

5G, Gear Up

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**ARE YOU GEARED UP
FOR THE NEXT 10?**

5G arrived faster than expected



40

Carriers

20+

Countries



136

Devices

Source: GSA

Consumers love it

6

Months

Commercial launch

3.5

Million

5G users

3

Times

Data traffic

VR: 4GB / 10 mins

AR: 600MB / 1 min

South Korean market

5G supercharges user experience



1.5Gbps



5G VR/AR

1 million users in 6 month

Percent of premium users

3.1%  5.3%

5G for safer mines in China



Safety

Dangerous conditions



No human risk

Efficiency

Avg. speed < 10km / hr



Avg. speed > 35km / hr

Cost

\$160,000 / truck / year



30 driverless trucks

Real challenges



Spectrum



Sites



Cross-sector
cooperation



Better, affordable spectrum

Supply

- Continuous bands
- Large bandwidth (80-100MHz)
- Spectrum planning

Cost

- Flexible pricing models
- Incentives

Regulatory support for site resources

Shanghai



Before



After

Turning poles into sites

500

Kilometers of roads

30,000

Extra sites

75%

Existing sites

Regulatory support for site resources

Germany



Guidelines for shared infrastructure

E.g. traffic lights, signs, bus stops

UK



Relax restrictions

E.g. taller antenna towers

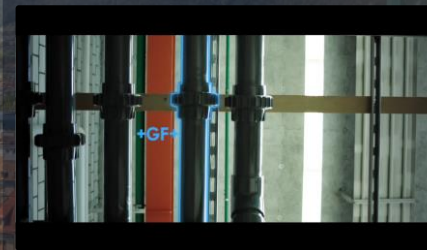
Cross-sector cooperation



5G Joint Innovation Centre
Zurich, Switzerland



Smart farming



Smart factories



Smart resorts

An aerial photograph of San Francisco at sunset. The city's dense urban landscape is visible, with numerous skyscrapers and buildings. The Golden Gate Bridge is visible in the distance on the right. The sun is low on the horizon, creating a warm, orange glow across the sky and city. The text "Gear Up for better 5G" is overlaid in the center in a white, sans-serif font.

Gear Up for better 5G