Mobile Payment
from Trials to Mass Market

Michele Scarlatella
SMD, STMicroelectronics
michele.scarlatella@st.com

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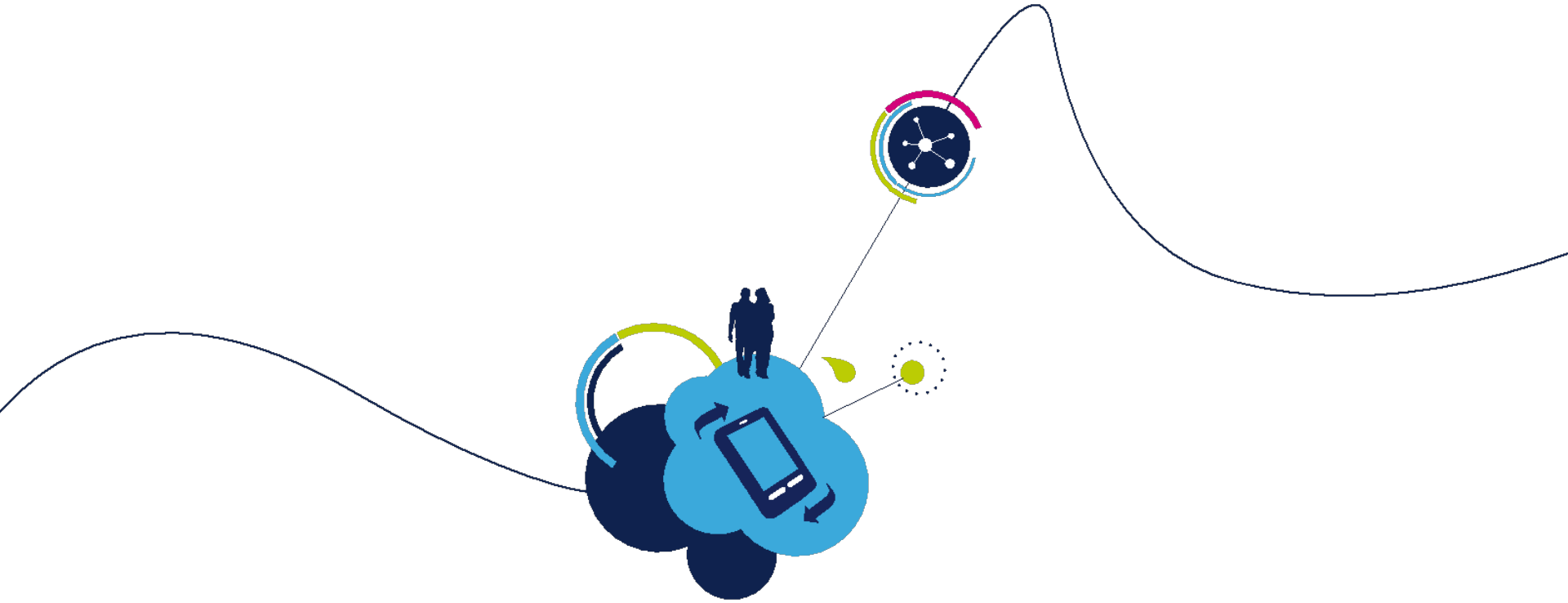
Summary

Carte 2013

- About ST
- NFC Technology
- Mass Deployment
- Summary & Take Away



About STMicroelectronics

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Who we are

- A global semiconductor leader
- The largest European semiconductor company
- 2012 revenues of **$8.49B**(1)
- Approx. **48,000** employees worldwide(1)
- Approx. **11,500**(1) people working in R&D
- Approx. **$2.4B** in R&D
- **12** manufacturing sites
- Listed on New York Stock Exchange, Euronext Paris and Borsa Italiana, Milano

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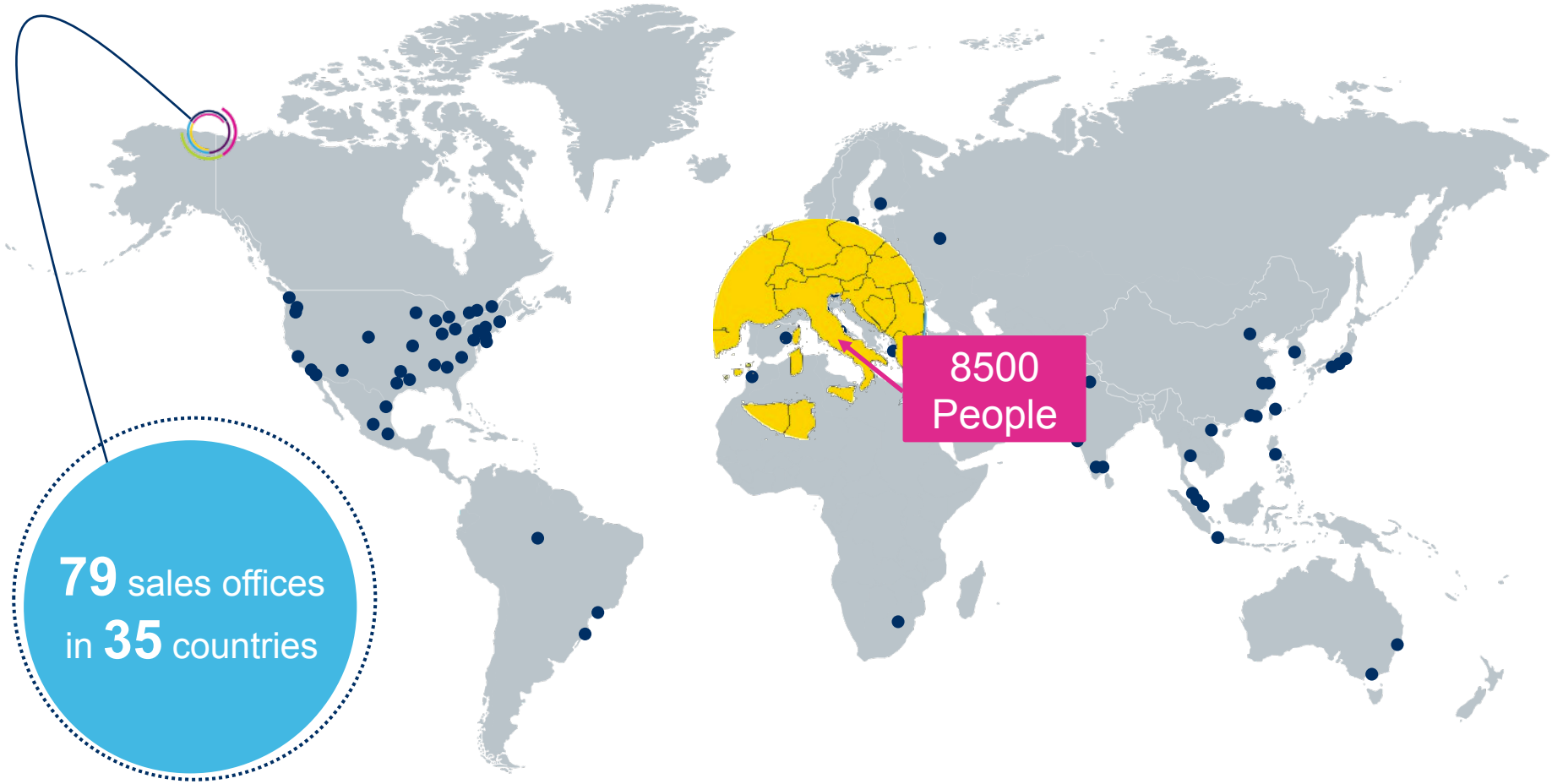
(1) Including ST-Ericsson

Partners with our Customers Worldwide



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Where you find us

Our MEMS & Sensors
are augmenting
the consumer experience

Our digital consumer products
are powering the augmented
digital lifestyle

Our automotive products
are making driving safer,
greener and more
entertaining

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Our Microcontrollers
are everywhere
making everything smarter
and more secure

General Purpose

Secure MCU

Our smart power products
are making more of our energy resources

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Complete Offer in Security Devices

Secure Mobile Transaction

Classical SIM
Advanced SIM
M2M SIM

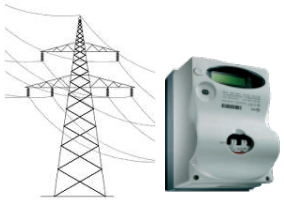
NFC solutions
Secure Elements
MIFARE™

Computer & CE security

Trusted Platform
Brand protection

Infrastructure
Secure readers
USB token

Smart Grid



KerKey
Secure Element
for SmartGrid

Tagging

Product tracking
Supply chain mgnt
NFC Dynamic tags

Personal security

e – ID
Banking
Transport
Conditional access
Physical access
Logical access

A unique position in security & mobile transaction

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Fully Integrated Plant

- **Business unit of SMD(*)**
- **Market Segments:**
  - Mobile (SIM, NFC-SIM, M2M-SIM, SE)
  - Payment Cards
  - PKI, eID, eGovt
- **Fully integrated :**
  - Secure OS design, certifications
  - Production Engineering
  - Cards Production
  - Data Preparation
  - Personalization
  - Fulfillment and mailing

- **Certifications:**

VISA MasterCard EMVCo GLOBALPLATFORM GSM ASSOCIATION CONSORZIO BANCOMAT Common Criteria Java CSQ H&S IQNet ISO 9001:2000

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Segmenti di Mercato

Mobile Communications

Banking

Identification and Security

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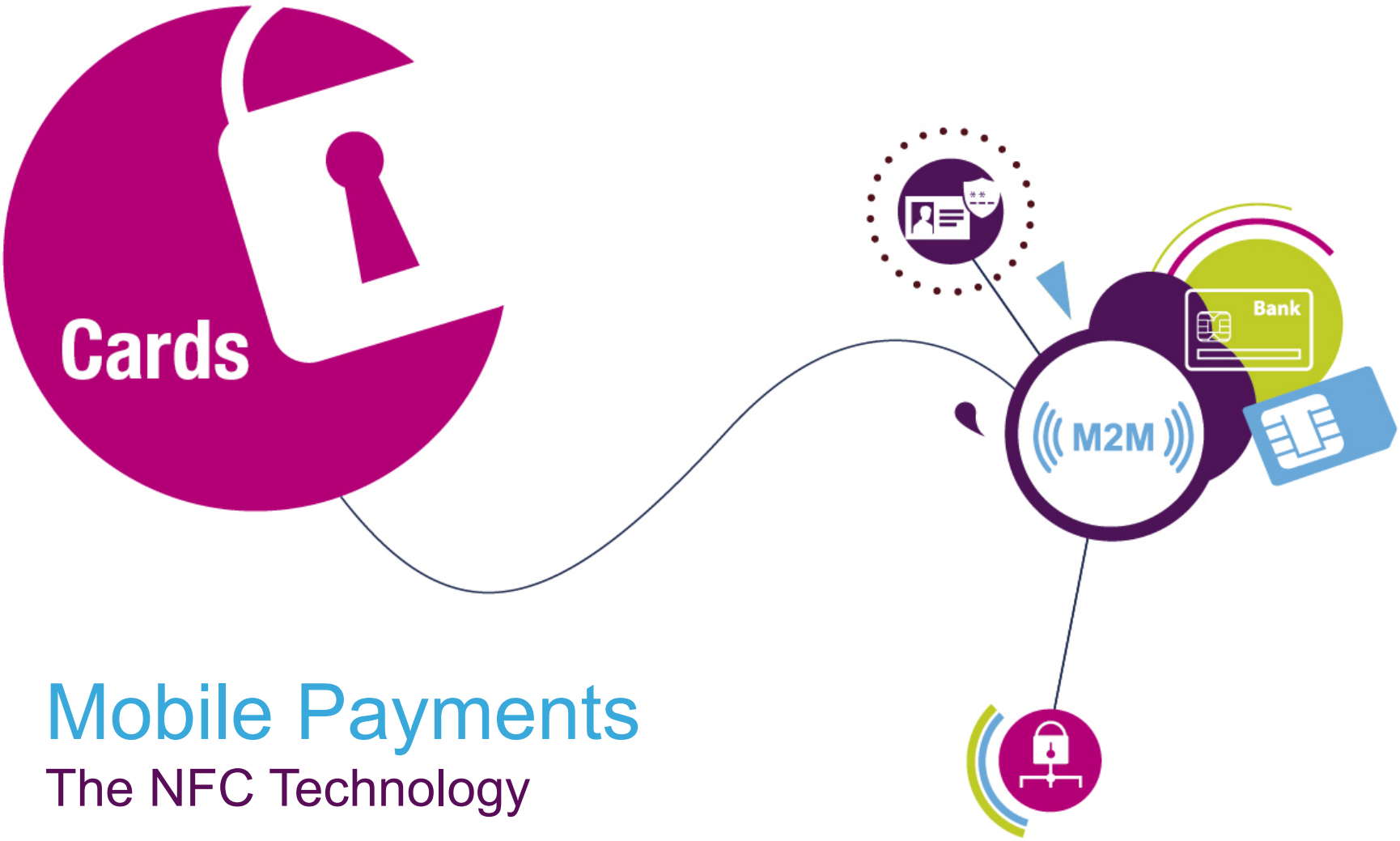

Mobile Payments

The NFC Technology

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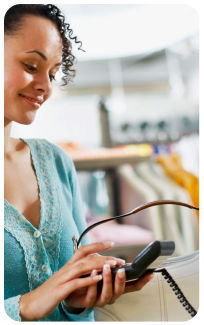
NFC Technology

- Contactless communication from a Mobile Phone
  - Antenna inside the device
- Secure Element applications based on
  - A SIM Card
  - Embedded Secure Element
- 3 Operating modes
  - The phone is a Card
    - Phone can emulate multiple cards
  - The Phone is a Reader
    - Phone can read RFID tags (NFC Type V), triggering web page, application execution, etc.
    - The Phone can act as a Card reader (mPOS)
  - Peer-to-peer 2 Phones exchanging data
    - Object information exchange

Multiple Capability of Mobile

OTP Token Replacement

Remote Payments



Couponing Enrollment Redemption

Proximity Payments

Mobile Banking

Transit Access

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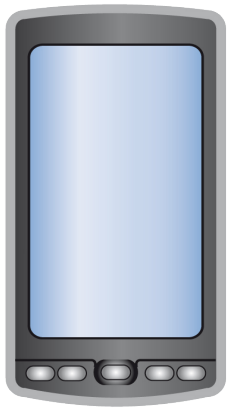
Wallets & Secure Element



Smartphone

Mobile Apps

- Core wallet Application
  - Managing embedded Apps in the SIM
- Bank Issuing Istitution Mobile App

Secure Element

- Registry Services
- Contactless Apps
- Standard Payment Apps

Secure Element Applications

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Managing the SE – Mobile Applets

- The Mobile Wallet is an application to:
  - Activate/deactivate “virtual card” (Mobile Applets)
  - Select Default Application
  - Access via Mobile Open API (SIMalliance MOAPI V2.04, Test Specification V. 0.9)
  - Subject to Branding Requirement
  - Certifications

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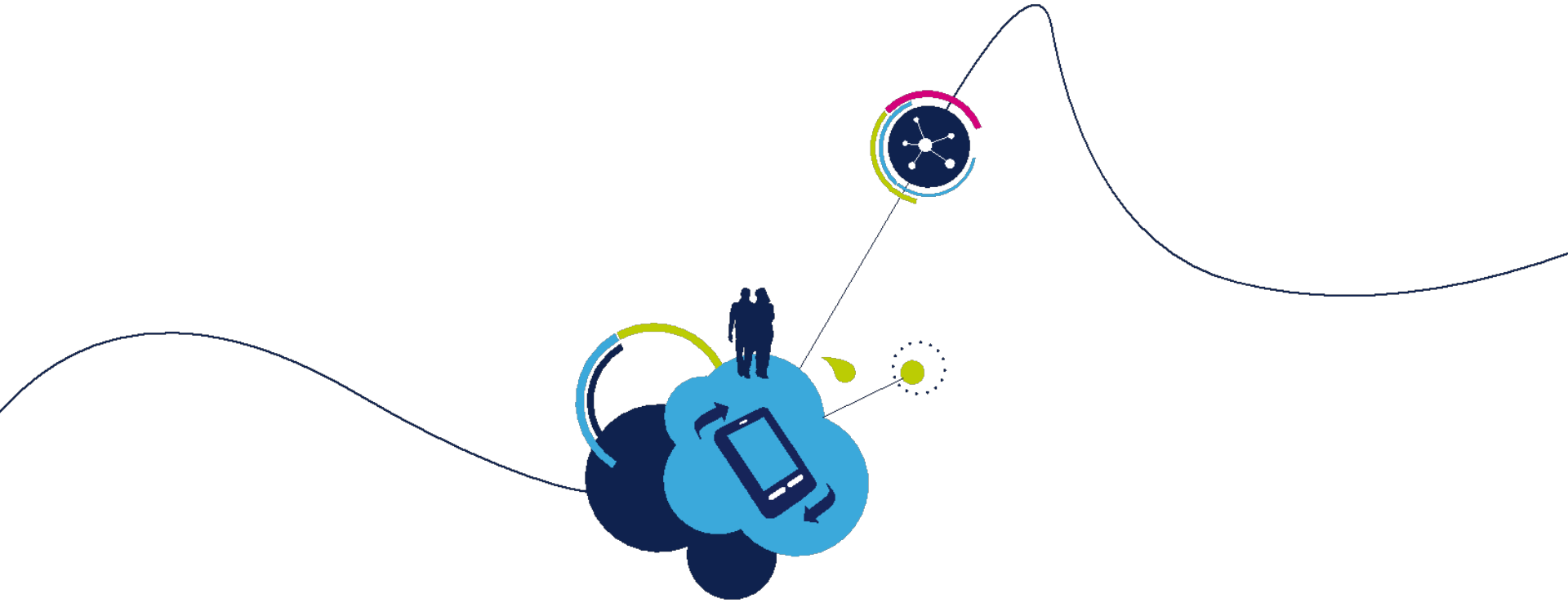
Managing the Applets Over-The-Air

- Trusted Service Manager
  - Interconnect MNO with Service provider (Issuer)
  - End-to-end Security
  - Grant Access Rights to Service Providers
  - Application life-cycle management
    - Security Domain management on SE
    - Download/personalize/Activate/Deactivate
    - User Interface
- Multi-Application Repository in the Secure Element

SD = Security Domain



Facing Reality

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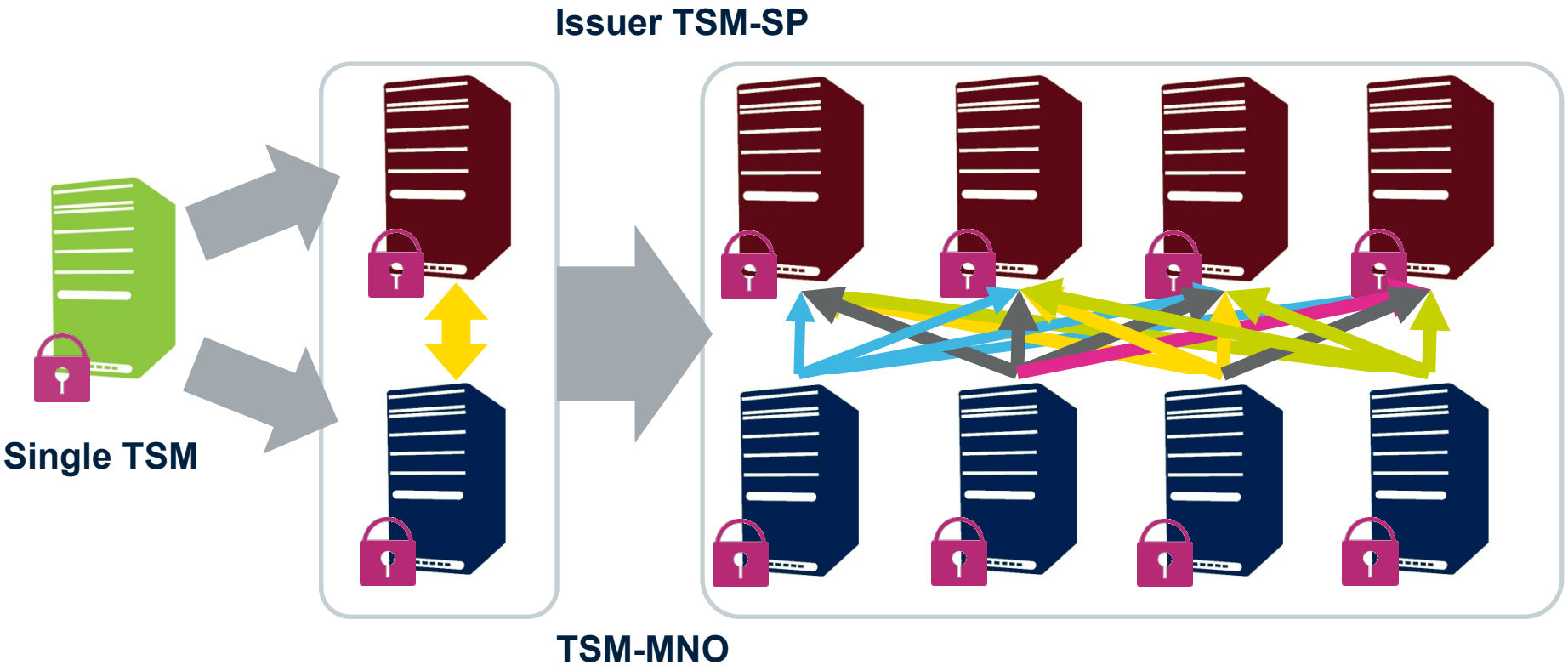
Multi-operator / Multi-issuer Scenario

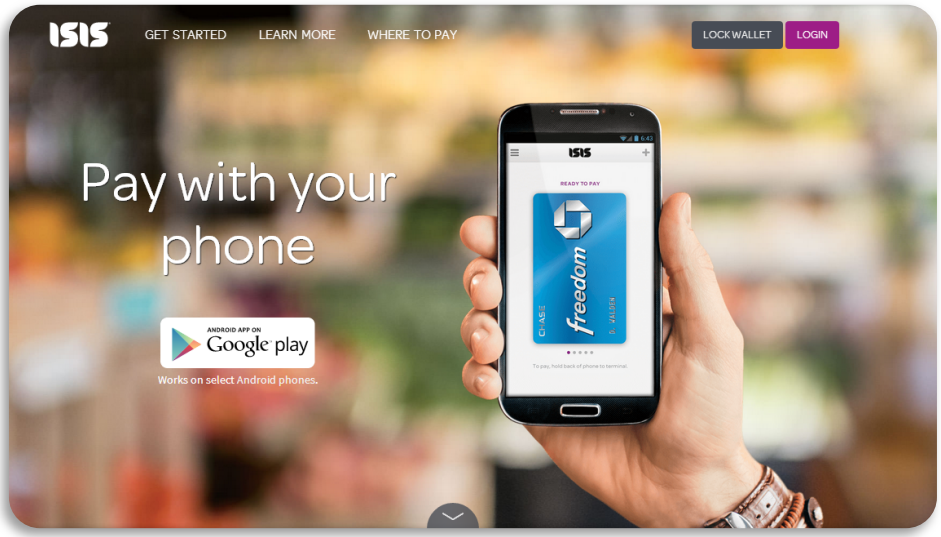


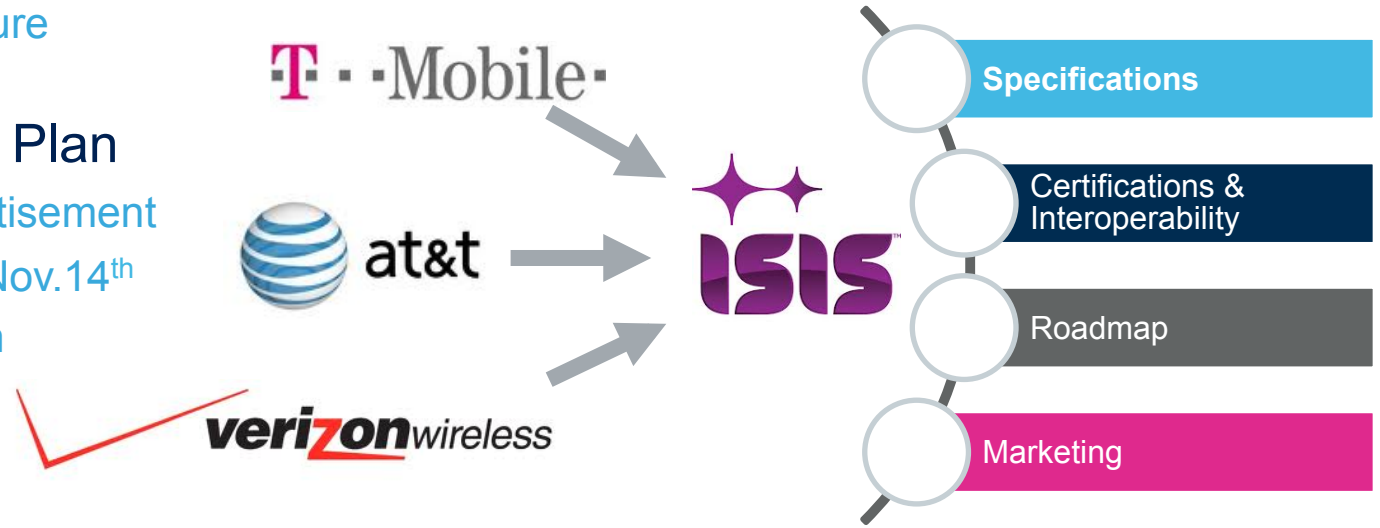
- Other Consideration
  - Common/Compatible SE Structure
  - Payments Apps: Which versions?
  - SLA among TSM's

The US Approach

- Joint Venture among main MNO (AT&T, Verizon Wireless, T-Mobile)
  - Common/Compatible SE Structure
  - Pre-defined set of Payment Applications and their Versions:
    - VISA, MasterCard, Amex, Discover
  - Common set of Specifications (isis v.2.0) & Specifications roadmap
  - Certifications Roadmap
    - Isis certification to test compatibility
  - Unique Mobile Wallet
  - Unique TSM
  - Open TSM Architecture
- Common Marketing Plan
  - Marketing and advertisement
  - Nationwide launch: Nov.14th
  - Isis Alliance Program

isis
http://www.paywithisis.com/





The New Zealand Approach

- Joint Venture among main stakeholders:
  - MNO (Vodafone NZ, Telecom NZ)
  - Issuers (BNZ, ..)
  - Processor (Paymark)
  - Common set of Specifications & features roadmap
    - Certification to test compatibility
  - Pre-defined set of Payment Applications and their Versions
  - Unique Mobile Wallet
- Common Marketing Plan
  - Payment & non-payment applications
  - Nationwide launch Q1 2014 (forecast)
- Common Service Platform

http://www.nfcworld.com/tag/tsm-nz/

New Zealand NFC wallet to launch in 2014

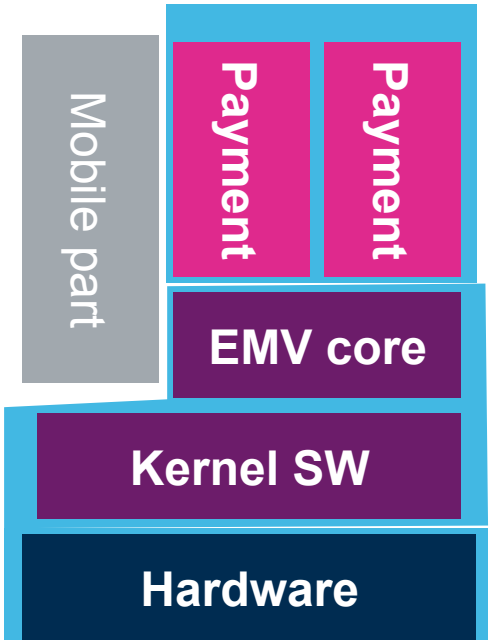
By Karl Dyer • 11 September 2013, 12:48

The new CEO of TSM NZ, **the NFC joint venture formed by Paymark, Telecom New Zealand, Vodafone and 2degrees in 2012**, has announced that its mobile wallet will be available to the New Zealand market in the second half of 2014.

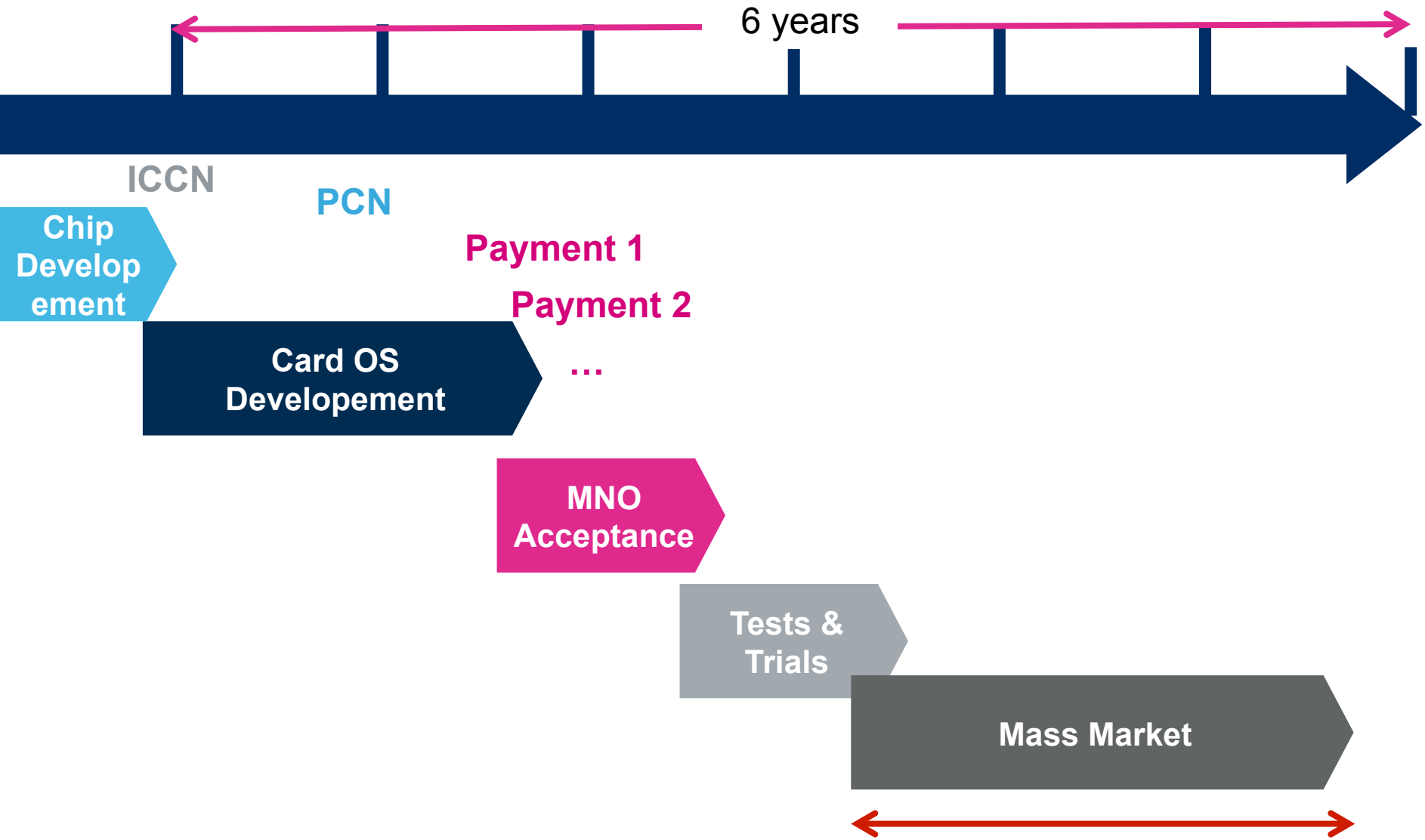
"There has been a lot of anticipation about the arrival of our wallet and unquestionably it will be a game changer," says new head Rob Ellis. "This is going to touch the lives of every New Zealander and we have to get it right.

Mobile Certification Approach

- Three level Certification:
  - Chip Level: Integrated Circuit Card Number
  - EMV Core part: Platform Certificate Number
  - Payment Specific Platform
- ICCN – Integrated Circuit Number
  - Valid 1 year
  - Can be renewed 1 yr several times
  - Total validity of ICCN 6yrs max
- PCN – Platform Certificate number
  - Must have a valid ICCN to start PCN Certification
  - The ICCN must be no older than 1 year for new issuance and renewals
  - Can be renewed 1 yr , several times, for a total of 6yr max
- Payment Specific Certifications
  - Depend on Payment Scheme,
  - Typical: 3yr + (1+1+1 year)



The NFC Certification Timeline



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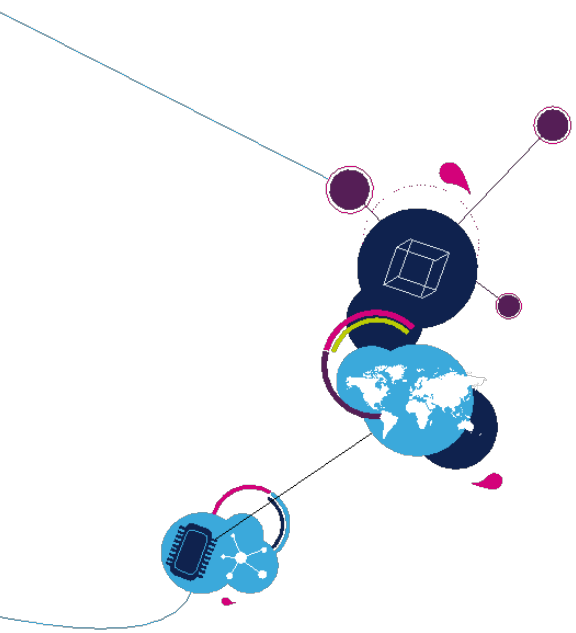
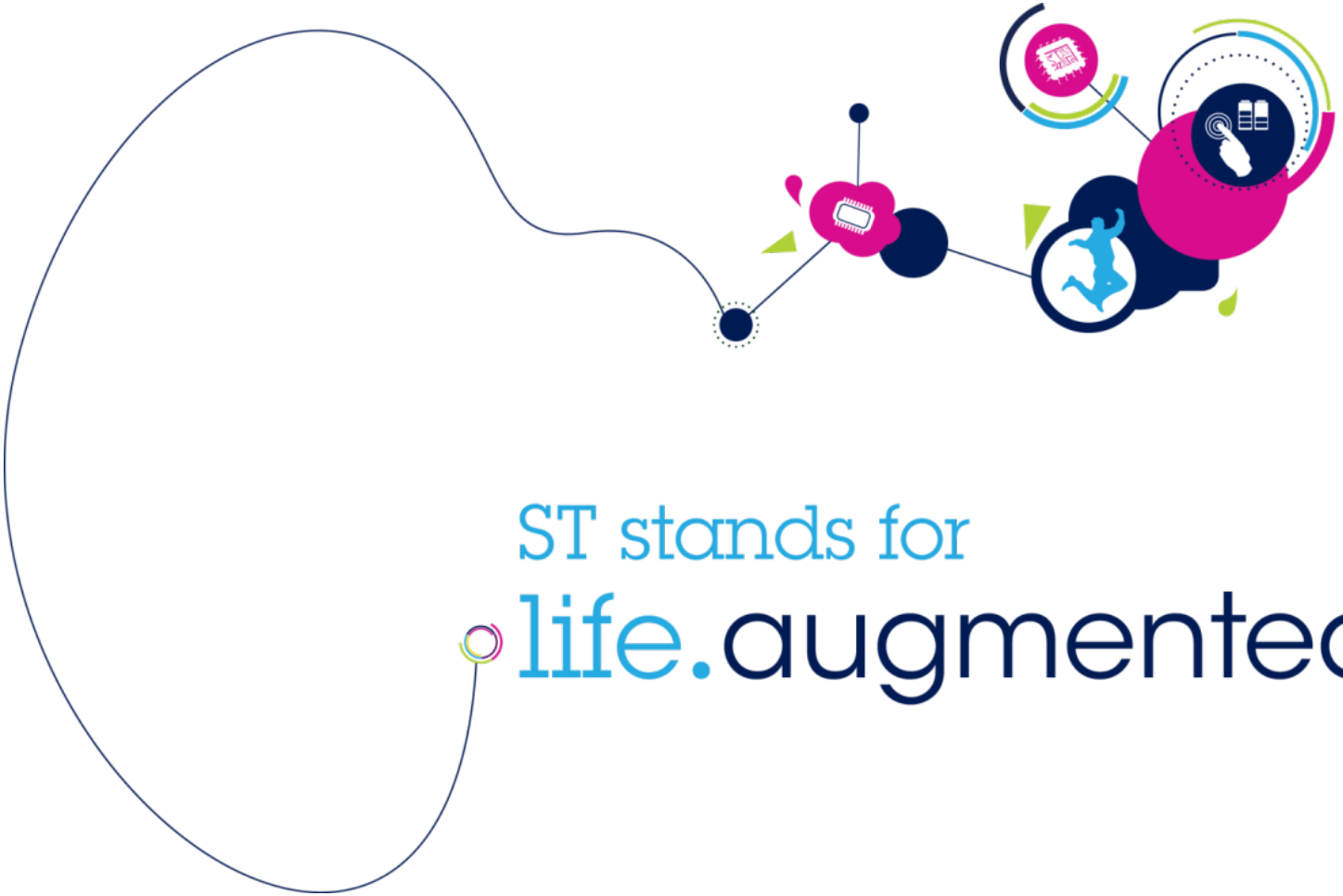
Summary and Take Away



- Move to Mobile Payment Seem an un-stoppable trend posed to change Electronic Landscape forever
- NFC Complexity must be managed. Nation-wide initiative, alliance are a way to solve complexity
  - Not unique solutions exists
- Services and solutions must not a burden onto the user



Contact:
Michele Scarlatella
michele.scarlatella@st.com
SMD Division, STMicroelectronics
www.st.com

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