

# Embedded SIM - eSIM

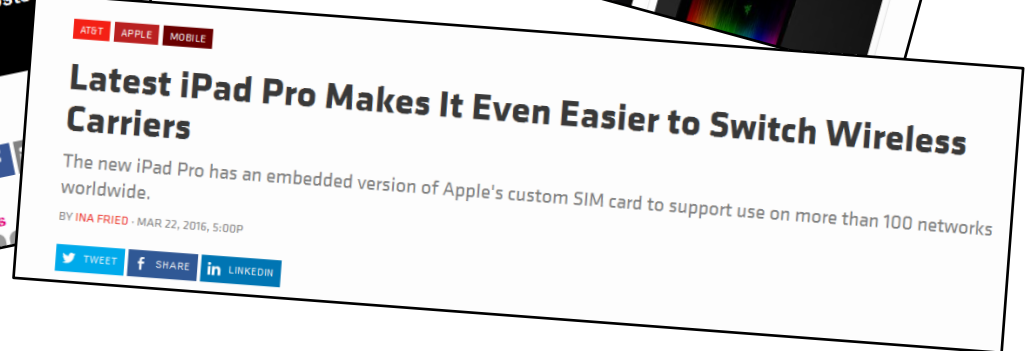
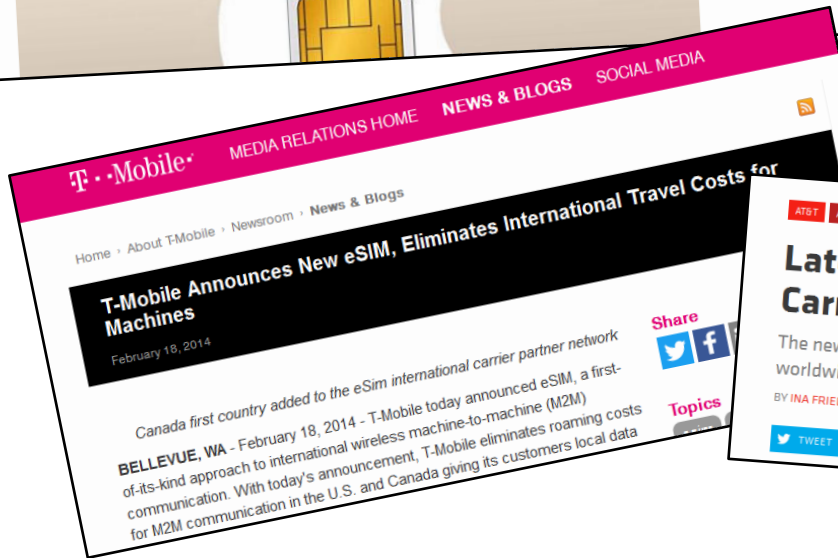
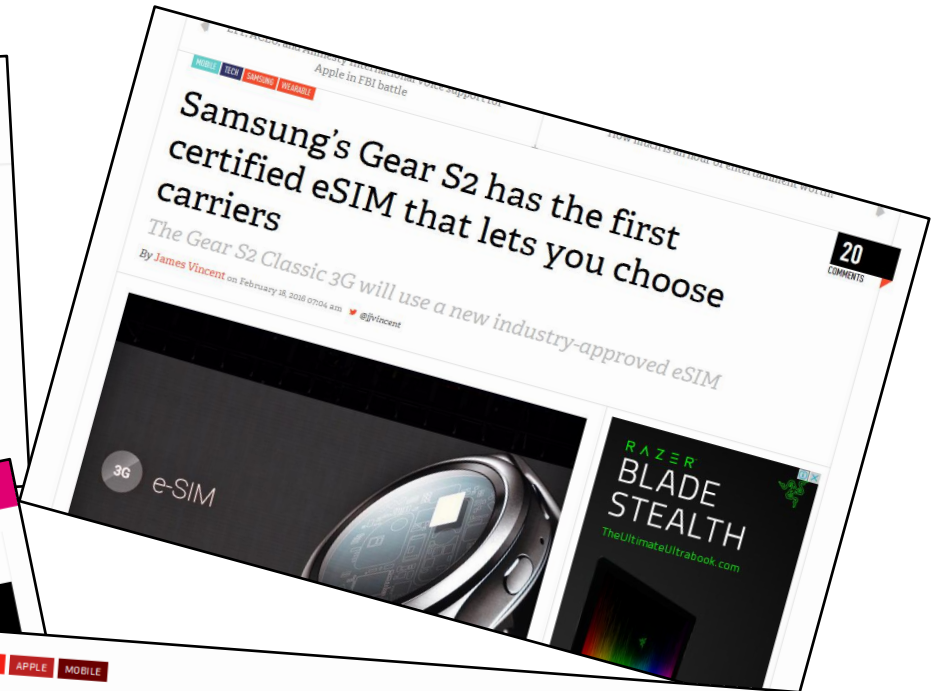


**CONVERLOGIC**

mobility solutions

# eSIM Media Buzz

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

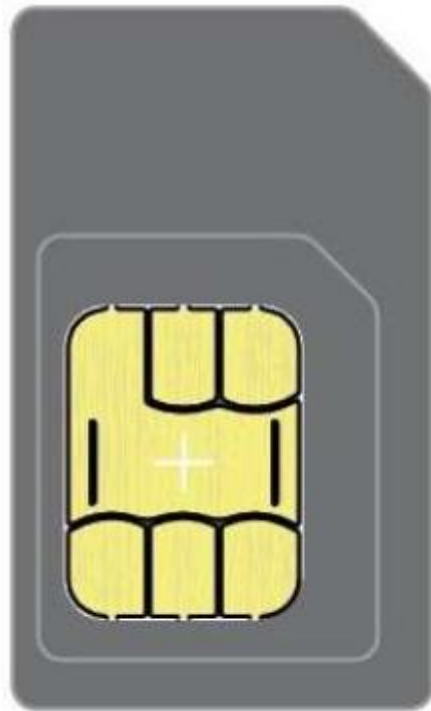
2012: Nano SIM (4FF)

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

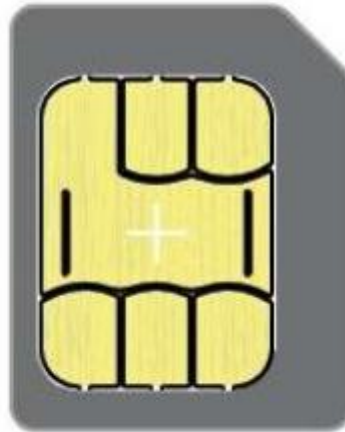
2015: SIMalliance published eUICC Profile Package: Interoperable Format

# SIM History

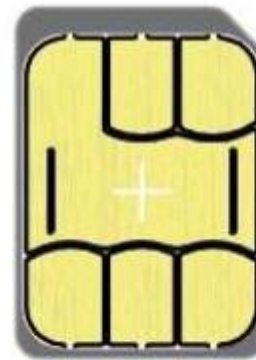
## Form factors evolution



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



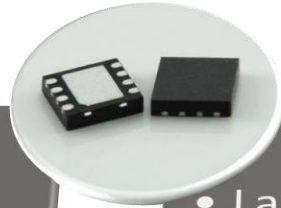
MFF2  
M2M Form Factor

# SIM/eSIM/vSIM



## SIM

- Launched with GSM standard (1991)
- Traditional key difference between GSM and CDMA
- Physical separation of the subscription and the handset



## eSIM

- Launched March 2015
- Physically soldered to the circuit board
- Non removable
- Dedicated secure hardware
- The handset manage new carrier provisioning or selection



## vSIM (Soft SIM)

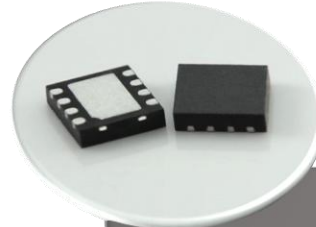
- Pure Software
- Run over the handset OS
- As any OS can be broken or compromised by external attacks or penetration
- Proprietary implementations
- Roaming mifi usage

# Apple SIM / eSIM



## Apple SIM

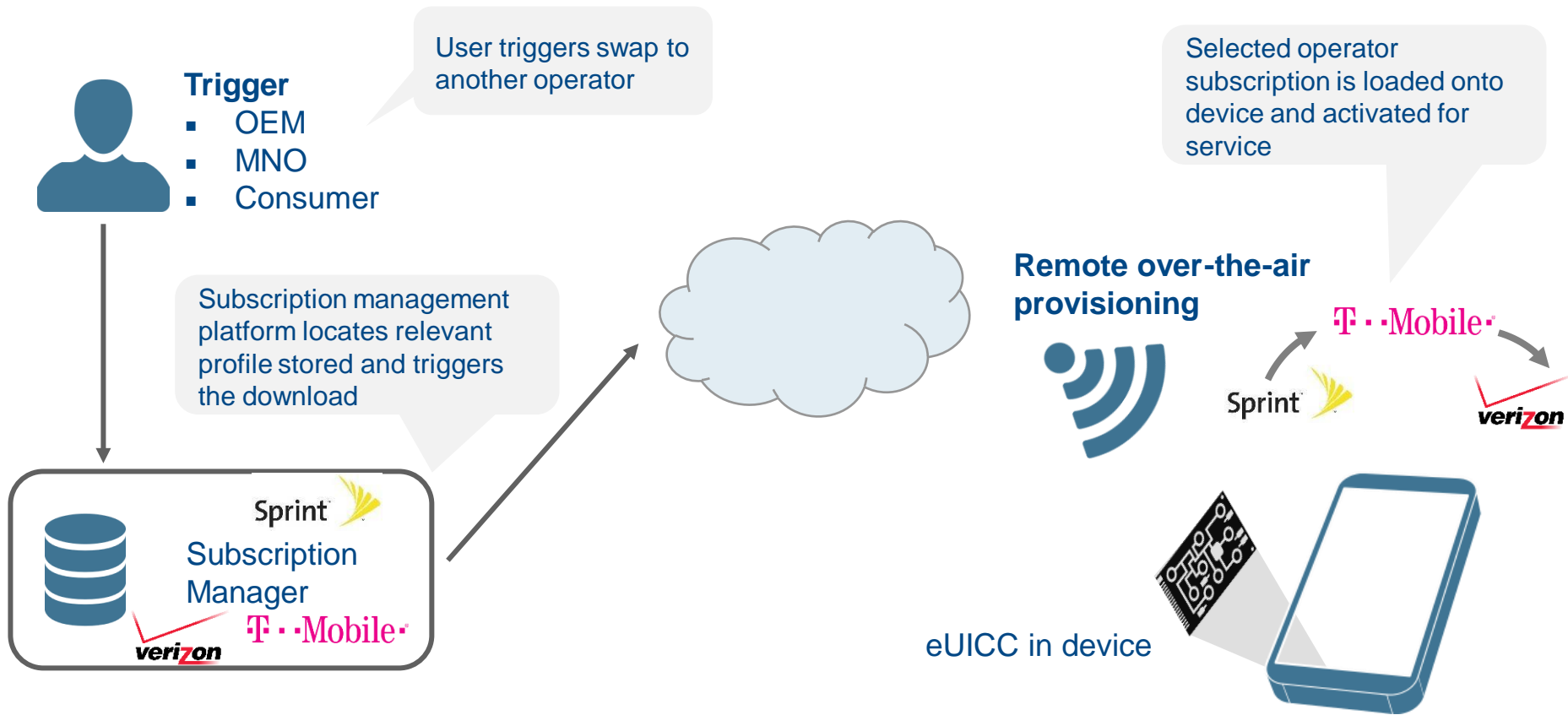
- Oriented B2C
- Launched on Oct 2014 for Ipad
- Running over traditional SIM from G&D with proprietary implementation
- After first cellular activation user can change between carriers covered by apple agreement



## GSMA eSIM

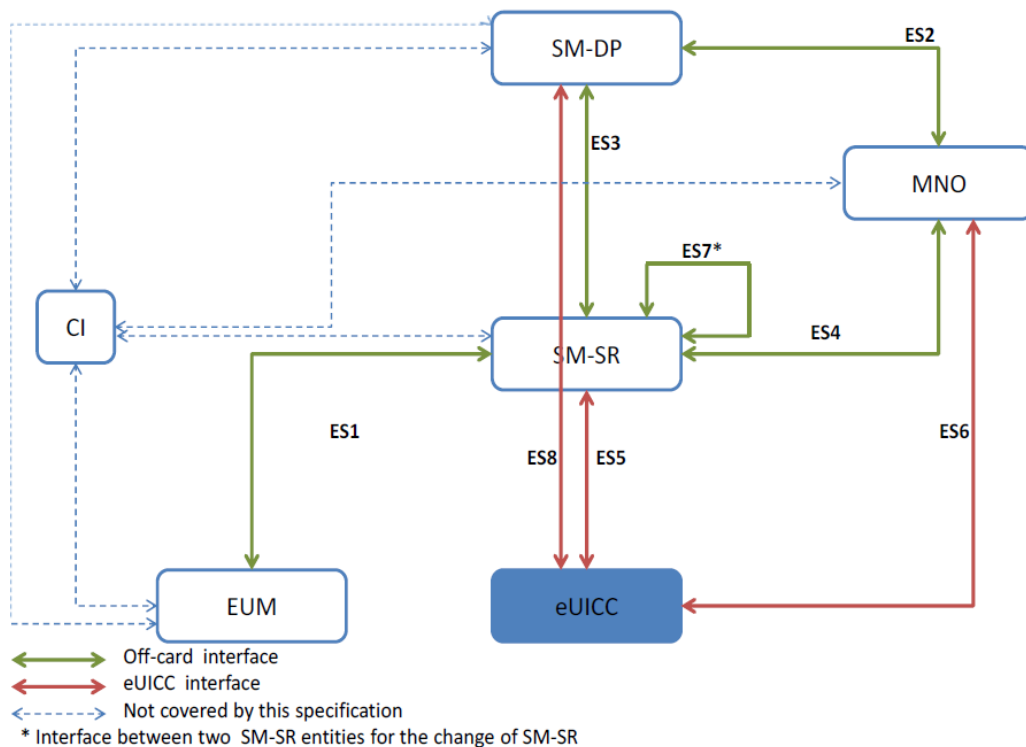
- Initially Oriented B2B
- Launched March 2015 for M2M
- Moved to B2C on 2016
- Samsung Watch S2 first commercial on Feb 2016
- The user can swap between carriers using the menu
- SIMalliance delivered profile interoperable format on June 2015

# eSIM setup process



# eSIM SGP.01-02

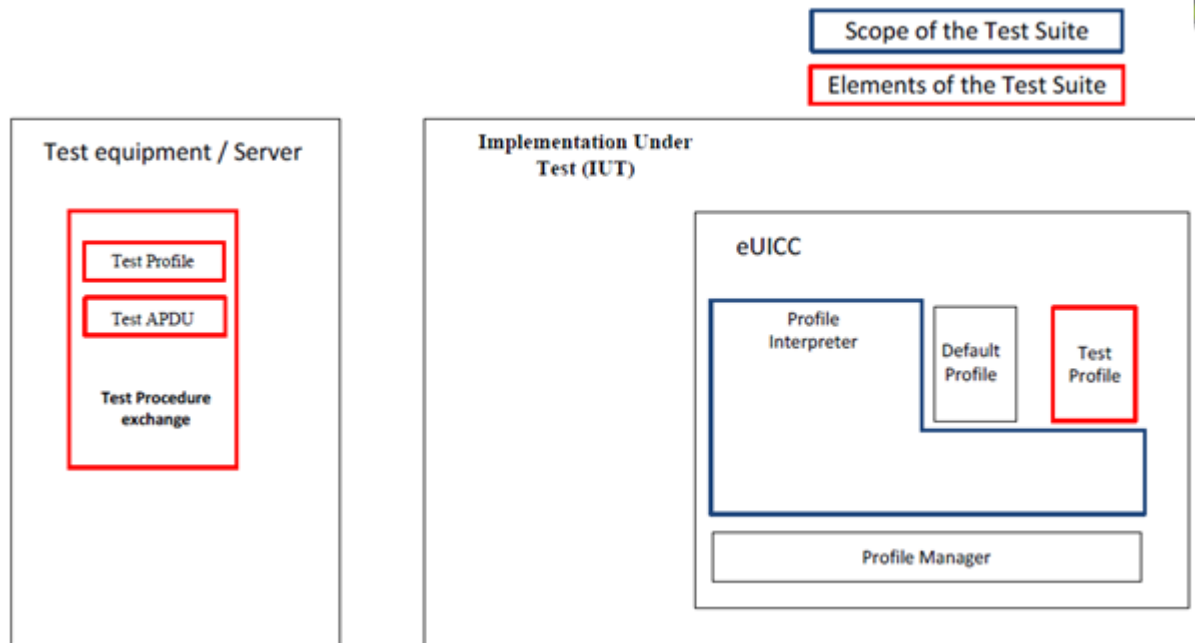
The GSMA had managed a project to fast track the development of specifications to support the development and deployment of the Embedded UICC. The GSMA published the SGP.02 Remote Provisioning Architecture for Embedded UICC Technical Specification v1.0 and the SGP.01 Embedded SIM Remote Provisioning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



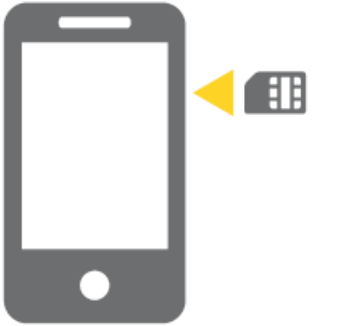

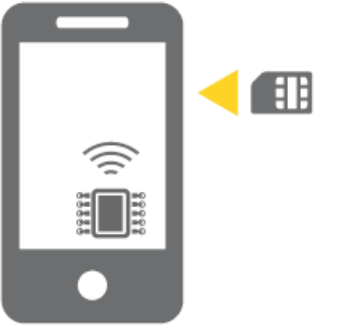



# eSIM format files

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 evolution

|                    | Removable non-reprogrammable  | Removable and reprogrammable   | Sealed and reprogrammable but with a second slot for standard SIM                   | Sealed and reprogrammable   |
|--------------------|---|--|---|---|
|                    |  |  |  |  |
| Form factor        | Standard  | Standard   | Standard + Embedded   | Embedded  |
| Reprogrammable     | ✗   | ✓  | ✓   | ✓   |
| SIM slot required? | ✓   | ✓  | ✓   | ✗   |

# eSIM Market

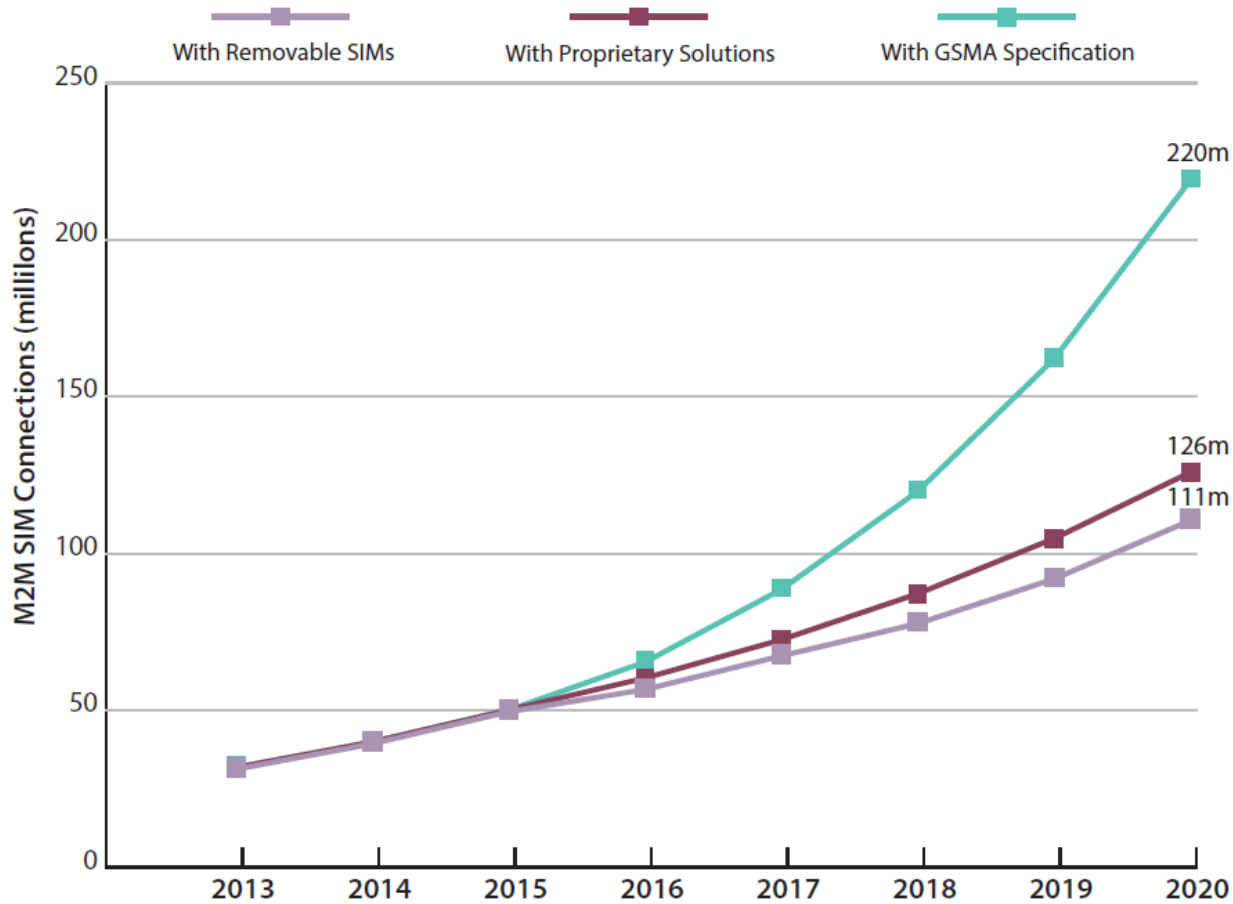


Figure 1.3: Projected Consumer Electronics Connections worldwide with alternative scenarios

# eSIM Market

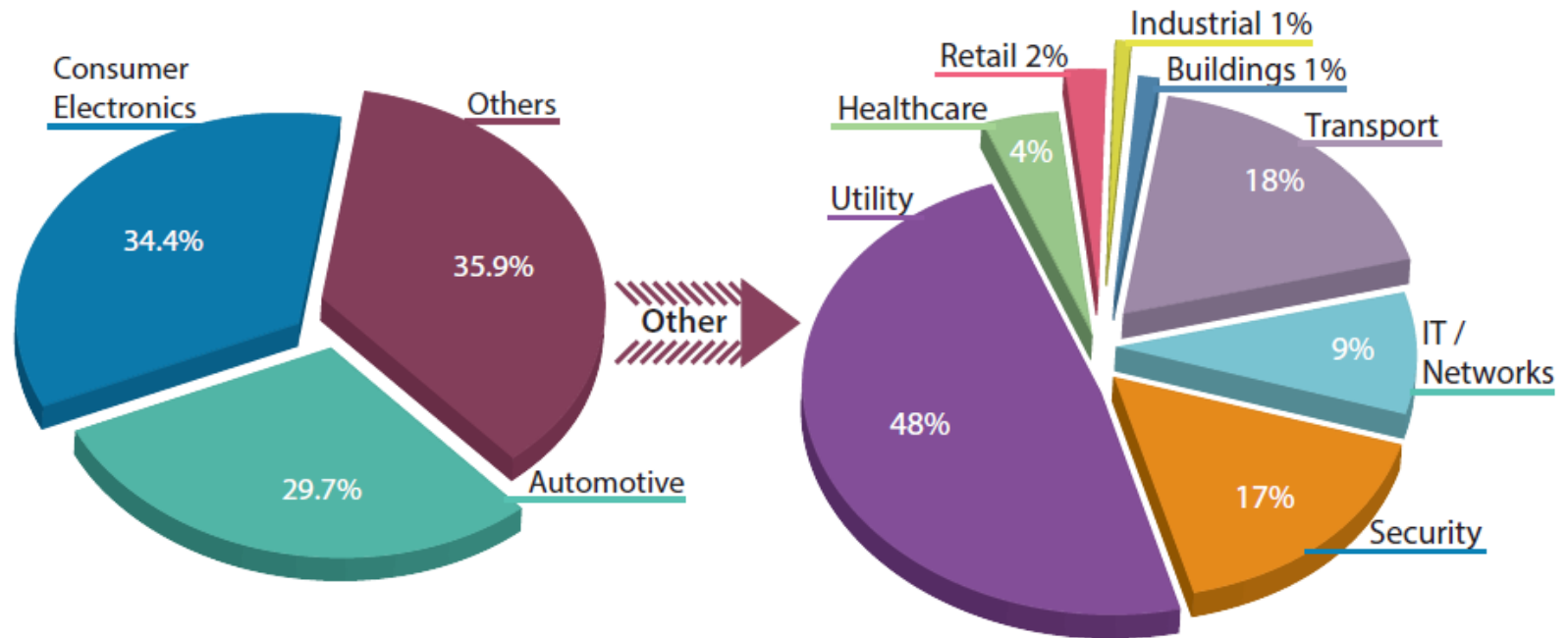
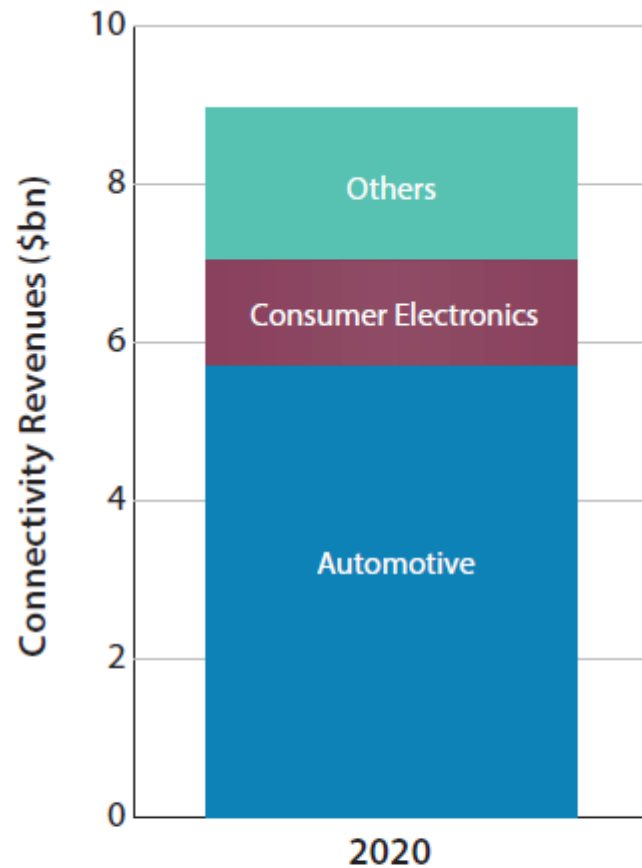


Figure 1.4: Breakdown of M2M Connections per Sector in 2020 in the Case of GSMA Embedded SIM Specification

# eSIM Market



| Connectivity Revenues | (\$bn)      |
|-----------------------|-------------|
| Automotive            | 5.70        |
| Consumer Electronics  | 1.33        |
| Others                | 1.93        |
| <b>Total</b>          | <b>8.96</b> |



THANK YOU!

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**<https://download.converlogic.com/eSIM.pdf>**

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