
*Dibyajyoti Ray* & *Shomnath Dutta***

**ABSTRACT**

Mobile banking technology has emerged as a new efficiency-building frontier in Indian Banking spectrum by providing a branchless banking experience and opening up new revenue streams with reduced operational costs. With growing mobile penetration and mammoth wireless subscriber base, the focus of banking is slowly shifting to digital platform via mobile. The digital mode of banking via mobile acting as our digital wallet strives to ease the pain of the users and bring agility to the multi pronged financial transactions ranging from balance enquiry, online fund transfer, ticket reservations, payments for shopping & utilities, credit applications and other banking transactions. But there is lot more challenges in fraud detection and online security thwarting the mobile banking success rate. Within the purview of this article attempts are made to pinpoint how the banking sector of Indian economy has started harnessing the power of ‘Going Digital’ and the pioneering role played by the internet, mobile communication and wireless technology in attaining ‘user-friendliness’ & ‘customer convenience’ to offer delightful banking experience to the end users. The paper also tries to ventilate the key drivers that prompt the banks to opt for digital route through WAP based mobile along with the current & future hindrances that might retard the wheel of digital banking in a 24x7 – ‘Branchless Banking’ format via mobile communication.

*Keywords: Digital Branchless banking, Digital wallet, Mobile banking, Customer convenience, User-friendliness*

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I. Introduction

Today digital banking over mobile phone has opened up a new technology-enabled frontier to provide value-added personalized, speedy and cost effective banking convenience to the customers. Many Indian banks have already started embarking upon mobile-savvy technological breakthroughs to offer ‘Anywhere-Anytime banking’ promise. Currently the buzzword ‘Mobile-Apps’ has appeared to be a boon for Indian banking panorama in facilitating paperless and cashless transactions over wireless network and at the same time increasing the reach of banking up to the hitherto unbanked rural segment. The growing aspiration for round the clock ‘24 x 7-Branchless banking’ at our fingertips has pushed banks to restructure and reengineer their banking businesses in tune with digital platform via mobile phone in order to reap the rich dividends through streamlined operations and associated operational cost-cutting. The growing mobile penetration rate due to our latest mobile-savvy lifestyle offers a new avenue to banks for delivering round the clock, smart banking services to modern comfort-seeking customers. Mobile now has become the digital wallet for end-users and this has made conventional ‘brick & mortar’ banks virtually smaller enough to fit into our pocket and thereby discarding the need of physical branch visit by way of mobile-banking gateway. In order to ensure delightful banking experience to the new age’s comfort and convenience seeking digitaholic customers, banks are rolling out with smarter banking innovations through mobile-banking (m-banking) route. Mobile handsets being equipped with location based personalization and interactive applications have enabled to reach a new digital tipping point with a digital transformation of so called branch bound conventional banking to anytime- anywhere banking from home through mobile keystrokes.

II. Literature survey

As Mobile communication and information technology have made banking business to ‘go digital’ over mobile and internet, customer servicing and transaction are conducted almost instantly on a ‘real-time’ basis. Such a digital shift of banking has lured researchers to utilize their intellectual capital so as to come up with more innovative banking solutions and implications of mobile banking on banking industry as efficiency-booster.
Henudit et al (2006) during the study of acceptability of mobile banking in Malaysia found that, security and privacy factors had great influence on behavioural intention behind adoption of mobile banking. In another analytical study made by Kun Change lee et al (2009) about the drivers of satisfaction and trustworthiness towards mobile-banking services in Korea, the authors identified three external quality parameters and their relative impacts on satisfaction and trust of mobile banking users.

For understanding the key attribute profile of m-banking, Seung Beak et al (2009) critically analyzed customers perception regarding 3G mobile services using Kano’s model and classified five types of influential quality attributes- attractive, must-be, one dimensional, indifference and reverse. The study concluded that higher the degree of value-added mobile services and functionality, higher would be user satisfaction.

In the year 2009, Namho Chung et al also had undergone a multi group analysis of the possible effects of trustworthiness of Korean users on mobile banking satisfaction. This analytical study basically targeted to draw inter-relationship between customer satisfaction and perceptions of system-quality, information-quality and presentation-style using partial least square method and revealed that both information and system qualities have impacts on customer satisfaction whereas style of information presentation does not exert any impact on customer delightment.

III. Superiority of Mobile Banking over Internet Banking

From functionality and convenient usability angles, mobile banking outperforms internet banking in the following respects-

- Mobile banking makes use of massage based application instead of session-based ones as seen in internet banking and thus contributes 24x7-anywhere-anytime banking straight to users.
- Mobile banking capitalize inadequate internet connectivity by extending banking services for those fresh users who did not yet have any past banking relationship whereas internet banking allows electronic banking-access only to those who had been banked earlier.
• SIM-card based mobile banking ensures relatively more advanced security than internet banking through using encrypted banking keys/certificates that mobile users carry all along with them.
• Instant SMS alerts after any transaction (ATM, Card Swiping) is only possible by mobile banking.
• Enhanced user friendly functionalities of mobile banking over net-banking include-blocking of debit/credit card from phone, charging mobile PIN (m-pin) on phone after ATM transactions or even authorizing access to personal information from mobile handset.

IV. Mobile - the High Impact enabling Change Agent for Customer-Savvy Banking

With a view to be market-driven and market-responsive, mobile banking sets in a new rule of game in banking industry. Today’s banking players have started creating their unique Brand Identity through portfolio of ‘Mobile-Apps’ to offer enhanced multi-pronged services with transparency. Eating of traditional banking revenue pools by new competitors in ‘payment space’, persistent margin compression, alarming market uncertainty, increased regulatory regime and cost pressure have made banking sector bound to adopt a digital makeover through mobile banking platform. The wireless mobile communication infrastructure has resulted a total ‘Paradigm shift’ in banking service delivery in ‘24x7-branchless anytime anywhere banking’ format, mobile has become the primary interface-builder with customers specially to reach the under banked or unbanked section of society.

The digital wave in banking through ‘Mobile-Apps’ got further momentum with the emergence of tech-savvy ‘Gen-Y’ users and their overwhelming response to ‘Mobile-Apps’ enabled banking transactions. WAP enabled mobile communication technology provides a unique platform of operation for Indian banking conglomerates for building a collaborative/ partnering relationship with customers by comfortable and convenient banking from home. To ensure customer-delightment at reduced cost of banking, transparency in operations and increased customer reach for bringing more clients within mobile banking bracket, Mobile communication acts as ‘Supremo’ among all available alternatives delivery channel & digital payment space. So
far as Client acquisition & retention and also delightful banking experience are concerned, Mobile technology-led innovation appears to be the ‘key-differentiator’ in generating improved customer-loyalty base.

Apart from user-friendliness & 24x7 branchless banking perspective, mobile banking happens to be a digital tool for ‘Lean’ and ‘Green’ Banking by making the entire gamut of banking operations ‘Sami-paperless’ in near future. As per TRAI’s estimate, India’s over 900 million mobile connectivity compared to only 10.2% internet connectivity confirms that mobile banking is going to be the ‘Sunrise-sector’ of banking industry. Areas where mobile device has made banking fast, hazard free and both cashless as well as paper less are-account registration, account statements, balance enquiries, deposits & withdrawals, cheque payment etc. Sensing the mammoth potential of mobile banking RBI has already allowed 65 banks to start Mobile banking out of which 47 have already extended this service to their clients.

Mobile as a change-agent for customer driven smart banking also results substantial savings in bank-charges in issue of DDs, reissue of Id/Password, registration of plastic card PIN etc. compared to traditional ‘brick & mortar’ banking. Besides, banking under online mode enables users to avail discounts on some utility-bill payments, for example- in Mumbai, Reliance energy gives 0.5% (up to Rs.250/bill) , Mahanagar Gas gives 1% (Max Rs.50/bill) and MTNL offers 1% (Up to Rs.250/bill) etc.

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Traditional Route (Rs)</th>
<th>Digital Route*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mobile</td>
</tr>
<tr>
<td>Demand Draft Issue</td>
<td>50-75</td>
<td>30</td>
</tr>
<tr>
<td>Stop Payment of Cheque</td>
<td>50-100</td>
<td>--</td>
</tr>
<tr>
<td>PIN register of Plastic Card</td>
<td>25</td>
<td>---</td>
</tr>
<tr>
<td>Reissuance of ID/Password</td>
<td>50</td>
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</table>

*Source: The Economic Times-31st August 2012

Customer’s attitudinal & behavioral change in banking also fuels the growth of mobile banking. Time Constrained fast life style has made new age bank clients smart, value driven comfort seeker, hard please, Wore demanding & less forgiving. The banking experience through rich
content, interactive features outside banking parlance. Now peers trustworthy suggestions are replacing bank role as financial counselor. Modern bank Customers are exposed to wide range of choices and comparisons available online. They no longer remain shy but raise strong voice over social media against bad user experience leading to damage bank’s brand image. Operating a traditional rural bank branch costs INR 500,000 per year in salaries alone which would suck about INR 20 million in deposits to reach at a breakeven point so a typical Indian village with a population of 2,000 can’t support to operate a conventional bank branch. Hence Mobile banking may be the only viable method to extend banking services to rural areas in these regions. The following graphical diagram developed by BCG shows how technology can drastically lower down the costs of banking –

V. Mobile- the Digital Mobiliser of Banking Process
**Mobile our digital wallet**: - Advent of mobile technology innovations lured banks to use mobile payment space after discarding plastic cards in the form of a digital wallet embedded within mobile set that remains always with us. With the use of distinct mobile operating system and popular ‘apps’- Near field communication (NFC), banks have started helping customers and businesses in making transition from physical of mobile payment space. Instead of fumbling through our physical leather wallet for plastic cards, Coupons, Tickets, Receipts & Paper-notes one could simply tap his/her mobile phone to a terminal. Mobile banking is fundamentally different from mobile payment where the former uses the phone to pay in a shop or transfer money to a friend while the latter means access to client’s banking information and making online transfers and bill payments. Actually mobile phone can be fitted into the spectrum of digital payment space. Banks have reinvented mobile phones as natural device for ‘Real-time banking experience in ‘24x7’- user friendly format.

Mobile usage spectrum has now extended many folds & resulting a ‘digital make-over’ of our lifestyle. It no longer remaining just a communication device, rather becomes our digital wallet to cash in on the cashless future. Our mobile handset simply replaces leather wallet and holds plenty of financial information like bank account, credit card number etc. With which users do their banking transactions ‘anywhere- anytime and all the time’. On exclusive usage dimension, mobile is more personal then PC and it has become part and parcel of our life. mobiles, apart from serving as our ‘digital wallet’, provide digital guidance in the form of registering locations, identity and distance, connecting with globe through internet and performing multipronged activities by diverse ‘Mobile Apps’. This high end user friendliness and multitasking scalability of mobile sets are harnessed by banks through making their online portals compatible with mobile devices or even integration with location specific mobile solutions.

Cellular phones being our digital wallets are well acclaimed means to access bank on web-cloud and micro-payment gateway to carry out commercial and financial transactions. For mobilizing banking processes through mobile, a three step procedure used which covers – Consulting the mobility, multipronged mobile-app development and mobility integration. Mobility- Consulting takes place in terms of recommending process innovations or organizational improvements, identifies new mobile-apps and designing change management to successfully execute mobile
solutions. Mobile-apps are developed to mobilize banking for new clients and reengineering web applications to apps and effecting technology- optimizing. Finally such mobile apps are integrated into the backend system and processes to support mobile- banking.

Growing acceptance of mobile as our digital wallet as well as the mobilizing agent for convenient Hassel free banking process are reflected in IBEF’s reports starting 28 Lakh banking transactions (Rs.196.12 crores) took place in Feb., 2012 which is turned indicates around 300% like in volume and over 200% increase in value. in line with digital mobilization move undertaken by mobiles on banking, mobile-banking outperforms ATM’s 24x7 format-since transactions up to Rs. 50000 is possible from home at fingertips anytime without moving physically up to nearest ATM terminal no operational malfunctioning or breakdown as with ATM’s, No problem of shortage of cash to dispense with and finally overcoming the problem of low ATM-density in the vicinity and resulting queue build-up outside.

Mobile apps (Android, Blackberry, Smartphone, Apple, Ovi etc.) to make the user ‘money smart’ includes the domains- (a) Investing:- Money control market, NSE- Mobile trading, Bloomberg App (Global Market), Investopidia, Myfundslite (Indian mutual fund portfolio tracker), (b) Spending & tax:- My expense tracker, Ngpay, Book my show, EMI calc, currency converter, Mytaxindia, India Income tax calc, financial calc, etc.

VI. 360° Value-Addition portfolio to Banking Beneficiaries

Mobile banking appears to be beneficial in generating real revenue stream to all the stakeholders of mobile ecosystem like- customers, banks, mobile-operators, financial institutions.

- **Benefits of customers:-**
  - Anywhere, anytime banking experience which is the essence of immediacy & ubiquity.
  - Location centric services to locate branches, ATM’s of the concerned banks.
  - No dial-up, no configuration or booting requirement to ensure instant connectivity through wireless route.
  - Substituting voice communication through texts & images for deaf or mute users.
  - State of the art security platform.
• **Benefits to Bank** :-
  - Additional income stream through innovative user-friendly services.
  - Enhanced brand image through alternate sales channel in mobile payment space and thus leading to loyalty development.
  - Extending value-added services through 24x7 branchless banking experience.

• **Benefits to Financial Institutions** :-
  - Ensuring enhanced customer’s satisfaction & retention together with direct marketing promos for tailored offerings to specific clients.
  - Generating new ‘business leads’ by one to one bank-client relationship.
  - Keeping constant connection with clients through 24x7 formats to serve their diverse needs everywhere, all the time.
  - Increased reach to more customers, specially the hitherto unbanked segment due to increasing mobile usage rate and thereby reduced operating costs out of fewer direct teller interactions happened physical branches.

• **Beneficial gains to mobile operators** :-
  - Expanded service portfolio & increased brand promotion to create a differentiating factor to generate more new leads.
  - Lucrative route to strengthen client loyalty base vis-à-vis lessen ‘churn’ & ‘attrition’ rates.
  - Increased revenue by high mobile traffic build up.
  - Enable users to check bank account status & recharge prepaid mobile account instantly using mobile payment gateway (IMPS).

**VII. Banking Efficiency Boosting Frontiers of Mobile Banking**

Through initiating a digital make-over of banking system, mobile banking boosts up efficient banking digitally in the following ways –

- As alternate distribution route – banks through mobile banking can offer diverse portfolio of banking services & add-on facilities to the three fold target groups – business
people, tech-savvy youngsters and short to medium run professional young adults who
are involved in stock market.

- **As sales volume builder** - mobile banking boosts up demand for products at profitable
prices with increased operating efficiency by ‘anytime-anywhere’ banking access, push
services to enable urgent transactions (stock selling at crisis moment), face to face
interaction with personal consultant by video telephony.

- **As reducer of cost of distribution** – mobile banking substitutes branch based manual
banking operations through online digital mode via mobile, enables banks to provide
ubiquitous semi-personal consulting services in real time basis.

- **As sources of both revenue generation & customer satisfaction** - mobile banking through
offering innovative premium services to present customers & potential future customers
at reasonable premium prices that customers are willing to pay, earns additional revenues.
Mobile banking with the help of digital automation of routine banking tasks for ensuring
streamlined banking operations, better consulting & tailored attention to clients and round
the clock ‘24x7: anywhere-anytime’ banking, escalates customer satisfaction many fold.

VIII. Technological Snapshot of Mobile Banking System

End-user’s SIM card consists of a secure applet which enables banking via mobile handset over
wireless network. Mobile banking operates within a distributed processing platform deployed at
both mobile operator’s and bank’s site.

**Components Involved:**

- *Business Median Server (BMS)*, situated at operator’s domain.
- *Bank Secure Platform (BSP)*, operates at bank’s domain.
- *Host Security Module (HSM)*, residing at bank’s site.
- Additional *Adaptor* at bank’s site.
- Three modular functionalities owned & controlled by mobile operator – *Online Service
Gateway (OSG), Over-The-Air (OTA)* manager and *Short Message Service Center (SMSC).*
**Operating Requirements:**

With the afore-mentioned technological components the entire mobile banking system requires –

- A standard LINUX/UNIX based platform server.
- Specific RDBMS (Oracle) for storing and managing huge user’s banking information & data.
- Standard interfaces (HTTP, SMS, XML, STKML).
- Java & S@T technology etc.

A simple Block Diagram of a standard Mobile Banking System* along with its components is presented as follows –

*Source Courtesy: Gemalto Mobile Banking/www.gemalto.com*

A brief functional description of the components are given below –

<table>
<thead>
<tr>
<th>Technological Components</th>
<th>Description/Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business Median Server (BMS)</td>
<td>Facilitates communication between mobile-end user &amp; bank by receiving, interpreting, formatting &amp; forwarding subscriber’s banking requests to bank. Then sending bank’s response from bank’s BSP back to customer’s SIM via OSG.</td>
</tr>
<tr>
<td><strong>Bank Secure Platform (BSP)</strong></td>
<td>Facilitates &amp; handles all sorts of transactional communications between mobile user/bank-customer &amp; bank after authenticating the mobile banking client. It also offers high-end security to client’s data &amp; transactions via HSM.</td>
</tr>
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<td>-------------------------------</td>
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</tr>
<tr>
<td><strong>Host Security Module (HSM)</strong></td>
<td>This tamper-proof hardware item at bank’s site after receiving signal from BSP generates cryptographic transaction keys to encrypt &amp; decrypt sensitive information for security.</td>
</tr>
<tr>
<td><strong>Adaptor</strong></td>
<td>Assists communication between bank’s back-end systems with non-standard interface.</td>
</tr>
<tr>
<td><strong>Online Service Gateway (OSG)</strong></td>
<td>Communicates banking SMS messages between phone-SIM &amp; operator’s BMS through converting SMSs to HTTP formats.</td>
</tr>
<tr>
<td><strong>Over-The-Air (OTA)</strong></td>
<td>Provides optional service to operators in the form of remote provisioning and SIM card management.</td>
</tr>
<tr>
<td><strong>Short Message Service Center (SMSC)</strong></td>
<td>As a part of GSM network it controls &amp; manages to &amp; fro transmission of SMS messages.</td>
</tr>
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</table>

Brief overviews of Mobile Banking Technological Requirements are summarized as:-

<table>
<thead>
<tr>
<th>Telecom Standard</th>
<th>Data Bearer</th>
<th>User Interface</th>
<th>Method of Invoking / Initiating Transactions</th>
<th>Security Hardware / Setup Requirements</th>
</tr>
</thead>
<tbody>
<tr>
<td>GSM Plain SMS</td>
<td>Structured Text</td>
<td>SMS / J2ME</td>
<td>Weak Encryption</td>
<td>Works on any phone. Encrypted Workarounds like IVR call backs for sensitive information are possible</td>
</tr>
<tr>
<td>Ray &amp; Dutta</td>
<td>ISSN: 2278-9111</td>
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</tbody>
</table>
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GSM / USSD / GUI SMS / J2ME Secure J2ME client requires Java enabled phone.
Application (Graphic User Interface) / Structured Text
SMS

GSM / GPRS / GUI J2ME / Browser Secure Java enabled phone with GPRS. Without GPRS this can work within the Telecom provider’s walled garden.
WAP

CDMA Application GUI Brew / Browser Secure Operator centric usage
SMS/GPRS / WAP

IX. Roadblocks – challenging the Mobile Banking Spectrum

The hurdles impeding the growing momentum of mobile banking are basically two types by nature, one security centric & the other is user friendly application centric. So careful addressing of the following aspects are of crying need for banks, mobile operators and system developers.

* Security: ‘Anywhere-Anytime-24x7 banking’ over unprotected wireless network endogenously generates the biggest hurdle for mobile banking & thus thwarting its growth wheel. Thus security seems to be a most challenging concern for ‘Mobile Apps’ developers, wireless service providers and bank’s IT division. Technological advancements in one way bring smart phones (a mini computer) but at the same time also enable hackers to hijack mobile banking customer’s details.

Security enabling Routes:

- Strong user-authentication using ‘2-factor authentication’ or even ‘Multi-factor authentication’ of device with service provider or by bank before initiating any transaction along with bank’s customer ID/Password authentication using mobile.
Use of SMS based OTP (one time Password) issued by bank instead of conventional memorized password each time requested by customer to do transactions over mobile for safeguarding cyber-fraud.

Encrypting data being aired over wireless media as well as stored in mobile for offline analysis by customers to ensure data confidentiality & integrity.

Utilization of technically competent Mobile – App developer, trained with ‘secured-coding’ techniques to secure SDLC and also an information security expert’s skill to test ‘Mobile Apps’ security before implementation.

**Mobile Handset’s Incompatibility:** This is another addressable drawback for banks to extend their mobile banking Apps towards to customers since still now some mobile handsets support Java ME, while others support SIM application-Toolkit, WAP browser or SMS only.

**Inadequate Scalability of Mobile Banking Infrastructure:** Chief Information Officers & Chief Technological Officers are working hard to scale-up mobile banking infrastructure to tackle phenomenally growing customer base and to provide 24x7 banking via mobile in true sense. For this to happen Indian banks have started using ‘Mobile Transaction Platform’ for offering their customers quick & secured 24x7 branchless banking over mobile.

**Legal & Demographical hindrances:** India with 18 official languages spoken across the country and state Governments’ emphasis to correspond in their regional language for official purposes. Additionally, two-thirds of Indian population reeling under the cover of illiteracy, creating serious hindrances in deployment of mobile banking solutions. The RBI guidelines allow only existing financial institutions and banks to offer mobile banking. RBI also directs to carry transactions only in India’s national currency which may impose a constraint for interoperability between Indian mobile payments and the globe.

**Digital Division:** India with increased illiteracy & unemployment evils has a large number of people who lacks technical & operational knowledge to deal with banking through mobile. So a significant number of people still remain outside the periphery of
digital arena and for them a mobile banking enabled mobile handset appears to be a luxury instead of necessity. Today banks need to go for bridging the ‘digital divide’ between haves & have-nots of such technological breakthroughs to provide equitable access to all.

X. The ‘Mobile Wave’ in Indian Banking Sector

IT revolution and 3G mobile technology have resulted a striding restructuring of Indian Banking Sector in order to provide a fast & convenient banking to the new age smart customers. The current electronic age has redefined the role of banking industry in offering more user-friendly, better cashless & branchless banking services to customers over wireless medium via mobile round the clock. Though mobile banking still remains in its infancy in India, mobile service providers, handset makers and banks jointly started harnessing their strengths & competencies to bring banks closer to user’s fingertips on ‘Anytime-Anywhere’ basis with the help of our digital wallet i.e. mobile phone.

The study of Boston Consulting Group in July 2011 reflects that mobile banking in India is set to create approximately $4.5 billion fee based revenue by 2015 which would be generated from $350 billion of mobile transaction volumes predicted to occur by 2015, in contrast to $235 billion today. Since 2007, mobile banking being an integral part of ‘m-commerce’ has been adding value to telecom sector with increasing popularity and mobile penetration rate. as per online electronic report published by telecomindiaonline.com during early 2009, nearly 40 million urban Indians checked their bank account balances followed by last three transactions using mobile banking gateway. Banks are also tying with application developers and players, the likes of Obopay, mChek, PayPal, Beam etc. in order to develop or deploy their mobile banking offerings. A study by BCG pointed out that mobile transactions in India were expected to touch $350 billion by 2015. According to data retrieved from the RBI by online portal ‘MediaNama’ using the Right to Information Act: 707,496 mobile banking transactions, amounting to Rs. 61.61 crores were reported for the month of February 2011. Out of these as many as 529,318 transactions (74.81% of total) and Rs. 32.63 crores transacted (52.96% of total) were from customers of State Bank of India.
Most surprisingly this mobile banking continues to gain popularity among the low income strata, even tending to be faster than higher income group. The following graphical chart published by online portal telecomindiaonline.com regarding Mobile banking users – Income profile supports this above observation. As per the chart below, mobile banking is most used by subscribers ranging in between Rs. 1 Lakh to Rs. 2.99 Lakhs income bracket followed by less than Rs 1 Lakh income bracket.

Source: www.telecomindiaonline.com

The Online portal MEDIANAMA has beautifully portrayed the following graphical snapshot of mobile banking trends for ICICI during May 2009 to February 2010 along with top 10 banks’ rating in volume & value.
As per RBI’s latest report in May 2012, close to 3.34 million transactions were conducted for Rs 2.86 billion through Mobile as against Rs 1.28 million transactions of Rs 0.91 billion in May 2011.

The huge potential of mobile banking in Indian perspective can be visualized by the following chart as published in Mobile Clearing House Network’s website www.mchsn.com –
To get tuned with such a digital shift of banking to mobile platform, almost every Indian banks have started rolling out to extend their mobile banking service portfolios day in & day out. Till 2009 ICICI keeps on holding its leadership extending in mobile space followed by HDFC but later on State Bank of India surpassed all banks by a significant margin in Mobile Banking domain. With ‘Axis Mobile’ Axis Bank has also rolled out in this platform having secured mobile banking facility compatible with all mobile sets to its (registered) customers. Corporation bank started offering avenues for its clients to earn high at fingertips anytime through making term deposits online via mobile. In the month of October 2009 Yes Bank’s mobile banking activity resulted in 11 transactions worth Rs. 5433000. Similarly, 246 transaction instances at State Bank of Mysore in November 2009 generated a value of Rs 4.99 crores. Among the major public sector banking majors, State Bank of India (SBI), Union Bank of India and Canara Bank (by its ‘Can Mobile’) have already launched array of mobile banking services to facilitate customers with ‘No Working Hour’, ‘No Queues’, ‘No Waiting’ by mobile driven 24x7 anywhere anytime banking. The largest bank in India, State Bank of India (SBI), registered
529,318 mobile transactions with a transaction volume of INR 32.63 Crore (approximately $7.3 million) in February 2011 alone. In 2010, ICICI Bank after being tied up with Vodafone attained a growth of 532 percent and HDFC Bank posted 512 percent growth.

XI. Conclusion

During the last couple of years the fastest growing market of mobile device & wireless network is revolutionizing banking transactions to attract & retain customers. These wireless network & mobile gateways are playing a pioneering role in bringing mobile banking strategy into the limelight as the digital payment space is constantly getting crowded by more and more players so as to cash in the cashless future. The mobile banking solution aims to offer end-to-end security & data-confidentiality through ciphered information being stored in SIM for secured data transfer over mobiles et, GSM network, operator’s infrastructure and the connection to the financial institutions. In order to prevent cyber-fraud and online security threat, mobile banking is designed to ensure strong user-authentication, data-integrity as well as non-repudiation along with conforming the standards (PCI-DSS) prescribed by banks/ financial institutions and Govt. regulatory bodies. Since security happens to be a ‘make or break’ factor for mobile banking growth, user-fed information are encrypted by a secured applet residing in tamper-proof SIM card. Technology has enabled customers a 24x7 access to his/her finances on move with real time information flow. The mainstream adoption of mobile banking platform is chiefly driven by the multifunctional wireless mobile infrastructure, available to bank-clients on anytime-anywhere basis. On the bank’s side, servicing from any branch in addition to home branch and even accessing customer history are now reality with some clicks/key-strokes of mobile. Still as an efficiency booster of Indian banking system, mobile banking has a long way to go for bridging the ‘digital divide’ between haves & have-nots of such technological breakthroughs to provide equitable access to all.

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