

Microsoft Research India

- Established Jan 2005 - Bangalore
- **Goals**
 - World-class academic research
 - Contributions to Microsoft products and businesses
 - Support growth of research programs in India and elsewhere
- **Six research areas**
 - Cryptography
 - Digital Geographics
 - Hardware, Communications, and Systems
 - Multilingual Systems
 - Rigorous Software Engineering
 - **Technology for Emerging Markets**
- Collaborations with government, academia, industry, and NGOs



Computer-skills camp in Nakalabande, Bangalore (MSR India, Stree Jagruti Samiti, St. Joseph's College)

Understand potential technology users in economically poorer communities

Adapt, invent, or design technology that contributes to the socio-economic development of poor communities worldwide

<http://research.microsoft.com/india>

Costs, Contacts & Convenience

Leapfrogging
Access to
Finance with
Mobile Phone
Technology

Microsoft Research India

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Mobile Phones & Access to Finance

FINANCIAL FACTORS



Are mobile-phone-based front-end channels automatically 'better' for microfinance?

SOCIAL FACTORS



By whom, how, and for what are mobile-banking services currently used?

INTERACTION FACTORS



What would it take for mobile-banking to be used by the most excluded?

Reducing costs of access to finance using technology

1. COST REALISM

Involved researchers: Aishwarya Ratan, Mahesh Gogineni, Shabnam Aggarwal

Mobile-based data exchange channels

not financially viable.

Stationery: ~5%

Back-office staff: ~15%

Rich data collection

Problem:

New Customer Profile Creation expensive and long-drawn process

Costs associated with:

Double data entry, Error correction, Data transport, Stationery, Back-office staff

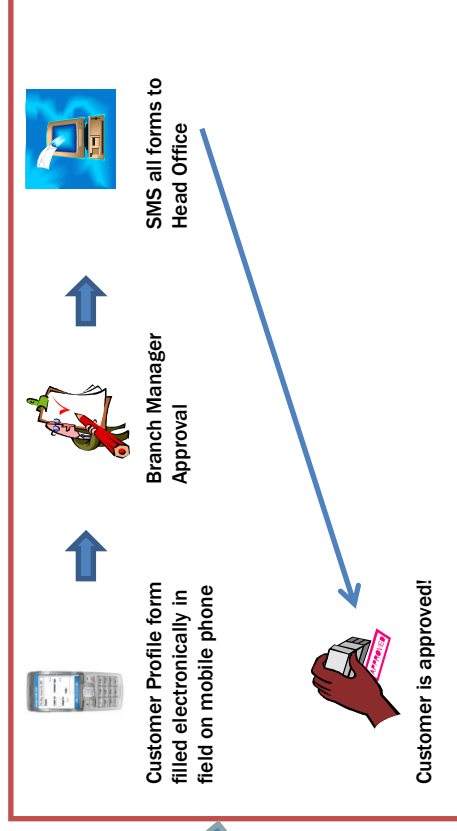
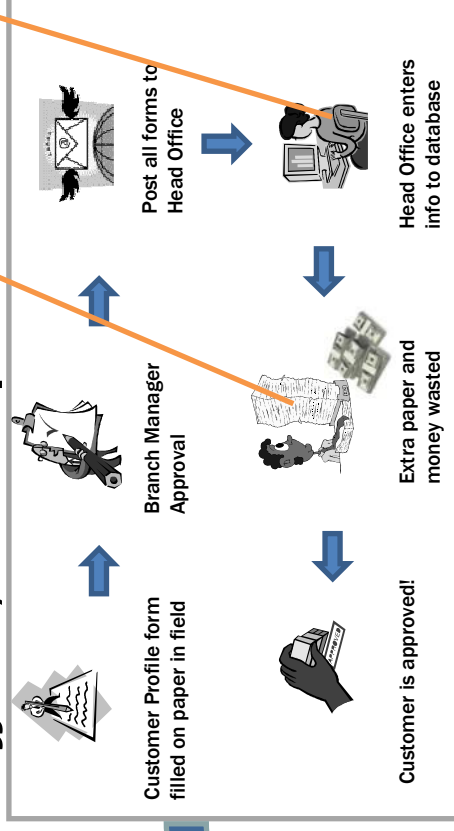
Original processing cost per form: \$0.46
Improved processing cost per form: \$0.2

Per form savings of 55%

BUT, heavy fixed and ongoing investments required, e.g. ~ \$280 smart phone per field officer

9% overall RoI, with only 44% of investment recoverable over 6 years' cost savings (NPV<0)

Ujjivan/ MSRI pilot - Urban



PC-linked manual front-end data channels sufficient

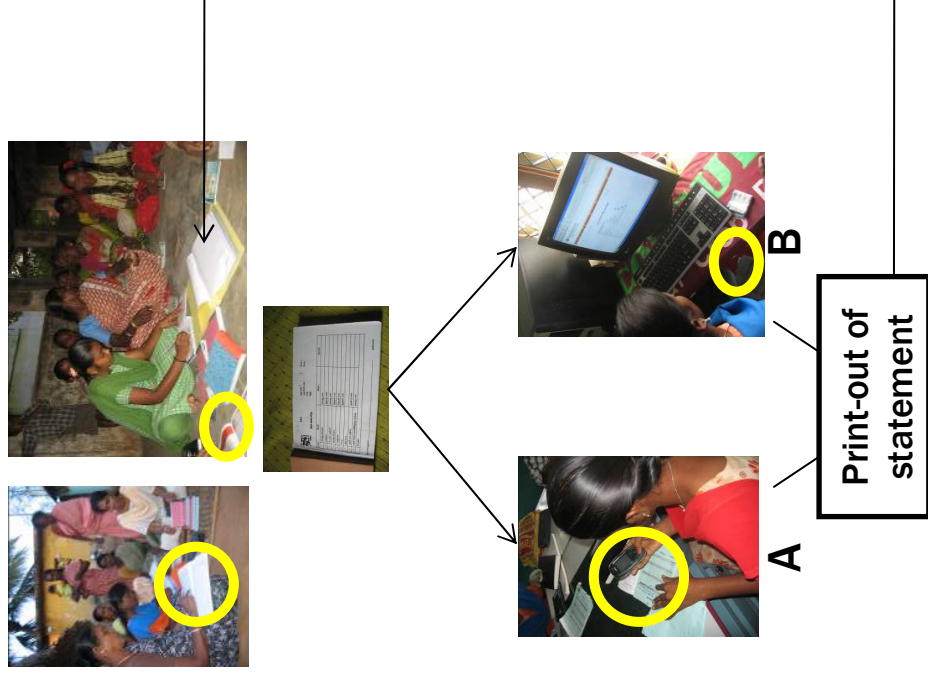
Lean data collection

- Monthly transaction data collection/processing
 - Pilot A: Mobile-phone-based data entry; data sent via SMS to MIS
 - Pilot B: PC-based data entry into web-MIS
- Efficiency of PC-based and mobile-phone-based data entry systems comparable
- Mobile phone used in/around PC location due to connectivity limitations

Gains from both channels similar, but costs of mobile-phone-based system >3x that of PC-based system

Need a business model to recover fixed investments/replace equipment over time (e.g. user fees)

CCD/ Ekgaon pilot - Rural



Takeaways on cost realism



- Essential to compute the actual cost savings from the introduction of the mobile phone delivery channel
- Need to have a specific business plan for the sustainability of the channel over time
- The viability of technology channels will increase when
 - DEVICE COST ↓
 - LABOUR COST ↑
 - LABOUR PRODUCTIVITY/ EFFICIENCY ↓
 - SCALE & SCOPE OF DEVICE USE ↑

Mobile phones are not very useful as front-end devices for data collection/ processing to enhance MFI efficiency, under present conditions.

Where can technology enable microfinance?

Back-end IS

1. Aggregation of client data
 1. Report generation
 2. Actuarial analysis
 3. Target offerings

YES

Front-end IS

1. Account creation (loan, savings & insurance)
 1. Collecting client data
 2. Screening/ verification
2. Transaction data
3. Processing claims (savings, transfers & insurance)

NO

Cash management/ e-payments

Transfer of value between MFI/bank and customer

1. Disbursal of amount (loan)
2. Collection of dues/ payments (loan, savings & insurance)
3. Cash flow management at remote locations

MAYBE

How is mobile-banking currently used?

2. SOCIAL CONTEXT OF MOBILE-BANKING

Involved researchers: Jonathan Donner

Does m-banking change social/economic relationships?

Great optimism around m-banking

“The transformational potential of m-transactions” (a Vodafone sponsored report)

“A solution which will change the world” (a foreign policy blogger)

“a leap from the world of cash to the world of cellular banking” (Economist)

Open Questions

M-banking can amplify or alter social & economic relationships...or both.

Documenting the amplification/alteration dynamic is key to developing a rigorous understanding of m-banking’s impact.

M-banking as an *amplifier* of existing P2P transfer networks?



Manila focus group

Two exploratory focus groups with ‘unbanked’ m-transactions users and non-users in Manila, June 2007

Results suggest remittances and local P2P transfers are

embedded in a context of **trustworthy familial relationships**

- Respondents had a limited number of transaction partners
- Mostly used to send/receive money from family (transfers among friends sometimes constitute loans)
- Several alternatives for domestic transfers exist for non-users: hand-carry, pawn shops, buses (phone ahead with the bus plate number), post office, etc.

M-banking lowers transaction costs and improves access (relative to traditional banks), but there is no evidence (yet) that m-banking results in new transaction partners.

Future explorations

- Many m-transactions will be between individuals, rather than between people and commercial entities
- Cost savings, security, and convenience will not tell the full story
- Social norms, interlocking networks, gifting and reciprocation behaviors will structure m-banking's adoption and impact



Making technology interactions simple and intuitive

3. INTUITIVE INTERFACES

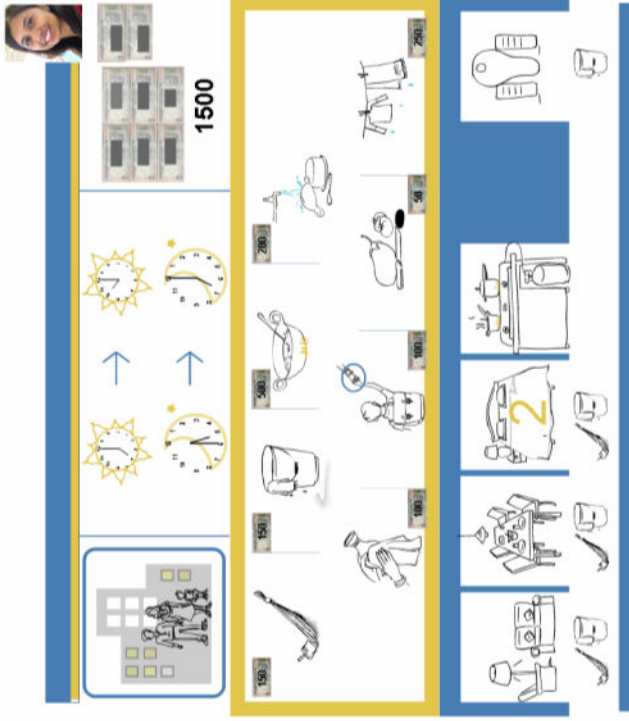
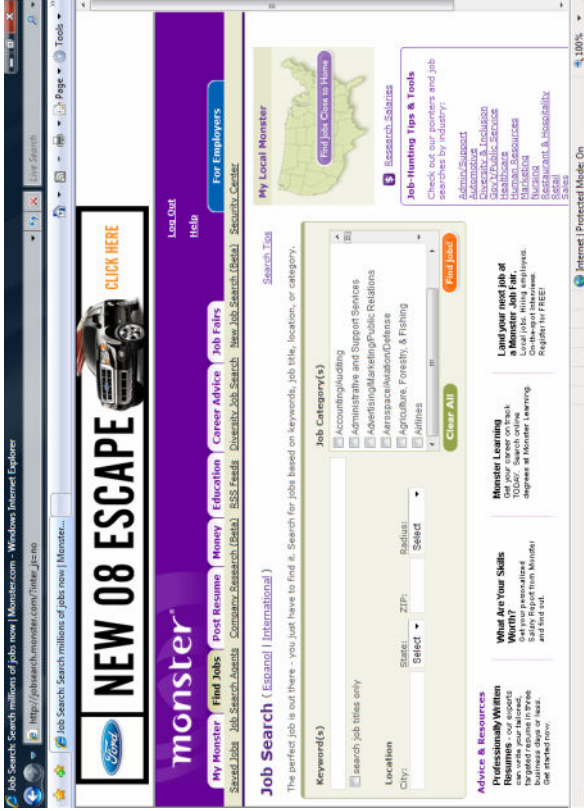
Involved researchers: Indrani Medhi, Kentaro Toyama

Why text-free UIs?

‘Monster’ for literate, English-speaking users

vs.

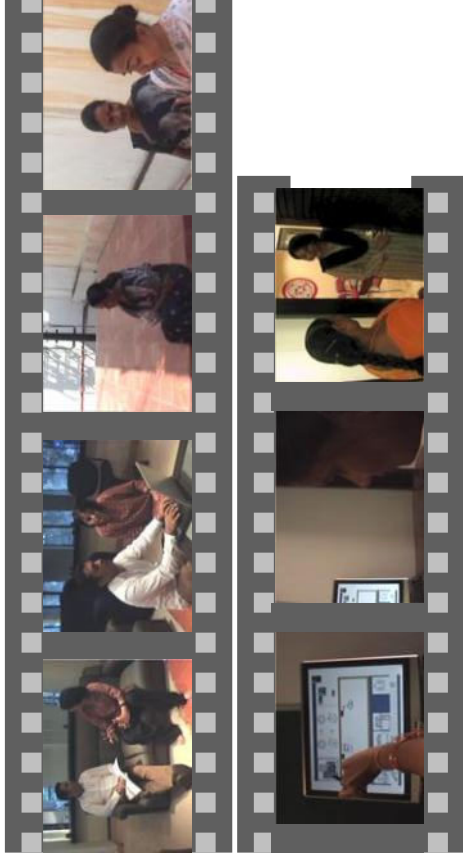
‘Monster’ for illiterate, non-English-speaking users



Design principles for “text-free”

PC interfaces

- Liberal use of graphics and imagery; use of static hand-drawn representations with voice annotations
- No use of text (numbers are okay)
- Voice feedback on all functional units
- Aggressive use of mouse-over functionality
- Consistent “help” icon on all screens
- A full-context video



A *full-context video* explaining the broader context of the application in addition to the instructional material about how to use the application



Explorations around mobile-banking

User Interfaces



- Are those who use m-banking illiterate?
- If yes, how are illiterate m-banking users currently using their mobile devices?
- Can there be a Text-free UI for mobile phones?
- What would mobile-phone interfaces for banking/ MFI agents look like?
- Are illiterate users currently using any other technologies for financial transactions? If yes, how?

Takeaways

‘Mobile phones for microfinance’ is not a single category!

- Major variations in...
 - wealth of clients/ location;
 - what the mobile phone is being used for;
 - who is using/sponsoring the phone;
 - what the phone is enabling;
 - expectations in terms of development.
- Understanding these variations and categories is critical for the roll-out of appropriate and useful mobile-based products and services, and for the achievement of significant socio-economic development impact



Thanks!

Those involved:
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Mahesh Gogineni, Sean Blagsvedt, Vibhore Goyal, Rajesh Veeraraghavan

Image credits: Pradan, CCD/ Ekgaon, Kamthaana, Stree Jagruti Samiti

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