

Mobile Banking as Business Strategy: Impact of Mobile Technologies on Customer Behaviour and Its Implications for Banks

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Abstract--Mobile Commerce is gaining increasing acceptance amongst various sections of the society. This growth can be partly traced back to technological and demographical developments that have been influencing important aspects of the socio-cultural behaviour in today's world. The need for mobility seems to be the driving force behind Mobile Commerce in general.

Mobile Banking, availment of bank-related financial services via mobile devices, builds a cornerstone of Mobile Commerce. An empirical survey of customer acceptance conducted within the frame of our research clearly reveals a major, growing interest in Mobile Banking. However, since the degree of interest and the willingness to pay vary for individual services, it seems to be necessary to design specific services taking the needs and wishes of relevant target groups into consideration. Banks ought to therefore employ mobile channels with a clear business-focus. This paper examines the opportunities for banks to generate revenues by offering value-added, innovative mobile financial services while retaining and even extending their base of technology-savvy customers.

I.

II. INTRODUCTION

Mobile Commerce has staged a remarkable comeback. Rising from the ruins of a failed first stint, it has surprised many pundits busy writing its obituaries. Mobile Commerce is slowly, but surely, showing signs of a healthy recovery. Revenues generated by mobile applications in Western Europe exceeded the mark of € 1 billion in 2003. Mobile

Commerce revenues in Germany alone are estimated to cross € 5 billion by year 2007 [4; 6].

This paper examines the opportunities for banks to generate revenues by offering value-added, innovative mobile financial services (MFS) while retaining and even extending their base of technology-savvy customers. The paper is structured on the following lines: The concept of Mobile Commerce, Mobile Banking and possible financial services are introduced in the following two chapters. Thereafter, the possible utilities of Mobile Banking from the banks' perspective are discussed in detail. This is followed by the presentation of the customer survey and a strategic assessment of its results.

III. THE MOBILE COMMERCE PERSPECTIVE

Mobile Commerce can be defined as "any transaction, involving the transfer of ownership or rights to use goods and services, which is initiated and/or completed by using mobile access to computer-mediated networks with the help of an electronic device" [22]. Even though it shares commonalities with Electronic Commerce, its offer distinguishes itself in many respects from the purely electronic forms of transactions, see e.g. [12; 13; 16; 21; 22; 23; 24]. Figure 1 establishes a Mobile Commerce perspective and distinguishes it from other related terms [22].

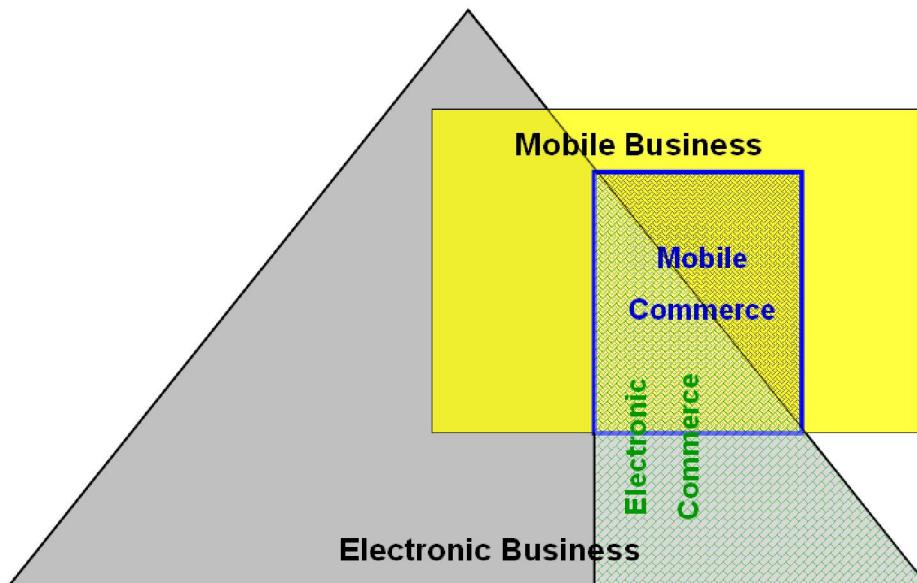


Figure 1: Mobile Commerce Perspective

Figure 1 illustrates the following facts:

- i) Electronic Business and Mobile Business offer many similar services in both commercial and non-commercial areas. Respective examples are sale/purchase of goods and services on the one hand and CRM on the other.
- ii) Electronic Business offers additional services, not feasible with Mobile Business, e.g. coordination of Research & Development activities. Mobile Business, too, offers unique services, not feasible with conventional Electronic Business, e.g. context-sensitive CRM.
- iii) Both Electronic- and Mobile Commerce are integral subsets of their respective business fields, i.e. Electronic Business and Mobile Business.
- iv) Electronic Commerce and Mobile Commerce offer many similar services, e.g. booking an entrance ticket for a football match.
- v) Both Electronic- and Mobile Commerce offer services not feasible with the other. For instance, selling of high-quality non-standardised products requires an intensive presentation not feasible on mobile devices. On the other hand, Mobile Commerce offers unique location-based services (LBS) e.g. search for the nearest ATM specific to a location.

A. Features of Mobile Commerce

Mobile Commerce is characterised by some unique features that equip it with certain advantages against conventional forms of commercial transactions, including Electronic Commerce [1; 5; 10; 14]:

- i) **Ubiquity:** Ubiquity means that the user can avail of services and carry out transactions largely independent of his current geographic location (the “anywhere” feature).
- ii) **Immediacy:** Closely related to the feature of ubiquity is the possibility of real-time availment of services (the “anytime” feature). This feature is particularly attractive for services that are time-critical and demand a fast reaction, e.g. stock market information.
- iii) **Localisation:** Positioning technologies, such as the Global Positioning System (GPS), allow companies to offer goods and services to the user specific to his current location. LBS can thus cater to consumers’ needs and wishes for localised content and services.
- iv) **Instant connectivity:** Ever since the introduction of the General Packet Radio Service (GPRS) mobile devices are constantly “online”, i.e. in touch with the network (the “always-on” feature). This feature brings convenience to the user, as time-consuming dial-up or boot processes are not necessary.
- v) **Pro-active functionality:** Mobile Commerce opens, by the virtue of its ability to be immediate, local and personal, new avenues for business. The user may choose the products, and services, which he wants to be kept informed about. The Short Message Service (SMS) can be used to send brief text messages to customers ensuring that the “right” (relevant) information is provided to the user at the “right” place, at the “right” time.

- vi) **Simple authentication procedure:** Mobile devices function with an electronic chip called Subscriber Identity Module (SIM). The SIM is registered with the network operator and the owner is thus unambiguously identifiable. The clear identification of the user in combination with an individual Personal Identification Number (PIN) makes any further time-consuming, complicated and potentially inefficient authentication process redundant.

B. Specific Advantages of Mobile Commerce

Mobile commerce, on account of its earlier discussed features, can provide users with additional, value-added utility, particularly in following situations [1; 2; 5]:

- i) **Context-specific services:** Mobile Commerce makes it possible to offer LBS specific to a given context (e.g. time of the day, location and the interests of the user). Such services offer new opportunities for personalised push-marketing in close proximity to the vendor thereby increasing the probability of sale. It enhances brand presence and thus encourages consumers to remain loyal to brands they are acquainted with.
- ii) **Time-critical situations:** The ubiquity and immediacy of Mobile Commerce allows users to perform urgent tasks in an efficient manner, e.g. fast reaction to stock market developments irrespective of current geographic location.
- iii) **Spontaneous decisions and needs:** Spontaneous needs are not externally triggered and generally involve decisions that do not require a very careful consideration, e.g. decisions involving small amounts of money. Users may be provided with access to entertainment content, e.g. horoscope or sport news while on the move and with free time on the hand.
- iv) **Efficiency increase:** Mobile Commerce may help increase the productivity of the workforce by increasing the efficiency of their daily routines. Time-pressured consumers (employees) can use ‘dead spots’ in the day, e.g. during the daily travel to and from workplace, more effectively. This can be utilised, e.g. to check e-mails, get current news, order products and carry out bank transactions.

This discussion shows that Mobile Commerce has the potential to offer some new, hitherto unknown services to users on account of its unique features which would not be possible in this scope via mediums of Electronic Commerce.

IV. EMPLOYMENT OF MOBILE TECHNOLOGIES IN THE BANKING SECTOR

A cornerstone of Mobile Commerce is built by Mobile Banking, the availment of bank-related financial services via mobile devices. It comprises of services in the field of accounting, brokerage and financial information. Mobile Banking is increasingly being employed by many banks around the world to generate additional revenues, reduce costs or to

increase customer satisfaction, often with very promising results. For instance, the utilisation of transaction-based MFS of Finland-based *Nordea* bank grew by 30% in 2004 [3]. The number of France's *Société Générale* customers using mobile services crossed the mark of one million in year 2004, registering an impressive growth of nearly 200% vis-à-vis 2003 [20]. These facts point toward a positive shift in the customer perception of Mobile Banking. On the other hand, technological developments like Universal Mobile Telecommunications System (UMTS) have provided a new platform for realistic mobile applications. Unlike in the past, when banks offering mobile services suffered a severe setback due to lack of customer interest and unripe technologies, the time seems to be now ripe for (re-)launching mobile services. Mobile Banking is usually defined as carrying out banking business with the help of mobile devices such as mobile phones or PDAs [8; 11]. The offered services may include transaction facilities as well as other related services that cater primarily to informational needs revolving around financial activities. Considering these factors we can define Mobile Banking as following:

"Mobile Banking refers to provision and availment of bank-related financial services with the help of mobile telecommunication devices. The scope of offered services may include facilities to conduct bank and stock market transactions, to administer accounts and to access customized information." [22]

Mobile Banking, as defined above, includes a wide range of services. These services may be categorised as following:

A. Mobile Accounting

Mobile Accounting is sometimes characterized as transaction-based banking services that revolve around a bank account and are availed using mobile devices [8]. Not all Mobile Accounting services are however necessarily transaction-based. A more precise definition of Mobile Accounting would therefore characterize it as "availment of account-specific banking services of non-informational nature" [22]. Mobile Accounting services may be divided in two categories to differentiate between services that are essential to operate an account and services that are essential to administer an account.

TABLE 1: SERVICES IN MOBILE ACCOUNTING

Mobile Accounting	
Account Operation	Account Administration
Money remittances & transfers	Access administration
Standing orders for bill payments	Changing operative accounts
Money transfer to sub-accounts	Blocking lost cards
Subscribing insurance policies	Cheque book requests

B. Mobile Brokerage

Brokerage, in the context of banking- and financial services, refers to intermediary services related to the bourse, e.g. selling and purchasing of stocks. Mobile Brokerage can be thus defined as transaction-based, mobile financial services of non-informational nature that revolve around a securities account [8]. Mobile Brokerage, too, may be divided in two categories to differentiate between services that are essential to operate a securities account and services that are essential to administer that account.

TABLE 2: SERVICES IN MOBILE BROKERAGE

Mobile Brokerage	
Account Operation	Account Administration
Selling & purchasing financial instruments (e.g. securities)	Access administration Order book administration

C. Mobile Financial Information

Mobile Financial Information refers to non-transaction based banking- and financial services of informational nature [8]. Mobile Financial Information services include subsets from both banking and financial services and are meant to provide the customer with anytime, anywhere access to information [22]. The information may either concern the bank and securities accounts of the customer or it may be regarding market developments with relevance for that individual customer. The information may be customised on the basis of preferences given by the customer and sent with a frequency decided by him. The information should be provided, ideally, on both, pull and push basis. Information services are an integral part of Mobile Accounting and Mobile Brokerage but they may also be offered as a stand-alone, independent module, i.e. Mobile Financial Information can be offered without offering Mobile Accounting or Mobile Brokerage but *vice versa* is not feasible.

TABLE 3: SERVICES IN MOBILE FINANCIAL INFORMATION

Mobile Financial Information	
Account Information	Market Information
Balance inquiries / Latest transactions	Foreign exchange rates
Statement requests	Market and bank-specific interest rates
Threshold alerts	Commodity prices
Returned cheques / cheque status	Stock market quotes and reports
Credit card information	Product information & offers
Branches and ATM locations	-
Helpline and emergency contact	-
Information on the completion status	-

V. UTILITY OF MOBILE BANKING FROM BANKS' PERSPECTIVE

At this stage it would be relevant to understand the usefulness of Mobile Banking from the banks' perspective. It is therefore imperative to understand the business environment in which banks operate and to identify customer groups that the banks may seek to target via Mobile Banking.

A. Intensified Competition in the Banking Sector

Bank products are of immaterial nature sold increasingly with the help of computer networks spanning across the globe [15]. The global networks provide the customer with world-

wide services, for instance the use of credit cards while abroad. The creation of an EU-wide single domestic market has led to intensification of competition in the EU in all business fields including in the banking sector. The ongoing Globalisation has further intensified the competition. Technical developments coupled with the process of Globalisation, have made it possible for banks to offer their services in far-flung areas without investing money to build branches and hire additional staff.

This opportunity, of course, is a two-way street: On the one hand, a bank gets access to new markets. On the other hand it is faced with increased competition on its home turf. To master this combination of opportunities and challenges banks need – apart from business consolidation and cooperation – organic growth. It is therefore necessary to retain the existing customer base while simultaneously acquiring new, economically prosperous customers. Seen in conjunction with the price-sensitivity of customers and the resultant low relevance of the brand-name banks are compelled to introduce innovative services that potentially attract prospective customers while retaining others. Even though the brand-name remains a critical factor on account of the need for trust in banking business, the Globalisation and the technological developments, however, have reduced entry barriers so that the number of available reputed brands has increased significantly; thereby intensifying the competition.

B. Adapting to Requirements of Core Target Groups

Banks, today, are increasingly confronted with technology-savvy customers who are often on the move. As Wolfgang Klein, *Private Customers Director at Postbank*, a leading German bank, puts it: "Today's customers want to organise banking transactions while on the move, irrespective of opening hours" [19]. Banks are responding to this development by introducing mobile services. Core target groups of Mobile Banking are often divided in three categories [7]:

- a) **The Youngsters:** the segment of 14-18 years old youth has acquired an important role in the growth of mobile telecommunications and related services. This group is technology-savvy and willing to experiment with innovative products and services. The youngsters, often on the move, demand ubiquitous, anytime service. Though the youngsters as a group are hardly relevant for banks from a financial perspective, they represent the prospective clientele of tomorrow and need to be cultivated in the middle to long-term marketing strategy of the banks.
- b) **The Young Adults:** Also this segment is thought to be technology- and innovation friendly. Though this group too is financially not very strong, many members of this group are known to be involved in stock market activities. Further, this group can be expected to enter in short to medium-run a professional carrier so that it needs to be cultivated in order to retain customers of this age-group even after they enter professional lives.
- c) **The Business People:** this group of customers, generally in the age-group of 26-50 years, is thought to be the most important one for Mobile Banking. Members of this group are generally well educated and economically

well-off. They need to be professionally often on the move and carry mobile devices to ensure accessibility. For this reason they are ideal candidates to use services offered via mobile devices. From the banks' perspective this group is particularly attractive on account of its relative economic prosperity and the need for financial services, e.g. home loans for young families.

In order to fulfil the requirements of these customer groups banks tend to look at Mobile Banking as a promising option. However, these services also have their own utility for the banks.

C. Mobile Banking as Distribution Channel

Mobile Banking enhances the number of existing channels of distribution that a bank employs to offer its services. The efficiency of a distribution channel can be measured by its fulfilment of three major objectives, which are closely related to each other.

1. Increasing Sales Volume

One of the primary tasks of a distribution channel is to increase the volume of demand for products at profitable prices [11]. This objective is arrived by increasing operational efficiency so that those losses are minimized that are caused by delays in catering to customer orders. Further, a favourable reputation of the firm's logistical capacities may help generate additional orders. Mobile Banking can contribute to achieve this goal by following means [11]:

- i) Anytime, anywhere access to banking services;
- ii) Availability of push services to suggest transactions on an urgent basis, e.g. to sell certain stocks when a crisis erupts;
- iii) Face-to-face talks with the personal consultant via video telephony.

For instance, *ING Postbank* of Netherlands launched in the year 2001 a scheme to boost its sales volume. Every new customer who deposited €450 in a savings account was provided with a mobile telephone worth €150. Within 6 weeks more than 500,000 new customers and over €225 millions in deposits could be acquired. More importantly, 97% of these new customers became regular users of Mobile Banking and remained with the bank [9]. This example also shows the importance of "induced demand", which suggests that the demand for a good or service often increases, once the supply is increased and actively promoted.

2. Reducing Costs of Distribution

Due to increased competition a distribution channel must organise business processes efficiently so as to reduce distribution costs. This pressure can be coped with by rationalising organisational structures to increase productivity. Mobile Banking can contribute to achieve this goal by following means [11]:

- i) The manual collection, processing, transmission and archiving of data by bank employees in branch offices is substituted, as in the Internet-based banking, by auto-

mated processes. Luber [11] cites a US study according to which a transaction carried out in a branch office costs banks on average \$1. When carried out via telephone it costs only \$0.5. The same transaction, when carried out via Internet or mobile devices costs the bank just 1 cent. The advantage of Mobile Banking vis-à-vis conventional banking is thus obvious. Vis-à-vis Internet-based banking, however, there is no cost advantage.

- ii) As against Internet Banking, Mobile Banking makes it possible to offer ubiquitous, semi-personal consulting services in real time. These services can be centralised to exploit economies of scale and scope as well as regional cost differences.
- iii) Diversification of distribution channels helps reduce business costs that arise in the form of sales lost due to sudden collapse of a channel and to minimize customer dissatisfaction.

For instance, the utilisation of transaction-based mobile financial services of *Nordea*, one of the pioneers in the field of Mobile Banking, grew by 30% in 2004. *Nordea* reported successful cost reduction by motivating customers to shift to electronic/mobile forms of banking. A vice-president of the mobile banking division at *Nordea* is quoted as saying, "Nordea's customers have been persuaded to take the netbanking and mobile routes because these are cheaper and more convenient ways of banking" [3].

3. Increasing Customer Satisfaction

Mobile Banking may help increase the customer satisfaction by following means [11]:

- i) Streamlining of business processes to increase efficiency;
- ii) More attention and better consulting for customers due to automation of routine processes;
- iii) Innovative "anywhere, anytime" services customized for individual preferences and current geographic location of the customer provide value-added to the customer;
- iv) The collected data can be utilised to create customer profiles.

Increased customer satisfaction can help reduce the customer attrition rate.

D. Mobile Banking as Source of Revenue

Mobile Banking can also serve as a source of revenue. Mobile services can be offered on a premium basis. The price, in this case, should be reasonable enough so that customers are willing to pay them but at the same time they should be – from a financial point of view – higher than the costs incurred by the bank. Additional revenues can be generated in two ways:

- i) Offering innovative, premium services to existing customers;
- ii) Attracting new customers by offering innovative services. Whereby new customers contribute to revenue generation not only by utilising mobile services but also by using other conventional distribution channels.

There are reports of banks that have successfully employed Mobile Banking as a source of revenue. The French bank *Société Générale* launched a SMS-alerts service named "Messalia" whose subscription costs in general €4.00 a month. This service had attracted 640,000 subscribers by the year-end 2004 with an 11% growth vis-à-vis year-end 2003 [20]. This service has been generating profits ever since it was launched [9].

E. Mobile Banking as Image Product

Finally, Mobile Banking can be also used as an image product to gain strategic advantages. A bank may hope to win or retain a positive image amongst technology-savvy sections of the society and strengthen the brand-reputation of being innovative and visionary [8]. The image of being a technology leader can help the bank win customers looking for modern products and services and at the same time help it retain its own existing base of technology-savvy customers, some of whom otherwise might have switched to other banks while looking for such a product. Further, the bank can profit from an early-mover advantage by actively shaping technological standards that are based on one's own strengths. This is, of course, fraught with a substantial risk of incurring financial and image losses if the propagated technology fails to establish.

VI. EMPIRICAL ASSESSMENT OF CUSTOMER ACCEPTANCE

A survey was organised to examine the degree of customer acceptance for various Mobile Banking services and the customer's willingness to pay for them.

A. Methodology of the survey

The customer acceptance of Mobile Banking was surveyed between June and July 2005 in the German cities of Hamburg, Frankfurt and Munich. A total of 488 persons in the age-group of 18 to 65 years answered a 3-pages questionnaire giving information on their perceived preferences and willingness to pay for 17 different financial services offered in Mobile Banking.

Structure: The survey participants were asked about personal attributes, e.g. sex, age, profession and income so as to identify characteristics of potential customers. The Participants were asked about their usage of online- and home-banking, bank group, possession of mobile devices and their familiarity to Mobile Banking. They were also requested to give their perception of advantages and disadvantages of Mobile Banking. Finally they were asked to rate their willingness to use for individual services on a scale of 1 (very much willing) to 6 (not at all) and to quantify their willingness to pay for them.

Scale: An even and broad scale of 1 to 6 was selected to generate precise responses and to deny participants the easy option of a "golden middle". Further, the scales from 1 to 6 were labelled with explicit tags to avoid subjective scaling by participants and to ensure consistency in answers.

B. Composition of Survey Participants

Altogether 452 valid samples were collected. 282 of them were from masculine and 170 from feminine participants, making a ratio of 62% male vs. 38% female participants. The largest group of survey participants, judged by profession, was that of students (42%), followed by the salaried class (29%). The largest group of survey participants judged by the age was that of 21-30 years old (68%). Judging by net monthly income, the largest group of survey participants earned up to €1000 a month (56%), followed by those earning up to €2500 a month (18%).

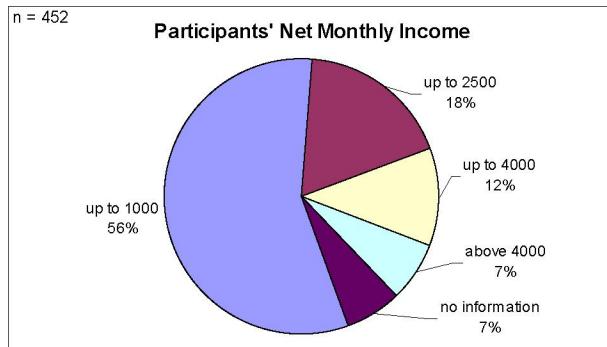


Chart 1: Overview of Survey Participants' Net Monthly Income in Euros

The net monthly income, at the actual disposal of a customer after deducting taxes and other compulsory contributions to social security systems was thought to be more appropriate for this survey.

Familiarity with Mobile Banking: 43% of the participants replied in affirmative to the question, whether their bank offered Mobile Banking services; just 4% replied in negative. The majority (53%) was not aware of such offers by their bank. The positive side of this fact is that as many as 47% of the participants were aware of Mobile Banking and believed to know, whether or not their bank offered it. 12% of all survey participants (55 of 452) reported to have used mobile financial services, at least once. 42% amongst them stated to be regular users; another 36% used Mobile Banking occasionally. 11% reported having discontinued their usage. 80% of Mobile Banking users were males. The usage of Mobile Banking judged by the profession of the participants is shown in the next chart.

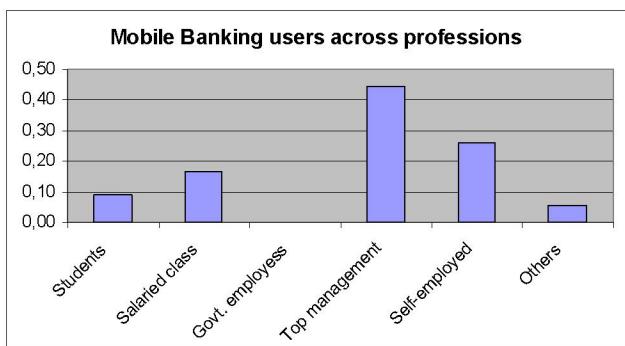


Chart 2: Existing Mobile Banking Users across Professions

C. Customer Perception of Mobile Banking

In this section we present the customer perception of general issues concerning Mobile Banking.

1. Advantages of Mobile Banking

The customer perception of Mobile Banking advantages was found to be overwhelmingly positive. The most appreciated features were ubiquity and the overview over bank account. The chart below presents customer responses from three different categories: a) amongst all 445 respondents; b) amongst 55 existing users; and finally c) amongst 390 non-users.

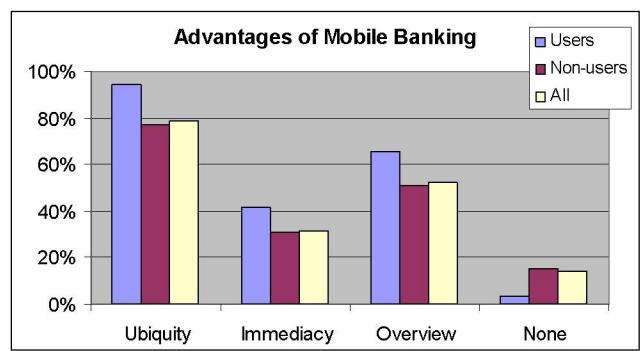


Chart 3: Advantages of Mobile Banking

2. Disadvantages of Mobile Banking

Participants were asked about their perception of disadvantages of Mobile Banking. Security concerns were found to be widespread. On other issues there were differences in opinions. Almost half of the non-users believed Mobile Banking were expensive while 93% of existing users rejected this notion.

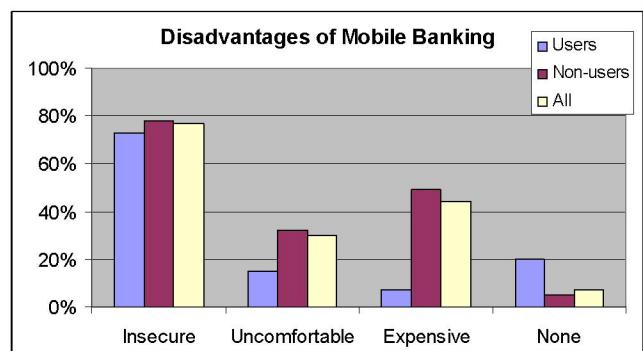


Chart 4: Disadvantages of Mobile Banking

Interestingly, as many as 20% of existing Mobile Banking users did not see any disadvantage in it.

3. Preferred Mobile Banking Applications

The following chart shows responses, which of the services participants could conceive to use.

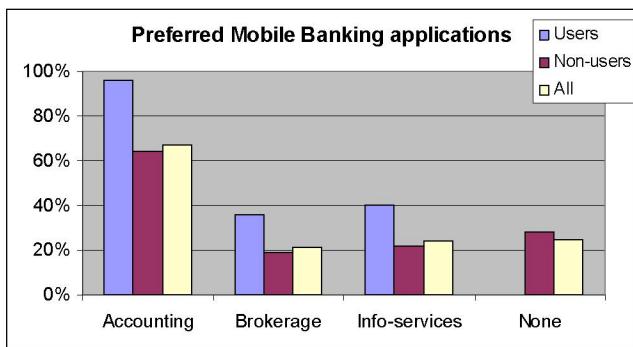


Chart 5: Preferred Mobile Banking Applications

As the chart above suggests, Mobile Accounting enjoys high popularity. 96% of the existing users of Mobile Banking utilise it and 64% of the 390 non-users can imagine using it. Surprisingly, the Brokerage services turned out to be the least popular application even though they are often believed to be one of the most attractive features of Mobile Banking.

4. Importance of Mobile Banking

In order to measure the importance that customers might attach to Mobile Banking offers of their banks, survey participants were asked, whether they could conceive to change their bank, in case it neither offered nor planned to offer mobile financial services?

Altogether 69 of the 452 participants (15%) said they could conceive to change their bank, in case it refused to offer mobile financial services. This opinion was, not unexpectedly, shared by many existing users (44%). Seen in age-groups, participants 31 years or above in age were more willing to change than younger ones. Seen across professions, participants from the groups of top management (33%), self-employed (26%) and the salaried class (22%) were more willing to change their bank than, for example, students (9%). With a two-digit percentage of customers regarding the presence of mobile financial services as a must for the product portfolio of their bank, it would be almost reckless for any bank to ignore this development. An example for this phenomenon can be found at *First Direct*, a direct bank in England. This bank provides free-of-charge SMS service with balance details and list of transactions 2 times a week. A survey amongst its new customers revealed that every eighth new customer (nearly 12%) changed to *First Direct* because of this service [9].

D. Customer Response to Service Offers

Having elicited the customer perception of Mobile Banking and issues closely related to it, we may now turn our attention to the utility of individual MFS. In order to estimate the perceived utility, we asked survey participants about their enthusiasm (or lack of it) for particular services. The willingness for using a service could be rated by the participant on a scale of 1 to 6 keeping in mind the perceived utility to him or her. The results are presented here mostly in the form of opin-

ion blocks in order to have a better overview. The opinion blocks are based on the average rating received by a service:

- Admiration:** average rating better than 2;
- Goodwill:** average rating between 2 and 3;
- Scepticism:** average rating between 3 and 5; and
- Rejection:** average rating below 5

The participants were also asked to quantify their willingness to pay for each of these services by choosing a payment option. The payment is to be regarded as a kind of surcharge paid for availing a service via mobile devices. It is in addition to any charges that the bank might be collecting for providing a particular service without mobile devices. The options were: "none", "up to €0.25", "up to €0.5" and "between €0.5 and €1.00". Alternatively, the participants could opt for a monthly fee.

1. Services in Mobile Accounting

Of the eight services belonging to Mobile Accounting (see Table 4), five were put to customer vote. In the following we present the customer response to individual services. The response to one service is provided in detail. The 304 "Mobile Accounting Admirers" (those who earlier named Mobile Accounting as one of their favourite applications) accounted for 67% of all participants.

2. Money Remittance and Transfer (Mobile Remittance)

The facility to remit money via mobile devices enjoyed high preference amongst all groups of survey participants. It reached an average rating of 2.67 ("goodwill") amongst all participants and of 1.67 ("admiration") amongst existing users of Mobile Banking. 65% of 55 existing users evaluated this service with a utility rating of 1 ("very much willing"). Even more amazingly, 72% of all participants from the group of top management and self-employed rated this service with a rating of 2 or better. The chart below illustrates the ratings given to this service by Mobile Accounting Admirers.

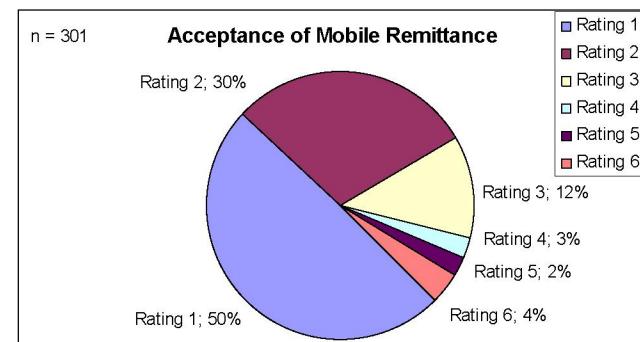


Chart 6: Acceptance of Mobile Remittance amongst Admirers

The willingness to pay extra for being able to remit money via mobile devices was subdued. 53% of all participants and 57% of all students rejected the need to pay for being able to remit money via mobile devices. On the other

hand 47% of existing users signalled their willingness to pay a monthly fee for the same. Also, 35% of Mobile Accounting Admirers showed their willingness to pay a monthly fee. This rejection of payment is however understandable while customers generally pay a fee for remitting money. An extra

surcharge for being able to do so via mobile devices is hence regarded as unwarranted by many. The table below ranks Mobile Accounting services as per their perceived utility and the willingness to pay for them amongst all participants.

Table 4: Ranking of Mobile Accounting Services

Ranking of the Utility		Ranking of the Willingness to Pay	
Service	Avg. Rating	Service	Percentage
1) Card Management	2.44	1) Card Management	52%
2) Mobile Remittance	2.67	2) Mobile Remittance	47%
3) Issuing Standing Orders	3.76	3) Issuing Standing Orders	42%
4) Access Administration	4.03	4) Access Administration	37%
5) Subscribing Insurances	5.11	5) Subscribing Insurances	35%

3. Services in Mobile Brokerage

Mobile Brokerage is often regarded as one of the most attractive applications owing to the possibility of fast reaction to market developments. In the following we describe the customer response to these services. The response to one service is described in detail. The 93 "Mobile Brokerage Admirers" (those who earlier named Mobile Brokerage as one of their favourite applications) account for 21% of all survey participants.

4. Selling & purchasing financial instruments

Most of the survey participants seemed sceptic to selling and purchasing financial instruments (e.g. stocks) via mobile devices. 448 of the participants who responded to this question rated this service on average with "scepticism" (average rating 4.40). 49% "rejected" this service. 53% of all respondents refused to pay for availing this service. On the other hand 13% participants rated this service with 1 ("very much willing") and another 10% each with 2 and 3 ("willing" and "goodwill"). 30% agreed to pay a monthly fee, 17% agreed to "pay per use". This showed two things:

- i) This service is not suitable for mass popularity
- ii) There are customer groups which seem to be willing to use this service and pay for it.

Two groups showed unusually high interest in selling and purchasing financial instruments via mobile devices, namely the admirers of Mobile Brokerage, as defined earlier and the existing users of Mobile Banking. The 93 admirers of Mobile Brokerage evaluated this service on average with "goodwill" (2.7). A massive 61% reported "admiration" (ratings 1 and 2) and another 11% "goodwill" (rating 3), thereby pushing the positive feedback to well above 70%. The will-

ingness to pay for utilisation of this service was very high amongst this group with 74% accepting a payment.

The 54 respondents from the group of existing users of Mobile Banking evaluated this service on average positively. 47% reported "admiration" (ratings 1 and 2) while 76% agreed on the need to pay. The chart below demonstrates the willingness of selected participant groups to pay for transactions conducted via Mobile Brokerage.

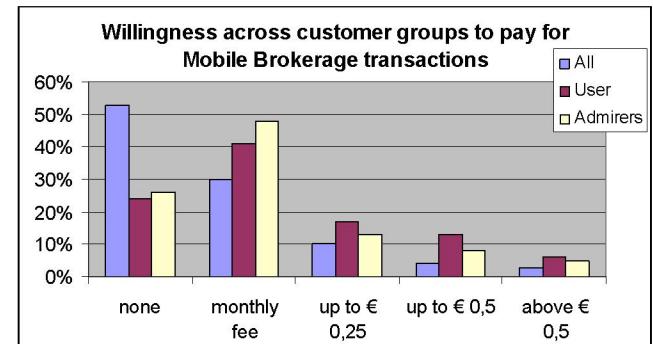


Table 5: Willingness to Pay for Mobile Brokerage Transactions

The response to this service revealed that there is often sufficient demand for services. The real challenge is to identify suitable customer groups and to design the services in a manner so that the specific needs of these groups are fulfilled. The willingness to pay follows in most cases, when the customer values a service. The size of the group naturally plays a key role in any such decision [17]. The tables below ranks Mobile Brokerage services as per their perceived utility and the willingness to pay for them amongst *all participants* and amongst "Mobile Commerce Admirers" respectively.

TABLE 6: RANKING OF MOBILE BROKERAGE SERVICES BY ALL PARTICIPANTS

Ranking of the Utility		Ranking of the Willingness to Pay	
Service	Avg. Rating	Service	Percentage
1) Brokerage Transactions	4.40	1) Brokerage Transactions	47%
2) Access Administration	4.52	2) Access Administration	42%
3) Order Book Administration	4.77	3) Order Book Administration	35%

TABLE 7: RANKING OF MOBILE BROKERAGE SERVICES BY ADMIRERS

Ranking of the Utility		Ranking of the Willingness to Pay	
Service	Avg. Rating	Service	Percentage
1) Brokerage Transactions	2.70	1) Brokerage Transactions	74%
2) Access Administration	3.54	2) Access Administration	67%
3) Order Book Administration	3.54	3) Order Book Administration	46%

The two tables above sufficiently illustrate the point of a differentiated, segment-oriented approach.

5. Services in Mobile Financial Information

Altogether nine services of informational nature were put to vote, e.g. "balance enquiries and statement requests" and "transaction thresholds" (SMS alert for predefined transactions). In the following we present the customer response to these services. The response to one service is discussed in detail. 24% of all survey participants are regarded as "admirers" of Mobile Financial Information (those who earlier named Mobile Financial Information as their favourite application).

6. Balance enquiries and statement requests

The possibility to use mobile devices to make balance enquiries or to order a list of latest transactions received a very favourable response (average rating 2.42: "goodwill") from all participants.

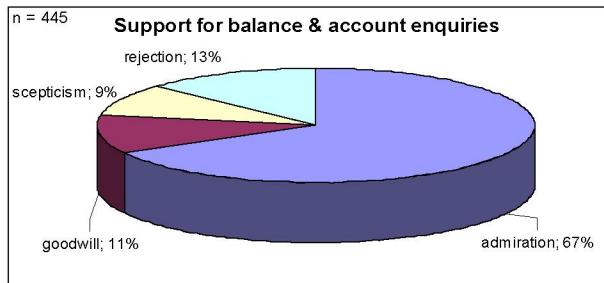


Chart 7: Support for Account and Balance Enquiries

An overwhelming 78% out of 445 respondents to this question evaluated this service with a rating of 3 or better, 45% even with a rating of 1 ("very much willing"). 45% agreed to pay for it, 30% in the form of a monthly fee, others as „pay per use“. 55% did not see any need to pay.

An even higher enthusiasm for this service was shown by existing users: a crushing majority of 83% rated it with "ad-

miration", raising its average rating to 1.69 ("admiration"). No other service reached better ratings. Response for this service in all groups was more or less on similar lines. The chart below depicts the willingness of certain groups to pay for this service.

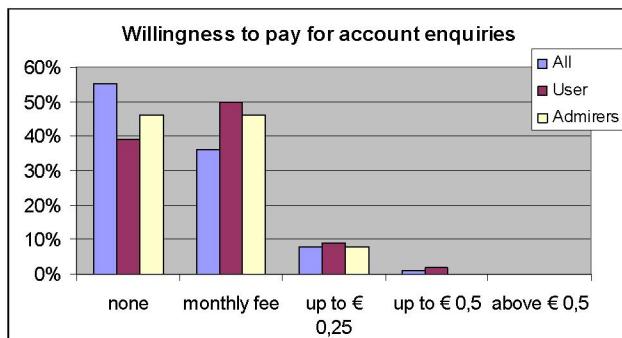


Chart 8: Willingness to Pay for Account Enquiries

As can be seen in the chart above, the opinion was divided almost equally on the question of payment for account enquiries. However, 45% of all respondents were willing to pay, 36% in the form of a monthly fee. 9% reported their willingness to pay up to €0.25 per enquiry.

Most interesting was the enthusiasm shown by the group of those whose net monthly earnings are €1000 or less (253 respondents). An overwhelming majority in this group (65%) showed "admiration" (ratings 1 and 2) and further 15% "goodwill" (rating 3). Only 13% rated it with 6 ("rejection"). 46% stated their agreement to pay for availing this service, 35% on the basis of a monthly fee. Another 11% agreed to pay a fee of up to €0.25 per use. This shows the potential that this service enjoys amongst those with relatively low disposable income.

The table below ranks the services in Mobile Financial Information as per their perceived utility and the willingness to pay for them amongst all participants.

TABLE 8: RANKING OF MOBILE FINANCIAL INFORMATION SERVICES

Ranking of the Utility		Ranking of the Willingness to Pay	
Service	Avg. Rating	Service	Percentage
1) Balance Enquiries	2.42	1) Branches/ATM locations	46%
2) Branches/ATM locations	3.15	2) Balance Enquiries	45%
3) Balance Thresholds	3.68	3) Transaction Thresholds	45%
4) Transaction Thresholds	3.86	4) Balance Thresholds	44%
5) Completion Status	4.12	5) Stock Price Enquiries	43%
6) Stock Price Enquiries	4.14	6) Stock Market Reports	43%
7) Stock Market Reports	4.38	7) Exchange/Interest Rates	43%
8) Exchange/Interest Rates	4.48	8) Completion Status	42%
9) Exchange/Interest Rates	4.64	9) Exchange/Interest Rates	34%

7. Monthly Fee and Advertisements

All in all, 335 of the 452 participants agreed to pay for some service or other, making an astounding 74% with willingness to pay for utilizing MFS. 56% of all participants pleaded for a monthly fee. The options presented were: a) below €3.00; b) between €3.00 and €5.00; c) between €5.00 and €10.00 and d) above €10.00. The chart below illustrates the preferred levels for a justifiable monthly fee:

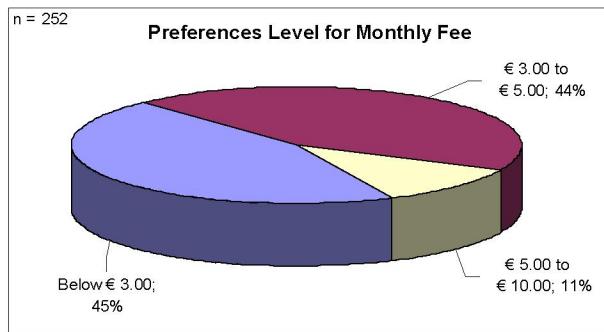


Chart 9: Preferences Level of Monthly Fee Supporters

An overwhelming majority of 99% pleaded for a monthly fee of less than €5.00, whereby 45% were willing to pay a monthly fee of less than €3.00. An almost similar number (44%) was willing to accept a fee between €3.00 and €5.00. Another 11% agreed to pay up to €10.00. Just one participant stated his readiness to pay more than €10.00 a month for availing MFS.

VII. STRATEGIC ASSESSMENT OF MOBILE BANKING

Having examined the views of potential customers on the desirability of MFS, we may proceed to examine the strategic relevance of Mobile Banking in order to derive out implications for banks.

A. Relevance of Mobile Banking

The survey results have demonstrated unambiguously that Mobile Banking has staged a remarkable comeback. Whereas most banks and indeed many experts believed Mobile Banking to be dead after the dotcom burst, banks are seeing themselves increasingly forced to induct mobile services in their product portfolios. The reasons for this extraordinary resurrection are:

- i) The phenomenal growth of the telecommunication sector and the resultant (unparalleled) penetration of the society by mobile phones present unique business opportunities.
- ii) A new generation of technology- and innovation friendly consumers is taking over the centre stage in business- and social life of the society. This generation is more open to the opportunities presented by mobile telecommunication.
- iii) The ongoing process of Globalisation and the integration of the world-economy are forcing working professionals

to be on the move within national and international geographic boundaries. These professionals need to carry out their bank business also while on the move. The “anytime, anywhere” feature of Mobile Banking is thus nothing less than a professional necessity for many of them.

The banks are thus, on the one hand, forced to take cognizance of the needs and wishes of some of their most attractive customer groups. On the other hand, the advantages that mobile services potentially bring to a bank or any other provider of financial services are too palpable to deny. In the following we list some relevant factors that ought to be taken into account while making decisions on the launch, maintenance and scope of Mobile Banking.

1. Significant customer interest

The customer survey establishes that there are sufficiently large groups of customers interested in utilizing MFS. A superficial evaluation often fails to gauge the true extent of the potential. If the results of the customer survey are any indicator, then the time seems to be ripe for a proactive attitude on the part of banks in advertising their MFS so as to induce customer demand.

2. Issues of costs & pricing:

Even though 60% of all survey participants pleaded for lower charges, 93% of *existing users* did not rate Mobile Banking as too expensive. This shows that many potential customers probably *perceive* the usage to be more expensive than it really is. With smart-client solutions and new flat rate tariffs by network carriers, which are based on the amount of transmitted data and not on the amount of time spent online, this issue should cease to play any significant obstacle.

3. Potential advantages of offering mobile Services

Apart from fulfilling customer needs and wishes there is a range of other advantages that banks might reasonably expect by offering MFS, e.g. increasing sales volume. This fact can be exemplified by the customer response to Mobile Brokerage. Whereas only 23% of all survey participants had rated the service “selling & purchasing financial instruments via mobile devices” with “very much willing” and “willing”; this acceptance increased to a massive 61% amongst the group of “Mobile Brokerage Admirers”, who formed 20% of all survey participants. 70% of them agreed to pay for the utilisation of this service. The important question therefore is of identifying suitable groups and offering them services tailored to their specific needs for a reasonable price.

4. Potential disadvantage of ignoring Mobile Banking

In no way of lesser significance are the disadvantages that a missing offer on MFS could potentially cause. Apart from revenue losses there are customers who are willing to change their bank if it neither offers nor plans to offer mobile services. 15% of all survey participants reiterated this posi-

tion. As earlier shown, certain groups were even more defiant, with as many as one third of the respondents claiming readiness to change their bank, if it failed to provide mobile services. That this answer is not a mere rhetoric exercise is amplified by the example of *First Direct* of England, whose every eighth new customer (12%) stated to have switched to them owing to their service of free SMS alerts.

In addition to financial losses that such a scenario might cause, there are other indirect losses too, e.g. the loss of sophisticated and innovation-friendly customers, which are so valuable for business [18].

B. Appropriate scope of Mobile Banking

The above discussion shows that Mobile Banking offers could become indispensable for banks in a not-so-distant future. The question is no more of "whether" but of "when". Even more important seems the question of "what, how and whom", if one wishes to avoid making past mistakes. That is, what services (scope) should be offered how (mediums) and to whom (target groups). Apart from the fact that the scope of the offered services should be selected carefully to suit one's own customers, following two factors ought to be kept in mind.

1. Need for a clear business focus

MFS should be seen as proper business services with clearly focussed business objectives of strategic nature. One of the past mistakes, it seems, was that the technological solutions were given central focus. Mobile Banking was driven in its first phase by enthusiastic IT divisions. Purely technology-motivated solutions may however prove counterproductive as they run a non-negligible risk of ignoring the actual scope of customer needs and wishes.

Business divisions, and not IT divisions, should therefore decide, based on plausible market studies, on the product portfolio and mediums of Mobile Banking. While IT divisions undoubtedly play a key role in the implantation of the mobile strategy and should be involved, e.g. within the framework of an interdisciplinary team, in the conception and management of mobile services, the primary area of their work should remain within the realm of technological implementation.

2. Concentration on right customer groups

A related issue is that of concentration on "right" customer groups. Another past mistake it seems was that banks – or rather their IT divisions – put high emphasis on groups that can be termed as "technology fans". Members of this group are however known to have very heterogeneous financial backgrounds and can not be considered *per se* attractive for banks. The technological affinity of a customer, though a necessary prerequisite for using Mobile Banking, is not sufficient unto itself to make him a target customer for it.

Summarizing, we can say that a stage seems to have been reached where it is prudent to include offers of MFS in product portfolios. The exact scope of the services to be offered

and prices to be charged should be decided keeping in mind the bank-specific customer structures.

VIII. CONCLUSIONS

Mobile Banking, as has been demonstrated, has gained non-negligible relevance for banks today. Developments in the banking sector, e.g. increased competition on account of technological developments coupled with the process of globalisation have produced new challenges for banks. Mobile Banking presents an opportunity for banks to retain their existing, technology-savvy customer base by offering value-added, innovative services. It might even help attracting new customers. Further, Mobile Banking presents a chance to generate additional revenues.

Its main contribution, however, can be expected to take place in the strategic field as it is all set to become an instrument of differentiation. Many banks recognize this threat and are already taking preventive measures by introducing mobile services. The foremost significance of Mobile Banking would therefore be of a defensive nature. Instead of providing a positive differentiation, Mobile Banking would be employed to thwart negative differentiation vis-à-vis rivals.

Mobile Banking seems to possess the potential to become one of the widely spread and accepted application in the field of Mobile Commerce, particularly in the backdrop of its high acceptance across commercially important sections of the society. We may expect to see Mobile Banking go into the footsteps of Online Banking, i.e. to become a standard service offered by every bank worth its name.

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