H R Khan: Customising mobile banking in India – issues and challenges

Address by Shri H R Khan, Deputy Governor of the Reserve Bank of India, at the FIBAC 2012 on "Sustainable excellence through customer engagement, employee engagement and right use of technology", organized by the Federation of Indian Chambers of Commerce and Industry (FICCI) and the Indian Banks' Association (IBA), Mumbai, 5 September 2012.

*   *   *

The speaker acknowledges the contributions of Shri G Srinivas, Shri Subhas Chand and Shri. Surajit Bose of Reserve Bank of India.

1. Distinguished delegates to the FIBAC 2012, ladies and gentlemen. As I was reading the theme of the conference "Sustainable Excellence through engaged customers, employees and right use of technology" three words (sustainable, engaged and right use) helped me to decide how I can use this opportunity to relate with all the stakeholders of the payment system industry to introspect the issues and challenges confronting customization of mobile banking in India.

2. I am sure you would all recollect how cumbersome it used to be get a draft for outstation payment, clearing used to take a lot of time, outstation cheques would take all the more time, reconciliation and maintaining books by the bank branches would require additional manpower and customers were never satisfied. During the last one decade, things have changed and changed at a rapid pace and all because of technology. The initial steps of tapping technology came in the form of adoption of the core banking systems (CBS) which led to near collapse of geographical location of parent branch. How many of us really need to visit our branches to transact business? Not many I am sure as most of us would be tapping the technology led internet banking and interconnected ATM network. Our desktop PCs became our anytime bank branches. Then came the next revolution – mobile banking which added anywhere to the truly anytime banking. Weaning the customer from physical banking and building customer awareness and confidence in these non face-to-face modes of banking has been a herculean task for the banking industry. In this exciting and challenging journey, the Reserve Bank, as a pro-active regulator, has defined enabling policies and, at times, has goaded the industry in achieving the desired results. The Governments, both at the central and the state levels, have also been taking measures in encouraging electronic payments and receipts, such as, electronic benefit transfers and e-mode of transactions for their receipts and payments.

Small steps and a giant leap

3. As I have briefly indicated above, technology adoption has changed the face of banking in India. What started as a mere automation of some routine work processes in banks in the mid 80's has moved on and resulted in business process re-engineering culminating in making banking services branchless, anytime and anywhere, facilitated new product development and enabled near real time service delivery. Technology helped banks to reach the doorsteps of the customer by overcoming the limitations on geographical/ physical reach in branch banking and easing the resource and volume constraints posed by the brick and mortar model. For the banks the question is no longer limited to whether mobile banking will be an important part of their business but how best to approach a rapidly evolving channel to deliver better customer service, expand product range, retain market-share, enhance revenue, drastically reduce operating expenses and above all remain socially relevant without sacrificing sustainability in ICT based financial inclusion plans.

4. We all now recognize that mobile banking has come to occupy an important place in banking in a very short time and is expected to provide much needed platform for taking banking to the unbanked masses. Mobile banking certainly seems to be one of the biggest innovations along with CBS and ATMs in the field of banking and this will have a long lasting

effect on how banking business is conducted. CBS and ATMs provided banks the much needed technological fillip to break the shackles of branch banking architecture. CBS and ATMs have enabled banks to provide banking services 24x7x365 but have not really helped in expanding their reach to the unbanked or reach to the customer wherever s/he is. One tends to concur with the view of many academicians and practioners that this limitation can be overcome to a large extent by leveraging the mobile phone enabled banking or mobile banking. We must see it as the *giant leap* of the banking industry – leveraging technology to promote anytime and anywhere banking and more deeper and sustainable financial inclusion.

Origin and potential of mobile banking in India

5. Recognizing the potential of mobile banking, Reserve Bank of India issued the first set of guidelines in October 2008. The guidelines defined mobile banking as undertaking banking transactions using mobile phones by bank customers that would involve credit/debits to their accounts. This definition in a sense provided larger canvas to mobile payments which in a narrow sense involved only payment made for a product or service using the mobile phone either remotely or at the point of sale (PoS). These guidelines, which were very broad-based, laid down the technology and security standards pertaining to safety, confidentiality, integrity, authenticity and non-repudiability. As this was a nascent technology and, to build up customer confidence in terms of minimizing frauds, the Reserve Bank mandated that all transactions should be encrypted irrespective of the value. The Reserve Bank also made inter-operability a cornerstone of its policy. After the initial set of guidelines, several policy relaxations have been made to further encourage the use of mobile banking taking into account changing economic environment and feedback of the industry and customers. (***Box1***)

October 8, 2008

Mobile banking transactions defined as undertaking banking transactions using mobile phones by bank customers that involve credit/debit to their account.

Some of the significant norms were as under:

- Technology & security standards were laid down.
  - All transactions to be encrypted irrespective of value limit
- Inter-operability was ensured.
- Customer complaints and grievance mechanism were laid down.
- Daily cap of ₹5,000 per customer for funds transfer and ₹10,000 per customer for transactions involving purchase of goods & services were prescribed.
- Banks to seek one-time prior approval of the Reserve Bank of India after obtaining their respective Board’s approval.
- Such services could also be offered through the BCs.

December 24, 2009

- Raise in the daily cap transaction limits for funds transfer and for purchase of goods & services to ₹50,000
- Transactions upto ₹1,000 can be facilitated without end to end encryption of messages.
- Permitted to provide cash-outs to the recipients through ATMs or BCs subject to a cap of ₹5,000 per transaction and a maximum of ₹25,000 per month per customer.

Box 1: Regulatory initiatives of the Reserve Bank of India in mobile banking

October 8, 2008

Mobile banking transactions defined as undertaking banking transactions using mobile phones by bank customers that involve credit/debit to their account.

Some of the significant norms were as under:

- Technology & security standards were laid down.
  - All transactions to be encrypted irrespective of value limit
- Inter-operability was ensured.
- Customer complaints and grievance mechanism were laid down.
- Daily cap of ₹5,000 per customer for funds transfer and ₹10,000 per customer for transactions involving purchase of goods & services were prescribed.
- Banks to seek one-time prior approval of the Reserve Bank of India after obtaining their respective Board's approval.
- Such services could also be offered through the BCs.

December 24, 2009

- Raise in the daily cap transaction limits for funds transfer and for purchase of goods & services to ₹ 50,000
- Transactions upto ₹ 1,000 can be facilitated without end to end encryption of messages.
- Permitted to provide cash-outs to the recipients through ATMs or BCs subject to a cap of ₹ 5,000 per transaction and a maximum of ₹ 25,000 per month per customer.

May 4, 2011

- Transaction upto ₹ 5,000 can be facilitated without end to end encryption of messages.

December 22, 2011

- Transaction cap limits for funds transfer and for purchase of goods & services of ₹50,000 per customer per day removed.
- Banks may place their own limits based on their risk perception with the approval of their Board.
- Ceiling on cash-outs to the recipients through ATMs or BCs raised to ₹10,000 per transaction subject to the existing cap of ₹25,000 per month.

May 4, 2011

- Transaction upto ₹5,000 can be facilitated without end to end encryption of messages.

December 22, 2011

- Transaction cap limits for funds transfer and for purchase of goods & services of ₹50,000 per customer per day removed.
- Banks may place their own limits based on their risk perception with the approval of their Board.
- Ceiling on cash-outs to the recipients through ATMs or BCs raised to ₹10,000 per transaction subject to the existing cap of ₹25,000 per month.

6. The growth in mobile banking that has taken place in the country till date, though has been rapid, is yet to reach the critical mass that will enable it to deliver on its promise of reaching banking including payment services at a cheaper, secure and seamless manner to

the existing and potential customers. It has the potential to be the next wave of financial and technological innovation in banking by universalizing access to banking service without jeopardizing prudential and regulatory framework of the financial sector.

Leveraging the mobility of mobile phones for anywhere banking

7. Any technology that is well-accepted and widely available at affordable costs and suitable for banking and payment services provides an immense opportunity to extend these services to all areas and all sections of the society – banked and unbanked. Mobile technology scores on all these parameters and can act as a catalyst to usher in the universal goal of financial inclusion shared by all the stakeholders. In a large country like ours where a majority of population still lives in rural areas that do not have presence of formal banking providing banking facility has been a major challenge. Of the 0.6 million villages in India, the total number of villages with banking services through brick and mortar branches and alternate banking channels stands at approximately 0.14 million villages as at end March 2012. India has the highest number of households (approximately 145 million) who are excluded from banking. However, with the growing reach of the mobile in hinterland, it has now become possible to provide the banking facilities to people who were not able not able to enjoy this facility so far. At the end of January 2012, the total wireless subscriber base was 936 million out of which, 313 million subscribers were from rural areas. Use of mobile banking services among this huge base of subscribers is, however, very low. Even amongst the existing bank customers less than one percent of them are covered under the mobile banking services. Notwithstanding the existing low base of customers, the growth in mobile banking transactions has shown increasing trend. For example, in the month of June 2012, 3.43 million transactions amounting to ₹3067.10 million were processed as compared to 1.41 million transactions amounting to ₹984.66 million processed in June 2011 – an increase of about 143 per cent in volume and approximately 211 per cent in value terms. It is, however, evident that the potential of mobile banking technology is yet to be fully exploited.

8. Another potential factor that has attracted all the stakeholders including policy-makers to this innovative technology is the lower cost associated with this model in providing banking services both amongst existing customers and in taking banking to the hinterland as well. According to a study, mobile banking based transaction costs about two per cent of the branch banking cost, 10 per cent of the ATM based transaction cost and 50 per cent of the internet banking cost. The main reason for non-availability of banking to a large part of our population is the limited economic viability of the brick and mortar model of branch banking. The Business Correspondent (BC) model is also facing problems on account of lack of proper ICT-based business models and, amongst other things, due to issues related to remuneration of the BCs, their training and orientation, product mix and volume of transactions handled by them, management of cash and the risks associated with outsourced models. Even ATMs and internet banking have their limitations when it comes to penetration in rural areas. I need to mention here that our recent guidelines on deployment of White Label ATMs (WLAs) has a very distinct slant towards the deployment of ATMs in the smaller tier 3 to 6 centres. Notwithstanding this, the Reserve Bank, given its constant endeavour to link every citizen of the country with the formal financial system, is keen to expand mobile banking penetration. With the availability of the mobile with almost every household, it has now become possible to make the giant leap to a reality by providing everybody with banking services including payment services. The potential of mobile banking is also underscored by the fact that the consumers are conveniently placed in terms of using the product anytime anywhere and could develop ease of using the product once they are made aware of the same.

Customized mobile banking products in India

9. The generic definition of mobile banking involving credit/debit to the account of the customer using mobile has been customized in India to provide two rather unique services.

These are the Inter-bank Mobile Payment System (IMPS) and the Mobile linked Kisan Credit Card (m-KCC).

IMPS – mobile based remittance system

10. The IMPS is a mobile based remittance system which is inter-bank in nature and is owned and operated by the National Payment Corporation of India (NPCI). The IMPS facilitates access to banks accounts and transfer of funds through mobile phones. The system, launched in November 2010, provides real time transfer of funds between the customers of different banks on 24x7 basis. In other words, funds can be transferred any time to the beneficiary who receives the funds instantaneously and both the sender and receiver get the confirmation of debit and credit. 50 banks have started providing IMPS services to their customers so far[1] and as at the end of July 2012, banks have issued 36.32 million Mobile Money Identifiers (MMIDs) to their customers.

Mobile linked Kisan Credit Card (m-KCC)

11. Let me also share some details on the mobile linked Kisan Credit Card (m-KCC) launched by NABARD on a pilot basis on October 2, 2011 in Villupuram district of Tamil Nadu for the farmers having KCC accounts with the Pallavan Grama Bank (an RRB sponsored by the Indian Bank). The m-KCC using mobile technology enables farmers to carry out purchase of agricultural inputs in a cash-less manner. All transactions are carried out through mobile phones of farmers and vendors registered with the bank and the technical service provider (TSP). The transaction is performed through a combination of a secured SIM card and a PIN using an interactive voice recording/SMS system. This enables the farmers to buy agriculture inputs by putting through the transactions through a mobile phone enabled system linked to the banks CBS. NABARD is now encouraging banks, in particular the RRBs, to use this pilot for extending mobile based KCCs to the farmers.

Current issues in the mobile banking landscape

Why a bank led model?

12. Mobile as a technology, which is low-cost, ubiquitous and efficient with a potential to enable achievement the goal of deeper financial inclusion, has been recognized across the world. Different countries are following different mobile banking models depending upon their requirements and availability of infrastructure. In our larger vision of financial inclusion, provision of payment services is one amongst the four services that we have clubbed under financial inclusion viz., a deposit product, a credit product, a micro-insurance product and a remittance product. Given this orientation, you would all agree that only banks can provide these services while adhering to the KYC/AML requirements. Accordingly, the Reserve Bank of India has consciously adopted the bank-led mobile banking model. The bank led model has also been endorsed by the Inter-Ministerial Group of the Government of India constituted in November, 2009.

13. There are, however, counter-views within the country and internationally as well suggesting that the non-bank led mobile banking model that have been found to be very successful elsewhere should be tried out here. It is often not appreciated when citing these success stories that only one service, i.e., a remittance product, is being offered and not the complete bouquet of financial services envisaged by us. The other three products identified under financial inclusion can obviously not be offered by a non-bank. Moreover, particular environments in a few countries enabled the non-bank led model to be successful viz. presence of a monopoly operator, very poor banking infrastructure and availability of a

[1] Source – NPCI.

national identification number. Is it not surprising that the same success story has not been repeated by the same service operator in a neighbouring country?

Cross border remittance through mobile banking

14. An issue that has been often raised is that if mobile banking has the potential of reaching anywhere, why cross-border remittance through mobile banking is not permitted liberally or why it is not taking off? One of the regulatory challenges in encouraging inward remittance from abroad is to maintain a balance between regulatory-compliant flow of funds (for example, whether they are *bona-fide* current/capital account flows) and ease of transfer of funds to the beneficiary. Given the higher level of anonymity in cross-border transactions, concerns on the associated AML/CFT related risks and the fact, as has been acknowledged in a World Bank report, that with a very few exceptions, supervision of m-money has really not been implemented effectively, Reserve Bank has allowed only banks and authorized entities to undertake such cross-border transactions. To obviate any operational difficulty in remitting and receiving funds, bank account-to-bank account cross-border remittance has been permitted under the money transfer service scheme (MTSS). Realizing the need for facilitating hassle-free withdrawal of funds at the beneficiary end, Reserve Bank has also permitted transfer of funds to the beneficiary's account or to a pre-paid instrument (PPI) issued by banks which could be m-wallet also. The underlying rationale is to ensure flow of cross border funds through the banking channel only irrespective of the media, (which could also be mobile sets) opted for undertaking the transactions.

Customer ownership and grievance redressal

15. The most often faced problem in mobile banking is as to who owns the customer – the mobile network operator (MNO) or the bank? Whom shall the customer contact in case of any service related grievance? Who is required to resolve the issue? Since India has accepted the bank-led mobile banking model, the customers of the banks get full protection for effecting transactions through this delivery channel as in the case of any other banking transaction. Reserve Bank lays particular emphasis on its continuing pursuit of customer satisfaction and protection and timely resolution of complaints. Accordingly, the customers using mobile banking have recourse to the Banking Ombudsman's customer complaint redressal machinery.

Role of MNOs as Technology Service Provider (TSP)

16. The Reserve Bank recognises the role of another important stakeholder – the mobile network operator (MNO) in the process of encouraging mobile banking in India. Reserve Bank has advocated a collaborative and co-operative model between the banks and the MNOs. The MNOs are expected to play the role of a technology service provider while banks are expected to provide banking services. With these clear role definitions, both the stakeholders should work together to take banking through the medium of the mobile to the masses. The customer vetting including compliance with KYC norms, customer protection, etc. should remain within the domain of the banking sector. It is heartening to note that this unique approach is taking roots with a couple of successful collaborations between banks and MNOs. While there may be some headwinds in taking this experiment forward, it should be recognised that these are not serious in nature and can be overcome. Issues related to customer ownership, revenue sharing and other such related matters which, I am sure, can be resolved through meaningful dialogue in the mutual interest of banks and the MNOs, particularly when both of them need to explore additional source of revenue as they face severe margin pressures.

Role of MNOs as TSP-cum-BC

17. You may all be aware that "for-profit" companies can now be engaged as BCs by banks. This provides another avenue to the MNOs for tapping their reach in taking banking to

the masses. MNOs are particularly well placed to make use of this opportunity to become the BCs of banks keeping in view the fact that mobile phones have become ubiquitous. I am glad to note that a few MNOs have indeed become BCs of some banks. I am sure that the nascent strides being taken in this regard are likely to fructify into major achievements soon. Such collaborations between the banks and the MNOs enables each of them to exclusively perform their respective designated roles – as bankers and service providers. Reserve Bank expects that these experiments get upscaled and across the spectrum and result in a win-win partnership for both the parties, leveraging their respective capabilities and reach.

Tapping USSD to expand access to mobile banking services

18. The Unstructured Supplementary Service Data (USSD) platform offers a common gateway to customers of all banks to easily access and use mobile banking services. The major advantage of USSD is that the IMPS could become accessible even through low-end hand-sets. If USSD enabled mobile remittance system offers such a potential what is holding up this unique product from taking-off? This is of particular relevance for the IMPS system of NPCI. I am given to understand, that MNOs have expressed concerns on revenue sharing and are keen on negotiating the rates with individual banks rather than provide the same through NPCI. While these concerns may be justified, the payments play in India is a volume game and all stakeholders including the MNOs need to dovetail the same in their business plans. If the common USSD platform is offered by all MNOs, the same is expected to lead to an exponential growth of transactions in the IMPS. Simultaneously, the IMPS platform for person-to-business (P2B) transactions (i.e. in the merchant transactions) has now been enabled. Along with it, person-to-person (P2P) remittances can now be made to beneficiaries based on their bank account number or *Aadhaar* number which is mapped to the mobile number of the beneficiary. The requirement of MMID at the beneficiary end, therefore, becomes optional. Further, the non-bank entities like the Pre-Paid Instruments (PPI) issuers have been permitted to join the IMPS network through a sponsor bank for facilitating domestic money transfers. All these measures should lead to an increase in transactions and should significantly contribute to the revenue streams of the MNOs also. With this enabling technology within reach of the stakeholders, they need to work together in a co-operative and collaborative manner to promote and popularize this unique product.

Permitting cash-out in mobile wallets

19. The mobile wallet is a pre-paid instrument (PPI) issued in electronic form which resides on the mobile phone. Seeing the potential of PPIs including mobile wallets, Reserve Bank of India has laid down an enabling regulatory framework for such instruments. Simply put, the mobile wallets being issued in India are e-money products and can be used for purchase of goods & services. Mobile wallets can also be used for funds transfers where the holder has been subjected to a fully compliant KYC. The only difference in mobile wallets issued by non-banks in India and other countries is that cash-out is not permitted in India as it is akin to acceptance of demand deposit. The rationale behind the decision is based on the fact that non-banks are not permitted to accept deposits for maturity less than one year. While this being so, the mobile wallet has a great potential to grow as it can be used for payments of goods & services without the customers having to carry any additional card. Ten entities have been authorized to issue mobile wallets; of them, one is a subsidiary of a leading telecom player. Several others are in the pipeline with three to four of them being leading telecom players.

Security and acceptability issues

20. Any system has to have certain minimum features to attract customers and keep them engaged in the long run; such features are: ease of use, safety and security, accessibility and affordability. Mobile banking meets all these requirements but still the usage is nowhere near its potential. In the case of mobile banking, which is a novel product, the customer needs to be assured that it would provide her with the same kind of comfort levels

that any other payment mechanism currently makes available. Comfort can be derived by the customers when they are able to put through transactions with ease with a zero-fail rate and not have any concerns regarding security issues. Customers should also be made aware as to whom they should approach in case of a failed transaction and how speedily their grievances are redressed. This is where a lot of work needs to be done to make the public aware of customer friendly as also safety features of mobile banking and engage the customers for a long term relationship. I would also like to inform you that recently, the Institute for Development & Research in Banking Technology (IDRBT), established by the Reserve Bank of India launched the Mobile Banking Security Lab (MBSL). The Lab aims at exploring and providing solutions to the much needed safety, security, reliability and inter-operability, for both on low end and high-end mobile sets. The Lab will also provide the benefit of a common technical centre for all banks and financial institutions. The testing platform of the Lab would help the banks to test their security applications in mobile banking. The Lab will also help in providing education services on security related matters in all Indian language enabling awareness creation amongst the users.

Quality of service – issue of sustainable excellence

21. TRAI has come out with the “Mobile Banking (Quality of Service) Regulations 2012” (***Box 2***) specifying the standards for MNOs while facilitating mobile banking which will go a long way in further improving the mobile banking services in the country. The MNOs should strive towards meeting these service standards to the banks to enable the customers to enjoy customer friendly banking services.

Box 2: Mobile Banking (Quality of Service) Regulations 2012

The Telecom Regulatory Authority of India (TRAI) has issued Mobile Banking (Quality of Service) Regulations 2012 prescribing quality of service standards for mobile banking to ensure faster and reliable communication for enabling banking through the mobile phones.

The salient features of the Regulations are as under:

- Access service providers shall facilitate banks to use SMS, USSD and IVR to provide banking services;
- The response time for delivery of message for mobile banking services generated by the customer or the bank shall be within the prescribed time frame
- If the SMS sent by the bank is not delivered to the customer due to network or handset related problems, an USSD communication to the customer confirming the completion of the transaction should be sent;
- Service providers have to maintain complete and accurate record of transactions, using mobile banking services through mobile phones

The Telecom Regulatory Authority of India (TRAI) has issued Mobile Banking (Quality of Service) Regulations 2012 prescribing quality of service standards for mobile banking to ensure faster and reliable communication for enabling banking through the mobile phones.

The salient features of the Regulations are as under:

- Access service providers shall facilitate banks to use SMS, USSD and IVR to provide banking services.
- The response time for delivery of message for mobile banking services generated by the customer or the bank shall be within the prescribed time frame.
- If the SMS sent by the bank is not delivered to the customer due to network or handset related problems, an USSD communication to the customer confirming the completion of the transaction should be sent.

- Service providers have to maintain complete and accurate record of transactions, using mobile banking services through mobile phones.

Engaged employees

22. Role of employees in driving any business to reach a critical mass is the most important but the least understood issue. The role of BCs or agents, who are being deployed by banks to expand their reach is, equally important as they represent the banks to the common man and are going to lay down the foundation of bank-customer relationship. It is being assumed that technology will take care of every aspect of banking as most of the processes are being automated. While this is true to a certain extent, it is the combination of frontline human-resources and front-end of technology which acts as the catalyst for service delivery in a nation like India. Employees are expected to help customers to move from being "assisted" initially to becoming "self-reliant" in use of banking related technologies including mobile banking. For the employees to hand-hold the customers, they themselves should be fully conversant with the product. Thus, for mobile banking to grow, the employees would have to strive towards improving customer service, enhancing customer satisfaction and removing any apprehensions regarding the safety and security of mobile banking transactions.

Customer focused 7 A framework

23. Having briefly touched upon the various issues related to mobile banking, keeping in view the focus on customers/end-users, I intend to provide a **7A** framework for its evaluation using a framework comprising seven parameters – **A**vailability, **A**ccessibility, **A**cceptability, **A**ffordability, **A**wareness, **A**ssurance and **A**ppropriateness. Of the seven, I had spoken about the first five **A**s in my last year's address at the same forum though in a slightly different context.

- ***Availability*** implies the availability of technology solutions and wide range of products offering mobile banking services to the customers.
- ***Accessibility*** of technology is its spread across both rural and urban India irrespective of the mobile handset being used.
- ***Acceptability*** of the product is dependent on making it available in the local language with easy-to-use operational menu.
- ***Affordability*** is another benchmark which should guide the product offering as being value for money in providing cost effective and quality services.
- Creating ***Awareness*** about the availability of the product through financial literacy campaigns to increase the volumes in mobile banking business and generate necessary network effects.
- ***Assurance*** is an aspect which is related to trust in the products and processes and the security and authenticity relating to the transactions.
- ***Appropriateness*** is combined effect of all the above features. The mobile banking as a product and as a process scores well on all the above parameters and is, therefore, very appropriate for providing cost effective, easy to use product by both existing and prospective customers.

24. Accordingly, an appropriate business model taking into account all the above aspects should form part of the corporate plan of the banks as well as the MNOs. Thus, using the 7A framework, the stakeholders can provide mobile banking services which, as we have discussed, suits the needs of the customers leading to its widespread adoption and usage.

Concluding remarks

25. In conclusion, let me list out some of the issues that we need to focus and deliberate on as we move ahead. That the mobile banking is moving up on the adoption curve is evident in the number of implementations both on a pilot and real-time basis and also from the level of interest evinced in the discussions held among the various stakeholders at different fora including the one that we are participating today. It is also evident in the number of TSPs emerging in the mobile banking space. Once awareness is created among the general public on its benefits and more banks offer this service to their customers there would be a further growth in transactions with both existing and new customers using the service. We, therefore, need to ask ourselves: Whether our systems are equipped to handle additional transaction volumes? Have we done any forward planning in this regard? Whether technology used for interaction with customers is easy and friendly and not intimidating? Answers to these questions assume importance when our target is the *aam aadmi.* It maybe noted that so far only 52 banks have started mobile banking for their customers and, of them, only a few have achieved sufficient traction in mobile banking transactions. This needs to be reviewed by each individual bank at the corporate level and strategy should be worked out to operationalise mobile banking to reap all its benefits. Banks need also have to be proactive in upscaling their mobile banking products and services if they have to safeguard their traditional advantage in the payment system terrain and leverage it to expand their customer base including the tech-savvy GenNext.

26. Educating users and potential users, particularly through engaged employees, remains a challenge in the sphere of mobile banking which is true for any new technology based service offering. All the stakeholders need to put in concerted and sustained efforts in spreading awareness about the benefits of mobile banking. Reserve Bank would be happy to collaborate with banks and the Indian Banks' Association (IBA) as part of its e-BAT (electronic Banking Awareness and Training) initiatives to spread retail e-payment awareness. The IBA has the wherewithal to do a lot in the area of awareness creation by conducting mass-media campaigns, simulation/training camps, town-hall events and reaching out to schools and colleges across the nation to "catch them young." It is expected that these initiatives will bring awareness of the various technology payment products including the mobile banking and the ease with which they can be used to encourage the use of non-cash payment products.

27. Let me conclude by saying that mobile banking has a great potential. We are at the initial stage of this development. It should be the earnest endeavour of all the stakeholders – banks, MNOs, technology vendors, NPCI, Reserve Bank, Government of India, IBA, industry associations like the FICCI, and, of course, the customers to make mobile banking as ubiquitous as the mobile itself. It is for us to harness this potential to achieve the objective of reaching to the customer wherever s/he is, deepening the financial inclusion supported by low cost, secured ICT based mobile banking model and moving towards a less-cash society as envisaged in our draft Payment System Vision Document for 2012–15.

Thank you very much for a patient listening.