



UMTS Forum market view

Presentation to 3GPP/PCG

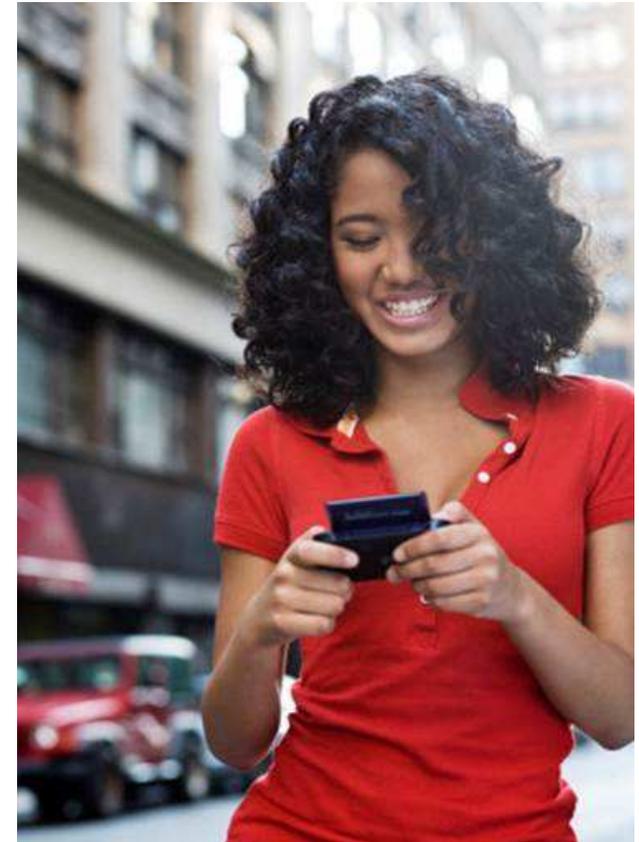
INDIA HABITAT CENTRE भारत पर्यावास केन्द्र

Jean-Pierre Bienaimé
Chairman, UMTS Forum

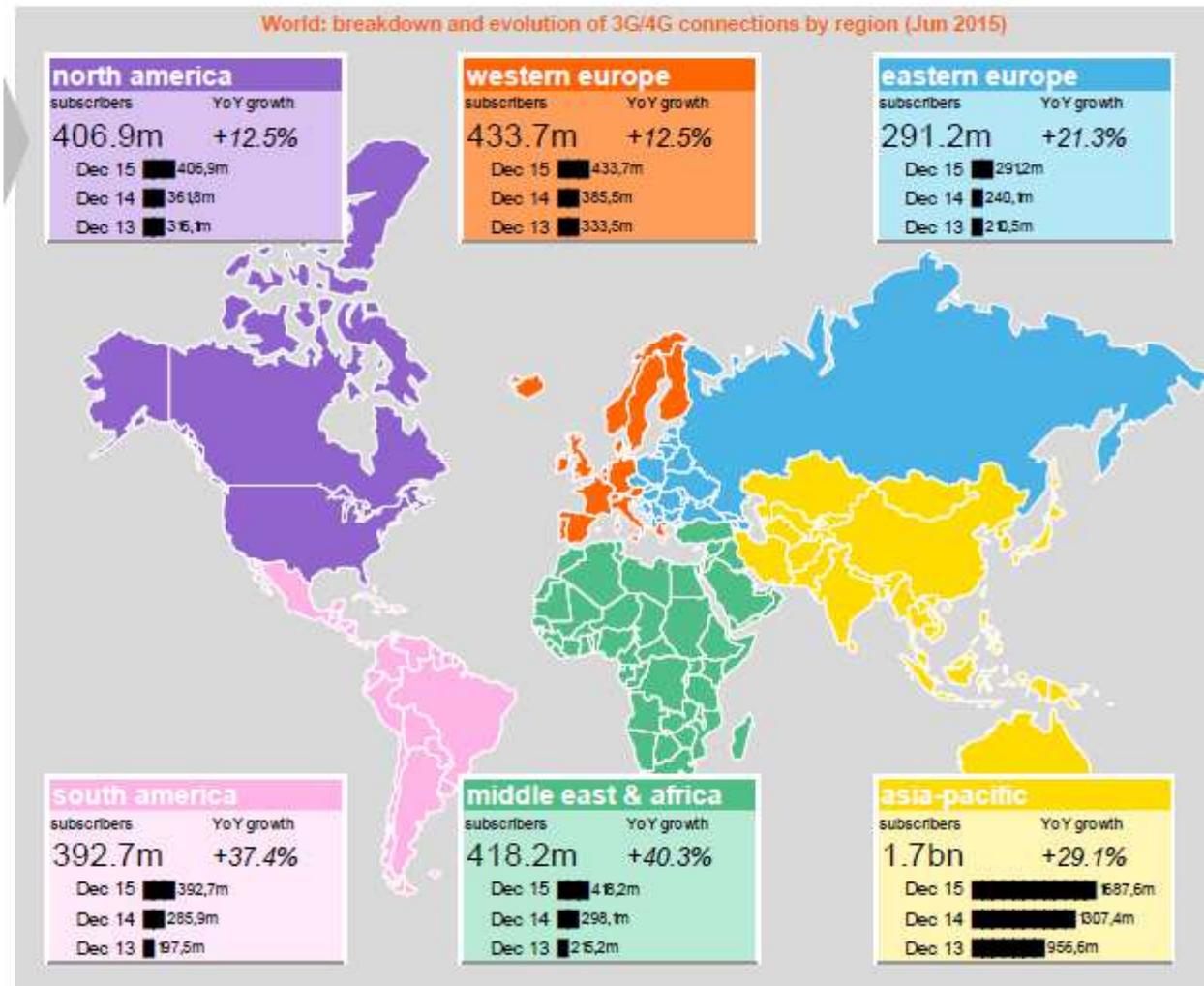
3GPP/PCG#36, 28 April 2016, Delhi, India

Summary

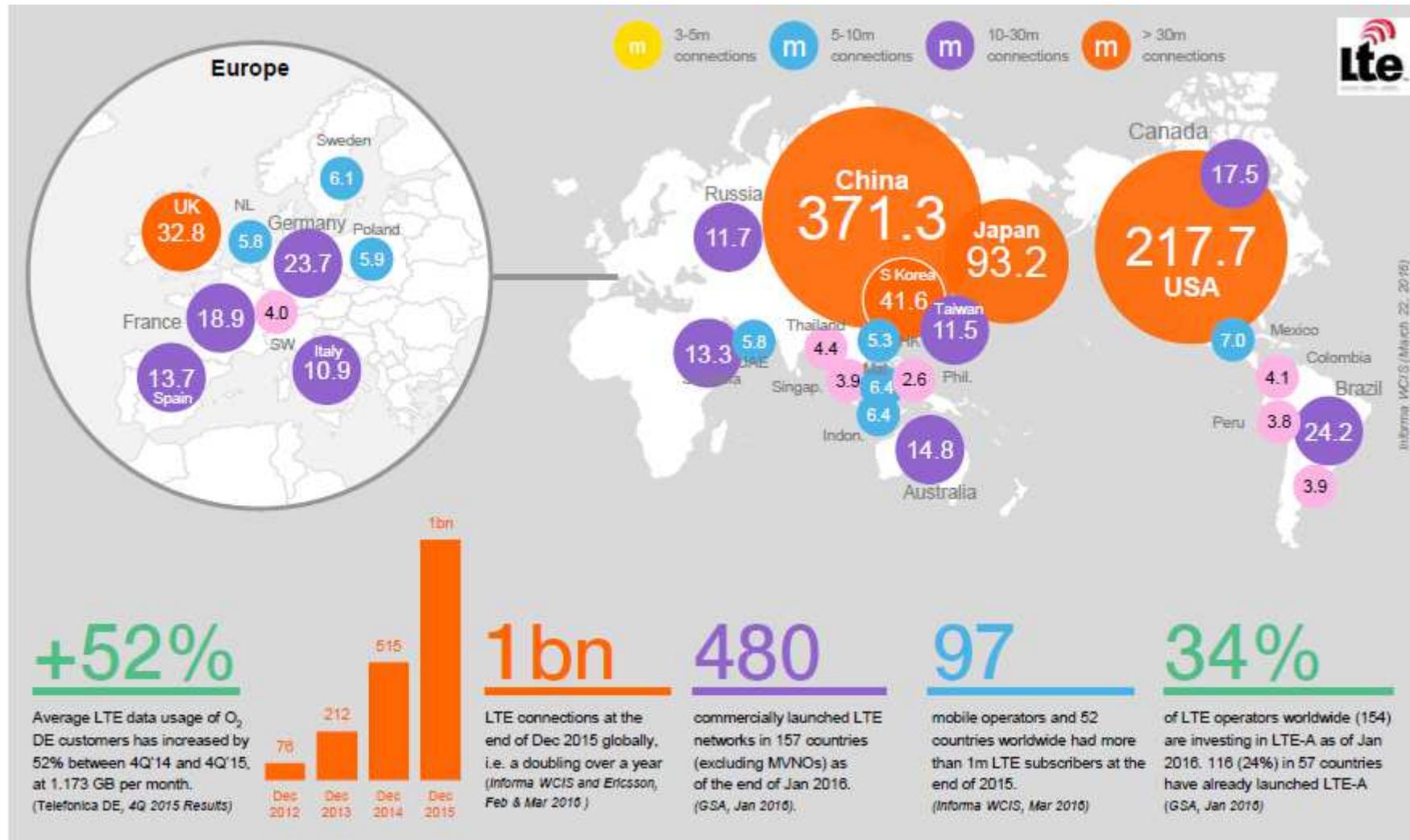
- **3G/4G LTE global market overview**
- **UMTS Forum key messages at WRC-15 and conference results**
- **The stakes of 5G spectrum**
- **MWC 2016: 5G on track...**



3G/4G global deployments: over 3.6 billion connections

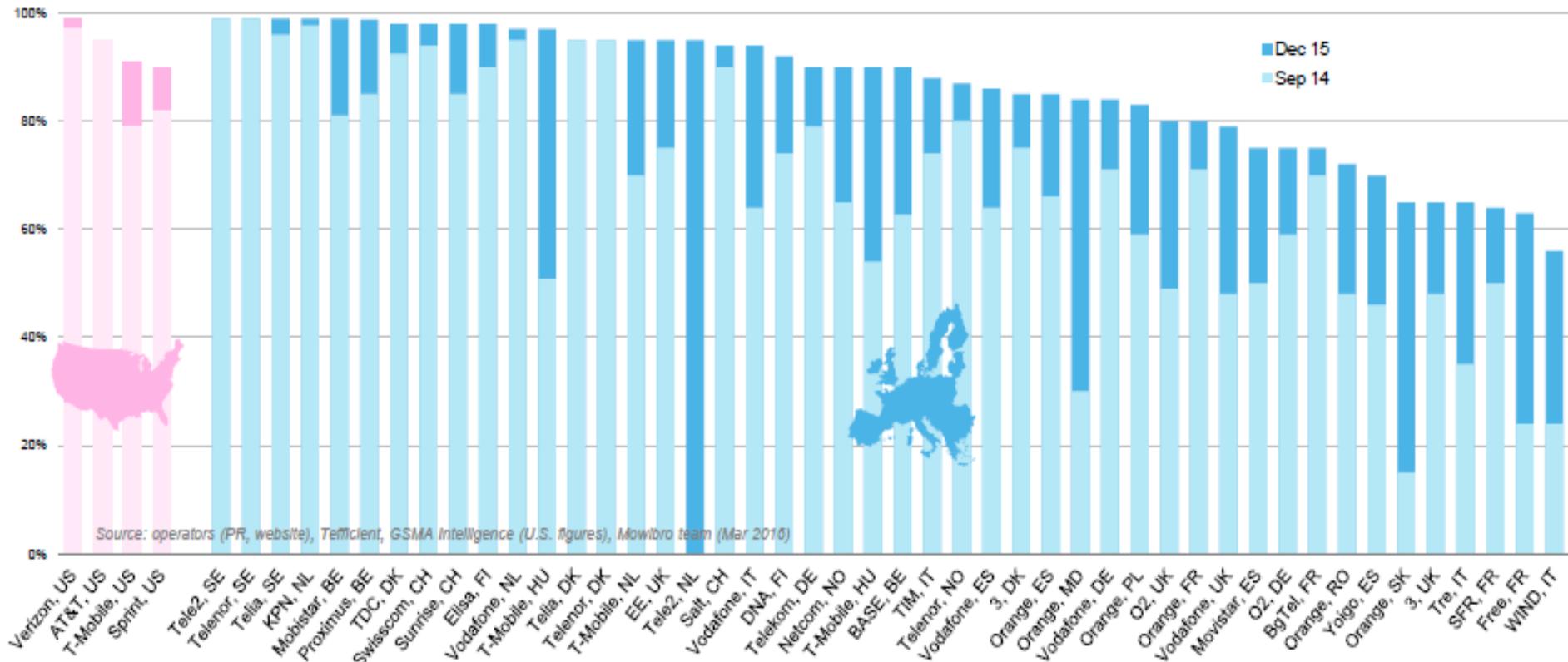


4G LTE growing rapidly – over 1 billion connections



4G networks: Western Europe coverage is catching up US...

Ranking & Comparison of major U.S. and European operators LTE outdoor network coverage (Dec 2015 vs. Sep 2014)



LTE Advanced/4G+: major deployments in 2015

→ the race is on for pushing DL speeds > 1Gbps...

- ⊙ LTE-A has taken hold worldwide
- ⊙ US operators finally turn to carrier aggregation (CA)
- ⊙ Deployment is not only limited to congested areas, and some players have already reached national coverage
- ⊙ In Europe, LTE-A 3CA is the new name of the game, and in the 3CA race, TDD+FDD CA is increasingly visible
- ⊙ KT makes the buzz with 1Gbps GigaLTE offer
- ⊙ LTE-Advanced Pro is the next motto...

LTE-A networks commercially launched

category	launched	Peak download	Peak Uplink
Cat.4	18	101-150	50
Cat.6	88	151-300	50
Cat.9	11	301-450	50
Cat.11	1	451-600	50
Total	118	in Mbps	in Mbps

Source: GSA (as of Jan 29, 2016)

UMTS Forum key messages at WRC-15: the C-band key advantage

The UMTS Forum invites countries to consider a new allocation to the mobile service for the bands in the range 3400-4200 MHz and identification to IMT for the bands in the range 3400-3800 MHz at WRC-15.

3400-4200 MHz (C-band). The only candidate range providing sufficient bandwidth to satisfy the IMT-Advanced vision – i.e. to provide at least 80 MHz to 100 MHz contiguous bandwidth per service provider.

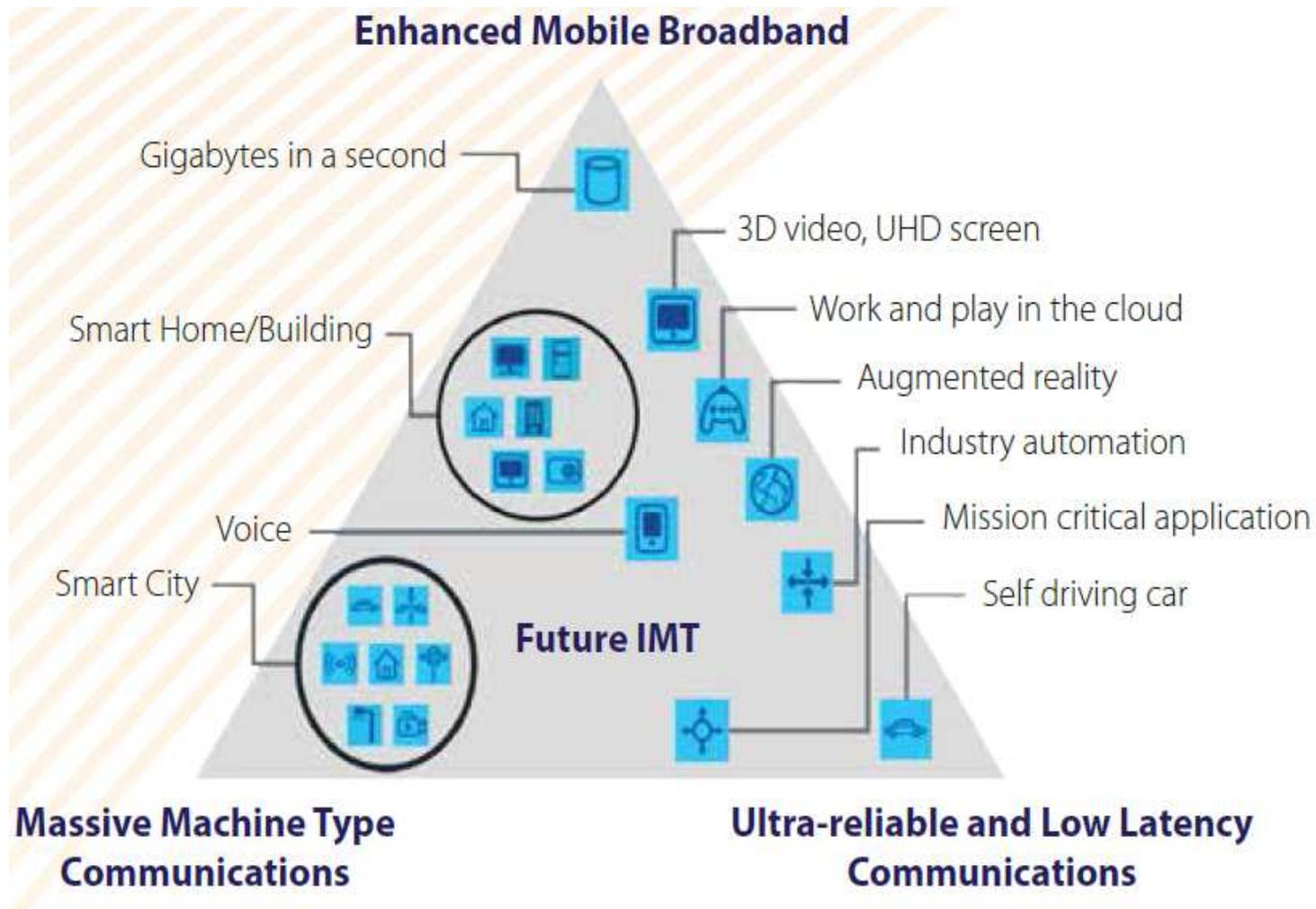


WRC-15 outcomes

→ a major step towards the mobile future

- Agreement of the 700 MHz band – now the most harmonised mobile band worldwide.
- Global identification of 200 MHz from the C-band spectrum in the 3400 – 3600 MHz band gives operators the ability to provide urgently-needed additional capacity in urban areas.
- Global identification of L-Band spectrum in the 1427-1518 MHz range affords operators an ideal blend of coverage and capacity.

Towards 5G



Spectrum for 5G: towards WRC-19

- ⦿ WRC-15 also discussed on **several frequency bands above 6GHz** to be studied within ITU for 5G in the period leading up to WRC-19. ITU-R agreed to conduct sharing and compatibility studies by end-March 2017 for a number of SHF and EHF portions in 24-86 GHz ranges – the highest frequencies yet to be evaluated for mobile broadband. But in a first phase, **existing 4G spectrum** could be welcome (700MHz, 3.4-3.8GHz,...).
- ⦿ **Spectrum for 5G will enable many new highly advanced services** that will improve the life of people, especially those living in large cities of the world with a pressing need for advanced communications. It is anticipated that Korean mobile operators will trial pre-commercial 5G networks during the Winter Olympic Games 2018, followed by first commercial deployments during the Summer Olympic Games 2020 in Japan.

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Mobile World Congress 2016: 5G on track...

🕒 5G makes the buzz at MWC 2016

Roadmap for 5G becoming clearer this year, with several major equipment vendors demonstrating 5G technologies live at the show and a number of operators announcing strategic partnerships.

Consensus formed around **network slicing** as the key enabler to unlock the value from 5G in the longer term, enabling notably to dedicate some capacities to differentiated QoS for specific needs.

Future use cases in **vertical sectors** (health, connected cars, energy, transports,...) and in IoT.

European Commission and 5G PPP Infrastructure Association press conference, where it was underlined that the European **5G PPP was the biggest research programme worldwide on 5G.**

🕒 R&D activity and announcements ahead of standards work

If in June 2015 the ITU has defined the official name for 5G should be IMT-2020 and that 5G speed should have minimum downlink speeds of 20 Gbps, the standards that specifically define 5G are not in place and are expected to be released by the 3GPP only after the next two years due to the complexity of the technology.

However next generation network testing is already occurring in markets such as the U.S., Finland, Russia, South Korea and China, among other regions.



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