

# MOBILE BANKING LANDSCAPE

## Payments Strategy Service Forum October 2, 2008

Breffni McGuire, NEACH  
Marianne Crowe, FRBB

# AGENDA

- The Mobile Landscape
- Why Offer Mobile Banking Services?
- Technology Solutions
- Risks and Regulations
- An Outlook



# Mobile Banking Definitions

## Mobile Banking:

- Use of mobile device to connect to a financial institution to conduct customer self-service (CCS).
- Includes viewing account balances, transferring funds between accounts, paying bills or receiving account alerts.

## Mobile Payments:

- Use of a mobile device to make a purchase or other payment-related transaction.
- Payments initiated in physical or virtual worlds, and can be conducted via SMS, MMS, mobile Internet, downloadable application, and NFC chips.

Source: NACHA . Mobile Channel Terminology .August 2008

# Mobile Banking Definitions

## Mobile Commerce

- Extends e-commerce to mobile devices to buy and sell goods and services.
- Includes use of handheld devices such as cellular phones or personal digital assistants (PDAs).

## Mobile Wallet

- A secure location on a mobile device to store information and make payments from multiple credit, debit, membership or loyalty cards, and any other current forms of card-type transactions.
- Wallet can store multiple addresses for delivery purposes.
- Information is typically protected by a PIN, code or token.

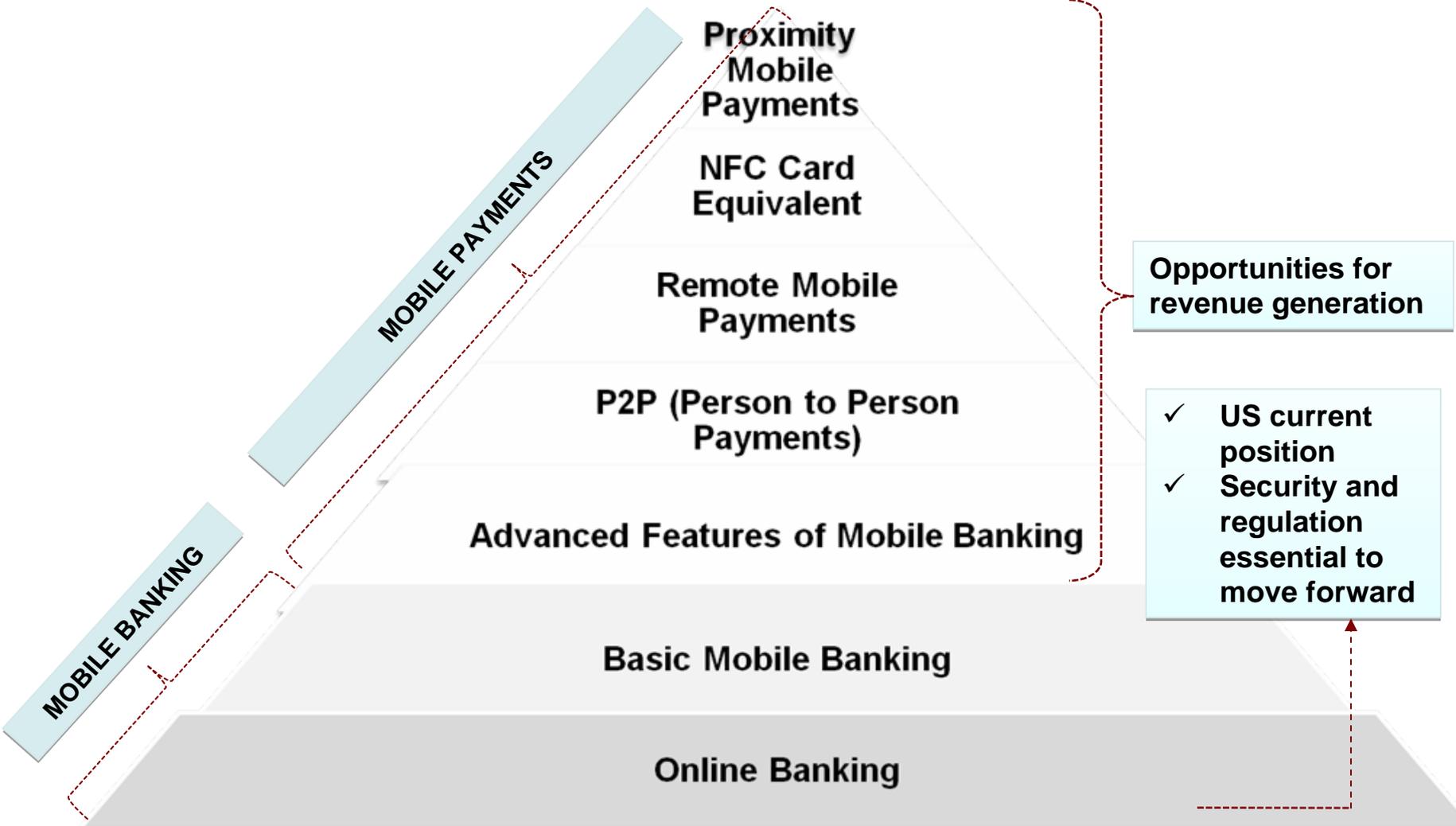
Source: NACHA . Mobile Channel Terminology .August 2008

# THE MOBILE LANDSCAPE

# U.S. Mobile Banking Landscape

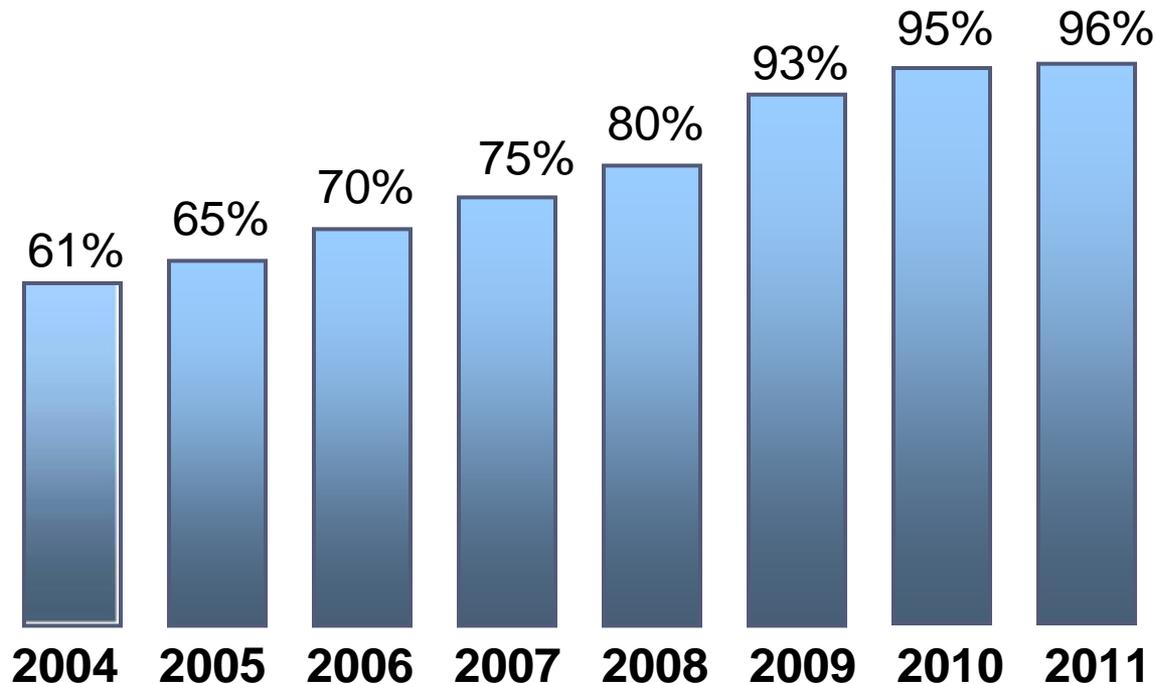
- All large banks, most regionals, and many mid-tier FIs now offer mobile banking services
- There is little real “hard” usage data
  - Most FIs limit announcements to percent of online users
- Offering browser-based services that mimic home-banking functions is most common, except among largest banks
- Functions offered are chiefly information-based
  - e.g., branch & ATM locators, transaction history, balance inquiries)
- Payments are “phase 2” services
  - Remittances appear to be an area of new opportunity
- Finding a ROI model is difficult
  - FIs offering mobile services appear to be absorbing the expense for strategic reasons

# Building Blocks of Mobile Banking & Payment Services



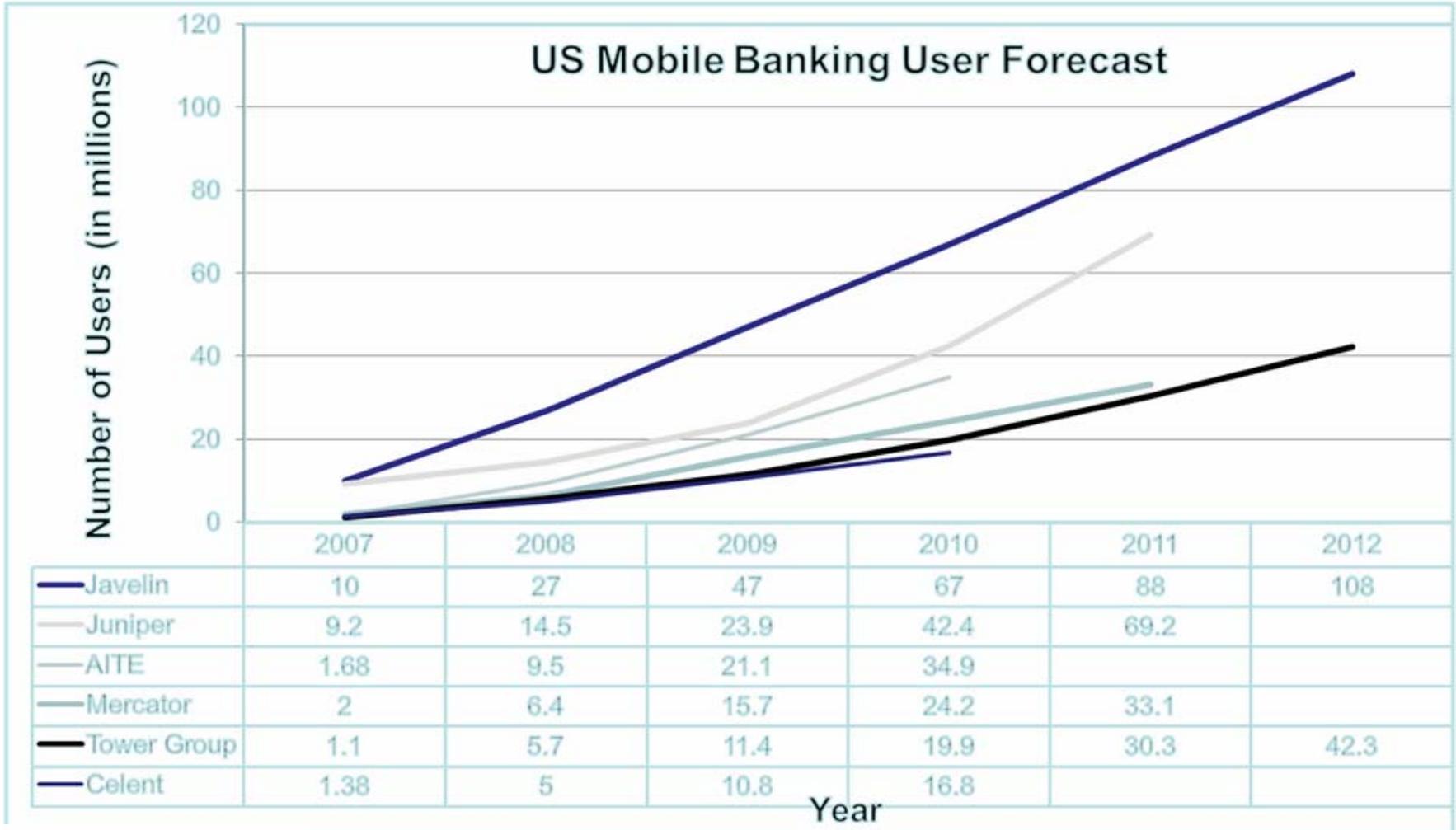
# U.S. Mobile Phone Population Shows Steady Growth

## Mobile Phone Subscribers as a Percentage of Total U.S. Population



Source: Celent, Sept. 2008

# Analysts' Estimates of U.S. Mobile Banking Users Adoption Agree Only on Growth



# Mobile Banking Players

## Banking System Participants

- Financial Institutions
- Customers
- Networks
- Clearing/settlement organizations
- Technology vendors
- Third party processors

## Technology Players

- Wireless carriers
  - Verizon
  - ATT
  - T-Mobile
  - Sprint
- Handset manufacturers
  - Nokia
  - Apple
  - Motorola
  - Blackberry
  - Samsung



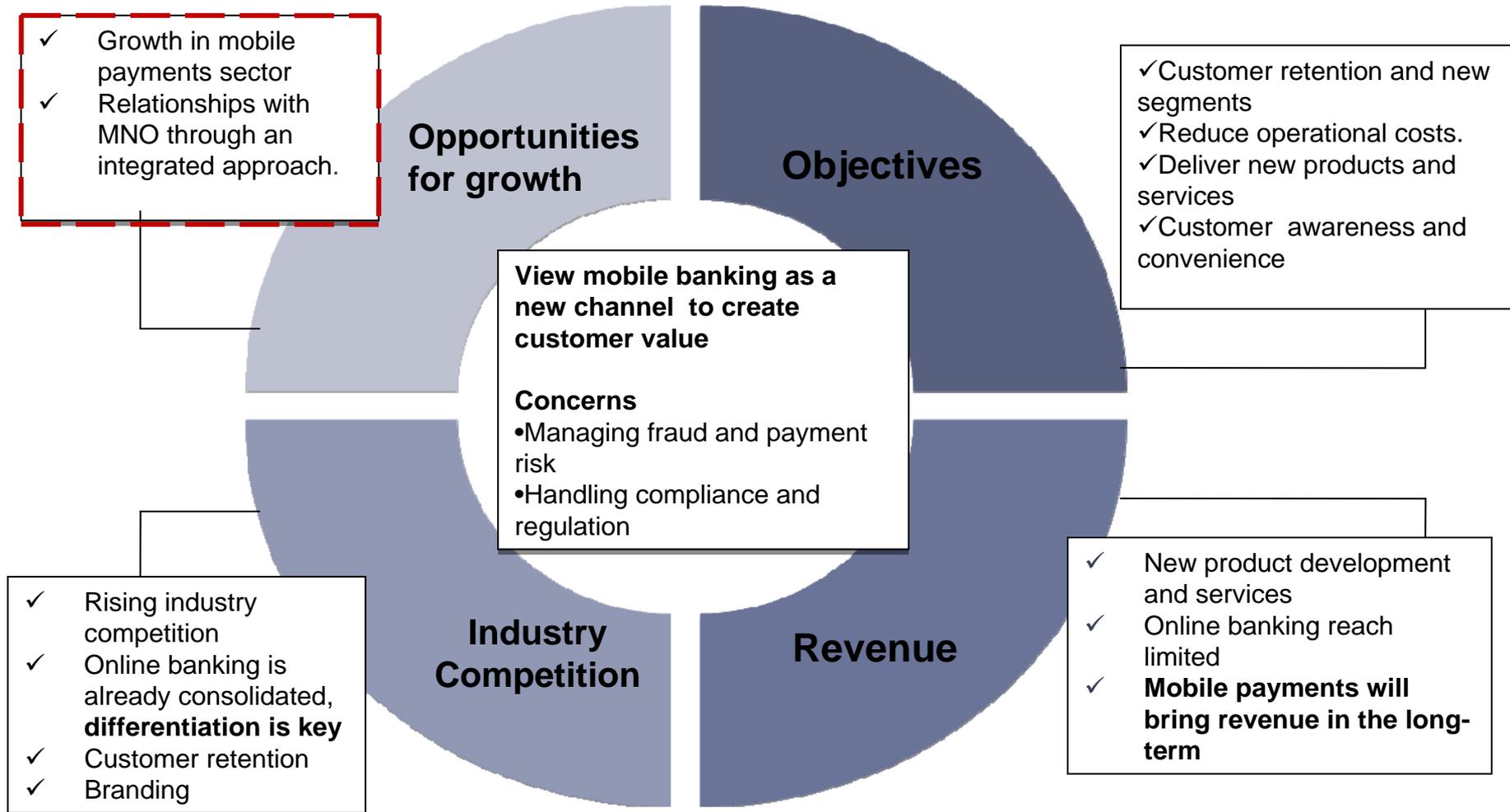
# WHY OFFER MOBILE BANKING SERVICES?

# Value Propositions for FIs

- Attract a growing number of younger consumers, as well as remittance and underbanked market segments
- Use the mobile phone (etc.) as an authentication device
- Keep up with the Joneses – maintain competitive position relative to larger FIs
- “Create a new user experience” – offering a new value proposition to customers
- Ability to move to fee-generating services
  - Payments
  - Real-time information

*“If all we do is replicate Internet banking on this mobile device, it will just be yet another cost to the financial institution.”* Tripp Rackley, CEO, Firethorn

# Financial Institutions Business Model



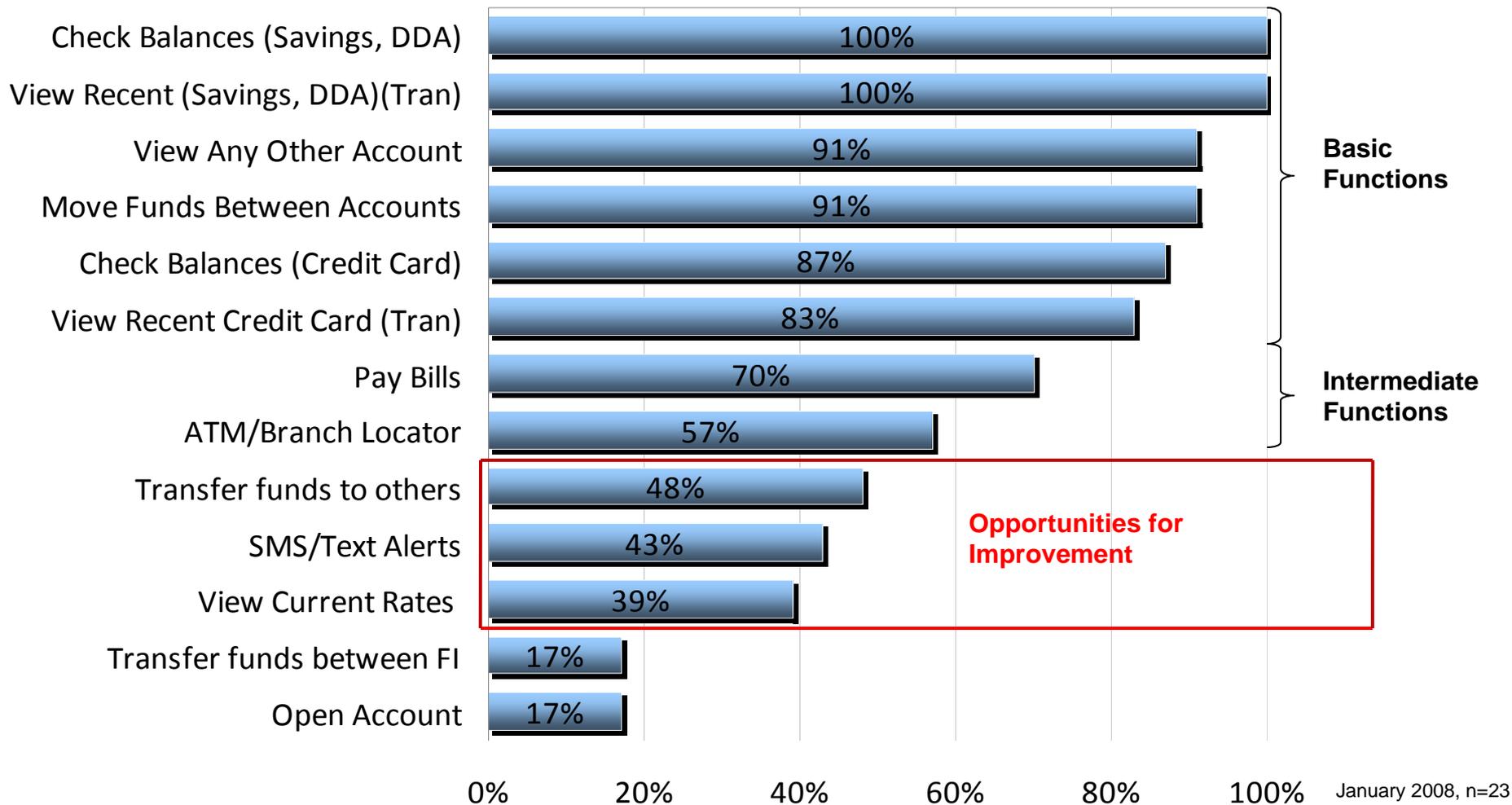
Source: Boston Federal Reserve

# Roll-out by Major Financial Institutions by Year

| 2006                                 | 2007                                   | 2008                    |
|--------------------------------------|--|-------------------------|
| Wells Fargo<br>350,000-550,000 users | Bancorp South                          | PSCU Financial Services |
| Wachovia<br>175,000-225,000 users    | Citibank<br>20,000 users               | Washington Mutual       |
|                                      | Bank of America<br>1 million+ users    | U.S. Bank               |
|                                      | JP Morgan Chase<br>15,000-90,000 users | HSBC (USA)              |
|                                      | SunTrust                               | Capital One             |
|                                      | America First CU                       |                         |

Source: RBI, Crone Consulting estimates, June 2008

# Mobile Banking Features Offered To Consumers By U.S. FIs



# Mobile Banking Profile – Bank of America Example



BofA WAP  
Access Browser  
(iPhone)

BofA WAP  
Access Browser  
(All mobile devices)

## Snapshot

**Access Platform:** WAP/Browser

**Launch Date:** March 2008

**Handset:** All mobile devices internet enabled

**Carriers:** Not carrier dependent

**Vendor:** In-house Implementation

**Functions:** View account balance, review transactions, pay bills, transfer funds

## Mobile Banking “Success”

- “> 4 Mn M.B. customer sessions (May 2008)
- 224,000 activations reaching 840,000 active customers.
- Customer Base:
  - Two- thirds are under 35 years old
  - Four out of five under 45

# Corporates Look for Other Services

## Today

- Alerts
- Balance and account data
- Payment transaction history

## Future – Static Features

- Viewing check images
- Balance reporting

## Future -- Interactive Features

- Customer self-service
- Positive pay tools
- Payment initiation with approval functions
- Investments

Source: Celent, NACHA teleseminar , Mobile Banking Way Stations, Sept. 2008

# TECHNOLOGY SOLUTIONS

# Mobile Banking Platform Definitions

## **SMS (Short Message Service)**

- Text message format which allows users of mobile phones to send / receive simple text messages to each other

## **Downloadable Application**

- Application loaded onto mobile phone that enables customers to click through menus quickly
- Best for complex transactions (e.g., payments or fund transfers) requiring security measures

## **Wireless Application Protocol (WAP)/Browser**

- WAP: Secure specification that allows users to access information instantly, particularly Internet content, via handheld wireless devices such as mobile phones and PDAs.
- Browser software enables user to display and interact with text, images, videos, music, etc. on a World Wide Web (www) page of the Internet, such as a bank's online banking system.

Source: NACHA . Mobile Channel Terminology .August 2008 and Javelin Mobile Banking Vendor Analysis.  
August 2008

# Selected U.S. FIs – Planned Mobile Platforms (Ranked By Asset Size)

| Rank | FI                     | Operating System                         | Vendor              |
|------|------------------------|--|---------------------|
| 1    | <b>Citigroup</b>       | SMS/Text                                 | In House            |
|      |                        | Downloadable Embedded                    | mFoundry            |
| 2    | <b>Bank of America</b> | WAP/Browser Based                        | In House            |
| 3    | <b>JP Morgan Chase</b> | SMS/ Text                                | In House            |
| 4    | <b>Wachovia</b>        | WAP/Browser Based                        | In House            |
|      |                        | Downloadable Embedded                    | Firethorn/Checkfree |
| 5    | <b>Wells Fargo</b>     | SMS                                      | In House            |
|      |                        | WAP/ Browser Based                       | In House            |
|      |                        | Downloadable Embedded                    | In House            |
| 6    | <b>HSBC</b>            | SMS/Text (Business Customers only)       | In House            |
|      |                        | Downloadable Embedded (UK only, not USA) | Monitise            |
| 7    | <b>WAMU</b>            | SMS                                      | M-COM               |
| 8    | <b>US Bank</b>         | WAP/Browser                              | In House            |
| 9    | <b>Sun Trust</b>       | Downloadable/Embedded                    | Firethorn/Checkfree |
| 10   | <b>Capital One</b>     | WAP/Browser Based                        | In House            |

# Selected Vendor Platforms

|                                 | Clairmail | Clickatell | Firethorn | Harland  | Jack Henry | M-COM    | mFoundry | Monitise Americas | MShift   | Sybase   | Tyfone   | Yodlee   |
|---------------------------------|-----------|------------|-----------|----------|------------|----------|----------|-------------------|----------|----------|----------|----------|
| <b>SMS</b>                      | X         | X          |           | X        | X          | X        |          | X                 | X        | X        | X**      | X        |
| <b>WAP</b>                      | X         |            |           | X        | X          | X        |          |                   | X        | X        | X**      | X        |
| <b>Downloadable Application</b> | X*        |            | X         |          |            | X        | X        | X                 |          | X*       | X**      |          |
| <b>TOTAL</b>                    | <b>3</b>  | <b>1</b>   | <b>1</b>  | <b>2</b> | <b>2</b>   | <b>3</b> | <b>1</b> | <b>2</b>          | <b>2</b> | <b>3</b> | <b>3</b> | <b>3</b> |
| <b>LARGE FI</b>                 | X         | X          | X         |          |            | X        | X        | X                 | X        | X        | X        | X        |
| <b>MID-SIZE FI</b>              | X         | X          | X         | X        | X          | X        | X        | X                 | X        | X        | X        |          |
| <b>SMALL FI</b>                 | X         | X          | X         | X        | X          | X        | X        | X                 | X        | X        | X        |          |
| <b>TOTAL</b>                    | <b>3</b>  | <b>3</b>   | <b>3</b>  | <b>2</b> | <b>2</b>   | <b>3</b> | <b>3</b> | <b>3</b>          | <b>3</b> | <b>3</b> | <b>3</b> | <b>1</b> |

\*ClairMail's application provided by mFoundry. Sybase's application provided by C-SAM.

\*\*Tyfone's service provided by memory card that can be inserted in a mobile device.

Source: Javelin Strategy and Research. Mobile Banking Vendor Analysis:, August 2008.

# New Platform for Mobile Payments

## NFC – Near Field Communication

- A short-range proximity technology that uses radio frequency to enable communication between two devices.
- NFC chips are embedded in mobile phones to enable this contactless 'tap and go' payment technology.

## Why use NFC?

- Purchasing speed and convenience
- Increases consumer interactivity
- Reduces need for cash
- Merchant marketability
- Consumer traveling convenience

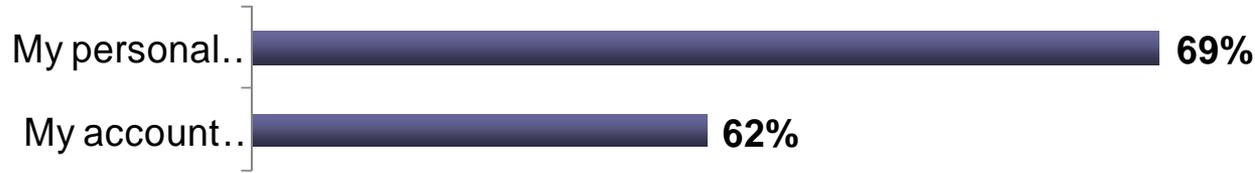


# NFC Contactless Payment Pilots

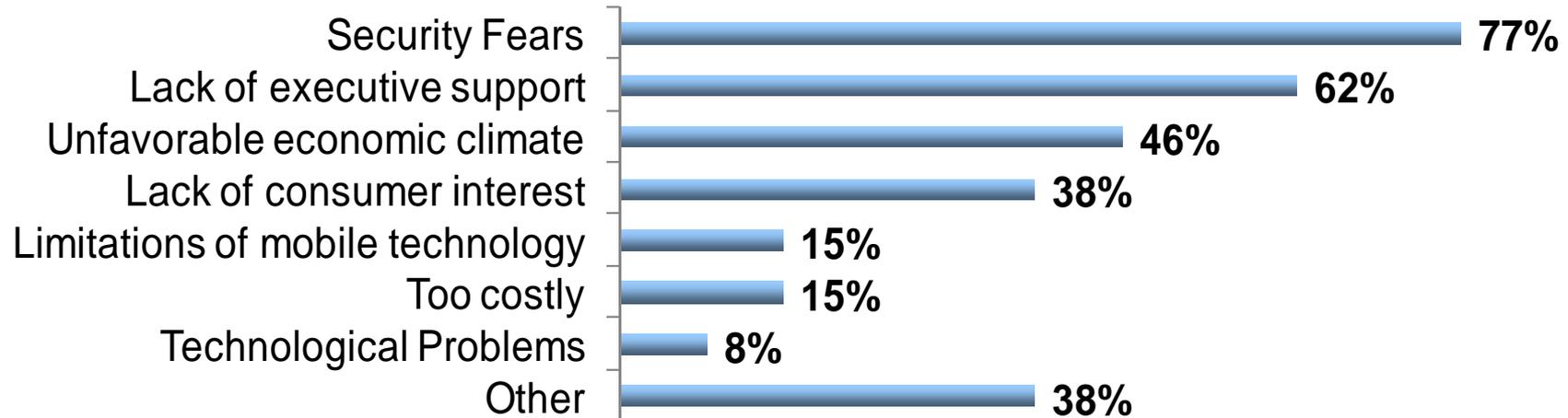
- **MasterCard – 7-Eleven** – Fast food, convenience store purchases
  - Dallas, TX – Six month trial began in November 2006
  - 500 participants, Nokia 3220 phones with NFC capability
- **MasterCard - NYC MTA Mobile Trial** public transportation
  - New York, NY – January 2007 to April 2007
  - Citi MasterCard, Cingular Wireless account and NFC-enabled Nokia mobile phones.
- **BART & Jack in the Box** – Transportation, fast food, digital content
  - Four-month trial began in February 2008
  - 230 BART commuters received NFC-enabled Samsung phones.
- **VISA - Atlanta Phillips Arena** – concession purchases & media download
  - Six month trial began in December 2005
  - 150 Atlanta sports team season ticket holders with a Chase-Visa and Cingular Wireless account issued NFC-enabled Nokia phones.

# Consumers and Vendors Have Differing Concerns

## Consumer Concerns



## Vendor Concerns



Source: Javelin Strategy & Research. "2008 Mobile Banking Benchmark Study," Javelin Strategy & Research. "2008 Mobile Banking Vendor Analysis"

# RISKS AND REGULATIONS

# Risks and Barriers to Mobile Banking

- Carrier/vendor technologies incompatible, lack standards
- Business models not yet standard
- Complexity using device
  - Entering passwords, commands difficult
  - Applications can be tricky on handset
- Customer ownership unresolved
  - Bank or carrier?
  - Responsibility for customer service, fraud prevention, billing
  - Revenue sharing
- Regulation emerging – liability issues unresolved
- Security
  - Authentication and Fraud, especially cross-channel
  - Lost/stolen phones
  - Secure access via wireless network
- Customer demand – is it there? Will it be?

# Will Regulatory Issues Impede Growth in Mobile Banking?

- Numerous regulatory agencies touch payments and/or wireless transactions
  - e.g., Federal Reserve, FTC, FCC, SEC, NACHA, FDIC, OTC, OCC, NCUA
- No legal framework specific to mobile banking today
- Financial services' and telecoms' regulations differ significantly
  - Telecoms have limited liability
- Cost of regulatory compliance may be too high
  - e.g., KYC, BSA/AML, state MSB licenses
- Mismatch between potential regulatory requirements and mobile payment standards
  - Participants might take “wait and see” approach

# Possible Oversight / Regulatory Requirements

- Mobile banking services should be ubiquitous – fair access for all consumer segments
- Interoperability among networks and handsets
- Protect against unauthorized transfer of funds at any point in the process
- Establish grievance procedures
- Ensure customer data privacy
- Identify recourse for technical failures
- Customer Notification - Provide adequate and timely disclosure of risks, responsibilities and liabilities of mobile transactions to customers
- Ensure security requirements met for authentication

# OUTLOOK



# Outlook

- More FIs will offer mobile banking -- with continuing evolution and enhancement of services offered
  - Businesses will adopt mobile banking services more readily
  - Payments (especially for bill pay) and NFC will be levers for value-added, priced services
  - International remittances will foster mobile payment transfer offerings ... at least by selected (larger) FIs
  - Cell phone will act as “authentication device”
- Vendors will continue to consolidate
  - Alliances of top FIs and carriers, vendors, or other third parties will proliferate
- U.S. market will follow other markets in the near future
- The market will be driven by standards and technology – carriers remain a wildcard

# Do All Roads Lead to NFC / Proximity Payments?



Info-focused  
Mobile  
Banking  
**2008**

Bill Pay  
**2009-  
2010**

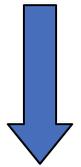
Remittances  
**2010**

Intra, Inter-  
Bank /P2P  
**2010-2011**

m-  
Commerce  
**(ongoing)**

M Promotions  
+ Plastic  
Cards **(2011)**

**NFC**



|  |  |   |  |   |   |   |
|--|--|---|--|---|---|---|
| Balance look-up<br>Transaction history<br>Self A2A transfers | Mobile version of on-line bill pay           | Send or receive remittances via mobile-based accounts                             | Send funds P2P via mobile interfaces         | Remote payments for purchase of digital content & physical goods        | Mobile coupons & promotions with payment via plastic card at POS      | Proximity payments to buy physical goods.<br>Contactless readers, NFC chip in handset |
| SMS/text, mobile browser, application                        | SMS/text, mobile browser, client application | SMS/text, SIM card application  | SMS/text, mobile browser, client application | SMS/text, mobile browser, application                                   | SMS/text, mobile browser  | Downloadable application  |
| U.S. 2007  | U.S. few banks 2007, more 2008               | U.S. receive solutions. Western Union to launch send in 2008 with Affinity Mobile | U.S. in market: Paypal, Obopay, low adoption | U.S. 3-4 years. Mostly digital content. Low adoption for physical goods | U.S. solutions target Gen Y in 2007. Little tie in with card programs | U.S. pilots only. No clear leaders driving NFC in industry                            |