

No cash, no intermediaries? Different scenarios for a digital economy

A report on the IIIT Bangalore-IMTFI workshop held on Nov 11, 2016 at IIIT-Bangalore

(based on rapporteur reports written by IIITB students Anisha Nazareth and Sanjay V.P.)

What happens when a culture of primarily cash-based and mediated financial transactions encounters the world of digital financial platforms that promise cashless and direct transactions? In a world abuzz with conversations about digital financial transactions, this workshop explored how they work among different low-income social groups. The workshop brought together diverse voices on digital financial transactions, who have earlier engaged with these issues on separate stages, to discuss changes in the nature of financial transactions. Together, the organizers, speakers and participants explored possible ways to rethink cashless and intermediary-free economies, and examined how best to incorporate the values associated with cash and financial intermediaries into the world of digital financial transactions.

The *No Cash, No Intermediaries* workshop was held at IIIT-Bangalore on November 11, 2016. It was structured into four sessions and was attended by both internal and external participants, including IIITB students and faculty, other academics, technologists and civil society actors. As an institute that primarily trains engineers, it was fitting that the welcome address by the institute's director, Dr. S.Sadagopan emphasized how India has historically been a country where too many things are driven by Techies. But it was fast becoming apparent that it is necessary to first understand human beings in order to build technologies for them, and that this could only happen by making technology design a larger conversation that involved people from different backgrounds and expertise. It was precisely this desire for diversity that informed our speaker and participant list for the workshop.

Though not planned that way, our workshop of November 11, 2016 ended up taking place against the Indian government's decision to demonetize higher value currency notes (Rs.500 and Rs.1000), making them illegal tender overnight, a mere three days earlier, on November 8, 2016. The focus of our workshop on the role of cash and the value placed on it suddenly became a question that was being asked and addressed on the streets rather than in our workshop alone. While the workshop schedule was fixed, questions of demonetization ended up framing what speakers and participants addressed in several cases.

In our opening session, we placed before our participants two somewhat contradictory images that were in circulation following the demonetization: of peanuts wrapped in the demonetized currency notes (depicting how these notes were going to be useful at most as wrappers) and serpentine queues in front of ATMs to withdraw cash in Bangalore – the IT capital of India - where technology and young educated people abound. So, was cash really something of the past?

The subtitle of our workshop was “Different scenarios for a digital economy”: what we wanted to draw attention to was neither a cashless future, nor one that operated only with only cash. Instead, we wanted to highlight the different alternatives that co-exist in an economy. Moreover, and especially in the context of the idea of financial inclusion, who has access/is included in these diverse worlds of financial transactions, and who isn't? In asking

how transactions work, who participates in them and who doesn't, our objective was to examine who might be missing from the future scenarios that get spoken about when we talk of cashless or unmediated futures. Equally, how would a financial system look if it were designed by people at the margins of existing systems?

In accordance with these goals, the workshop was structured around the themes of access, institutional context, and the trade-offs involved in economic transactions. We had posed provocations in alignment with these themes to our speakers for the day ahead of the workshop.

Session 1: Logging in

This session focused on access to digital financial transactions and platforms: what are the different dimensions and components of access to these transactions, who gets to access these platforms; what access enables them to do; why they access these platforms; and how. Moreover, how is this form of access to financial transactions different than, or similar to, existing cash-based or 'informal' transactions? We also the speakers to explore whether the customer or the service provider bore the costs of accessibility and how that affected financial inclusion. The speakers for the session were Anupam Varghese from Eko India Financial Services, Pravin Agarwala from BetterPlace Safety Solutions and Indrani Medhi Thies from Microsoft Research India. It was moderated by IIIT-B faculty member Amit Prakash.

Mr. Anupam Varghese heads Products at Eko India Financial Services Private Limited, whose customers are the urban poor – migrants, drivers, maids, security guards, and BPO workers, who need to send money home. He noted the importance of recognizing that people have different degrees of access and that people faced a range of barriers that prevented their entry into the digital economy. Based on Eko's experiences, Mr. Varghese cited a few examples of barriers that prevented low income people from entering the digital economy: lack of familiarity with the concept of digital money, fear of the banking interface at institutions, and language. He made a crucial point that technology is typically designed so it works for the designer, with the assumption that it will then work for everyone. However, the people who design digital financial technologies are unlikely to be from low income communities: why then will the technology they design work intuitively for such groups?

Mr. Varghese suggested leveraging what is already familiar to communities to help bring digital financial technologies to them. For instance, Eko has tried involving trusted locals as mediators, leveraging their numeric literacy and familiar technologies (like mobile phones) to design digital banking solutions, and have use banking transactions that resemble recharging mobile phones to make them intuitive to carry out. The use of intermediaries, said Mr. Varghese, is key in helping achieve digital financial inclusion (security guards at ATMs played such a role not so long ago). Moreover, the presence of intermediaries often guides people towards self-service. Above all we must remember to give low income users the time to adapt and remember that digital banking interfaces have a learning curve.

The second speaker for this session was Mr Pravin Agarwala, CEO and co-founder of BetterPlace safety solutions. BetterPlace Safety Solutions is a company that offers safety as a service, using technology and data analytics to restore the growing trust deficit across multiple sectors. Mr. Agrawala pointed out that with respect to digital money, there are three

Indias. India 1, about 150 Million strong, was mostly in the formal economy and technology savvy. This was the population that barely felt any impact due to demonetisation, that placed trust in technology, and could enter into digital transactions (though there would be those in this population too who did not want to do so and would wish to keep cash at home for various reasons). India 2, a population of 450 Million, operated in a mix of the formal and the informal economy. They could transact financially online, take loans and access credit. India 3, the largest at about 650 Million people, hardly had a digital footprint and was deprived of all associated opportunities. India 3 was BetterPlace Safety Solutions' target and so it works largely with blue collar workers, most of whom are migrants from the north-east to the major cities of India (Mumbai, Bangalore, Delhi etc.) for economic opportunity.

Taking the example of security guards, Mr. Agrawala noted that these workers aspire to be able to get things done easily, and through formal mechanisms, but may not know how to go about it. They also typically have no access to any kind of digital technology except Aadhar. But while they rarely meet the criteria to receive loans, they do have social credentials while borrowing within small groups. How can these credentials be used to give them access to digital finance?

The first solution that BetterPlace come up with was a collection of data where people could upload data. On the basis of that data, they would be given a trust score as an alternative to a credit rating. But where BetterPlace found that people didn't want to (or could not) upload their own data, it also worked with employee organizations to collect data and build trust profiles. It is now finding it easier to get people to engage with a digital platform now that they can tell people that they can get a loan simply by pressing a button. BetterPlace also learned that nobody was interested in complex applications, and so decided to build their Master Data Store on top of Aadhar.

The third speaker for this session was Dr Indrani Medhi Thies, a researcher in the Technology for Emerging Markets Group at Microsoft Research India in Bangalore where she has been working on User Interfaces for Low-Literate and Novice Technology Users. Dr Thies and her group started working with mobile banking technology in 2009 in order to understand whether mobile banking services like WIZZIT in South Africa and Eko in India were being used by low income users. In speaking to farmers, informal sector workers and others who earn less than 200 USD a year, the team found that most of the mobile banking services were text based. Therefore, in order to use them one needed to be literate and also used to navigating through complex applications. This got them thinking about how to create interfaces for low literate users.

One idea was to use pictures or videos to have a completely text free UI. An example of such an interface was a password free login screen that used the user's picture or a voice recording of their name rather than a text-based password. Another insight that the team leveraged was that the communities they were designing for had very dense social networks, where people did not mind asking each other for help: intermediation of different types – surrogate, proximate enabling and proximate translation - could thus be crucial to get people to use digital technologies. But the involvement of intermediaries also raised concerns, especially around privacy and fact that intermediaries might not always be reachable by a user. Dr. Thies outlined some of the approaches they had experimented with, such as using a series of

pictures or numbers, or of using a 'pin book' with random strings for passwords. One take-away from these password exercises was that people often memorised the location of keys on the screen even when they could not read what was on the screen. Dr. Thies also outlined a second set of exercises she and her team undertook for those instances when a suitable application was available, but people needed to be told about it and trained. Instructional videos weren't effective, so they came up with the idea of using full-context videos, wrapping instructions within a story. These videos motivated users and helped them identify with a peer.

The discussions at the close of the panel brought up issues of power, gender, privacy and trust vis-à-vis the intermediary and institutions, as well as the role of motivation in the adoption of technology and access to it – the themes for the session. An interesting example of the need for /access to digital money that came up was a common practice among women in many cases of safekeeping cash in rice/wheat bins, sometimes to keep them from drunk husbands. One of the speakers suggested that digital money would offer a way to directly route such money to accounts. An interesting counterview to this vision came up in a later session.

Session 2: Make Payment

The focus for the second session was the legal, regulatory and institutional mechanisms that are instrumental in shaping digital financial transactions. This session was to address how the digital nature of financial transactions affects not just the end-user but others in the ecosystem such as intermediaries, and institutional service providers, as well as institutional and regulatory mechanisms. The speakers for the session were Tara Nair from Gujarat Institute for Development Research, Anubhav Agarwal from National Payments Corporation of India, Sanjay Jain from IndiaStack, and Pawan Bakhshi, Gates Foundation India. It was moderated by IIIT-B faculty member Balaji Parthasarathy.

Dr. Nair, whose research mainly concerns issues in policy and institutional development in the areas of pro-poor financial services, rural innovation, women and development, and livelihoods, began by asking that if Digital Finance was indeed a dream, whose dream was it? A dream of the state and of the regulator who is keen to control, bring in transparency and command? Is it the dream of the people whose money is enmeshed in social interactions or is it the dream of those who have surplus? For Dr. Nair, therefore, there was a need to first de-construct this question to understand its issues better.

While any technology that is adopted could improve efficiency, in dealing with finance, it was critical to focus on institutional conditions and cultures as practiced in the local area. Prior to the deployment of any technology, alignments and realignments were needed, involving negotiations with a range of people in order to involve the interests of man and woman, of intermediary, bank and government. Pointing out that 'Innovation is Political,' Dr. Nair emphasised the need to recognize power relations in examining technology adoption and diffusion. Bringing back the woman who saved cash in her rice bin, she suggested that that cash was not merely money in this instance, but the woman's agency: it was likely built through years of under consumption and self-exploiting sacrifices, but the woman was using this cash on what was important to her. Sadly, that agency may be lost by digital inclusion.

When digital finance becomes a reality, a new set of intermediaries will arise within the same set of power relations in which agency and intermediaries are only one part of its microstructures. Technological artifacts and technological systems can change the narrative in both directions - by giving more or less agency. To know which way they will pan out requires research on specific instances.

Dr Nair spoke about her work in Gujarat. Gujarat is highly industrialized but has extremely low financial inclusion. Wondering why this was the case, she studied how ethnic networks affected financial inclusion in Gujarat. She found a local stock exchange running in one village. One man raised 4 crores from 25 households to start an ice cream factory. He was able to do this because he was a local and they trust him to pay them back. This is a standard practice in Gujarat. Given the context of an economy that is a mix of the formal and the informal, Dr. Nair used this example to illustrate the power of informal financial transactions, which were a norm in this case. The question for her, then, was how to bring this informality into the mainstream discussion on financial inclusion.

Adopting the idea that “Money is what money does,” Dr. Nair elucidated that in economic terms this meant money acted as a medium of exchange: it could be gold, it could work through a stock market or it could just be a scrap of paper. She said it was crucial we recognize that money could therefore mean different things for different people and that there are multiple, socially determined rationalities around money. The question becomes how can these multiple rationalities be reconciled with the digital platforms that we are hoping to build? For example, in the Indian case, individual's ideas of money may often not be relevant where people don't mind sharing money or resources. This shared community should shape our financial infrastructure in that case, and we would have to look beyond the individual basis of finances in western societies. Moreover, 90% of the Indian economy runs on informal transaction. Only 6-7% of Indians are able to account for their income and report it. At least 60% get daily wages and not through formal institutions. These are the structures we have to think about when dreaming of a cashless, transparent economy.

The second speaker for session 2 was Mr. Anubhav Sharma, currently the AVP - IMPS, NUUP and Unified Payment Products at National Payments Corporation of India. He spoke about “Building best of class payment and settlements system for a ‘less-cash’ India.” Mr. Sharma provided a brief introduction to NPCI, as an umbrella organization for all retail payments system in India that was set up with the guidance and support of the Reserve Bank of India (RBI) and Indian Banks' Association (IBA). He pointed out that since banks work through multilateral networks, NPCi often acted as an intermediary for financial institutions. The core objective of NPCI was to consolidate and integrate the multiple systems with varying service levels into nation-wide uniform and standard business process for all retail payment systems. The other objective was to facilitate an affordable payment mechanism to benefit the common person across the country and help financial inclusion. The organization had grown multi-fold in the last five years, from 2 million transactions a day to 20 million, as

well as beyond the single service of switching inter-bank ATM transactions to a range of services including Cheque Clearing, Immediate Payments Service (24x7x365), Automated Clearing House, Electronic Benefit Transfer, and a domestic card payment network named RuPay.

Mr. Sharma drew attention to fact that India's transactions are very low in comparison to other economies of its size, for example, we have only 163 ATMs per million people, 1066 Point of Sale Terminals per millions of people, and about 63 crore cards in use. All these figures point to a very low penetration or usage pattern that a cashless economy/digital inclusion would need to grow drastically. However, he also said transaction patterns within India were changing, with non-cash payments made through debit cards are going up, while payments made through check are going down and that we may expect this trend to continue. Nevertheless, 13% of India's GDP is still cash. This is one of the highest in the world among the large economies, rivalled only by Russia. Therefore we have to do significant work to catch up. Even in mobile banking, where the growth in terms of number of transactions is high, the value of transactions is not. Wallets, on the other hand, are used for multiple high value transactions.

In this moment of transition, NPCI offers a number of services. It guarantees settlement upon your use of your card at any ATM. It ensures that appropriate parties are credited and debited accurately. IMPS is now independent of channel (ATM, mobile etc). In some cases you only need the mobile number of the recipient. The use of *99# to get access to banking services is an innovation mirroring mobile phone recharge codes to ensure financial inclusion. The Uniform Payment Interface (UPI) ensures complete interoperability at the front end and allows immediate transactions. An NETC networks that works using RFID tags to automatically deduct toll from vehicles is being rolled out, as is a National Common Mobility Card to be used on all transport services. Outlining the roll out of this range of service, and its goal to reach all Indians by 2020, Mr. Sharma concluded by asking whether it was simply inertia that made us hesitant to adopt digital models for transactions

Speaker no. 3, Mr. Sanjay Jain of India Stack and iSpirit, also emphasised the under penetration in terms of digital transactions. Building on the statistics presented by Mr. Sharma before him, Mr. Jain observed that India clocks about five digital transactions per capita while, China clocks about 50 and the developed countries do about 500. We have however achieved mobile penetration. Therefore with mobile payments, we will be able to leapfrog the lack of physical infrastructure and catch up with China in terms of cashless transactions. He felt that people would adopt technology, but it will be their own variants in a diverse market like India.

Mr. Jain observed that, "It is unviable to issue a loan of Rs. 30000, since it costs Rs. 5000 as transaction cost to issue a loan irrespective of the size and hence any banker would like to reduce the burden by issuing large size loans. If technology could help to reduce that cost to Rs. 100, loans of Rs. 5000 would become feasible." Technologically, digital transactions are cheaper than other forms. If you reduce the costs of digital transactions, people will find a reason to adopt them.

It is also important to consider the role of the regulator. Typically, the use of technology use poses certain risks and traditionally, regulators look to regulate, which goes against innovation. Mr. Jain felt though that in the Indian case, we have a regulator who has neither lagged nor been too fast for the changes to occur and this was good. Moreover regulators can use digital transactions to do a very fine grained analysis of data. For Mr. Jain, the only question we must ask ourselves is how digital financial technology might affect the behaviour of users.

The final speaker for the session was Dr. Pawan Bakshi of Bill & Melinda Gates Foundation, India. He began by talking about the evolution of digital transactions over the past decade. When mobile phones were launched in 1995, no one anticipated the sale of a more than a billion sim cards. Who taught the poor man how to use a mobile phone? It solved a need for him and therefore he learnt how to. If your product does not solve a need no one will use it. Now the motivation for using digital money over cash is the same as the motivation for using mobile phones over landlines. Location is not an issue. Digital money is anywhere, anytime, anyone. It is important to consider this against the backdrop that the poor pay a premium for everything.

Many people in villages say they have no access to credit. Farmers do not see banks as places to store money, they associate banks with savings, which they do not have. The problem is that how a bank evaluates the creditworthiness of a farmer is non transparent. Banks and financial regulators are continuously telling us to save. India has the highest saving rate in the world. People know they have to save, they just don't know how to go about it in a new financial world. The question is why aren't the needs of the bottom of the pyramid addressed in the new financial system?

Dr. Bakhshi suggested that this was because people in the financial system think they know people. However, India is far too diverse for one size fits all. When studying the needs of the poor in credit, you discover that only 25% use moneylenders, the rest seek credit in personal relationships. In a digital financial world, credit relationships will alter because relations from anywhere in the world will be able to send money around. Another important thing for Dr. Bakhshi was the need to use technology to reduce cost of transaction to such a level that any size loans could be a reality. He spoke of using simple language to indicate the different services, for eg., usage of terms of like RTGS, NEFT, IMPS can put off the rural user - if it were to use simple language of which service gives what benefit, instead, the user would find it easier to adopt.

Dr. Bakhshi noted that while there are lots of marketing brands doing a lot of research on user needs, they target only the top 350 million people. What about the rest? Nobody understands the space and until we do we can't create products for that space. He closed by emphasizing the need for integration between all parties involved: empowered individuals, institutions, banks, and regulator in a way that the service could become simple.

A lively discussion session followed in which the panellists were asked to comment on the economic and social tensions that their talks and goals seemed to point to. When NPCI sought to touch all Indians by 2020, were they expecting that economic growth would lead

the demand for digital transactions to grow, or would transactions be pushed top down in order to build the demand for digital transactions in the market? Similarly, Sanjay Jain's way seemed to be to give people technological solutions that they would then find a way to use on their own, while Tara Nair wondered if users would not pull away from a technology if they were expected to figure it out on their own. A participant also brought up the matter of trust and who – the state, intermediaries, institutions, social networks – people chose to place their trust in. Dr. Nair also pointed out that trust itself was a contested thing and gave an example of a village in Gujarat with a population of 3-4000 people, which banked with 27 agencies, a mix of MFI, SSGs, cooperative, and banks!

Session 3: Transaction Complete

At the completion of a digital financial transaction, what value do people carry away from it and what traces of the transaction do they leave behind? What kinds of tradeoffs do they make between recognition and privacy, or visibility and traceability? How are these different along the lines of class, gender or caste? The speakers for this session, Milan Mitra from McKinsey labs and Elisa Oreglia from SOAS University of London explored the tradeoffs experienced in a transaction and how these are resolved. The moderator for this session was IITB faculty member Janaki Srinivasan.

The first speaker for the session was Mr. Milan Mitra, a full stack software architect and programmer with years of experience in the banking, corporate finance and insurance functions, who spoke on his work in Smart Contracts. Mr Mitra is working on an open source platform where users can get onboard, give consent to use their data and then enter into smart contracts. He began by laying out what constituted a transaction, and went on to the concept of Public Ledger, Smart Contracts and Transactional Inclusion.

Mr Mitra began by defining a transaction as a transfer of value from one party to another. Here he was referring to a transaction which involved the transfer of money in exchange for a service. The advantage of using a blockchain is that once you have created a transaction there is no roll back. To use conventional banking as an analogy, the blockchain is like a full history of banking transactions. Bitcoin transactions are entered chronologically in a blockchain just the way bank transactions are. Blocks, meanwhile, are like individual bank statements. They are the 'current' part of a blockchain which records some or all of the recent transactions, and once completed goes into the blockchain as permanent database. Mr. Mitra also explained that value in blockchain could be monetary, goods or digital assets (documents, real world parity representative monies, etc.). Moreover they are publicly accessible and reliable.

To determine whether or not a transaction takes place, the users enter into a smart contract. A smart contract simply consists of lines of code that both parties agree up. Smart Contracts would automate the traceability of transactions on the public ledger so that when a transaction between two parties occurs, the program can verify if the supplier has sent the product/ service. Only after verification is the sum transmitted to the suppliers account. By developing ready to use programs that function on predetermined conditions between the

supplier and the client, smart programs ensure a secure escrow service in real time at near zero marginal cost. Giving an example of flight insurance, Mr. Mitra explained that Flight Insurance policy does not work today. But if there were a rules system such as “X % will be credited to my account if there is Y amount of time delay in the flight take off” and all of this would happen without any intervention on basis of pre-set conditions and controls, then Insurance would become workable. Smart Contracts could thus transaction transparency and transaction conclusion, thereby making it immutable. Self-executing and self-enforcing contracts are triggered by real world events agreed between parties.

Mr. Mitra spoke of his work further as containing three layers, (a) an on boarding layer where you facilitate different parties to join into the system such as Service Providers like the Unique Identity Providers to create an identity store, (b) a consent layer where transactions can be set up between parties A and B with background information being available such as “Know your customer” data, credit ratings, etc. (c) and the Smart Contracts.

Mr. Mitra spoke about the autonomous nature of this system that is designed to do one activity at a time and tracking in real time with a ledger view of the transaction giving it regulatory and governance benefits. Blockchain is a system that moves the transactions away from the realm of state control, becoming an alternative way of completing transactions with complete traceability. Mr. Mitra concluded by saying that a few such systems are in use today across the world and more such transactions will occur in future.

Dr. Elisa Oreglia began by noting that her work in Shan state, Myanmar and Dr. Janaki Srinivasan’s work in Kerala were the inspiration for this workshop. She said that digital money is much hyped, and there are changes in mobile usage pattern. She observed the increase in the advertisements for digital money, and she concluded that everybody seemed to be aiming for some piece of the obviously huge business opportunity. However, in her work and from Dr. Srinivasan’s work, which was to see how it is used in the communities, she said that the usage is not very high – in fact, they did not see it in use. This led them to ask what people were using instead. How *does* money move in these communities? The answer lies in the fact that the ‘informal’ sector is more structured than is assumed. In her talk, Dr. Oreglia would examine how this was happening in Shan state.

Until 2010, Myanmar has been under a military dictatorship that controlled tightly the financial system. Only in the past couple of years have the number of banks in the country started to increase, but there is still a trust issue to be solved. Yet commerce continues to thrive using the traditional “Hundi” system to transfer funds using a network of agents, where paying someone in one location would ensure someone else will be paid in another location. Money also moved using transport systems (buses), as well as through family, friends and traders who would charge a fee for moving the money around. When borrowing from family and friends there are a whole set of rules governing how much interest is to be paid. Because there is a lot of competition among traders, the rates are quite reasonable. However the cheapest way is still through the Hundi.

Once the market opened up a variety of options like local banks, foreign banks and mobile money presented themselves as alternatives to ‘informal methods’ of transferring money. Despite having these options why do people choose to use cash and intermediaries? What value is in it for them and what trade-offs do they make?

The first trade-off that is often made is around getting paid. Using intermediaries ensures you get paid on the spot, even if you do get less money than if you did not. The second tradeoff is around distance. To sell things yourself you have to buy petrol for your vehicle and waste time finding sellers. Intermediaries remove this problem. Also intermediaries usually have some sort of industry expertise that makes using them worthwhile. Ethnicity matters as well. Thus, while farmers knew how to grow pineapples, traders knew Chinese and China is the market for pineapples.

Dr. Oreglia also spoke about the special trade-offs that one needs to keep in mind when operating in a country like Myanmar where technology has come along with very deep political changes. She noted that given how predatory the state has been in the past, keeping a low profile, and maintaining anonymity was perceived to be better than show too much cash. With a history of events like Indians being sent out in the 1960s and Chinese in the 1970s, there was always a fear that if you were a minority, you may be sent out overnight, which encouraged certain ethnicities to stay below the radar where possible. An interesting thing to look out for in future research would be to see how a traditional system like the Hundi may itself want to use digital money to increase efficiency.

The discussion session that followed the talks focussed on how disputes could be settled in a smart contract scenario (especially where the verifiability of events was difficult- such as whether an incident was indeed an accident) and how privacy is ensured. The take of regulators on the use of bitcoin and smart contracts was also brought up. A question also wondered whether the traditional role of an intermediary as replicated in any way through blockchains, while another considered if the degree of monetization in a community shaped how useful digital money could be versus cash.

Commenting on different scenarios for the future of financial transactions, the panellists agreed that it was useful to think in terms of tradeoffs and the values that intermediaries/ cash brought to transactions. This allowed one to think about which aspects technology could help with, and which ones it might be useful to leave to humans.

Closing Remarks: Logging out

The first set of closing remarks was delivered by Dr Usha Vyasulu Reddy, Advisor at the IIITB Centre for IT and Public Policy. Dr. Reddy drew on her years of involvement with national and international agencies in the deployment of communication and information technologies for education and development to make her comments. The second set of closing remarks was delivered by Dr Chiranjib Sen, economist and faculty member at Azim Premji University, Bangalore.

Dr Reddy summarized the day saying that when we started out, we realised that there have to be several key factors to differentiate between financial inclusion, exclusion and degrees of access. What does one mean when one talks about the ability to work or the lack of an ability to work? Is digital technology only good? What are the barriers to financial access and awareness - fear, suspicion, health etc. Technology and technology design need to strike a balance between the design of the interface and the humans it is being designed for. We also need robust governance on issues like privacy and security. We need some deregulation and some regulation. She spoke about the need for balance between human and digital intervention and the need for investment in social capital. Finally, we saw that we have need for both formal and informal systems of finance - how to bridge the gap between these two systems will be an interesting problem to solve.

On the second session, Dr.Reddy spoke of its attention to reducing costs, and consequently, a need for competition and to bring in more and more people onto the digital platforms. She also observed that we saw a distance between social and technology goals, even though both had the same intentions. She emphasized the need to look at social, political Relationships and power relationships that acme up repeatedly through the sessions.

In the third session, the participants had a peek at the kind of future that is possible using digital. What kind of future do very newly emerging digital societies like Myanmar and Kerala have? The question was also whether they wanted to be digitally included.

Referring to people at the 'bottom of the pyramid,' Dr. Reddy pointed out that the poor know their own mind. We need to design user demand driven technology for them. Dr. Reddy said she felt that it is important to involve the people from different disciplines and gender to identify what we need to do. She concluded by saying that what emerged at the workshop was a plethora of knowledge, but we had only touched the tip of the iceberg.

Dr. Chiranjib Sen's closing remarks reflected on financial inclusion within a larger history of development. He suggested that we were at an epoch of change which would have a deep and lasting impact on society. We are opening up and linking a large number of people for the first time. Digital financial platforms are very efficient, however they are primarily an individualization effort. The mechanisms that have been constructed support the individual. There is a lot of excitement among the people who see it as a new business opportunity. But how will this approach affect poor rural communities?

Like many things there is a threshold in terms of intellectual, knowledge and language capability that you have to cross to be able to use digital financial platforms. There are accepted levels of capability for you to become a member of the club of users. Digital financial platforms are only useful for members of the club. For others, it is not.

Following Partha Chatterjee, Dr. Sen spoke of two categories of people: the first a civil society moving into bourgeois democracy and the second one which comprises others who cannot sustain their daily life without illegalities. How would the second category of people react to technology? And in the first place do we even know what they want? Are we trying

to interpret their needs and offer them financial access which may be more useful to a high net worth individual or a middleclass person? So the question is, “Do we want to stimulate development or go for financial expansion using financial inclusion?”

So, it is worth asking why we want financial inclusion in the first place. You can give the poor cheap financial access. However, along with that comes the issue of risk premiums. The industry is trying to counter this by collecting as much data about individual households who are on the brink of survival. This is not a solution. The problem has to be solved in a cumulative way. Dr. Sen spoke about the need to look at what development is needed and gave the example of ‘Kutumbashree’ community service which is beyond micro finance and included things like entrepreneurship, education support, tuition support for needy students and the integration of the program into politics through the local panchayat. Now if we want to bring in financial inclusion into this, we need to think of appropriate technologies to strengthen the local community based interaction along with community development.

What kinds of interventions are required? The first step is to enhance capabilities - literacy, political ability, financial literacy etc. To do this needs social capital. You mustn't use any form of intervention that breaks up social capital. In villages and rural areas where markets are not fully developed social capital is very important. We are living in an era where community is under attack. For a long time we've tried to ignore the fact that the big market drive has worked to erode community. The question is whether or not we would like to speed up the break-up of community.

Now what is wrong with breaking up communities? For starters it will result in an unequal distribution of capabilities. Financial inclusion cannot create growth by itself. Many things have to happen simultaneously. You have to build up an infrastructure. Communities will not last forever. We have to accept the fact we are moving towards individualization. But communities should not be destroyed before they are ready to go. At the moment, we cannot push individualization. We need intermediaries. However you cannot introduce only profit seeking intermediaries, you need intermediaries who are not-for-profit and they need to be committed to development. You need trustworthy intermediaries. You can't cheapen development by depending on elementary intermediaries. They have to fade out. Dr. Sen concluded by saying that we have to invest in community and then unleash the individual.

The closing remarks provoked questions about communities, their importance to societal development, and whether they can be said to be breaking up or were merely morphing. Following the discussion, Dr. Oreglia concluded the work shop noting that while it had started from a perspective of technology, in the end, social issues and community were “brought back with a vengeance.”