

# Mobile Payment Architectures for India

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- **The power of mobile money**  
*The Economist*  
24<sup>th</sup> September, 2009
- Has a direct impact on economic growth:  
an extra 10 phones per 100 people in a typical developing country boosts GDP growth by 0.8 percentage points  
(World Bank)

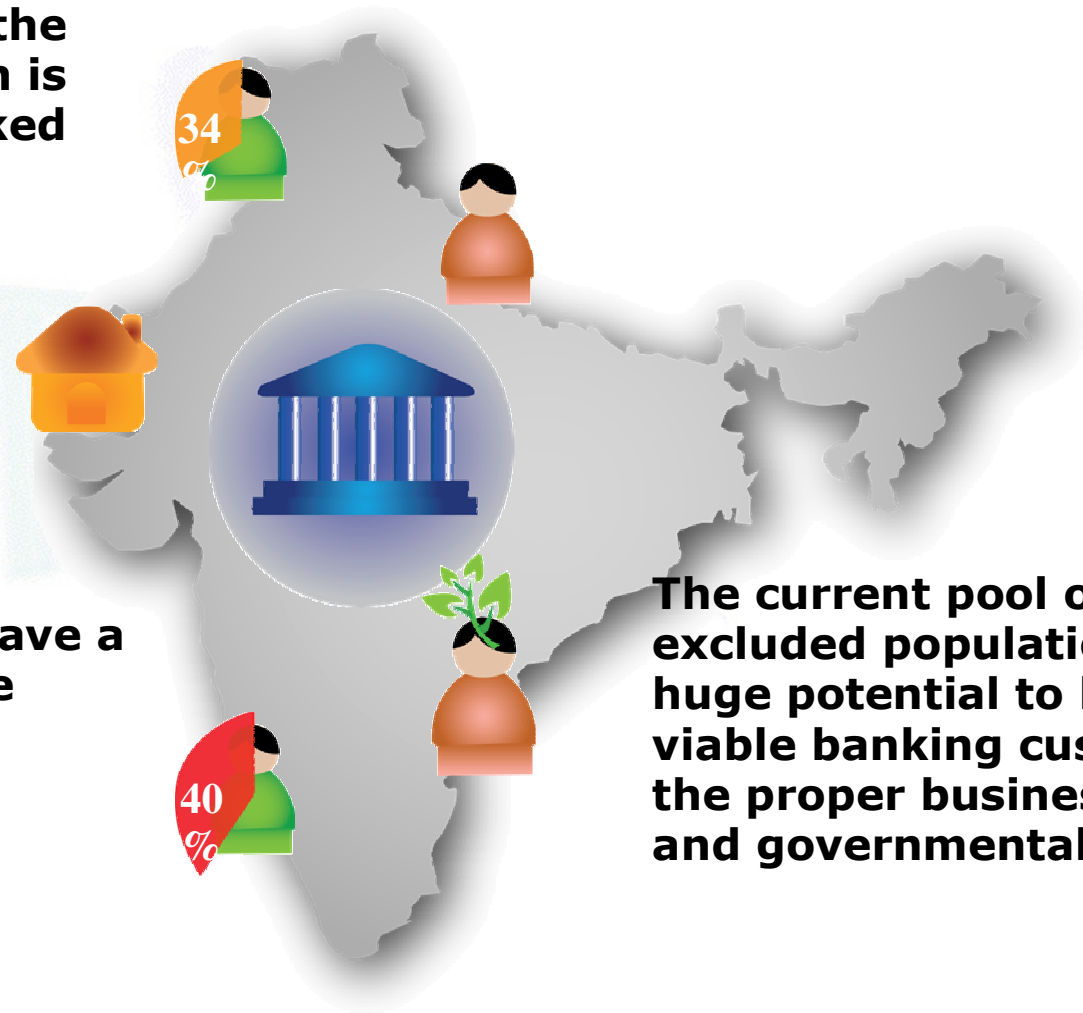


# Some statistics for India

**About 34% of the Indian Population is formally banked**

**About 135 million households in India are not formally banked**

**40% of Indians have a mobile phone**



**The current pool of financially excluded population has a huge potential to become viable banking customers with the proper business model and governmental support.**

# TELENET Mobile Payment Forum of India (MPFI)

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- Joint initiative between IITM's RTBI and IDRBT in 2007
  - Rural Technology & Business Incubator (RTBI) setup by IIT-Madras
  - Institute for Development and Research in Banking Technology setup by RBI
- MPFI is a forum with a mission to enable mobile payments in India with secure and low-cost transactions
- Over 70 members from financial and telecom sectors, technology providers and regulators/government

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- **Technology Committee:**
    - Examines technology alternatives
    - Developed interoperability standard
    - Chair:
      - Mr. G.S. Shekar, FSS (2008)
      - Mr. Jambunathan, SBI (2009)
  - **Business Committee:**
    - Examines business aspects of mobile payments
  - **Executive Committee:**
    - Overall policy and operations

# A mobile payment system

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- **Mobile Payment**
  - where a mobile phone is used to initiate, authorize and confirm an exchange of financial value in return for goods and services
- **Mobile Payment Provider**
  - a logical entity which facilitates financial transactions between mobile phone customers
  - examples: mCheck, ngpay, Obopay, PayMate

- Users
  - Flexibility
    - Pay and purchase while on the move / no exchange of cash
  - Access
    - Overcome inadequate infrastructure / catalyst for financial inclusion
- Merchants
  - Cost
    - Cheaper than credit card payments
  - Market reach
    - Penetration of mobile phones far more than credit cards

# Regulatory Environments



## Minimally Regulated Market

- Allows Telco to handle subscriber's cash with a telco account & allows telco to accept and disburse cash from its outlets



**Moderately Regulated Market** Allows Consolidated Account models where Private Companies can operate M-Payment services as licensed money transmitters



## Highly Regulated Market

- No consolidated Accounts permitted and only Banks are entitled to offer Mobile Payments services





- **Universality**
  - Allow Business-Business, Business-Customer, Customer-Customer
- **Usability**
  - Simple: Only digits to initiate a mobile payment transaction
- **Security**
  - Fraud at the user level
    - Two factor authentication (as per RBI guidelines): PIN and Mobile Number
  - Channel: based on normal security protocols
- **Cost**
  - Cheaper than existing payment mechanisms
- **Speed**
  - Minimize transaction delays
- **Interoperability**
  - Development should be based on standards and open technologies

- Users *must* register default bank account number
  - Choice with multiple bank accounts supported
- Payment initiation methods
  - *Pull* and *Push* supported
- Settlement between banks
  - Initially using the NEFT standard
- Message formats
  - Based on ISO 8583
    - Indian banks for payments and real time transactions
    - Example: ATM and credit card payments

- Interoperability standard for Mobile Payments
  - Accepted by the Mobile Payment Forum of India
- Development of a certification lab
  - Currently underway at IIT-M
- Prototype development based on developed standards
  - 3 banks are developing a prototype
- Conformance testing of the prototypes
  - Certification by IIT-M

- Further information
  - Mobile Payment Forum of India: [www.mpf.org.in](http://www.mpf.org.in)
  - IDRBT: [www.idrbt.ac.in](http://www.idrbt.ac.in)
  - RTBI: [www.rtbi.in](http://www.rtbi.in)
  - Reserve Bank of India: [www.rbi.org.in](http://www.rbi.org.in)
- Acknowledgements
  - Mobile Payment Forum Technology Committee