'GO DIGITAL & GO BRANCHLESS': THE NEW CATCHLINE OF INDIAN BANKING SECTOR USING MOBILE TELEPHONY: ISSUES & CHALLENGES

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Abstract

Indian Banking spectrum of late witnessed a new milestone to bring branchless banking experience to the customers. Increased mobile penetration and huge wireless subscriber base happen to be the chief enablers for banks for gradual shift to digital platform via mobile. Such digital banking via mobile appears as pain reliever for 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 still the constraints of fraud detection and online security are thwarting the digital banking success rate. This article attempts to pinpoint how the Indian banking sector has joined the race of 'Going Digital' with the help of internet, mobile communication and wireless technology in attaining 'user-friendliness' & 'customer convenience' to offer delightful banking experience to the end users. The article also ventilates the current & future hindrances that might retard the wheel of digital banking in a 24x7 – 'Branchless Banking' format via mobile.

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

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I. Introduction

In order to provide value-added personalized, speedy and cost effective banking convenience to the customers many Indian banks have 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 there by 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

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.

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.

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.

With the gift of Mobile communication and information technology banks are now capable of conducting customer servicing and transaction almost instantly on a 'real-time' basis. This digital shift has lured researchers to utilize their intellectual capital to give birth to innovative banking solutions like mobile banking as efficiency-booster.

III. Mobile Banking & Internet Banking

From functionality and convenient usability angles, mobile banking has superseded 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 then 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.

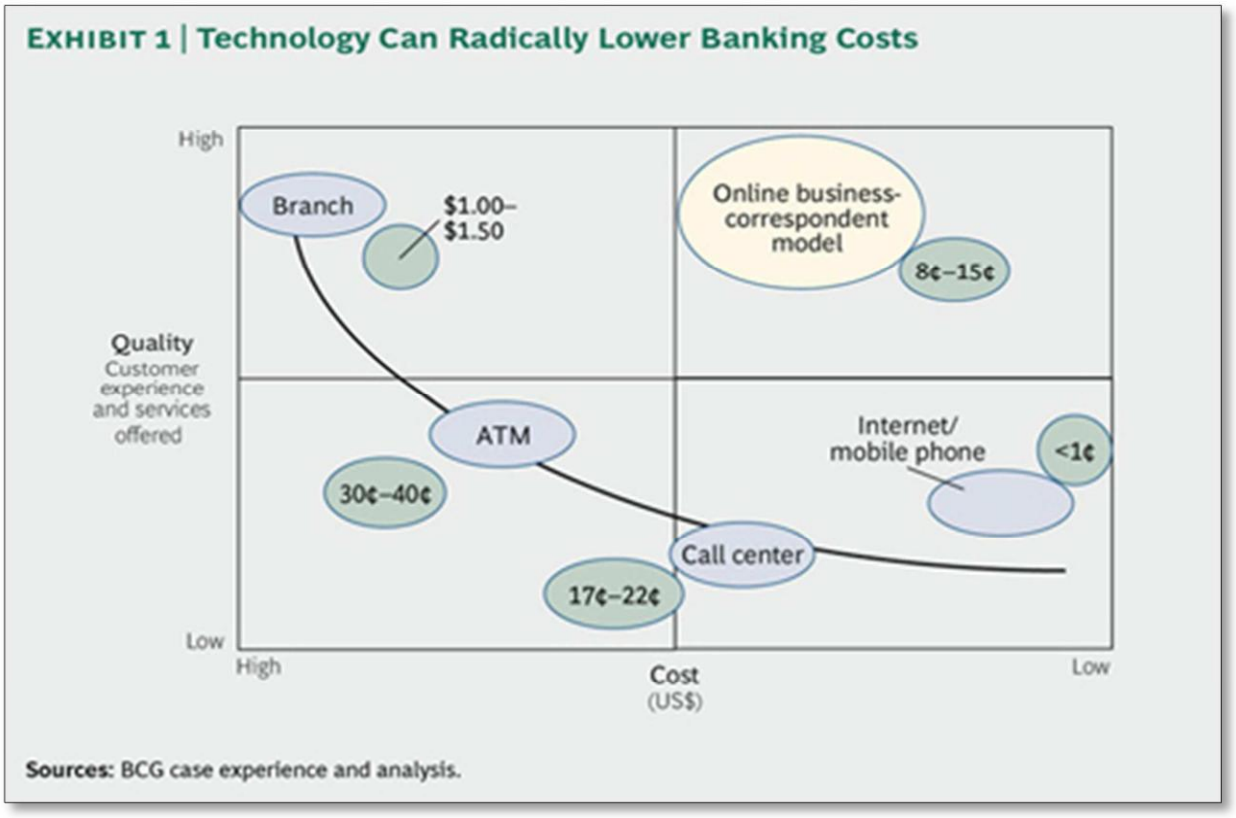
IV. Mobile - A Customer-Savvy Banking Gadget & Digital Mobiliser of the process

The digital makeover of banking operations through 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 appears to be the 'key-differentiator' in generating improved customer-loyalty base. To ensure customer-delightment at reduced cost of banking, transparency in operations and increased customer reach for bringing more clients within mobile banking bracket, WAP enabled mobile communication technology provides a unique platform Mobile technology-led innovation. 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. 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.

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. 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'. For mobilizing banking processes through mobile, a three step procedure used which covers – Consulting the mobility, multipronged mobile-app development and mobility integration.

The following graphical diagram developed by BCG shows how technology can drastically lower down the costs of banking –



V. Beneficiary portfolio of Mobile led Digital Banking

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.

- **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.
- **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.

- **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.
- **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).

VI. Technological Overview of Mobile Banking System

Mobile banking operates within a distributed processing platform deployed at both mobile operator's and bank's site.

(a) Components Involved:-

- *Business Median Server (BMS),* situated at operator's domain for communication between mobile-end user & bank by receiving, interpreting, formatting & forwarding subscriber's banking requests to bank

- *Bank Secure Platform (BSP),* operates at bank's domain. It facilitates & handles all sorts of transactional communications between mobile user/bank-customer & bank after authenticating the mobile banking client.
- *Host Security Module (HSM),* residing at bank's site upon receiving signal from BSP generates cryptographic transaction keys to encrypt & decrypt sensitive information for security.
- Additional *Adaptor* at bank's site assists communication between bank's back-end systems with non-standard interface.
- Three modular functionalities owned & controlled by mobile operator – *Online Service Gateway (OSG), Over-The-Air (OTA)* manager and *Short Message Service Center (SMSC).*

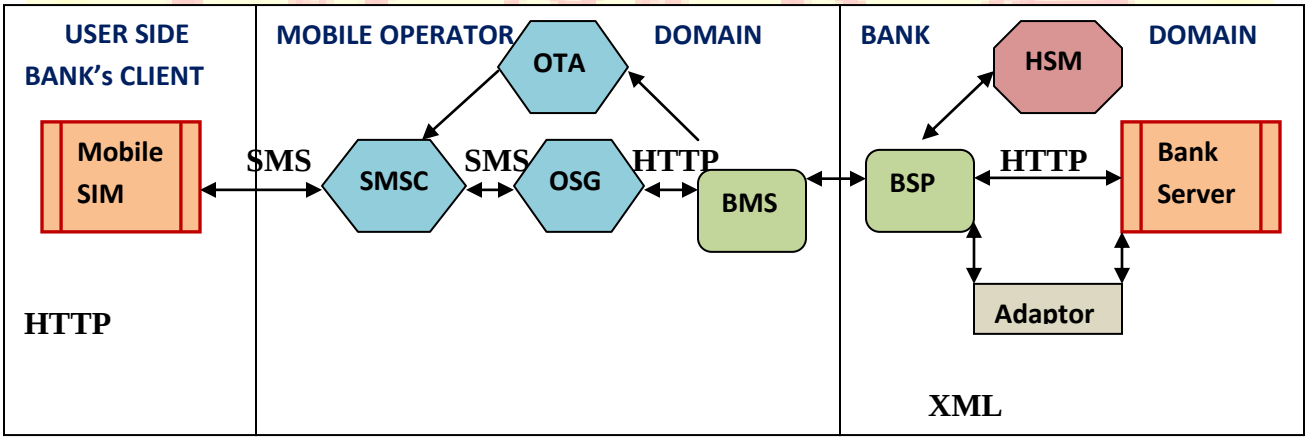
(b) Operating Requirements:-

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 –

Exhibit 2: Mobile Banking System



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

VII. Hurdles of 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..

- Security: 'Anywhere-Anytime-24x7 banking' over unprotected wireless network endogenously generates the biggest hurdle for mobile banking & thus thwarting its growth wheel. 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 off-line analysis by customers to ensure data confidentiality & integrity.
- Mobile Handset's Incompatibility
- Inadequate Scalability of Mobile Banking Infrastructure: Chief Information Officers &
- 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.
- 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.

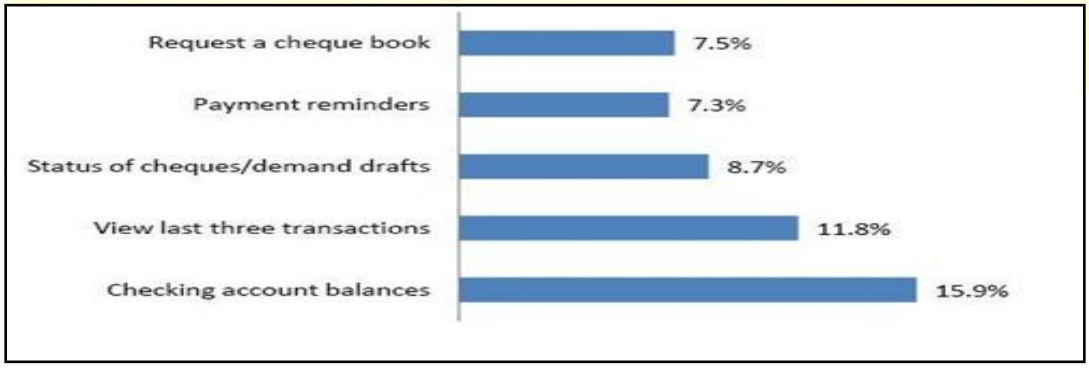
VIII. The 'Digital Wave' in Indian Banking Sector

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. 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. 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.

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 According to data retrieved from the RBI by online portal 'Media Nama' 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.

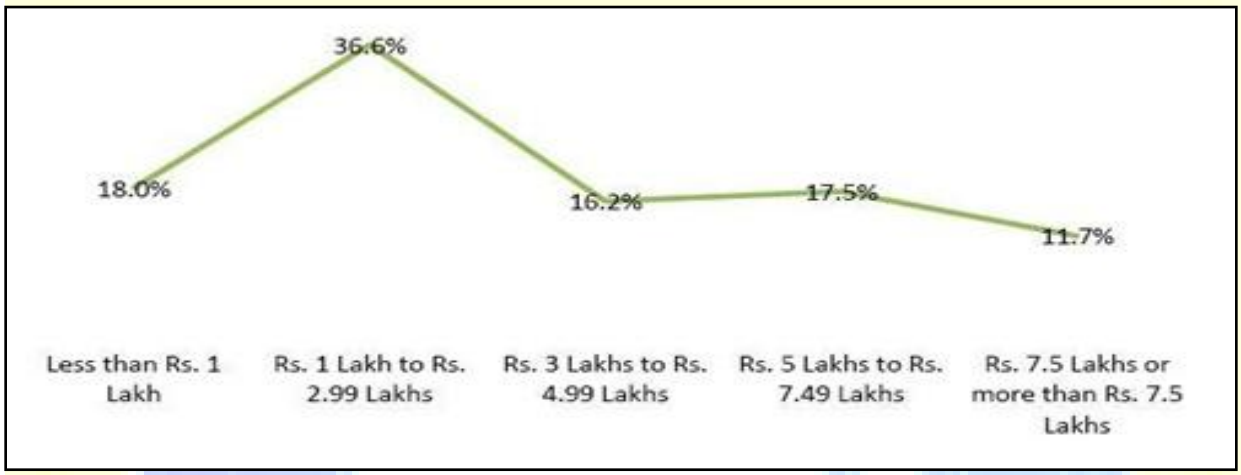
Exhibit 3: Mobile banking in India



Source: *Mobile banking in India - Perception and Statistics-March 2009;* ***http://www.telecomindiaonline.com***

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.

Exhibit 4: Income profile of Mobile banking users in India



Source: www.telecomindiaonline.com

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.

IX. Conclusion

The fastest growing Mobile commerce & wireless network are playing a pioneering role in bringing mobile banking into the limelight as the digital payment space is constantly getting crowded since It claims 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. Against 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. 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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