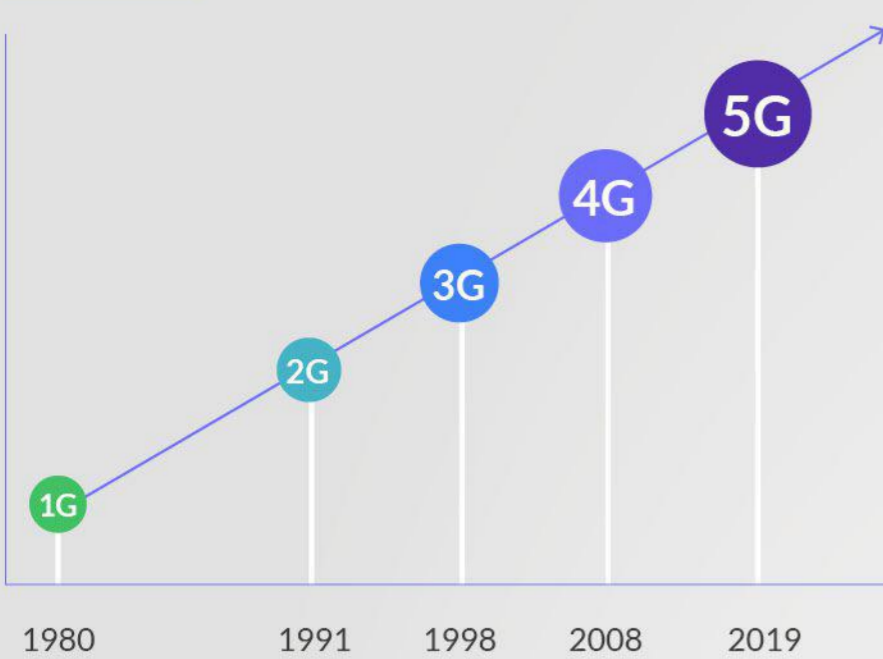


5G: The Potential, The Positives, and The Pitfalls

5G is here. It's likely that it's already active in the city nearest you, but it won't really hit its stride until 2025. Sure, it's faster, but that's just the start. Imagine a driverless car navigating you safely around town with instantaneous traffic updates, while you have a virtual appointment with your holographic doctor¹ who is studying your biomedical data in real-time. Sound far-fetched? The technology is being developed right now. That's 5G.

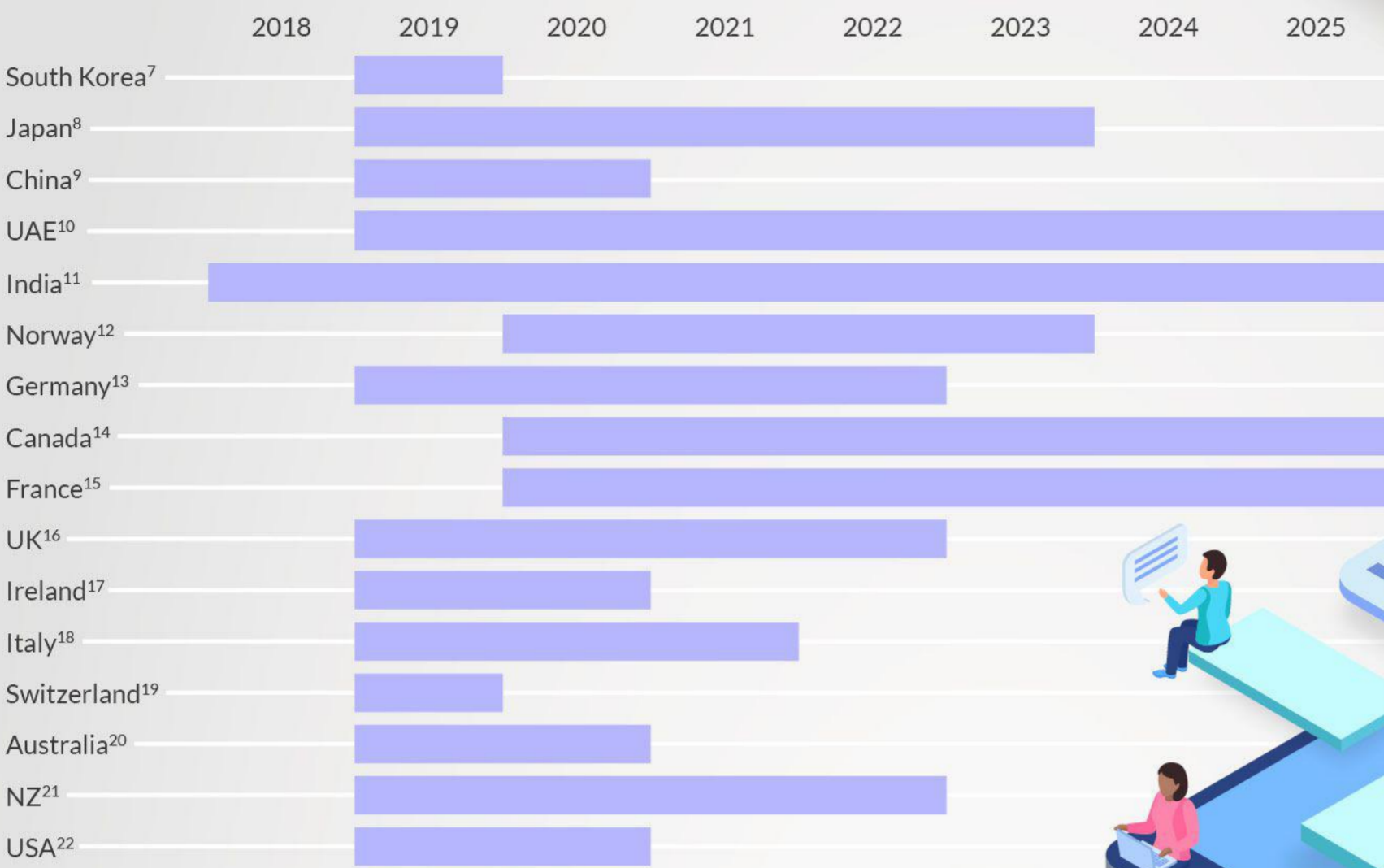
Timeline¹



Capabilities



Expected Commercial Coverage for 5G



Who's leading the way in the industry for 5G?

HEALTH

Huawei – world's first remote operation using 5G surgery²³

AUTOMOTIVE

Qualcomm – Cellular Vehicle to Everything (C-V2X)²⁴

MANUFACTURING

Ericsson/Comau – Industrial Automation – Industry 4.0 is the digitization of a factory's assets, equipment, vehicles, and processes – at scale²⁵

FINANCE

Ericsson/Telstra/Commonwealth Bank – Edge computing (data processing at the source of data generation) – faster, more reliable, more secure banking²⁶

TECHNOLOGY

Samsung – Device – the Galaxy S10 – smart camera, AI, ultrasonic fingerprint, live focus²⁷

RETAIL

Apple – ARKit3 – Augmented/Mixed Reality – Motion Capture, People Occlusion²⁸

NEWS

Ericsson/Comau – Industrial Automation – Industry 4.0 is the digitization of a factory's assets, equipment, vehicles, and processes – at scale²⁹

How will consumers benefit from 5G?

Faster speeds

Download speeds for a two-hour movie³⁰

Network	Time
3G	26 HOURS
4G	6 MINS
5G	3 SECS

Reliability

99.999% readability, 99.999% availability³¹

Availability

Up to one million connected devices per square kilometer³², High-definition voice calls

IoT³³

- Autonomous cars
- Connected healthcare
- Tracking and Monitoring
- Smart cities (bins, water, traffic)
- Smart houses (appliances, HVAC, security)

How will business benefit from 5G?^{34,35}

Employees work remotely

Improved customer engagement

Controlling industrial processes remotely

Virtual, augmented and fixed reality

Drones (transport, photography, etc)

Logistics

New products and services

Potential for global competitiveness

Tailored networks (private 5G networks)

Lower overheads

Risks^{36,37}

- Increased number of cell towers
- Overcrowded radio spectrum
- Long rollout
- Carrier wars
- Expensive (infrastructure development, deployment, end user costs)

Health risks

The WHO declared radio frequency radiation from mobile phones is a potential 2B carcinogen in 2011³⁸

mmWaves are absorbed by human skin and eyes³⁹

Cybersecurity

More devices (inc IoT) = more openings for attack, faster⁴⁰

- Government security (communications)⁴¹
- Home security
- Industry security (proprietary intelligence)

Powered by **LiveTiles**

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²³<https://www.qualcomm.com/invention/5g/cellular-v2x>
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²⁸<https://myamg.com/intelligence/2019/02/5g-is-going-to-transform-smartphones-eventually.html>
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³³<https://www.5g.co.uk/guides/5g-benefits-for-business/>
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