously introduced idea can influence the adoption of the innovation as well as the development stage of infrastructure. Further, Hirschman (1980) has suggested that prior experience with the product class, which for example in this case is usage of Internet banking, may lead to greater acceptability of a new product.

### Observability

Observability of an innovation describes the extent to which an innovation is visible to other members of a social system, how easily the benefits can be observed and communicated. (Rogers 1995). The lack of physical domain in service products may present some problems, even though in this case the service delivery medium, mobile phone itself, may enhance physical evidence of the innovation. In this survey respondents mentioned they had gained information of mobile banking services from banks' personnel (occasional users 46.7 %, non-users 19.5 %) via personal selling activities, and secondly from marketing communication activities, such as advertisements (occasional users 15.7 %, non-users 36.4 %) and mailings (occasional users 16.4 %, non-users 26.1 %).

### **Trialability**

Rogers argues that potential adopters who are allowed to experiment with an innovation will feel more comfortable with it and are more likely to adopt it. Consequently, if consumers are given the opportunity to try the innovation certain fears of unknown and inability to use can be reduced. In this survey 12.7 % of non-users had tested mobile banking services, but this did not lead to permanent use. However, this evidences that trial use of mobile banking services is possible.

### **Perceived risk**

Security and trustworthiness of usage of service was mentioned to be the most important factor within every target segments when deciding on banking service delivery channel. Survey participants responded also positively (mean scores 1.4 - 0.1) to the argument "using mobile phone in banking is trustworthy".

## **Discussion and model development**

Based on the above discussed findings of the survey and the reviewed literature, a model of the factors influencing adoption of mobile banking services was formed (Figure 1). Rogers' initial five constructs of innovation attributes augmented with perceived risk and external factors such as social system, communication channels, time and demographics of adopters are argued to be the dimensions of this model. The size of the attribute demonstrates also the importance of it. The most significant predictors of adoption in this case turned out to be relative advantage gained, compatibility of services with adopters existing values and perceived complexity of the services. The proposed model is not intended to be fully comprehensive or universally applicable, but rather it should be viewed as one of the first insights into this fairly unexamined and 'unknown territory' of mobile banking.

### **FIGURE 3 A model of the factors affecting the adoption of mobile banking services**

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