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Whitepaper #4

The Series on Financial Inclusion:

The Global Payment Switch

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The views expressed in this whitepaper are those of the author and are not associated with the views of any other person or company.

A study done by the Boston Consulting Group estimated that the total money moved in the world exceeds $1600 trillion annually and that payment service providers combined make $200 billion in revenues annually. Payments are a big stakes business and incumbents have a vested interest in resisting innovation.

While payment infrastructures have served the global economy well, many areas of financial services are ripe for disruptive innovation. Mobiles are becoming ubiquitous and prepaid telephones have shown how a vast network of retail touch-points can be mobilized and managed from a risk perspective. The other whitepapers have show how security, anti money laundering and economic viability can be achieved for business correspondents. Now that the global meltdown has forced financial services from the "If it's not broken why fix it" comfort zone innovation will become a front burner rather than a back burner issue.

In that spirit, this whitepaper is addressed primarily to innovators with deep pockets and to the regulators who should do all that they can to support innovation by removing roadblocks and supporting innovation with investment capital.

RTNS: A real time net settlement system is where transactions happen 24*7*365 but the transactions are settled based on a net of money to be received and money to be paid on working days at a defined cut off time. This switch is used for small value payment while large value payments are handled by Real Time Gross Settlement (RTGS) where settlement is instant.

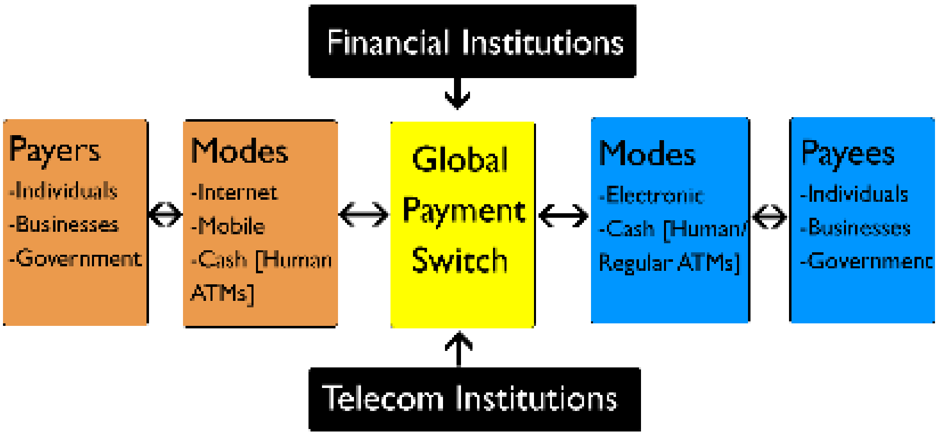
RTNS – Real Time Net Settlement & the New Global Payment Switch

Today you can get 100 sterling from an ATM at Heathrow and your account located in India will be debited if you have a participating Visa card or MasterCard. This is made possible because of Global Real Time Net Settlement "Switches" such as Plus (owned by Visa) and Cirrus (owned by MasterCard). However, if you wanted to pay 100 sterling to your friends account or to a merchant electronically, you cannot do that because there is no "switch" that connects you.

The Anyone Paradigm

The current switches do not allow anyone to become a member. In the new global switch potentially every individual, business and government entity can become a member. Payments will be made through mobiles, internet or in cash at "Human ATMs" and reception of money will happen directly into bank accounts. Over time all financial and telecom institutions will be members of this switch so that it does not matter where you have a bank account or who your mobile service provider is, all transactions will be compatible.

This is illustrated in the graphic below:



In Country Transfers (Domestic Transfers)

Money is currently transferred domestically through many methods: cash, hawala, cheques, electronic clearing systems, money orders, drafts and bank wire transfers. Each of these has different costs based on convenience, price and security.

However in the US PayPal key's innovation was using email as a unique ID (no email address is the same) to route transfers. In the same way, mobile numbers provide a safe and ubiquitous ID, and all citizens who do not have a mobile can be given dummy mobile numbers.

Such a system would lower costs compared to the prices currently charged based on value transferred (Western Union) and could potentially price person to person transfers at Rs 5 (US 10 cents). Lower transaction costs will result in an increase in volume as well.

PayPal: PayPal is a US based company that made person to person transfers free as long as they were funded from recognized bank accounts.

Cross Border Transfers (International Transfers)

International transfers are the main revenue source of companies like Western Union and Money Gram. These providers are expensive and part of the cost is attributable to the fact that regulations of the originating and receiving country must be met. However if we look at ATM cash withdrawals and credit/debit cards, a lot of small cross border transactions are already done in real time. These should be extended to migrant remittances because such a capability would be easy to incorporate within the "switch".

If the price for a cross border transfer is reduced to Rs. 2 and the foreign exchange counter is earning 2% then consumer costs will come down and the providers of this new-age international transfer system will make a very profitable return.

Of course one of the biggest concerns in our current global economy is the risk of money laundering and financing of terrorism through international transfers. However regulators need to take a real look at money laundering data and see if the movement of small amounts of cash across borders is actually over regulated.

Pattern Recognition: Here institutions use technology to recognize suspicious patterns within the system. Such methods have proven to be highly successful in stopping illicit activities (Whitepaper AML/CFT)

Pattern recognition can prevent large scale abuse and may actually lead to people being arrested. Much like international phone calls are monitored today for security threats, person to person money transfers over phones can be systematically evaluated using pattern recognition. The technology exists to bring a highly satisfactory level of safety.

Merchant Transactions

We have already established the benefits of Person2Person transfers, however a viable payment infrastructure must incorporate Person2Merchant transfers to complete the business ecosystem. The current debit/credit card system makes it prohibitively costly for all merchants to become members. Typical fee structures require a fixed Rs 17 cost plus a percentage fee of 2%. In addition merchants currently bear the risk of chargebacks on remote transactions and must pass a credit check to become a "card merchant".

All of this has deterred most merchants in India who operate on slim margins from joining the payment infrastructure. An added innovation used by PayPal was the "push" method used to send money to a merchant. The merchant could not "pull" money from a customers account and this eliminated merchant fraud and enabled anyone to become a merchant. This coupled with a reduction in chargeback risk would incentivize merchants to adopt the system and help person2merchant transactions flourish.

However many merchants in India prefer cash because it allows them to successfully evade taxes. That said, merchants will use any payment method that helps them boost sales or any system that consumers demand.

Of course the question of tax evasion is tougher but the government could give tax-breaks to merchants who register electronic sales above a certain threshold. Merchants who do not cross this threshold could be classified as casual merchants and may not be allowed to have permanent store fronts or recognition that comes from being recognized as a licensed merchant. This would reduce tax evasion and inclusion into the payment system.

Cashless Economies: The current US Economy is under 3% in cash.

In such a system the cost to a merchant can be reduced greatly to Rs 2 plus 1% of the transaction. This would encourage a move towards a cashless economy and facilitate micropayments as well. We can imagine a situation where the merchant is an auto rickshaw driver who accepts electronic fares or a vegetable seller who is paid electronically. This is the evolution of money that electronic transfers via the telecom network can provide. It is possible to think of eventually moving to an age where physical money is no longer required.

Bill Payment/ Mass Payments

Traditional bill payments require a generation of a paper bill, delivery of the bill, collection of payment and then a confirmation of correct amount received. This process is complex and costly to businesses who must incur the charge many times over. If a payment infrastructure combines this process and makes it possible for anyone to become a biller at the price of Rs 5 per bill payment, then it is almost a certainty that all bills would be paid electronically.

The applications of this service are immense. In India alone, around Rs 40,000 crores are paid by the government to a very large number of beneficiaries under welfare schemes. If these payments were made at a cost of Rs 5 or less to the government, a huge problem would be solved. Other applications include annuities, dividends, salary payments and payments from business to business.

The Economic Model of the Switch

The numbers in this model are meant to be indicative of the central message of the whitepaper. They should not be taken as proven fact because they are just assumptions to show the vast potential of the Switch. Even if the numbers are off, the explanatory power still holds. In addition the model assumes no revenue sharing with banks.

We will be assuming that the "anyone paradigm" is in place and that there are 300 million individual users (whitepaper #1):

Type	Cost Per Transaction	# of Transfers Per Person, Per Year	Total Revenue
Domestic Transfers	Rs. 1	10	Rs. 300 crores
International Transfers	Rs 1 + 0.5% of transfer amount (Avg amount: Rs 5000)	.5 (some persons have many, while some have none)	Rs. 390 crores
Bill/Mass Payments	Rs. 1	3	Rs. 90
Reputation Checks	Rs. 1	5	Rs. 150
Digital Records	Rs. 1	3	Rs. 90
Domestic Merchant Transactions	Rs. 1 + 1% of amount (Avg amount: Rs 100)	50	Rs. 1650 crores
International Merchant Transactions	Rs. 1 + .6% of amount (Avg amount: 5000)	.1	Rs 93 crores
Total Revenues (India, 10% of global revenue)	Approx. 3000 crores ($600 Million)		
Total Revenues (World)	Approx. $6 Billion		

Risk Management – A Zero Fraud Loss Goal

Risk management is increasingly at the heart of developing a solution that scales. There are several innovations that are discussed in great detail in this and other whitepapers. They are listed below with the specific whitepaper where more detail is available.

- Numeric Signatures (Reputation Whitepaper)
- Push versus Pull (This Whitepaper)
- Data Mining Cash Flows (Reputation Whitepaper)
- Social Networking (Reputation Whitepaper)
- Suspicious Activity Recognition (AML/CFT Whitepaper)

Individuals who choose to limit fraud activity on their own accounts will be able to by allowing only certain transactions (based on location, person, time, amount etc) to be authorized. While the zero fraud loss goal may not be fully attainable, it should be possible to get fraud close to zero.

Scope of the Switch

Currently payment switches are independent of credit bureaus and bank systems that enable savings and unsecured lending. An integrated switch with these other elements offers several obvious advantages but will increase the complexity of implementation. The bias of this whitepaper is that technology and business architecture can be developed which will make deployment easier than initially imagined.

Who well Bell the Cat?

The important question now becomes, who will be willing to enter this field and bring on innovation? Building this global payment switch requires deep pockets and also the collaboration of regulators, telecom and banks. Thus it is likely that a big bank (State Bank of India, Goldman Sachs), a big telecom company (AirTel, Vodafone), a big software provider (IBM, Oracle) or the incumbents (Visa, MasterCard) will need to work together. A well funded startup much like PayPal could also be the innovator needed. The next global payment infrastructure can be a very lucrative business and also meets a much needed social objective of universal financial access. If this is true why is no one belling the cat? The main roadblock is that the government and regulators have not made universal financial access a national priority and they keep getting swayed by large incumbents who want the traditional high cost ways to continue.

What can Regulators Do?

Regulators can declare the provision of universal financial services a global priority and commit investment to support innovation in this area. Allowing current incumbents to block progress would ruin the future of financial services. In this spirit, there should be one central agency which is empowered to achieve results in a time bound manner, the agency would specify needs and leave the “how” to private enterprises and innovators.

To ensure consumers and national interests are protected it should vet the proposals submitted and award licenses to the best plans that are in the best interests of the world. Adequate competition is very important.

The whitepapers show regulators that with innovative thinking the goal of universal financial access with negative use of public money is achievable. The details and solutions proposed could change a lot but it is the authors hope that the whitepapers are a good starting point.

Microfinance. The next bubble?

There is evidence that households are taking on unsustainable debt levels as more money becomes available for microfinance. Households are using fresh loans to repay existing loans and multiple borrowing is hard to detect without a reputation bureau as a part of the global financial switch (bureau is discussed in a separate whitepaper). The key concern is that if the fresh loan tap is turned off, households will default causing loan losses and one more need for a government bailout.

Peer pressure and lending to women are supposed to be the magic bullets that allow microfinance to scale without required infrastructure such as a reputation bureau. I am skeptical as I think stronger deterrents and incentives to not become loan addicts and keep improving your reputation are required.

Conclusions

The full set of whitepapers paints out a vision where every global citizen can get financial services at affordable prices. The vision is one where we gradually move to a cashless economy and where borrowers get instant credit based on their reputation score at rates which are low because providers have removed waste and developed very efficient processes.

Crooks and loan addicts are not able to hurt the system so that honest people and responsible users of credit are impacted. It is likely that some of the ideas in these whitepapers are wrong or could be improved upon. But as Professor Yunus said in his Nobel Acceptance speech, when humans decide to do something in most cases they always find a way to succeed. The challenge is not all that complex as the whitepapers show but it does require a firm resolve to seek a solution and to not allow dogma and vested interests to get in the way.

The best part is that just as in India near Universal Telecom Access has been achieved with Negative Use of Public Money the same is possible for financial services. It is time to rise above personal greed and organizational greed and show the poor a path out of poverty. The poor will not be patient much longer if they are not shown a path for those who aspire and are willing to work hard to succeed.