



The Standards People



# The Changing Face of ICT Standardization The Case of 5G

Presented by: **Ultan Mulligan**

For: Event

4.10.2018

# Agenda

- ❖ Stakes
- ❖ Scope
- ❖ Pace
- ❖ Scale
- ❖ Actors
- ❖ Technologies & Tools



# Stakes are high!



GSMA:  
<https://www.gsma.com/mobileconomy/wp-content/uploads/2018/02/Mobile-Economy-Global-2018-Infographics.pdf>

## Changing Scope – ICT Inside

⌚ IoT in all forms will drive 5G growth: Consumer IoT, Industry 4.0, V2X etc.

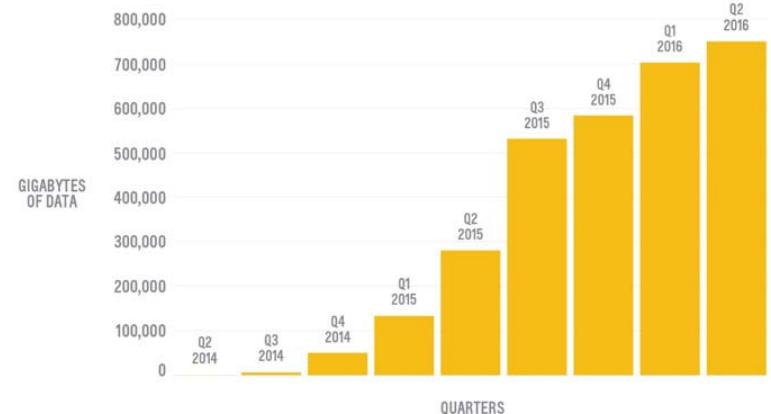
### ⌚ Ford (US)

- ⌚ Data generated by Ford vehicles in 2015:
- ⌚ 500MB per hour for an older model and  
25GB an hour for a new model
- ⌚ Per individual vehicle
- ⌚ No need to transmit all outside the vehicle

### ⌚ Chevrolet (US)

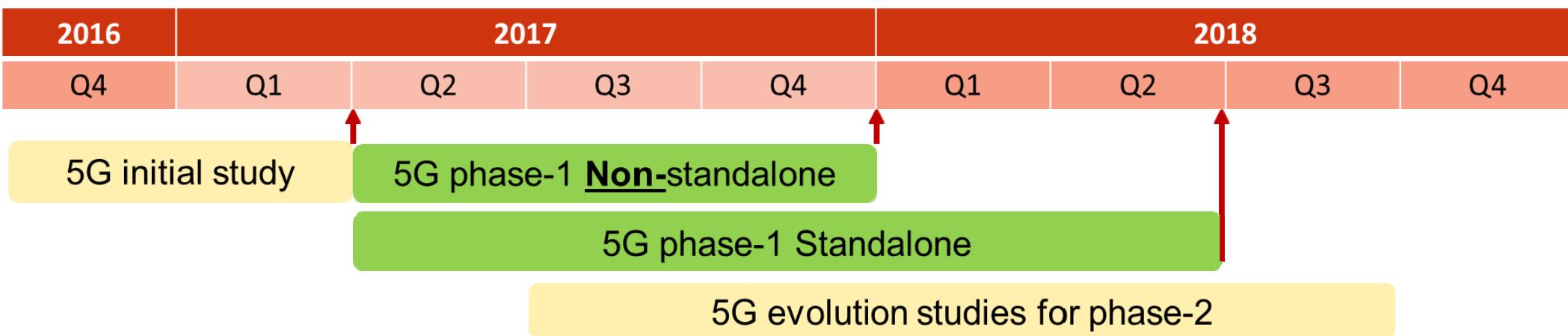
- ⌚ Mid 2016: over 700,000 GB of 4G data usage
- ⌚ <https://www.cnet.com/roadshow/news/ford-our-cars-will-give-you-control-of-your-drive/>
- ⌚ <https://media.chevrolet.com/media/us/en/chevrolet/news.detail.html/content/Pages/n>

**CHEVROLET 4G LTE  
DATA USAGE BY QUARTER**



## Pace of 5G Standardization in 3GPP

- ❖ Start of standardization work: March 2017
- ❖ 1<sup>st</sup> 5G specs December 2017 – 9 months
- ❖ 1<sup>st</sup> full 5G release 15: June 2018 – 15 months
- ❖ Release 16: Summer 2019
- ❖ 1200 specifications per release



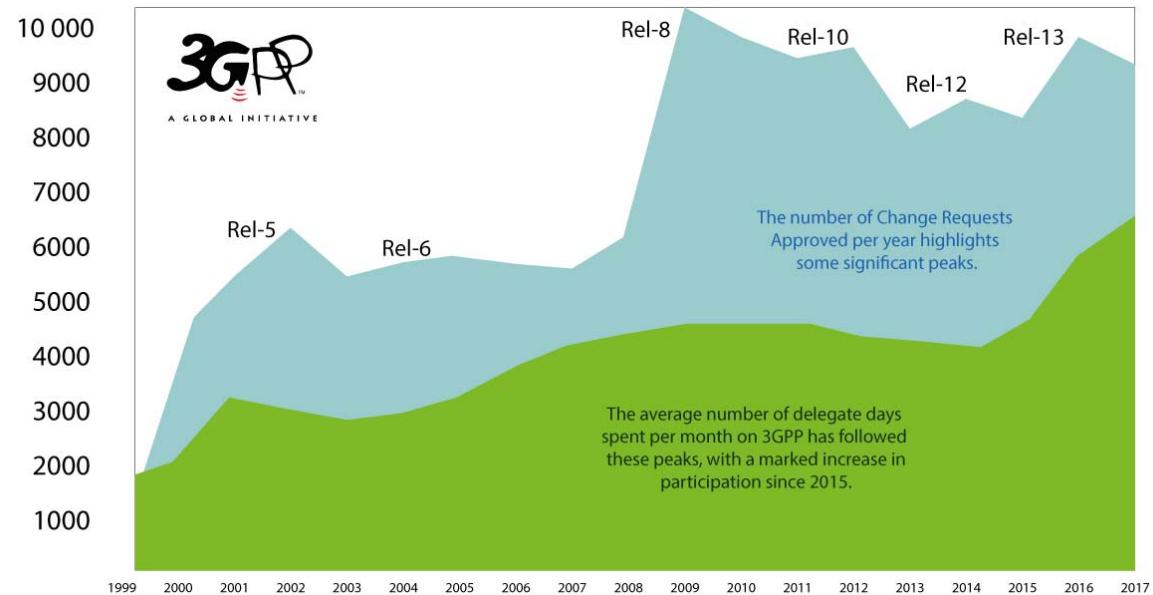
## Scale of 5G standardization

### 3GPP:

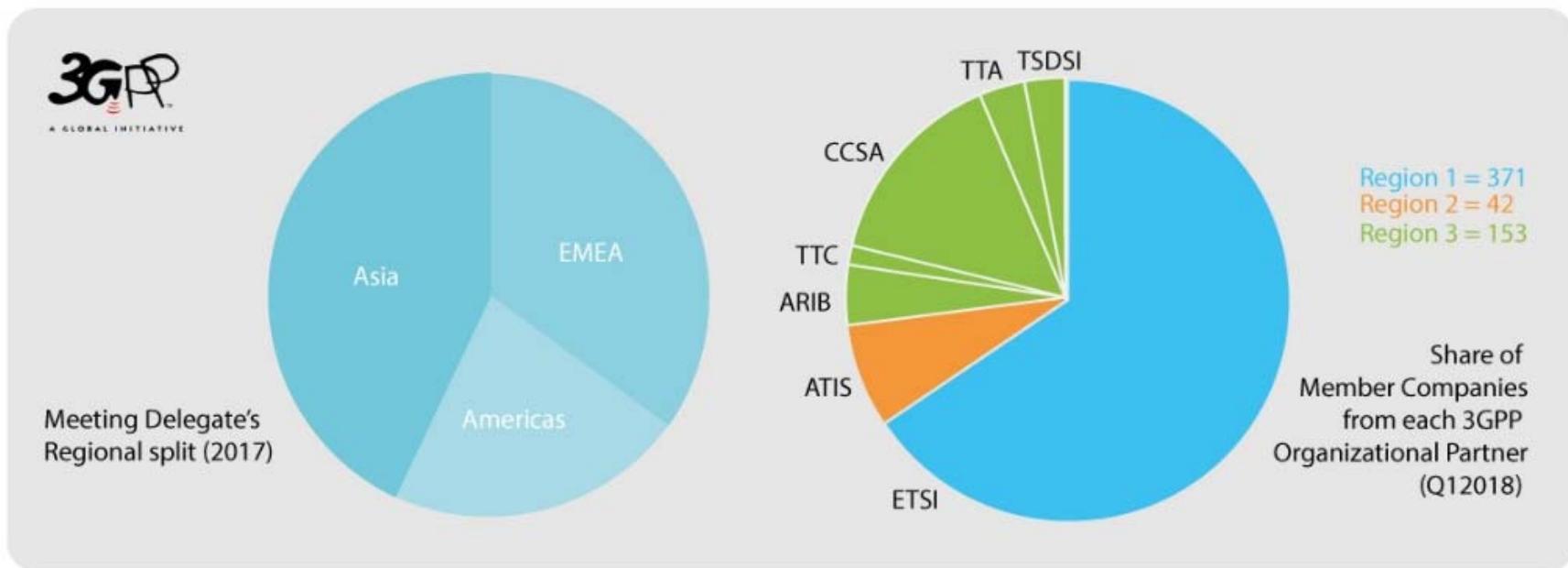
- ❖ 400 Companies from 39 Countries
- ❖ 50.000 delegate days per year
- ❖ 40.000 documents per year

### Radio Access Network standardization meetings:

- ❖ RAN1: c. 2000 meeting documents /meeting
- ❖ RAN1: c. 500 delegates
- ❖ RAN WGs collocated: over 1000 delegates

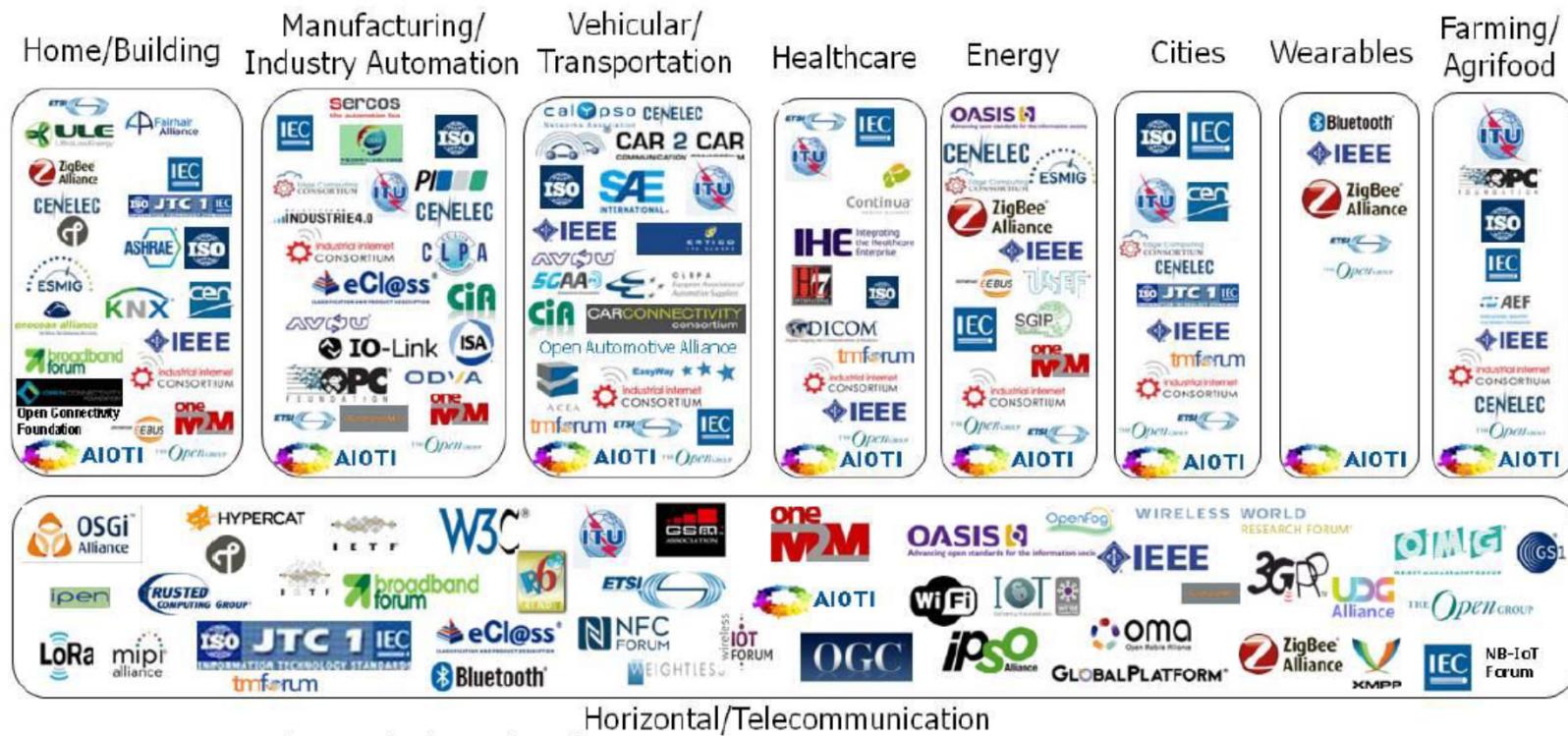


## New Actors: Strength of Asia



## New Actors: Fora and Consortia in IoT

### IoT SDOs and Alliances Landscape (Vertical and Horizontal Domains)



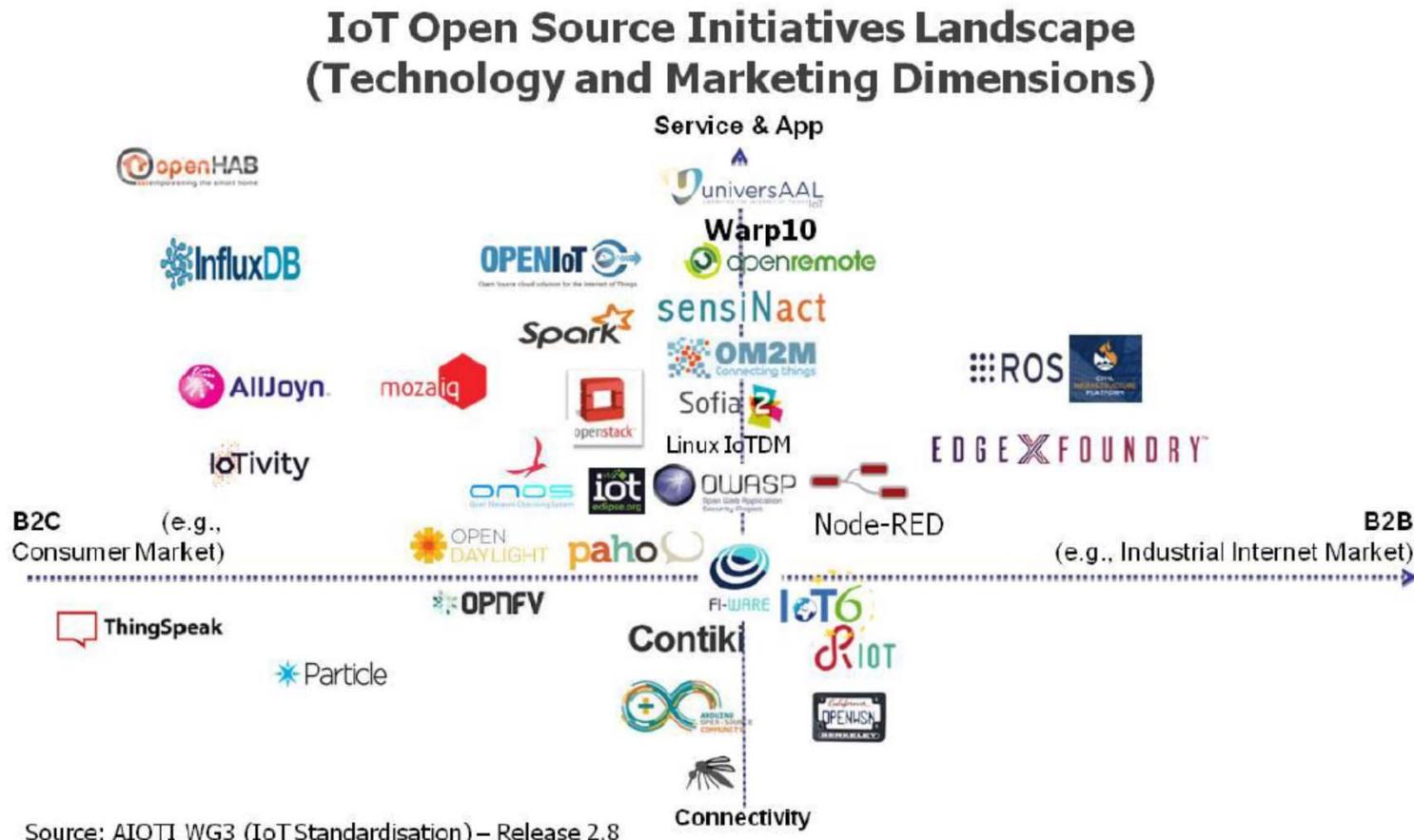
Source: AIOTI WG3 (IoT Standardisation) – Release 2.8

## Technologies & Tools

---

- ❖ APIs & Architectures
- ❖ Interoperability at software level
- ❖ New words: Softwarization!
- ❖ Proofs of Concept
- ❖ Hackathons
- ❖ Open Source
- ❖ Open Source Tools

## Illustration: Open Source in IoT



## ETSI Initiatives for the Future

---

- ❖ Industry Specification Groups
- ❖ New Technologies, new acronyms!
  - ❖ NFV
  - ❖ MEC
  - ❖ ZSM
  - ❖ NGP
  - ❖ OSM
  - ❖ ETC.
- ❖ Open Source projects
- ❖ New standards development tools for direct online collaboration  
(beyond direct participation)



© ETSI 2018



# Thank You

[ultan.mulligan@etsi.org](mailto:ultan.mulligan@etsi.org)