



# NFC Market Update and Technology Overview

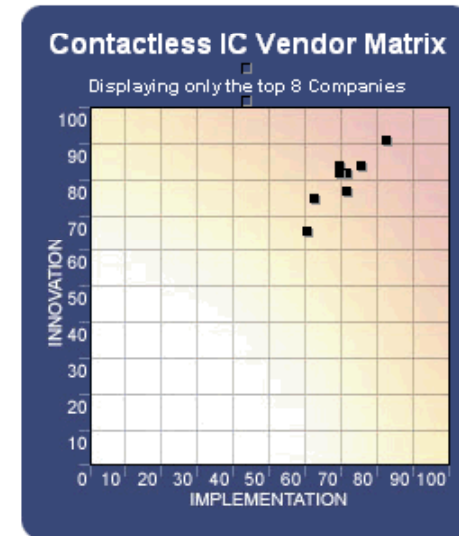
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Q1 2008



# NXP NFC Leadership

- ▶ Own majority of NFC patents
- ▶ NXP ranked #1 contactless IC vendor (ABI Research - March 2007)
  - Innovation
  - Implementation
- ▶ Creator of NFC technology driving market creation
  - 110+ companies in the NFC Forum
  - 30+ NFC trials worldwide
- ▶ #1 in RFID solutions
  - >1.5 billion IC shipped
- ▶ #1 in e-government applications
  - > 80% of the e-passports worldwide use our products
- ▶ #1 in public transport
  - ~ 80% infrastructures use our MIFARE®
    - London, Sao Paolo, and 80+ cities in China
  - See <http://mifare.net/showcases/> for details



Contactless IC Vendor Matrix TOP 5 Listing:

Rank	Company
1	NXP Semiconductors
2	Texas Instruments Inc
3	Sony Corporation
4	Infineon Technologies AG
5	Inside Contactless

Source: ABI Research - Contactless IC Vendor Matrix Ranking, March 2007



# Simplified Access To NFC Technology

- ▶ Benefit from NXP experience with major players

- Integration in devices
- Applications and services

- ▶ Benefit from broad offering

- Hardware
- Software
- Service
- Support
- Partners



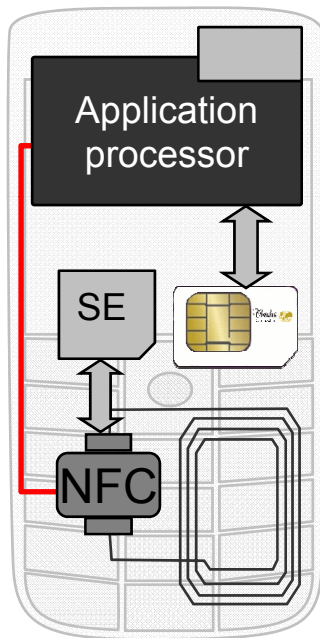
# NXP NFC Delivers Value

- ▶ Full NFC Forum compliance
- ▶ We provide Mifare® reader/writer
- ▶ Providing Mifare Classic card emulation requires using a SE from NXP or one of the Mifare licensees SE
- ▶ Through our JV with Sony we will be the unique providers of secure elements with Mifare AND FeliCa AND ISO14443 type -A AND -B
- ▶ We provide worldwide support and most extensive NFC experience with top handset manufacturers and POS vendors
  - IC integration
  - SW integration
  - Antenna design
  - Service support
  - Partner network

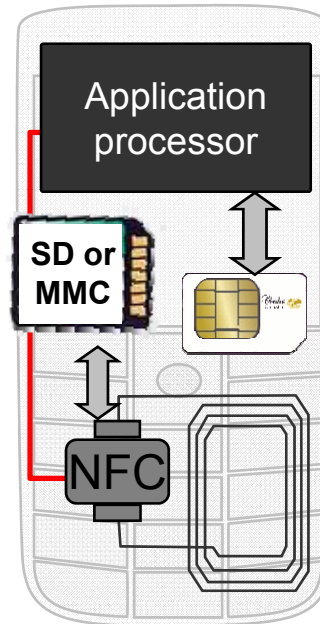


# Secure NFC Architecture in Mobile Phones

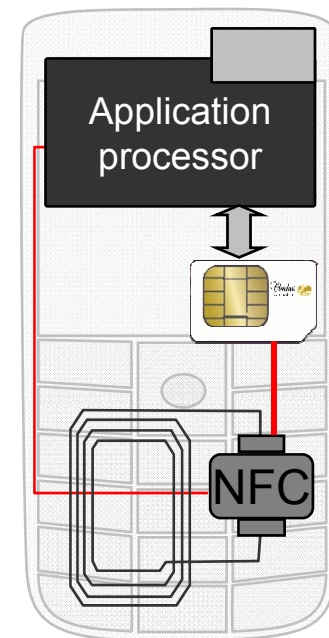
Secure element embedded in the phone



SD or MMC card hosting the application



SIM centric solution

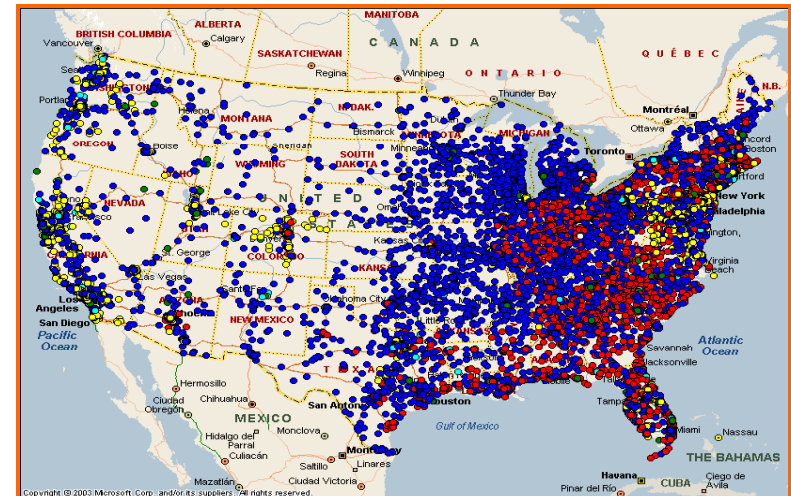
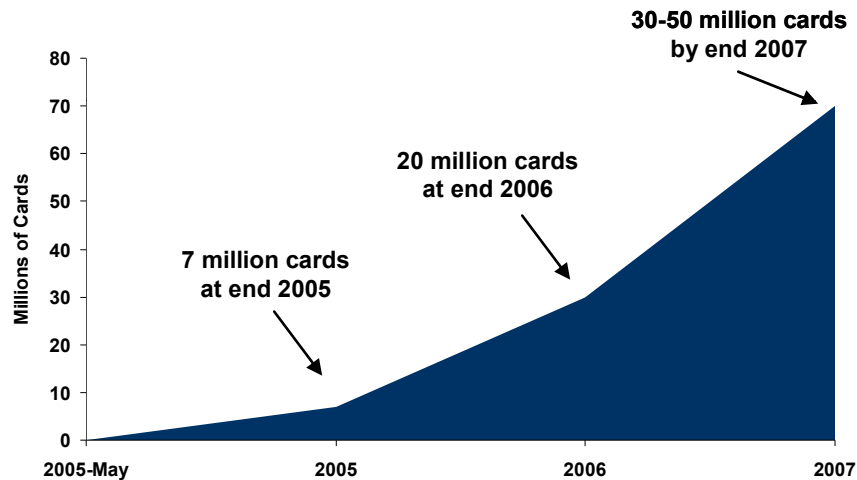


# The Contactless Market Is Happening

40 million Point of Sale Terminals Globally – 2 billion payment cards

30 million cards issued – and growing

Over 80,000 merchants enabled



“The adoption rate is the fastest we’ve seen for any new technology. I do expect we will continue to see significant growth; whether it’s double or triple we’ll have to wait and see.”

Brian Triplett, Senior Vice President for Emerging Product Development – Visa USA



# Major (public) NFC Projects globally



- ▶ 30 NFC trials world-wide to date have shown strong adoption and positive feedback from users about ease-of-use.
- ▶ Key focus areas: payment, automatic fare collection and service discovery

## Trial cities

- ▶ Atlanta, USA
- ▶ New York City, USA
- ▶ Dallas, USA
- ▶ Berlin, Germany
- ▶ Amsterdam, Netherlands
- ▶ Caen, France
- ▶ Hanau, Germany
- ▶ Manchester, UK
- ▶ Seoul, S. Korea
- ▶ Shanghai, China
- ▶ Bangkok, Thailand
- ▶ Taipei, Taiwan

# Public NFC Trials in the United States

## BART – San Francisco, CA

- ▶ BART, Sprint, First Data, Samsung, Vivotech
- ▶ Jan. 2008 to June 2008, 240 participants
- ▶ Public Transport and gift card (Jack in the Box)

## Citigroup, MasterCard, Cingular, Nokia - New York City

- ▶ Started January - April 2006, pre-selected customers
- ▶ Mobile payment, ticketing

## Discover & Motorola - Chicago and Salt Lake City

- ▶ Launched in January 2007, 100 Discover customers
- ▶ Mobile payment, Account Management Services

## HSBC, MasterCard, VivoTech - New York, Chicago and other large U.S. cities

- ▶ January – summer 2007, 200 employees
- ▶ Mobile payment, OTA provisioning

## 7-Eleven, Nokia, Mastercard – Dallas, TX

- ▶ Launched in November 2006, 500 customers
- ▶ Mobile payment, OTA provisioning

## Cellular South, Kyocera - Memphis, TN, and Jackson, MS

- ▶ May - August 2007, followed by a launch in 2008
- ▶ Mobile payment



# Touch & Travel Trials in Germany

- ▶ Trials involve the national railway, and local and regional transit operators, along with mobile network operator Vodafone D2.
- ▶ The trials will embed RFID tags in signs, posters or other places at train platforms and bus and tram stops.
- ▶ Passengers will present their NFC-enabled phones to touchpoints when boarding or leaving the train or bus stops. The locations are registered and the phone sends the data over the network for fare calculation and billing to the passengers account.
- ▶ Market introduction planned for 2010.

