

Dr. J. S. Sarma

Chairman

TRAI

New Delhi, India

Dear Dr. Sarma

Thanks for providing this opportunity to share our views on the “Consultation Paper on - Quality of Service requirements for delivery of basic financial services using mobile phones”.

Sincerely,

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InCights is amongst Top 74 Companies at Economic Times Power of Ideas

InCights is chosen as Best Concept for doing Business at E-Summit (Delhi Univesity) 2010

InCights is Chosen as top 4 Best Business Concept at Zeal (Mumbai University)

InCights is Kit Sponsor for workshop on “Mobile Broadband: Igniting Service Revolution” by IIMA Idea Telecom Centre of Excellence.

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We believe the objective of any policy related to m-commerce should be to build a more secure, inclusive financial framework, bring uniformity, synergy and enriched customer experience, preserving the diversity in terms of mobile device, computing system, application, communication channel, banks and service providers.

As a result the policy should focus on the following:

- Understand additional risks with m-commerce and mitigate the same using operational controls.
- Build highly responsive system to address customer grievances and consumer protection.
- Create a level playing field for all players in the ecosystem and promote transparency and interoperability within the telecom value chain.
- Enable an ecosystem which promotes innovation and entrepreneurship.

Given the context of the consultation, the recommendations are limited to telecom services and functional mandate under TRAI.

Managing the risks associated with Mobile Commerce

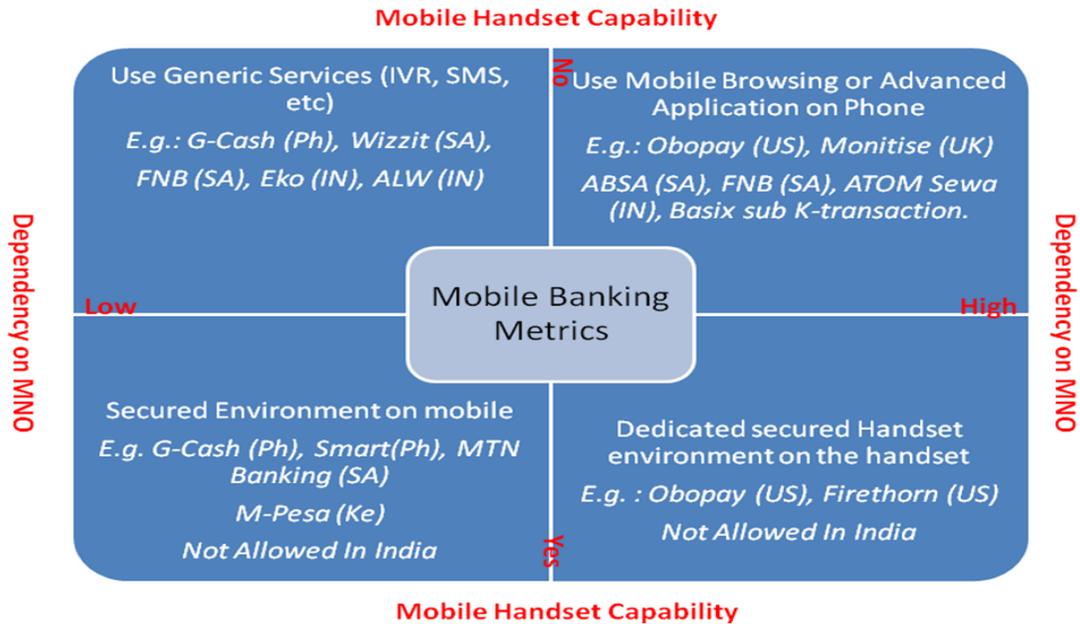
The use of mobile phones for mobile financial services is relatively new and, as a consequence, the knowledge of the risks and the risk experience of provider are still limited. However given the business potential, socio and economic impact of m-commerce (Please See Appendix 1: Business Case for Mobile Banking) has led to increasing interest from mobile service providers, banks, non banks, and from government regulators in understanding and managing any unique, addition risks.

Regulators and other stakeholders list additional risks from the use of mobile channel. These include: the higher possibilities of loss of device, the restricted screen and keypad of the device, the information security of the end to end network, the availability and reliability of the communication network, and the use of outsourced service providers. At InCights we believe these factors in themselves do not make most use cases of MFS more or less risky than other forms of branchless banking (Appendix 2: Trends in Branchless Banking).

We believe two elements of the mobile channel are distinctive relative to other e-banking channels like internet banking or point of sale devices:

- The mobile handset, which comes with a wide range of functionality from basic on standard handsets to advanced on features phones and smart phones, the type of mobile handsets impacts security functionality on the handset, lower the security requirement from the handset, the broader the potential market, especially in developing countries.
- The mobile network, the degree of dependence on the mobile network operator (since they control access to the SIM card and the mobile network); channel option may or may not require downloading of an application to the SIM or phone, which in turn may require participation of an MNO.

These characteristic imply following main use case described in the following figure:



*Annexure 3 for more details on Atom Sewa and EKO

1. Use Generic Services: This would help in providing Ubiquitous access, presents higher inherent technology-related risks largely because of the lack of end- to end secure encryption of messages. This increased needs to mitigate by effective business process and product design controls.(Annexure 4: Describes sub cases)
2. Use Advanced Apps or Internet Browsing services: Here the risks converge with standard internet banking risks. Though its use case might be limited in India but given the low cost of phones with Android as operating system, the kinds of apps might be used in near future
3. The other cases in the figures are operator led instruments and therefore not allowed in India.
4. Any service in between user case 1 and 2. For example the apps may be using rich media interface and communicating using SMS. The risk with these types of Apps in Unknown and needs to be understood as and when the technology emerge
5. Upcoming technology like Near Field Communication (launched by Citi bank, Annexure 5)

Thus the mobile technology options available today allow for a variety of choice when implementing mobile financial services. Options range from technologically secure end to end implementations to less secure options that do not have full mobile to banking system security. The ubiquity of less secure mobile technology namely Voice/DTMF/IVR, SMS and USSD on all mobile handsets and the feasibility to offset the risks introduced by their use in mobile financial service provision makes it possible to extend financial services to all mobile subscribers. But

given the lower levels of mobile handsets technology prevalent in many developing countries, transformational mobile banking can be accomplished by a careful appraisal, introduction and management of operational controls.

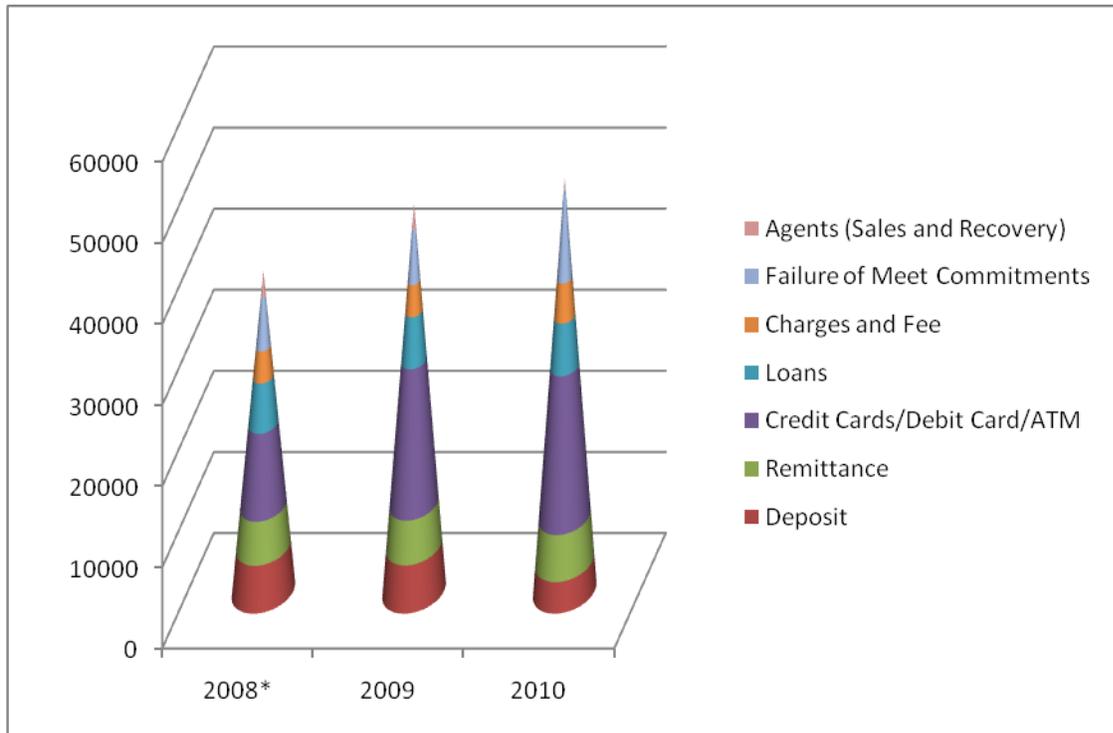
On the other hand given that m-commerce is in its infancy, there would be number of technology/ Apps (like NFC) that would emerge for delivering financial services. *Therefore regulators should be careful not to entrench technology specific standards in regulations which may unnecessarily stifle m-banking development. They should create a flexible, proportionate framework within which an on-going, active supervision of mFSPs can take place. This assures attention to the mobile channel risks while providing adequate room for appropriate innovations.*

The government should set up a centralized organization whose responsibility would be:

- *To maintain a list of all known vulnerabilities of the mobile channel, updated by experience, to which regulators and mFSP should have the access as a baseline for the risk framework.*
- *To carefully monitor, appraisal of the operational controls (including user education) necessary to offset the higher technical risks inherited in choosing less ubiquitous but less secure technology.*
- *To educate and train all stakeholders.*
- *To engage with domestic mFSPs and other regulatory bodies to share their learning in structured manner so as to contribute to and benefit from an emerging global perspective.*

Addressing Customers Grievance

Banks receive number of complaints from customers under their grievance redressed procedures. Graph below gives the number of complaints as received by Ombudsman during the last three years



Sources: Compiled from Reports on banking trends 2010, 2009, 2008

The number of complaints filed with the Ombudsman is relatively small compared to the vast banking sector and millions of customers using banking services. There seems to be little awareness as to how to access Ombudsman offices. Moreover we believe technology challenged and the illiterate/semi-illiterate finds it difficult to access the authority. Problem with credit cards/Debit Cards/ATM generate the largest number of complaints. This may be because it is difficult to lodge a complaint on credit cards transaction in person. Customers file grievances of their cards through a call centre. The gap between the grievance handling agency and the bank very often result in delays and complaints being “closed” without resolution.

Issues with use of Technology in Mobile Banking

Unlike other forms of banking (Annexure 6: Customer protection in Indian banking Industry), mobile banking is in its infancy and currently there is no standardization. Also unlike ATM mobile banking will depend on mobile capability, Network capability and host of other factors which regulators have to deal, on daily basis.

Customer Protection Issues in Branchless Banking

The issues related to mobile banking fall into two broad categories¹- customer protection and customer service. Customer protection aspects deal with issues that could cause loss to a customer, comprise the security of financial and personnel information, or delay or deny the contracted service. Customer service aspects deals with satisfaction of the customer with quality of service and timeliness and appropriateness of response and easy transaction interface with the bank.

We believe that from the service point of view customer protection may be classified into two broad categories: technology and agent related. There are instances of technology and connectivity failure that adversely affect clients. Given that mobile banking is possible, and in certain technological solution only through mobile phones held by customers, customers will have a hard time depositing or withdrawing money if the handset or SIM card fails or if telephony services are disrupted.

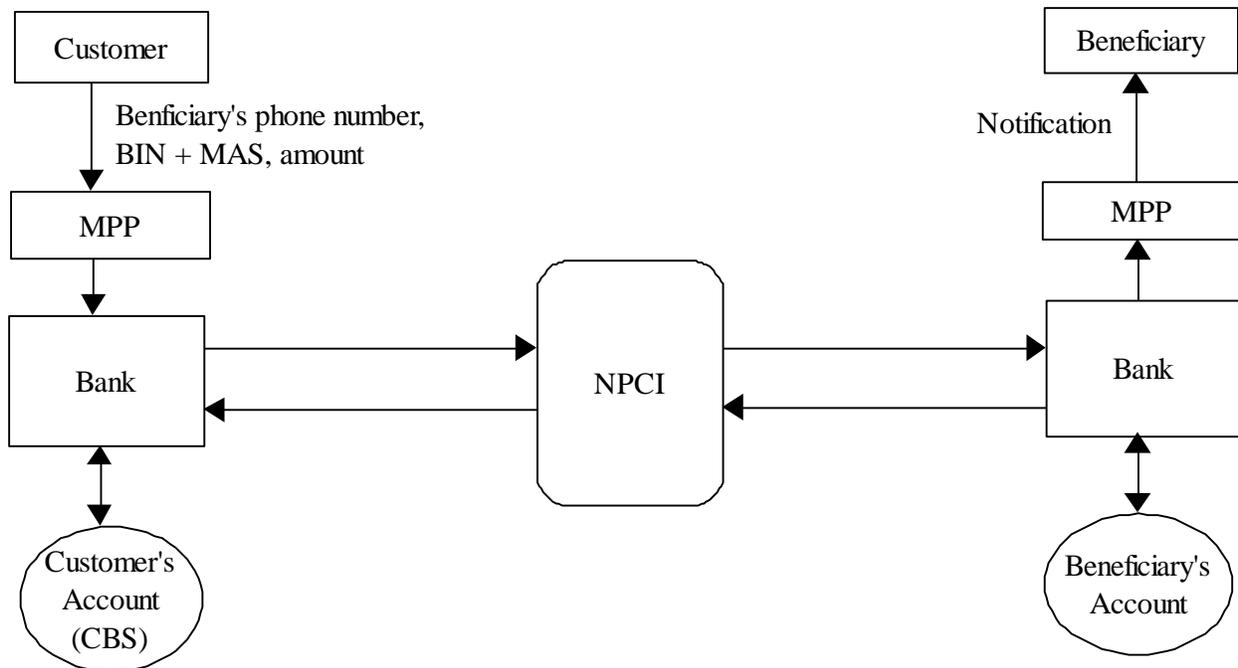
If customer become dissatisfied with basic telephony service and want to migrate to another service provider, all identification and transaction procedure with the bank would have to change. This could be time consuming and sometimes not technically feasible in the local context.

Security of data stored and transmitted over networks is another concern. Because servers and networks of third party service providers often are used in branchless banking models, servers and network security needs to be scaled up to ensure banking information remain protected.

Using banking correspondents exposes customers and banks to a variety of agent risks, which include banking correspondent conducting their own account transactions that are not authorized by the bank, lacking capacity to deliver services provided for the contract, not providing for timely information to the bank, and becoming so big and critical that the bank is unable to monitor and control their activities.

We believe service level agreements between various stakeholders in the mobile banking will play an important role in proliferation of m-banking services

¹ RBI's Note on Customer Protection Issues in Mobile Banking



We believe TRAI should issues guidelines on parameters and benchmarks that need to be covered under these contracts after industry wide consultations. This is necessary as stakeholders from banking industry might find it difficult to understand metrics dealing with technology and networks. The scope of guidelines should include escalation mechanism in case of any deadlocks between any two stakeholders and should set time frame for MNO's to respond to various enquires of Banks.

Moreover, TRAI in association with RBI should launch awareness campaigns and convene industry- level events to take stocks of how knowledge is disseminated amongst customers. The regulatory body could also undertake media campaign through television in the local language, using appropriate popular vernacular channels.

the 3rd party partner services and getting insights to Telenor strategy and direction within services innovation and development.

The Telenor as part of its CPA and Playground project also tied up with Netcom (the other major national operator) as a result Telenor has more than 150 partners today developing VAS solutions for both Netcom and Telenor. The revenue share was based on the relevance of Content and content providers are given a revenue share between 60- 80%.

Ecosystem to promote Innovation and entrepreneurship

Given the fast rate of technological change, many innovations emerge from start-ups. These start-ups need to be nurtured, especially since they face a harsh business and competitive environment. Being technology intensive, telecom start-ups require significant investments for development of industry grade services such as Near Field Communication, Consumer interface with multi-lingual support. Not only are large investments required to develop products, testing these products is also expensive and difficult to do as it requires access to testing facility. Once the product is developed it is difficult to get access to customers. We believe that regulatory body should provide support to telecom entrepreneur for development of innovative products and services through the entire life cycle which includes:

- Ideas generation
- Developing prototypes
- Patenting
- Proof of concept in the rural life environment (given the customization required to manage factors like no or erratic supply of electricity, low energy consumption devices, contextual user interface)
- Testing (Access to national and international test beds)
- Certification for robustness and security
- Commercialization

We believe government should create a network of Incubator to be headed by an eminent personality from the telecom industry and leverage the USO fund to support development of indigenous R&D in the field of telecom. From the m-commerce perspective the focus should also be on

- Institutional mechanisms for supporting and developing cyber security laws thereby supporting mobile payment and services
- To develop human resource that would be required while scaling m-commerce apps in India.

Appendix 1: Business Case for Branchless Banking

The fixed cost of the branch network is too high for serving low value users and low density rural areas at an affordable price. As shown in the Table below the number of savings and credit accounts in India per 100 adults in rural areas is almost half of that in urban areas.

Table 1: Financial inclusion indicators for 2007 for Scheduled Commercial Banks

	Rural	Urban	Total
Savings accounts per 100 adults	39	75	49
Credit accounts per 100 adults	9.6	19.5	12.4
Population per bank branch (000)	17	13	16

Source RBI Report on Currency and Finance 2006-2008

One of the reasons for the low penetration of saving and credit accounts is the lack of user touch points with the consumer as shown in the figure below

Table 2: Bank Branches and ATM per lakh population

	India*	OECD#
Bank branches per 1,00,000 people	7.13	23-45
ATM per 1,00,000 people	5.9	57-150

Sources: Report on Trend and Progress of Banking in India 2009-10

*data as on March 2010; #data from 2005

The table above shows that there is a huge disparity in the access to financial services between India and its counterparts. Though in India unlike its counterpart, there are less number of ATMs in comparison, the growth rate of ATMs is away ahead of growth in bank branches as shown in the figures below:

Table 3: Total Number of physical touch points for SCB's

Total Number of Branches and ATM						
Year	Type	Rural	Semi-Urban	Urban	Metro	Total
2008	Braches	19557	15055	13725	12801	61138
	ATM	1879	7445	12107	13359	34789
2009	Braches	20058	16146	14761	13643	64608
	ATM	2750	15191	14798	16456	43651
2010	Braches	20773	17638	16007	14742	69160
	ATM	5173	23099	19790	20693	60153

Sources: Report on Trend and Progress of Banking in India 2009-10

Table 4: Net Addition in the number of physical touch points of SCB's

Net Addition						
Year	Type	Rural	Semi-Urban	Urban	Metro	Total
2009	Braches	501	1091	1036	842	3470
	ATM	871	7746	2691	3097	8862
2010	Braches	715	1492	1246	1099	4552
	ATM	2423	7908	4993	4236	16502

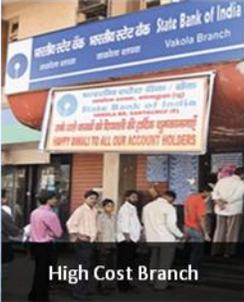
Table 5: Percent growth in the physical touch points of SCBs

Percentage Growth						
Year	Type	Rural	Semi-Urban	Urban	Metro	Total
2009	Braches	2.56	7.25	7.55	6.58	5.68
	ATM	46.39	104.04	22.23	23.19	25.47
2010	Braches	3.56	9.24	8.44	8.06	7.05
	ATM	88.11	52.06	33.74	25.74	37.80

As shown in the table above, the rate of increase of ATMs is more than the rate of increase of bank branches. Moreover the major contribution in the growth in number of ATMs is from rural and semi rural parts of India, thus bridging the digital divide. This phenomenon can be attributed to low cost of transaction for bank and customer convenience of operating at the ATM.(Table 6)

Mobile banking will further reduce the cost of transaction both for banks and customers (as they would not have to travel for deposits and crediting or for paying their utility bills) and therefore will provide additional incentive for banks to serve low cost economy customers.

Table 6: Cost of transaction with various customer touch points.

	Branch 1786	ATM 1987	Kiosk 2006	Mobile 2010
				
	High Cost Branch	Low Cost Branch	Lowest Cost Branch	Branchless
Units	1,00,000	50,000	25,000	600 million
CAPEX	Rs. 10 - 40 lac	Rs. 2 - 5 lac	Rs. 25 - 50K	0/-
Distribution	Per 25,000	Per 15,000	Per 50,000	Every Household
Reach	40% population	20% population	10% rural population	100%
Cost/ Txn.	Rs. 40/- & upwards	Rs. 15/- & upwards	Rs. 10/- & upwards	Rs. 1 - 3/-

Appendix 2: Trends in Branchless Banking

In order to achieve the goal of universal access to financial services, government has recently accepted branchless banking as a feasible proposition for acquiring clients. Given the cost of servicing customers with a human interface is expensive, clients are today given access to ATM's, netbanking, mobile based services, to encourage clients to stay away from the bank branches as the clients continues to receive better financial services. Branchless banking channels like ATM's, internet and mobile phone have made it possible to improve service quality, reduce transaction costs both in terms of money and time and reduce traffic in bank branches and has provided support to people who are living either in the hinterland or the low cost ecosystems.

Trends in Branchless Banking

Automatic Teller Machines (ATMs)

Ease of dealing with customer efficiently and the ability to account for transactions in real time has made ATMs an indispensable part of banking. Today most private banks have more ATM than bank branches.

Table 1: Contribution of bank branches and ATM in providing access to financial services

Branches and ATM for the year 2010*									
Bank Group	Bank Branches					ATM			Percentage of ATM wrt Branches
	Rural	Semi-Urban	Urban	Metro	Total	OnSite	OffSite	Total	
Public Sector	19567	14595	12920	11743	58825	23797	16883	40680	69.15%
Private Sector	1201	3037	3027	2762	10027	8603	9844	18447	183.97%
Foreign Banks	5	6	60	237	308	279	747	1026	333.12%
Total	20773	17638	16007	14742	69160	32679	27474	60153	86.98%

Data as of 31st March 2010; Source: RBI, Report on trends and Progress of Banking in India 2009-10

Customer protection issues involving ATMs stem from both technology and fraud. While customer awareness could reduce, if not prevent, fraud, satisfactory solution to deal with ATM failure still need to be created. Remote monitoring of ATMs, repeated cautionary messages to ATM users, and security-related screen prompts while using ATMs tends to reduce ATM-related

problems for customers. Some banks have introduced biometric ATM's to overcome the traditional problems associated with ATMs like need for literacy, need to remember PINs etc.

Netbanking

A few banks in India also provide high-quality internet banking services. However netbanking is not as commonly used as ATMs because clients are neither too familiar with this channel and do not know how to use this technology. Moreover for people in rural India it means an additional cost of owning a PC. Furthermore, netbanking option is prone to fraud. Phishing for personnel information over the web is common and difficult to uncover. Customer awareness education on how to use netbanking safely and precautions to take while sending information over the internet would help reduce fraud.

Hub and Spoke Model

Some of the banks (especially micro banking institutes like BASIX) are today using hub and spoke model, where staff moves from headquarter to rural areas with handheld devices. Staff transverses a maximum of 30 Km from the main branch, which is normally located in a semi urban areas, so that the surrounding rural area can be served. Clients enrolled after meeting KYC norms are given smart cards. In most cases, client verification is done through biometric registration. Using the smart card, clients make transactions through the banking correspondent's handheld device. Pay-in and Pay-out of money happens when the banking correspondent prints out a receipt and gives it to the client on the spot. Because mobile staff substitutes for the branch, agent risks are avoided. From the customer perspective, other risks, such as system failure or system abuse leading to frauds, still exist because staffs work without supervision in the field. To mitigate risks, staff needs to be monitored, transactions needs to be reviewed, a complaint registration mechanism (that enters the bank records with an acknowledgement to the customer at the time of registration of complaint) needs to be in place, and customers need to be educated on safeguarding against fraud.

Banking Correspondent

Banking correspondents are financial service agents who can process cash transactions on behalf of the bank. Facilitators provide client identification, acquisition, verification, collection of information etc. While a correspondent can provide all the services that a facilitator does, a facilitator only provides non financial services. Neither facilitator nor correspondent can verify KYC compliance or take credit decisions. Given their restriction on providing financial services, they are typically used for client introduction, especially in areas where the banks have sparse resources. Banks can take services of various entities like Non-Governmental Organizations /Self Help Groups (NGOs/SHGs), Micro Finance Institutions, (MFIs) and other Civil Society Organizations

(CSOs), companies registered under Section 25 of the Companies Act, 1956, retired Government bank employees and ex-servicemen, individual owners of kirana/medical/Fair Price shops/individual

PCO operators, agents of small savings schemes of Gov/Insurance companies, individuals who own petrol pumps, retired teachers, authorized functionaries of well run self help groups which are linked to banks and any other individuals including those operating common service centre as BCs.

As announced in the Annual Policy Statement for the year 2010-11, a discussion paper on engagement of 'for profit' companies as BCs was placed on RBI website on August 2, 2010. As a result banks have now been permitted to engage 'for profit' companies as BCs excluding Non Banking Financial Companies (NBFCs), in addition to the individuals/entities permitted earlier.

As a customer protection measure, banks have to carry all transactions that have been put through on its behalf by its banking correspondent at the end of each day or next working day. Furthermost, the BC should not operate farther than 15 km from the bank branch in non metropolitan area and no farther than 5 km from branches in metropolitan area. Limit on ticket size At each location, BCs would have to look for a nearby branch of the same bank with which they have agreed to become a correspondent. Moreover limit on ticket size per transaction (Rs 10000) through banking correspondent has also been introduced.

Given that the BC model is its infancy, the distance restriction has the unintended consequence of limiting the potential inclusion a correspondent could achieve through a better mobility and high end technology. Some banks have also reported that they find it difficult to pay adequate compensation to the BCs, on account of the restriction on interest rates on small loans. Banks are permitted to charge only up to the level of their prime lending rate (PLR), in case of small loans of up to Rs 2, 00,000 even in case where BCs or facilitators are used.

Example of Business Correspondent

FINO a technology firm working together with its non-profit partner Fintech Foundation, which acts as BC network manager has opened about 10 million accounts on behalf of 14 banks, Post Offices and nine Government agencies.

Prayas, a Delhi-based NGO that started its BC operations towards the end of 2007, partnering with ICICI Bank. Prayas offers the 'APNA' no frills bank accounts using a point-of-sale (POS) device, a dedicated smart card for each client, and biometric authentication. The technology is supported by FINO.

Drishtee works through its network of village-based service delivery agents or 'kiosks'. Drishtee Development and Communication Ltd. is delivering its own microcredit product. It has also partnered with two banks (SBI and HDFC) to deliver 'No Frills' savings accounts. Its POS-based technology is provided by A Little World (ALW).

Technologies in branchless banking

Banks prefer to use technologies that involve either mobile telephony based solutions or a handheld electronic device that connects to the bank's server through the internet or physical docking. In the kiosk models customers go to banking correspondent. In models where portable device are used, the BC might go to the customer.

Client authentication and verification in the entire technology-based model are carried out through technology (such as smart cards, biometric matching) or appropriate physical recognition. Some of the hardware devices used within the country are

- Handheld devices with transaction processing capability and internal memory; Handheld devices with single/ multiple cards reading capabilities and internal memory based transaction processing ability;
- Mobile phones with fingerprint identification capabilities and attached printers
- POS machines with a variety of attachments, such as card readers, biometric information reader and printer;

Recognizing its potential to achieve financial inclusion faster, RBI has issues guidelines for enabling mobile telephony- based financial services. Following are the guidelines given by RBI in December 2009:

- Transaction limit: banks are now permitted to offer this service to their customers subjected to a daily cap of Rs. 50000/- per customer for both funds transfer and transactions involving purchase of goods/services.
- Technology and Security Standard: Transaction Upto Rs 1000/- can be facilitated by banks without end-to-end encryption. The risk aspects involved in such transactions may be addressed by the banks through adequate security measures.

In order to facilitate the use of mobile phone for remittance of cash, banks are permitted to provide fund transfer services which facilitate transfer of funds from the accounts of their customers for delivery in cash to the recipients. The disbursement of funds to recipients of such services can be facilitated at ATMs or through any agent appointed by the bank as BC. Such fund transfer services shall be provided by bank subjected to the following conditions:-

- The maximum value of such transaction shall be Rs 5000/- per transaction.
- Banks may place suitable cap on the velocity of such transfers, subject to a maximum value of Rs. 25000 per month, per consumer.
- The disbursement of funds at the agent/ATM shall be permitted only after identification of the recipient.

- Banks may carry out proper due diligence of the person before appointing them as authorized agents for such services.
- Banks shall be responsible as principals for all the acts of omission or commission of their agents.

Two different technologies in mobile banking services- one based on GPRS (ATOM SEWA) and other on SMS (Eko)- are being offered by various bank.

Prepaid Payment Instruments

In another effort to advance branchless banking, RBI has issues guidelines regarding prepaid payment instruments². The policy guidelines permit banks and non banks entities to issues prepaid instruments. The guidelines provide that banks and nonbanks can issue and reload instruments through authorized outlets or agents. Although small value instruments (up to \$100) can be issues covering a wide variety of purposes without detailed verification of the customer, larger value instruments of up to Rs 10,000 (\$200) may be issued only for paying utility bills.

Only banks are permitted to issue open system prepaid instruments. Other eligible entities would be authorized to issue semi-closed system payment instruments, and they should seek permission from RBI to do so. The instruments would be allowed to be used for money transfers with some restrictions. Mobile based prepaid instruments, such as mobile wallets, can be issued only by banks that have been authorized for mobile banking.

Banks/NBFCs meeting the regulatory capital adequacy standards will be permitted to issue prepaid payment instruments without any additional capital requirements. For other non banking entities a minimum capital of Rs. 10 million and positive net owned funds have been stipulated.

KYC/CAML/CFT requirements would be applicable based on instrument feature and vulnerability to misuse. The entity issuing prepaid instruments would hold with them the money collected against the issuance. Policy guidelines states that non-bank persons issuing payment instruments are required to maintain their outstanding balance in an escrow account with any SCB subject to the following conditions:

- The amount so maintained shall be used only for making payments to the participating merchant establishments.
- No interest is payable by the bank on such balances.

² The guidelines were issues on 27th April 2009

- A quarterly certificate from the auditors shall be submitted certifying, the entity has been maintaining adequate balances in the account to cover the outstanding volume of payment instruments issued.
- The entity shall also submit an annual certificate, as above, coinciding with the accounting year of the entity to the Reserve Bank of India.
- Adequate records indicating the daily position of the value of instruments outstanding vis-à-vis balances maintained with the bank in escrow account shall be made available for scrutiny to the RBI or the bank where the account is maintained on demand.

For customer protection ³All Pre-Paid payment instruments issuers shall disclose all important terms and conditions in clear and simple language comprehensible to the instrument holder while issuing the instruments. These disclosures shall include:

- All charges and fee associated with the use of the instrument
- The expiry period and the terms and conditions pertaining to expiration of the instrument.
- The customer service telephone number and website URL. An effective mechanism for redress of customer complaints shall be put in place by the entity issuing per-paid payment instruments.

In case of pre-paid payment instruments issued by banks, customer shall have recourse to banking Ombudsman Scheme for grievance redress.”

RBI has also advised issuers of these instruments to set up systems to prevent fraud that impacts both customers and issuers. The suggested measures include adequate information and the data security infrastructure and system for preventing and detecting fraud and a centralized database by the issuer to prevent multiple purchases of payment instruments at different locations in order to circumvent limits, if any prescribed for such payment instruments.

³ Circular number RBI/2010-11/261, DPSS. CO. No. 1041 /02.14.006/ 2010-2011

Annexure 3: Some examples of Pilots in India

Atom Sewa- GPRS based mobile Technology

Atom technologies offers Atom Sewa, a mobile-phone-based service with voice-enabled service capability that works on GPRS. The program work like this:

- Banking correspondence carry the mobile phone, with a handheld printer attached, to customers. (The printer reads magnetic cards and scans fingerprint.)
- Customers are issued a magnetic cards (like a debit card), which is swiped on the printer.
- Customer details flash on the phone's screen.
- The agent selects the appropriate options in the mobile application called SEWA based on the customer request for a transaction.
- Transaction details are displayed on the phone's screen, and the details are spoken in local language over the phone's speaker.
- If the customer is satisfied with the transaction details as spoken over the phone (also displayed on screen) she/he places her/his thumb on the fingerprint scanner.
- Once the thumb impression is scanned and matched by the scanner, the application encrypts the data and sends and the same to the server.

The Kit is highly portable. It is local language enabled both in print and voice, and it has two levels of authentication for customer and the banking correspondent/ bank.

EKO Financial Services- SMS based Banking

Here the customer's mobile phone number serves as the bank account number. Transactions are processed through SMS. Eko has arrangements with many retailers (grocery shops, convenience, stores, mobile recharge vouchers sellers) to act as CSP's.

To open an account, customers give a completed bank application form and proof of identity to staff at the CSP. Bank staff visits the CSP to meet applicants and carry out standard KYC verification procedures.

Once KYC verification is complete staff at the CSP give new customers a booklet that contains a welcome letter, product leaflet, manual and small signature booklet of 100 signatures. The signatures contain a 10 digit number that has four blank spaces, in which digits are to be filled in by the customer at the time of transaction. The customer gives CSP staff one of the signature tokens each time a transaction is made. Customer can go to any CSP to make a deposit or

withdrawal. At the end of the month the customer can generate a statement of accounts for the month by dialing a specific number. A paper statement of account can also be given if needed. It is convenient for customers and cost effective for EKO.

Annexure 4: Sub Use Case of Use Case I

Structured SMS	Send plaintext SMS with instruction mnemonic, value and PIN to the mFSP number, the SMS content is processed and a response is sent back to the handset
Structured SMS with Confirmation and PIN authorized via IVR	send plaintext SMS with instruction mnemonic and value to the mFSP number, the SMS is processed. IVR Calls back asking for conformation of transaction and PIN. PIN entered as DTMF. A SMS response is sent back to the handset
Structured SMS with Confirmation and PIN authorized via USSD	Send plain text SMS with instruction mnemonic and value to the mFSP number, the SMS content is processed. USSD message sent back to handset requesting conformation of transaction and PIN. PIN entered in USSD menu. A SMS response sent back to the handset
IVR Call to set up transaction and IVR call back for PIN authorization	Call in to IVR to setup transaction via IVR voice prompts and DTMF responses. Transaction is processed and checked. IVR calls back asking for confirmation of transaction and PIN. PIN entered as DTMF
USSD menu with PIN login	USSD shortcode entered by user to initiate a USSD session, prompt for PIN sent from USSD server, PIN entered and session opened and menu displayed. Following menu to set up transaction and then submit it for processing. USSD transaction confirmation and thereafter a confirmatory SMS

Annexure 5: Citi brings NFC mobile payments to India

Press Trust of India / Bangalore June 30, 2009,

Customers will experience the convenience of using their mobile phone as a credit card with Citi launching its 'Citi Tap and Pay' here, bringing to India the 'contactless credit card payment system.'

It is based on Near Field Communications (NFC) technology in collaboration with Nokia, Vodafone, MasterCard and VIVOtech.

"The launch of Citi Tap and Pay pilot service will be one of the world's largest pilots ever undertaken, establishing a fully secure scalable and interoperable mobile payments ecosystem in Bangalore," Jeff Semenchuk, executive vice-president and head of growth ventures, Citi Innovation told reporters today.

The technology will allow customers to tap their mobile phone on a contactless reader at the point of sale to pay for purchases, eliminating the need for traditional swiping of credit cards, he said.

The service also does away with the need for customers to send SMS or incur mobile data charges to make these payments, Jeff said.

Nokia will support the service with its NFC-enabled Nokia 6212 classic phones, replacing the multitude of cards in consumer wallets. Vodafone is the mobile network operator for the pilot service while MasterCard will offer its MasterCard PayPass contactless payment and security infrastructure.

ViVOtech is providing the underlying technology including the NFC wallet, the Over-the-Air (OTA) card provisioning software, the mobile coupon application in addition to contactless readers that participating merchants will use to accept payments, N Rajashekar, Country Business Manager, Global Consumer Group, Citi India, said.

Citi Tap and Pay customers will use the new NFC-capable Nokia N 6212 classic phone which they can purchase at designated Nokia stores, pre-loaded with the Citi Tap and Pay application enabled with MasterCard's PayPass contactless payment technology, he said.

Annexure 6: Customer protection in India banking Industry.

The customer protection framework in India consists of the following

- Information dissemination to customers mandated by the banking Codes and standards Bureau of India (BCSBI)
- Fair practices code adopted by the banks
- Grievance redress mechanism set up by the banks
- Office of the Ombudsman, created by RBI in almost every state of the country, that could enquire into complaints not properly resolved by the concerned bank.
- Courts set up under the consumer protection act at districts, states, and national level.

Key Institutional players engaged in customer protection are as follows:

- Banks with their internal customer service mechanism
- Indian bank association as an industry-level network organization.
- RBI as regulator
- BCSBI as a body constituted by member banks for evolving standards
- Banking Ombudsman as the arbiter of customers' dispute with banks
- Consumer courts as the statutory judicial bodies for providing legal remedy.

Internal machinery to handle customer complaints/grievances in banks

The internal machinery and procedure for handling complaints are stipulated by BCSBI code and the regulator. Indian banks Association in turn has put out a model document explaining the requirements. Banks are required to set up a customer service committee of the board that would be responsible for formulating a comprehensive deposit policy, the product approval process, and the annual survey of depositor satisfaction and the triennial audit of such policy. The committee would also examine any other issues that bear on the quality of customer service rendered.

Banks are also required to set up a standing committee on customer services chaired by the managing director/executive director of the bank and have two or three eminent nonexecutives drawn from the public. The committee would do the following:

- Evaluate feedback on quality of customer service received from various quarters and implementation of commitments in BCSBI.
- Ensure that all regulatory instructions regarding customer service are followed by the bank.
- Consider unresolved complaints/grievances referred to it by functional heads and offer advice.

- Submit a quarterly report to the board

Banks appoint a nodal officer and other designated officials to handle complaints and grievances; they also are responsible for implementing customer service and handling complaints grievances for the entire bank. Banks have also appointed customer relation officers at zonal/regional offices to handle complaints grievances in respect of branches under their control.

It is mandatory for the bank to provide the following information to the public:

- Appropriate arrangement for receiving complaints and suggestions
- Display the name, address, and contact number of nodal officers; contact details of the banking ombudsman of the area; and code of the banks commitments to customers/fair practice.

The branch manager is responsible for resolving customer service complaints and grievances at the branch level. The manager ensures closure of all complaints received at the branches. The manager ensures that complaints are resolved to the customer's satisfaction. If the branch manager feels that it is not possible at the branch level to solve the problem, the manager can refer the case to the regional or zonal office for guidance. Similarly, if the regional or zonal office finds that it is not able to solve the problem, the case may be referred to Nodal centre.

A specific schedule has been established by each bank for handling complaints and disposing of them at all levels, including branches, zonal and head offices. Branch manager should try to resolve complaints within specified timeframes, decided by the bank. Communication to the customer of the bank stand on any issue is a vital requirement and mandated by regulatory guidelines. Complaints that require time to look into the issues involved should variably be acknowledged promptly. Branches and zonal offices must send an action taken report on complaints received to the head office at the very end of every month. Banks decide on the number or officers to be designated in different parts of the country for handling grievances.

RBI has also issued instructions to protect bank customers. This include

- Restriction on providing unsolicited information to customers
- Adoption of fair practice code for lenders
- Recommendations for a branch level customer service committee
- National do not call registry for bank customers
- Guidelines for using recovery agents.
- Clarifications of KYC to help simplify procedures.
- Restriction on ATM Charges

- Grievance redressed mechanism in banks
- Provision of banking facility for the visually challenged.
- Guidelines on managing risks and code of conduct in outsourcing of financial services

RBI Ombudsmen

RBI has set up banking Ombudsmen in almost all the major states⁴ at an appellate level for handling complaints and grievances that have not been resolved by the bank involved or not dealt with to the full satisfaction of the client. The banking Ombudsman receives complaints from customers, issues notices to settlement. The Ombudsman adopts a consensual approach to resolve a complaint, but whenever necessary, it also provides a clear direction. Ombudsman awards are binding on banks unless they choose to file an appeal. Appeals against awards and decisions are filed with ombudsman. Once the appeals are disposed of, the decision or award is binding on the banks.

A separate customer service department that coordinates with both the banking Ombudsman and BCSBI has been set up in RBI. RBI has periodic meetings with the GROs of the banks to review the progress of complaint handling and efforts taken to minimize complaints, examine the systematic aspects of recurrent complaints, and improve the customer protection and satisfaction level in the industry.

⁴ There are 15 Ombudsmen in the country. The ombudsmen are senior staff of RBI