Technologies Enabling Collaborations in Indian Context

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Collaboration

- Lots of standard collaboration software
  - Sharing, co-working on documents by remote teams
- Knowledge Repository
  - Creation and use
  - Best practices
  - Design inventories: do I have a part / design of a certain shape?
- Collaborative Design
  - Wiki

Inter-company Collaborations

As India develops rapidly

- India need strong product and services companies
  - which can make a mark at global scale
  - will require lots of R&D and product development
- Most companies do not have the requisite strength
  - Financial Resources
  - Human Resources
- Needs pre-competitive collaborations to get to next stage

Pre-competitive collaboration examples

- CAR: R&D in auto-industry initiated by Scientific Advisor to Cabinet

- CeWiT & BWCI: 4G Wireless Technology
  - Lead by Academia
  - Has operators, technology developers and government
  - Define India's Requirements and push into 4G standards
  - R&D leading to IPR in standards
  - Test-bed set up
  - Development of subsystems and inter-operation testing
  - Can we build a Indian telecom product company
  - India's telecom import bill second to oil-imports

Pre-competitive collaboration examples

- TCOE
  - Six operators, DOT and Academia initiative
  - to set up six TCOEs at IIT Delhi, Bombay, Madras, Kanpur, Kharagpur and IIMA
    - Coordination Center at Delhi

- MPFI
  - Lead by RTBI (IITM) and IDRBT (RBI)
  - Most banks, telecom operators, technology providers
  - Defined Mobile Payment Guidelines
  - Defined Inter-operation guidelines
  - Enabled formation of NPCI for switching and settlements
  - Policy, Technology, Standards, Inter-operation test Labs

Pre-competitive collaboration examples

- NIXI
  - Formed by academia, DIT and ISPs in India
  - Internet Exchange so that our traffic stays in India
  - Domain names “.in”
  - NIR
- Cellular Base Stations
  - Cost of energy in remote base stations form the major OPEX for telecom operators
  - Optimization require expertise in power convertors, batteries, heat flow, network managemnet
    - Not possible by single organisation

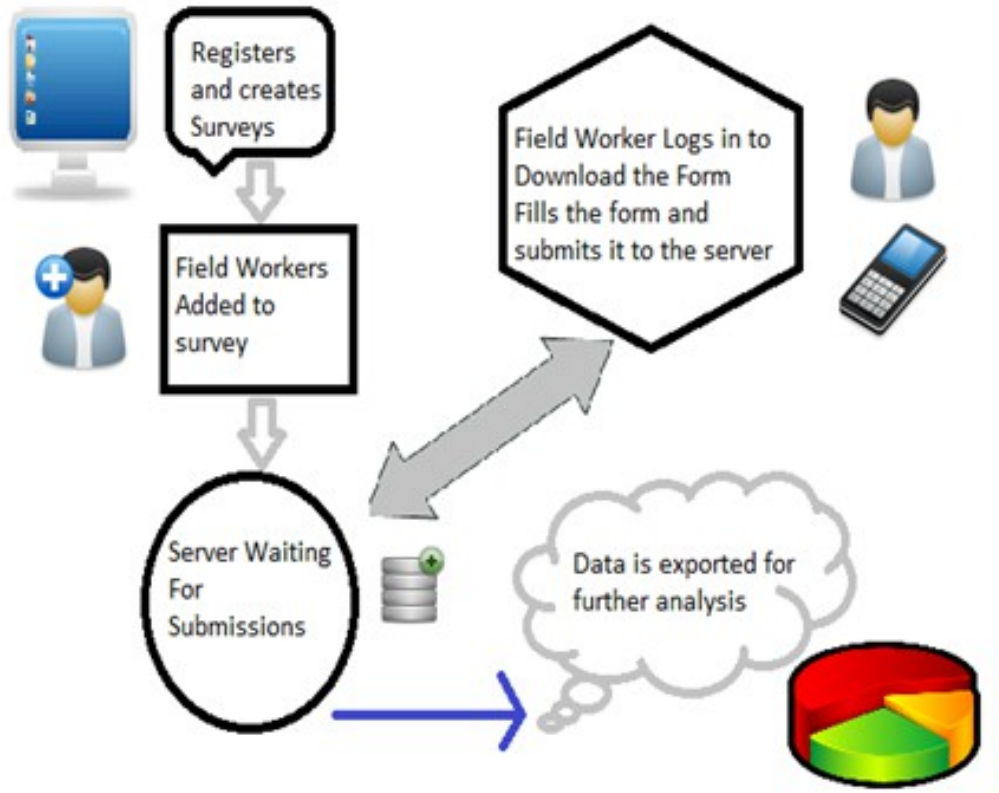
- Collaboration enabled by Communications in a Distributed Enterprise (Rural Focus)

1. Mobiles are everywhere

- Sales, Logistic, Transport people continuously on move
  - Use voice calls on Mobiles to stay connected
  - Too much overhead: a supervisor can handle only so many people
  - Data and Instructions can be erroneous
- MINED: Mobile Interface to Enterprise Database
  - Enables people on move to stay connected to Enterprise Database using Mobile

MINED- Mobile Interface to Enterprise Database

End to end mobile data interface tool enables organizations to quickly create applications to be accessed by Field workers with a low end mobile phone with GPRS. The Field workers can now submit and receive data and instructions instantaneously from enterprise database



Features :

1. Web based interface for form creation using a drag and drop Toolbox.
2. Field-worker/End-user Management
3. Provides Access privileges to users
4. Various form field types like dropdown, checkbox, radio button, text field, date field, etc
5. Export to CSV & XLS formats for analysis
6. MIDP2.0 compliant Mobile Java Client application
7. Online and offline modes for Various Network Scenarios

MINED- Mobile Interface to Enterprise Database

- **Used in following application scenarios** :

NREGA Impact Appraisal Survey

- Conducted across 5 different districts of Tamil Nadu and collected about 1500 entries of 72 questionnaire in Tamil

Resume Collection – A Rural HR Company

Retailer Based Application for remote sales ordering and order consolidation

Real Time Online Testing and Learning Application

Possible Usage Scenarios Include :

·Rural Healthcare

·Census

·Agriculture

·Education

·Ordering and Sales

·Microfinance

2. Authentication

- Four levels depending on requirement
  - Level one: CLI from mobile
  - Level two: PIN
  - Level three: complex password
  - Level four: voice authentication (bio)
  - UID may be available some day and may be added when needed

3. Security

- Standard Encryption
- Complex Encryption valid only for specific user, specific interface device (mobile, laptop, tablet) at some specific times
- One can also have select field visible only during pre-defined times
  - An enterprise server controls access

4. Geographic Location

- GPS
- Mobile Software can figure out approximate location of a mobile
  - entered as a field when an agent access enterprise database
  - Can keep track of vehicles, field staff

5. VoMINED

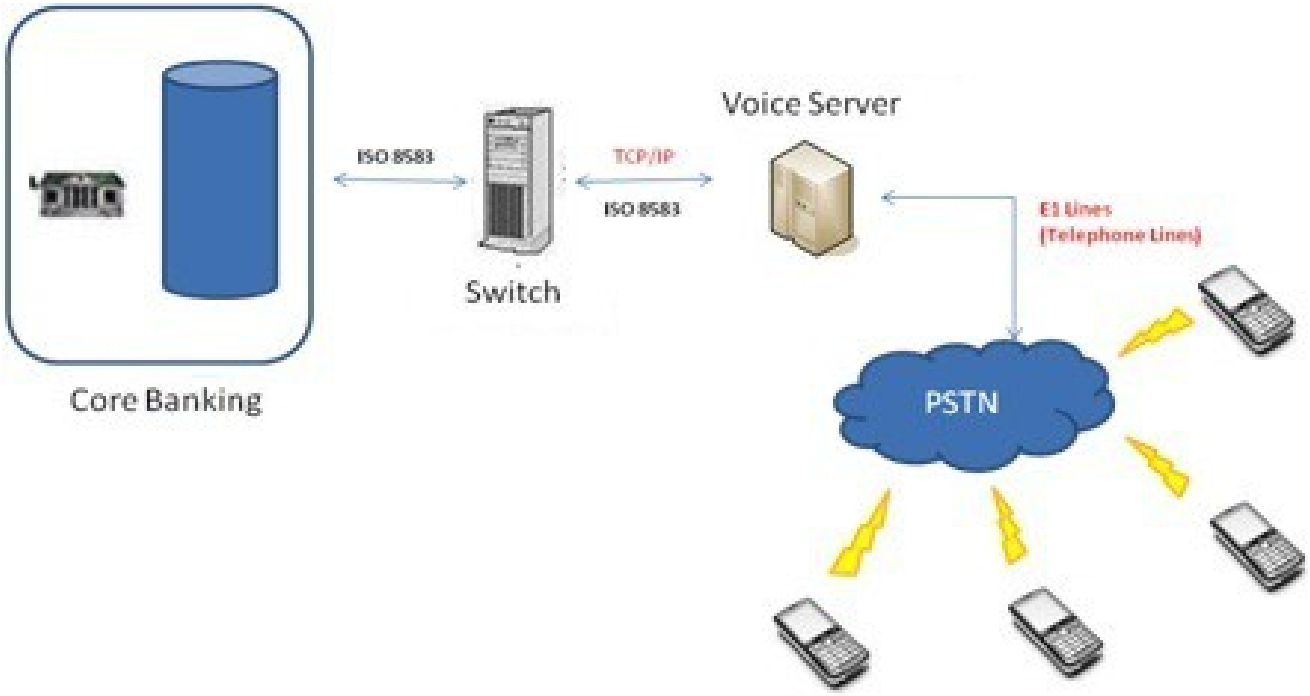
- MINED requires data input and output
  - Many semi-literate and illiterate people can not use it
  - Many others may find it inconvenient at times
- Voice enabled MINED
  - all inputs using voice
  - Server will convert voice into data
  - outputs using voice or data interface

6. Mobile Payments

- Person to merchant and Person to Person instant payments
  - From payer's bank account to payees account
  - Need payees mobile number and MMID only
  - No need of Account number, bank name and branch

Voice Based Mobile Banking

an interactive Voice Mobile Banking application performing balance checks, account transactions, payments



Features:

1. Real time transaction with banking systems over ISO 8583
2. Voice Biometrics based authentication
3. Speech recognition based IVR applications in multiple languages
4. Real time print receipts
5. Transaction confirmation over SMS

7. Video: a great tool

- Finally video communication is real
  - High quality video conferencing saves time and money
  - Enables collaborative Reviews, design and operations
- Remote Video Surveillance
- Use of video for training, monitoring

To Sum Up

- India needs lost more collaborations required than competition
- Technology can play a key role