Embedded SIM
The market is ready for e-SIM cards Apple

As you know, Apple is in talks with mobile operators to launch e-SIM cards (e-sim). Experts are of the opinion that the market is ready for the transition to embedded in smartphones e-“Simcube”.

Samsung’s Gear S2 has the first certified eSIM that lets you choose carriers

The Gear S2 Classic 3G will use a new industry-approved eSIM

T-Mobile Announces New eSIM, Eliminates International Travel Costs for Machines

BELLvue, WA - February 18, 2014 - T-Mobile today announced eSIM, a first-of-its-kind approach to international roaming made easy. The Network on Demand (NOM) solution, for the first time, eliminates roaming costs for LTE communications in the U.S. and Europe giving its customers local data rates worldwide.

Latest iPad Pro Makes it Even Easier to Switch Wireless Carriers

The new iPad Pro has an embedded version of Apple’s custom SIM card to support use on more than 100 networks worldwide.

Press clipping for telecom specific, general technology and mass media are all rising the attention towards eSIM, but what is really and what not?
Embedded SIM

SIM History

1974: Roland Moreno patented the memory card concept

1993: ETSI release TS 11.11 specification for SIMcard.

2003: Micro SIM (3FF)

2012: Apple patented Apple SIM

2012: Nano SIM (4FF)

2013: GSMA published SGP.01 Embedded SIM Remote Provisioning Architecture

2015: SIMalliance published eUICC Profile Package: Interoperable Format
SIM History

Form factors evolution

2FF - Mini SIM
25mm x 15mm x 0.76mm

3FF - Micro SIM
15mm x 12mm x 0.76mm

4FF - Nano SIM
12.3mm x 8.8 x 0.67mm

MFF2
M2M Form Factor
The GSMA had managed a project to fast track the development of specifications to support the development and deployment of the Embedded UICC. The GSMA published the SGP.02 Remote Provisioning Architecture for Embedded UICC Technical Specification v1.0 and the SGP.01 Embedded SIM Remote Provisioning Architecture v1.1 in December 2013.
eSIM format files

SIMalliance had managed This document defines the technical specification of a standard format to be used for the loading and installation of an interoperable Profile Package in any compliant eUICC. This specification is based on the following SIMalliance document: eUICC Profile Package: Interoperability Functional Requirements.
eSIM possible path

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<th>Form factor</th>
<th>Standard</th>
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<th>Standard + Embedded</th>
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<tr>
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<td>SIM slot required?</td>
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</table>
# Apple SIM / eSIM

## B2C - Apple SIM

- **Launch date**: October 2014, for iPads (i.e. no iPhone version)
- **Availability**: Available with local carrier plans in UK and US
- **Physical SIM**: Apple SIM (trad. nano SIM) is welded into the device (i.e. non removable)
- **First cellular data activation**: Upon first cellular data activation, users can choose packages from different local operators
- **Data plans**: Data plans for traveling in 90 countries

## B2B - GMA M2M

- **Launch date**: March 2015 for B2B connectivity deployment
- **Solution**: Leverages Gemalto eUICC solution (i.e. hardware + subscription management platform)
- **Negotiation**: Enterprise customer negotiates contract with a single MNO
- **Packaging**: eUICCs are delivered with bootstrap profile¹ to enterprise for deployment in device
- **Localization**: Once device is sold in final country, eUICC is localized over the air to the respective operator (triggered by MNO)

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¹ Bootstrap profile: A profile that contains the necessary information to activate and manage the eUICC on the device.
### Traditional SIMs
- Commercial launch in 1991 (G&D)
- 1st deployment Radiolinja (Finland)
- Physical hardware (UICC²) + hardcoded logical profile
- Predominantly single operator profile per SIM, multi IMSI possible³)
- Performs authentication and encryption for network connection

### Embedded SIMs
- Initial specification by GSMA in 2013
- 1st commercial deployment in M2M by AT&T in consumer deployment by Apple
- Physical hardware (eUICC⁴) + virtual logical profile
- Operator profile provisioned remotely
- Theoretical deployment⁵: Hardware permanently integrated into device
- Actual deployment: Leveraging classical SIM cards that are detachable with eSIM software
- No international standard has been established

### Soft SIMs
- No physical hardware
- SIM functionality only as software layer
- Operator profile provisioned remotely
- Security concerns (e.g. encryption, certification) persisting for industrial deployment

The terms eSIM and soft SIM are often used interchangeably – however a key differentiation exists in that embedded SIMs combine the traditional physical hardware with a virtual logical profile.
eSIM setup process

**Trigger**
- OEM
- MNO
- Consumer

User triggers swap to another operator

Subscription management platform locates relevant profile stored and triggers the download

Remote over-the-air provisioning

Selected operator subscription is loaded onto device and activated for service

Selected operator subscription is loaded onto device and activated for service

Source: Arthur D. Little analysis, GSMA eUICC specification v3
Figure 1.3: Projected Consumer Electronics Connections worldwide with alternative scenarios
Figure 1.4: Breakdown of M2M Connections per Sector in 2020 in the Case of GSMA Embedded SIM Specification
eSIM Market

![Chart showing connectivity revenues for Automotive, Consumer Electronics, and Others in 2020.](chart.png)

<table>
<thead>
<tr>
<th>Connectivity Revenues</th>
<th>($bn)</th>
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<td>Automotive</td>
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<td>Consumer Electronics</td>
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<tr>
<td>Others</td>
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<tr>
<td><strong>Total</strong></td>
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THANK YOU!

Jose-Luis Horna

https://download.converlogic.com/eSIM.pdf

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