

P E R S P E C T I V E

Evolution of Mobile Banking



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Banks are constantly on the search for solutions which will help reduce their cost of operations and improve customer experience. In this continuous journey, the banking industry has seen several technology trends being adopted and several innovations delivered. Innovations in banking delivery channels dates back to the introduction of ATMs as a self-service delivery channel. The ATMs heralded a new era of banking as the concept of self-service was introduced for the first time. ATMs also marked the entry of **anytime banking** as customers could now access money from their bank accounts at a time of their convenience. The wave of self-service continued and the advent of Internet banking introduced the concept of **anywhere banking** as customers could now access their bank accounts from the comforts of their home or office.

The new wave of technology-led delivery channels had caught up with the traditional branch banking and the customer experience from these new delivery channels had set new standards. However, banks noticed a trend - customers mainly visiting ATMs for simple balance inquiry or mini statement transactions. This trend began to add to the cost pressures on the ATM channel. Internet banking was facing its own battle as security issues loomed large and customers restricted usage of Internet banking to their home and office computers.

The time was ripe for a delivery channel which enabled banks to solve the issues plaguing the existing technology channels. This came in the form of mobile banking as banks began to tap into the potential of offering banking to the mobile savvy new generation customers.

Over the years, mobile banking has evolved from a simple information delivery channel to a comprehensive banking transaction channel and the journey has been fueled by both growing business needs and progress in mobile technology.

Business Perspective

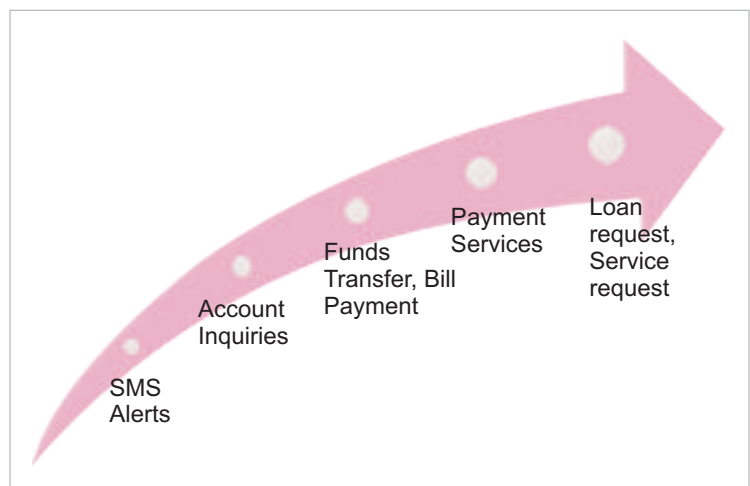
The business drivers which contributed to the evolution of mobile banking are:

- **Customer experience.** The new generation customers were getting accustomed to having

access to information at their convenience. This demand penetrated into access to banking information as customers started demanding round-the-clock access to their bank accounts. Customers were also getting accustomed to the concept of self-service and demanded access to bank accounts at locations of their convenience.

- **Cost savings.** Customers were in the habit of walking into bank branches and ATMs for simple inquiry transactions. This added to the cost of operations of these channel. Customers were also in the habit of using cheques for small value funds transfers, bill payments. All these added to the operational cost and banks began looking for alternative solutions.

These business drivers contributed to the growth of mobile banking over various modes of operation.



SMS alerts. One of the key concerns banks were facing was that of customers did several inquiry transactions on ATMs and this was adding to the burden on the ATM infrastructure. This traffic was particularly heavy during salary days. Banks adopted a solution of proactively communicating account balances and important transactional activity on accounts to customers through a simple SMS. Customers stopped queuing up in front of ATMs for inquiry transactions.

Account inquiries. The SMS technology proved simple enough for banks to adopt this as a self-service channel. This model of operation involved customers sending an SMS to a published number of the Bank with a key word and identification information. The customer

experience for SMS-based inquiries was not very good and this led to the introduction of real-time communication channels such as WAP and USSD.

Funds transfer and bill payment. As customers experience from mobile banking improved and the penetration improved, banks began to realize the potential of offering financial transactions through the mobile device. The first set of transactions to be offered were funds transfer between the customers own accounts and payments to pre-designated billers such as utility companies. These facilities vastly reduced the use of cheques, hence contributing to the cost benefit for banks.

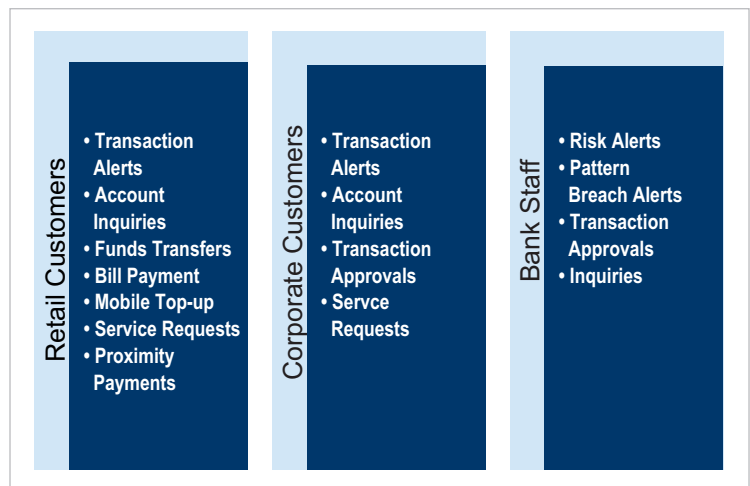
Payment services. Mobile phones had caught on much faster than all previous technology delivery channels and banks were being forced to offer new facilities. The mobile phone was unique in that it was a personal device which had computation power, storage ability and occupied a greater mind-share of the customer than the traditional money wallet. This triggered new thoughts among bankers who wanted to leverage these capabilities to offer newer set of transactions on the mobile phone. This came in the form of enabling payment transactions through the mobile phone. The mobile-based payment comes in two basic forms:

- Proximity payments – these are payments which are made using the mobile phone as a transaction instrument. The transaction authorization is communicated to specialized devices at the merchant establishment using a mode of communication known as Near Field Communication (NFC). The proximity payments through mobile phone heralds a new era as mobile phones can now replace many popular transaction instruments such as credit cards, debit cards and transport cards.
- Non-proximity payments – these are payments in which the mobile phone authorizes the transaction using a standard mobile communication mode such as SMS/ GPRS. The merchant establishment and customer are not in physical proximity. The non-proximity transaction enabled through mobile phone is a secure out-of-band authorization for e-Commerce transactions. The non-proximity

payment services also provides for peer-to-peer payments where customers can transfer money to peers within bank and outside bank.

Loan requests and service requests. As mobile phones evolve into smart phones and the usability is improving, banks are finding it easier to offer more complex services on the mobile phone. The latest trends include offering loans through requests placed from the mobile phone where pre-registered customers can provide details about the loan and avail instant approval of loans.

Today, mobile banking spawns various types of users and offers a bouquet of facilities tailor made for each customer segment. A brief snapshot is as depicted in the diagram below:



Technology Perspective

The progress in mobile banking features was matched by the technology progress on mobile communication platform and mobile devices and this fueled a different kind of evolution in mobile banking.

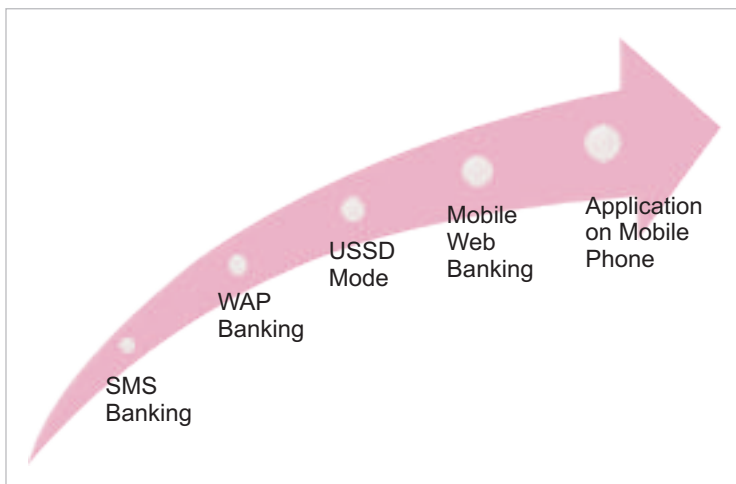
The key technology drivers that contributed to the evolution of mobile banking are:

- **Security.** The mobile banking delivery channel relied on a communication layer provided by the mobile phone. The early forms of mobile banking used SMS as the communication mode which offered minimum protection against hackers and message interceptors. In time, mobile banking progressed to WAP and browser-based banking, which improved the security on sophisticated handsets to some

extent, but excluded the basic devices altogether. The arrival of downloadable mobile applications circumvented many of the earlier issues – since apps could be used on most handsets, they made mobile banking more inclusive.

- **Customer experience.** The mobile device technology progressed at a rapid pace and consumer expectations on usability of began to progress. Mobile banking progressed to offer enhanced customer experience and adopt the latest technology trends in communication to offer real time exchange of data.

These technology driven progress of mobile banking can be depicted as in the following diagram:



SMS banking. The early generations of mobile banking were powered by SMS communication. Using SMS banking, banks could alert customers about activities on their bank accounts and customers could request for information by sending an SMS to a published number. This mode of banking was quite popular but had the following limitations:

- SMS communication was not real time and customer experience started deteriorating
- Security issues around SMS transmission was another bugbear

WAP banking. In time mobile banking progressed to WAP banking which allowed customers to access their bank accounts using a real time data communication mode. This improved the

customer experience as information access was now real time and secure.

USSD. WAP banking, while quite popular, was restricted to a specific set of devices and the use of Unstructured Supplementary Service Data (USSD) came into practice which permitted a real-time interactive access to bank accounts on basic handsets.

Mobile web. The mobile communication technology progressed and mobile devices began supporting full-fledged web pages. This vastly enhanced customer experience on smart phones and sophisticated handsets which provided an almost desktop like experience. Mobile banking began progressing in this direction by providing an almost Internet banking kind of experience on the mobile phone.

Application on mobile phone. The mobile devices became advanced and it was possible to have applications installed on the mobile phone to provide a rich user interface. The new generation mobile banking applications offer several comprehensive features such as:

- Pre-stored customer relationship information to improve response times and customer experience
- Enhanced communication layer security through use of encryption algorithms
- Richer user interface and mobile device specific user interface enhancing customer experience
- Richer user experience leads to more comprehensive features being offered on mobile banking

Current Trends

These developments marked the evolution of the mobile phone into a transaction instrument. According to a research, there are over 4 billion mobile phones in the world, covering over 70% of the population. Another research predicts that by 2014, half of the mobile subscribers will use their mobile phone for physical and digital purchases. It has been predicted that by 2012, money transfer will be the top consumer mobile application.

Some of the other key trends which are driving the present day mobile banking and mobile payments are listed below:

- Barclays took mobile financial transactions up a notch, pioneering a third-party payment service as well as tying up with the Oyster transport ticketing card to enable their customers charge payments made at Oyster terminals using an NFC-enabled mobile phone, directly to their Barclays debit or credit card. The success of this tie-up prompted the U.K transport authority to think about how, in future, mobile contactless payments could be made the preferred mode of transaction authorization, replacing RFID technology
- Wonga, a U.K-based online credit start-up launched an instant short-term loan facility allowing customers to apply for small-ticket loans of up to £1000 over the mobile phone, without going through an elaborate application and authorization process. They claim that the money is paid out within 15 minutes
- Last year, wireless telecom provider, O2 entered the mobile banking space with the launch of prepaid cards
- Mobile device manufacturer Nokia is planning to offer mobile banking services in a new device manufacturer led model

What can be Expected in Future?

Mobile banking has an evolutionary path which has been triggered by business needs and subsequent growth has been fueled by a race between business and technology as each battled to keep pace with the other. However, to predict the future it is essential one looks at the present day issues and concerns. The key ones which would determine future trends are:

Device disparity. The mobile space is filled with a wide variety of devices each offering a different set of capabilities such as SMS, WAP Browser, Mobile web browser, J2ME capabilities, USSD capability, among others. Interoperability among these various devices and a common technology is a clear need. The time is ripe for a

mobile banking platform which will provide interoperability among various devices and various communication technologies without compromising customer experience.

Security. The security issues of mobile banking are multi-fold as it concerns protection of data on the device, authentication of the device, authentication of the customer and security of transmitted information. As mobile banking progresses into mobile payment, the concept of security gains more importance. The time is ripe for emergence a mobile banking model which can be made available on all mobile devices ranging from the simplest device to the most sophisticated device without compromising technology. The concept could be based on a thin client model which expects minimum capabilities from the mobile device.

Application distribution. Today several mobile banking solutions are available as applications installed on mobile device. The distribution of these applications to customers is a cumbersome activity and this is one of the reasons for the lower uptake of mobile banking in many regions. New models of application distribution such as over the air distribution of mobile banking applications, automated upgrade of mobile banking applications will emerge which will take away the application distribution hassles.

Personalization. Mobile banking is very popular among Generation Y users and the demand for personalized applications is also quite high. The personalization demands could be in the form of language, facilities, color schemes, messages and many more. The need for personalization may be addressed by providing a mobile banking platform on which various mobile banking applications/ features can be developed and customers can choose the features to be installed on their mobile phone. Such a model which is similar to the Apple iPhone model will provide for a global sourcing of developers to cater to every individual customer.

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