Welcome and introduction

Marina Solin, Regulatory Director
GSMA
Barcelona

Setting the scene

Barriers and principles for contactless mobile payments

Jorgen Gren
Deputy Head of Unit, DG INFSO
European Commission
Scenario/vision
Seamless citizen experience with interoperable mobile solutions

- Touch to Share
- Touch to Discover
- Touch to Pay
- Touch to Ticket
• The pull services —the long tail — can *cumulatively* outweigh the push services
• **All services** need to be considered for mobile solutions roll-out
Barriers to proximity payment solutions

- Fragmented markets
- Proprietary solutions
- Lack of interoperability

- Roll-out of infrastructure, how to achieve critical mass?

- Low trust: security and data protection, liability for unauthorized transitions

- Market operators’ “wait-and see” approach – what is the tipping point?
Where is the industry going?
Untapped potential

• Mobile operators interested in investing in NFC – 1 in 5 smartphones will be NFC enabled in 2014 (Green paper)

• In the US, value of NFC payments is expected to reach $50 billion by 2016 (ABI, 2011)

• Over 5m SIM-based NFC devices sold in South Korea in 2011 (~10% of user base)

**BUT:**

• **Europe lagging behind**: in 2010 only 7 m mobile payment users in Western Europe, while 63 m in Asia / Pacific

• Important global m-payments initiatives outside of Europe: Apple, Google, Visa, MasterCard…
FP sponsored research – particularly for NFC development
StoLPan - Store Logistics and Payment with NFC:
• Budget 4.9m euros
• Deliverables: developed a JAVA based mobile NFC host application, back-office architecture, communication protocols
• Completed in 2008
• Partners:
Key principles for the future (embedded in GP)

- Quick development and massive deployment of infrastructure
- Smart co-operation and fair sharing of profits
- (Resilience and efficiency of m-payment systems
- Interoperability and open standards: to limit market fragmentation: to ensure convenient, cost-effective solutions – is more standardisation necessary, where?
- Appropriate level of security for the whole m-payment value chain resulting in high degree of consumer trust
Take home message

• Support for efforts of European industry to deploy mobile contactless payments

• But:

• Added value for digital single market
  – Open standards,
  – Interoperability
  – Competition issues respected
Thank you for your attention!
M-payments Green Paper - key policy questions

• Is more standardisation necessary? What role, if any, can CEN or ETSI play? (Q 21, 22)
• In which segment in the payment chain are there interoperability gaps? How can they be addressed? (Q 23, 24)
• How to address governance structure of standardisation and interoperability? What is the role for public authorities (Q 25, 26)
• Are m-payments secure enough? What approaches/technologies are most effective? Would legislation on payment security necessary? (Q 25 – 27).
• How to ensure protection of personal data? (Q 28).
• What are benefits / drawbacks of roll-out of m-payments for transport? Can transport pave a way for m-payment roll-out in other sectors? How to engage payment service providers?
Socio-economic benefits of SIM-based NFC

Panelists:
Nav Bains, Business Lead Mobile NFC Services, GSMA
Michael Knott, Vice-President, Booz and Company
Daniel Gurolla, Vice-President, Orange

Moderator: Marina Solin, GSMA
Mobile Trends
Trends in the Mobile Phone evolution

- Processing power and sophistication of the mobile phone is growing
  - Analogue voice only
  - Digital voice and data
  - High speed data
  - Internet enabled
  - Cameras
  - Music
  - Touch screen
  - Application stores
  - Mobile Wallets
  - Spectrum of new services (NFC proximity payments, loyalty, access, transportation ticketing etc)
  - Location based services (personalised advertising)
  - What next?
NFC – Business Opportunity

- 860 million NFC-enabled handsets driving a payment value of €110B globally by 2015 (Frost & Sullivan, 2011)

- Global NFC payments to reach US$50B by 2014 (Juniper Research, 2011)

- North America and Western Europe will account for 50% of NFC payments market by value in 2014 (Juniper Research, 2011)

- Value proposition is much more than just payments – (e.g. Ticketing, Access Control, Coupons, Vouchers)

- Operators can increase customer loyalty with new, innovative value added services
Mobile NFC brings new services to the consumer

- Consumers
  - Retail
  - Transport
  - Ticketing
  - Government
  - Other
A complex ecosystem involving many players

<table>
<thead>
<tr>
<th>Mobile Network Operators</th>
<th>Trusted Service Managers</th>
<th>Banks</th>
<th>Electronic Payments Networks</th>
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<tbody>
<tr>
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Objective GSMA’s NFC Programme

“To stimulate the successful global deployment of interoperable and SIM-secured NFC / contactless services and ecosystems which are available to all”
NFC Programme

- Working in 9 different markets around the world to help accelerate SIM-based NFC service launches
  - Australia, Belgium, Brazil, Canada, China, Western Europe, Japan/Korea, Nordics, Poland
Building the NFC Ecosystem

Differing approaches to NFC will fragment the market
NFC can only succeed with collaboration across the value chain
GSMA Liaisons and collaboration

- GSMA has been working with a number of key players in the ecosystem for several years, including:
  - EMVCo
  - ETSI
  - European Commission
  - European Payment Council
  - Euro-Commerce
  - GlobalPlatform
  - IATA
  - NFC Forum
  - NRF
62 Operators Participating/supporting NFC Project
Over 20 NFC Pilots around the world

1. AT&T (Phase 2 co-lead, Phase 3 Lead)
2. KT (Phase 1 Lead, Phase 2 co-lead)
3. Astelit
4. Azerfon
5. Belgacom
6. Brazil Telecom
7. Celcom
8. China Unicom
9. Chunghwa Telecom
10. CMCC
11. CSL
12. Dialog
13. Digij
14. DST
15. Econet
16. EITC
17. Elisa
18. Etisalat
19. FarEasTone
20. GlobeTel
21. IMC Island
22. Kall
23. KDDI
24. KPN
25. Maxis
26. MCI
27. Meteor
28. MobiCom
29. Mobilkom Austria
30. Mobitel d.d.
31. MTN
32. MTS
33. NTT DOCOMO
34. Orange
35. Partner
36. Pelephone
37. Rogers
38. SFR
39. SINGTEL
40. SINGTEL OPTUS
41. SK Telecom
42. SMART
43. Softbank Mobile
44. Starhub
45. Swisscom
46. Taiwan Mobile
47. TDC
48. Telecom New Zealand
49. Telefonica-O2
50. Telenor
51. TeliaSonera
52. Telecom Italia
53. Telstră
54. Telus
55. Turkcell
56. T-Mobile
57. Verizon
58. Vimpelcom
59. Vodafone
60. Wataniya
61. Wind
62. Zain
GSMA Approach

- Customer surveys
- Feedback from pilots
- Inputs from Standards Bodies (e.g. use cases)

Use case analysis & business requirements

Technical architecture facing business requirements

- Operator Common position
- White papers

Standards Architecture definition

Standards Protocol definition

Existing Contactless Infrastructure

Public domain White Papers, Reports
GSMA Publications

- Business Opportunity Analysis Public White Paper

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GSMA Publications

- NFC Technical Guidelines V2 White Paper
GSMA Publications

- GSMA Requirements for SWP NFC Handsets V4
GSMA-EPC Publication

- EPC/GSMA TSM document V2
GSMA Publications

- M-Ticketing White Paper
GSMA-IATA Publication

- GSMA-IATA White Paper v1 published February 2011
Socio-Economic Benefits of SIM based NFC Services

Socio-economic benefits of SIM-based NFC
November 2011
Analytical approach covers multiple stakeholders and sectors

Consumers
- Retail
- Transport
- Ticketing
- Gov’t
- Other

‘Provider’ Verticals

Mobile Network Operators
Financial Institutions
OTT Players
Other (Marketing, TSM, etc.)

‘Enabler’ Verticals

Operational cost-benefit
Implementation cost-benefit

Source: Booz & Company analysis
Two market scenarios underpin key study messages and outputs

- Scenario 1: Collaboration and Standardisation
- Scenario 2: Fragmented and Proprietary
Standardisation drives greater aggregate transaction volume

Total NFC Transaction Volume
(assuming all sectors and markets)

Number of NFC Transactions
(#b)

- Expectation of ~9 billion transactions in our identified regions in 2014; *IE Market Research and Booz & Company analysis*
- Frost & Sullivan forecasts a 5yr CAGR of 118% between 2010 and 2015 in NFC payment value for the EU.
- Standardisation reduces cost and infrastructure barriers, creating a more conducive enabling environment for national as well as local market players.

Source: Juniper, ComScore, Frost & Sullivan, IE Market Research, Booz & Company analysis

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Increased transaction flows underpin these impact areas

Source: Juniper, ComScore, Frost & Sullivan, IE Market Research, Booz & Company analysis

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Penetration of activated handsets increases with standardization.

Source: Juniper, ComScore, Frost & Sullivan, IE Market Research, Booz & Company analysis

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Standardisation and collaboration can drive five key socio-economic impacts

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Source: Booz & Company analysis
SIM Based NFC phone availability
…but there aren’t any handsets…are there?

Take Janus KM-S220

KT Take 2
…but there aren’t any handsets…are there?

Samsung Wave 578

Samsung Galaxy Note
...but there aren’t any handsets...are there?

Samsung A170
Show Touch

Samsung Wave M
...but there aren’t any handsets...are there?

Samsung Player City (Star II)  Samsung Galaxy SII
…but there aren’t any handsets…are there?

LG T530

LG Optimus Pro
...but there aren’t any handsets...are there?

LG Optimus Net

BlackBerry Bold
...but there aren’t any handsets…are there?

Nokia ‘Oro’ C7

Nokia C7
...but there aren’t any handsets...are there?

**Pantech (SKY)**

**Vega Racer**

**Pantech (SKY)**

**Vega Number 5**
...but there aren’t any handsets...are there?

ZTE Skate

ZTE 233
...but there aren’t any handsets...are there?

Sagem Cosyphone

LG T20
NFC Trends
Mobile NFC progress to date

- 2006: Fragmented
- 2007: Coordinated
- 2008: Lack of progress?
- 2009: Opportunity!

**Standardisation efforts**

2007: SWP

**NFC Pilots**
- 2008: 12 PBM Pilots completed

**Ecosystem and Business Model development**

**Standards based Handset development**

**Commercial Launches**
- 2010: France, Korea
- More in 2011/12
NFC Momentum is growing
SIM based Mobile NFC : Global Activity

### Canada: Bell, Rogers, Telus
- Launch planned: 2012
- Services: Payment, Ticketing, Couponing, Loyalty
- Partners:
  - Banks: CIBC, RBC, Scotia Bank, TDC
  - Retailer: TBC
  - Transport: TBC

### USA: ISIS (AT&T, T-Mobile, Verizon)
- Launch planned: 2012
- Services: Payment, Ticketing, Couponing, Loyalty
- Partners:
  - Card Issuer: Barclaycard
  - Retailer: TBC
  - Transport: UTA

### France, Germany, Italy, Spain, UK: DT, Orange, Telecom Italia, Telefonica, Vodafone
- Launches planned: 2011/2012
- Services: Payment, Ticketing, Couponing, Loyalty
- Partners: TBC
  - 2010 Bouygues, Orange and SFR launched services in France
  - 2011 Orange launched services in UK

### Netherlands: 6-Pack (KPN, Vodafone)
- Launch planned: 2012
- Services: Payment, Ticketing, Couponing, Loyalty
- Partners:
  - Banks: ABN Amro, ING, Rabobank
  - Retailers: Albert Hein (TBC)

### Japan: Docomo (launched 2004), Softbank Mobile and KDDI (preparing for service launch)
- Services: Payment, Ticketing, Couponing, Loyalty, Commerce
- Partners: More than 40 Service Providers
  - More than 37m subscribers and available in more than 1.4m shops

### Korea: KT, SKT
- Launched: 2010
- Services: Payment, Ticketing, Couponing, Loyalty, Commerce
- Partners:
  - Card Issuers: Shinhan, Lotte, KEB, NHCard, KB, Bcard, Citi, SamsungCard, Hana SK Card, Hyundai Card
  - E-payment: T-money, Myb, Eb
  - Loyalty: Over 20 different loyalty and couponing companies
  - Retailers: Lotte, ParisBaguette, GS, CGV, Dunkin Donuts
  - Movie-Theatre: Cinus Megabox

### China: China Mobile, China Unicom and China Telecom
- Many pilots completed
- Services: Payment, Ticketing, Couponing, Loyalty, Commerce
- Preparing for service launch

### Further collaborations forming in:
- China, Japan, Korea
- Belgium
- Poland
- Hungary
- Norway, Finland, Denmark, Sweden
- Czech Republic
- Brazil

China: China Mobile, China Unicom and China Telecom
- Many pilots completed
- Services: Payment, Ticketing, Couponing, Loyalty, Commerce
- Preparing for service launch
Commercial NFC service launches

- **France**
  - Multi-MNO, Multi-Bank, Multi-TSM service launched in Nice, 22 May 2010
  - Further rollout planned in 9 more French cities in 2012.

- **Netherlands**
  - Multi-MNO, Multi-Bank JV announced 09\textsuperscript{th} September 2010, rollout 2012

- **Korea**
  - KT announced commercial launch in October 2010

- **USA**
  - AT&T/Verizon/T-Mobile announced ISIS JV (to launch 2012)

- **Further announcements expected throughout 2012 and 2013**
  - UK, Spain, Poland, Czech Republic, Belgium, Hungary
Key Messages: Call to Action

- 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
Thank You!
Socio-economic benefits of SIM NFC

Study Conclusions and Key Messages
NFC is part of a larger shift in market models and consumer behaviour.

Emergence of new business models and value chains centered on the disintermediation of existing players.

A paradigm shift in consumer commerce behaviour, driven by the emergence and ubiquitous acceptance of an alternative ecosystem.

Features

Players

Time

1990s - today

Today - 2 years

2+ years

Value Proposition

Era of Plastic
Consolidated capabilities

Focus:
Back-end Enabler

Traditional model, faced with increasing competitive, regulatory and market pressures

Era of Mobile
New standards + applications

Focus:
New Platforms

Emergence of new business models and value chains centered on the disintermediation of existing players

Changing cost and revenue margins due to regulatory shifts

New revenue model focused on layered VAS, marketing, and data analytics

Era of Disruption
New platforms & ecosystems

Source: Booz & Company analysis
Our *study* assumed, in addition to SIM-based NFC, an open multi-functional *m-wallet* construct (similar to Korea)

**Payment**
- Mobile payment in
  - Retail stores (POS)
  - Restaurants
  - Substitute credit / debit cards

**Tickets**
- Mobile ticketing in:
  - Cinemas & theatre
  - Concerts
  - Sport events
  - Boarding passes

**Transport**
- Mobile phone could be used as a contactless transportation ticket

**Loyalty**
- Loyalty programs
- NFC enabled posters / billboards

**Coupons**
- Put coupons and vouchers in a single card using your mobile phone

**Access**
- Access control for
  - Office buildings
  - Computer systems
  - Cars

Source: Booz & Company analysis
A number of key trends are defining a tipping point for NFC

NFC - Supporting Trends

**Increasing Smartphone Penetration**
- Sales of smartphones have rocketed, changing how users perceive and are willing to use their phones
- In Western Europe it is estimated ~60% of handsets shipped in 2011 will be smartphones

**Contactless Technology Roll-out**
- Contactless card payments have helped the roll-out of NFC-ready terminals to stores
- Google wallet can already claim more than 120,000 merchants in the US able to offer the “tap to pay” service

**Shifting Consumer Behaviour**
- Consumers are increasingly willing to access the Internet and make transactions using mobiles
- In the U.S., 20 percent of adults who can access the web use their mobile devices to shop, and almost as many use them to make banking transactions

**Take-up of Mobile Advertising**
- The lure of relevant and personalised offers has seen mass subscription to mobile advertising
- Groupon claims more than 80 million subscribers to its local deep-discount service globally

Source: Gartner, Forrester, Company websites, Booz & Company analysis
Our study attempts to articulate the benefits of standardisation & collaboration regarding SIM-based NFC

Two Scenarios Were Developed

**Standardisation/Collaboration Scenario**
- Assumes collaboration and standardisation of SIM-based NFC
- MNO manages the secure element
- Consumer experience defined by broad interoperability

**Fragmentation Scenario**
- Assumes fragmented adoption of NFC standards and business models
- Applies a historical baseline and uses existing growth projections
- Assumes that NFC activities will be done on an opportunistic basis

Source: Booz & Company analysis
The study had two key objectives – to look at both the “macro” and “micro” benefits of standardisation & collaboration.

**Key Objectives of the Study**

**“Macro” (Societal) Impacts**
- Government intervention
- Positive externalities
- Consumer benefits

Establish key socio-economic impacts
Identify areas for public sector engagement

Focus for today

**“Micro” (Ecosystem) Impacts**
- Costs
- Commercial models
- Revenue streams

Identify key cost and revenue components
Establish key commercial impact for different stakeholders

Source: Booz & Company analysis
We conclude that standardisation & collaboration can drive five key “macro” socio-economic benefits

<table>
<thead>
<tr>
<th>Key Benefits</th>
<th>Key Messages</th>
<th>Overall Market Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Increased Competition</td>
<td>Platform standardisation reduces cost and infrastructure barriers, creating a more conducive enabling environment for both local and global service providers</td>
<td>SIM-based NFC standardisation creates market conditions that deliver indirect, non-financial value across a range of market actors</td>
</tr>
<tr>
<td>Greater Consumer Choice + Value</td>
<td>Increased competition drives greater product/service innovation and price differentiation, providing consumers with more choice and value</td>
<td>Externalities are centred on scale; they are amplified by infrastructure development and increased transaction volume</td>
</tr>
<tr>
<td>Increased Financial Transparency</td>
<td>Widespread adoption of NFC can provide improved insights on financial transactions, including tax, customs, AML/CFT, and fraud</td>
<td>NFC standardisation drives greater infrastructure development and uptake by creating a common framework for implementation and product interoperability</td>
</tr>
<tr>
<td>Improved Public Sector Servicing</td>
<td>Infrastructure standardisation can stimulate public sector adoption of NFC-enabled identity cards (e.g., health, social security)</td>
<td>Industry collaboration on SIM-based standards and/or regulatory engagement to support or mandate these standards, are critical to realizing macro benefits</td>
</tr>
<tr>
<td>Reduced Carbon Footprint</td>
<td>Increased growth in electronic payments, reduced cash processing and card manufacturing, and improved incentivizes for public transport can drive carbon offsets</td>
<td>In addition to products requiring secure elements, SIM-based NFC can also benefit non-secure offerings (e.g., access, tagging)</td>
</tr>
</tbody>
</table>

Source: Booz & Company analysis
We attempted to quantify a number of macro benefits from standardisation & collaboration

<table>
<thead>
<tr>
<th>Benefits</th>
<th>KPI</th>
<th>Model Conclusions (for W. Europe, 2016)</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td><strong>Fragmented</strong></td>
<td><strong>Standardised</strong></td>
</tr>
<tr>
<td>More rapid &amp; sustainable customer adoption, resulting in: - increased competition - increased consumer choice</td>
<td>- Active NFC as % of smartphones</td>
<td>79%</td>
<td>89%</td>
</tr>
<tr>
<td></td>
<td>- # of NFC transactions</td>
<td>11.8b (13%)</td>
<td>19.1b (20%)</td>
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<tr>
<td></td>
<td>- Service value per wallet</td>
<td>$114</td>
<td>$128</td>
</tr>
<tr>
<td></td>
<td>Fraud ($b)</td>
<td>$2.6b</td>
<td>$2.3b</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>Reduced Carbon Footprint</td>
<td>Carbon emissions (b gms)</td>
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</table>

- Greater baseline number of NFC-enabled smartphones
- Higher percentage of activated NFC mWallet;
- Increased usage across different verticals due to infrastructure penetration and consumer-oriented benefits
- Multi-factor authentication
- More rapid (and OTA) de-activation
- Reduction in paper coupons
- Reduction in paper ticketing
- Reduction in plastic cards
Similar benefits *could* be achieved through non SIM-based NFC platforms but we believe SIM-based is optimal.

**Enhanced Security**
- Leverage OTA capabilities to securely manage, maintain, and upgrade device software
- Ability to encrypt and securely store customer transaction data
- Integration with core operator servicing capabilities

**Foundation for Growth**
- Greater incentivisation for MNOs to adopt NFC-enabled handsets
- Enhanced rationale for collaboration across multiple market players

**Market Diversity**
- Greater ecosystem interoperability across devices, operators, and networks
- Improved ability for different market players – of different sizes and sectors – to create NFC-enabled products

Source: Booz & Company analysis
Key conclusions

1. **Transaction volume is significantly augmented** when the consumer has the ability to conduct NFC transactions across a range of sectors and use cases.

2. Increased usage is not just a question of replacing existing transaction form factors (e.g., cards) but also in providing a more interactive and compelling user experience (one that links social, transactional, and loyalty – all in a real-time, location-based environment).

3. The **penetration of NFC infrastructure is a significant driver for adoption and usage**. This is determined by the efforts of different market stakeholders and is unlikely to be achieved through one entity alone.

4. **Increased transaction volume creates greater market benefits** that impact individual consumers, commercial stakeholders, and government entities.

5. These benefits are not solely centred on commercial impact but also **drive a set of socio-economic impacts that in aggregate create a range of positive externalities**.

6. NFC is a very national play with very different models per nation imaginable; **There is no one size fits all approach**.
Booz & Company contact information

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Mobile NFC

Daniel Gurrola: VP Consumer Mobile Strategy, Orange
Barcelona, February 2012
NFC will launch the 3rd revolution of mobile

Connecting our mobile digital world with the physical world around us
More than a product - a rich platform for service innovation

- **card emulation**
  your phone securely stores money and entitlements. With a tap, it transacts in a trustworthy way

- **tag reading/writing**
  your phone picks up web links, phone numbers and other info from NFC tags on posters and stickers

- **peer to peer**
  you exchange information with other people, just by tapping your phones together

Building an ecosystem with all the partners is key to the success
Mobile NFC will enable simple transactions and a range of bank services on the phone

Quick and simple payments

My bank in my pocket

**Peace of mind**
- No need to carry cash or look for an ATM

**My life in control**
- Real time statement of payments

**Convenience**
- Transfer money immediately to friends and family

**Efficiency**
- Payments linked directly to loyalty schemes
Mobile NFC has the potential to transform the airport experience

Simplify today's mobile experience

- More than 70% of passengers would like to use mobile for check-in and boarding *
- Between 2% and 3% succeed*

Automatic check In
Self-service bag drop
Security check
Coupons for retailers
Lounge access
Boarding the plane

* SITA 2011 Passenger Survey
Orange is a pioneer of Mobile NFC in Europe, with launches and trials in all major markets.

**UK:** Barclaycard and Orange UK payment partnership

**Malaga, Spain:** Transportation pilot

**Nice, France:** Multi-service commercial launch

**Warsaw, Poland:** Trial with bank WBK

**Madrid, Spain:** Waste management trial
The successful launch in Nice was a 1st for Europe

- All three mobile operators have participated
- Full range of services
- Customer acquisition through ‘standard’ channels
- 9 cities now plan to deploy mobile NFC services
NFC will launch a revolution on mobile

- Most new smartphones will be enabled by the end 2012
- More than a product - a rich platform for innovation
- Working together to build national ecosystems is key
- Other players are now launching services

The time to act is now!
Thank You
Q&As
Closing

Nav Bains,
Business Lead Mobile NFC Services,
GSMA