SIM-based NFC: The challenges of bringing new technology based products to market

James Heaphy, Senior Programme Director, GSMA
The GSMA / Mobile Industry
The GSMA represents the interests of mobile operators worldwide. Spanning more than 220 countries and territories, the GSMA unites nearly 800 of the world’s mobile operators, as well as more than 200 companies in the broader mobile ecosystem.
Today's Connected Economy

But we are just beginning…
## GSMA 2013/14 Major Programmes

<table>
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<th>Major Programmes</th>
<th>Future Communications</th>
<th>Mobile Commerce</th>
<th>Connected Living</th>
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<td><strong>Objectives</strong></td>
<td>Ensure continued success in future communications services</td>
<td>Develop ecosystems and operator capabilities in payment and commerce</td>
<td>Build ecosystems connecting non-traditional devices in select industry verticals</td>
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<tr>
<td><strong>Services / Addressable Verticals</strong></td>
<td>Rich Communication Services VoLTE HD Voice</td>
<td>Financial Services Ticketing Marketing</td>
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<td><strong>Programme Elements</strong></td>
<td>Interoperability Interconnect Roaming</td>
<td><strong>Near Field Communications</strong> Mobile Money for the Unbanked Digital Signature</td>
<td>Embedded SIM M2M roaming</td>
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<td><strong>Segment Focus</strong></td>
<td>Programmes address operators across our segmentation framework: Digital Pioneers, Connected Players, Fast Growers &amp; Discoverers</td>
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NFC Introduction: Technology/Uses/Ecosystem
NFC: Launching the next revolution

- Near Field Communication (NFC) is a short range radio technology
  - NFC mobile devices require an NFC antenna and an NFC controller chipset
  - Used in existing contactless infrastructure e.g. Oyster (London transport prepaid contactless ticket validation) and Octopus (Hong Kong transportation system prepaid contactless ticket validation)
- NFC is an enabler of many different services

Image of NXP NFC controller

Diagram:
- NFC
  - Card Emulation
    - Transport ticketing & validation
    - Proximity Payment
    - Loyalty
  - Tag Reading
    - Information gathering via tags
    - Advertising & Coupons
    - B2B: Attendance, info collect
  - Access Control
    - Access control / ID Control
    - Employer ID Control
    - Parking
Mobile NFC brings new services to consumers

**Consumer**

- Payments
- Ticketing
- Transportation
- Loyalty/Coupons
- Access Control
Or to put it another way… Ecosystem Complexity
The Role of the Operators & GSMA
Why Mobile Operators?

- Substantial distribution channels to provide NFC enabled services, and have sufficient economies of scale to provide mobile contactless to all.
- Customer care infrastructure providing consumers with a trusted transaction partner resolving any issues relating to their mobile services.
- Technical infrastructure for the provisioning and management of SIM cards and ensuring adequate security.
- Substantial experience in standards-based and interoperable services, enabling strong ecosystem development based on the mobile platform.
The Secure Element

- A 'secure element' is required to safely store a user’s identity information, for services demanding high levels of security.

**Sticker**
- Easy to produce & attach
- No interaction with phone
- Supports 1 service provider
- Not standardised

**MicroSD**
- Easy to attach
- Existing mobile devices
- Supports 1 service provider
- Customer care unclear
- Not standardised/certified

**Embedded**
- Supports multiple services
- OTA updates
- No service portability
- Customer care unclear
- Not standardised/certified

**SIM-based**
- SIM is certified & standardised
- Global standards (SWP)
- Supports multiple services
- OTA updates
- Portable SIMs
- Operator customer care

Plus Cloud based “security” and new Android KitKat!!
Customer Benefits of SIM-based NFC

- Bank grade **security** from the SIM
  - Trusted by banks and payment providers

- Customer care direct with the Mobile Operator
  - Trusted relationship
  - Service Provisioning
  - Service De-provisioning
  - Support & help
  - Secure key portability via SIM

- Portability of the SIM independent of a handset
  - Services can be moved with the SIM (there is some authentication required)

- Consumer Identity secure through the SIM
Mobile Commerce Programme Structure

GSMA Board

Steering Committee
Members: China Mobile, KT, SKT, Vodafone, DT, FT, TIM, Telefonica, Verizon

Programme Leadership Team

Global Interest Group

GSMA Programme Team

PSMC Working Groups

Opportunity Studies
- On-Line Commerce
- International Remittance
- mWallet for Fast Growers
- mPayment for Emerging Countries

Deployment Support
- Brazil/Chile
- Russia
- China
- Europe
- North America

M-Commerce Enablement
- Retail Proposition
- Transport Prop.
- NFC / mWallet Specifications
- NFC Test
- On-Line Commerce

Mobile for Development Foundation Board

MMU

GSMA Ltd

NFC Event Enablement
GSMA Mobile Commerce (NFC) Programme

Engaged Markets:
- Canada
- Asia (CJK)
- Brazil
- Western Europe
- Nordics
- Australia
- Russia
- Chile
- Ukraine
- Czech Republic
- Romania
- Hong Kong

Launched Markets:
- France
- Japan
- New Zealand
- Singapore
- South Korea
- Turkey
- UK
- Poland
- Canada
- US
- Czech Republic
The NFC ecosystem summary

- NFC Technology
- SIM Secure Element
- Handset
- Wallet
- TSM
- MNOs
- Vendors
- Industry verticals

- Payments
- Ticketing
- Transportation
- Loyalty/Coupons
- Access Control

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NFC is gaining momentum…

Agreed set of specifications
200m+ NFC SIM-based handsets, 70m+ NFC SIMs shipped to date
Operators have the ability and experience to really launch and run NFC services
Deployments are multiplying

…but reaching scale in the market requires determined action…

Ecosystem
Deployment requires considerable efforts to foster local ecosystem cooperation
- Operators and banks cooperation is key
- GSMA is here to help

Value proposition
- Build a compelling value proposition for retail, covering the full customer shopping experience
- Transport interoperability still in infancy, but it is time to collaborate with this industry
- Secure Element and wallet should also be usable online

Robustness/simplicity
Implementation guidelines
- Simplify service provisioning
  - start with simple profiles
  - use generic applets
- Clarify wallet interfaces
- Streamline test and certification
- Based on deployment feed-back
... and the Momentum Is Growing

- 23 operator-led commercial services
- More than 50 pilots and trials
- More than 60 operators with NFC initiatives
- Payments are key – **60+** banks involved
Global mobile payment transaction volumes will increase over the next five years to more than US$1.3 trillion (Juniper August 2012).

50% of all smartphones will be NFC enabled by 2015 (Gartner - March 2012).

Samsung have sold over 20 Million Galaxy SIII Handsets in 100 days (Samsung - Aug 2012).

Over 1.4m contactless enabled PoS in China (NFC Times June 2012).

100k contactless in the UK (UK Cards Association - September 2012).

Over 50% of spending put through Visa in Europe in 2020 will be via a mobile device (Visa – Jan 2012).

In 2013 up to 300 million NFC smartphones, tablets and eReaders will be sold (Deloitte - Jan 2012).
## SIM-based NFC commercial services

### United States
- **Isis**
- American Express, Mastercard, Chase, Capital One, Barclaycard
- Payments, couponing, loyalty

### France
- **Cityzi (Orange France, Bouyges, SFR joint)**
- Adelya, BNP Paribas, Credit Agricole, Societe Generale
- Transport ticketing, payment, information services, loyalty

### Poland
- **Orange, T-Mobile**
- mBank, Mastercard (Orange), Polbank, mBank, Getin Bank, Noble Bank (T-Mobile)
- Payments (both operators)

### China
- **China Mobile, China Unicom**
- China UnionPay and eight banks, including Bank of China, CITIC Bank, Shanghai Pudong Development Bank...
- Payments (transport, retail)

### Korea
- **SK Telecom, KT, LGU+**
- Samsung (KT), Hana Financial, Home Plus (SK Telecom)

### Japan
- **NTT DoCoMo, KDDI, Softbank**
- Toshiba, DNP, Toppan Printing
- Transport ticketing, mobile payments (cards and electronic cash), mobile boarding pass, couponing, membership cards, Peer-to-peer transactions

### Russia
- **MTS, Megafon, Beeline**
- Zolotaya Korona, MTS Bank
- Transport ticketing, payments

### Turkey
- **Turkcell**
- Plastkart, Mastercard, Yapi Kredi Bank, Akbank
- Payments, online shopping, transport

### Singapore
- **SingTel, M1, StarHub (joint)**
- DBS Bank, EZ-Link
- Retail payments

### Multi-country
- **Etisalat**
- MasterCard
- Payments

### Canada
- **Rogers Communications**
- CIBC, RBC
- Payments

### United States
- Enstream: Rogers/Bell/Telus JV

### And also:
- Slovakia (Orange and O2, Tatra bank)
- Hong-Kong (PCCW, Hang Seng Bank)
- Thailand (AIS, transport and payments)

### Coming:
- Norway (Telenor, DNB, Oct.2013)
- Spain (Orange and Vodafone, 2013)
- Germany, Italy, UK (Weve) Hungary, Taiwan, Hong-Kong...

### Data Points:
- **23 operator-led commercial services**
- **50+ pilots and trials**
Some Global SIM-Based Mobile NFC Initiatives

Canada
- EnStream
- Bell
- Rogers
- TELUS

USA
- ISIS
- T-Mobile
- Verizon

France
- cityzi
- Bouygues Telecom
- SFR

South Korea
- LG U+
- SK Telecom
- KT

Singapore
- DBS Bank
- Ezlink
- SingTel
- StarHub

UK
- Everything Everywhere
- O2
- Telefonica

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Mobile payments have a great future but…

- 2012: 200m mobile payment users
- 2013: 245m mobile payment users, $235bn increase of 44% from 2012
- 2017: 450m mobile payment users, $721bn mobile payments

… delivering requires new collaboration models

- Different industries are involved to bring mobile payments services to the market
- Mutually beneficial business models are essential
- Cooperation is progressing but efforts remain fragmented in many markets

… and NFC will not just be about payments – nor mobile commerce not just about NFC
Retail: Supporting retailers and brands

Consistent relationship with customer:
- In-shop and on-line
- Throughout the shopping journey: before, during and after shopping

Bring customer to shop
consistent user experience
streamline all processes

Support coupons, loyalty, payment and online channel
Wallets to co-operate with third-party applications and data sources
Transport: Making travel easier

- Management of end to end 'customer journey' from home to destination
- Real time traveller information to mobile, tailored to location and customer
- Capability for smart tickets and multi-tickets including concessions
- Integration of multi-modal information sources
- Ability to integrate business models with other industries (tourism, retail, parking etc.)
- Integrated payment and ticketing validation
The Challenges of Making Travel Easier

- Many initiatives in the transport industry: standard technologies, contactless, smart ticketing, open purse, choice between ticket, closed-loop purse and EMV payment

- Standards and actual deployment need to adjust each other

- Key point where interoperability is needed: ticketing standards (defining the entitlement to the journey, the actual ticket and physical access to the transport system)

- Transport operators systems need to open APIs to the mobile app industry to deliver on the vision
Other Challenges to SIM-based NFC / Mobile Commerce
Other players also moving—time is **always** short!

### OS vendors

- **Google wallet**  – *struggling*
  - A MasterCard-compatible wallet
- **Microsoft** – *just starting*
  - Supports NFC, SIM-based in some markets

### Internet e-money

- **PayPal™** – *in shops tomorrow?*
  - Expanding to mobile proximity payments
  - 18,000 physical stores
  - Aggressive low-fee strategy

### Mobile Point of Sale (PoS) – *a fragile uptake*

- Merchant’s smartphone as a PoS terminal
- Associated mobile wallet application
- Focus: simplicity for small merchants
- Square: 3 million users, 250,000 merchants

### Handset vendors – *when and where?*

- Selected smartphones to be shipped with Visa/MasterCard contactless payment applications in embedded chip.

### What’s next for Apple?

- Coupons, tickets, loyalty cards – barcodes
- Twenty 3rd-party m-commerce applications
- Easy Pay: pay in shop with iTunes account’s credit card
NFC focus: Many logos, icons & marks
Mobile Commerce Programme – next steps

Operators are moving but…

- Fragmented, complicated for banks and others
  - Need to act quickly: the ecosystem will follow the first large scale offering
  - Need for holistic retail proposition
    - it’s not just about banks and payment

Other initiatives also struggling but…

- Card schemes are looking for alternative channels
- OEMs will fill the gap if operators do not

Unlikely to support SIM-based NFC
- Unless operators’ deployments scale

Current GSMA mCommerce Programme activities:

- Continue to accelerate deployments (see next slide)
- Complete retail and transport value propositions
- Provide common business-to-business interface to service providers (e.g. Banks, transport…)
- Efficient and cost-effective test and certification scheme
What else can operators do to accelerate adoption?

Start early!

Collaboration – making it easier for Banks and other Service Providers to do business with operators.

<table>
<thead>
<tr>
<th>Initiative</th>
<th>Initiative Common scope</th>
<th>ISIS</th>
<th>Weve</th>
<th>AFSCM</th>
<th>TSM* hub</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wallet vision</td>
<td>cards</td>
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<td>✓ JV</td>
<td>✓ JV</td>
<td>✓ association</td>
<td>✓ 3rd party</td>
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<tr>
<td>Wallet</td>
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<td></td>
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<tr>
<td>Consumer brand</td>
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</table>

Service Providers will ultimately choose the simplest solution with maximum reach for speed to market.

*TSM Hub – Single Trusted Service Manager Hub, common to all operators
To Summarise – The Challenge

- Huge diversity of the vertical ecosystem and the fragmented markets
- Technology challenges around infrastructure roll-out, and global interoperability standards
- End user perceptions around security and proposition
- Understanding the business models and socio-economic benefits
To Summarise – The Solution

- **Collaboration is essential**
  - Reduces fragmentation
  - Improves interoperability
  - Government backing (e.g. France, Singapore) was extremely important to help ecosystem building and triggering collaboration

- **Interoperability**
  - Open standards are essential
    - Increases competition by lowering barriers to entry
    - Increases diversification and so allows new players to offer services
    - Increases consumer choice

- **Security**
  - Consumer Security and Privacy comes first
  - There is no compromise on the bank grade security offered via SIM-based NFC
Forthcoming GSMA Events

Mobile World Congress 2014
Barcelona, Spain
24 – 27 February 2014

Over the course of four days, 24-27 February 2014, Mobile World Capital Barcelona will host the world’s greatest mobile event.

Mobile Asia Expo 2014
Shanghai, China
11 – 13 June 2014

Mobile Asia Expo 2014 expects over 20,000 business and consumer attendees, as well as an incredible conference, innovative exhibition and impressive line-up of Featured Programmes.