

Note on Technology Challenges Faced by IFMR Trust

By

Bindu Ananth¹

The IFMR Trust is interested in finding practical solutions to challenges faced on the ground in the areas in which we are involved. These challenges are listed below in their order of priority / urgency:

1. Financial Engineering for Low Income Households:

Design of personal finance and wealth management strategies for low-income rural households and migrant households, which could involve investigations into household psychology, anthropology, moral hazard and adverse selection. The partner entity here would be IFMR (www.ifmr.ac.in), a Chennai based Business School and IFMR Trust (www.ifmrtrust.co.in) – a non-profit Trust which is keenly interested in these issues.

Contact person: amit.shah@ifmrtrust.co.in

2. Architecture and Design of Financial Service Branches in Remote Rural Locations:

IFMR Trust (www.ifmrtrust.co.in) has incubated three financial institutions - the Kshetriya Grameen Financial Services (KGFS), that are working in remote rural locations in Tamil Nadu (Southern India), Orissa (Eastern India) and Uttarakhand (Northern India / Himalayan Foothills). These institutions need to create branches that are **welcoming, environmentally friendly, professional, cost-efficient and consistent with local designs** and styles while not necessarily looking completely identical to local dwellings.

Contact person: kumar.kunal@ifmrtrust.co.in

3. Technology Inside the Branch:

A number of challenges need to be addressed here:

- a. Technologies that uniquely and optimally identify customers are essential. KGFS' are currently using biometric authentication supplied by an investee company (www.fino.co.in) and are keen to explore next generation technologies for this work.
- b. Low-cost computing and data entry devices that can be carried on the field by branch officers and which can later be synced with the client database.
- c. Stable connectivity solutions with sufficient bandwidth to support real-time online financial service provision, particularly in mountainous regions remains a challenge. KGFS' have tried a number of ways with limited success and are keen to investigate newer methods to address the issue.
- d. Other issues around photographs of customers, live-videos of customers (for financial services and health care), electronic records (including Electronic Health Records), management of thin-client / thick back-end computing environments to give a single customer view, interface with multiple back-ends, middleware type issues also need to be addressed in order to develop a high quality financial services / rural wealth management programme that actually transforms lives of rural households.

¹ Bindu Ananth bindu.ananth@ifmrtrust.co.in is the President of IFMR Trust (www.ifmrtrust.co.in).

- e. As a specific solution they are looking to improve upon their current design of detecting counterfeit notes – they would like to reduce costs and improve accuracy.

Contact person: raman.taneja@ifmrtrust.co.in

- 4. **Rural Energy Solutions:** Working with DESI Power, Shell Foundation, World Resources Institute and others the IFMR Trust (www.ifmrtrust.co.in) has made a number of investments. However, a number of issues they still need to solve:
 - a. Economic modelling: when is a particular energy technology applicable and when do hybrid solutions make sense? – grid versus solar versus biomass re-gasification versus solar thermal versus better batteries versus wind. Algorithms and models to help make that determination.
 - b. Technology: what is state-of-the-art in the space? And where are technological solutions headed? – What kinds of investments are good to make now and which ones are best postponed?
 - c. Retail solutions – household level / enterprise level: Which ones make sense and why? Currently they are trying to solve both technology and distribution challenges. A number of providers claim to have “the” solution to solar lighting for example, however, ground level experience seems quite varied. They are in the process of launching a website (jointly with IIT, Chennai) which will allow innovator-manufacturers and distributors to connect with each other and jointly seek feedback from actual users.
 - d. Wholesale Solutions: There is a high degree of lack of clarity on which technologies and distribution models are appropriate at the village level. The IFMR Trust (www.ifmrtrust.co.in) has funded a few bio-mass based 10 to 15 KVA plants in rural Bihar but are not yet clear on which models would work best. We are also exploring the feasibility of a Rural Energy Services Company.

Contact person: rahul.bagdia@ifmrtrust.co.in

- 5. **Drinking Water Solutions:** working with Water Health India (a wholly owned subsidiary of Water Health International), the IFMR Trust (www.ifmrtrust.co.in) has become the largest financier of rural commercial drinking water solutions. Now they would like to determine if there are:
 - a. Simple and cost-effective diagnostics to determine the nature of groundwater impurities.
 - b. Newer technologies that would reduce costs further and allow for a longer plant life?
 - c. Newer distribution models – currently either the households come to the plant or young men on cycle-carts distribute them house to house in 5 gallon / 20 litre cans.
 - d. Simple anti-tamper technology for drinking water plants.

Contact person: nayantara.kothari@ifmrtrust.co.in

- 6. **Dairy and Livestock Solutions:** IFMR Trust is seeking to develop a new approach towards providing dairy and livestock based livelihood solutions for smallholder farmers / land-less labourers. They are facing a number of problems:

- a. Identification of Livestock – they are currently using RFID tags attached to the ear of the animal. This is an expensive and fraud prone solution. Some of biometrics, in their view, would be ideal but they are not aware of any solutions in this area.
- b. They need to intervene in improving the health and productivity specifically of cows, buffalos and goats. Here, the need is for simple ways to maintain electronic animal health records and provide reminders for vaccination.

Contact person: avishek.gupta@ifmrtrust.co.in

7. **Point of Care Diagnosis:** IFMR Trust has partnered with the IKP Centre for Technologies in Public Health (www.ictph.org.in) to develop wellness (as opposed to illness) focussed, “fixed-price-health-care” solutions for rural households (as an alternative to merely offering rural health insurance and taking no responsibility for health care). They have one field site comprising three villages in which they have begun operations. They are at an early stage of work here and need to find solutions to a number of problems:
 - a. Identification of causal linkages between diseases and community / household / individual behaviours.
 - b. Development of strategies to modify these behaviours so that wellness outcomes improve. – Preventive Outreach and Behavioural Change Communication Strategies
 - c. Low cost diagnosis technology (like the Tele-microscopy work at the University of California, Berkeley) so that an early Triage is possible.
 - d. Integrated platforms e.g. EHR (Electronic Health Records) for supporting continuous care – primary, secondary, tertiary and follow-up care.
 - e. Low cost early treatment approaches that may be implemented at their Rural Micro Health Centres (RMHCs) which are staffed by well-trained nurses (and not doctors).
 - f. Low cost supportive technologies for their volunteer field force of community health workers (such as smart-phones).
 - g. Low cost facilitative technologies for the volunteer work force for data collection, patient follow-up (drug adherence) – MIS (Management Information Systems for Primary care and Outreach managed by the Volunteer workforce.

Contact person: zeena.johar@ictph.org.in