

## |||| Making NFC Services a reality

The TSM Approach

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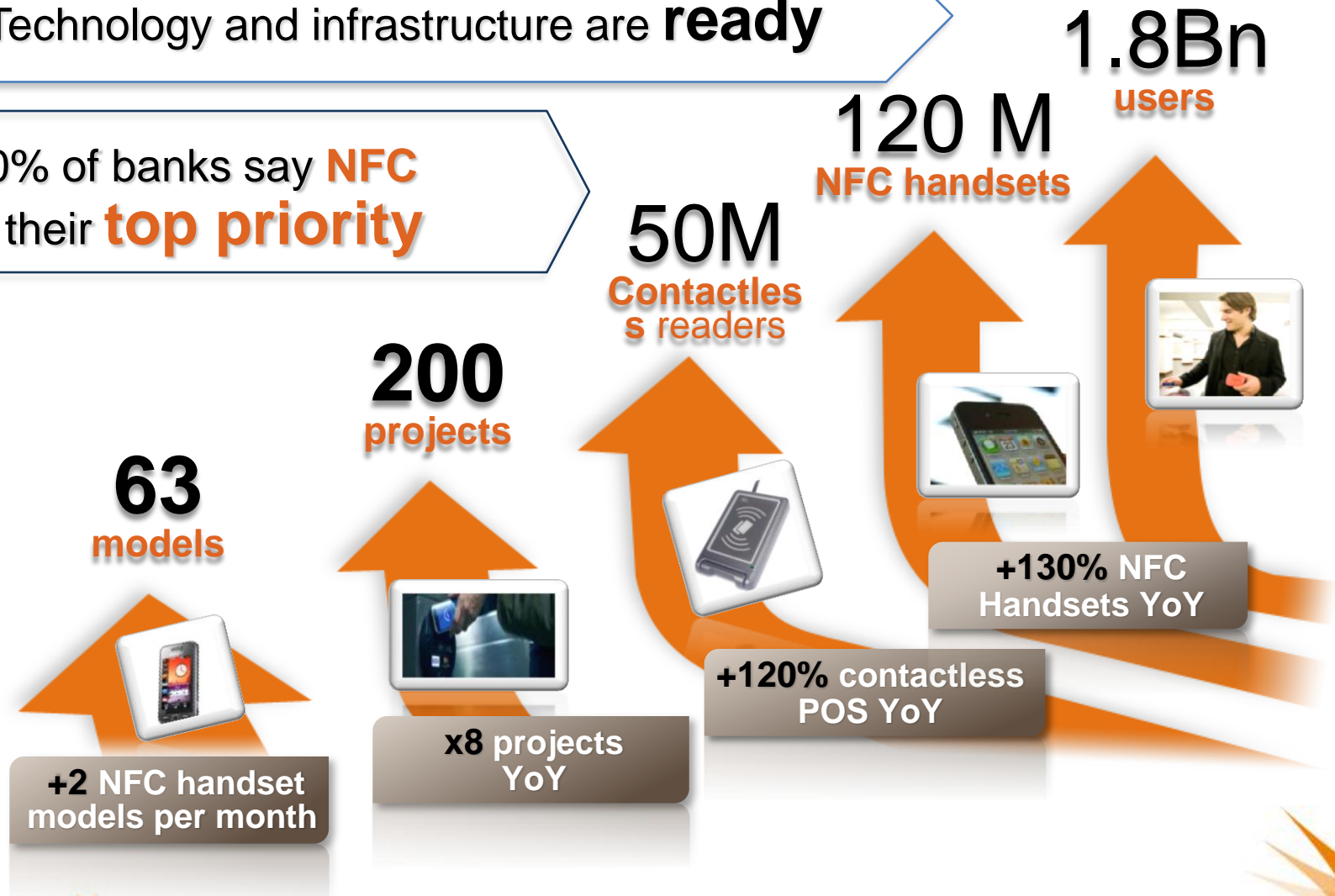
# NFC, Where we are?



# NFC is taking off and opens a new era for MNOs

Technology and infrastructure are **ready**

70% of banks say **NFC** is their **top priority**



# 2013 hot spots

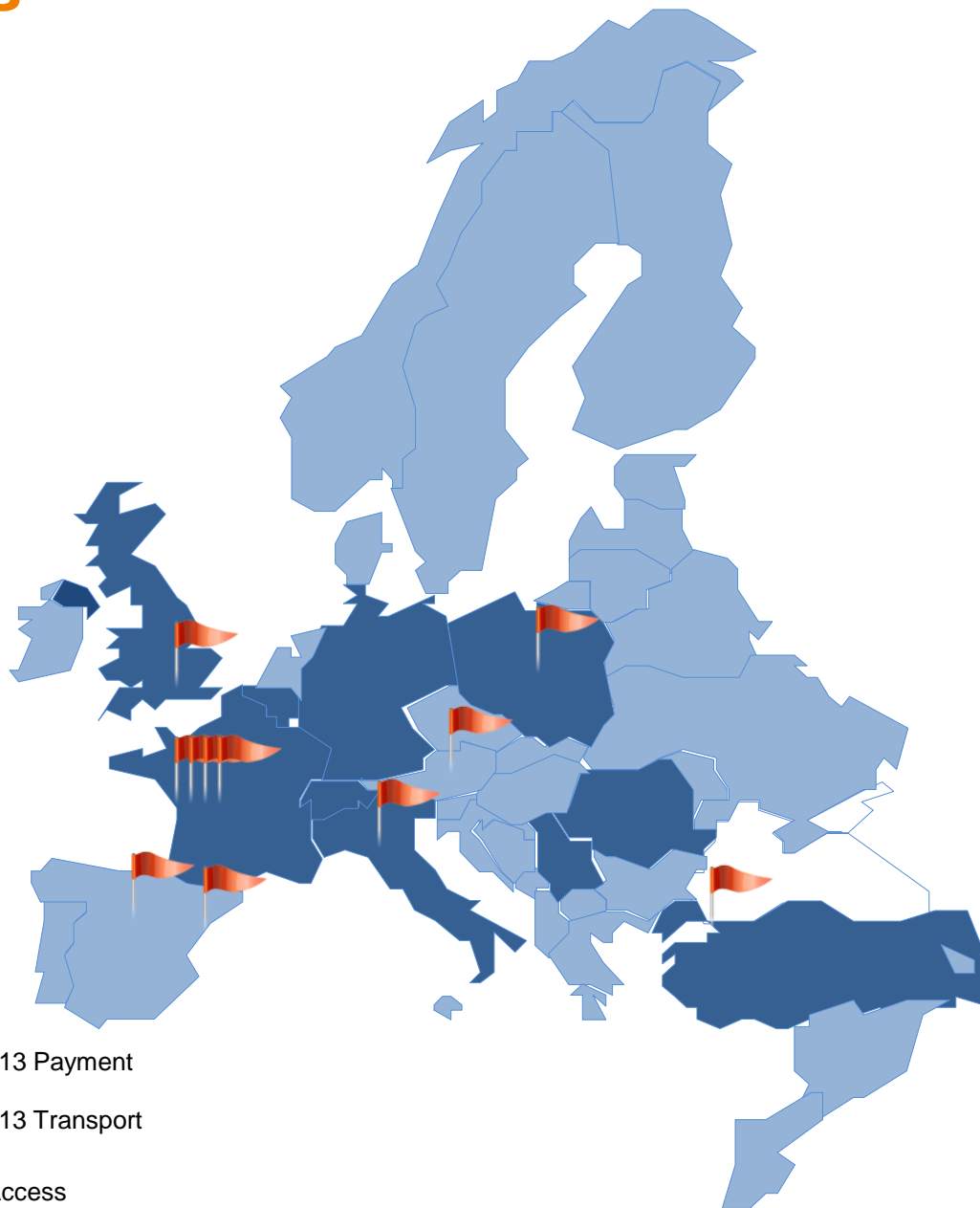
**2011 Shipment**  
13.2 m NFC UICC  
35m NFC Handsets

**2012 Forecasts**  
40m NFC UICC  
140m NFC Handsets

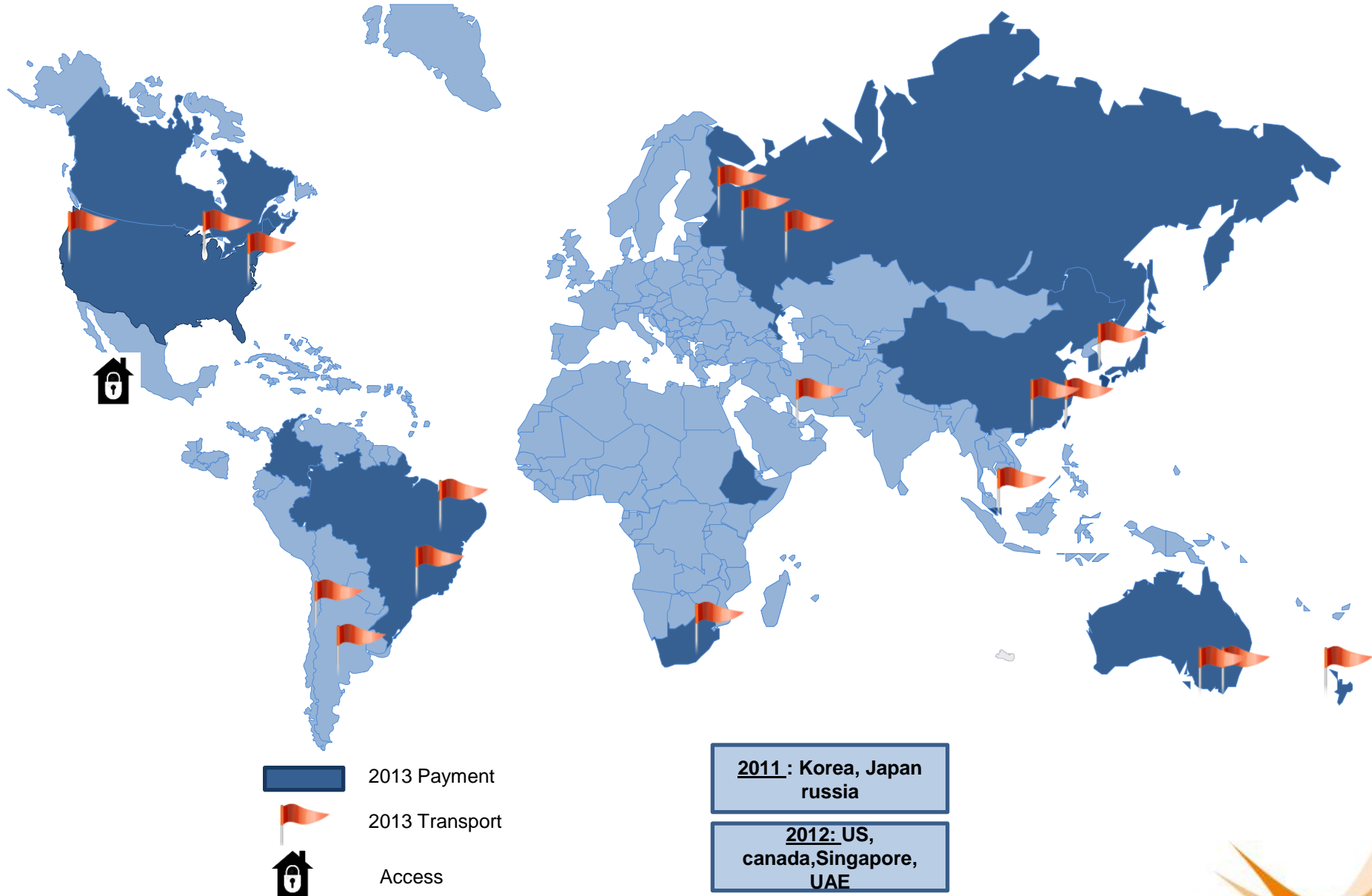
**2013 Forecasts**  
100m NFC UICC  
350 m NFC Handsets

UK  
Turkey

Austria  
France  
Poland  
Italy



# 2013 hot spots



# Handsets are not the missing link anymore

Status September 2012

**140 Mu** expected in 2012

**63 models** supporting SWP (5 Tablets)

**20 models** supporting eSE only

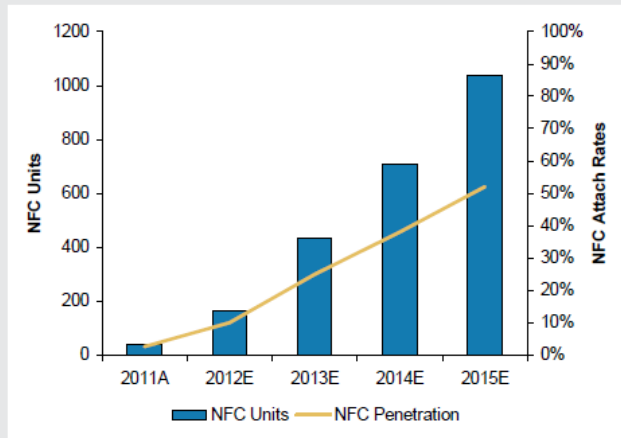
From **14 brands** (3 brands for tablets)

**31** Visa or MC **certified** (or both)

23 fully tested by **Gemalto**

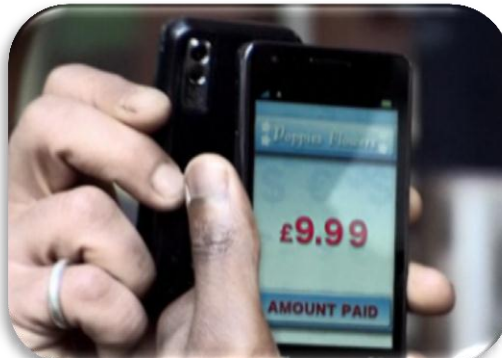
More than **50 models**  
currently being designed

Handset NFC Units to Reach 1B+ by 2015



Source: Morgan Stanley Research, CSR, iSuppli

# The NFC Ecosystem



# NFC is a cooperative multiplayer game



**We must connect  
Service Provider  
to final NFC Users**

Issuance and  
Activation

Services Life Cycle

Devices and Eligibility

Liability and Security

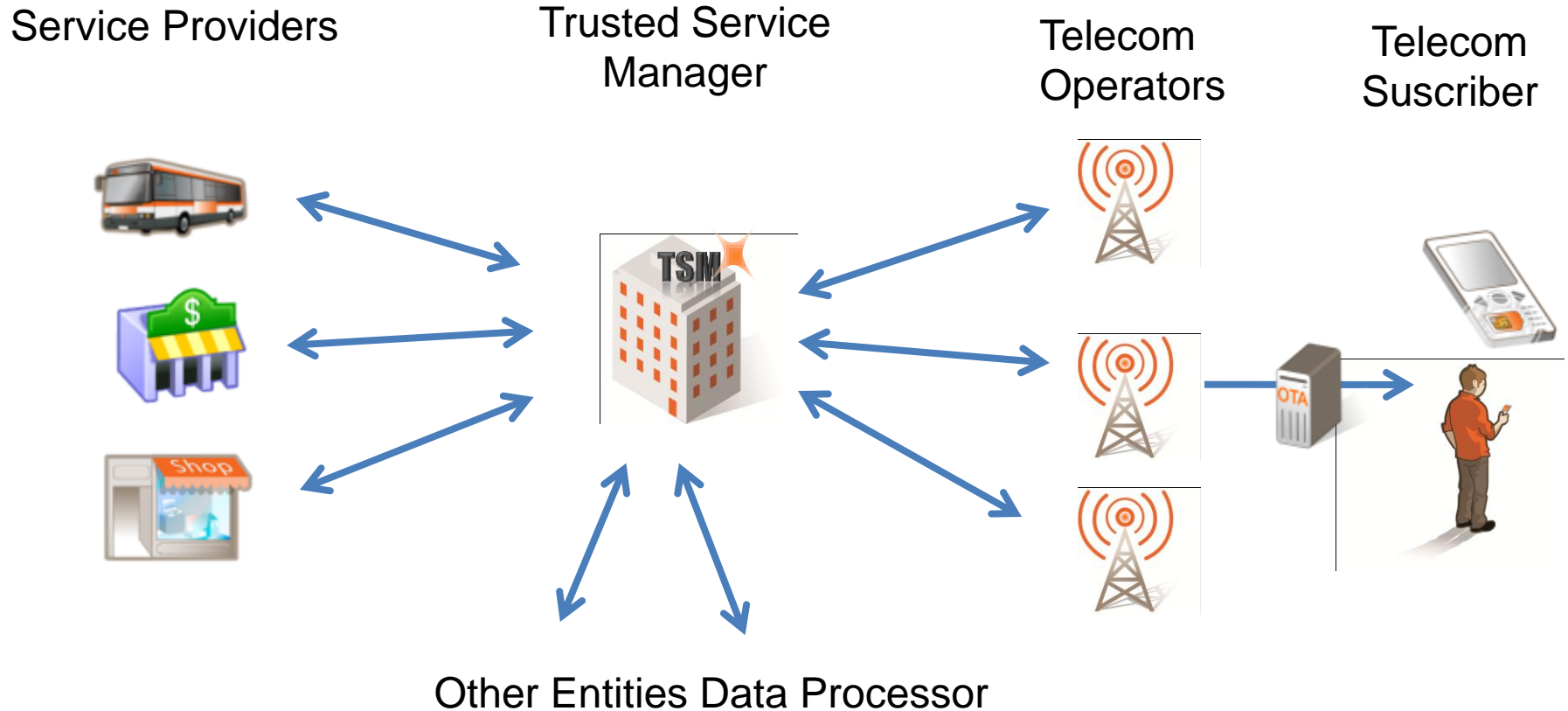
Suscriber





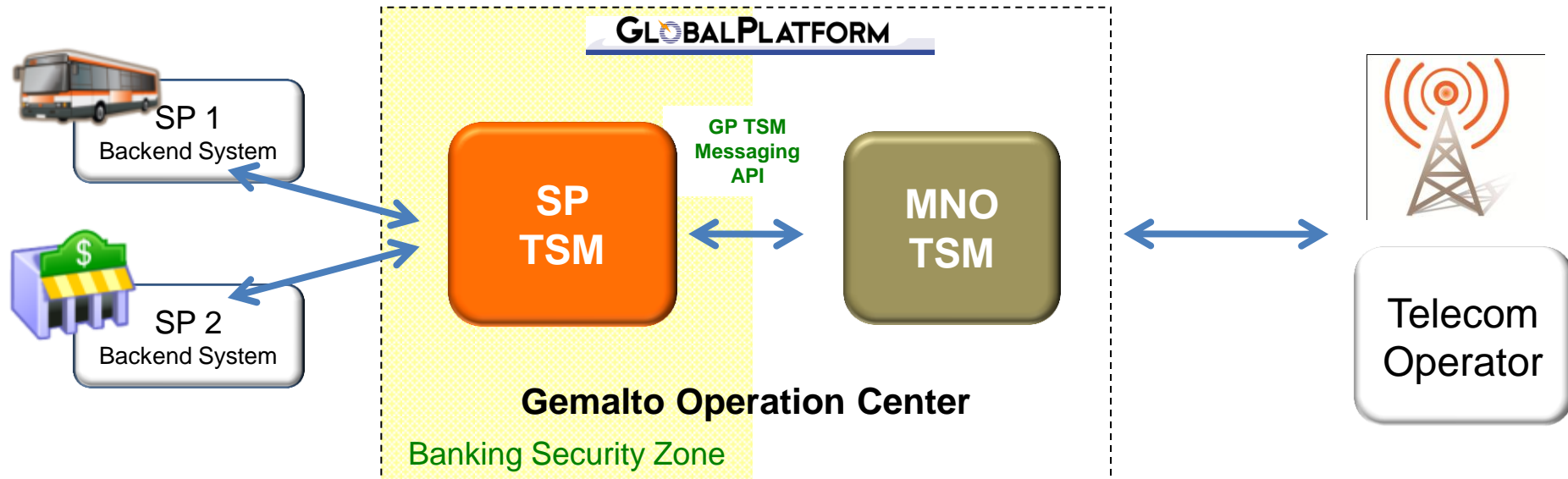
# The NFC Ecosystem

Linking the mobile Users to the Service Providers



# TSM splitted responsibility

Better flexibility and still high secure



## SP TSM

In charge of service deployment  
and application management  
for Service Provider

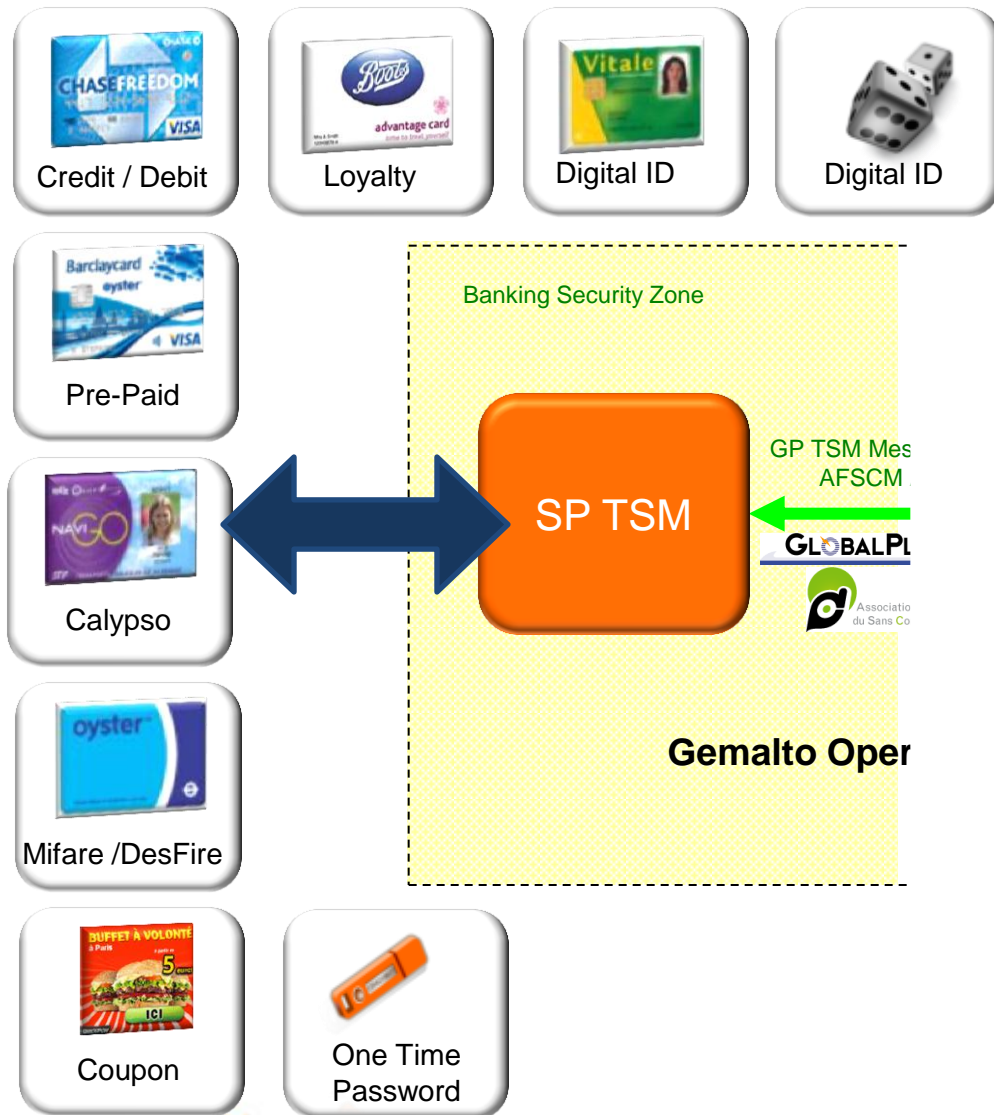
## MNO TSM

### Business Enabler

In charge of SIM content  
management for MNOs.  
Single point of control

# Service Provider TSM

Managed multiple services, Interface multiple MNOs



## SP TSM Services

### Service Package

- ✦ Applet
- ✦ User Interface

### OTA Provisioning

- ✦ SSD management
- ✦ Key management
- ✦ Data preparation
- ✦ Eligibility check
- ✦ Authenticaion
- ✦ Applet / UI Download
- ✦ Applet / UI Personalization

### OTA Life cycle

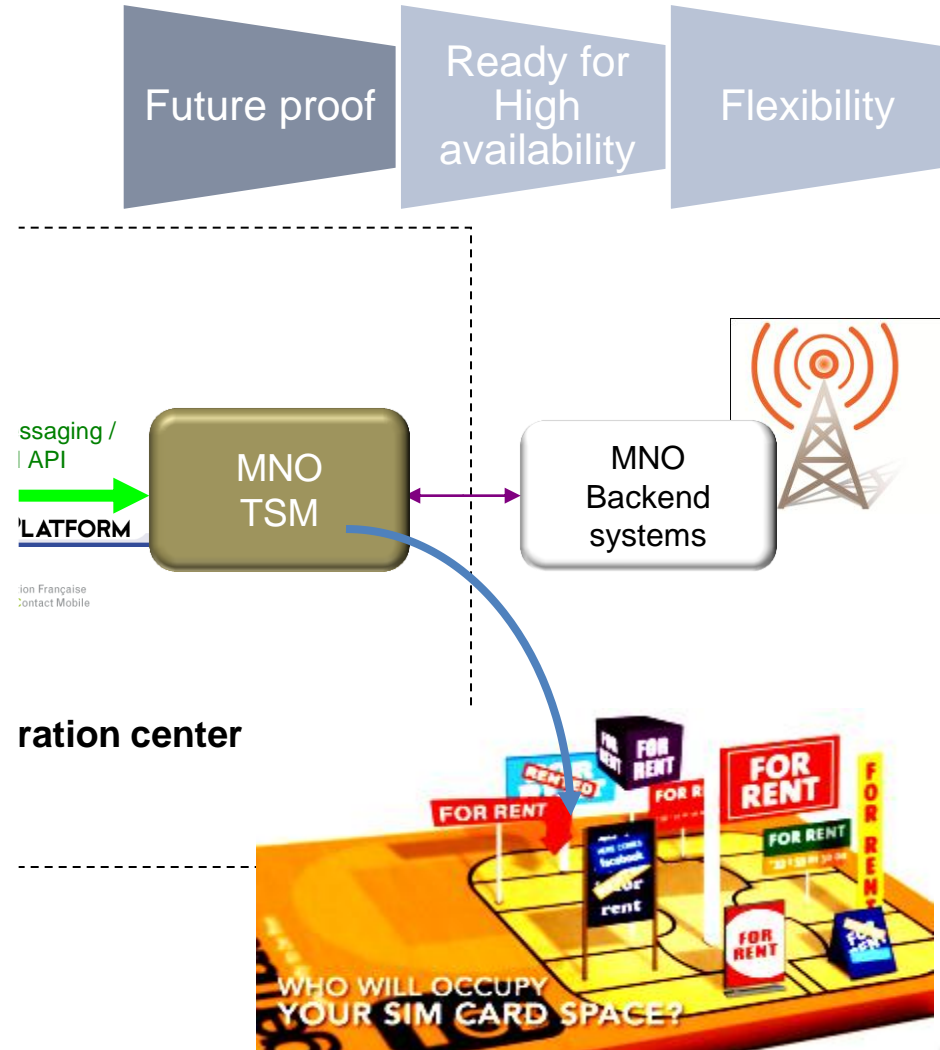
- ✦ Counter reset (payment)
- ✦ Top-up (Transport)
- ✦ Lock-Unlock-Delete (generic)
- ✦ Other Scripting services

# MNO TSM – Business Enabler Platform

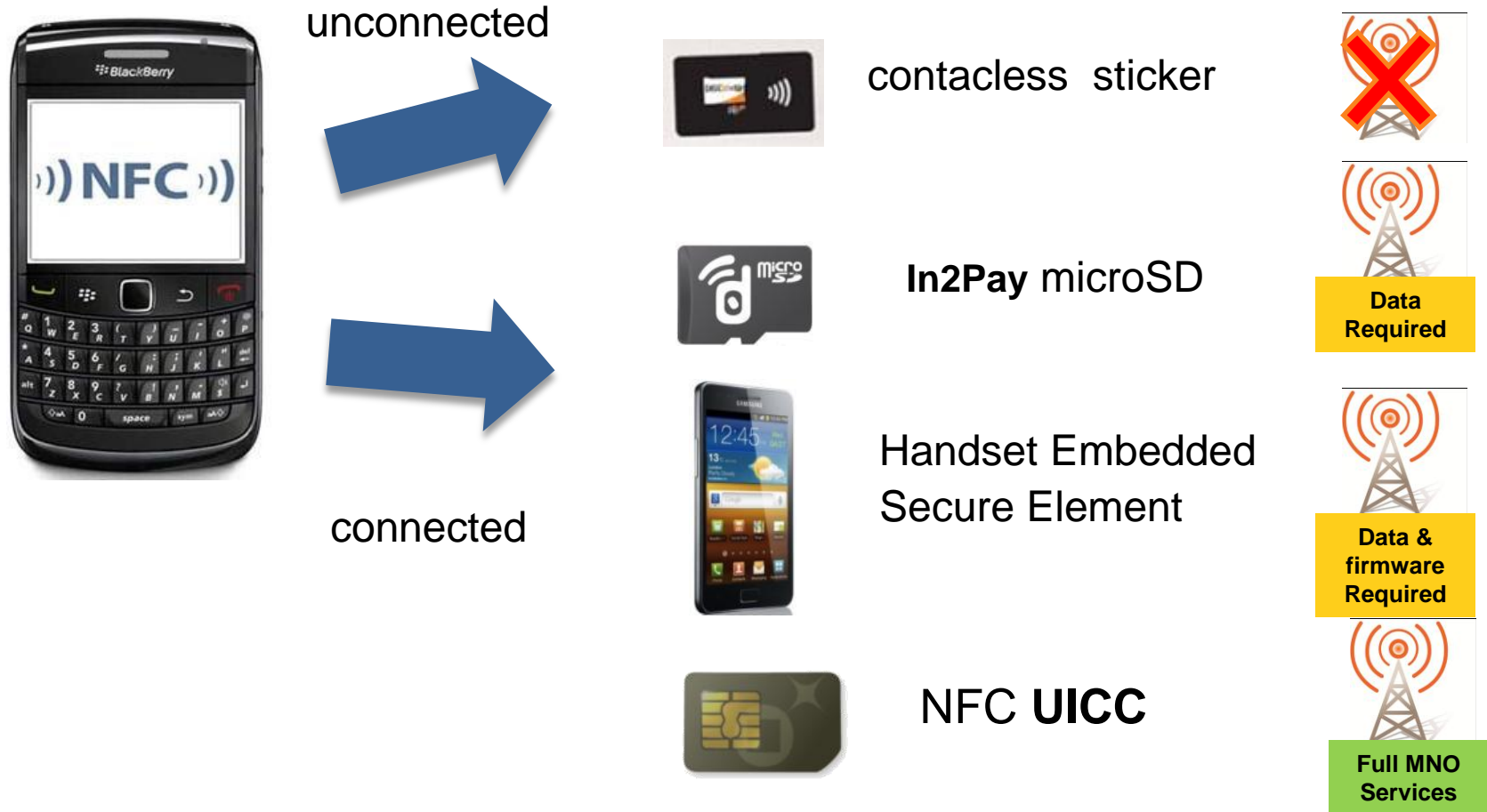
Single interface and Control point

## MNO TSM

- ✧ Standardized interface to multiple TSMs
- ✧ Support End User Eligibility check and SP environment set-up
- ✧ Support business process & service continuity
  - Service Administration
  - Billing & Report
  - Service & Subscription notifications



# Choosing a Secure Element for NFC










Only UICC will allow full growth of services potential

# One UICC for multiple applications



Different types of applications installed on **Security Domains**



Telecom	Bank	Transport	Loyalty
 (U)SIM	 	 	 



Different access control for each application  
through the TSM

# What's a Security Domain?



## Single Telecom Container

Single Key Owner

Others applications can be stored  
But Operator owns the OTA key



Multiple Key Owners

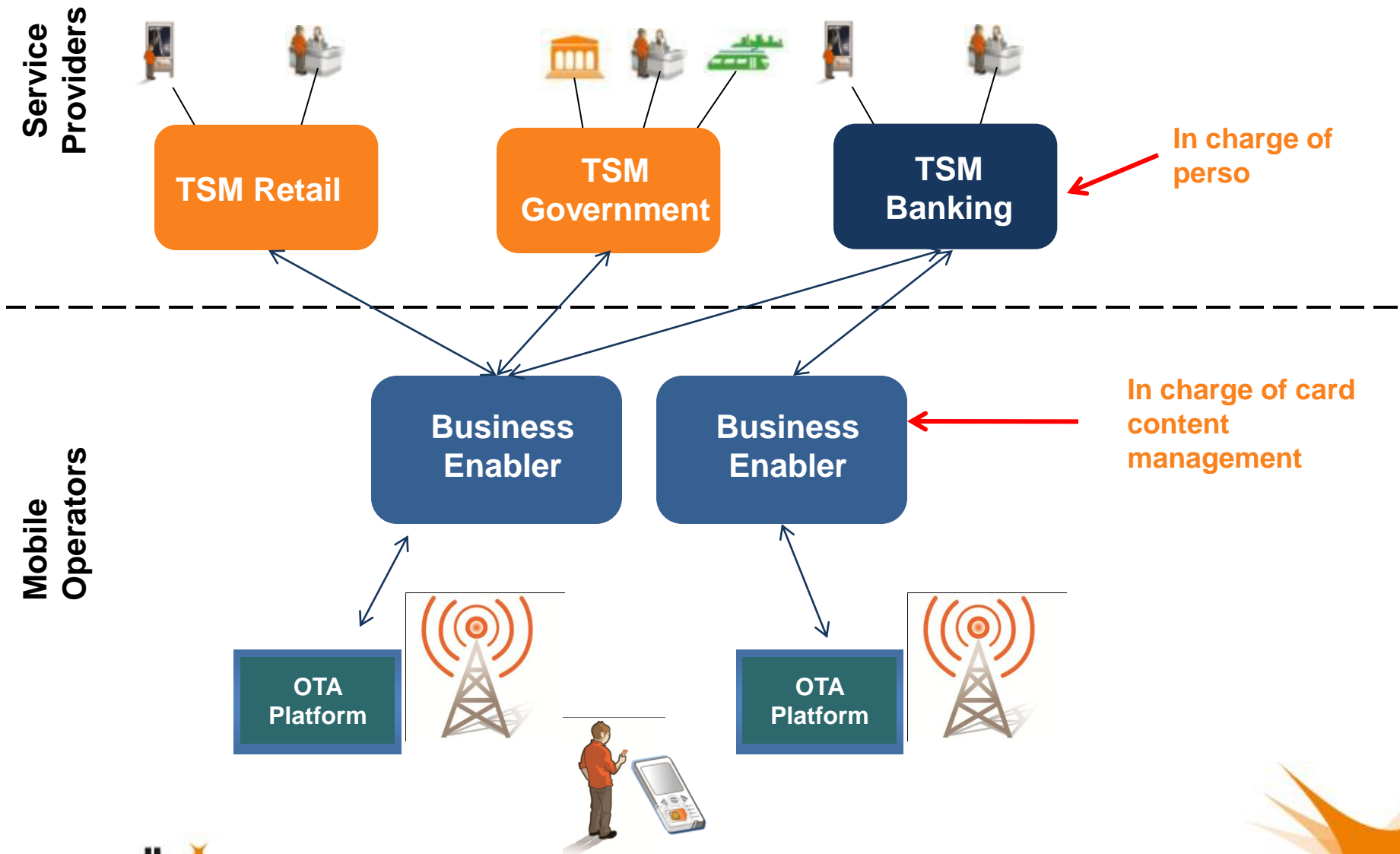
Isolated Containers

Single container can be “rented”

Global Platform Rules for Access



# A Modular Architecture





# Delegation management models

## Simple mode

- ✧ MNO executes all operations
  - Service Provider asks MNO for Service application(s) Load & install
- ✧ Service provider (TSM) can personalize his application on his own, in a Security Domain reserved for his usage

## ✧ Delegated management

- MNO agrees to delegate some operations to TSM (i.e. downloading the application) in a dedicated Security Domain
- For each operation and card, MNO provides a token to TSM

## ✧ Authorized management

- TSM is free to perform any operation on a Security Domain reserved for his usage

**Adopted for some pilots  
(i.e. Nice/Citizy and  
others)**



**Viable business model,  
accepted by Banks**



**Recommended by GT0**

**Deployed only when MNO  
is part of the TSM JV**



# More on Global Platform



# Security requirements for Mobile NFC

## How to answer Service Providers concerns?

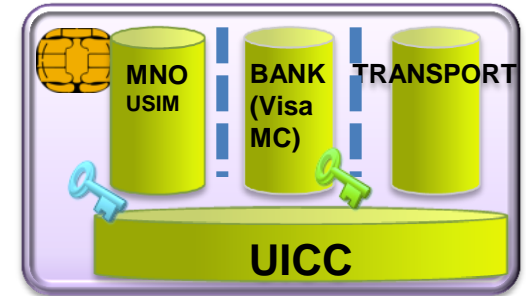
Service providers have several concerns and needs for service deployment, storage & usage....

Dynamic Service Activation & Deactivation

Applications Isolation

Customer Credentials download & Storage

Transactions Security



# The answer:

## Smart Card, JavaCard and...GlobalPlatform

Contactless cards offer a physical protection  
of the chip

JavaCard Technology  
encapsulation, applet firewall, crypto engines

Additional certifications for SE  
EAL 4+

SIM security mechanism and OTA access

**GLOBALPLATFORM**

# GlobalPlatform (GP) Basics

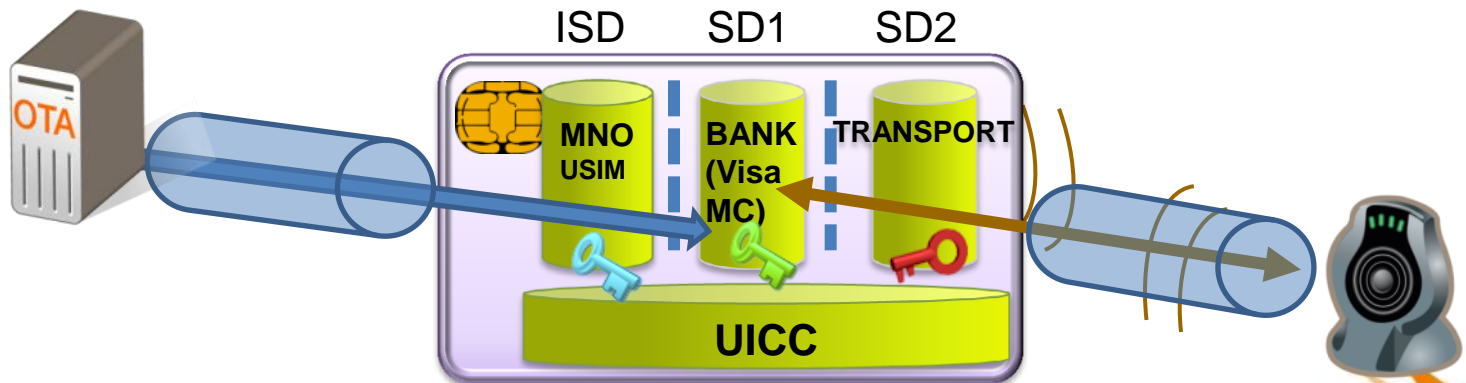
Secure Platform to ensure independence between actors and secrets management

Security Domains and Privileges

Protected data exchange using Secure Channel Protocols

GP 2.2 Standards adopted by Banks, Operators and now Transport SPs

LOAD  
INSTALL  
EXTRADITE  
STORE DATA  
« LOCK »...



# Take Away

NFC business is ramping up  
Go to the market is the question

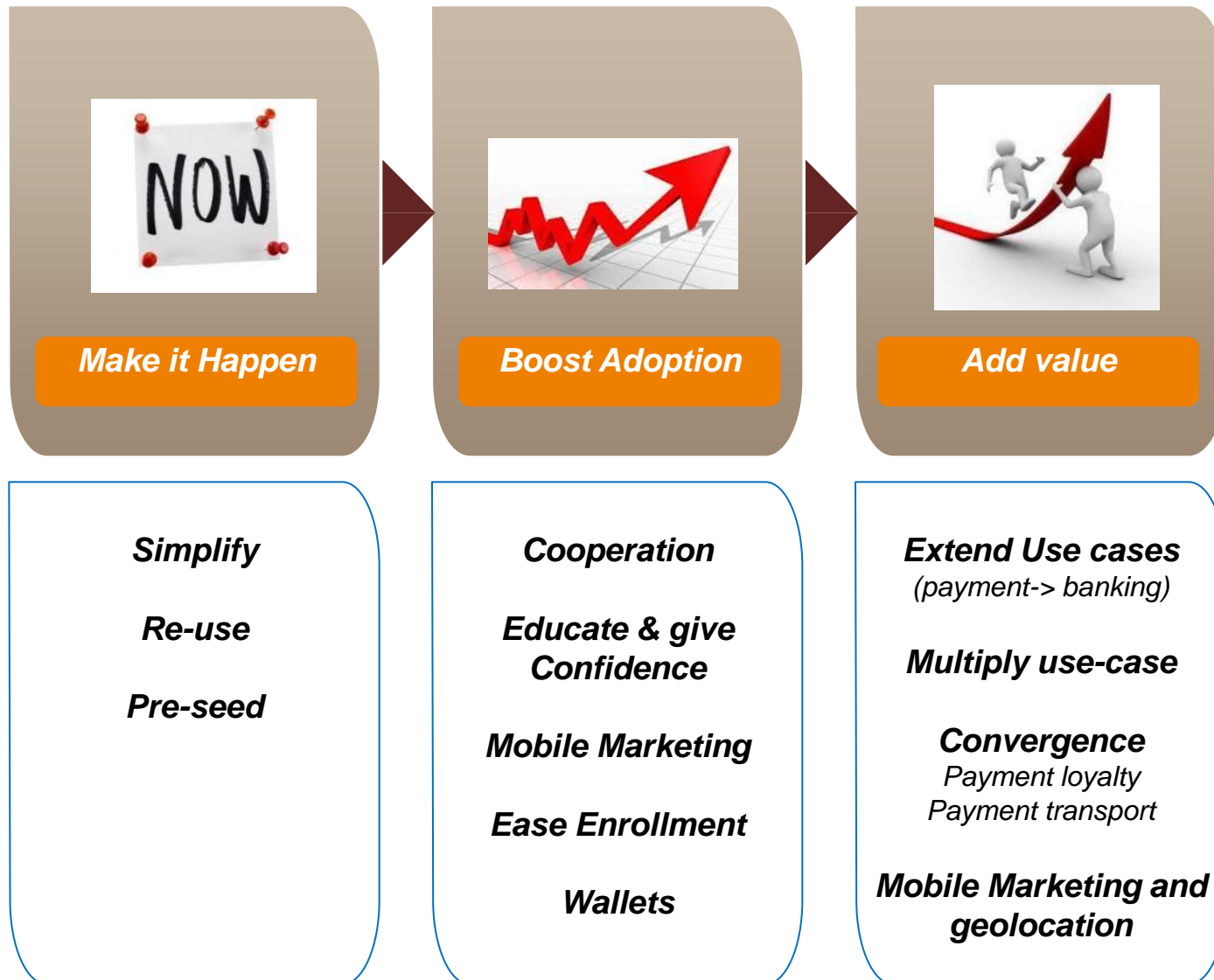
First Roll Outs –  
Key Success factors are identified

Telecom Operators to improve their  
Business models, go beyond UICC rental

Service provider work on adding  
value to their business

NFC has reached technical maturity  
from 10 handsets in 2011 to **61** on 2012

# Key Success Factors



NOW

# Make it Happen



*Simplify*



*Re-Use*



*Pre-seed*

**Subset of Specifications**



**Full E2E validation**

**Fully certified solutions**

**Interoperable TSM**

**17 m UICC, dozens of TSM on the field**

**Flexible products**

**Pay-per-use Model**

**Pay-per-activation**



||||| Thanks !

If you need more information please go to  
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