GSM Association (GSMA)
Mobile Ticketing Initiative

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GSM World Today

Global Choice
Over 4.2 billion GSM/3GSM users connected

Global Growth
1 million new connections every day

Global Data
Nearly 7 billion text messages are sent every day

Global Reach
219 countries served by GSM or 3GSM networks

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The GSMA

- Represents the interests of the *Mobile Communications Industry Worldwide*
  - Over 750 Operators Members across 219 countries/territories
  - Over 200 Associate Members (Manufacturers & Suppliers)
  - Founded 1987
  - See [www.gsmworld.com](http://www.gsmworld.com)

- GSMA is helping to create *new business opportunities* for its members

- GSMA is working to ensure that mobile services *work globally*
  - Interoperability is the key

- Several Regional Interest Groups created to support local regional activities
  - GSMA North America (NA)

- Activities take place in working groups and project teams:
  - Working groups on: Roaming, Billing, Fraud, Security
  - Large number of projects (including Pay-Buy-Mobile)
  - Mobile Ticketing and Mobile Payment are components of the Pay Buy Mobile (PBM)
GSMA M-Ticketing Initiative

- The overall goal of the m-ticketing initiative is to build and enable the mobile ecosystem to support contactless ticketing over the existing infrastructure
  - Standards-based implementation
  - Avoid or minimize changes to current infrastructure

- **Handset** enabled with Near Field Communications (NFC) technology
  - Support ISO 14443 standard
  - Must support Card Emulation and Reader/Writer modes
  - Interoperable with current contactless technology
  - Compliant with NFC Forum compliance program (to be launched in 2010)

- The **user interface** (mobile wallet) application coupled to the NFC technology
  - Replacing the content of the physical wallet
  - Enable multiple applications on a single device
The **UICC (SIM card)** has been identified as the GSMA’s preferred choice for the secure element (SE)
- Secure storage of the ticketing application and user account information
- Other contactless applications supported e.g. POS credit/debit card payment
- Uses the ETSI Single Wire Protocol (SWP) for interfacing with the phone

**UICC must conform to GlobalPlatform Card Specification**
- Support for multiple Security Domain (SD) on single card
- Enable application lifecycle management in SD by trusted third party – the Trusted Service Manager (TSM)
M-Ticketing: Advantages of the UICC – based SE

- **Portable**: Easy transfer of applications and customer data as the customer migrates from one NFC phone to another
- **Universal**: The UICC (SIM card) is widely deployed on a global basis across the GSM family of networks
- **Easy Provisioning**: Application management including updating can be done using over the air (OTA) facilities
- **Security**: The UICC (SIM) is a highly secure platform conforming to the GlobalPlatform smart card standards for hosting of sensitive applications; Each service provider (e.g. a Public Transit operator) has exclusive control over their assigned Security Domain (SD)
- **Standards Based**: The UICC specifications are based on well-established standards developed within 3GPP, ETSI and GlobalPlatform
M-Ticketing: Handsets – Where are we?

- In late 2008 GSMA issued a set of Requirements to the industry for Single Wire Protocol (SWP) NFC phone
  - Updated version to be released in Q2 2010
  - Architecture Requirements
    - UICC standardized interfaces
  - User Interface Requirements
  - Transport Protocol/Application Management Requirements
  - Power Management
  - Security Requirements
  - Certification and Type Approval Considerations
  - Performance Considerations
- Handsets starting to appear from several manufacturers
NFC Handset Players

Several NFC Handset players (and potential players) in the market:
- Nokia
- Samsung
- LG
- ZTE
- Sagem Wireless
- Phonelabs
- Apple
- Others (not yet public)
M-Ticketing: SWP NFC Handset Architecture
User Interface - Mobile Wallet

- Will allow the customer to have easy access to a range of services:
  - Proximity Payment (credit/debit cards for NFC enabled m-payment)
  - Remote Payment (e.g. via internet)
  - Transportation services (Ticketing)
  - Remittance (P2P)
  - Event ticketing (e.g. concerts, sports events etc)
  - Other customer selected applications

- Not currently part of the M-Ticketing initiative
  - Each MNO determining its own wallet strategy
Conclusions

- NFC Mobile ticketing is real
- Contactless infrastructure exists and is growing
- Well established mobile infrastructure to support ticketing application provisioning, and lifecycle management
- NFC-enabled Mobile phones are flexible with regards to choice of electronic payment systems
  - Existing individual transit payment systems
  - Use of open loop systems (e.g. Visa, MasterCard, etc)
  - Cross-system implementation
- Use of Mobile offers several benefits for the operators
  - Operational cost savings
  - Potential new revenue-generating services to the ridership
    - use of smart posters, etc
- Collaboration needed between transit operators and mobile operators to agree on ecosystem, business model and required standards