

Facilitating Interoperability in Digital Finance Services in India

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Abstract

Interoperability is usually understood as ability of different networks/systems/tools to communicate with each other, exchange and use/process data. The term has gained prominence with advent of digital finance in emerging economies.

India has witnessing tectonic shifts with respect to regulation and market practices on interoperability. While existing and potential market players are adopting disrupting technologies which are increasingly complicating the relationship between different stakeholders, regulators are attempting to cope up with the market developments and innovations.

This Discussion Paper reviews existing literature on interoperability, international experiences, regulations applicable in India and presents a possible way forward for different stakeholders, including industry, civil society, experts and regulators to work together for facilitate interoperability while balancing competing interests in the market.

Background

The landscape with respect to access to financial services in India continues to witness tectonic shifts. Some of the notable initiatives in the recent past include unique identification linked bank accounts for hitherto underserved, grant of new bank licenses, adoption of differentiated banking structures by introduction of payment banks and small banks, use of technology for availing basic and sophisticated financial services, increased use of prepaid payment instruments and increased movement towards a cash-lite economy.

Different sectors of the economy are getting linked to the financial services sector like never before. The market players are no more limited to traditional banks, but include mobile network operators, pre-paid payment instrument providers, banking correspondent firms, dedicated e-commerce firms, card payment networks, white-label ATM networks, financial market infrastructure, instant money transfer providers, etc. In addition, innovative services like micro ATMs, payment interfaces, centralised bill payment infrastructure¹ etc. are being introduced in the market. These developments have increasingly added sophistication in the market.

None of this can be viewed in isolation. In order to ensure ubiquitous, seamless, and technology neutral transactions for consumers, different information technology networks, systems and tools, employed by different service providers, should be able to communicate, exchange and use/process data. This is generally understood as interoperability in financial services market. Lack of interoperability could hinder uptake of financial services and create avoidable hassles for consumers.

While there is ample evidence to suggest that open loop systems promoting interoperability result in long term benefits for stakeholders involved, when compared with closed loop systems, hindering the same,² ensuring interoperability is easier said

¹ RBI, *Report of the GIRO Advisory Group on Bills Payment System in India*, March 2014. Also, RBI, *Guidelines for Implementation of Bharat Bill Payment System*, 28 November 2014

² Monica Brand Engel et al, *Four Barriers – and Four Solutions – to Financial Inclusion Through Payment Innovations*, the Centre for Financial Inclusion Blog, 15 December 2014, notes “Many digital financial services

than done. It is dependent on several factors such as: development of the sector, state of the market,³ political economic landscape,⁴ regulatory maturity, technological innovation, *et al.* It also necessitates coordination between different regulatory agencies, such as the financial sector regulators: Reserve Bank of India (RBI) and Ministry of Finance; telecom regulators: Telecom Regulatory Authority of India (TRAI) and Ministry of Communications and Information Technology; consumer protection ministry: Ministry of Consumer Affairs, Food and Public Distribution; competition regulator: Competition Commission of India (CCI), and Central and state governments.

Preliminary Scenario Assessment

Literature points out that interoperability related issues in financial services market usually arise at three levels:⁵

1. *Agent Level* - This revolves around the ability of a customer of one provider to use the agent of another provider for availing services related to that customer's account.
2. *Platform Level* - If payment platforms are interconnected, a customer with an account/payment instrument with one service provider can send or receive money to or from the account/payment instrument of a customer with a different service provider.
3. *Customer Level* - This involves a customer's ability to access its account/payment instrument using any phone with a SIM card on the same network, or to access multiple accounts on one SIM.

Set out below is a preliminary analysis of the regulatory regime and industry perspective in India with respect to these three levels of interoperability. In the subsequent sections, specific action points involving further research and analysis have

have been launched as closed loop systems, which operate on an individual mobile network operator (MNO) service. A closed loop system limits the ability of customers to transact with peers using a different MNO service. Closed loops allow MNOs to sell more airtime while increasing revenues and customer retention in the short term, but open loops that promote interoperability across payment options may be needed to expand the acceptance environment, usage rates, and product functionality. Industry led initiatives – like those in Tanzania – have aligned business and social goals more effectively than those done by regulatory fiat. This initiative involves cooperation between the four main MNOs (Airtel, Vodacom, Tigo, and Zantel) and three large banks (Bank of Tanzania, CRDB Bank, and the National Microfinance Bank). It is a good example of interested parties circumventing the near-sightedness that threatens truly game-changing payments innovation.”

³Elisabeth Rhyne, *The Political Economy of Financial Inclusion Policy*, 25 September 2014, the Centre for Financial Inclusion Blog, notes ‘Kenya has a dominant financial service provider; while Tanzania does not, which helps explain why Tanzania has moved sooner toward interoperability in mobile money. Latin America has a well-developed, multi-channel payments system based on financial institutions; Africa does not, which helps explain why some African regulators have been more willing than their Latin counterparts to allow telecom companies to experiment.’

⁴Elisabeth Rhyne, *The Political Economy of Financial Inclusion Policy*, 25 September 2014, the Centre for Financial Inclusion Blog, notes, “Incumbents with established positions (and closed loop systems) jockey to maintain those positions. First movers want to keep their advantage as long as possible, while second movers advocate for increased competition, and benefitting from the infrastructure and network effects. Regulators face the difficult challenge of identifying the public interest in a setting in which traditional private actors may have political influence, while the intended beneficiaries in the lower income public are generally not heard. Public and political opinion is often dominated by non-market concerns, such as opinions that the poor should receive services at low prices (or free), or that national pride requires domestic systems. Regulators cannot avoid taking a stand, because it is their responsibility to determine who plays the game in the first place, through licensing.”

⁵ Kabir Kumar et al, *Interoperability in branchless banking and Mobile Money*, January 2012, CGAP

been identified on the basis of such initial research, with the objective of facilitating interoperability.

Agent Level Interoperability

Regulatory Regime

The business correspondent (BC)/agent route has traditionally been used in India and abroad to reach to the underserved in financial services market. Agent exclusivity has raised competition concerns for regulators in several jurisdictions.⁶

In 2010, RBI permitted a BC to be a BC for more than one bank, thus allowing BC level interoperability. In March 2012,⁷ conditions were further relaxed and interoperability at the retail outlets or sub-agents of BCs (i.e. at the point of customer interface) was allowed, provided the technology available with the bank, which has appointed the BC, supports interoperability, subject to the following conditions:

- i) The transactions and authentications at such retail outlets or sub-agents of BCs are carried out on-line;
- ii) The transactions are carried out on Core Banking Solution platform; and
- iii) The banks follow the standard operating procedures to be advised by the Indian Banks' Association

Reports suggest that RBI is also looking at having 'white label' banking correspondents who can use cash machines to take deposits for all banks and are not restricted to a single bank.⁸

Industry Perspective

Despite these initiatives and regulatory relaxations in 2012,⁹ experts noted that rural poor want banking facilities and features (delivered through BC) at par with mainstream

⁶Michael Tarazi et al, *Branchless Banking Interoperability and Agent Exclusivity*, CGAP, 24 January 2012, notes, "Take as an example MPESA which now has more than 20,000 agents throughout Kenya. Competitors have argued that Safaricom used its head start to tie up the supply of potential cash merchants, effectively exercising a monopoly and limiting competition. But how should Kenyan competition authorities evaluate this claim? Have competitors really exerted enough effort to secure their own cash merchants or are they simply wishing to capitalize on Safaricom's efforts? And how would the available pool of cash merchants be defined? How long should regulators wait – and what market indicators should they ascertain – before they mandate the shared use of cash merchants? And what model of sharing cash merchants should they mandate? Is there a business case for sharing agents and if not, what should regulators do to avoid limiting competition?"

⁷In terms of RBI letter dated 02 March 2012 to Scheduled Commercial Banks. The letter further states, "However, the BC or its retail outlet or sub-agent at the point of customer interface would continue to represent the bank, which has appointed the BC." This condition is missing from the RBI Master Circular on Branch Authorisation (July 2014).

⁸Joel Rebello, *RBI considering ways to link e-commerce to banking sector*, Livemint, 21 April 2015

⁹Puneet Chopra et al, *Integration and Interoperability of Financial Services*, MicroSave Research, July 2012, notes "This (2012 relaxations) however has had little real impact as the customer interfaces of many BC network managers (BCNMs) are still non-interoperable and cannot acquire transactions for alternate banks or BCNMs. Feasible technological solutions that could enable this at scale still seem distant and would need considerable investments, so regulations need to be relaxed further to enable retail or sub-agent interoperability on ground. A near-term solution could be by allowing BCs to host acquisition equipment/interfaces for multiple banks/BCNMs (who wish to be interoperable). The adherence to an agent representing and being accountable to one single bank can be achieved through suitably define business rules and processes by the regulator. This relaxation can enable meeting the end-objective with which the current regulation was designed, while not getting constrained by technology limitations."

savings account holders. Due to lack of adequate integration and interoperability of BC channels, they are unable to access several services they need or aspire for. Further, difference of approach/interest amongst new and established players in the market has made interoperability difficult.¹⁰

A Microsave (2012) study revealed that a need has been felt to re-establish a business friendly climate for the BC model to take roots. With multifarious, and at times conflicting, demands placed on banks, BC network managers and BC agents, by RBI, Ministry of Finance and other government departments, there is a lack of sense of direction and continuity for the BC sector. This has resulted into proliferation of standards and technologies, lack of integrated and inter-operable solutions and non-emergence of viable models that can acquire scale. In absence of a standards based approach, the industry is characterised by a multiplicity of efforts in silos rather than concerted coordinated efforts. This piecemeal approach is a major obstacle to achieving standardisation and therefore better integration, inter-operability and scale.¹¹

Platform Level Interoperability

Pre-paid Payment Instruments

Regulatory Regime

According to the RBI Master Circular on Issuance and Operation of Pre-paid Instruments (PPIs)¹² in India (July 2014), entities other than banks are permitted to issue only closed¹³ and semi-closed¹⁴ system payment instruments, while banks are allowed to issue open system¹⁵ payment instruments as well. While semi-closed system payment instruments provide limited interoperability amongst select service providers, the open system payment instruments are largely interoperable and enable cash out services at specified points. Such regulatory prescriptions, while limiting customer choice, also raise competition concerns, amongst banks and non-bank entities.

Recent reports suggest that the RBI is considering ways to link the rapidly growing e-commerce platform to the banking sector, just like it has linked mobile phone operators to the banking system through the soon to be launched payment banks. RBI might allow ecommerce companies to form joint ventures with banks or become banking correspondents.¹⁶

¹⁰Puneet Chopra et al, *Integration and Interoperability of Financial Services*, MicroSave Research, July 2012

¹¹*Ibid*

¹²Pre-paid payment instruments that facilitate purchase of goods and services, including funds transfer, against the value stored on such instruments. The value stored on such instruments represents the value paid for by the holders by cash, by debit to a bank account, or by credit card. The pre-paid instruments can be issued as smart cards, magnetic stripe cards, internet accounts, internet wallets, mobile accounts, mobile wallets, paper vouchers and any such instrument which can be used to access the pre-paid amount.

¹³These are payment instruments issued by a person for facilitating the purchase of goods and services from him/it. These instruments do not permit cash withdrawal or redemption.

¹⁴These are payment instruments which can be used for purchase of goods and services, including financial services at a group of clearly identified merchant locations/establishments which have a specific contract with the issuer to accept the payment instruments. These instruments do not permit cash withdrawal or redemption by the holder (including mobile wallets and mobile accounts)

¹⁵These are payment instruments which can be used for purchase of goods and services, including financial services like funds transfer at any card accepting merchant locations (point of sale terminals) and also permit cash withdrawal at ATMs/ BCs.

¹⁶Supra Note 8

Industry Perspective

Smartphones and virtual wallets are increasingly being used for making payments to taxis and food delivery. These are fast emerging as popular source of storing and transfer of funds. A leading bank has issued an internet wallet for sending money to any e-mail id, mobile number, bank account or social networking sites (like Facebook). Also, payments on any website or mobile application in India are allowed. It requires no documentation or branch visit to transact up to Rs 10,000 per month, and also gives the flexibility to add a zero balance Savings Account to it.¹⁷

The National Payments Corporation of India (NPCI)¹⁸ has begun to knit together systems that connect banks, points of sale, mobile wallets, and other financial accounts. It has launched and operationalised several innovative products such as RuPay,¹⁹ Immediate Payment Service,²⁰ Aadhar Payment Bridge,²¹ and Aadhar-enabled Payment Systems²² on the existing platform.

However, these products, introduced based on the recent market trends and technology developments, are built as silos and offer very limited interoperability between the payment instruments like card, mobile number, and Aadhar number. Current schemes do not offer any mechanism to use ‘*virtual payment addresses*’ that can be used for various electronic transactions in an interoperable way across all banks and regulated players. Also, there is no unified layer that makes mobile applications (banking, wallet, etc.) to seamlessly integrate with these systems using a standard set of Application Programming Interface. To address such challenge, NPCI is building a strategy for Unified Payment Interface and its technology and Application Programming Interface.²³

Payment Banks

Regulatory Regime

In November 2014, RBI issued guidelines for licensing of payment banks. The existing non-bank PPI issuers and other entities such as individuals/professionals; non-banking finance companies, corporate BCs, mobile telephone companies, super-market chains, *et al*, can make application for setting up payment banks.

¹⁷ICICI Bank launches ‘Pockets’, India’s first digital bank on a mobile phone, 10 February 2015

¹⁸Promoted by banks with a RBI nominee as Chairperson

¹⁹RuPay is a new card payment scheme launched by the NPCI, conceived to fulfill RBI’s vision to offer a domestic, open-loop, multilateral system which will allow all Indian banks and financial institutions in India to participate in electronic payments.

²⁰The volumes through Immediate Payment Service (IMPS), a system used to send smaller payments instantly between bank accounts and other digital wallets (through mobile/ATMs/ internet) reached US\$1.3bn per month in February (up 13 times since September 2013), See, Rishabh Khosla et al, *Digital Financial Inclusion in India: taking off in 2015*, Social Story, 06 April 2015

²¹A centralised electronic benefit transfer system to undertake direct mandates from respective sponsor or accredited bank attached to various government departments for the purpose of disbursing entitlements using Aadhaar numbers

²² A bank led model which allows online interoperable financial inclusion transaction at PoS (MicroATM) through the Business correspondent of any bank using the Aadhaar authentication.

²³NPCI, *Unified Payment Interface: API and Technology Specifications (Version 1.0 – draft)*, February 2015

Payment banks will be allowed to issue ATM/debit cards and offer payments and remittance services through various channels including branches, ATMs, BCs and mobile banking. The payments/remittance services would include acceptance of funds at one end through various channels including branches and BCs and payments of cash at the other end, through branches, BCs, and ATMs. Cash-out can also be permitted at Point-of Sale terminal locations. Payments banks can be part of any card payment network (other than credit cards) that is authorised. A payments bank may also choose to become a BC of another bank. The payments bank may undertake utility bill payments etc. on behalf of its customers and general public.

Industry Perspective

The technology-enabled payment banks are expected to usher interoperability in the financial services market like never before. Experts suggest that unlike virtual wallets, payment banks will be interoperable.²⁴ However, regulatory relaxations for payment banks are expected to raise competition concerns *vis-à-vis* PPI issuers and traditional banks.

Customer Level Interoperability

Regulatory Regime

RBI has issued various directives necessitating interoperability during mobile banking. For instance, RBI Master Circular on Customer Service (July 2014) requires banks to allow interoperability amongst different systems adopted by them utilising smart cards/mobile technology to extend banking services. Similarly, RBI Master Circular on Mobile Banking (July 2014) provides that mobile banking services must be available to bank customers irrespective of the mobile network. Restriction, if any, for the customers of particular mobile operator(s) are permissible only during the initial stages of offering the service, up to a maximum period of six months, subject to review.

In order to facilitate interoperability, TRAI has directed all telecom service providers to facilitate Integrated Voice Response, Short Message Service and Unstructured Supplementary Services Data (USSD) based connectivity to banks and their authorised agents for mobile banking services.²⁵ In addition, a ceiling tariff of Rs. 1.50 per outgoing USSD session for USSD-based mobile banking services has been prescribed.²⁶ Recent reports suggest that RBI is under discussion with TRAI for reduction in messaging charges, and speeding up bank messages.²⁷

Further, while TRAI has issued recommendations for priority routing of calls of persons engaged in 'response and recovery' in case of telecom network failures during emergencies/disasters,²⁸ no specific regulation could be located which expressly allows

²⁴ Gopal Sathe, *Banking the Unbanked: How Mobile Wallets Can Become a Tool for Financial Inclusion*, NDTV Gadgets, 01 December 2014

²⁵ Pursuant to the Mobile Banking (Quality of Service) (Amendment) Regulations, 2013 dated 26 November 2013. This was expected to create a common platform for banks and assess service providers and in provision for innovative solutions of mobile banking.

²⁶ Pursuant to the Telecommunications Tariff (Fifty Sixth Amendment) Order dated 26 November 2013

²⁷ See, *RBI allows banks to tie up with e-commerce companies*, Times of India, 21 April 2015

²⁸ TRAI, *Recommendations on telecom network failures during emergencies/ disasters*, November 2013

or prohibits access of accounts/PPIs using any phone with a SIM card on the same network, or to access multiple accounts/PPIs on one SIM.

Industry Perspective

NPCI has launched a National Unified USSD Platform (NUUP), a USSD based mobile banking service that brings together all the banks and telecom service providers.²⁹ However, it has been noted that regional rural banks and district central co-operative banks might not have the necessary technology to facilitate interoperability.³⁰ In addition, it is not clear if industry has made significant efforts to facilitate access of accounts/PPIs using any phone with a SIM card on the same network, or to access multiple accounts/PPIs on one SIM.

Issues for Consideration

As indicated above, while the government and regulators have been making reasonable efforts in achieving interoperability, the success has been below expectations. Following trends with respect to interoperability at mentioned levels can be deduced from the above narrative:

Interoperability at BC/agent Level – The regulatory regime has remained reasonably static since 2012. While a 2012 review³¹ revealed that policy and practice level reforms are required, an in-depth review of the existing scenario is necessary to understand the ground level situation, challenges faced, and devise necessary policy and practice level interventions to achieve BC level interoperability.

Interoperability at Platform Level

- *PPIs* – The regulatory regime and practices in this area are yet to be stabilised. Policy and practice innovations can be witnessed on a daily basis. Consequently, it is necessary to document such endeavours for an in-depth understanding, estimating their impact on interoperability and competition in the market, and consequently devising necessary policy and practice level interventions.
- *Payment Banks* – While the government has put in place the regulatory regime for payment banks and has received around forty applications,³² with industry players suggesting that payment banks are expected to enhance interoperability, it is necessary to undertake a careful unbiased independent analysis to understand the implications of payment banks *vis-à-vis* competition and

²⁹ (In NUUP, a customer can access banking services by just pressing *99# from his/her mobile phones. This service works across all GSM mobile handsets)

³⁰ Nachiket Mor et al, *Committee on Comprehensive Financial Services for Small Businesses and Low Income Households*, December 2013, observe, “the branch network created by regional rural banks (RRBs) and district central co-operative banks (DCCBs) represents a useful infrastructure that should be leveraged effectively. Existing rural branches of RRBs should be made inter-operable and act as acquirers for all transactions in that region and the regulator must allow RRBs to charge a fee for providing interoperability. However, unlike national banks with branches, not all RRBs have a Core Banking solution at present, though this process is on-going. In order to even move in the direction of interoperability, this will be a fundamental prerequisite.”

³¹Supra Note 10

³²Joel Rebello, *ICICI prepares for competition from payment banks with new e-wallet*, Livemint, 11 February 2015

interoperability, and consequently devising necessary policy and practice level interventions.

Interoperability at Customer Level – No significant regulatory and industry efforts seem to take place in this area. Consequently, there is a need to assess the understanding of stakeholders with respect to facilitating access of accounts/PPIs using any phone with a SIM card on the same network, or to access multiple accounts/PPIs on one SIM.

Possible Way Forward

Experts note that regulators need to craft regulations that allow technology enabled business models to emerge, while balancing access and protection for base of the pyramid consumers. In addition, moves to promote interoperability should harness, and not undermine, the business case for private providers to make investments of the required scale.³³

CGAP and Bankable Frontier Associates (2012) provide a useful guide to policymakers to approach interoperability. They suggest the following:³⁴

1. Distinguish between *intermediate* (e.g. stimulating competition) and *ultimate* objectives (e.g. achieving universal financial inclusion) of interoperability.
2. Interoperability should not be treated as an all-encompassing proposition. Instead, policymakers should tailor their analysis to different payment use cases, as defined by *a*) the account type (bank account, mobile wallet); *b*) the transaction type (withdrawal, real time transfer); and *c*) the channel (ATM, agent). It has been suggested that each use case will require a customised policy and commercial pathway for achieving interoperability.
3. Policymakers should not be boxed in by the false binary of ‘intervene now’ or ‘wait until problems arise.’ Instead, they can pursue a ‘managed approach’ to interoperability by establishing a sequence of milestones for achieving interoperability for clearly defined use cases. Then, if the milestones are missed, a regulator can carefully consider interventions that will help sustain progress towards its end goals.

They also suggest that progress on interoperability should be reviewed on five levels: (i) theoretical (capability of systems to connect to each other); ii) technical (actual points of interconnection or interfaces that make it possible to interoperate); iii) functional (capacity of points of interconnection to meet agreed technical standards); iv) business-level (existence of business rules, beyond the technical standards, that make the interoperability commercially possible); and, v) effective interoperability (interoperability successfully meeting broader goals).

³³ CGAP/ Bankable Frontier Associates, *Interoperability and the pathways towards inclusive retail payments in Pakistan*, 2012.

³⁴*Ibid.* Also, Dan Radcliffe et al, *A digital pathway to financial inclusion*, Bill & Melinda Gates Foundation, December 2012

Consequently, the issues identified in the section earlier should be dealt on the basis of principles laid down by CGAP and Bankable Frontier Associates. Following questions need to be answered by way of a research project:

1. Have the intermediate and ultimate objectives of interoperability correctly identified and appropriate mechanisms have been put in place to achieve the same?
2. Have tailored and customised approaches been adopted to facilitate interoperability in relation to different payment use cases?
3. Has a balanced 'managed approach' to interoperability been adopted by establishing a sequence of milestones to be achieved?
4. What has been the progress on interoperability?

Depending on the findings, appropriate policy and practice level interventions could be devised to facilitate interoperability in financial services market.