**Introduction**

The debated uproar in the aftermath of demonetization has reached a mad rush. Social activists having colours from political affiliation to policy wonks and economists have caused a hullaballoo on public forums such as Twitter and Facebook, alas with no results as the views appear to be sharply divided. Amid tugged views, unless government and the regulatory authorities put in order the necessary infrastructure facilitating digital transactions - prospective gains for the economy will remain just that—potential positives. One of the many infrastructural necessity is the implementation of interoperability of Digital Wallets.

Digital wallets have acted as a useful tool in driving the Government's agenda, however, they operate in a semi-closed loop because of their inability to interact with each other. Hence, the RBI has planned to necessitate changes in the present digital transactions ecosystem by introducing interoperable wallets and opening the doors for Unified Payments Interface.

**What is Interoperability?**

Interoperability is a technological characteristic which enables cross-platforms exchange and use of information. As for example, mobile phone numbers in India are interoperable as customers can port connections across service providers.

**What is its impact on Indian economy?**

Reserve Bank of India (RBI) wants to make interoperability a consumer friendly feature. Hence, on similar lines of ATM transactions, insurance policies and card payments, a proposal has been floated to make mobile wallet and bank accounts interoperable as well.

**What is the frenzy surrounding interoperability?**

Currently, interoperability for digital wallets is prohibited by the RBI and digital wallets operate in a semi-closed loop. Buzz around the streets is that this regulation will be relaxed. A wallet user of service provider A can pay to another wallet user of service provider B. This will hold true for merchant payments as well.

**How will this help?**

Digital wallet users will be the biggest beneficiaries of interoperability. They will be able to make digital payments to merchant across any wallet service provider. This will bring wallets at par with cards.
What are the regulations governing interoperability?

Interoperability means that competing companies will end up sharing resources and hence loyalty programs coupled with state of the art customer service will be required to retain existing users and attract new customers. Ultimately, the current free wallet services may phase out to a charge being put on interoperable wallet transactions. This will be the cost of using other company’s network and will be governed by the rules set by RBI around interchange fees. These suggest the road ahead will not be easy for digital wallet firms.

As per the new guidelines:

<table>
<thead>
<tr>
<th>Know Your Customer</th>
<th>Security</th>
<th>Compliance</th>
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<tbody>
<tr>
<td>• Non KYC compliant users need to be compliant within a period of 60 days from the date of issue. Transaction and credit will be blocked for non-compliant wallets</td>
<td>• The company or its associate company or group, cannot have Prepaid payment instrument (PPI) account as a part of access to other services</td>
<td>• Rooted devices need to be barred from app installations</td>
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<td>• The rules specified implicitly provide for sanctions checks and anti-money laundering mechanism</td>
<td>• An annual audit report covering systems compliance along with technology and hardware needs to be submitted</td>
<td>• Source code audits and assurance will be required to ensure that the app is free from embedded malicious code</td>
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<tr>
<td>Validity</td>
<td>• Service providers will be required to timely submit to the bank a list of merchants it hosts</td>
<td>Fund transfer</td>
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<td>• Wallets will cease to have lifetime validity</td>
<td>• Instead of agreements with individual merchants, they shall now be inforce with digital marketplace and payment aggregator</td>
<td>• The fund transfer limit of Rs 10,000 from mobile wallet to bank account will have to be reworked in order to not create a negative impact on the recently picking up digital wallet ecosystem as it conflicts with the set limit for merchant users</td>
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What are the options for achieving interoperability?

1. UPI

Payments are hard. Online payments, even more so. For UPI to evolve into a one stop solution for payments, it will take a lot of nurturing. For example, non-participating bank account holders such as co-operative banks or foreign banks cannot transfer funds through UPI. Presently, there is no support for escrow too. Hence, features need to be added as a new layer in UPI, on similar lines that UPI is based on existing IMPS framework. Interoperability through UPI will be like presenting old wine (Real Time Gross Settlement, RTGS) in a new bottle.

2. Distributed Ledger
• Digital wallet service providers have multiple options for getting identities of subscribers verified – telecom operator, KYC or Aadhar. The subscribers can avail services such as booking tickets, restaurant payments, online shopping, etc.

• Being partners in the blockchain network and hence bound by a smart contract, digital wallet service providers able to cross validate subscribers more quickly and more efficiently.

• Subscribers need to choose digital wallet as the payment mode and thereafter can view the list of supported service providers.

• Subscribers also have the option to pay using QR code scan at merchant outlets.

• In payment gateway, the user needs to enter mobile number and password. Smart contract is used for completing payment transaction.

Less maintenance and more innovation is required for creating an integrated financial ecosystem with common backbone supporting various players and processes. Distributed ledger as a backbone can help achieve this dream. Using blockchain will help payments network achieve the ease that we today have with Software as a Service and APIs. Not only will it help achieve interoperability between similar services, but if required, across services too. It will also help create an integrated financial ecosystem which will be future ready. The icing on the cake is that this ecosystem can be local, regional, national or even global.
Benefits

• Time to validate subscriber identity comes down drastically
• Increases transparency of transactions between the service providers
• Easier to track the movement of money by merchants and subscribers
• Seamless experience of across merchants
• Regulatory bodies such as RBI can be part of this network - compliance and governance for money movement visibility

Transaction ID
Hash ID
Transaction Type Debit/Credit
Transaction Date dd-mm-yyyy
Transaction Time hh-mm-ss
Settlement Date dd-mm-yyyy
Settlement Time dd-mm-yyyy
Response Code xxx
Remitter WalletA
Beneficiary WalletB
Remitter Mobile Number xxxxxxxxx
Beneficiary Mobile Number xxxxxxxxx
Amount Rs xxx
Remitter Reference Number xxxxxxxxx
Beneficiary Reference Number xxxxxxxxx

Clearing and Settlement

Clearing and settlement is an area which is not only riddled with legacy systems but also multiple intermediaries and hence is ripe for a change. We propose clearing and settlement through a shared ledger system which will occur in real-time or near real-time. Transactions will be cleared instantaneously through a private blockchain network of service providers with real-time risk management, reporting as well as other financial transfer instructions.

The current structure is dominated by centralized institutions such as RBI and NPCI whereas a distributed ledger network is meant to be decentralized, so how will this work? Well, it will, because in the existing mechanism, majority of the transactions are being run on behalf of their markets by central operators as permissioned or double permissioned network.

In fact, the overall technology and operational costs could be reduced by considering shared ledgers as the new hardware and software hosting option. As for example, transaction database and executable business logic provided by central institutions, could potentially be hosted outside for many financial transactions. This would in turn allow the use of smart contracts provided by central participants and pave the way for bilateral P2P execution. On the other hand, a central coordinating body would still be required for an array of related functions ranging from general governance to synchronising upgrades of smart contract versions.
We conclude that although using the existing UPI framework will lead to a quicker implementation, it will push us away from creating an integrated financial ecosystem. Moreover, it will also lead to higher cost of transactions which would negate USPs of digital wallet and primarily the goal of financial inclusion. Higher costs may also close the doors for new players.

To offer competitive and better services to wallet users and merchants, interoperability for digital wallets needs to be realized. Demonetization drive has provided the much-needed push and awoken the pundits for renewed focus on the development of India’s non-cash payment infrastructure. Digital wallet interoperability is a critical catalyst in the long journey from the rhetoric of cashless society to the reality of a cash-lite society. With innovative and evolving technologies like distributed ledgering; interoperability can be achieved with speed and transparency. The next step towards an integrated financial ecosystem would be to create a blockchain that could be shared by all counterparties across industries, regions and continents – every bank and intermediary worldwide.
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