Workshop
Numbering for eCall
31. January 2017
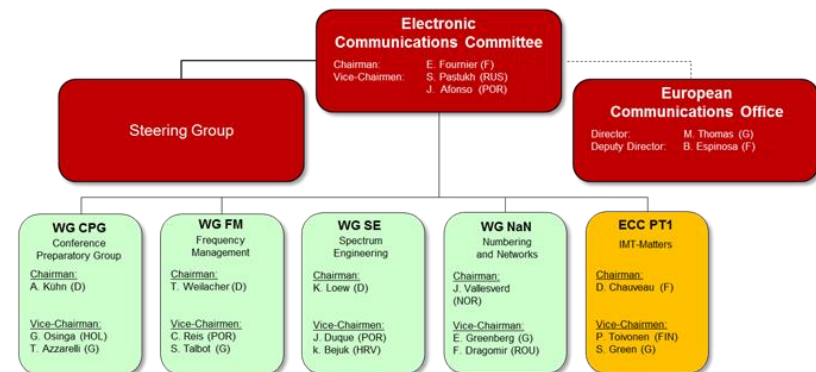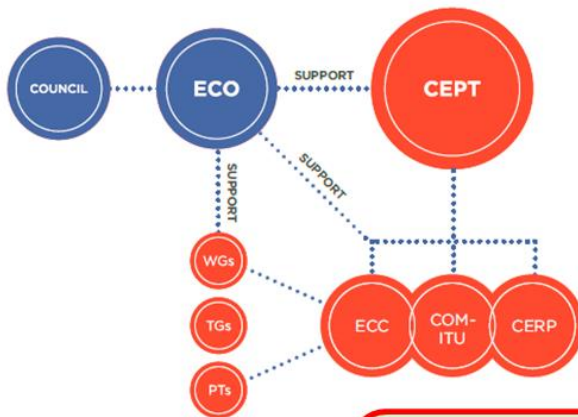
Johannes Vallesverd
CEPT ECC WG NaN Chairman

Organisation map

M2M World of Connected Services
The Internet of Things

Devices

Locations

Application Groups

Service Sectors

Service Sectors

Application Groups

Locations

Devices

Buildings
- Commercial/Institutional
- Industrial

Locations: Office, Education, Retail, Hospitality, Healthcare, Airports, Stadiums; Process, Clean Room, Campus

Devices: HVAC, Transport, Fire & Safety, Lighting, Security, Access, etc.

Energy
- Supply/Demand
- Alternative
- Oil/Gas

Locations: Power Gen, Trans & Dist, Low Voltage, Power Quality, Energy Mgmt; Solar, Wind, Co-generation, Electrochemical; Rigs, Derricks, Well Heads, Pumps, Pipelines

Devices: Turbines, Windmills, UPS, Batteries, Generators, Meters, Drills, Fuel Cells, etc.

Consumer & Home
- Infrastructure
- Awareness & Safety
- Convenience & Entertainment

Locations: Wiring, Network Access, Energy Mgmt; Security/Alerts, Fire Safety, Environ. Safety, Elderly, Children, Power Protection; HVAC/Climate, Lighting, Appliance, Entertainment

Devices: Digital Cameras, Power Systems, MID, Dishwashers, eReaders, Desktop Computers, Washer/Dryers, Meters, Lights, TVs, MP3, Games Consoles, Lighting, Alarms, etc.

Healthcare & Life Science
- Care
- In Vivo/Home
- Research

Locations: Hospital, ER, Mobile POC, Clinic Labs, Doctor Office; Implants, Home Monitoring Systems; Drug Discovery, Diagnostics, Labs

Devices: MRI, PDAs, Implants, Surgical Equipment, Pumps, Monitors, Telemedicine, etc.

Industrial
- Resource Automation
- Fluid/Processes
- Converting/Discrete
- Distribution

Locations: Mining, Irrigation, Agricultural, Woodland; Petro-Chem., Hydro Carbons, Food/Bevrge; Metals, Paper, Rubber/Plastic, Metalworking, Electronics, Assembly/Test; Pipelines, Mat'l Handling, Conveyance

Devices: Pumps, Valves, Vats, Conveyors, Pipelines; Motors, Drives, Converting, Fabrication; Assembly/Packaging, Vessels/Tanks, etc.

Transportation
- Non-Vehicular
- Vehicles
- Trans Systems

Locations: Tolls, Traffic Mgmt, Navigation; Consumer, Commercial, Construction, Off-Hwy; Air, Rail, Marine

Devices: Vehicles, Lights, Ships; Planes, Signage; Tolls, etc.

Retail
- Specialty
- Hospitality
- Stores

Locations: Fuel Stations, Gaming, Bowling, Cinemas, Discos, Special Events; Hotels, Restaurants, Bars, Cafes, Clubs; Supermarkets, Shopping Centers, Single Site, Distrib. Centers

Devices: POS Terminals, Tags, Cash Registers, Vending Machines, Signs, etc.

Security/Public Safety
- Surveillance
- Equipment
- Tracking
- Public Infrastructure
- Emergency Services

Locations: Radar/Satellite, Envirn, Military Security, Unmanned, Fixed; Weapons, Vehicles, Ships, Aircraft, Gear; Human, Animal, Postal, Food/Health, Packaging, Baggage; Water Treatmnt, Building Environ, Gen. Environ, Surveillance; Equip. & Personnel, Police, Fire, Regulatory

Devices: Tanks, Fighter Jets; Battlefield Comms; Jeeps, Cars, Ambulances; Breakdown, Lone Worker; Homeland Security, Fire; Enviro. Monitor, etc.

IT & Networks
- Public
- Enterprise

Locations: Services, E-Commerce, Data Centers, Mobile Carriers, Fixed Carriers, ISPs; IT/Data Center, Office, Private Nets

Devices: Servers, Storage, PCs, Routers, Switches, PBXs, etc.

- ✓ M2M numbering resources
- ✓ MNC flexibility
- ✓ OTA provisioning of SIM cards
- ✓ Extra-territorial use of numbers
- ✓ 112 issues
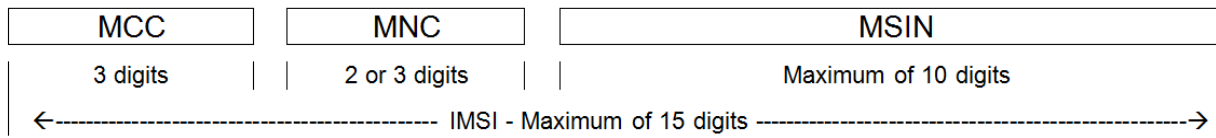
[ECC Report 153](#) Numbering and Addressing in Machine-to-Machine Communications (2010)

[ECC/Rec(11)03](#) Numbering and addressing for Machine-to-Machine Communications (2011)

France: 5 billion M2M numbers (7000-7004 range). Implementation date 1. July 2017.
By now, 4 assigments of 10 million numbers
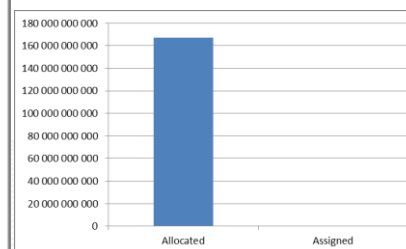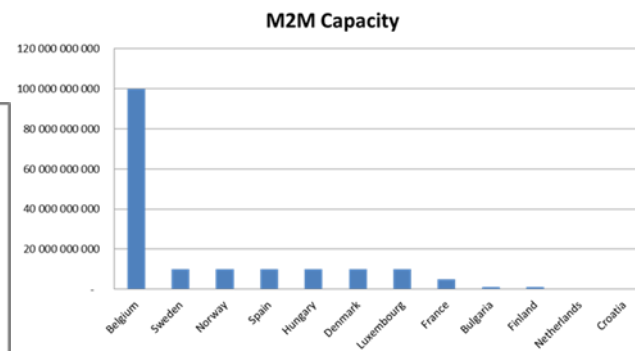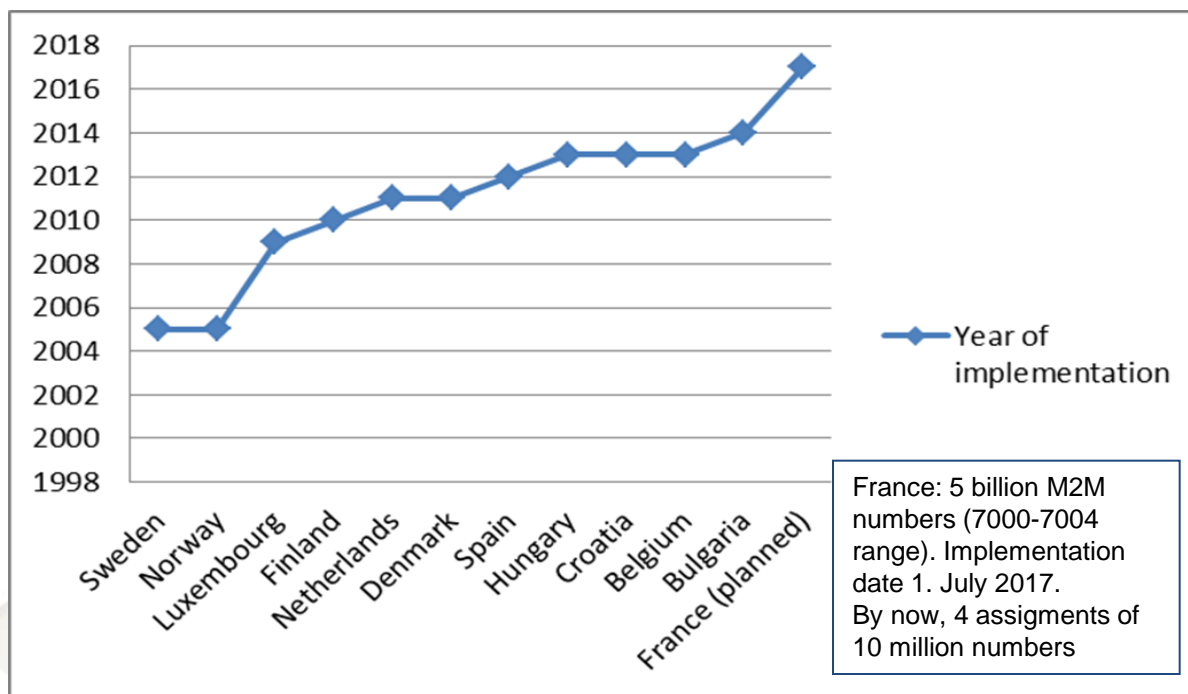
Allocated/capasity: appr. 167 billion numbers
Assigned: appr. 207 million numbers assigned

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MCC	MNC	MSIN
3 digits	2 or 3 digits	Maximum of 10 digits

←-- IMSI - Maximum of 15 digits --→

MNC

- Scarcity risk vs. flexibility. Usually only 100 MNCs per MCC

- ECC Report 212 the Evolution in the use if E.212 Mobile Network Codes (2014)
  - IMSI description, description of emerging demand, options and conclusions
  - Input to ITU

- 2016: Change in ITU-T E.212
- Annex B nr 6: *MNCs are to be assigned to applicants and used by assignees for public networks offering public telecommunication services. In addition MNCs may be assigned to other applicants (e.g. for GSM-R networks) and these assignments are to be made according to procedure and criteria established by the national numbering plan administrator.*

- [ECC Rec 17-02](#) Harmonised European Management and Assignment Principles for Geographic E.212 Mobile Network Codes (MNCs)

- Some elements:

  - MNCs are to be managed and assigned to permit the most effective and efficient use of a finite resource in order to defer, as long as is practicable, the need to request an additional MCC from the ITU-T TSB;

  - Assignments of MNCs are to be made according to procedures and criteria established by the national numbering plan administrator;

  - Encourages MNC 90x applications and shared use of national MNCs

  - Gives examples of potential applicants; MNO, MVNO, PVNO, GSM R, providers of M2M/IoT and eCall services.

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ECC consultation page: http://www.cept.org/ecc/tools-and-services/ecc-consultation

Changing connectivity provider in the cellular M2M sector

- M2M/IoT devices using public mobile networks need a form of SIM card for network authentication and communication
- The physical replacing of SIM cards is often economically and logistically unrealistic, and sometimes even impossible
- Easy switching promotes competition and constitutes an important policy objective for NRAs

OTA provisioning of SIM profiles
- Enables switching without physical presence
- GSMA has defined an architecture and processes
- ETSI specifications
- Great end-user potential

SAMSUNG Gear S2

3G
e-SIM

MNC flexibility
- Enables MNC-assignees to produce their own SIM-cards and to more easily switch access provider
- "PVNOs"
- Scarcity and other issues

Both paths or one of them? MNC for large end users – OTA for the rest?
Will eSIM be introduced on a voluntary basis?
EECC: MS «shall promote» OTA for M2M services (why not for consumers too?).

- Draft ECC Report regarding Over-The-Air (OTA) Provisioning of E.212 and E.118 Resources and the impact on Number Portability (PT NP)

Extra-territorial use of E.164 Numbers

- **ECC Report 194** Extra-territorial Use of E.164 Numbers (2013)
  - Describes different types of extra-territorial use, where M2M is one example.
  - Provides a problem analysis and pros and cons of extra-territorial use
  - Presents policy options and conclusions.

- **ECC Recommendation (16)02** – Extra-territorial Use of E 164 Numbers - High level principles of assignment and use (2016)
  - The general principle is national assignment and use, but an opening for exceptions under certain conditions.
  - The applicant shall describe where and for what type of services the numbers are intended for use.
  - Cooperation between administrations, if problems arise
  - The recommendation considers that extra-territorial use of national numbers for M2M services may provide added value to the global market without having significant negative effects;

- The EECC proposes that MS shall determine a range which may be used for ECS other than ICS, for use throughout the Union

- The international E.164 range 878 is under consideration at ITU for M2M usage

REC/T/SF-1 Long Term Standardisation of National Numbering Plans – Recommendation on 112 (1972)

ECC Report 193

Emergency Calls in VoIP Environment - Compilation of Recent Studies (2012)

ECC Report 225 Establishing Criteria for the Accuracy and Reliability of the Caller Location Information in support of Emergency Services (2014)

ECC Report 255 The use of Assisted-Global Navigation Satellite System (A-GNSS) capabilities to improve caller location information for emergency calls originating on mobile devices (2016)

Why is numbering an important issue?

What kind of resources do eCall require?

What is the future need?

Are there sufficient resources available?

Are we ready for the 2018 deadline?

Are there any challenges?

What are the alternatives to national M2M E.164 numbers and E.212 codes?

What about recycling of resources?

What is the role of Numbers in PSAP operations?

What about Third Party eCall?

Thank you!

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