Competition and Collaboration in Mobile Banking:  
A Stakeholder Analysis

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Abstract
Information and communication technologies (ICT) continuously create new types of markets and new patterns of industry dynamics. The continuous advancement of mobile technologies offers an opportunity for mobile carriers and banks to offer mobile banking services. However, such convergence of services from mobile carriers and banks raises some issues that are not necessarily easy to resolve since each of them may have different and sometimes conflicting interests. This paper examines how the alliances between mobile carriers and banks have been formed and developed in Korea and analyses these alliances from the perspective of stakeholders. The findings indicate that the mutuality of benefits and costs experienced by the stakeholders of mobile services under investigation, the establishment of a customer base and strong support and interest from the stakeholders contribute to the success of the services.

Keywords: Stakeholder Analysis; Mobile Banking; Mutuality, Adoption

Introduction

Information and communication technologies (ICT) continuously create new types of markets and enable new patterns of industry dynamics. The latter refers to the way in which all the parties within an industry interact, that is, compete and collaborate, over the value chain. This transformational power of ICT is not confined to an individual industry. Through convergence, information and communication technologies cause companies from different industries, which have never been related to each other, to compete and collaborate.

The most recent and phenomenal example comes from mobile banking. Mobile carriers in Korea, facing the decreasing voice ARPU (Average Revenue Per User), seek after a new source of revenue in the data services where ARPU is significantly increasing (McClelland, 2004), and see a potential in mobile banking for generating revenue, gaining and retaining customers. Banks also need to add a new channel to existing channels for services not to lag behind in the fierce competition to catch and retain increasingly technology-aware customers. For banks, mobile banking is the next sequence after Internet banking. Thanks to the development of mobile technology which enables the delivery of banking services via mobile devices, mobile carrier and banks, which formerly did not have a business relationship, but are now both competitors and alliance partners.

In Korea, there are three competing mobile banking services: MBank, KBank and BankOn. While the first one is operated by the biggest mobile carrier, the latter two are operated by the biggest bank. Although they provide similar services to the customers, they have followed different paths from the beginning. The current structure of competition has been formed by competition and collaboration between mobile carriers, between banks, and between mobile carriers and banks, and is still evolving with the continuous advancement of
mobile technologies. These mobile banking services (in other words, alliances) are only a temporary result of ongoing competition between and within the networks formed by mobile carriers and banks.

This paper examines how these alliances have been formed and developed. In so doing, we will draw on stakeholder analysis. Stakeholders are any parties that have a vested interest in the success of the system and are affected by the system and, therefore, play a critical role in ensuring the success of the system. Typically, mobile banking is not provided by one organisation only, but by various parties (stakeholders) that are systematically arranged in a planned manner by some pre-determined rules. Customers are also considered as stakeholders since they are affected by the banking service provided. Stakeholders have different roles, interests and hidden agendas which all affect the success of the mobile banking services. In inter-organizational contexts, such as mobile banking, there is no overarching governance structure that controls the behavior of all stakeholders. Consequently, any one stakeholder may effectively veto the technology adoption if their individual perceived benefits are insufficient. Therefore, it is important to examine the mutuality of stakeholder benefits, cost and risks (Kurnia and Johnston 2001). Thus, by studying mobile banking services from the stakeholder perspective, better understanding of the diffusion process of the systems can be obtained (Choudrie et al., 2003).

The findings of the study indicate that the mutuality of benefits and costs experienced by the stakeholders of mobile services under investigation contribute to the success of the services. In addition, the establishment of a customer base and strong support and interest from the stakeholders to enable effective collaborations are equally important for the success of mobile banking. Thus, this study provides a better understanding of how and why mobile carriers and banks collaborate and compete around mobile banking services. This understanding is valuable for both researchers and practitioners particularly in the area of mobile banking to anticipate possible conflicts and issues raised from convergence of services.

**Banking Payment Services**

Banks provide a variety of services offline and have retained a huge number of customers. Banks have good reasons to introduce online banking services. By making customers fulfil their needs on a 24/7 basis online without a teller, banks can provide better services, reduce the costs, and concentrate on more profitable areas. Challenges they have faced regarding online banking are to adapt themselves to the changing environment and to make their customers adopt and use the online banking.

Both supply and demand sides of the banking services make it easy for banks to provide Internet based online banking services. Banks have long invested in information technologies and thereby could easily transform themselves and prepare for Internet based online banking. The operation of banks was mostly accomplished electronically and they had successful experiences of developing external systems such as ATM (Automatic Teller Machine) and phone banking. Experienced users of these technologies smoothly moved into Internet banking. The number of the Internet, particularly broadband, users obviously helped this transition. As shown in the table 1, the number of Internet banking users has grown at a tremendous speed with the help of the broadband Internet user growth in Korea.

Banks are continually attempting to extend the capabilities of their payment services. As Internet banking edges further into the mainstream, financial institutions are already leading the way into the next technological frontier: wireless access (Hoffman, 2001). In the course of this, they sometimes have to deal with new network infrastructure providers with emerging technologies like mobile networking. Unlike Internet based online banking where Internet
service providers barely play a role, providing services on the mobile Internet needs deep involvement of mobile operators to enable the banking and payment services to be accessible through mobile devices. However, it is not easy to reach an agreement between these two parties because it is the first time for them to combine their respective services to make one aligned service offering and there is no conventional knowledge to depend on.

### Table 1
Number of Internet banking users in Korea (Unit: thousand, MIC, 2004)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Users</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999</td>
<td>1,230</td>
<td></td>
</tr>
<tr>
<td>2000</td>
<td>4,090</td>
<td>232.5%</td>
</tr>
<tr>
<td>2001</td>
<td>11,310</td>
<td>176.5%</td>
</tr>
<tr>
<td>2002</td>
<td>17,710</td>
<td>56.6%</td>
</tr>
<tr>
<td>2003</td>
<td>22,754</td>
<td>22.2%</td>
</tr>
</tbody>
</table>

Banks want to add the mobile channel to their existing options for payment. Mobile operators are also aware that if they could add bank payment services to their mobile Internet services, it would be helpful for them to acquire and retain customers. For these purposes, they have to cooperate and coordinate with other firms operating in different industries with which they have never worked before. It is not a simple matter to coordinate stakeholders beyond the boundaries of an industry in order to provide well aligned services to customers, and therefore conflicts may easily arise.

There are three mobile operators in Korea: SK Telecom, KTF and LG Telecom. From the beginning SK Telecom has been the leading firm in the domestic market with a market share of around 50%. SK Telecom has recognized the potential of its stable and large customer base and has been attempting to enter into other business areas where it can take advantage of its almost 19 million subscribers.

### Table 2
Market share of mobile operators as of 2004. 12 (MIC, 2005)

<table>
<thead>
<tr>
<th>Mobile Operators</th>
<th>Subscribers</th>
<th>Market Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKT</td>
<td>18,783,338</td>
<td>51.3%</td>
</tr>
<tr>
<td>KTF</td>
<td>11,728,932</td>
<td>32.1%</td>
</tr>
<tr>
<td>LGT</td>
<td>6,073,782</td>
<td>16.6%</td>
</tr>
<tr>
<td>Total</td>
<td>36,586,052</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

In the mobile payment area, for example, it launched a service named ‘NeMo’ (Net Money) in 2001. It was the first time a mobile operator entered into the financial industry. SK Telecom insisted that NeMo was not a financial service, but rather an example of numerous mobile Internet applications.

Firms in the financial sector including banks do not agree with SK Telecom’s view and they consider it as an invasion of an outsider into their business domain. Thus, convergence between mobile and financial technologies drives companies in those sectors into clash in order to lead the emerging market.

As the use of mobile technologies is increasing, banks have considered mobile operators as potential competitors rather than partners for mobile payment services. For them, NeMo is strong evidence which supports their suspicion about mobile operators. However, there is no alternative for banks except working with mobile operators, if they want to provide mobile payment services.
The challenge for all players in the mobile Internet market is working together while remaining independent and developing a strong brand identity. There are many players – operators, handset manufacturers, banks, credit card companies, Internet portals, system integrators, ISPs – all wrangling for control over customers (Donegan, 2000). Firms in different industries need to cooperate to provide a service. They are, however, immediate or potential competitors, and it is not easy to expect the care-free partnership.

DeZoysa (2001) cited a claim about the unfavourable relationship between two big stakeholders of mobile banking. “The relationship between banks and mobile operators is one of mutual distrust. One telco in Germany already has a banking license and banks are nervous about their position, while mobile operators want to retain their independence.” As banks and mobile operators came to work together for launching mobile banking, the similar competition and conflicts have been arising in Korea.

Mobile banking services in Korea

Software based mobile banking –Initial stage

At an initial stage of mobile banking, little cooperation was needed to meet the customer’s need to access banks. After connecting to the mobile portal of each mobile operator through the mobile Internet, customers can select which bank they want to visit. Once they connect to the bank’s mobile site, they can see their account information and make a transaction once they log in.

The incompatibility of mobile phones does not matter here because banking applications run on the built-in browsers or VMs (Virtual Machines for downloaded JAVA application programs) of mobile phones. Various technical methods have been proposed to reduce the connection time to the mobile Internet. The fundamental concept of this mobile banking service is the same as that of Internet banking. Here mobile operators function as Internet service providers. The only differences are the devices customers use, networks, and inevitable changes in the interface design in banking programs.

Mobile banking services are provided by banks through the mobile Internet owned by mobile operators. For this to work, a simple arrangement needs to be made between mobile operators and banks; mobile operators let banks appear in the menus of the mobile portals (or sometimes let customers download the mobile banking programs to their phones) and banks open the mobile web sites. There are few possibilities of disagreements or conflicts between them.

In this model, banks are one of the content providers to mobile operators. Mobile banking gives an extra content to mobile operators, and an extra channel to the banks. It is an easy and win-win situation for these two stakeholders. However, it cannot satisfy customers’ banking needs since it is not easy to use and it takes too much time to accomplish a transaction mainly due to the connection time. Long connection time also means high cost accrued from the usage fee of mobile network. As a result, this mobile banking service has not been much used. This has made related parties, mainly mobile operators and banks, think over how to offer customer-centric services.

IC chip based mobile banking

LG Telecom with Kookmin Bank launched BankOn, the first IC chip based mobile banking service, in September 2003. It remarkably reduced the connection time by using proprietary phones. The services range from online services like funds transfer and MBPP (mobile bill presentment and payment) to offline services such as using ATM and paying public transportation fares. Credit cards, stock trading and insurance were to be added to the service.
To promote it, LG Telecom decided not to impose the usage fees of mobile network and Kookmin Bank decided to exempt the fund transfer fees for some period of time. They also promised the lowest level of fees even after the promotional period. Subscribers to this service numbered more than 120,000 just for the first two months, and the number of mobile fund transfer transactions was over 150,000 in October which was 6 to 7 times more than that of other mobile banking services.

After BankOn’s apparent success, other mobile operators and banks introduced IC chip based mobile banking services too. However, IC chip based mobile banking needs more coordination between banks and mobile operators than ever before and makes them interdependent upon each other. Both banks and mobile operators have never experienced this kind of interdependence before, and they are still in the progress of setting up rules regarding work allocation, roles each party will play, and the rights and responsibilities of each party.

A conflict issue in IC chip based banking

Before IC chip based banking was introduced, it was not easy to make revenues through mobile banking services because of the small number of transactions unlike the case of Internet banking. This is because it was difficult to use, costly, and it was not very useful compared to other banking methods. Banks simply migrated the Internet banking services onto the mobile network and mobile operators took the initiative for providing mobile banking services to the customers. Banks were just one of the content providers.

While the mobile financial market was being structured by the initiative of mobile operators, the introduction of IC chips for mobile banking raised new issues such as who would issue IC chips and who would control them.

A similar problem did exist when mobile phone credit cards had been marketed using IC chips on the phone. However, it did not develop into a controversial issue then. IC chip based mobile phone credit cards were issued through credit card companies after IC chip based e-cash companies had installed the necessary functions. For example, Moneta (developed from NeMo) installs SK Telecom membership and OK Cashbag into the IC chip and then credit card companies take over the IC chips. Credit card information is installed by credit card companies who then also issue the IC chip based credit cards. Therefore, it appears to the customers that credit card companies had the rights for the issue and control of the IC chips.

In fact, however, mobile operators and credit card companies share the master key to control and maintain the service areas of IC chips; credit card companies hold the administration key to control the credit card area of IC chips. Although mobile operators cannot look into the credit card area, they can delete the credit card information, which means credit card companies, in a sense, are dependent on mobile operators. If credit card companies plan to install a new service on the IC chips, an agreement with mobile operators needs to be reached. In this arrangement, it seems that mobile operators take a stronger position, though they are interdependent.

Competition between banks and mobile operators in mobile banking

BankOn was launched by the coalition between Kookmin Bank and LG Telecom while mobile operators and banks discussed intensively the issue of who would issue and control IC chips. Kookmin Bank is the largest bank in terms of the amount of assets and the number of customers, whereas LG Telecom is the smallest mobile operator in terms of the number of subscribers. In this configuration of market powers, it was not difficult to make a deal between them. IC chips are issued and controlled by Kookmin Bank and LG Telecom provides the mobile network for the service.
Kookmin Bank needed a mobile operator to launch its own mobile banking services and wanted to hold the rights for the IC chips which incorporated account information and thereby customer information. LG Telecom urgently needed to gain new subscribers as the smallest mobile operator and it agreed that Kookmin Bank also obtain the commissions for the subscribers. BankOn was launched in this context and both parties were satisfied with the result to some extents.

To catch up with BankOn, SK Telecom, the largest mobile operator, collaborated with other smaller banks and launched new mobile banking services, called MBank. In this alliance, SK Telecom and banks agreed on the dual chip mode where the chip is virtually divided into two separate areas. Banks control one part which contains account information; SK Telecom controls the other part which keeps information on Moneta. This means that SK Telecom can continue to provide Moneta, its financial services, for new subscribers to mobile banking without the government agency for finance monitoring, FSS (Financial Supervisory Service).

Kookmin Bank blamed the participating banks for cooperating with a future enemy. SK Telecom responded that they were not attempting to be a financial player. Table 3 summarises the competition between the two networks of mobile banking services in early 2004. KTF, the second largest mobile operator, launched KBank in cooperation with Kookmin Bank in March 2004, on the same date when MBank was launched.

Table 3

<table>
<thead>
<tr>
<th>Brand</th>
<th>BankOn (KBank)</th>
<th>MBank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Leader</td>
<td>Kookmin Bank ($2,230B)</td>
<td>SK Telecom (18M)</td>
</tr>
<tr>
<td>Participants</td>
<td>Nonghyup ($1,270B)</td>
<td>Woori Bank ($1,070B)</td>
</tr>
<tr>
<td></td>
<td>Kiup Bank ($690B)</td>
<td>Hana Bank ($870B)</td>
</tr>
<tr>
<td></td>
<td>Cheil Bank ($400B)</td>
<td>Shinhan Bank ($800B)</td>
</tr>
<tr>
<td></td>
<td>LG Telecom (4.8M)</td>
<td>Chohung Bank ($660B)</td>
</tr>
<tr>
<td></td>
<td>KTF (10M)</td>
<td></td>
</tr>
<tr>
<td>Characteristics</td>
<td>One chip</td>
<td>Dual chips</td>
</tr>
<tr>
<td>Control on chips</td>
<td>Bank</td>
<td>Bank and mobile operator</td>
</tr>
<tr>
<td>Launching date</td>
<td>2003. 9 (2004. 3)</td>
<td>2004. 3</td>
</tr>
</tbody>
</table>

For SKT, KTF, and LGT: the number of subscribers
For banks: the amount of assets

The competition surrounding mobile banking occurred during the period when mobile phone subscribers became able to change their mobile operators without changing their phone number. To force the market competition in preparation of the mobile network opening, all mobile subscribers became able to switch their mobile operators to LG Telecom in the first half of 2004. In the second half of 2004, switches to KTF were also allowed. From 2005, subscribers can switch to whichever operator they want. When they switch to operators, they have to changes mobile phones too, though they can keep the same number. By adding a new service like mobile banking, it was a good opportunity for a weaker mobile operator like LG TELECOM to attract new customers. The new mobile banking service was pushed as a motivation for switching to LG TELECOM. As seen here, competition and cooperation surrounding the IC chip based mobile banking took place in the midst of fierce competition among the mobile operators.
**Ongoing conflicts**

At last in October 2004 Kookmin Bank agreed to participate in MBank, a mobile banking service led by SK Telecom. It looked as if the competition between them was over. Although Kookmin Bank joined MBank, Kookmin Bank was considered as the winner of this game because it successfully prevented SK Telecom from the rights to control customer information.

However, this method of mobile banking still has a problem from the customer perspective. If banks control the IC chip installed, customers who want to use other banks should have the same number of chips as the number of banks whose mobile banking services they want to use. They also have to change IC chips whenever they use different banks. One chip per bank, which is supported by each bank, is not beneficial to customers. It is derived only from banks’ intention not to share customer information with mobile operators.

Mobile operators continuously question the current arrangements between banks and themselves. SK Telecom and KTF agreed not to allow one chip per bank in December 2004. Instead, they planned to expedite the use of generic chips into which information on credit cards, bank accounts and public transportation cards can be downloaded using OTA (over the air) technologies.

This plan has gained more support with the advent of 3G mobile phones. SK Telecom and KTF decided to adopt UICC (universal IC card) on the WCDMA mobile phones. UICC is an extended version of USIM (universal subscriber identity module) of 2G, and it can add various applications such as financial services and payments. Because there is only one slot for IC chips in the 3G phones, mobile banking in the 3G WCDMA environment requires using UICC.

Till now, the subscriber information is included in the mobile phone and the account information is in the IC chip so the subscriber information and account information can be separately controlled. However, WCDMA mobile phones have only one chip to put in the information. Therefore, the problem of where to store subscriber information and account information, arises again if subscribers want to use mobile banking. If customers want to use more than two banks, it seems impossible to solve the problem with the current arrangements between banks and mobile operators.

Kookmin Bank also attempts to lead in mobile banking and to protect its business domain by taking more progressive and aggressive measures. From the perspective of banks, the fundamental barrier to mobile payment and banking is the mobile Internet itself, which is currently closed and expensive. Till now, customers can access the mobile Internet only through the gateways which mobile operators provide, though it is planned to be fully open stepwise. Kookmin Bank showed interest in being an MVNO (Mobile Virtual Network Operator) which can do its own business using a hired bandwidth of an MNO (Mobile Network Operator). If Kookmin Bank undertakes the MVNO business, it will vertically integrate network infrastructure to its banking infrastructure. This also influences future competition on mobile banking between mobile operators and banks.

**Stakeholder analysis and implications**

The early success of the BankOn mobile banking system, is due to the benefits obtained by all parties involved in the system. For customers, with low fees and improved connection time due to improved speed of data transfer, customers enjoy the convenience and value offered by the system. Likewise, Kookmin Bank gets the benefits of having a mobile operator
to launch its mobile banking services, holding the rights for the IC chips which incorporated account information and obtaining commissions for the subscribers. LG Telecom, as the smallest mobile operator, also gets benefits from the system by gaining new subscribers. Table 4 summarises the roles, interests, benefits and costs involved in mobile banking for each stakeholder.

Table 4
Roles, interests, benefits and costs of the stakeholders in mobile banking

<table>
<thead>
<tr>
<th>Stakeholder Group</th>
<th>Roles</th>
<th>Interest</th>
<th>Benefits</th>
<th>Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Banks</td>
<td>- Provide content</td>
<td>- Offer flexibility to customers</td>
<td>- Extra channel</td>
<td>- Reduced customers’ banking fees.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Integrate payment services.</td>
<td>- Access to customer information.</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Control and maintain customer information.</td>
<td>- Commissions.</td>
<td></td>
</tr>
<tr>
<td>Mobile operators</td>
<td>- Provide a new channel</td>
<td>- Recruit and retain customers</td>
<td>- Extra content.</td>
<td>- No control over customer information.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Generate revenue from the system use.</td>
<td>- Higher revenue.</td>
<td>- Commission fees</td>
</tr>
<tr>
<td>Customers</td>
<td>- Users of the system.</td>
<td>- Fulfill their banking needs.</td>
<td>- More choices of banking.</td>
<td>- Multiple IC chips when dealing with many banks.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Fulfill their payment needs.</td>
<td>- Convenience</td>
<td>- Access fees.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Access to more options conveniently.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

One important implication of this study is that success, failure and changes of direction in offering convergence services can be accounted for by the mutuality issue. For most of those service arrangements involving bundling of services from various industries, complexities are increased in managing the equality of costs and benefits among the stakeholders. In particular, convergence in most cases involves cooperating and collaborating with competitors. In some cases, the power issue also comes into play. All this may further complicate the process of achieving the mutuality among the stakeholders.

Another implication is that successful introduction of a mobile banking service usually takes advantage of an existing customer base, as it is more difficult to obtain customer to use a new system than it is to change the behaviour of existing customers. This is illustrated in the case. In each of the mobile banking system systems studied, one of the stakeholders is either a large mobile operator or a large bank with an established customer base. With an existing customer base, it will be easier to diffuse a new banking service, as long as it is perceived to be beneficial by customers.

Finally, strong support and interest from stakeholders, and more importantly good collaboration among the stakeholders are important for the success of mobile banking service. However, with the case of mobile banking systems in general, major stakeholders still experience ongoing conflicts among themselves in coordinating the provision of mobile banking services due to different and often conflicting interests. Banks should work with
mobile network infrastructure providers for mobile payment and banking services, and this sometimes requires modifications of the conventional roles and rules which govern respective industries to provide a new aligned service. At this stage, a better collaboration among stakeholders of mobile banking systems is still required to achieve better alignment of mobile banking services.

Conclusions and Future Research

In this study, we have explored how alliances between mobile carriers and banks in Korea have been developed and identified various issues resulting from the convergence of services from two different industries. Since various stakeholders of mobile banking have different and sometimes conflicting interests, conflicts are inevitable in offering such services. However, in order to win over customers in mobile banking, both mobile carriers and banks need to collaborate to overcome any conflicts. Thus, they need to see each other as both competitors and collaborators, which is not necessarily easy to do, especially when both parties have an equal power. The existence of mutual benefits among the stakeholders, an established customer base and strong support from the stakeholders are important for the success of mobile banking.

This work is significant because it once again establishes the importance of the mutuality issue in adoption and diffusion of inter-organizational systems (Kurnia and Johnston, 2001). It also points to the importance, for successful adoption, of inter-organizational alliances that provide an existing customer base to achieve critical mass. Both of these insights are useful to practice for analyzing inter-organizational technology proposals to reduce risk of failure.

One possible future research is to conduct a longitudinal study to examine the dynamic interactions between banks and mobile operators in Korea over time in achieving a better alignment of services for mobile systems. As part of this future study, it would also be interesting to explore how competitions among mobile operators and among banks would lead to the development of better services in the context of mobile banking systems.

It would also be interesting to examine other cases of mobile banking in different regions to compare their diffusion process with the cases examined in this project. An investigation of how different systems are used in various ways, how they have been adapted, reasons for adaptation and barriers to adaptation and use would be valuable to better understand reasons for success and failure of mobile banking.

References


KINDS (Korean Integrated News Database System), [http://www.kinds.or.kr/](http://www.kinds.or.kr/)


Ministry of Information and Communications, Korea. (2005). *Status report of the subscribers to wired and wireless services in Korea*