Building new digital services and society in M-Identity, M-Commerce and Connected Living

William Tse - GSMA

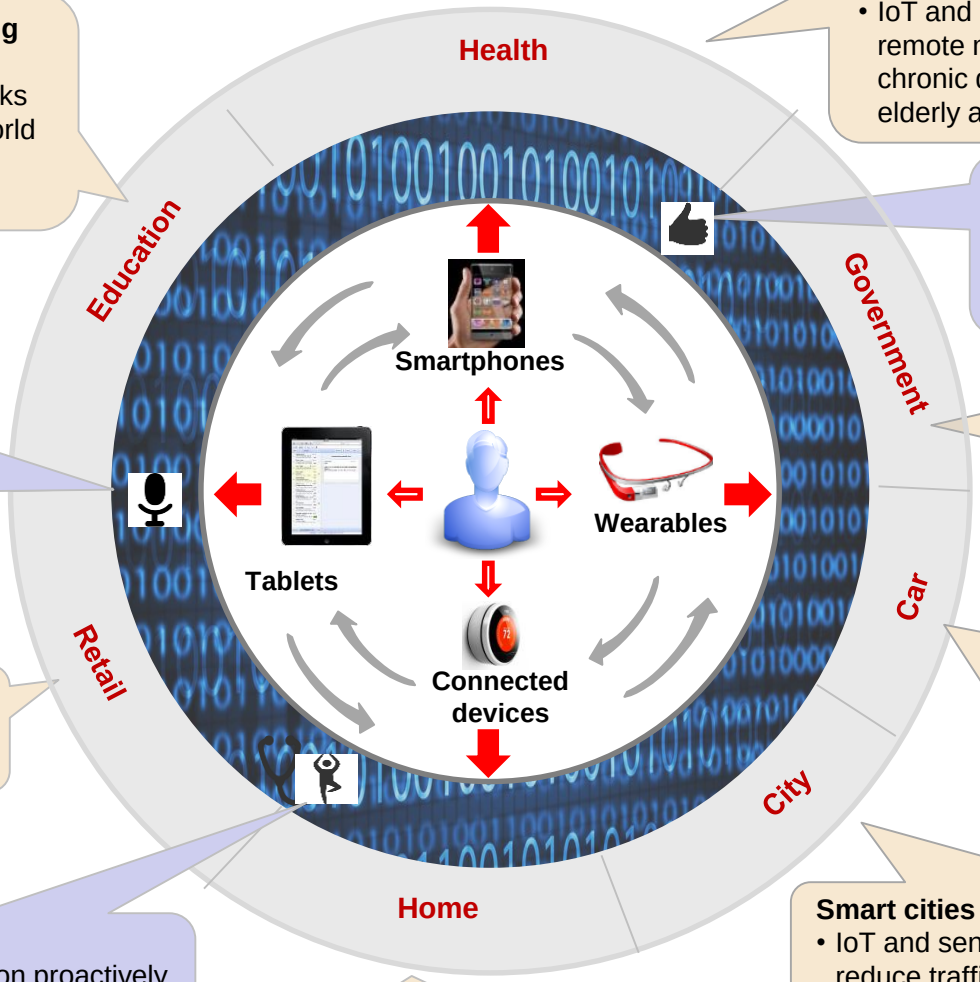
About the GSMA

The GSMA represents the interests of mobile operators worldwide. Spanning more than 220 countries, the GSMA unites nearly 800 of the world's mobile operators, as well as more than 230 companies in the broader mobile ecosystem.

GSMA Key Initiatives

The GSMA announced in February 2014 the launch of a ***Vision2020*** cooperative initiative, supported by leading mobile operators, to develop an innovative new service that will allow consumers to securely access a wide array of digital services using their mobile phone account for authentication.

“Digital dependency” is an increasing aspect of consumers’ lives



E-Health improves care quality:
- IoT and connected sensors permit remote monitoring and combat chronic disease, assisting the elderly and improves access

Quantified Me:
- personal analytics enables consumers to self-improve along multiple dimensions - health, wellness, use of time, etc

Digital Identity improves access to government services:
- enhances speed and ease of authentication

Connected cars become the next mobile platform:
- consumers receive seamless access to adaptive services
- autonomous driving improves safety

Smart cities improve quality of life:
- IoT and sensors enable dynamic services to reduce traffic, crime and improves efficiency

Connected homes:
- IoT and sensors improves overall convenience, save time and significantly reduce utility bills

Ambient services:
- man-machine interaction proactively suggests recommendations to user based on context

Mobile wallet:
- enables customised offers and seamless payment

Voice assistants:
- conversational user interface replaces mobile search, enabling contextual recommendations

E-Education enables learning anytime, anywhere:
- learning environment that links classroom with the online world
- dynamic learning provides immediate feedback

GSMA had consultation process for key industry players what are required for industry collaboration …

With telecoms operators …

…and across the ecosystem

… and there is points of relevance requires industry collaboration to unlocking opportunities for sustained growth

A disruptive digital future

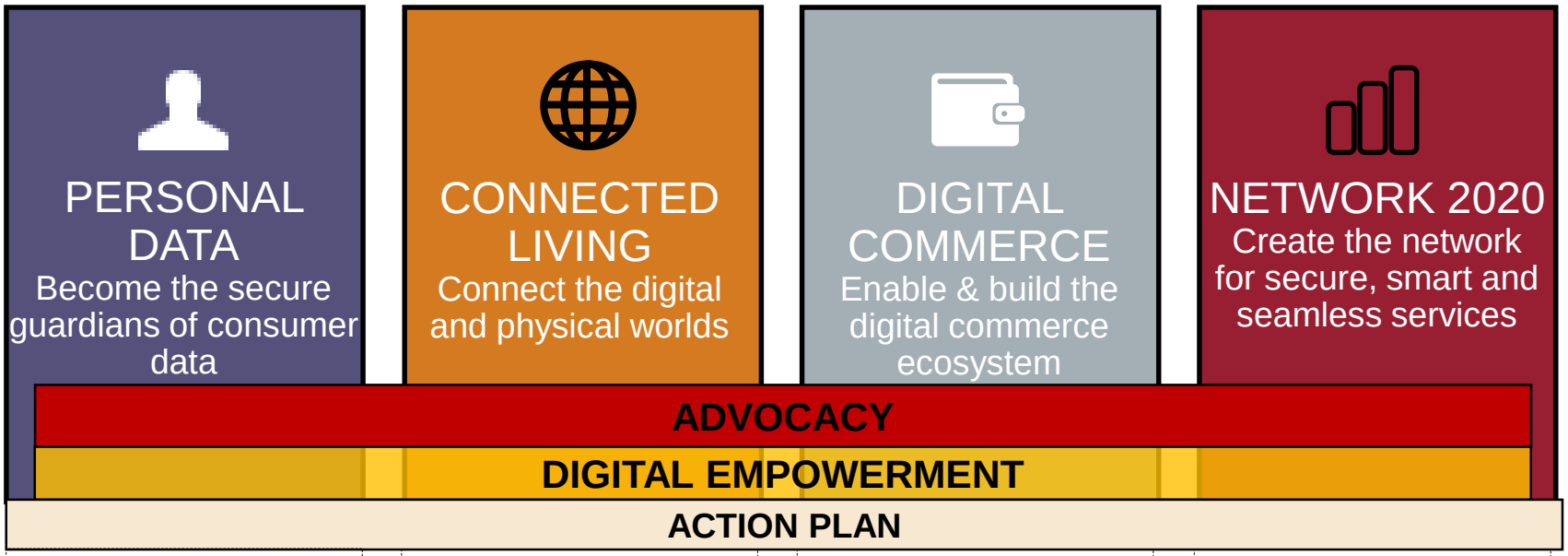
Smart Devices	Applications
Data Traffic explosion	Social Networks
Disruptive Business Models	Connected Life 24x7
Video	Cloud
Mobile Computing	Big Data
Mobile Money	Internet of Things
Digital Shopping & Advertising	Globalization

All-IP Broadband Era

Points of Relevance	Prioritised in Vision 2020
Network access	✓ Network 2020
Service authentication via the SIM & Mobile Phone	✓ Personal Data & Mobile Identity
Device connectivity and services	✓ Internet of Things & Connected Living
Secure Payment	✓ Digital Commerce

These points of relevance build upon the industry collaboration requirements identified

Four areas of collaboration have been prioritized driven from GSMA towards the mobile industry



Personal Data

Become the secure guardians of consumer identity and data

Passwords is a broken access mechanism…

Stolen passwords and security breaches – passwords are not a secure authentication mechanism…

… and it is hard to remember different and secure passwords for each online service leaving people vulnerable to online fraud and identity theft…

… putting the use and benefits of online services at risk

TIONS HOME SEARCH The New York Times

TECHNOLOGY

Russian Hackers Amass Over a Billion Internet Passwords

By NICOLE PERLROTH and DAVID GELLES AUG. 5, 2014

EMAIL
FACEBOOK
TWITTER
SAVE
MORE

THE DROP
SEPTEMBER 12
WATCH TRAILER

A Russian crime ring has amassed the largest known collection of stolen Internet credentials, including 1.2 billion user name and password combinations and more than 500 million email addresses, security researchers say.

The records, discovered by Hold Security, a firm in Milwaukee, include confidential material gathered from 420,000 websites, including household names, and small Internet sites. Hold Security has a history of uncovering significant hacks, including the theft last year of tens of millions of records from Adobe Systems.

… and consumers are concerned about privacy

- Privacy is knowing and having control over information stored and shared about me
- Backlash over social logins - *"who knows what is going to show up on my Facebook wall"*
- Lack of transparency of what is being stored and shared about users online is undermining trust in online services

GIGAOM EVENTS RESEARCH SI

Cloud Data Media Mobile Science & Energy Social & Web

class action / facebook / privacy

More than 20,000 people are now suing Facebook in Europe over privacy

by David Meyer AUG. 6, 2014 - 12:47 AM PDT

2 Comments +1

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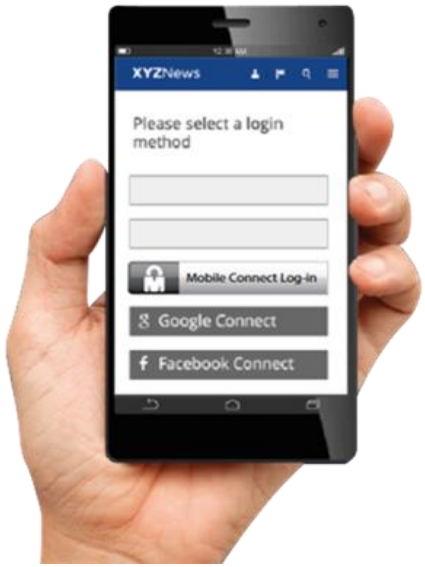
SUMMARY: *An Austrian "class action" suit against the social network is proving very successful in picking up participants — so much so that the suit's organizers will soon impose a cap so they can process applications.*

GSMA Introducing of Mobile Connect

Mobile Connect is enabled by a global network of mobile operators, uniquely positioned to provide trusted login and identity authentication, (via both SIM & non SIM-based services) on behalf of their subscribers

- Use of mobile phone to authenticate (i.e. replace passwords)
- Easy to use and SIM based security; lots of use cases – inc second factor authentication
- Develops into a secure way of sharing attributes which puts control back with user
- Offered as APIs for service providers to embed into their digital services



ACCESS TO SECURE SIM, PART OF EVERY PHONE

DECADES OF EXPERIENCE IN SECURE MANAGEMENT OF CUSTOMERS' DATA

PRIVACY PROTECTION BUILT INTO THE RULES THAT REGULATE OPERATORS

MOBILE CONNECT FOR:

RETAIL EDUCATION HEALTHCARE FINANCE UTILITIES MORE...

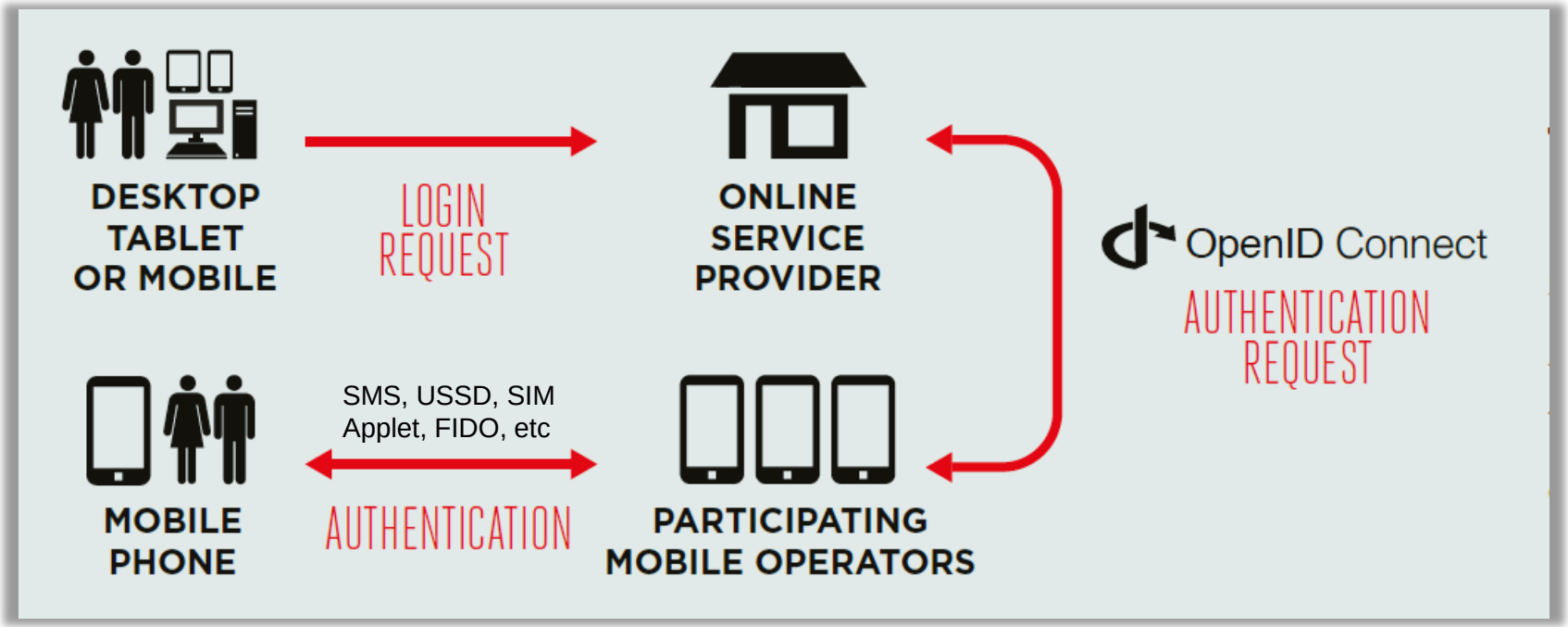
Mobile Connect

"The convenient and secure universal login solution with privacy protection"

Mobile Connect – Basic Use Case

Mobile Connect: How it works?

The technology behind Mobile Connect is based on the widely adopted open source technology of OpenID Connect. Authentication is provided by the operator or the service provider, with no personal data shared without the customer's permission



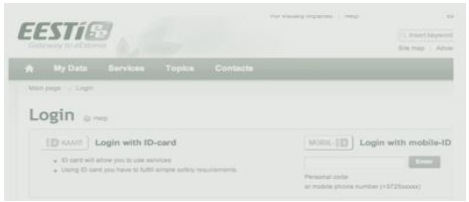
An infinite number of use-cases across different levels of security

- **Access to online and mobile services** like entertainment, social networking and games

- **Online approvals and permissions**: e-commerce, travel, gambling (approve transfer of attributes, giving permission, add-to-bill)

- **Enterprise security** and access to VPN and corporate systems

- **Banking access, account transfers and online payment** approvals, including credit card transactions, mobile wallet



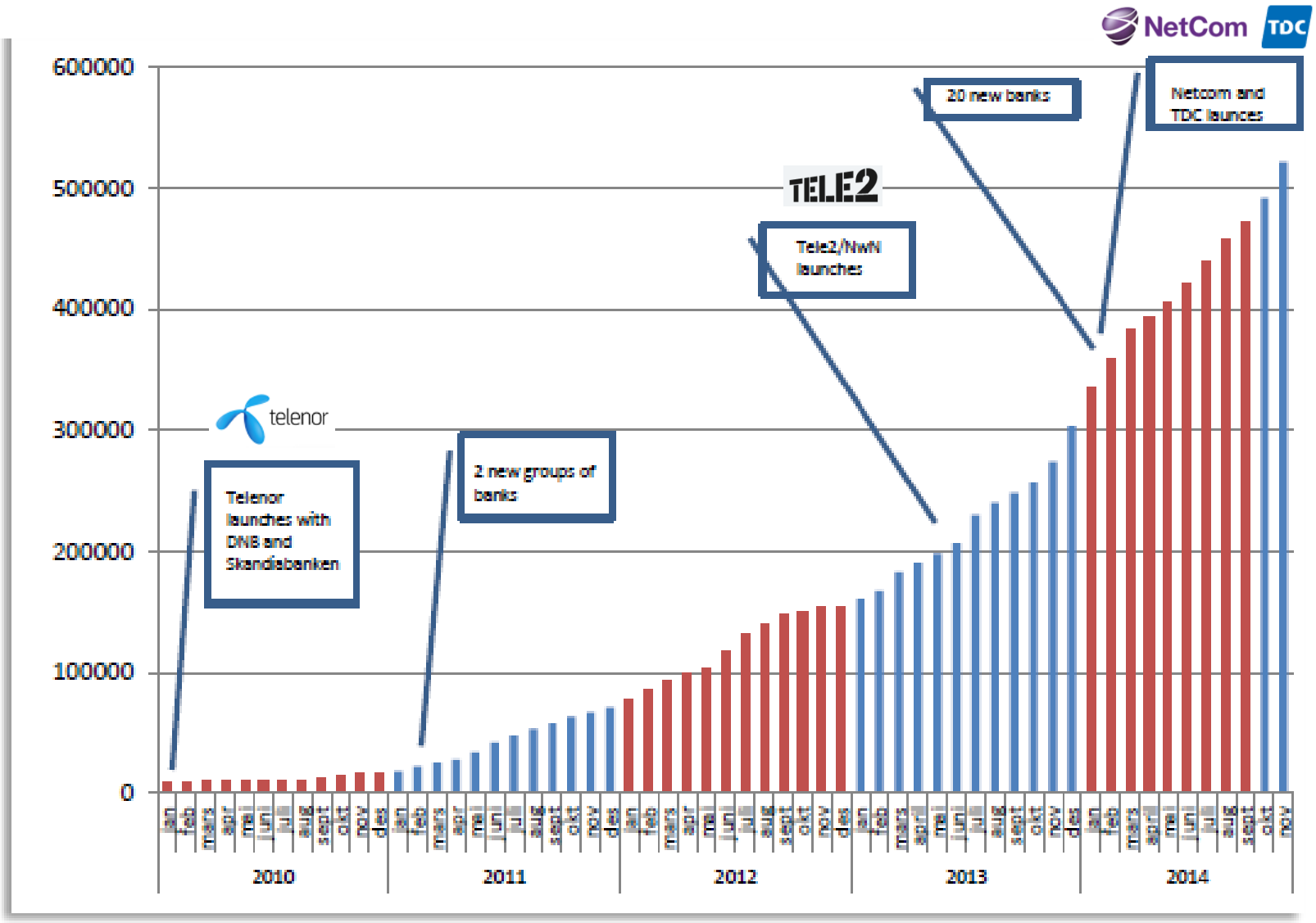
- **Access to eGovernment** and approvals for public services

Market Example
Mobile BankID Norway

- **Electronic ID solution** for secure identification and online signature based on Public Key Infrastructure (PKI) and SimToolKit (STK)
- Secure element in the SIM (PKI)
- The ID is linked to customers Social Security Number and each customer has been identified with passport or drivers license
- Developed by Telenor and DNB (Bank) after Telenor had attempted to launch/issue IDs alone 1999-2006. Merged DNBs and Telenors e-ID solutions – the "best of both worlds".
- Offered and issued by Norwegian banks
- Examples of usage:
  - Internet Banking
  - Changing your address with the postal service
  - Purchase of or access to fund and pension services
  - Applying for a loan
  - Filing tax papers
  - Payment verification (Visa & Mastercard 3D secure)

Market Example

Mobile BankID Norway User Pickup



Market Example
Mobile BankID Norway – Today

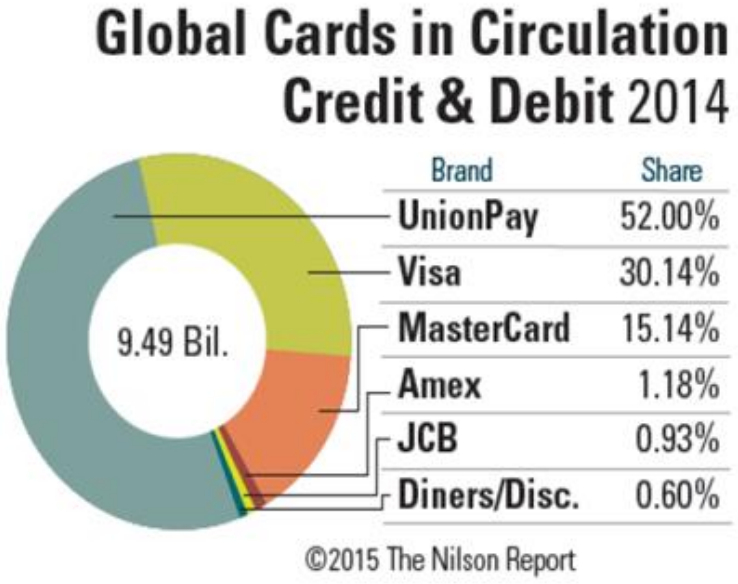
BankID with 309 merchants today in Banks, Housing and Property, Funds and Financial, Insurance and Pensions, Commerce and Payment, Member Organizations, Government Public Services, Post and Communications, Tourism, etc

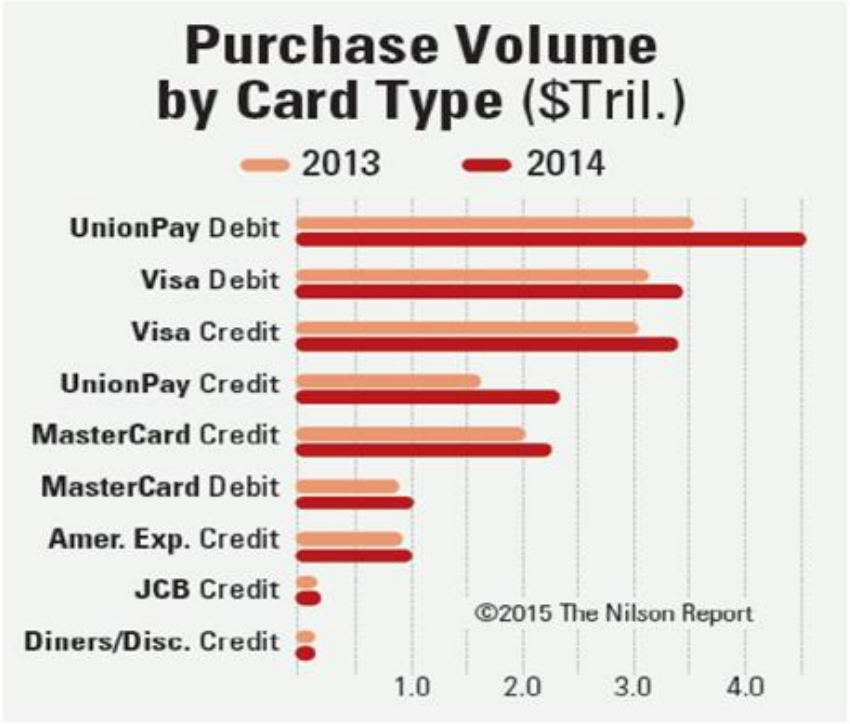
(Source : https://www.bankid.no/Dette-er-BankID/her-kan-du-bruke-bankid/)

Digital Commerce

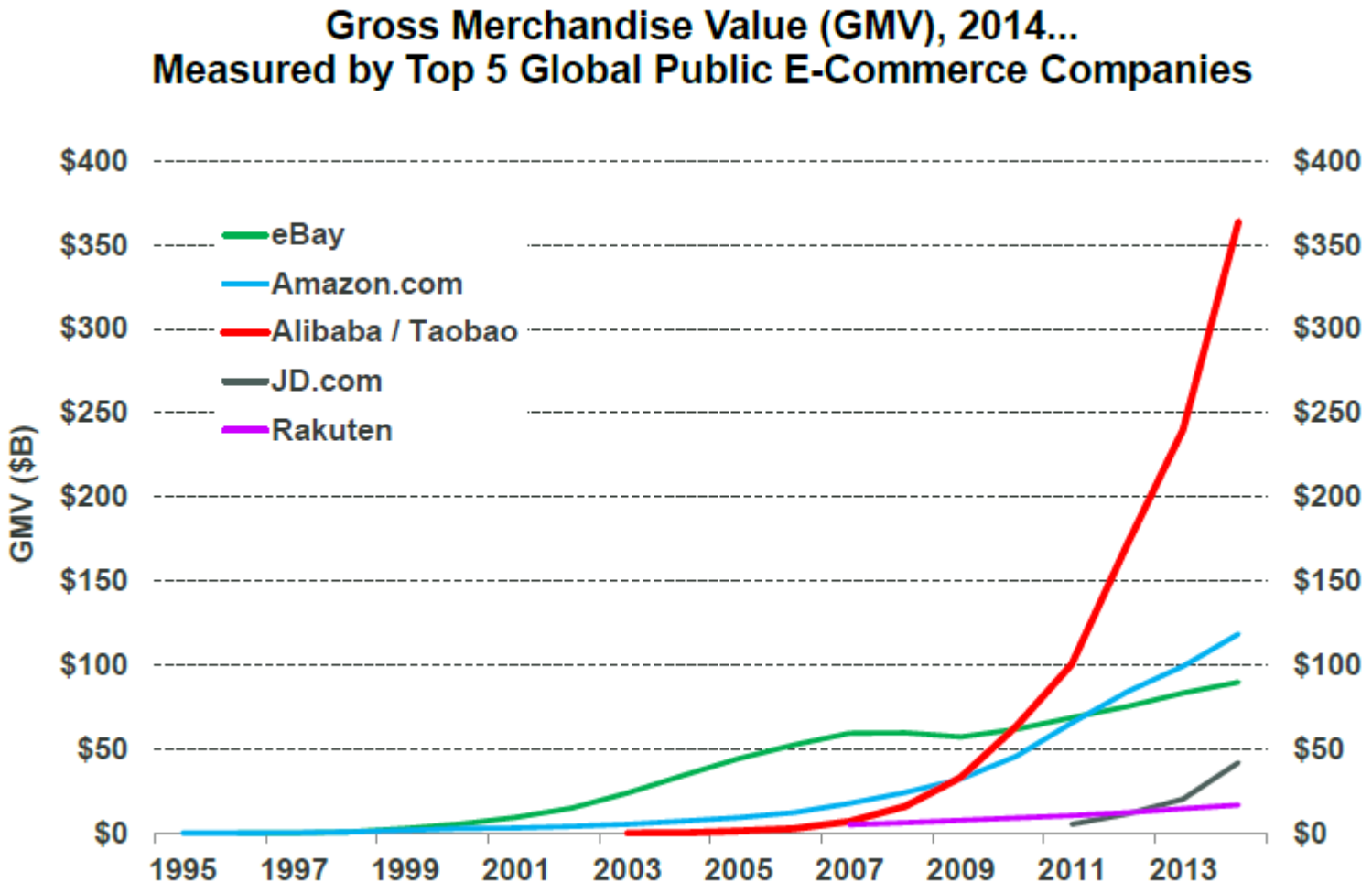
Enable & build the digital commerce ecosystem

Digital Commerce Market Size (Offline credit and debit cards)





E-commerce Market Size (Online commerce)



Source : KPCB

Today's Broader Ecosystem Landscape and GSMA Digital Commerce Initiatives

Technical Solution

Wallet provider | Secure Element | Issuer

- MNOs + SIM vendor and TSM + Banks
- OTT + Device with embedded S.E. + Banks
- Banks + SD card or sticker

Card/Wallet schemes

Customer Value Proposition

- Compatible phone
- Compatible reader
- Compatible service provider
- Users

GSMA Initiatives

1. Simplify and homogenise current interfaces and processes for credential provisioning and management on SIMs
2. Engage with the digital commerce ecosystem to stimulate on-boarding of service applications onto operator wallets
3. Create standardised B2B wallet backend between MNOs and Service Providers
4. Develop Mobile Money interoperability

Mobile commerce value chain for mobile industry

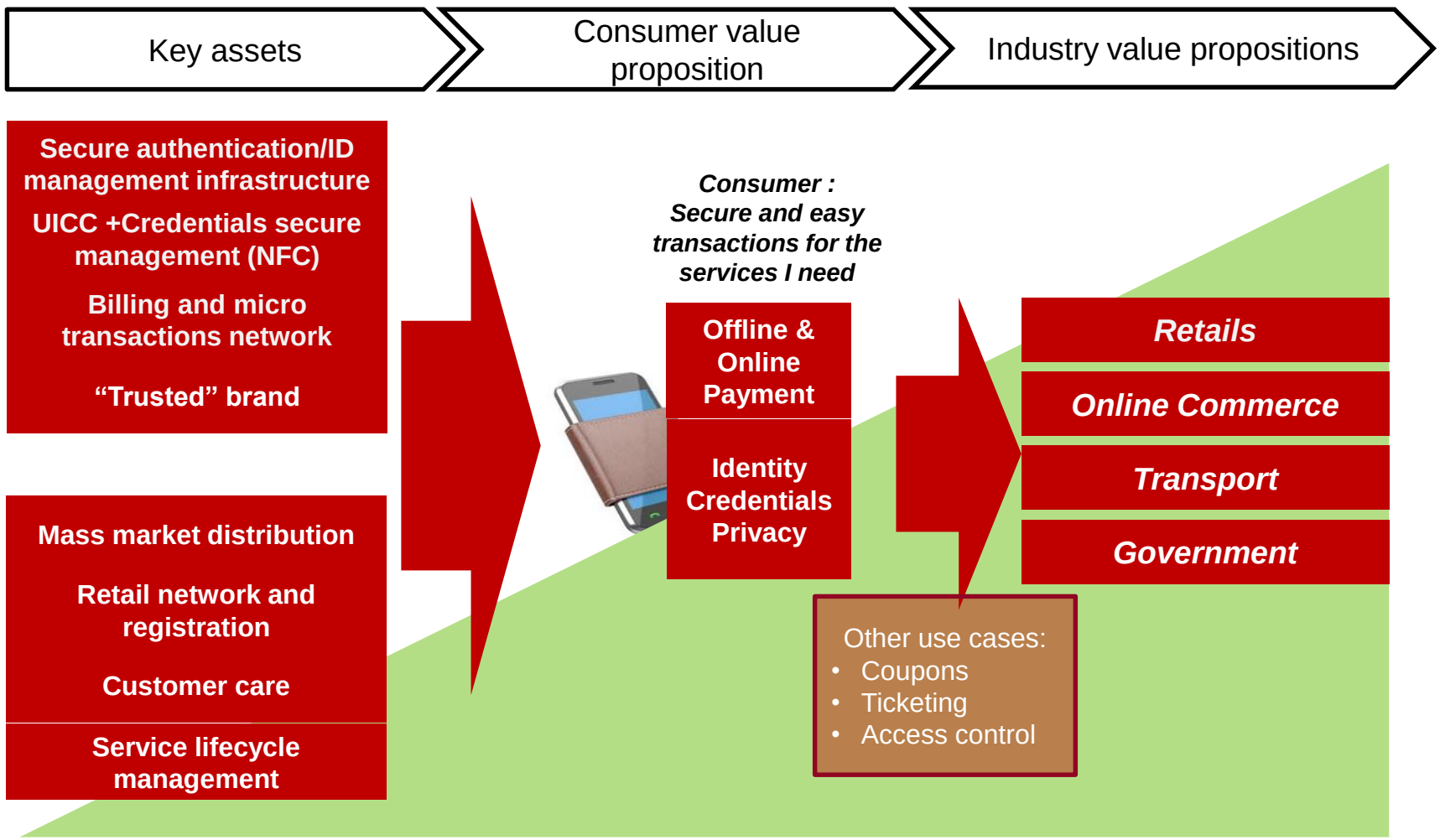
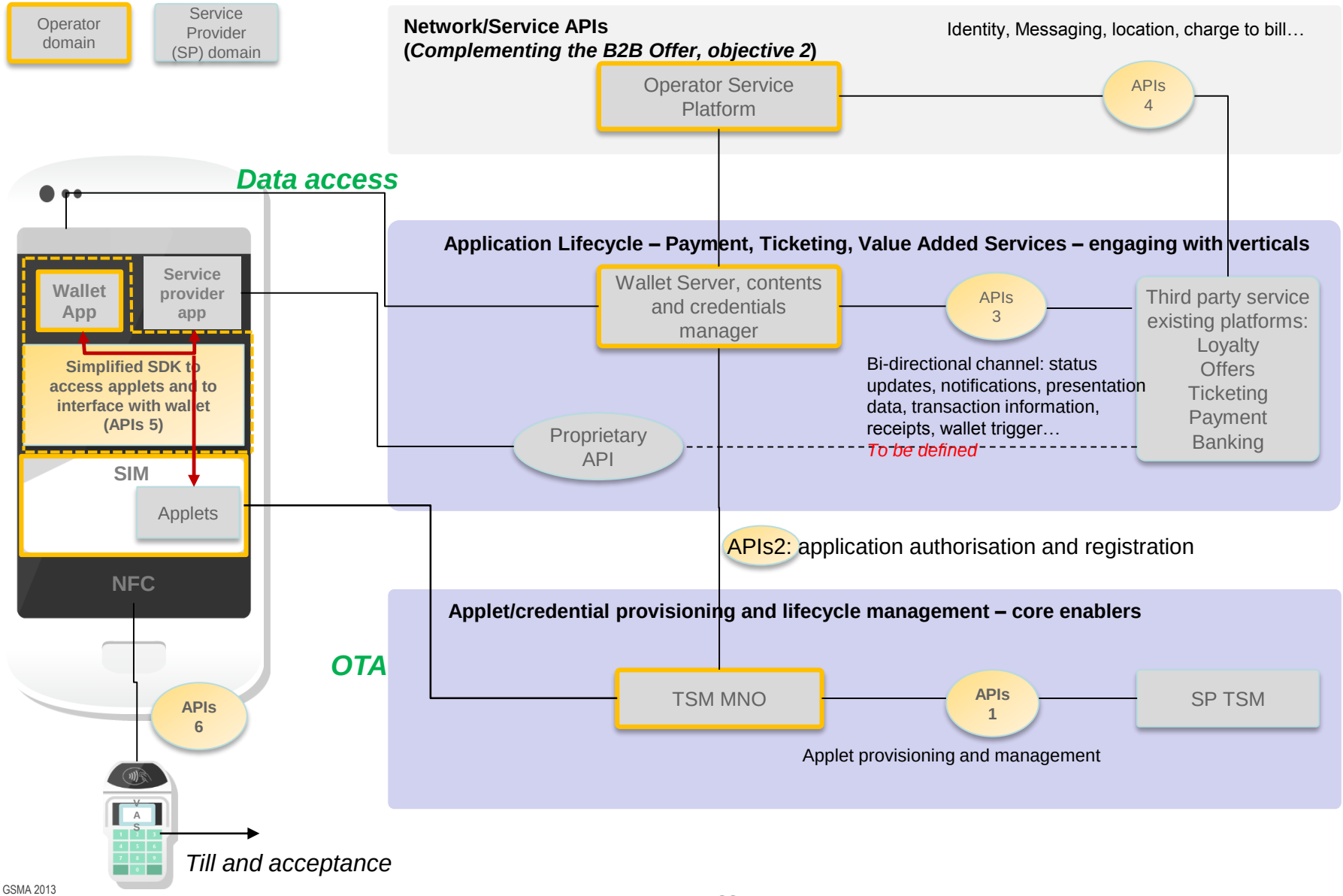


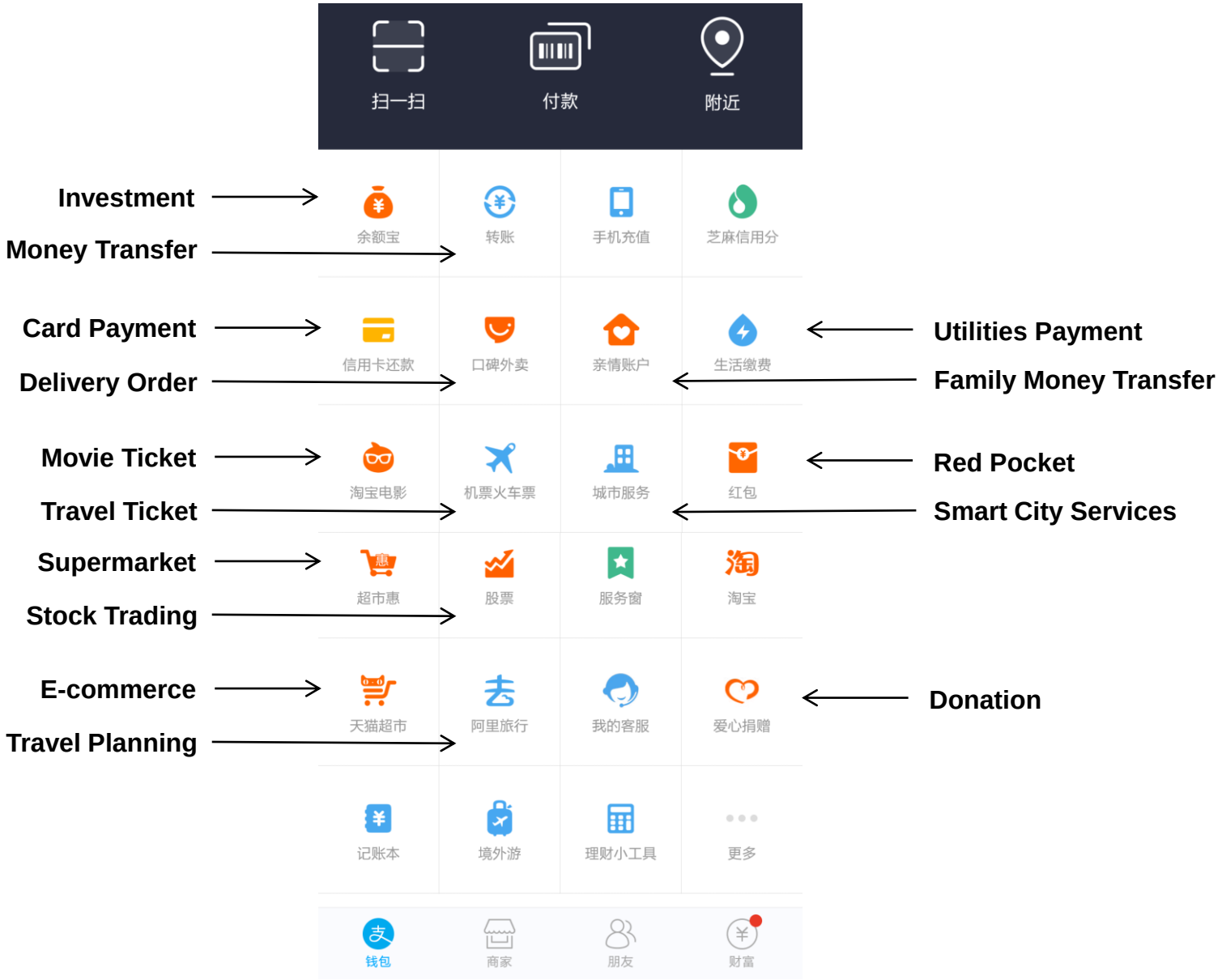
Illustration of mobile payment and wallet system



Market Example
Hong Kong PCCW – Tap&Go service

Offline NFC and online wallet services

Market Example
Alipay wallet extends from payment to more services



Market Example

Tencent Wechat supports Government offering online services to its 600M users

Shanghai Government Services Provided via WeChat

Hospital Appointment

Pay Natural Gas Fee

Obtain Taiwan Travel Docs

Smog Test Appointment

Property Tax Lookup

Pay Electricity / Water Bill

Passport Applications

Driving Violations Look Up

Weather / Library Search

Fapiao (Receipt) Management

Market Example
Go-To-Market approach and path from different players

MNO – going into NFC and B2C, P2P and O2O payment

PCCW 電訊盈科

Billing+ Finance service + NFC transport services+Traffic bank → Payment wallet services

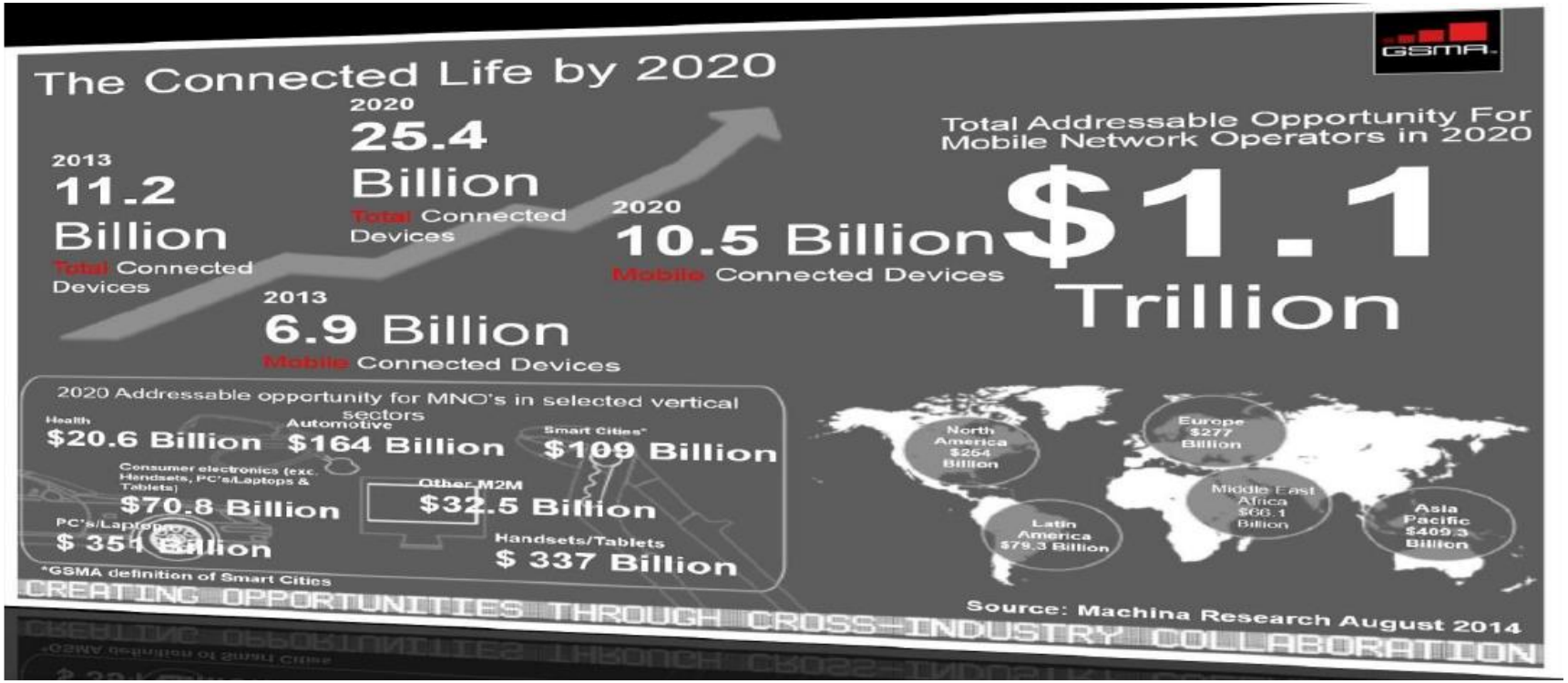
Alipay – from e-commerce to internet payment , to mobile payment

支付宝 Alipay.com

E-Commerce (Taobao/Tmall) → Alipay → Alipay Mobile Services → Alipay Wallet (for both internal and external services)

Wechat– from communication services to B2C service, to payment services

IM services → B2C services- Service accounts → Payment services → Payment for 3rd party app/services



Connected Living

Connect the digital and physical worlds

Cellular M2M forecasts: unlocking growth
Cellular M2M connections forecast to reach 1 billion by 2020

Forecast Global M2M Cellular Connections (GSMA Intelligence)

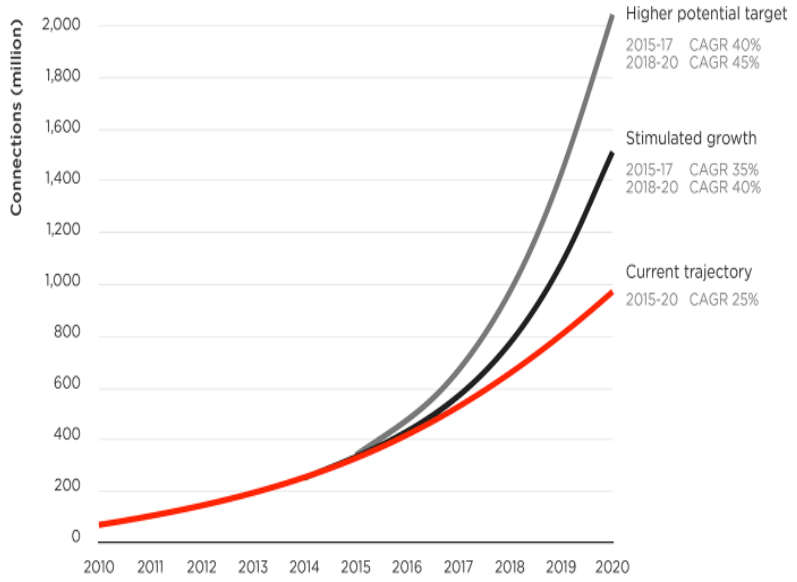


Figure 1: Cellular M2M connections forecast scenarios

Source: GSMA Intelligence

The growth leavers:

- Low power wide area network opportunities are enabled
- Connected consumer goods market grows significantly
- Government policies driving M2M
- Global Big Data analytics emerging rapidly
- End-to-end security being assured
- Sustainable M2M business models are developed

Illustration of M2M building blocks

Enablers

Identity and Security

Enablers to manage authentication, identity, secure device, connectivity, and service layers

Cloud

- **Service Applications**
- **Application Platform**
- **Analytics**
- **Data warehouse**

Enhanced Connectivity

3G, 4G, 5G, wifi, LPWA, etc

Device

- **Device Software**
- **Device Hardware**

Information & Service Providers

Home

Commerce

Health

Automobile

Production

Energy

Trust and reliability in the mobile network are critical elements of success

Efficiency issues created by scale of new M2M services

- Large number of devices are creating increasing network load and signalling problems (e.g. signalling storms, synchronous behaviours)
- Loose certification of devices is creating a large number of devices deployed not suitable for mobile network usage
- Performance issues are being faced in visited networks due to the behaviour of some permanent roaming M2M devices, without transparency to the home network

New requirements emerging from innovation in M2M services

- New service deployments are creating new requirements (e.g. global deployments, service awareness)
- Requests for SLAs on B2B services require ability to do QoS differentiation
- Innovation in business models is creating a need to build certain operator capabilities (e.g. billing)
- Multi country service launches make it necessary that capabilities are supported in home network and while roaming

A

Enhance mobile networks to enable seamless and efficient deployment of Internet of Things services

B

Exploit operator network and capabilities to support new requirements and increase value add

1

Deliverable 1: Define guidelines for optimal utilisation of the network by M2M services

2

Define future network requirements & capabilities to support M2M services

M2M is bringing new requirements for provisioning and SIM requirements

Need for Machine SIM

- Remote provisioning capabilities are required for:
  - Large scale and global deployments
  - New use cases where SIM is inaccessible (e.g. anti-theft car services, sealed devices)
- New form factors are required to support the new services and devices emerging (e.g. durability for 20 years, smaller size)
- Security is sometimes even more important to support services like health and connected cars

Need for differentiated regulatory treatment

- Certain regulators and governments impose rules and restrictions for the consumer market that prevent the launch of M2M services, for example:
  - Taxation (e.g. SIM Tax)
  - Permanent roaming restrictions
  - Local invoicing requirements
  - Branch requirements
  - Proprietary remote provisioning solutions

C

Develop mobile friendly ecosystems that allow operators to be a key player in the Internet of Things

3 **Machine SIM commercial solution available and operators commit to adopt it**

4 **Differentiated regulatory or policy treatment of the Machine SIM**

GSMA Connected Living Initiative
To improve service delivery, reduce support costs and scale market

GSMA Connected Living – "*Mobilising the Internet of Things*"

Network Efficiency

*Define guidelines for **optimal utilisation of the network** by M2M services*

- *NW Efficiency Guideline*
- *Testing Spec*

Future Network

***Define future network requirements & capabilities** to support M2M services*

- *Billing & Charging*
- *Non-GSM Authentication*
- *E2E Security*

Remote Provisioning

***Embedded SIM** commercial solution available and becomes a standard*

Advocacy - IoT Business Enablers

***Differentiated regulatory** or **policy treatment** to support IoT growth*

Priority Ecosystem Engagement

Key Takeaway

On the way towards new digital services and society

Key takeaways from the industry driving in new digital services and society for sustainable industry growth

End User Trust	It requires to build a new value proposition around customer trust giving back customers control on their identity and personal data
Reaching Scale	The market model is going from competitive to collaborative model within the industry and for reaching scale for market pickup
Relevance of public and private sectors	To build the relevance of public and private segment use cases can easier for end-user education and pickup
Cross border collaboration	The value chain and use cases are going in global scale. It requires for cross-countries collaboration for creating competitive
Interoperability	It is crucial to maintain the global interoperable of the businesses as we enter the digital society, such as M2M, Mobile Identity, Digital Commerce areas.

For more information on GSMA Vision2020 Initiatives, please visit :
http://www.gsma.com/

Or

Contact : William Tse – Strategic Engagement Director (wtse@gsma.com)

Thank You