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## Mobile services in banking sector: The role of innovative business solutions in generating competitive advantage

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# **Technologie- und Innovationsmanagement**

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## **Mobile Services in Banking Sector: The Role of Innovative Business Solutions in Generating Competitive Advantage**

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# Mobile Services in Banking Sector: The Role of Innovative Business Solutions in Generating Competitive Advantage

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## Abstract

*The wide-ranging economic developments of the previous decade, e.g. the integration of world economies, have made a significant impact towards increasing the mobility of the working populace and their families. At the same time, technological developments especially in the field of telecommunication have made it possible to offer innovative, location sensitive services on ubiquitous basis to customers on the move.*

*Our paper examines innovative mobile solutions in the field of mobile financial services (MFS) by using four case studies from Germany and Switzerland – representing two banks and two different technology solutions. The paper scrutinizes the strategic relevance of MFS to the competitive position of the firm concerned. Finally, we present five propositions about the role of innovative business solutions in the banking sectors and recommend that a large scale empirical study to test these propositions be conducted in the future.*

**Key words:** Mobile Banking, Mobile Commerce, Mobile Financial Services, Multi-channel strategy, Innovation in banking sector

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## 1. Introduction

The wide-ranging economic developments of the previous decade, e.g. the integration of world economies, have made a significant impact towards increasing the mobility of the working populace and their families. At the same time, technological developments especially in the field of telecommunication have made it possible to offer innovative, location-sensitive services on ubiquitous (“anytime, anywhere”) basis to customers on the move.

Business with such ubiquitous mobile services is commonly referred to as “Mobile Commerce”, which – in a simplified definition – may be regarded as an extension of Electronic Commerce to wireless mediums. A detailed discussion on Mobile Commerce and Mobile Business as well as their relation to Electronic Commerce and Electronic Business is found in Tiwari and Buse [2006]. Mobile Commerce services in the financial sector are generally known as mobile financial services (MFS). They comprise of two applications, “Mobile Payment” and “Mobile Banking”. Since Mobile Payment constitutes an independent business field that does not necessarily involve banks, it is not taken into further consideration here. The term MFS, in this paper, hereafter refers to MFS in the banking sector (Mobile Banking), which may be defined as following: “Mobile Banking refers to provision and availment of banking and 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.” [Tiwari and Buse, 2006]

Mobile Banking has been gaining increasing popularity amongst various sections of the society for past few years, having recovered from the shock of the dot-com burst. Various studies, for instance by Tiwari and Buse [2006], Meridea [2003], Suoranta [2003] and Buse [2002] have established that at least in Western Europe there exists a noteworthy customer demand for MFS. Especially, Tiwari and Buse [2006] demonstrate that the “real rate of rejection” of MFS is with 8% much lower than often assumed. Moreover, many bank customers are willing to pay extra for the utilization of MFS. Similar developments have been reported also from other parts of the world. For instance, the number of mobile transactions in South Korea rose on a daily average to 287.000 in 2005 up 104%, the number of registered users by 108% in comparison to 2004 [Korea Times, 2006].

These developments point towards an increasingly positive perception of MFS in the society. This positive shift in perception can be traced back to mainly following factors [Tiwari et al, 2006]:

- i) The penetration of the society by mobile phones has reached an all-time high.
- ii) The integration of world economies is leading to more mobility so that availment of mobile services is no more a luxury but a necessity for many.
- iii) The younger generations of the society seem to be fascinated by modern data and telecommunication services.
- iv) Mobile devices have become more powerful. Data transmission has become faster with the launch of new standards, such as the Universal Mobile Telecommunications System (UMTS).

The increased demand for MFS has alerted banks and technology providers alike who sense not only business opportunities in developing and offering such services to their respective customers but also perceive a risk of being left behind in this new, innovative segment. Thus, we see increased activity on part of both these groups. For a detailed overview of bank activities see Tiwari and Buse [2006].

This paper analyses the opportunities and challenges presented by MFS to banks and technology providers. For this purpose it uses the tool of case studies to analyse the impact of MFS. In order to gain impartial insights and avoid blind-spots, this paper employs a rather uncommon instrument: instead of using case studies to substantiate pre-meditated theories, it employs case studies research to generate theories, as advocated by Eisenhardt [1989]. The paper is structured on following lines: Section 2 entails four case studies, whereby each case study presents the leading motive of a particular survey participant in offering MFS. The motives are not exclusive, though. Other participants may also follow similar objectives. The case studies however demonstrate which factor is regarded with the highest importance by a particular participant. Section 3 has a holistic analysis of the findings of the case studies. Section 4 contains a short conclusion.

## 2. Motivations behind Mobile Banking Offers

To understand the motives of different protagonists in the banking sector, i.e. banks and their technology providers, in offering MFS, four extensive case-studies were conducted in August 2006. Two leading German banks, *Deutsche Postbank AG* and *comdirect bank AG*, shared with the authors of this paper their reasons for offering MFS. While *Postbank* is the market leader in Mobile Banking in Germany with an overall experience of over 3 years, *comdirect* has recently (re-)launched an extensive MFS offer. So that both the banks are ideally suited to give valuable insights into understanding the business logic of MFS offers. *Sevenval AG* and *Vipera Inc.*, two leading technology providers with international experience in the field of Mobile Banking, discuss how and why they started developing/offering mobile solutions to banks and their experiences in this business segment.

**Methodology:** The case studies were prepared by conducting 6 semi-structured telephone interviews with managers entrusted with decision-making powers in the field of MFS in their respective firms. Two interviews of 90 minutes duration each were conducted with each of the participant technology provider. The first interview was conducted with the manager, responsible for business development in the field of Mobile Banking in the firm concerned. The second interview was conducted with the manager, responsible for the technological implementation of the mobile solution. Talking with both technology and business sides ensured a comprehensive understanding of the perception of Mobile Banking within the firm concerned. At banks only one interview each with the respective Mobile Banking manager was conducted, as the technology employed in both the banks was from a single provider, *Sevenval*, and on account of detailed discussions with *Sevenval* the technological aspects of the provided solutions were found to be sufficiently clarified.

The interview questions covered a wide spectrum of firm's strategy, e.g. the reasons behind Mobile Banking offers and the choice of the technical solution, the targeted customer groups, present status of Mobile Banking in firm's business and its role in the medium to long-run business strategy. All participant firms provided documents, such as internal presentations, market analyses and annual reports, to supplement / substantiate their answers. The case studies were supplemented with an extensive parallel research to broaden and ascertain the information-base:

- Researching publicly available information on respective websites
- References in the relevant literature
- Informal discussions with external observers and branch-insiders

Various aspects of the gathered information (e.g. motivations behind Mobile Banking offers) were later categorised to ensure comparability within the sample-base. Furthermore, the data was structured in a way to ensure that the business logic of respective offers became apparent, as the technological solutions were found to be also motivated by business logic, such as customer preference, maintenance costs and the expected need for user-support.

## **2.1 Technology Leadership to Enforce Exit Barriers: Deutsche Postbank AG**

*Postbank* is a publicly-listed, erstwhile subsidiary of *Deutsche Post AG*, which however continues to hold a majority stake in *Postbank*. One of the “big banks” in Germany, the *Postbank* could boast of over 140 billion euros in total assets at year-end 2005. The cost/income ratio of its operations in traditional banking business was an impressive 63.7% in fiscal year 2005. The cost/income ratio of its operations in retail banking was as remarkable with 64.5% in year 2005 registering an impressive improvement of 4.7% in comparison to the previous year. *Postbank*, which has the largest base of retail banking customers in Germany, acquired nearly 700,000 new retail customers in 2005, thereby increasing its retail base to 14.5 million, of which 12.3 million are active customers. Out of them 2.1 million manage their accounts online. Online services have been gaining popularity and the number of online accounts increased by 11% in 2005.

*Postbank* has been actively pursuing a multi-channel strategy, in its own words, to “ensure extensive customer access through a unique mix of sales channels”. The “strategic target” of *Postbank* is to be “Number 1 in Germany” and to become “the financial service provider for retail customers”. The offered channels include, in addition to over 9,000 branches, direct sales channels like Online Banking, Mobile Banking and Telephone Banking that operate round-the-clock. They are supplemented by indirect channels such as Mobile Financial Advisors and Third-party Sales. The aim of the multi-channel approach is to “meet our customers’ various needs in a cost-efficient manner”, explains *Postbank* in its Group Annual Report 2005. The significance of retail banking for *Postbank* can be gauged from the fact that nearly 80% of its balance sheet-related revenues and 82% of profits-before-tax were generated by the retail business. Return-on-equity in retail banking was with 27.3% almost twice as high as that for the whole group (14.6%). The reason for this remarkable success in the retail banking segment is attributed by the bank to a “successful mix of product classics and innovations”.

“Driving sales forward”, declares *Postbank* in its Annual Report 2005, “is central to the private customer business”. Direct sales channels play an important role in this strategy, as they are employed not only to generate customer satisfaction for instance via round-the-clock, multi-channel access to customer accounts. They also play an important role in generating customer goodwill, curiosity and trust by actively acquiring/asserting quality leadership. That, in turn, is sought to be achieved by implementing new technologies and actively shaping technology standards. For instance, *Postbank* introduced the system of “mobile transaction numbers” (mTAN) to enable easy access to Mobile Banking services while reducing eventual security threats. The mTAN procedure was certified with a “seal of approval” (*Gütesiegel*) in December 2005 by the *TÜV Rheinland Group*, a highly respected certification organisation entrusted with the evaluation of technical safety and quality of services and products. More recently *Postbank* introduced the system of “indexed transaction numbers” (iTAN) for its online services whereby a certain, randomly selected pre-indexed TAN is asked for by the online-system in order to complete a transaction, thereby reducing the possibility of fraud.

That *Postbank* sees enormous potential in the mobile channel to generate competitive advantage was confirmed by Mr. Jochen Kroll, *Product Manager eFinance Retail* at *Postbank*. According to Mr. Kroll, *Postbank* set out early on an “eFinance strategy” (financial services via electronic mediums) as a part of its multi-channel approach. In 2003, after conducting a market survey, *Postbank* decided to launch MFS in cooperation with *T-Mobile*, one of Germany’s leading mobile network operators (MNO). The aim was to further strengthen its innovative image and generate business advantage.

While determining the scope of offered mobile services *Postbank* made use of its market survey and decided to offer a serious product compatible with the bank’s serious image and to avoid additional “goodies”, for instance, offers of entertainment-related, non-serious services such as ring tones. The present MFS offer includes services from the fields of banking and brokerage, thereby enabling transactions (e.g. transfer of funds or purchase of stocks) and financial information (e.g. statements of account and stock market reports).

Further, *Postbank* decided that Mobile Banking should be an offer in its own right. For this it included innovative, location-based services, e.g. search of the nearest automatic teller machine (ATM), which is not possible with the stationary internet. This way *Postbank* actively and intentionally avoided creating a mere replica of its online offer for mobile mediums. In order to reach as many customers as possible, *Postbank* decided to offer its mobile services via as many mediums as possible to enable transaction- and information services. Additionally, it employs the popular short-message service (SMS) to offer information to customers.

Mobile Banking takes an important position in *Postbank*’s business strategy. It is primarily employed as a means of differentiation vis-à-vis rivals, to attract young and technology-savvy new customers. The intention thereby is to reinforce exit barriers for technology-savvy customers by offering low- or no-costs innovative services as and when enabled by latest technologies. Other important objectives pursued by the mobile strategies include “responding to customer needs”, “attracting new, financially-affluent customers”, “creation of an additional distribution channel” and “shaping standards by acquiring the technology leadership” in the banking sector. A secondary goal is to reduce distribution costs.

The customer response to mobile services so far has been more than satisfactory with many customers becoming regular users of mobile services. Encouraged by this response *Postbank* intends to extend the scope of the offered services and re-launch them this year giving Mobile Banking a greater share in the bank’s strategy.

(Sources: [Kroll, 2006], [Postbank, 2006] and [Tiwari and Buse, 2006])

## **2.2 MFS as a Tool to Cater to Customer Needs: comdirect bank AG**

*comdirect* is a leading and one of the most successful “direct banks” in Germany. Nearly 80% stake in *comdirect* is held by its parent concern *Commerzbank AG*, the fourth largest, private bank in Germany. *comdirect* was set up to serve as a low-cost provider of banking services via online/telephone channels to price-sensitive, professional customers, specifically stock market traders.

In bygone years *comdirect* has achieved remarkable success. The amount of total assets under custody, as on year-end 2005, rose by nearly 30% over the previous year from 9.9

billion euros to 12.9 billion euros. The number of customers registered an increase of 5.7% in the same period and crossed the mark of 650,000 in 2005. By the end of the second quarter in 2006 this number had risen to almost 745,000, registering an impressive increase of 13.25% within first six months of the year 2006. Almost all of its customers (99.8%) are online customers. This fact underscores the importance that the *comdirect* generally needs to attach to electronic channels of sales. In fiscal year 2005 *comdirect* earned pre-tax profits of 52.8 million euros and generated 8.8% return-on-equity before tax. The pre-tax profits rose, within a span of 2 years, by 35%, from 39.1 million euros in 2003 to 52.8 million euros in 2005. The cost/income ratio in 2005 was 68.8%.

*comdirect* sees as firm vision “[...] to focus on the needs of the modern investor, providing products and services, which cover all life stages and are unique in the terms of the combination of quality, individuality and pricing offered”. The aim thereby is “to build and maintain long-term, valuable relationships with our customers”. For this purpose, *comdirect* wants its customers to experience “the latest one-to-one online technologies”. In the field of brokerage, it intends to enhance its role “as partner of choice for active, professional traders” to ensure market leadership. This goal is sought to be achieved by “investment in our brand and in the next generation of modern information technology”.

As a part of this policy *comdirect* introduced WAP-based MFS in the hype-phase of Mobile Banking in the early years of this decade. Owing to the technical limitations of WAP-based early solutions [see, Tiwari and Buse, 2006] and general lack of customer demand for MFS at that time this offer did not enjoy the kind of success that was expected. However, in the wake of the slow but steady growth in the customer acceptance of MFS in previous years, as demonstrated earlier, *comdirect* decided to re-launch its mobile services, basing them on latest technologies and recent market and usability surveys. The objective of this re-launch is to “considerably increase the versatility of the offering”, as *comdirect* stated to its shareholders in its Annual Report 2005. This decision is in consistency with *comdirect*’s efforts to promote its brand and to “raise the profile of *comdirect* and its product and service offering, while consolidating its established and unmistakable image”.

In July 2006 *comdirect* launched an extensive MFS offer using a browser-based solution after a phase of careful preparations. The MFS offer is a “no-fee campaign”, which means that the customer does not have to register himself or pay any extra surcharge for availing services via mobile mediums. Many information services are available even to non-customers as *comdirect* intends to attract potential customers to its portal and then to convince them of the quality of its offering. As Mr. Daniel Schneider, *Group Leader Product Development* at *comdirect* explains, the decision to revitalize mobile services was based on four primary factors:

- a) Demand for mobile services from crucial customers sections;
- b) Conscious effort to enforce innovative value-added services for standard online banking and brokerage products;
- c) Following a “fit for the future” strategy by anticipating market trends;
- d) To reap “early mover” advantages in this new business line.

The decision on the scope of mobile offering was based on extensive market analyses and, as Mr. Schneider puts it, on “common sense” (e.g. focus on time-critical services). The bank’s general strategy to enforce a “banking offensive” also played an important role in identifying services to offer. Last but not least, the restrictions of the mobile mediums (e.g. small display and the lack of a proper keyboard) also played a key role in determining the



scope of services offered. While deciding on the nature of its technical solution, *comdirect* opted for a browser-based solution to use the same IT technology as for normal internet banking so as to ensure compatibility with future technologies while separating the “business logic” from the “display logic”, as Mr. Schneider puts it. This separation enables that non-critical, technical processes (e.g. display adjustments for different types of mobile devices) can be outsourced to an external service-provider. Moreover, market studies suggest a clear customer preference for browser-based services because the user then does not need to install and frequently update any extra software on his mobile device.

The main importance of mobile services, in *comdirect*'s perspective, lies in responding to changing customer needs which can be fulfilled by providing an additional distribution channel. Another prime objective is to achieve/maintain an innovative image and ensure differentiation vis-à-vis rivals. With MFS offer *comdirect* seeks to target professionally active customers who are often on the move. Additionally, the “no-fee MFS” are expected to attract price-sensitive yet financially-affluent new customers who wish to use mobile services. What *comdirect* does not seek to achieve through its mobile offer is the reduction of distribution costs or an additional channel of revenue (e.g. by charging for MFS).

The MFS offer, though very young, has received very encouraging response from customers and target groups. The Mobile Banking portal has received so much visitors' traffic that it has by-far exceeded the bank's expectations. Also the number of monetary transactions (fund transfers and stock market transactions) has positively surprised *comdirect*, which looks at its mobile offer as a “useful” feature offered to placate (potential) customers. Therefore, *comdirect*'s mobile offer is basically of a strategic nature, even though its “share of wallet” in the business plan is relatively small. The customer response however also gives reasons to expect that MFS may in medium run become a self-sustaining offer.

(Sources: [comdirect, 2006], [Schneider, 2006] and [Tiwari and Buse, 2006])

### **2.3 MFS as a Source of Revenue: Vipera Inc.**

*Vipera* is a privately-held, multinational company incorporated in Delaware, USA with offices in Switzerland (Baden), Italy (Milan) and India (Bangalore). *Vipera*, founded in 2003, is a relatively new entrant to the field of Mobile Commerce. *Vipera* has developed a mobile applications network that “simplifies the process of creating, deploying, operating, and billing mobile data services”. This network, called the Vipera Network, runs on top of the existing wired and wireless Internet infrastructure. It uses mobile operators only as ‘data bearers’ thereby providing a solution that is independent of device manufacturers and network carriers.

Its open-source Software Development Kit “the Vipera SDK” can be downloaded by application developers free-of-charge, in order to develop “user-friendly, secure, and reliable mobile applications”. *Vipera*'s aim is to offer “enterprises, operators and content providers a more powerful and cost-effective alternative to SMS, MMS and WAP-based solutions”.

*Vipera*, which recently has developed a mobile banking solution for *Maybank*, the largest Malaysian bank, provides client-based mobile solutions to its customers. Describing *Vipera*'s foray into the market for banking solutions, Mr. Silvano Maffei, the *Chief Technology Officer* (CTO) of *Vipera*, says that *Vipera*'s mobile platform solution, consisting of a provisioning server, a carrier-independent secure messaging infrastructure, and a “highly customizable” rich-client, offers an “ideal basis” for mobile finance applications. Therefore

*Vipera* decided to focus upon mobile banking. The decision to provide tailor-made client-solutions specific to the needs of a bank was influenced by an initial contract as the then customer wished to introduce a client-solution. Taking into account that the increasing broadband of mobile data transfer and the lower prices of usage, today, are set to increase the popularity of browser-based solutions, *Vipera* concentrates on a niche of mobile applications that require customization to individual needs.

Encouraged by its expertise and success as well as sensing an opportunity for vertical specialization *Vipera* decided to concentrate a considerable part of its resources on the banking sector and to look for business opportunities there. This strategy has paid off rich dividends and Mobile Banking in the meantime generates the lion's share of revenues (60%). At *Vipera* Mobile Banking has become the focal point of business development. MFS thus take a key-role in *Vipera*'s business strategy which is on a look-out for strategic partners in the field of marketing and system integration so that *Vipera* can concentrate on its core competencies in the technical fields.

*Vipera* is actively pursuing an international strategy, concentrating on innovative banks in Middle East and in the rest of Asia. In Europe, Italy is regarded a key MFS market by *Vipera*, owing to the high utilization of mobile phones and the large-scale customer acceptance of mobile technologies there. In addition to revenues and other financial motives, *Vipera* seeks to generate competitive advantage in the form of an innovative image and differentiation vis-à-vis rivals by offering MFS, which up to now are a niche product.

(Sources: [Maffeis, 2006], [Gambirasio, 2006] and [Vipera, 2006])

## **2.4 Image Effects via Banking Services: Sevenval AG**

Cologne-based *Sevenval AG* (Sevenval) offers innovative solutions for the integration and transformation of E-Commerce applications. It has been ranked, more than once, as one of the top Internet technology providers in Germany. Its core product "Sevenval FIT Mobile" (FIT = Filtering Integration Technology) converts "an existing internet presence into an application for mobile devices".

The main advantage of such a solution is that the customer does not need to undertake any technical modifications on existing software. Existing web sites can be thus converted into suitable formats for mobile devices within a few man days. FIT extracts content including complex processes and all security mechanisms from the existing Internet applications and optimises it for display on mobile devices. Processes, graphics and images are automatically adapted to the respective capabilities of the display and browser in use.

*Sevenval*, which as per its own statement has the know-how of more than one hundred mobility projects implementing FIT, has been able to successfully tap into the market for mobile services in banking sector. Its references in this field include *Deutsche Postbank AG*, *comdirect bank* and the *Skandinaviska Enskilda Banken* (SEB) in Lithuania. Even though *Sevenval* made a rather unplanned entry into the MFS sector, after being asked by a customer to develop a solution, MFS already account for a substantial part of the turn-over (10%) and *Sevenval* is hopeful of doubling this share within next three years.

Having completed one Mobile Banking project, *Sevenval* decided to remain active in this segment as it recognized that there were enormous opportunities in the field of mobile Internet in general and in the field of MFS in particular which was still a niche – unoccupied at that time. Realizing its inherent competitive advantage owing to its proven competencies in the field of mobile services and its access to compatible cooperation partners it decided to exploit its know-how by making MFS as one of its core business fields. Along with Mobile Content, Mobile Banking today builds the cornerstone of the *Sevenval* business strategy.

A primary objective of this business strategy is the image effect that *Sevenval* sees in successful Mobile Banking operations. Banks are serious customers that lay great weight on security and user friendliness of a technology. Providing services to this customer group has a “signalling effect” also for other customers in other segments. This invariably leads to a positive reputation and thereby hopefully to new business contracts. MFS are therefore regarded by *Sevenval* as a vital instrument of differentiation vis-à-vis rivals. Another important objective of *Sevenval*’s MFS offer is to open new channels of revenue and gain new customers. Finally, it seeks to actively shape standards for this new technology. Shaping standards on its own terms has the advantage that they are based on one’s own strengths thus providing for long-run competitive advantage.

Retail banks in Germany and abroad as well as Online Brokers are seen as primary target groups by *Sevenval* for its MFS offer. Specially, banks in Asia and Eastern Europe are thought to be attractive prospective customers. Since banks generally have a high need for security and do not trust technology providers, whom they are unfamiliar with, *Sevenval* is pursuing a policy of forging alliances with other firms that may enjoy a good reputation in the banking industry and open the doors to prospective customers in- and outside Germany.

(Sources: [Langfus, 2006], [Sevenval, 2006], [Webering, 2006])

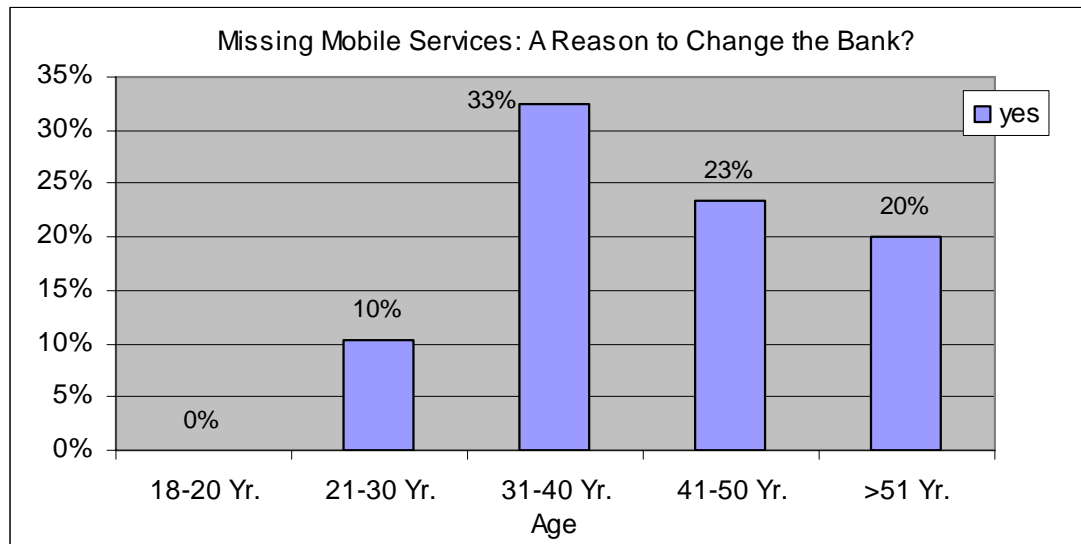
### **3. A Holistic Analysis of the Strategic Perspective**

The case studies above have demonstrated that all participants of this research – whether the banks offering financial services to retail customers or the technology providers offering mobile solutions to banks – employ MFS in an effort to generate and/or strengthen competitive advantage. All of the interviewed firms – different as their primary motives for offering MFS also might be – see in MFS a valuable chance to differentiate vis-à-vis their respective rivals.

Both of the surveyed banks seem to have strategic reasons for MFS offers in their portfolio. None of them were trying to generate additional revenues, directly from the mobile channel. They were rather interested in strengthening their existing competitive position and to generate goodwill of (prospective) customers. The customers, once there, could choose from a wide-ranging portfolio of available channels. This is in consistency with the generally acknowledged need for a multi-channel approach in today’s banking business, e.g. see Köhler [2004].

That on this issue the banks are on a right track, is also corroborated by a study by Tiwari and Buse [2006], which found out that many bank customers in Germany (15%) are willing to change their bank if it fails to provide mobile services. The willingness to change the bank on account of missing MFS is particularly high for customers in the age-group of 31-40 years (33%) and 41-50 years (23%), as shown in Figure 1. Both of these groups are, however,

professionally active and therefore financially attractive for banks. A study by Forrester Research in England reportedly came to a similar conclusion where 25% of participants of a market survey stated to be willing to change their bank if provided with free-of-charge MFS elsewhere [eMarketer, 2006].



**Figure 1: Readiness of Different Customer Groups to Change Bank for Missing MFS**

[Source: Tiwari and Buse, 2006]

As far as technology providers are concerned, MFS are seen as useful tools to generate additional revenues and secure a serious image which invariably is associated with banks. Innovative solutions open up new doors for the technology providers to get in business with banks. Spill-over effects of a positive and serious image are then sought to be channelled into gaining/strengthening the competitive advantage of the firm.

The case studies have also showed that all of the survey participants were remarkably successful in their respective businesses. All participants contributed their success to an intelligent mix of innovative products and services, in which also MFS play, even when to varying degrees, a vital, for some even crucial role.

Based on the findings of these case-studies and the subsequent discussion, we may put forward following propositions about the role of innovative business solutions in the banking sector, particularly via employment of mobile services:

- i) Innovative mobile solutions may help adapt to changing customer needs;
- ii) Innovative services may positively influence a firm's public image, particularly when the firm actively engages in shaping standards for emerging technologies;
- iii) Mobile financial services are expected to enable a positive differentiation vis-à-vis rivals;
- iv) Innovative mobile services may attract prospective customers while at the same time raising the exit barriers for existing customers;
- v) Finally, innovative mobile services are expected to open up a new distribution channel for banks to enforce their multi-channel strategy; for technology-providers they open a new channel of revenue.

Even though the numerical base of the case studies is too small to ensure statistical significance, the uniformity and anonymousness of the findings suggest towards a high probability of this study being on a right trail. The findings of the bank case studies are also confirmed by the results of a bank survey conducted by Tiwari et al [2006] last year, in which 16 leading banks from Germany and Switzerland evaluated the advantages and disadvantages of Mobile Banking. Nevertheless the case-studies in this paper provide a direction to research in this field to examine the validity of these findings in a larger-scale empirical survey.

This study is one of the few, if any, so far, which investigate the impact of Mobile Banking for technology solution providers. It therefore has only a signalling function for the future research. The significance of the findings needs to be examined in a larger-scale survey of technology providers.

#### **4. Conclusions**

Summarizing, we can say that the positive shift in the customer perception of MFS has turned them into a useful and vital tool to generate, retain and further strengthen the competitive advantage. This seems to hold true for all firms engaged in the financial sector – whether banks or technology providers.

With increasing customer mobility this trend can be expected to gain even higher momentum. An important implication of this development is that in short to medium run, the mobile channel can be expected to become a perhaps indispensable part of the multi-channel strategies in the banking sector, following in the footsteps of Online Banking.

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