What is the eSIM and why introducing it?

CME Sharing Initiative

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SIM cards as a connector between mobile phone and provider have experienced a huge evolution in the past 25 years – next evolutionary step is the eSIM

**Function of SIM cards**

- **Connector** between mobile phone and provider

- **Storage** of required **network data** for the usage of mobile services and authorization, like
  - **International Mobile Subscriber Identity** (IMSI) to identify network participants
  - Series of numbers and algorithms for the **encryption of data**
  - Temporary, **network relating data**

- **Additional Data Storage like** Phone directory, SMS, call history

- One SIM is assigned **to one operator**, which can not be changed
SIM cards as a connector between mobile phone and provider have experienced a huge evolution in the past 25 years – next evolutionary step is the eSIM

**Evolution of SIM cards**

- **1991**: Full size SIM card
- **1996**: Mini SIM card
- **2003**: Micro SIM card
- **2012**: Nano SIM card
- **2016**: eSIM
- **tbd**: Soft SIM

- **Size of SIM cards** was reduced over the past 25 years
- **Next evolutionary step** is the introduction of the **embedded SIM (eSIM)**
- **Saving 90% space** compared to Nano SIM card (including the SIM slot and contacts)
eSIM is a hardware-based and non-removable SIM in which the personal eSIM profile is provisioned remotely

**Key Characteristics of the eSIM**

- **eSIM** is a non-removable SIM hardware integrated in the device.
- Standard to replace today’s SIM card, can be assigned to multiple operators.
- The required data are stored in a personal eSIM profile.
- eSIM profile is transferred over-the-air to the device.
- First devices have hit the market in Q1 2016.

**Example eSIM Profile**

- **MNO A** operator profile:
  - Title
  - ICCID
  - MSISDN
  - IMSI
  - Other information

- **MNO B** operator profile:
  - Title
  - ICCID
  - MSISDN
  - IMSI
  - Other information

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**eSIM eUICC-ID: 123445**
eSIM is not the same as a Soft SIM and differs from current solutions in the market

Dispelling prejudices

- **eSIM is not a Soft SIM**
  (SIM functionality carried out by SIM hardware, not by software layer)

- **eSIM is not the same as Apple SIM**
  (standard SIM with multi IMSI; not supported by all operators)

- **eSIM requires the same registration process as standard SIM cards**
  (tariff, signature, credit check, etc.)
Introduction of eSIM is mainly driven by Market and MNO demands

Drivers for the eSIM

**Market**

Demand for **smaller devices** (B2B, handset manufactures)

Demand for **more resistant / smaller devices** (B2B / B2C, IoT)

Convenient **switch of operator** (difficult with integrated SIM, e.g. Cars, IoT cases (Container))

**MNO**

**Digitalization** of the last physical Element (Digital Sales Channel)

**Elimination of physical SIM distribution**

Enabling new **business models** (Roaming, growing interconnectedness, IoT)
The rapid ordering process, flexible change of providers and use of up to five devices with the same profile make the eSIM more customer-friendly.

**Improvements in Customer experience – Delivery and activation of Simcards**

SIM card  

1. **Order**  
   - Online Shop

2. **Confirmation**  
   - Confirmation

3. **Dispatch**  
   - Truck

4. **Delivery**  
   - Contract
   - PIN +PUK

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**Immediate eDelivery**

1. **Order**  
   - Online Shop

2. **eDelivery**  
   - Confirmation

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- Rapid and comfortable *ordering / activation process* using *over-the-air / eDelivery*  
- Easy and flexible *change of providers*  
- Customers are able to use *multiple devices* with the same eSIM profile
Introduction of the eSIM affects almost every function in the value chain and leads to many changes handling daily work

**Impacts on areas of the MNO business**

- **Logistics**
  - Virtualization of SIM provisioning
  - Reduction of logistic costs

- **Network**
  - Implementation of advanced features (e.g. multi ringing\(^1\))

- **IT**
  - Tariff database-impact for in-life use cases
  - New system needed on global level „Provisioning server“ (handling of profiles)

- **Operations**
  - Many standard processes need adoption, including training
  - Interfaces to new systems needed (e.g. provisioning server – G&D)

- **Marketing / Sales**
  - IoT-ready proposition needed for new device categories (e.g. wearables)
  - Improve POS and online CX
  - Lead to new „On-Device“ sales channel

- **Devices**
  - New device categories will appear
  - New SIM type needs to be implemented

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\(^1\) Customers are able to use separate devices with the same eSIM profile
OEMs market power increases while MNOs are loosing role as key player in market and must handle growing dependencies from other players

**Impact on the power of market players with eSIM**

**A. Past status**
- MNOs dictate content of devices, highly customized operator devices
- Though SIMs are produced by manufacturer, operators define SIM content
- MNOs own greatest share of market power

**B. Current status with open market devices**
- Apple, Google, MS define content through OS and apps
- OEMs focus on direct Sales Channel
- Introduction of “SIM only” tariffs
- Market power of OEMs is increasing

**C. eSIM with open market devices**
- Though MNOs still involved in eSIM spec, the only physical product element and important touchpoint disappears
- MNOs lose another branded touchpoint and weaken retail

- * - Outlook
A complete loss of control might be a potential future scenario. That is why MNO need to clarify role definitions for a future operating model.

**Impact on the power of market players with SoftSIM**

- **C. eSIM with open market devices***
  - Though MNOs still involved in eSIM spec, the only physical product element and important touchpoint disappears.
  - MNOs lose another branded touchpoint and weaken retail.

- **D. Open Market devices with SoftSIM***
  - From MNO perspective similar (C.), however, fight for role in SIM management.
  - OEMs will gain power over SIMs and devices.

- **E. Open market devices, SoftSIM and OEM as MVNO***
  - OEMs offer network access as global MVNOs.
  - MNOs are losing direct customer access and become bitpipe for OEMs.
  - OEMs own major power over device, SIM and end customer access.

* - Outlook

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**Network Access Management**

1. Mobile Network Management
2. SIM manufacturing
3. Device manufacturing
4. SIM-Mgmt. (SM-DP)
5. Open Market Dev.
6. embedded SIM
7. Mobile Service

**SIM Management**

1. Mobile Network Management
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