

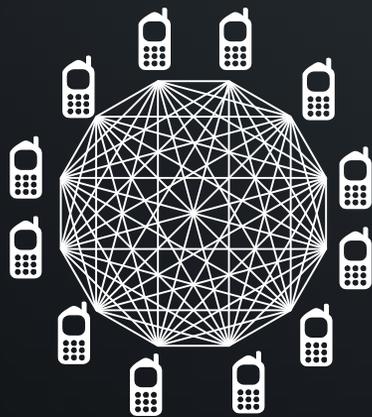


Bringing 5G into Reality

- Eivind Mikkelsen
- 14th November 2017

The 3rd Paradigm Shift of Mobile ?

1980s



Mobile Voice Era (1G)



2000s

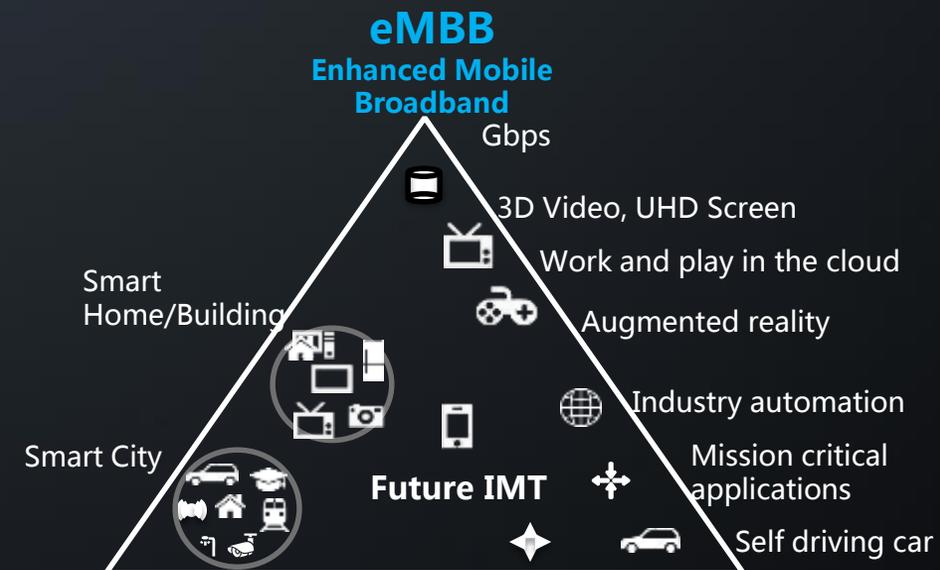


Mobile Broadband Era (3G)



Connectivity as a Service

2020s



mMTC
Massive Machine Type
Communications

uRLLC
Ultra-reliable and Low-latency
Communications

Super Connected World (5G)

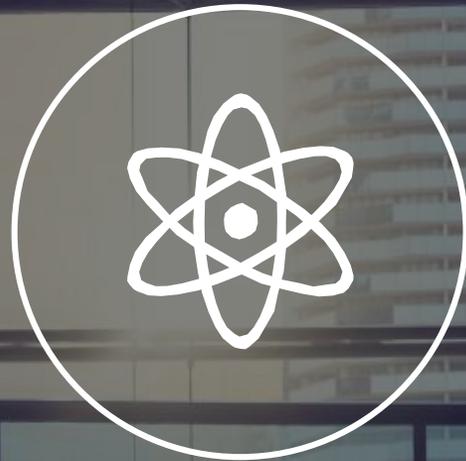
eMBB + uRLLC + mMTC

Network Slice as a Service

Jointly Pave the Way for 5G



**Construct
Healthy Ecosystem**



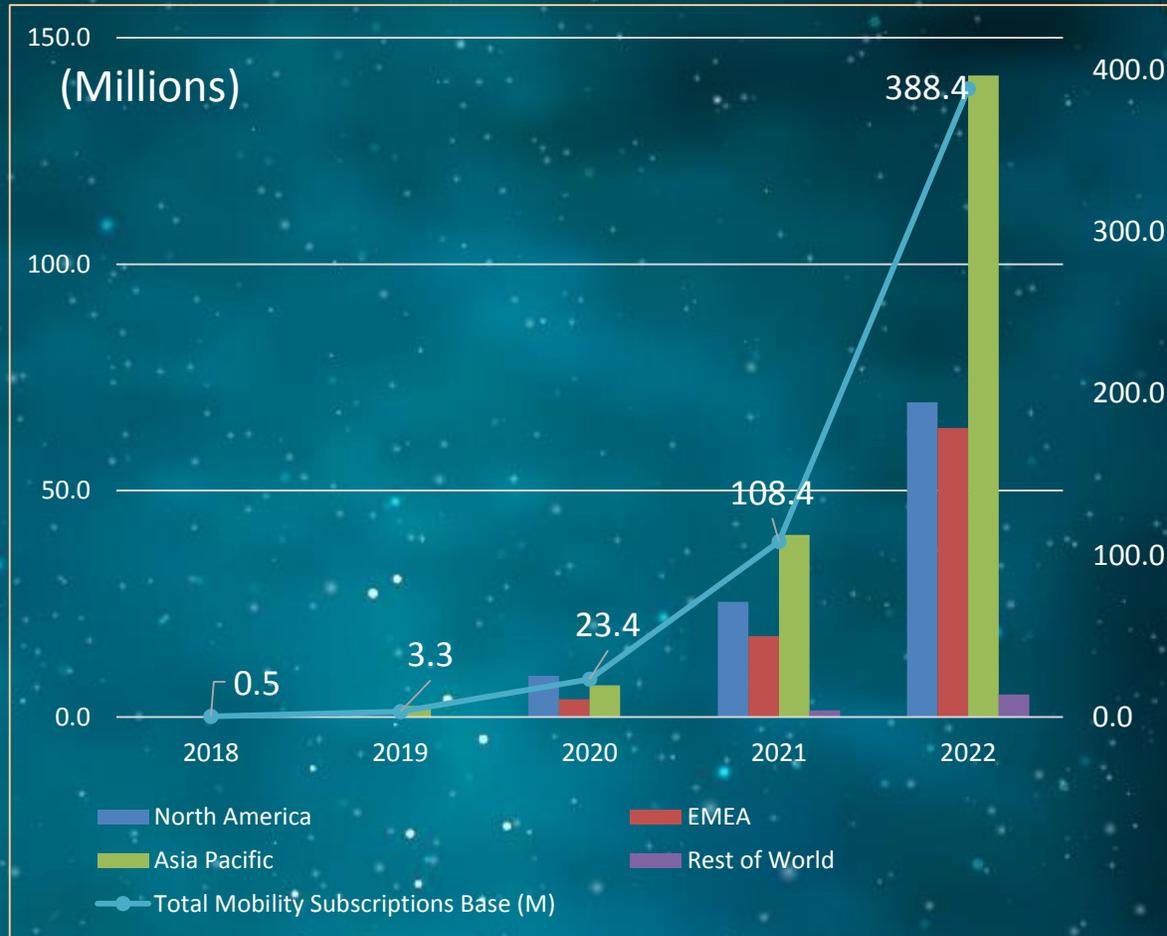
**Boost
Technology Innovation**



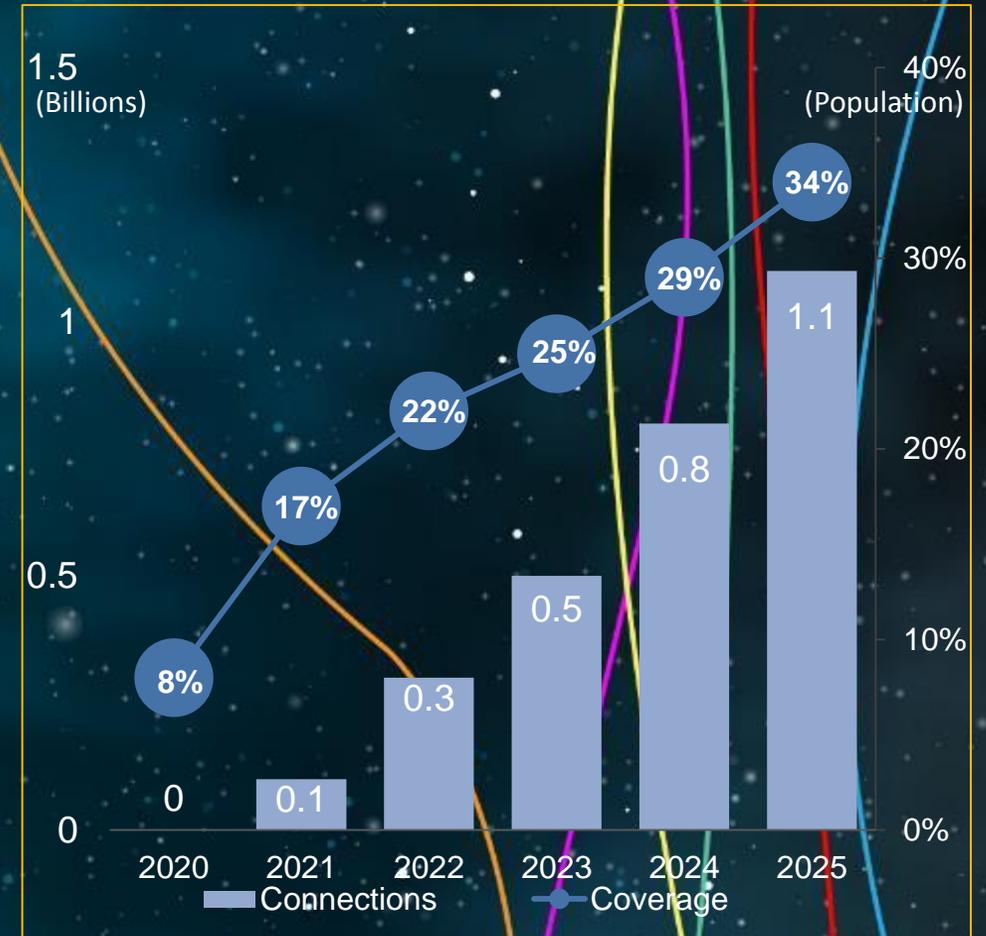
**Enhance
Industry Collaboration**

5G Commercial Connections & Coverage Area Prediction

OVUM



GSMA

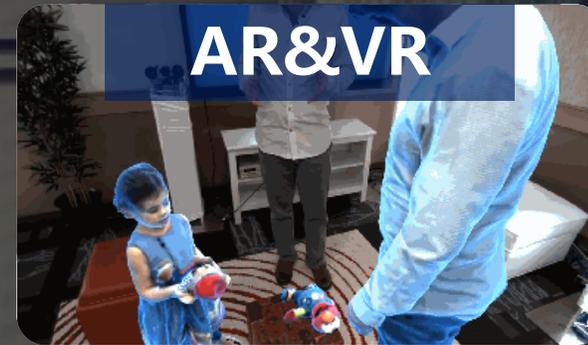


- ◆ The prediction of OVUM and GSMA are similar, in 2022, 5G connections will reach **300M~400M**, the population coverage will reach **22%**

Keep Exploring & Incubating New Services with Partners

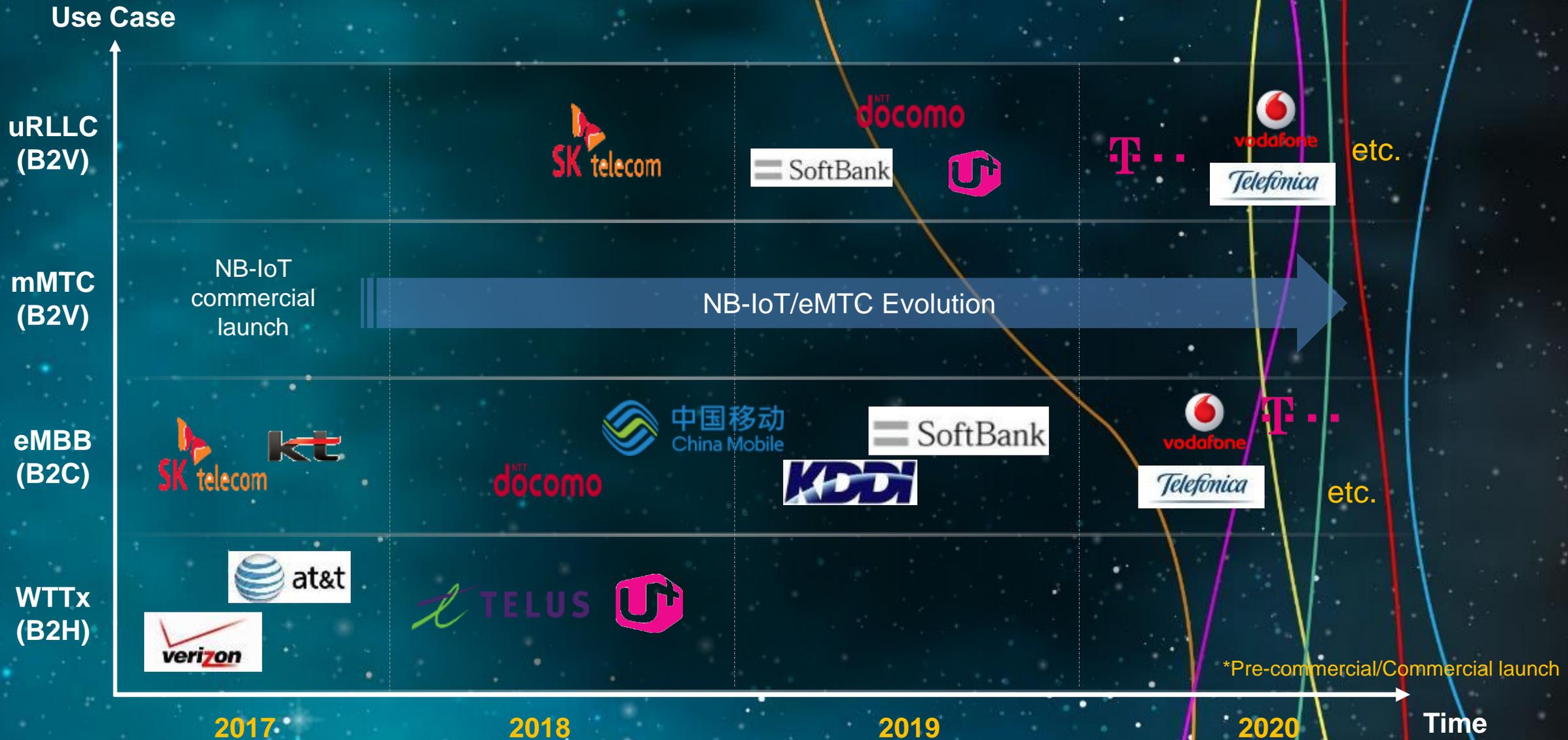
X Labs
Wireless

186+ Industry Partners



5G helps Operators explore vertical industries

5G use case priorities: first-wave applications (WTTx & eMBB)



EU Release 5G Action Plan Supported by Government

Europe Broadband 2020 target:

- At least one major city covered by 5G
- 100% home broadband speed exceed 30Mbps

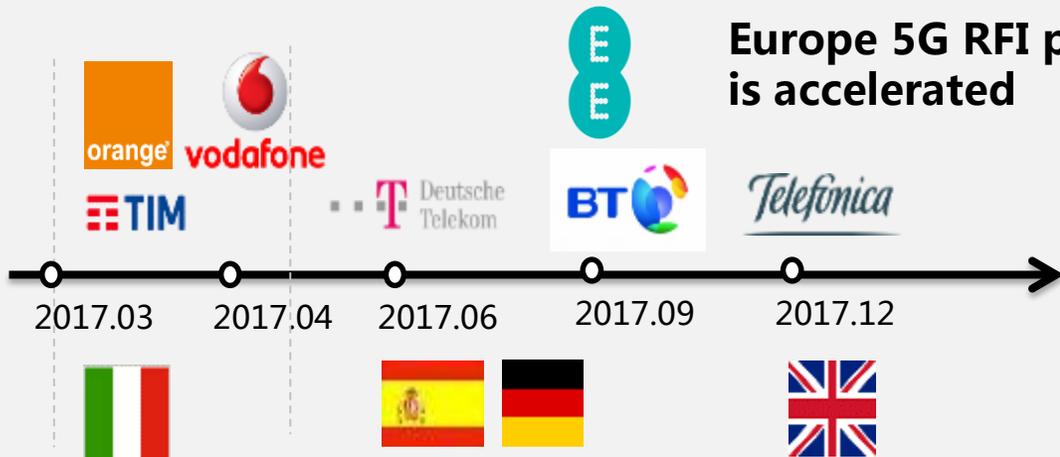
5G Action Plan

2018
Trial

Europe Broadband 2025 target :

- All the urban and major road and railway covered by 5G
- All public institutions provide up to 1Gbps connection
- All home broadband speed exceed 100Mbps, w/ 1Gbps availability

Europe 5G RFI plan is accelerated



5G Action Plan of each Government



Start 5G Trial

- Announce 5G trial from end of 2017 in 5 cities of three regions, based on 100MHz C-Band spectrum
- TI (Teamed with Huawei) has been selected to conduct 5G trial by the Government in 2017.8



Release national 5G plans

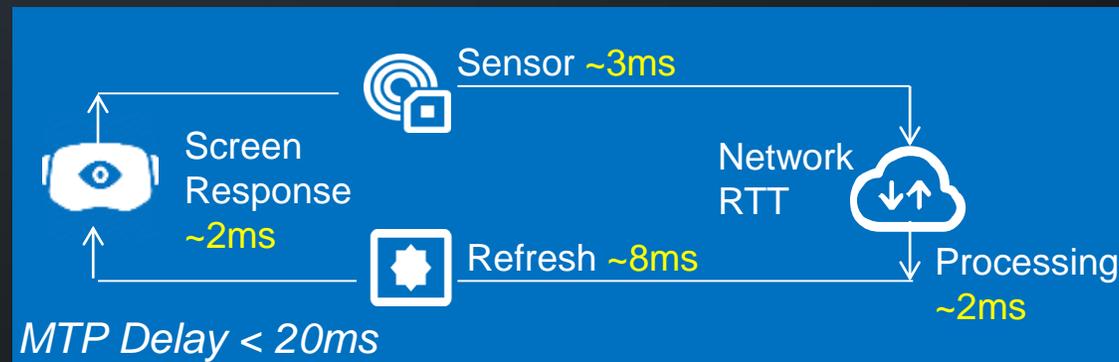
- From 2017, to invest € 50~60 million for "National 5G plans".



Release 5G Strategic investment plan

- Release 5G strategy on Mar. 8th in 2017, plan to start E2E 5G Trial in early 2018,
- £ 16 million will be invested in Phase I

Use Case #1: Cloud Based AR/VR



Acceptable Experience

125Mbps

RTT Latency

Ultra Retina Experience

3.2Gbps

< 5ms

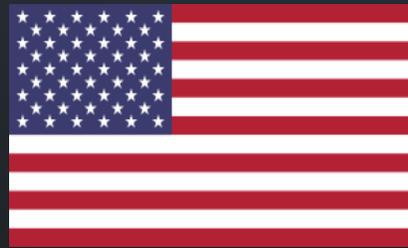
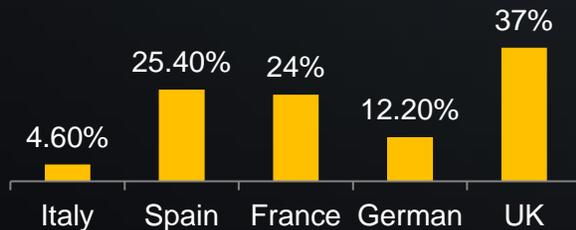
Use Case #2: Fixed Wireless Access for Home Broadband

Target & Existing Gap



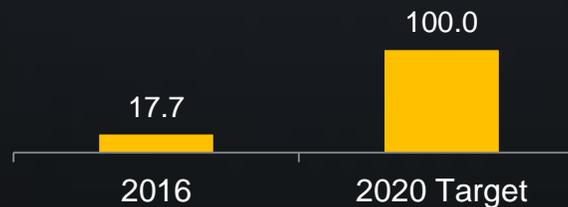
Target: By 2020 **50%**
Households > **100Mbps**

Households > 30Mbps(%)



Target: By 2020 **100M**
Households > **100Mbps**

Households > 100Mbps(million)



5G Home Access

X Gbps Throughput

Fast TTM & ROI

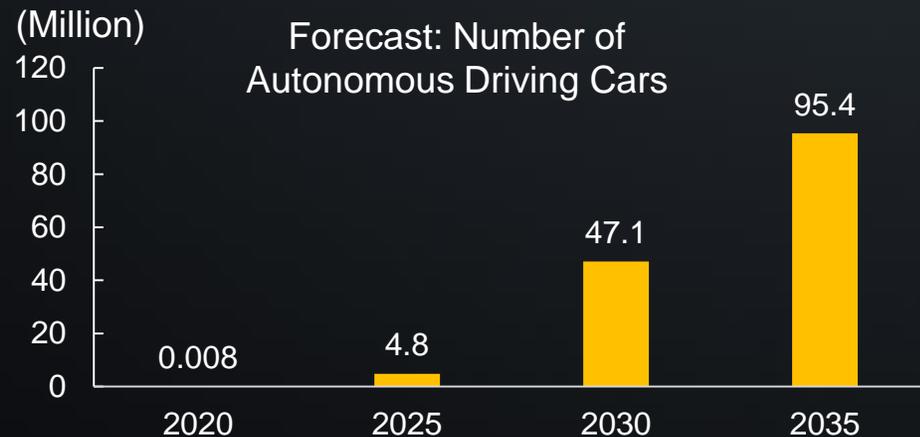
Major use case for 5G early deployment

Source: Broadband Europe Strategy 2015/ FCC 2016

Use Case #3: Connected Car is a Strategic Focus

2020 Opens Autonomous Driving Era

Policy is Making for Connected Cars



Source: NAVIGANT RESEARCH, Autonomous Vehicles

Connected Car Benefits Whole World



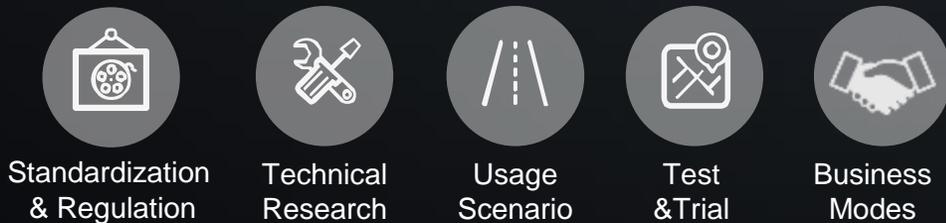
Save
1.2M
people
annually

Save
3.1bn
gallon oil
annually

Source:
Global Status Report on Road Safety,
World Health Organization, 2015

Source:
Texas Transportation Institute Urban
Mobility Report, 2015

First Concrete Step of Cross Industry Collaboration



5G Cooperative Emergency Brake



Remote driving via 5G network



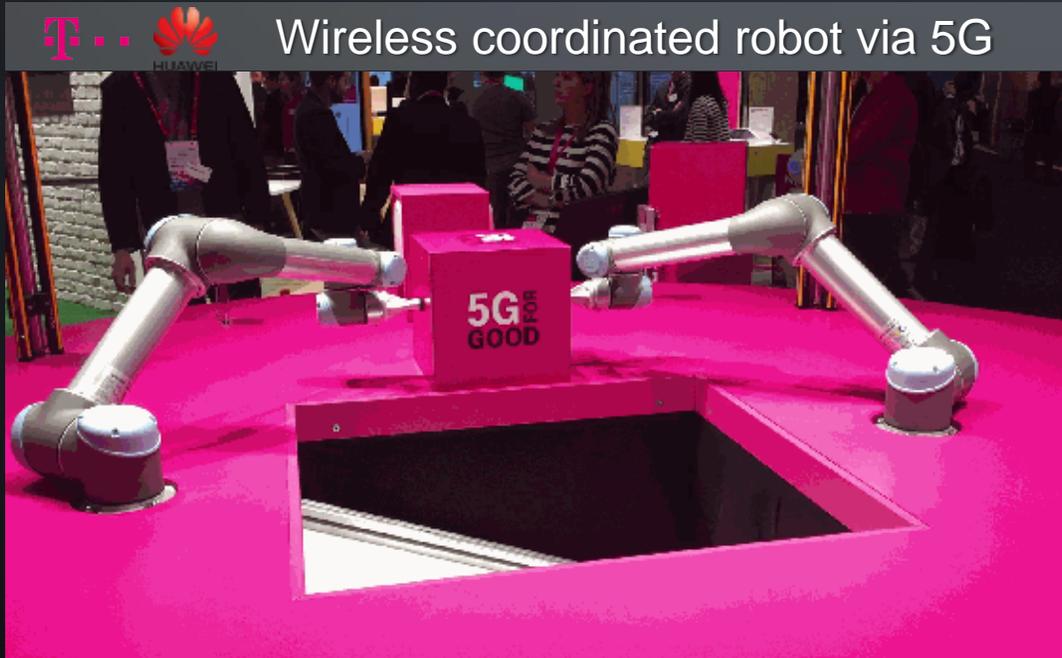
Network E2E Latency

< 10ms

Reliability

99.999%

Use Case #4: 5G will Make Factories Smarter and More Efficient



E2E Network
Latency

5~100ms

5G Enabled Output in Manufacturing by 2035:

\$3.4 Trillion

Source: IHS The 5G Economy Report, 2017

Cross Industry Collaboration on Smart Manufacturing

5G-ACIA

5

Working Groups

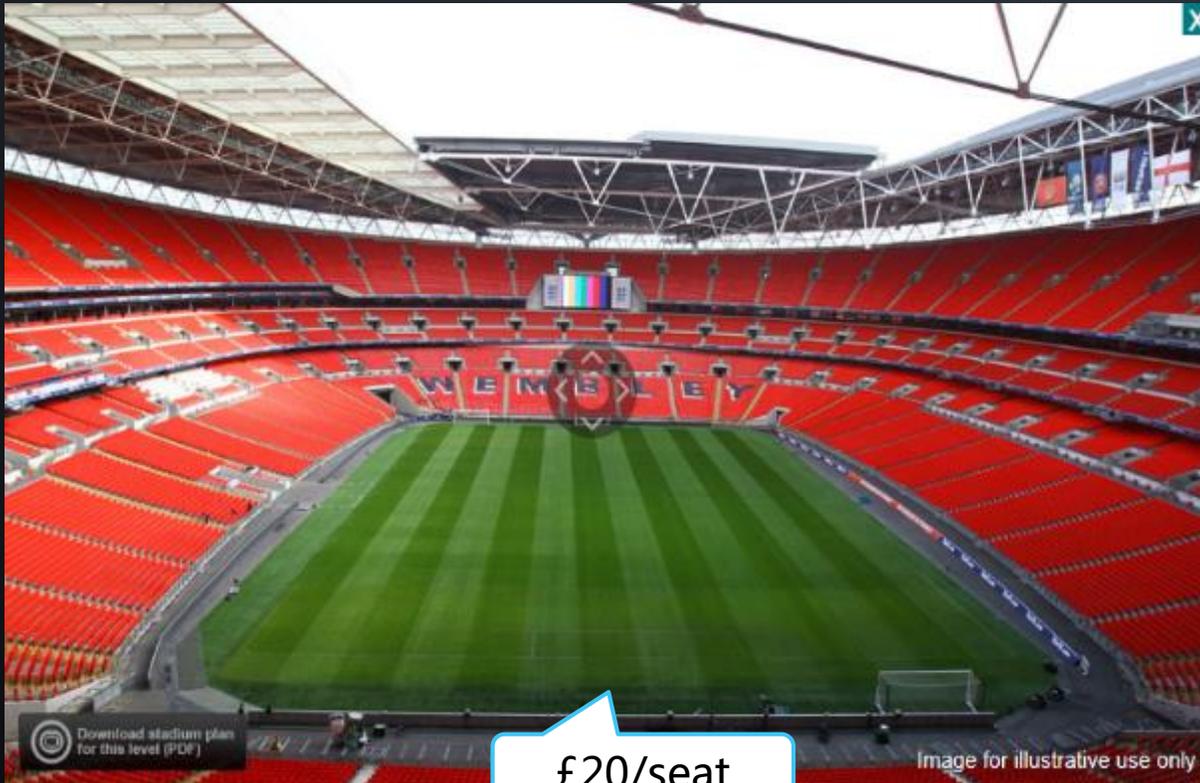
28+

Members

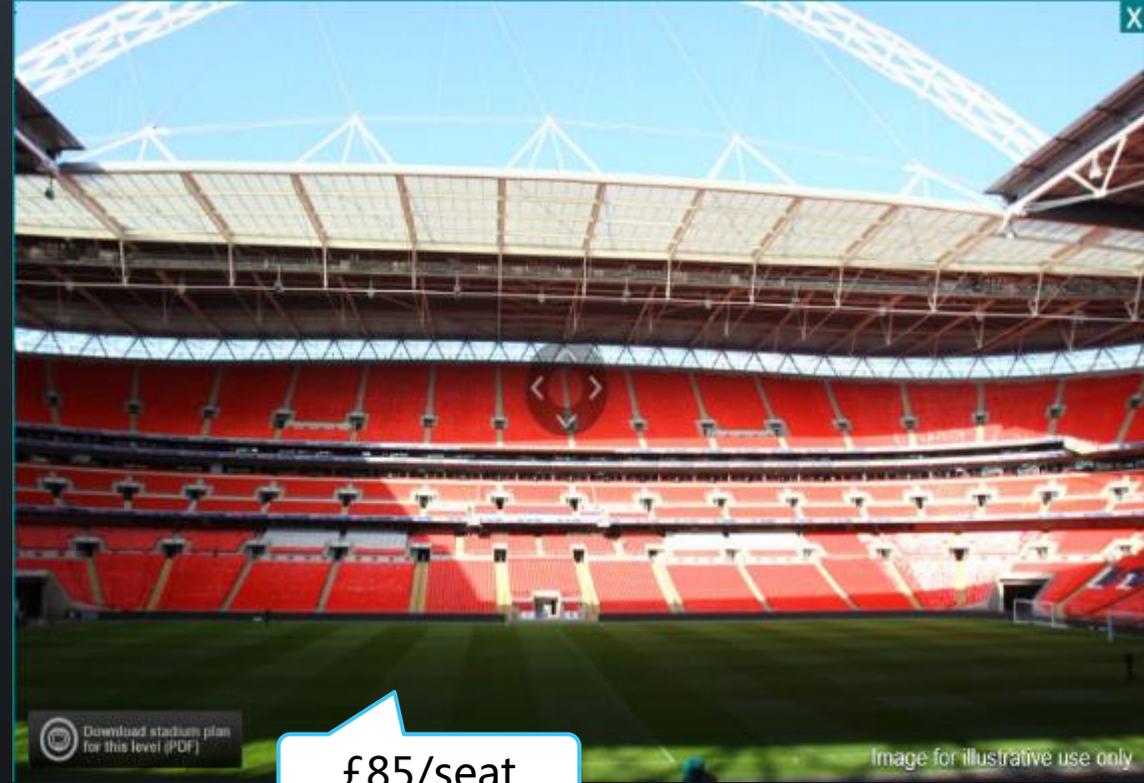


5G Alliance for Connected Industry & Automation
Founded in Oct, 2017, Frankfurt





£20/seat



£85/seat

Huawei will Continue to Explore 5G Use Cases in Emerging Verticals

Remote Drones



Service Robot: 'Seeing Eye' Helmet



中国移动5G联合创新中心
China Mobile 5G Innovation Center



中国移动5G联合创新中心
China Mobile 5G Innovation Center





Thank You.

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Huawei Cooperate with Industry to Bring 5G into Reality

Leading in Technology



3000+
Experts in 5G

Leading in Cooperation



4Bil RMB
for R&D in 2017

Leading in Ecology Build



11
Global Huawei 5G
Center