



Numbering and Pan-European Solutions

**CEPT-ECC Public Workshop on Numbering for eCall
31 January 2017**

WHO WE ARE



Cubic Telecom is a: global connectivity platform provider

Global	<ul style="list-style-type: none">• Global solutions for multi-national partners• Contracts with PC OEMS, Automotive Manufacturers and Retailers	Headquarters: Dublin, Ireland
Connectivity	<ul style="list-style-type: none">• Cellular and Mobile connectivity• Connectivity in 197 countries• Local integrations with multiple MNOs worldwide• Independent LTE footprint live in Europe	Operating since: 2009
Platform	<ul style="list-style-type: none">• Wide range of IoT applications• Multi-part billing, B2B and B2C on a single eSIM• End-to-end Platform designed, built and managed by Cubic	Employees: 90
Provider	<ul style="list-style-type: none">• Cubic delivers and manages the complete end-to-end solution• Flexible and fast enablement of custom functionality	Primary skills employed: <ul style="list-style-type: none">• Software engineering• SIM card Technologies• Network engineering

INVESTORS



Cubic is privately held with €35 million in funding by the original Founders, Strategic investors (Audi & Qualcomm), Enterprise Ireland (Irish Government) and others.



OUR END TO END SOLUTION



On-SIM Software

Multi IMSI profile capability; real OTA reprogramming



Global Mobile Operator Local Agreements

Signed agreements with Tier 1 operators, large global footprint

Device Agnostic

Laptops, notebooks, tablets, phones, cars. The complete M2M spectrum



Core Network

PaaS offering, next gen. billing & rating engine, split billing

Operations

1 single contract, 1 commercial point of contact, 1 single operations relationship, 1 single SKU



Intelligent Platform

Feature rich, cloud-based connectivity platform, extensive APIs, high scalability

CUBIC MODEL



CURRENT & ADVANCED DISCUSSION AUTO PARTNERS



CUBIC SIM CARD + INFINEON CHIP



OEM EMBEDDED + BYOD (BRING YOUR OWN DEVICE)

CUBIC PLATFORM



CORE NETWORK

GGSN /
SMSC

Business
Intelligence

Subscription
Management

Billing

CRM

Intimate
Charging

HLR

TIER 1 MNO PARTNERS



Digicel
The Bigger, Better Network.



中国移动
China Mobile



PCCW®
電訊盈科

bharti

TELE2



Sprint



A1
mobilkom austria

Auto OEMs demand multi-facet in-car solution



Audi A3

Audi connect

05/16



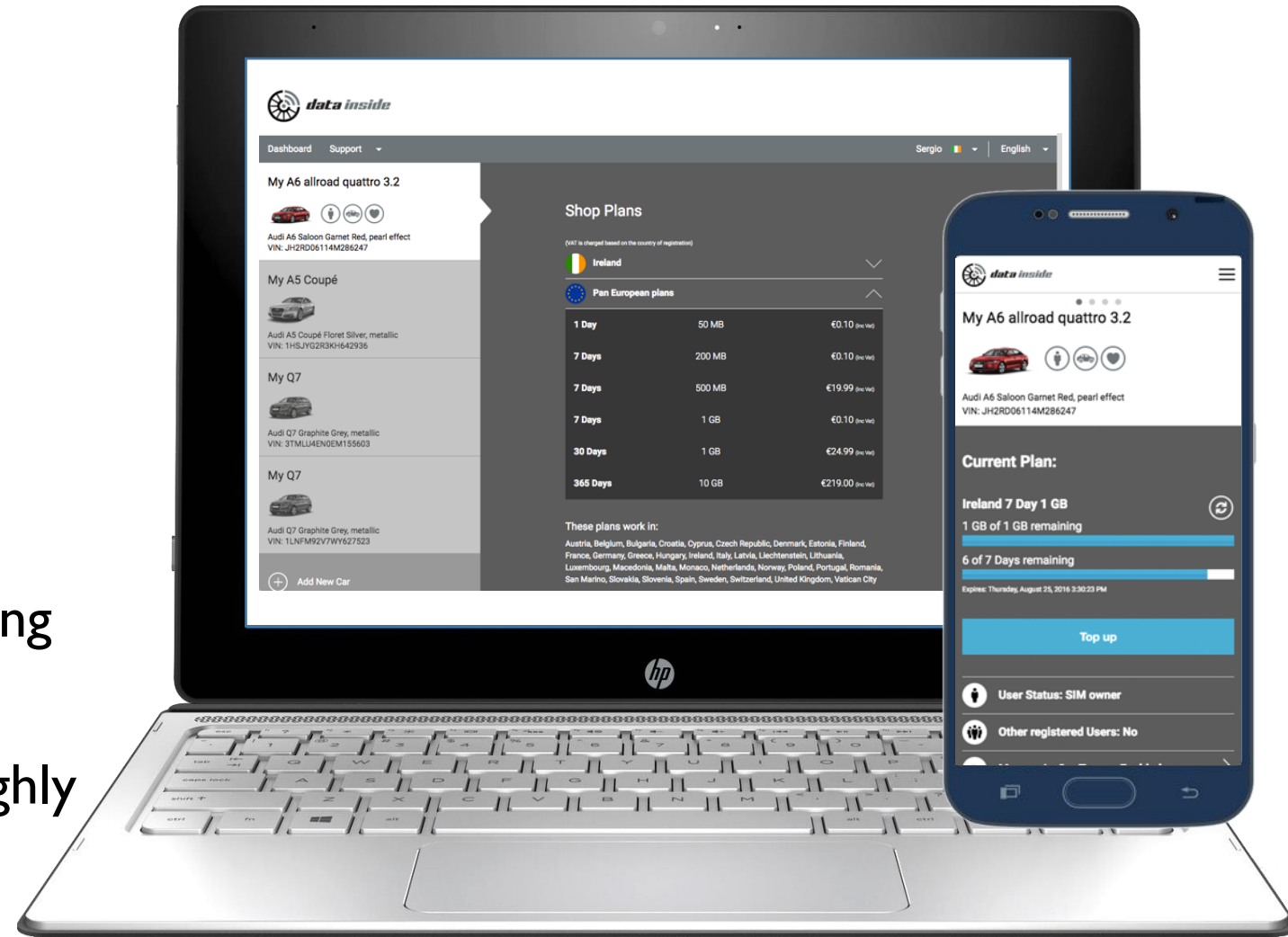
Single SIM Solution and Connectivity Partner for:-

- Infotainment
- In-car WiFi
- Telemetry
- eCall

Bespoke web-portal and feature rich e-shop



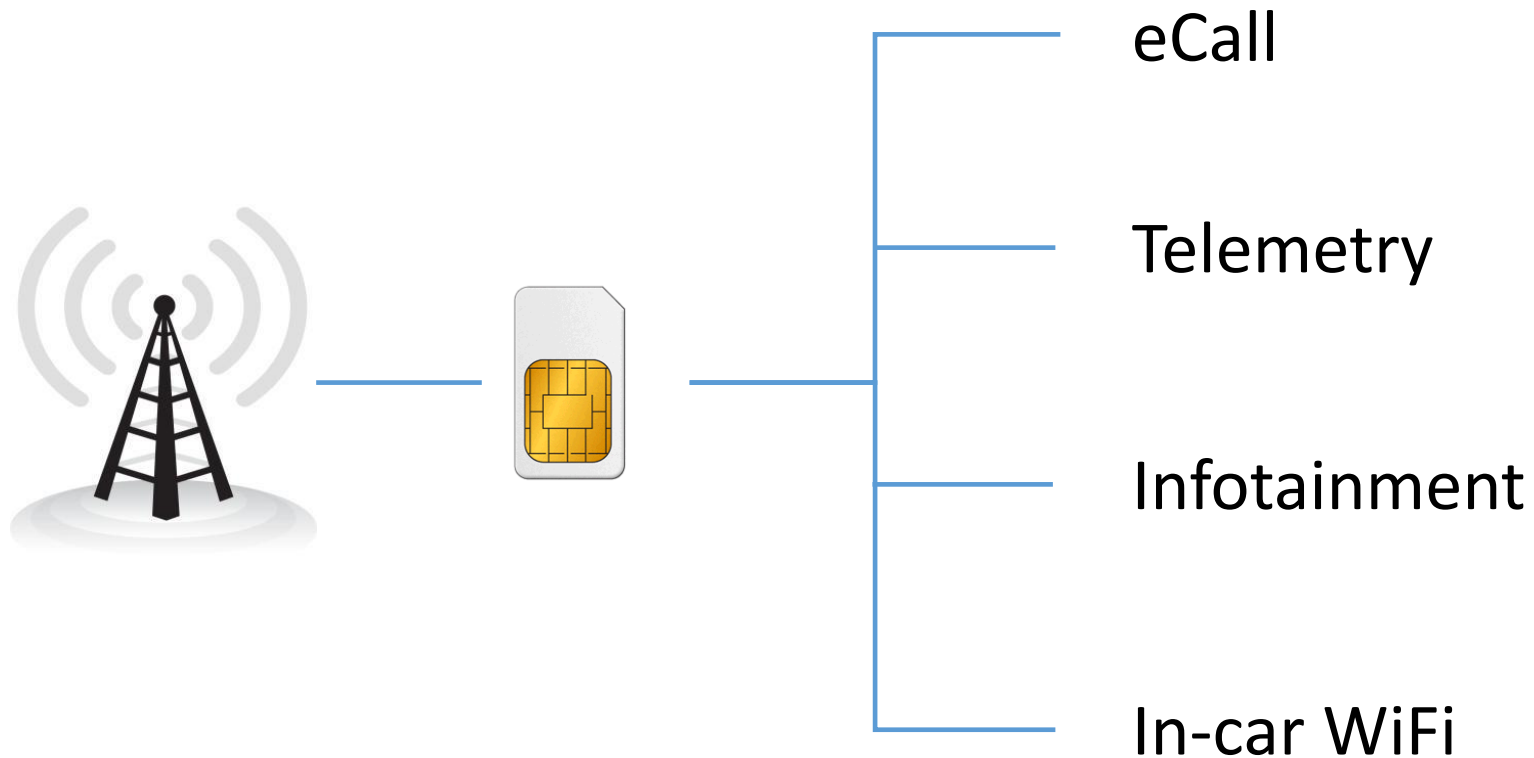
- Multi lingual web interface
- Cross-device compliant
- Detailed usage history
- Real-time fuel gauges on data plans
- Multiple users per device
- Multiple vehicles per account allowing for fleet management
- Identity verification (passport) in highly regulated markets



Integrated in-car experience



One Module, One Global SIM for All Services



MULTIPLE INTEGRATION SOLUTIONS



Wholesale Agreements

PaaS

Full MVNO

Local Cubic MNC

Own IMSI Range

Cubic MSISDN

Use MNO Radio

Local Carrier IMSI

Use MNC + IMSI range from MNO

No Cubic Numbering Resources in Country

Cubic MSISDN

As full MVNO in other respects

Roaming with SLA

Cubic IMSI + MSISDN

Roaming Restrictions (local sales)

Service Continuity with SLA

Quick Set-Up

Roaming

(Cubic is Licensed EU Carrier)

Cubic IMSI + MSISDN

Permanent Roaming Often Banned

No SLA

Quick Set-Up

Platform Provider

Local MNO Profile: IMSI + MSISDN + Ki

MNO is Merchant of Record

Regulatory Compliance through MNO

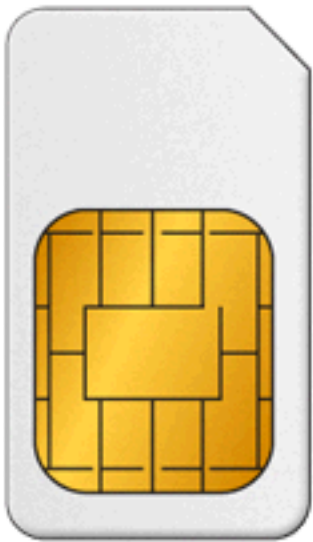
Complex Platform Integration

Multi-IMSI & Multi-Profile



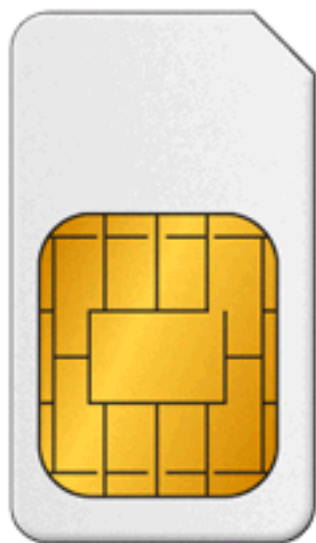
Multi-IMSI Applet

Denmark	238 08	TDC
Sweden	240 07	Tele2
Switzerland	295 06	Salt
Estonia	240 07	Tele2
Etc.		



eUICC Multi Profile

Denmark	238 08	TDC	Cubic Europe Profile
Sweden	240 07	Tele2	
Switzerland	295 06	Salt	
Estonia	240 07	Tele2	
Etc.			
Japan	505 xx	DoCoMo	Cubic Japan Profile
China	460 00	China Mobile	China Mobile Profile



- Multiple IMSIs



Needed for Data Traffic

+

- MSISDN



- Currently used for OTA updates (Binary SMS)
- eCall introduces need for Voice calls.

Voice Is Straightforward with Roaming Integrations. But More Complex with MVNO integrations.

1. Prefer to use single MSISDN range across Europe / World
 2. Combination of IMSI from Country A and MSISDN from Country B can cause issues
 3. Special IoT Ranges: often (still) un-routable, or unsupported
 4. Mobile Number Portability requirement
 - Doesn't make sense for M2M application
 5. Routing Binary SMS causes issues
 6. Permanent Roaming restrictions in EU are restrictive
 7. Looking into new methods for IMSI and MSISDN recycling
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