



Mobile based Financial Inclusion

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Financial Inclusion



- Financial Inclusion
 - Not only a local issue to any country, but a global issue
 - Definition: Ability to provide access to banking, credit, insurance and remittance services for people who don't have access
- Let's look at the opposite – Financial Exclusion
 - Definition: Inability to access financial services due to problems of access, conditions, prices, marketing or self-exclusion
 - No single comprehensive measure that can be used to indicate the extent of exclusion
 - Number of bank accounts and branches provide only partial information about level of the exclusion



Universal Access of Financial Services: What & How?



- A large number of population in India has
 - no bank account
 - no affordable credit
 - no (access to) financial advice
 - no assets to serve as means of employment besides serving as collateral
 - no access to safe money transfers
 - no insurance
- Challenges
 - It is estimated that by 2020 nearly 600 million new customers' accounts will have to be opened
 - Though nearly 25+ million accounts have been opened up there are hardly any transactions in these accounts
 - Viability of the business model is the key for the service providers
- Given the present network capacity of formal banks, it might be difficult to include these large numbers or to have universal access of financial services without first
 - building up and enlarging the network
 - developing customer-centric products
 - simplifying processes and
 - setting up hassle free, low cost & appropriate technologies

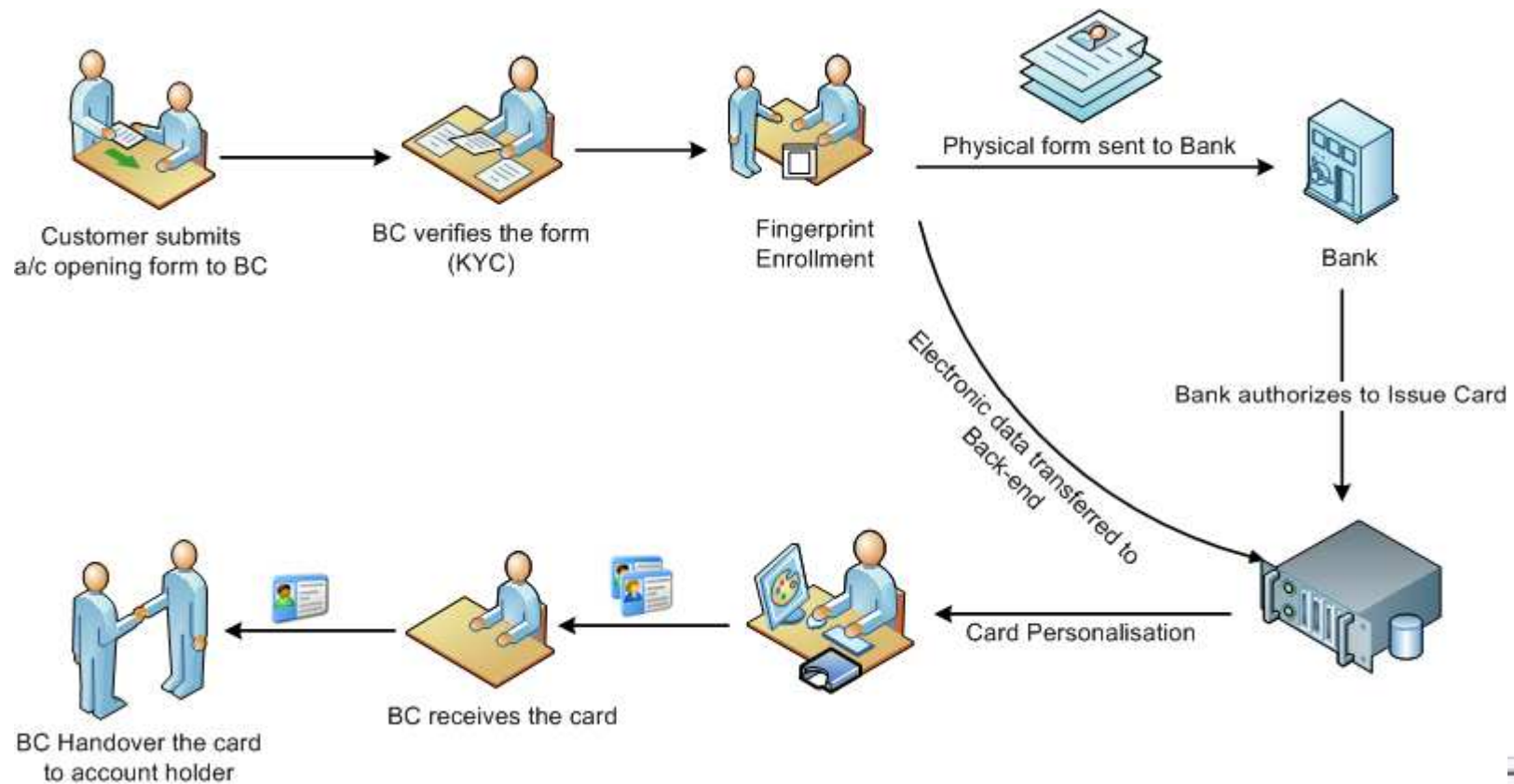


Financial Inclusion – Current Scenario

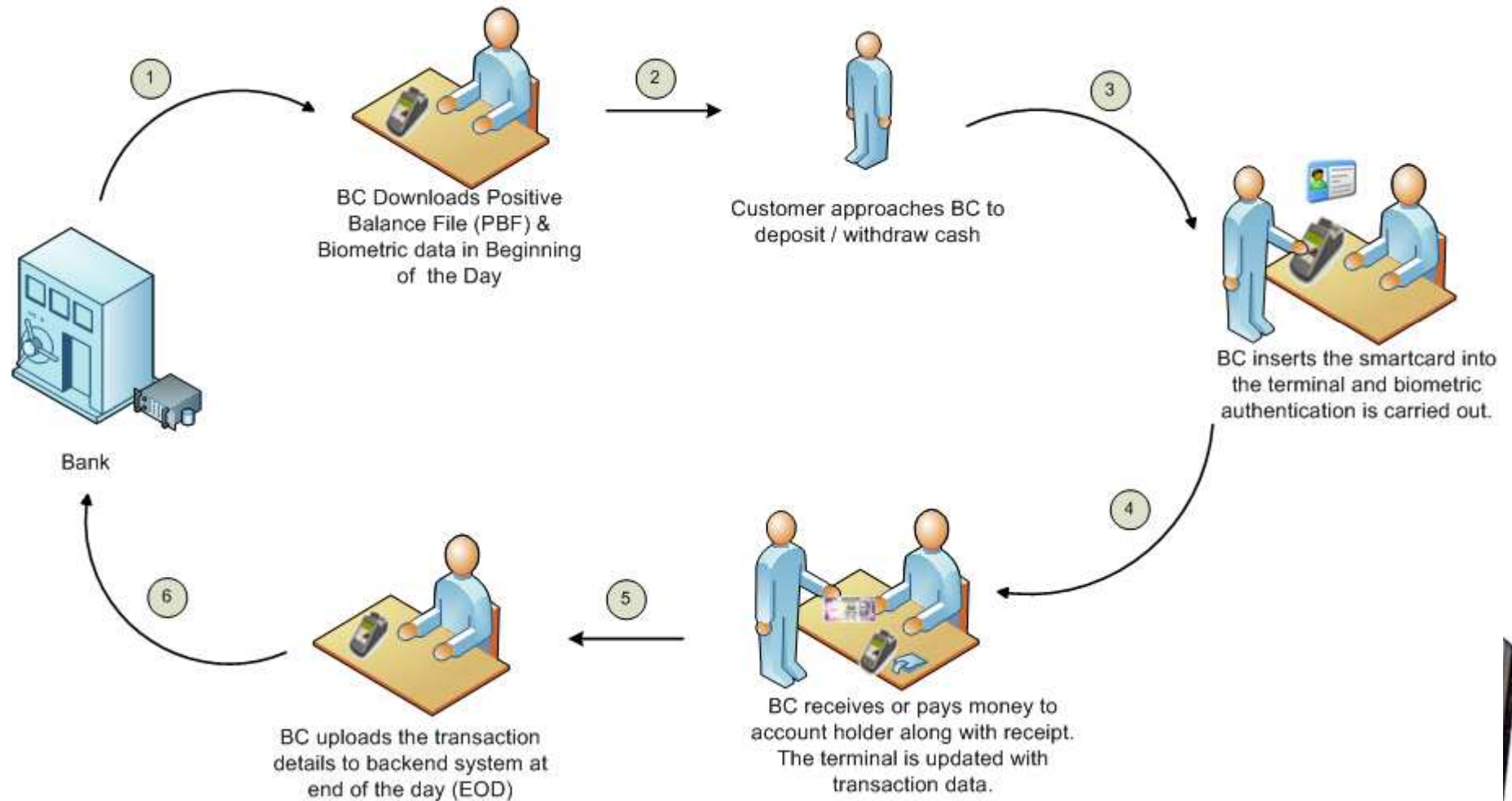
- Smartcard based System
- Fingerprint Biometric authentication
- Dedicated Terminals are used to carry out transactions
- Proprietary Technology solution by Technology Service Providers (TSP) to Banks



Financial Inclusion – Enrollment Process



Transaction Process

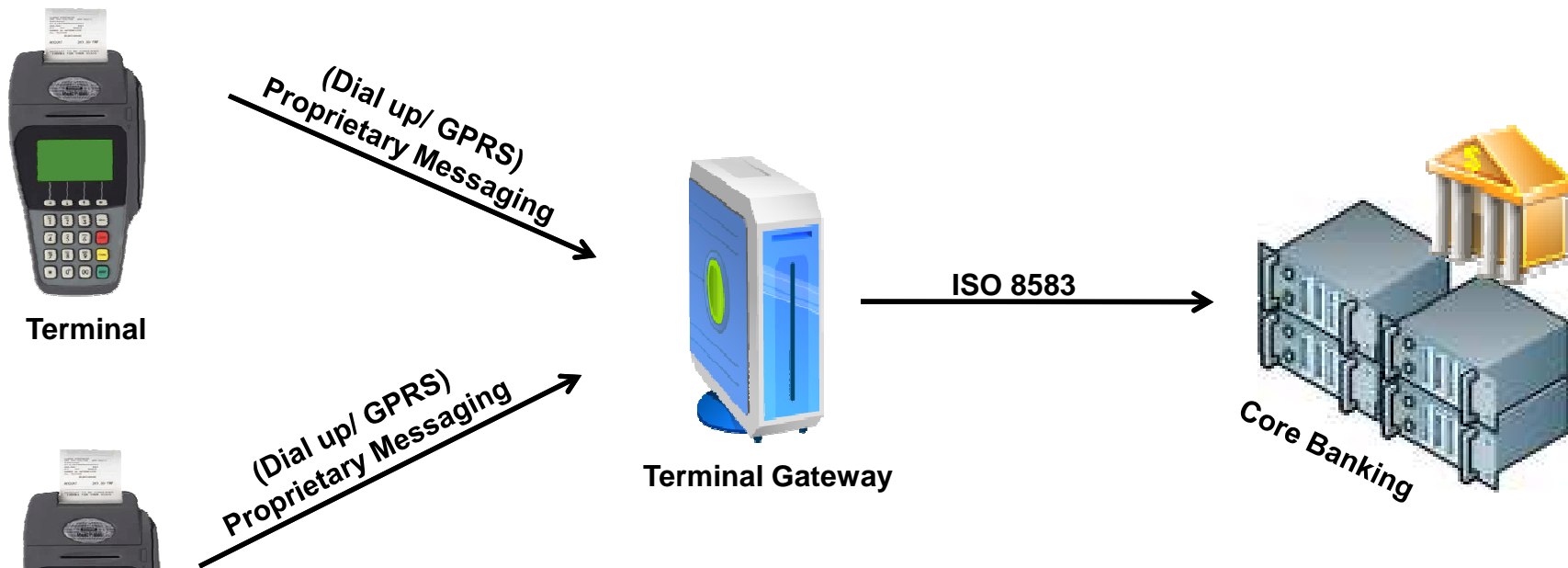


Transaction Flow

- Start of the Day Activity
 - Download Positive Balance File (PBF) from CBS
- Transactions
 - Validate customer offline with Smartcard & Biometrics
 - Conduct offline transactions
 - Print receipt
 - Update terminal with Transaction Details
- End of Day Activity
 - Upload Transactions to CBS



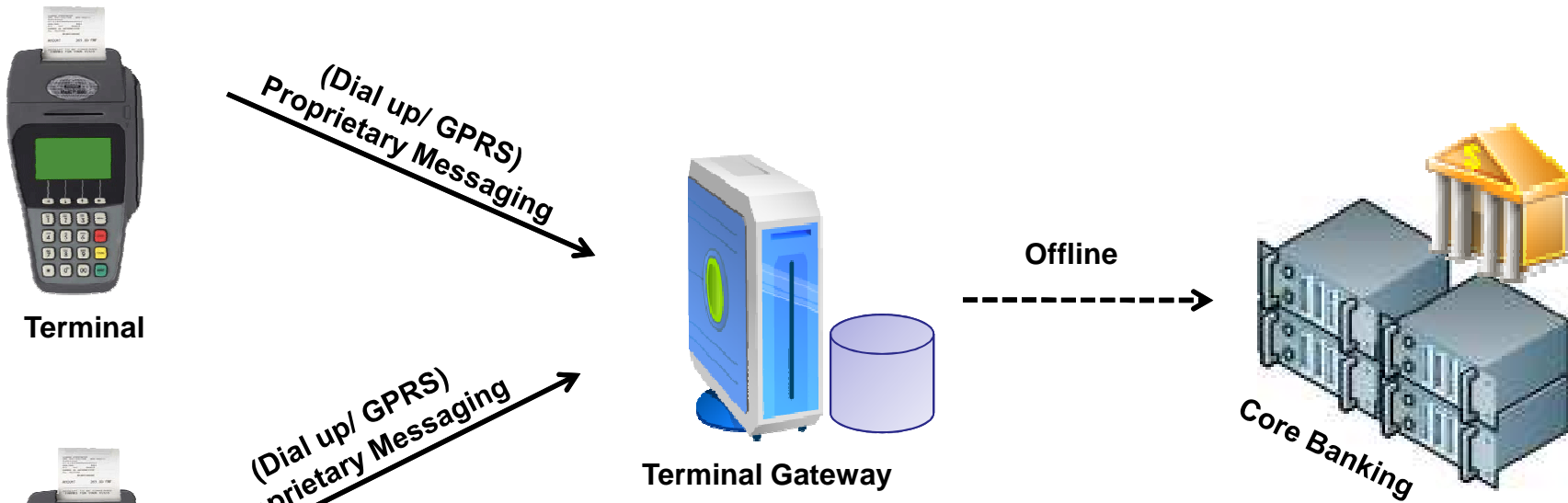
Bank Connectivity – Pass through



CBS maintains accounts of all the FI account holders and terminal gateway acts as a gateway between Terminal and CBS.



Bank Connectivity – Micro A/C Host



CBS maintains Pool account consolidated for all FI account holders. Terminal gateway maintains FI customers accounts and the transaction details.



Issues in the existing system



- Terminals are expensive
- Customers are always associated with one BC/
Terminal
- Smartcard based
- Offline transactions
- Non-Interoperable (Banks having more than
one BC)





Financial Inclusion through Mobile

Some Insights

- **Mobile revolution :**

o Population	1.112 Billion
o Fixed Subscribers	50 Million+
o Mobile Subscribers	<u>500 Million+</u>
o Internet Subscribers	9.22 Million
o Broadband Subscribers	2.67 Million



Why Mobile Phone ?



- Penetration – There are more than 500 million mobile phones in this country
- Cost – Access to cheaper mobile devices
- Computing Power – Today, mobile phones are akin to computers
- Development standardization - High level APIs for application development
- Multiple channels available - SMS and GPRS



Why Mobile Phone ?



- Comprehensive device -
 - In built Camera to capture photograph during account opening
 - Built-in speaker to play localized voice over messages to account holder during transactions
 - Phone can also be used for voice communication (Multipurpose)



Communication Cost



- SMS
 - 30 Paise per SMS (someone has offered at even 1p)
 - Separate SMS packs are available to reduce the cost further
- GPRS
 - Rs. 49/- per month and 1 paise per Kilo Byte



Transaction Modes



- Online through GPRS
- On demand through SMS
- Offline through data storage on Mobile phone



Data Size Requirements

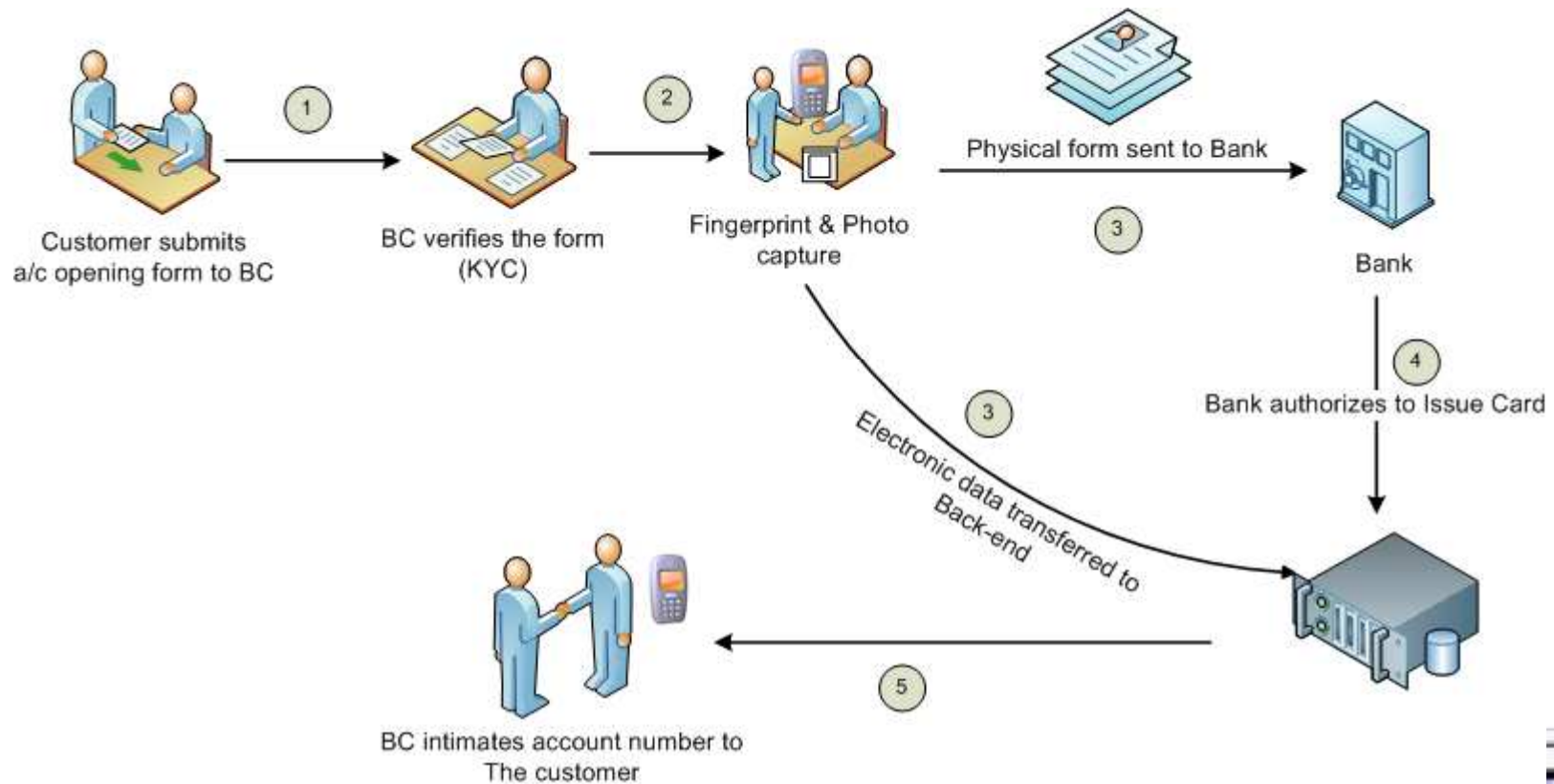
- Biometric Data
 - ISO 19794 Part 2 (Minutiae Data) - 250 to 400 Bytes approx
 - Proprietary Template – around 100 Bytes
- Transaction Data
 - Account Number, Date Time, Transaction Type, Amount, Terminal ID, BC ID (around 60 Bytes)



Extension of the current model – Biometrics



Enrollment



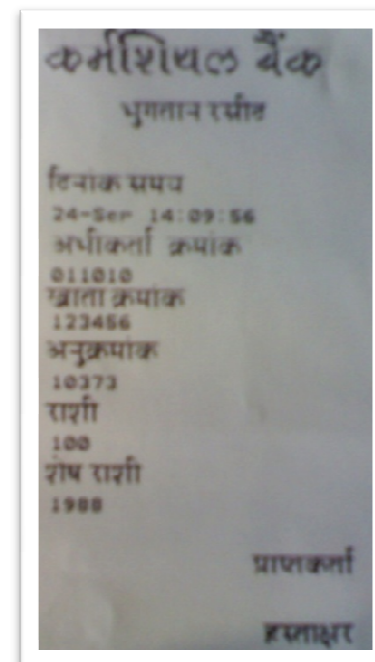
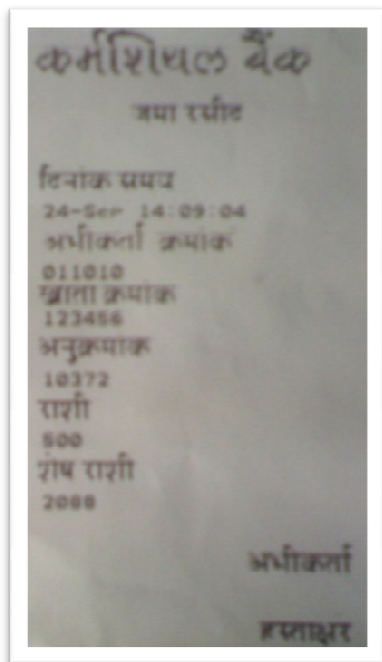
Online Transactions



- GPRS is used as communication channel
- Biometric and account details are queried from Backend server during the transaction
- Customer fingerprint is verified
- Online transaction is carried with CBS /Micro A/C host
- Customer is issued with printed receipt



Receipts



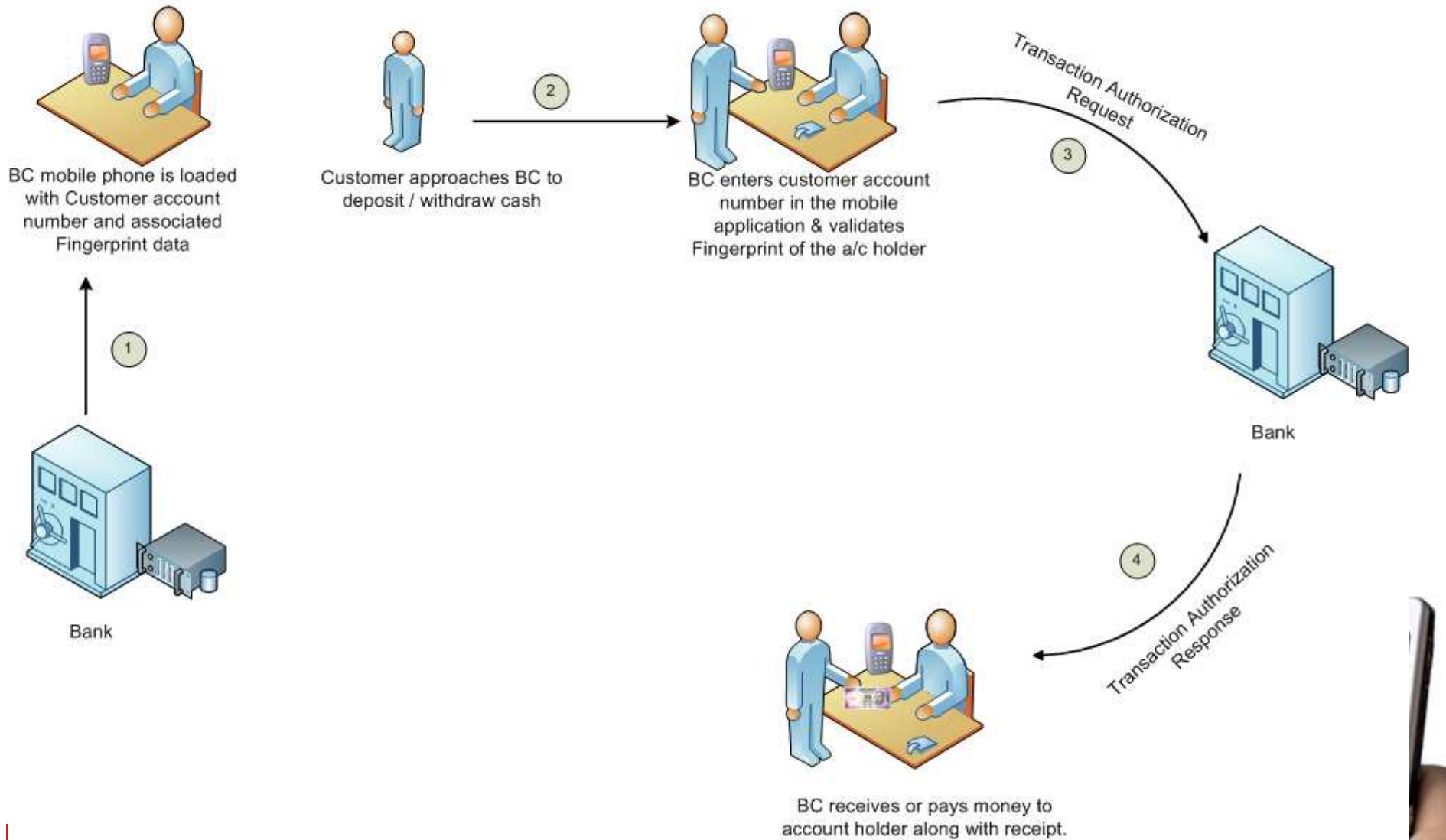
Semi-Online Transaction



- SMS used as communication channel
- BC mobile is stored with Account number and associated biometric data of the customers being dealt with
- During transaction, customer account number is captured by mobile and live fingerprint is verified against fingerprint stored on the mobile.



Semi-Online Transaction Flow



Semi-Online Transaction



- On successful authentication, transaction authorization with CBS/Micro a/c host over encrypted SMS.
- Customer is issued with printed receipt

Note: Fingerprint can also be queried from server over encrypted SMS for the account holders not associated with BC.



Offline Mode



- Offline is carried out on the locations where GSM/CDMA connectivity is not available
- Customer Positive balance file (PBF) and fingerprint is downloaded into the BC mobile phone through docking with PC at link branch or through GPRS where connectivity is available
- During transaction, customer account number is captured by mobile and live fingerprint is verified against fingerprint stored on the mobile.



Offline Mode



- On successful authentication, transaction authorization (Dr/Cr) is carried out locally at the mobile phone based on PBF.
- Transaction details are stored locally in the mobile phone
- Customer is issued with Printed receipt
- At the end of the day, the transaction details are sent to CBS / Micro a/c host.



Issues to be considered



- Agent based
 - Do we really require biometrics?
 - Do we really require a printer?
- Customer based
 - Can a mobile phone be given all the BoP customers?
 - Can a payments network be created, where there is less need for actual cash, all shopkeepers can be CSPs who can not only transact electronically but also be points for deposit and withdrawals.



Scalability & Robust Business Model

	Terminal	Mobile
Smart Cards	Required	Not Required. (Reduces capital investment)
Cost of Terminal	Around Rs.20,000 to Rs.25000/-	Mobile phone around Rs.4000/- Fingerprint Device with Printer around Rs.10000/-
Application Compatibility	Not compatible with another make of terminal	J2ME is supported across all the mobile manufacturers
Multipurpose	Only be used as transaction terminal	Can also be used for voice communication and other business applications
Security	Depends on terminal vendor	PKI, AES, 3DES & other cryptographic support
Communication Mode	Mostly Dial-up	GPRS & SMS



Concluding Remarks



- Golden truth
 - Mobile fit will create an efficacious retail payments network akin to utility.
 - We should not become subjugate to technology, but decide the technology that suits the appropriate business needs
 - Brings access and services component easily and is cost effective
 - Becomes an access-plus-services business model



About atom



- Atom Technologies Limited is a subsidiary of Financial Technologies, which has created multiple national level institutions such as MCX, MCX-SX, SMX etc
- Atom is focussed on complete payment processing enabling secure payments through multiple channels like, mobile and internet, Interactive Voice Response (IVR) as well as PoS.
- Product/Services
 - Payments through Mobile application (GPRS / SMS)
 - Payments through IVR
 - Financial Inclusion
 - Merchant acquiring using PoS
 - Multi Utilities Payment Services for bill payments, top-ups through an agent network



About Financial Technologies Group



Thank You





Thank you

	Bill Payments	Retail Shopping	Movie Tickets	
	Mobile Payments	Online Shopping	Travel Tickets	
	Insurance Premium	Catalog Marketing	Restaurants	
	* +	Banking	