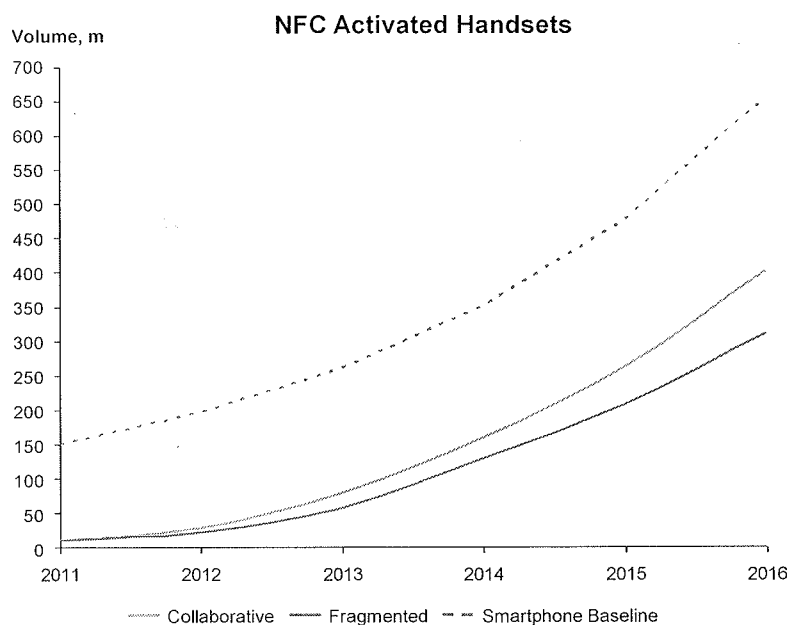




Penetration of activated handsets increases with standardization



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



Key Impacts	Key Messages
1 Greater Consumer Choice + Value	Increased competition drives greater product innovation and price differentiation, providing consumers with more choice and value
2 Increased Competition	Standardisation reduces cost and infrastructure barriers, creating a more conducive enabling environment for national as well as local market players
3 Increased Financial Transparency	Widespread adoption of NFC can provide improved insights on financial transactions, including tax, customs, and Anti-Money Laundering
4 Improved Public Sector Servicing	Infrastructure standardisation can stimulate public sector adoption of NFC-enabled identity cards (e.g., health, social security)
5 Reduced Carbon Footprint	Increased growth in electronic payments, reduced cash processing and card manufacturing, and improved incentivizes for public transport can drive carbon offsets

Source: Booz & Company analysis

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SIM Based NFC phone availability

© GSM Association 2012

...but there aren't any handsets...are there?

Take Janus KM-S220



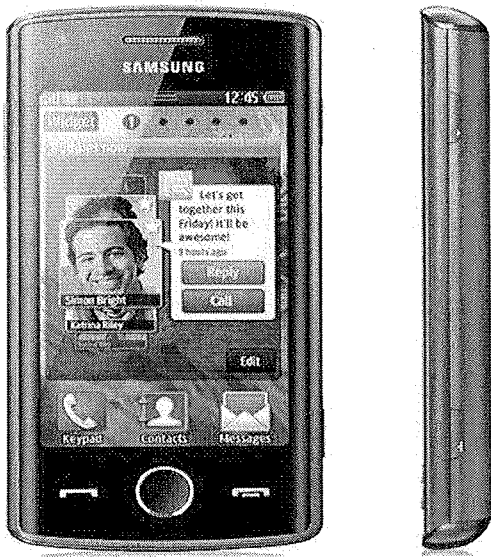
KT Take 2



© GSM Association 2012

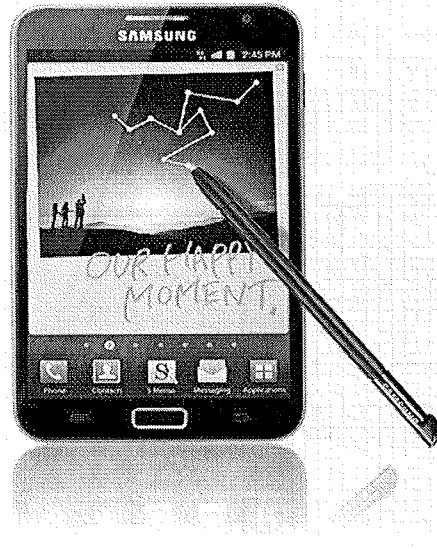
...but there aren't any handsets...are there?

Samsung Wave 578



© GSM Association 2012

Samsung Galaxy Note



...but there aren't any handsets...are there?

Samsung A170 Show Touch



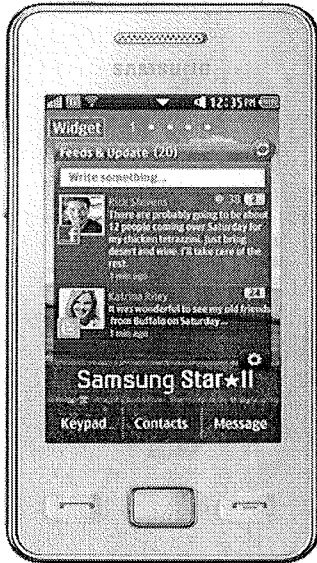
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Samsung Wave M



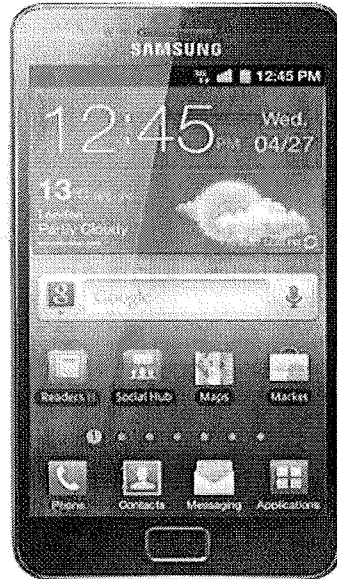
...but there aren't any handsets...are there?

Samsung Player City (Star II)



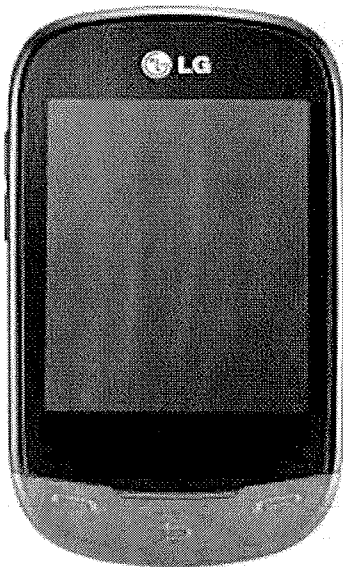
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Samsung Galaxy SII



...but there aren't any handsets...are there?

LG T530



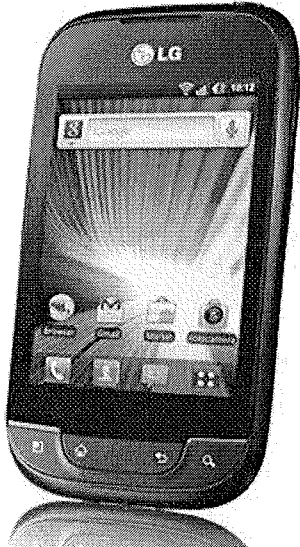
© GSM Association 2012

LG Optimus Pro



...but there aren't any handsets...are there?

LG Optimus Net



© GSM Association 2012

BlackBerry Bold



46

...but there aren't any handsets...are there?

Nokia 'Oro' C7



© GSM Association 2012

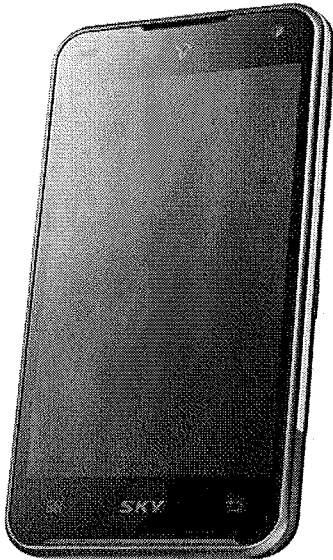
Nokia C7



47

...but there aren't any handsets...are there?

**Pantech (SKY)
Vega Racer**



© GSM Association 2012

**Pantech (SKY)
Vega Number 5**



48

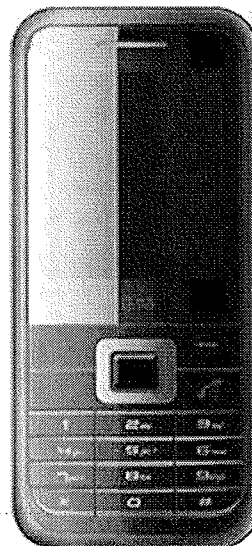
...but there aren't any handsets...are there?

ZTE Skate



© GSM Association 2012

ZTE 233



49

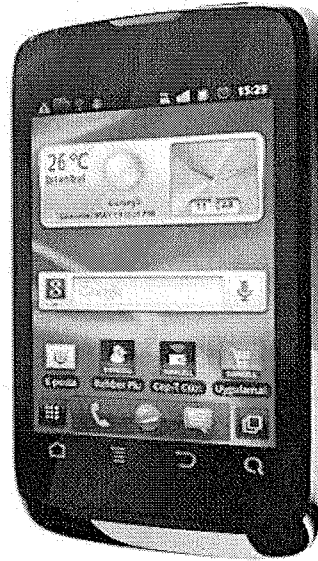
...but there aren't any handsets...are there?



Sagem Cosyphone



LG T20



© GSM Association 2012

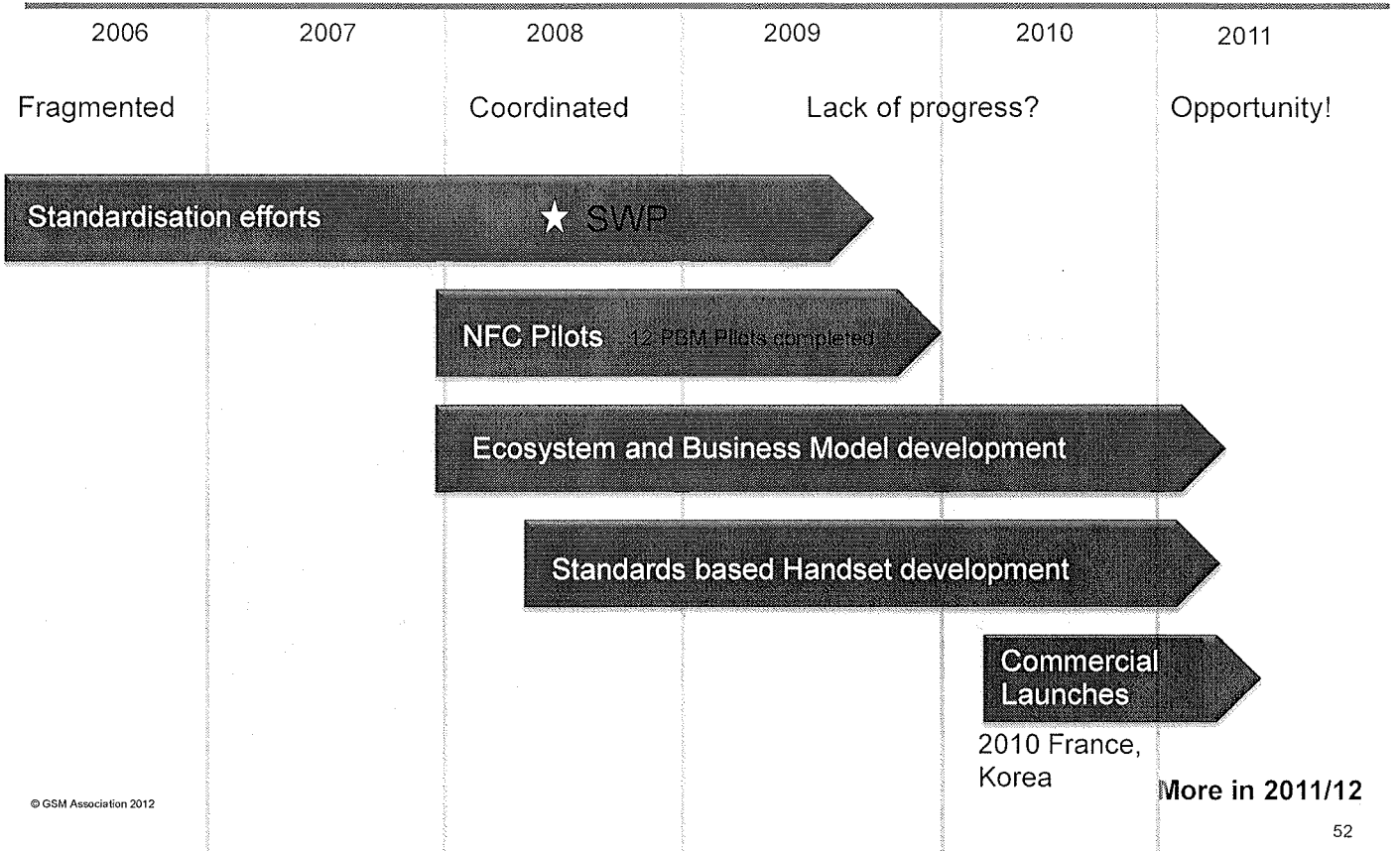
50



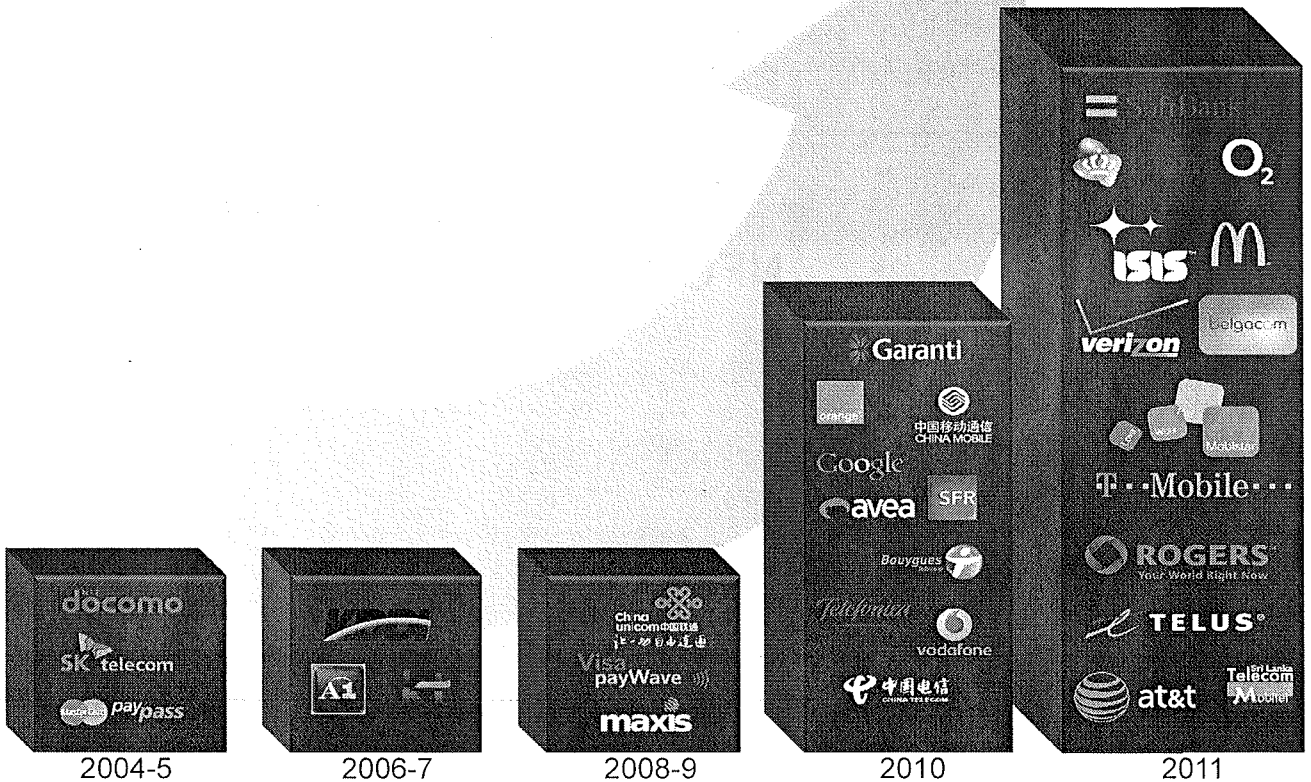
NFC Trends

© GSM Association 2012

Mobile NFC progress to date



NFC Momentum is growing



SIM based Mobile NFC : Global Activity

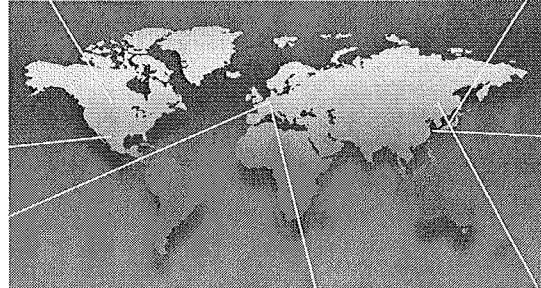
Canada: Bell, Rogers, Telus
 Launch planned: 2012
 Services: Payment, Ticketing, Couponing, Loyalty
 Partners:
 Banks: CIBC, RBC, Scotia Bank, TDC
 Retailer: TBC
 Transport: TBC

Further collaborations forming in:

- China, Japan, Korea
- Belgium
- Poland
- Hungary
- Norway, Finland, Denmark, Sweden
- Czech Republic
- Brazil

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.

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



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

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)

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 09th 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!

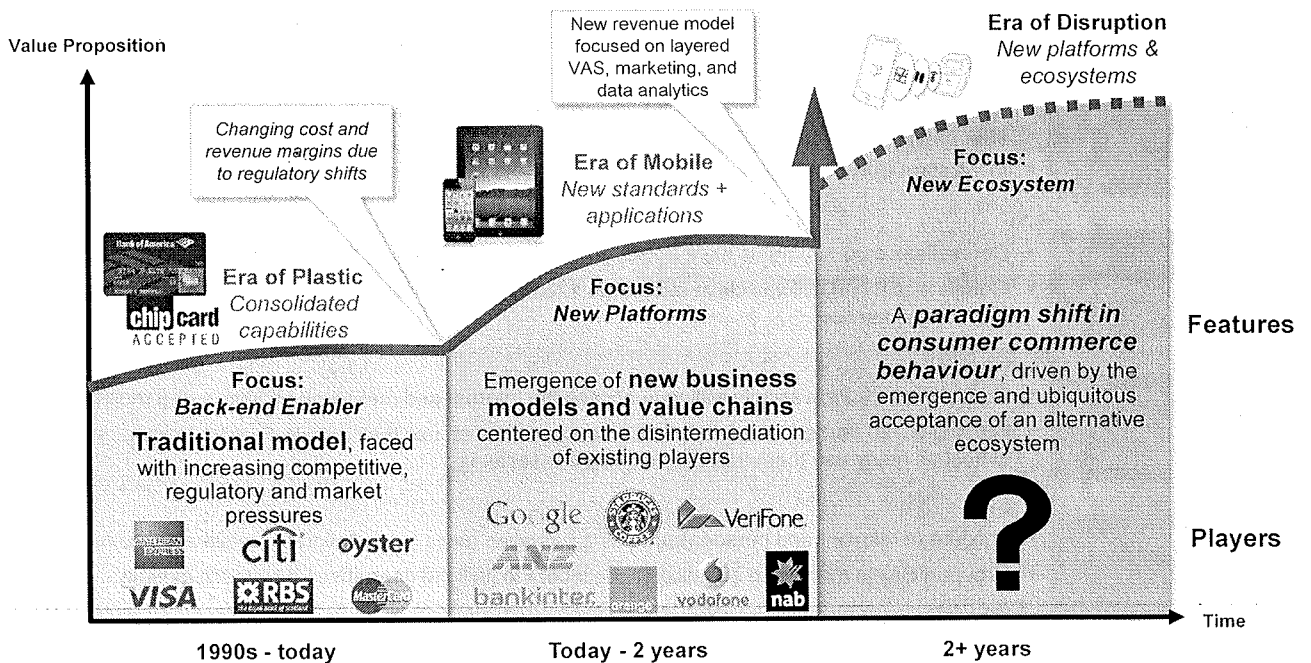


Socio-economic benefits of SIM NFC

Study Conclusions and Key Messages

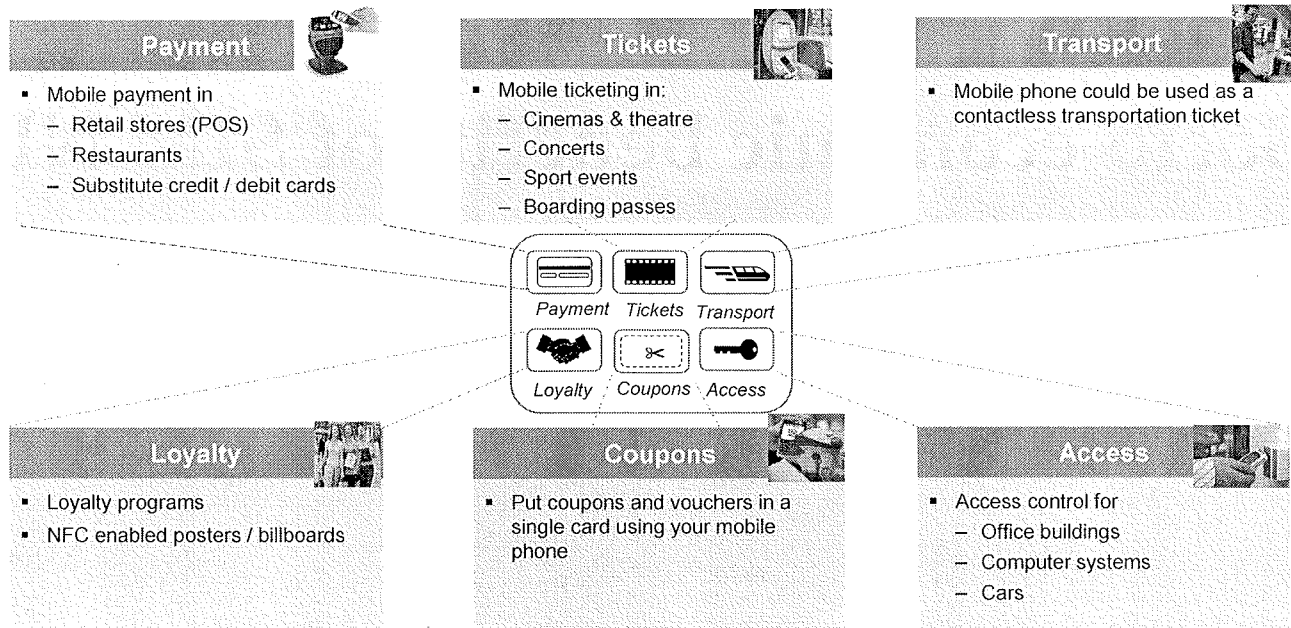
This document is confidential and is intended solely for the use and information of the client to whom it is addressed.

NFC is part of a larger shift in market models and consumer behaviour



Source: Booz & Company analysis

Our study assumed, in addition to SIM-based NFC, an open multi-functional *m-wallet* construct (similar to Korea)



Source: Booz & Company analysis

Booz & Company

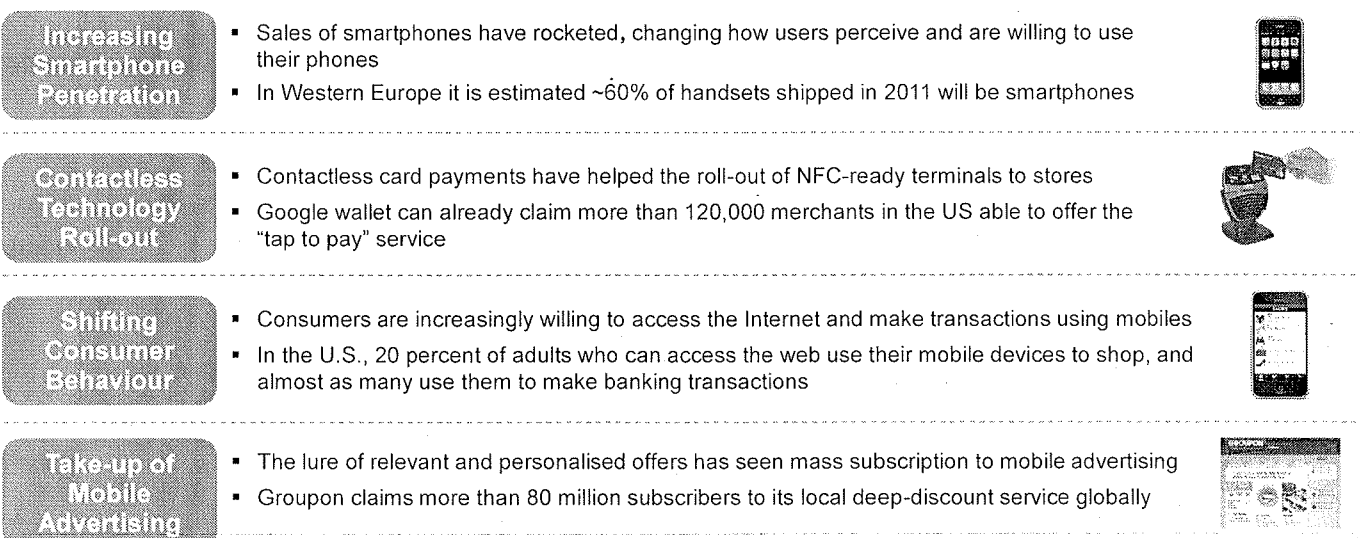
MWC RegSiminar
_Booz270212_vf.ppt

Prepared for Mobile Asia Congress 2012

60

A number of key trends are defining a tipping point for NFC

NFC - Supporting Trends



Source: Gartner, Forrester, Company websites, Booz & Company analysis

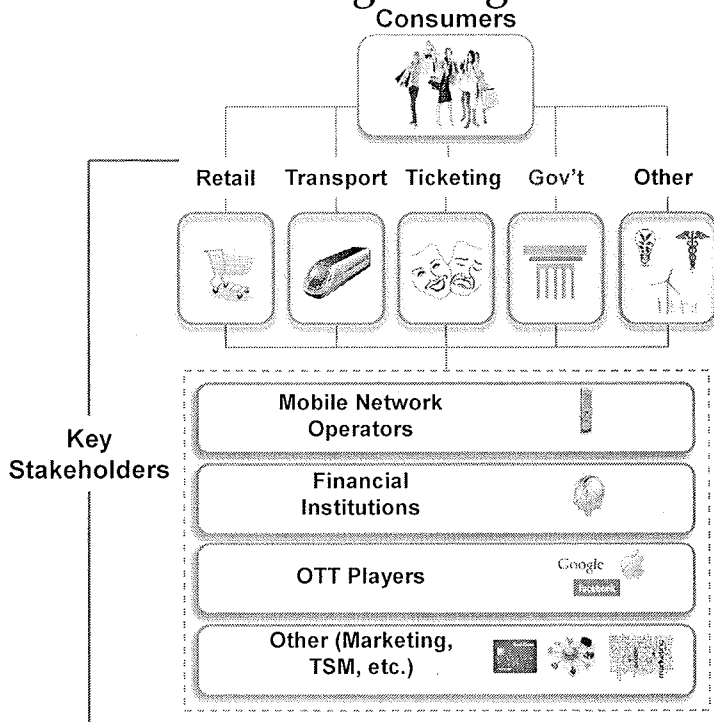
Booz & Company

MWC RegSiminar
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Prepared for Mobile Asia Congress 2012

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Our *study* attempts to articulate the benefits of standardisation & collaboration regarding SIM-based NFC



Source: Booz & Company analysis

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

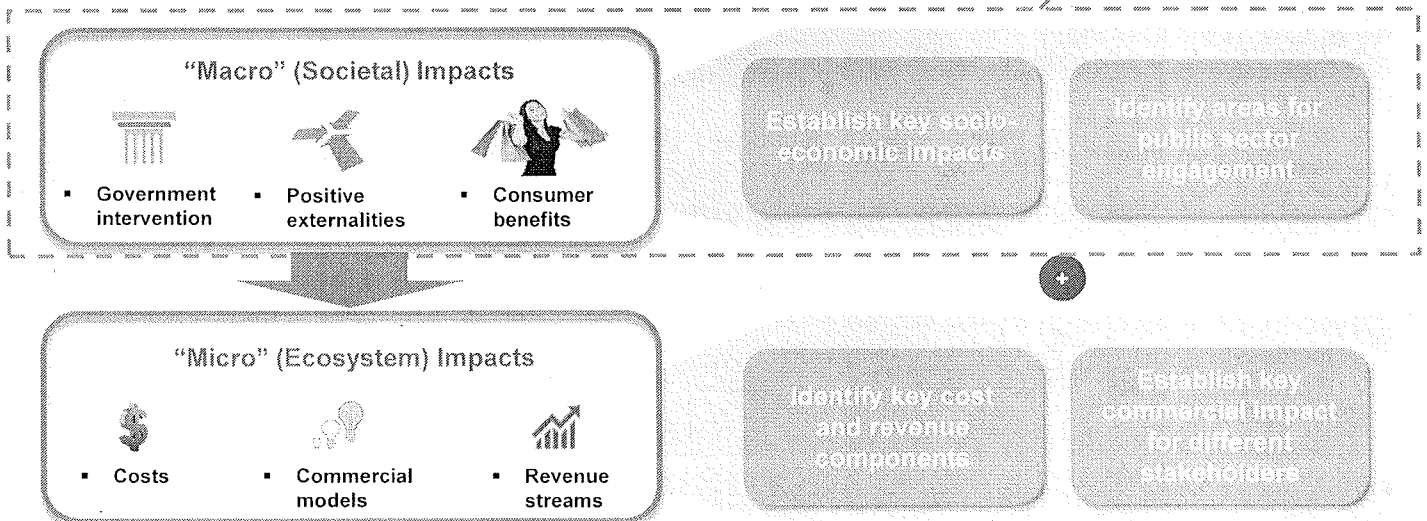
Fragmentation Scenario

- 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

The *study* had two key objectives – to look at both the “macro” and “micro” benefits of standardisation & collaboration

Key Objectives of the Study

Focus for today



Source: Booz & Company analysis

We conclude that standardisation & collaboration can drive five key “macro” socio-economic benefits

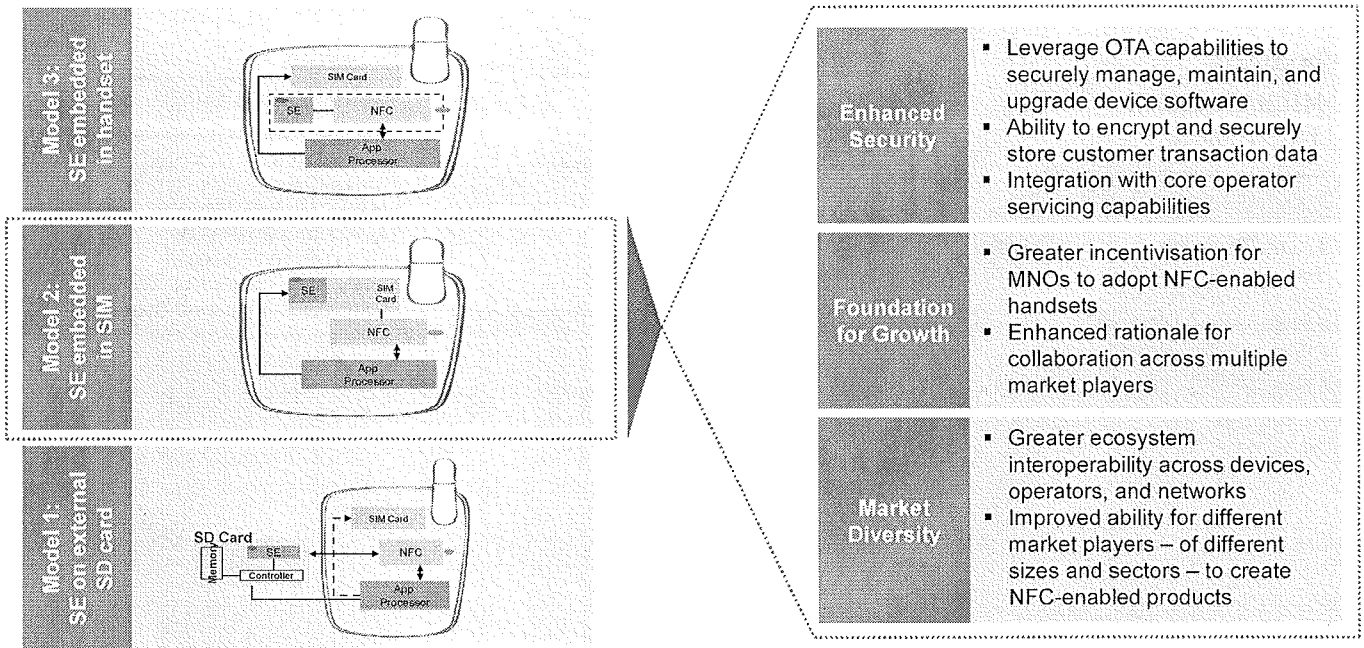
Key Benefits	Key Messages	Overall Market Impact
1 Increased Competition	Platform standardisation reduces cost and infrastructure barriers, creating a more conducive enabling environment for both local and global service providers	<p>SIM-based NFC standardisation creates market conditions that deliver indirect, non-financial value across a range of market actors</p> <ul style="list-style-type: none"> ▪ Externalities are centred on scale; they are amplified by infrastructure development and increased transaction volume ▪ NFC standardisation drives greater infrastructure development and uptake by creating a common framework for implementation and product interoperability ▪ Industry collaboration on SIM-based standards and/or regulatory engagement to support or mandate these standards, are critical to realizing macro benefits ▪ In addition to products requiring secure elements, SIM-based NFC can also benefit non-secure offerings (e.g., access, tagging)
2 Greater Consumer Choice + Value	Increased competition drives greater product/service innovation and price differentiation, providing consumers with more choice and value	
3 Increased Financial Transparency	Widespread adoption of NFC can provide improved insights on financial transactions, including tax, customs, AML/CFT, and fraud	
4 Improved Public Sector Servicing	Infrastructure standardisation can stimulate public sector adoption of NFC-enabled identity cards (e.g., health, social security)	
5 Reduced Carbon Footprint	Increased growth in electronic payments, reduced cash processing and card manufacturing, and improved incentivizes for public transport can drive carbon offsets	

Source: Booz & Company analysis

We attempted to quantify a number of macro benefits from standardisation & collaboration

Benefits	KPI	Model Conclusions (for W. Europe, 2016)			Comments
		Fragmented	Standardised	%Difference	
2 More rapid & sustainable customer adoption, resulting in: - increased competition - increased consumer choice	- Active NFC as % of smartphones	79%	89%	+27%	<ul style="list-style-type: none"> ✓ 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
	- # of NFC transactions	11.8b (13%)	19.1b (20%)	+62%	
	- Service value per wallet	\$114	\$128	+12%	
3 Increased Financial Transparency	Fraud (\$b)	\$2.6b	\$2.3b	-13%	<ul style="list-style-type: none"> ✓ Multi-factor authentication ✓ More rapid (and OTA) de-activation
5 Reduced Carbon Footprint	Carbon emissions (b gms)	800b	600b	-20%	<ul style="list-style-type: none"> ✓ 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



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**.

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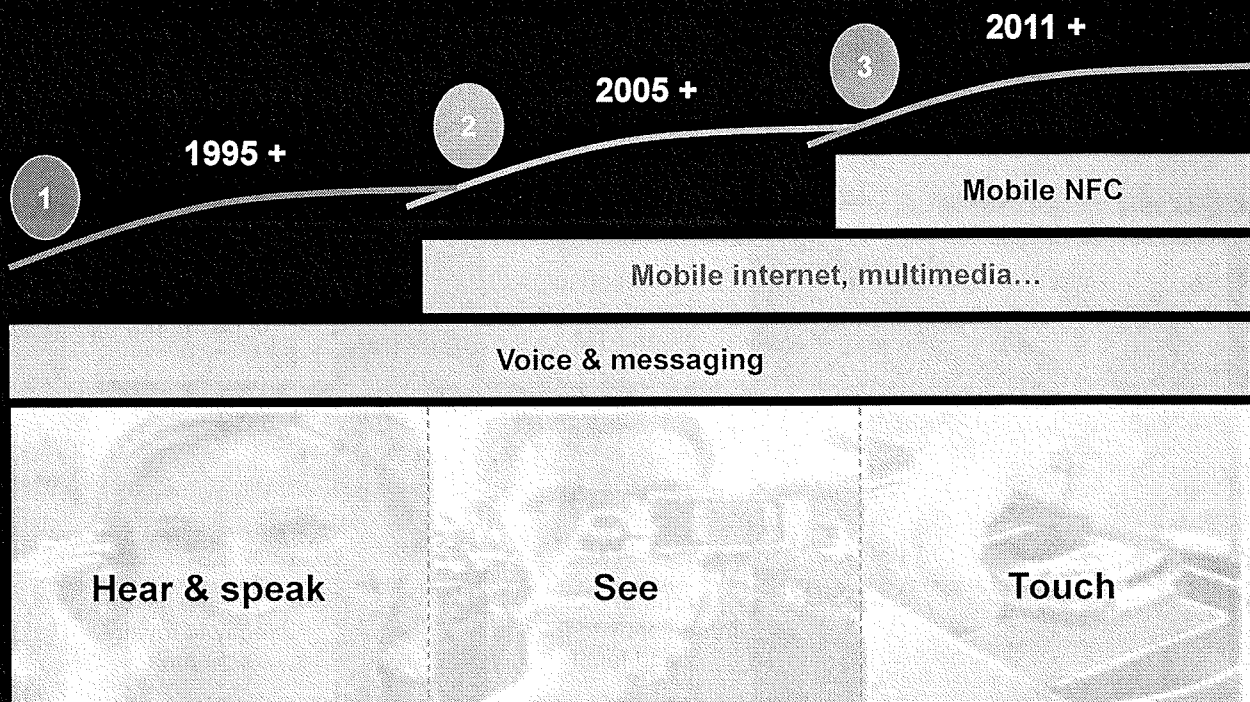
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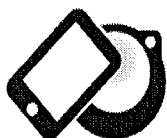
Mobile NFC

Daniel Gurrola: VP Consumer Mobile Strategy, Orange
Barcelona, February 2012



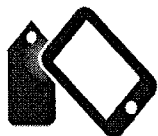


More than a product - a rich platform for service innovation



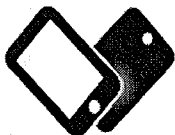
card emulation

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

Quick and simple payments



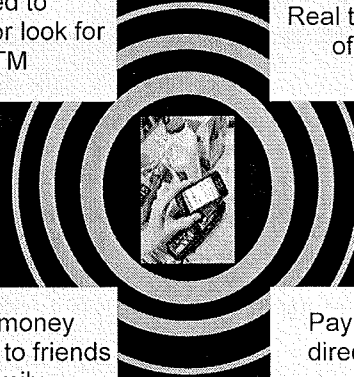
My bank in my pocket

Peace of mind

No need to carry cash or look for an ATM

My life in control

Real time statement of payments



Transfer money immediately to friends and family

Payments linked directly to loyalty schemes

Convenience

Efficiency



Automatic check in

Self-service bag drop

Security check

Coupons for retailers

Lounge access

Boarding the plane

Mobile NFC used throughout the airport journey

Simplify today's mobile experience

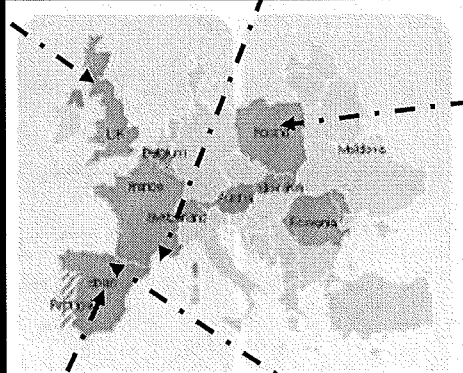
- More than 70% of passenger would like to use mobile for check-in and boarding *
- Between 2% and 3% succeed*



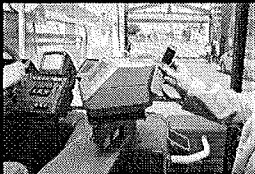


UK: Barclaycard and Orange UK payment partnership

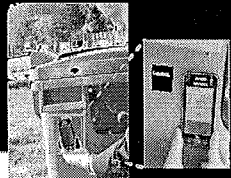
Nice, France: Multi-service commercial launch



Warsaw, Poland: Trial with bank WBK



Malaga, Spain Transportation pilot



Madrid, Spain: Waste management trial

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!



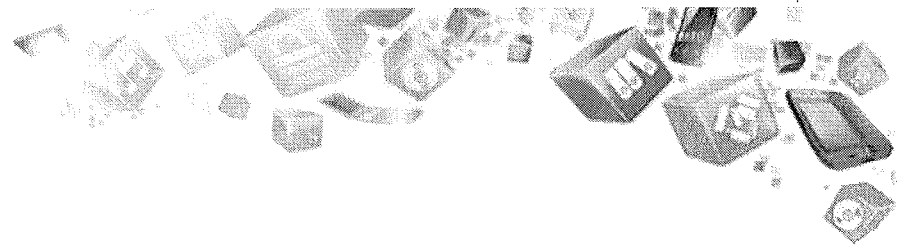
Ministerial
Programme 2012



Q&As



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Programme 2012



Closing

Nav Bains,
Business Lead Mobile NFC Services,
GSMA



