5G Perspectives

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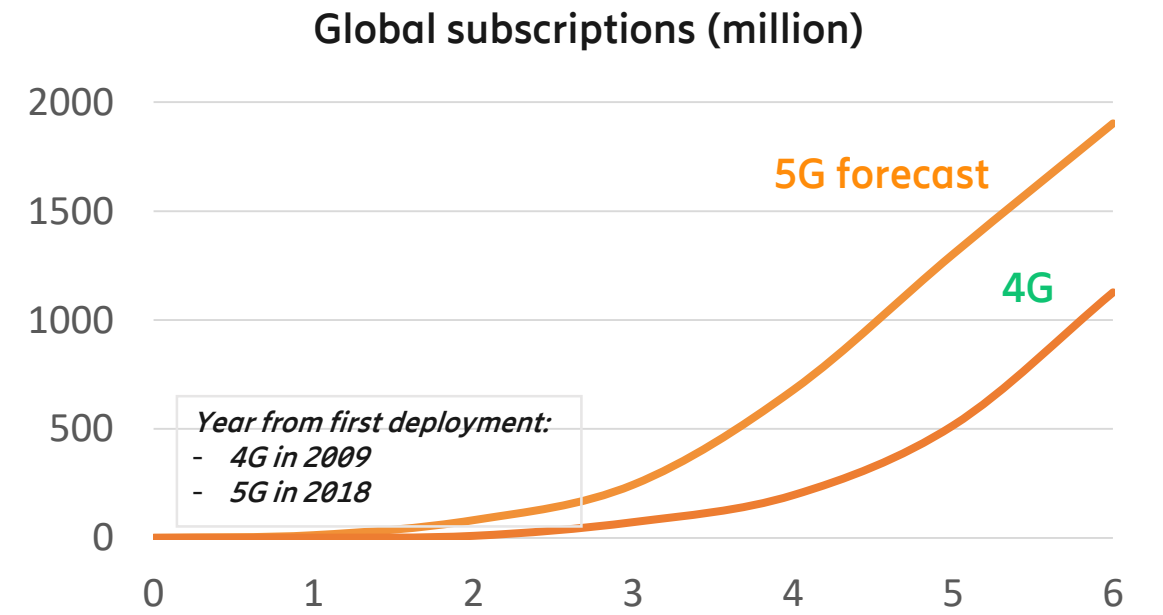
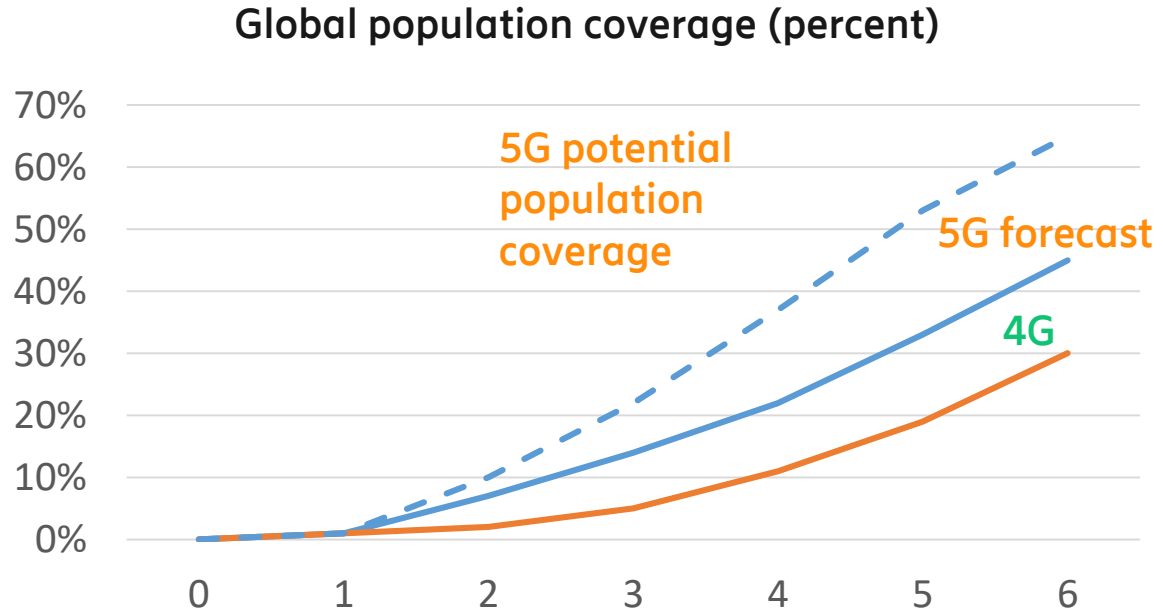
Evolution of mobile communications

Million subs after 5 years of launch

2G	3G	4G	5G
Voice	Browsing	Media/Video	Digital & IoT
100	200	600	+1,300
1990's	2000's	2010's	2020's



In 2024 , 5G subscriptions will have reached 1.9B subscriptions globally



In 2024 , up to 65% of the world´s population may be covered by 5G by leveraging Ericsson Spectrum Sharing

5G performance

1-20 Gbps
Maximum peak rates

1 ms
Latency

99.999%
Availability

IoT

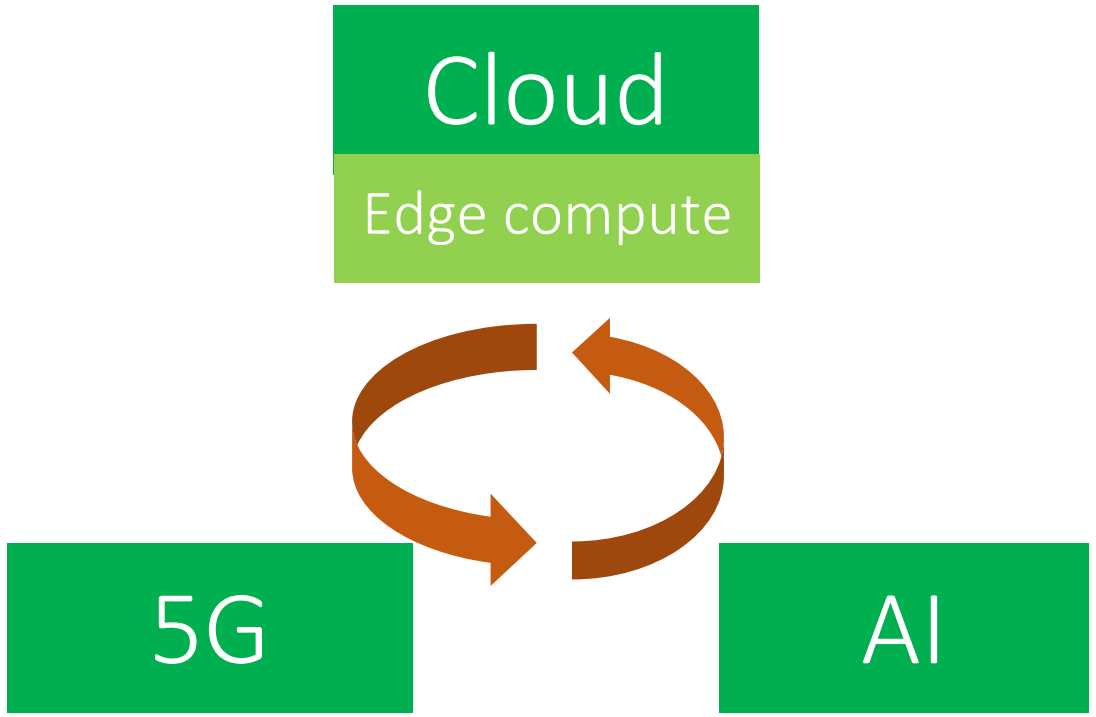
500 kph
Mobility

1 m
Position accuracy

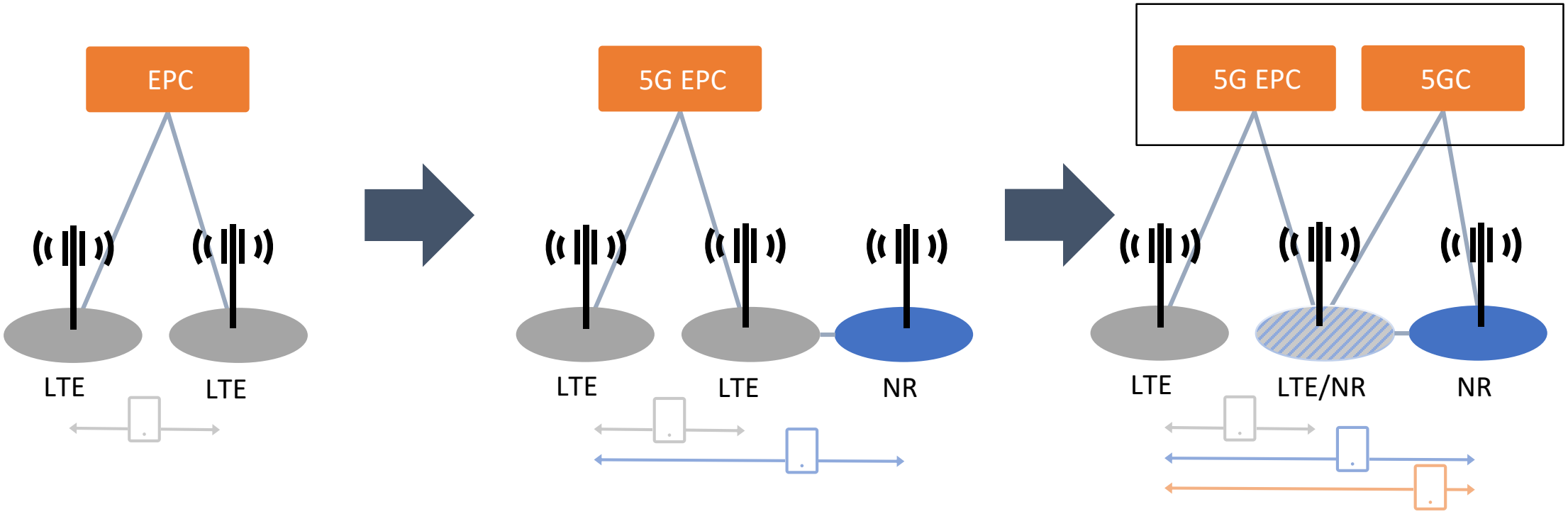
1 M/km²
Device connection density

10 ans
Battery life

Technological ecosystem



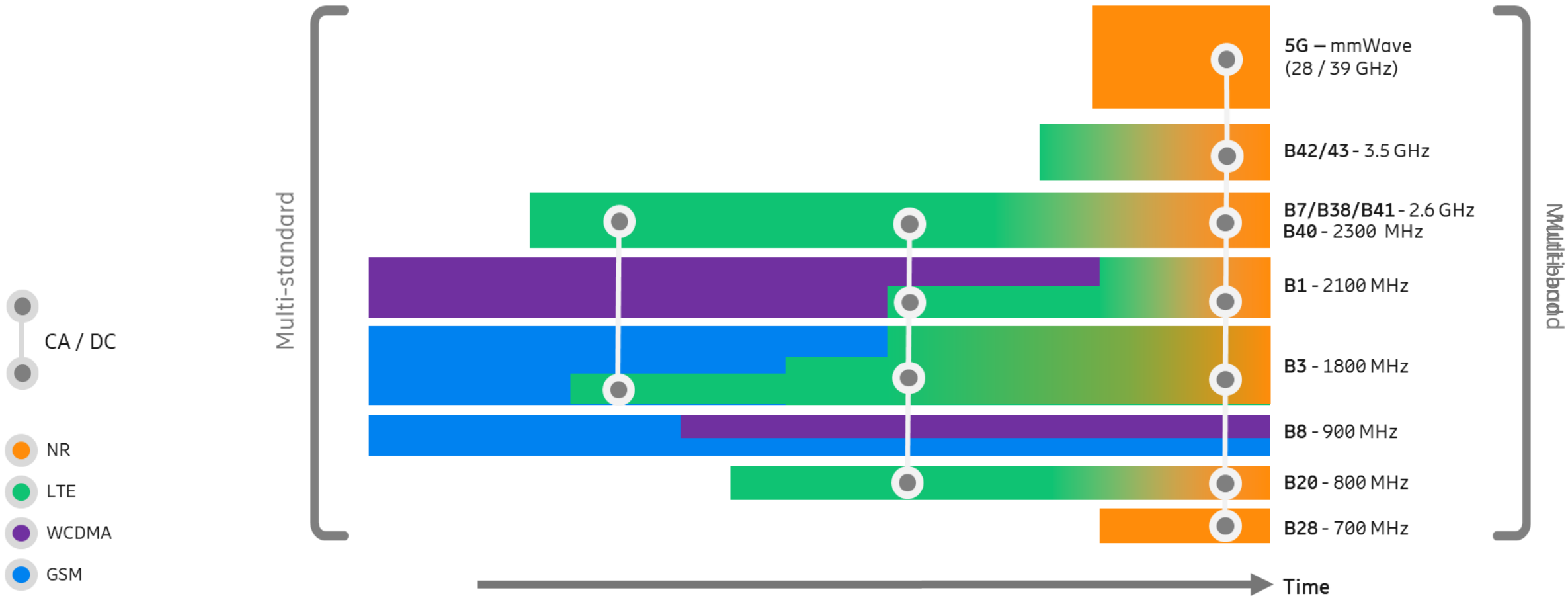
5G Deployment considerations



- Add mid- / high-band NR spectrum and radios
- Add baseband hardware for gNB
- Upgrade EPC software

- Build ubiquitous NR coverage
- Deploy new core network

Multi-standard and multi-band sites
Example



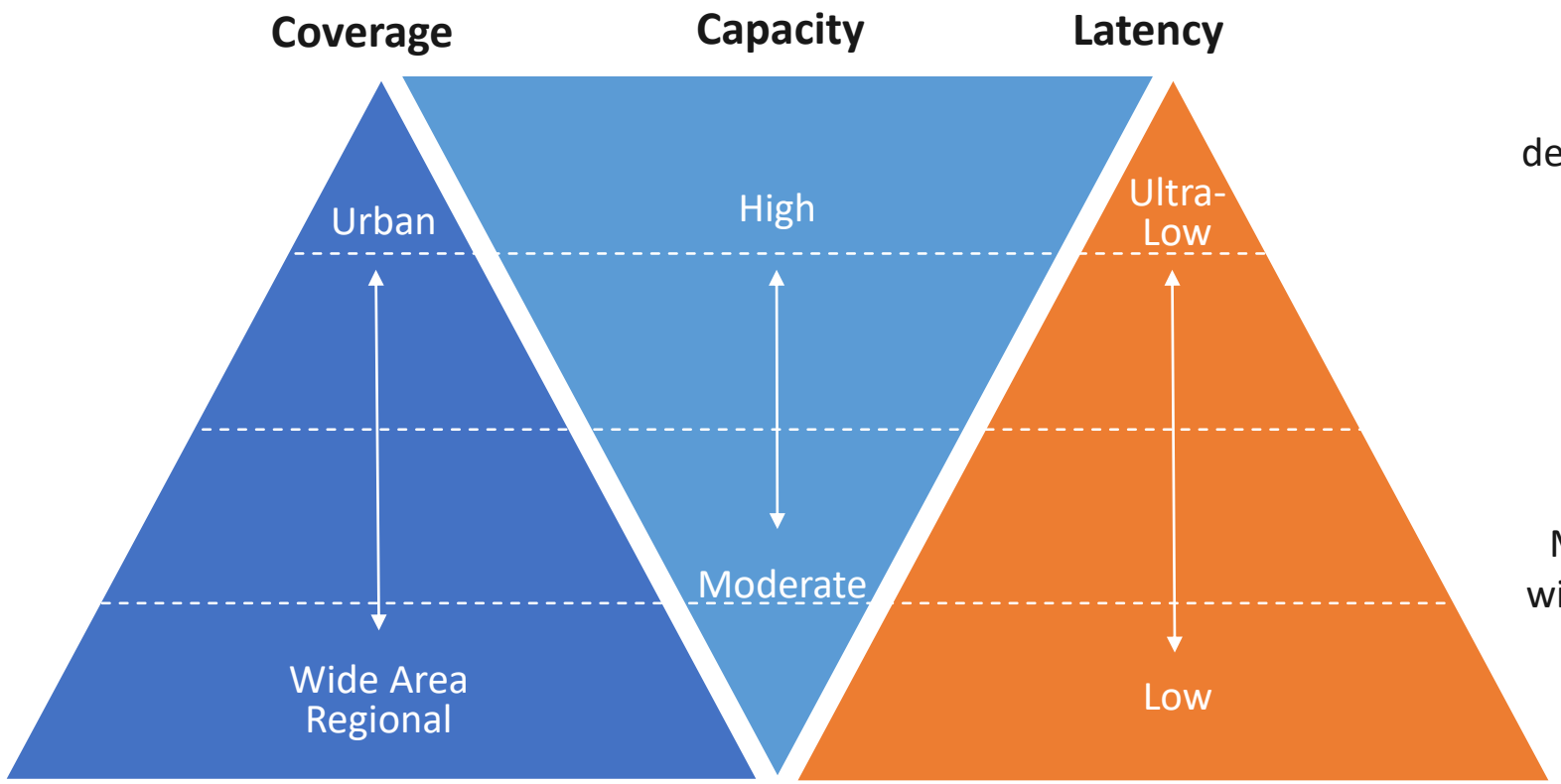
Spectrum trade-offs between capacity, coverage and latency

High bands
(24 GHz – 40 GHz)
New

Mid bands II
(3.5 GHz – 6 GHz)
New

Mid bands I
(1 GHz – 2.6 GHz)
Legacy

Low bands
(Sub – 1 GHz)
New/legacy

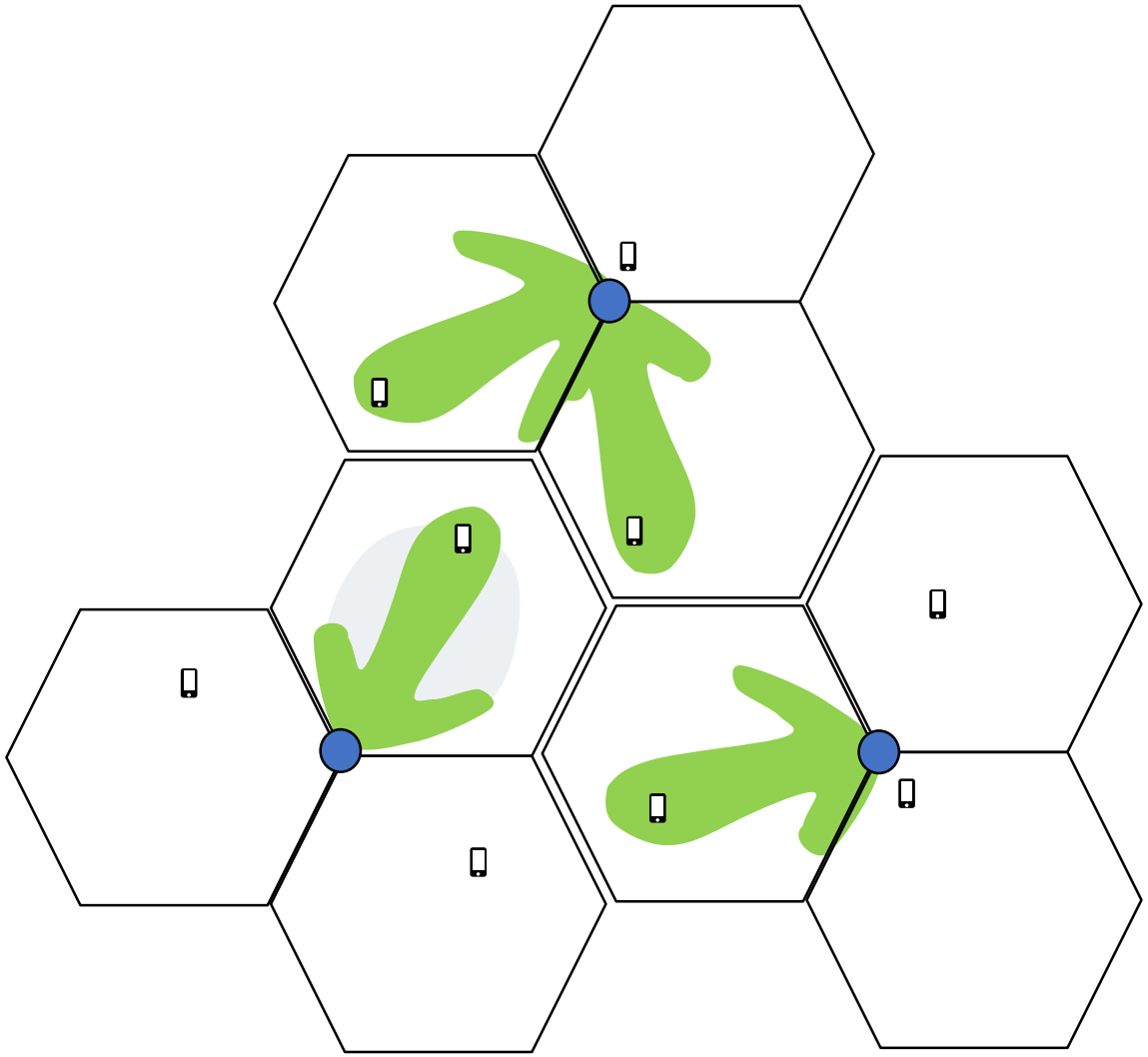


High capacity
dense urban / localized deployments

Moderate capacity
wide area/ outside-in coverage

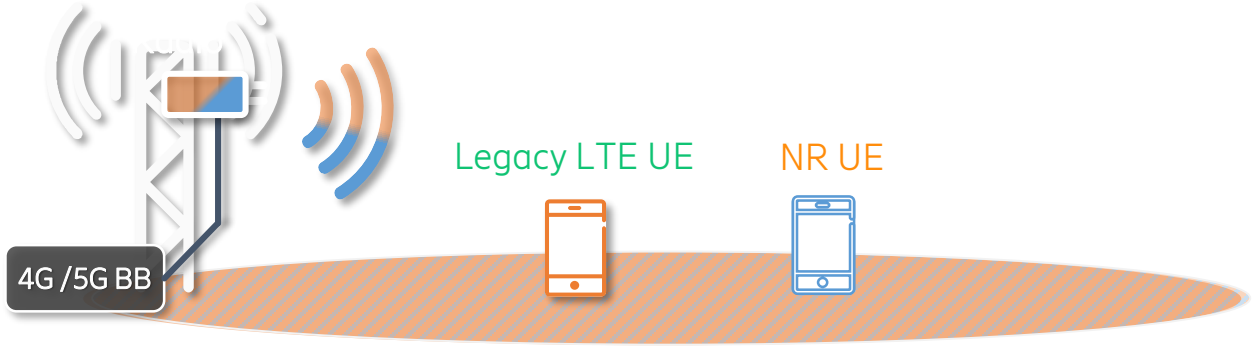
Beamforming gains

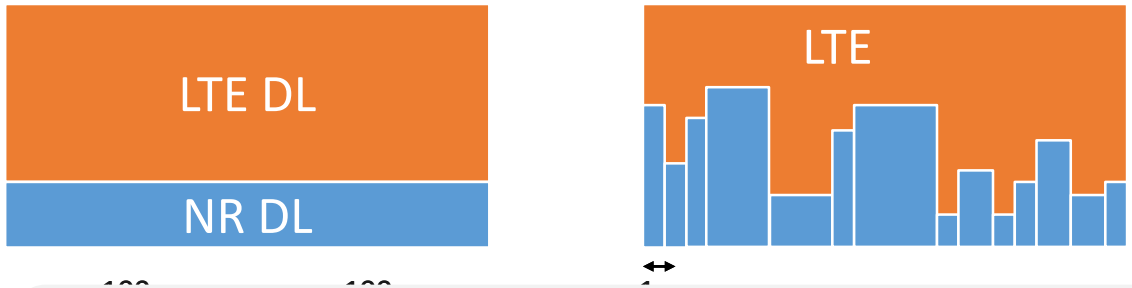
- Increased Signal Power
- Interference reduction



From Static to Dynamic Spectrum Sharing

Ericsson's offering to enable NR in low band earlier than competition



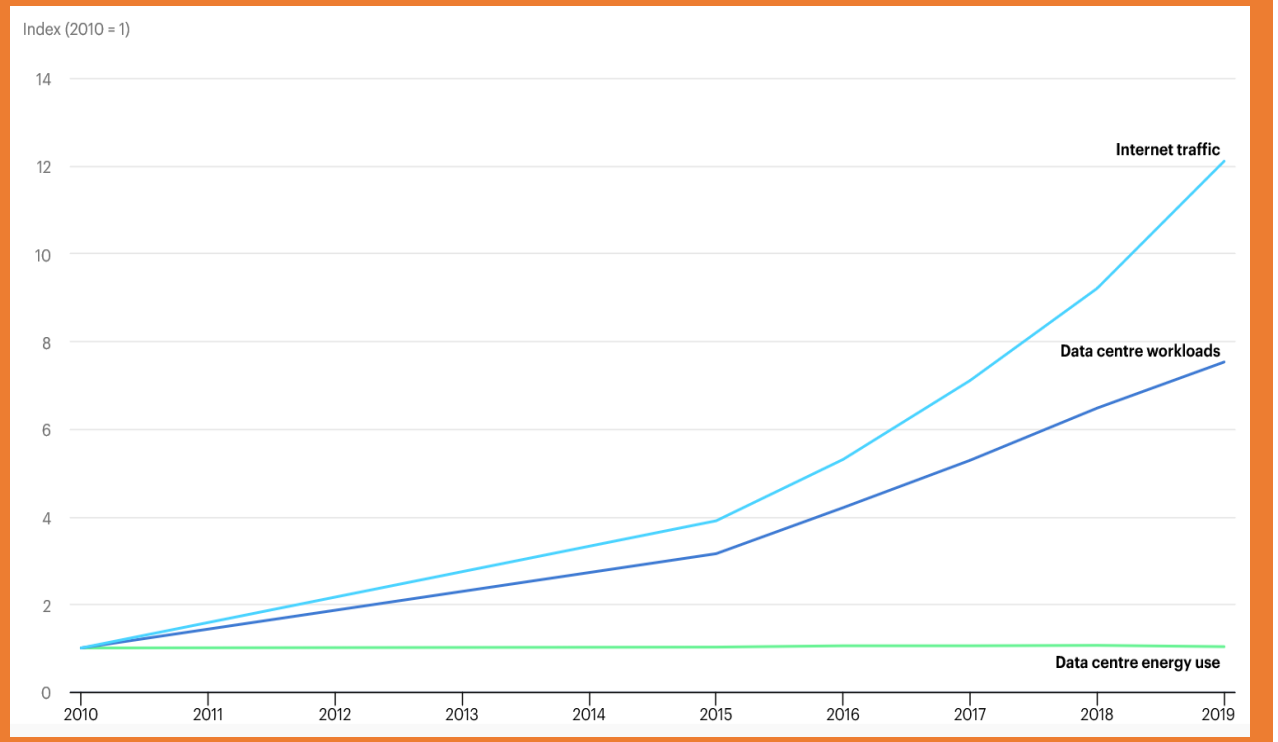


Dynamic/Instant Spectrum Sharing will allows "soft" re-farming to NR with minimal impact to LTE performance

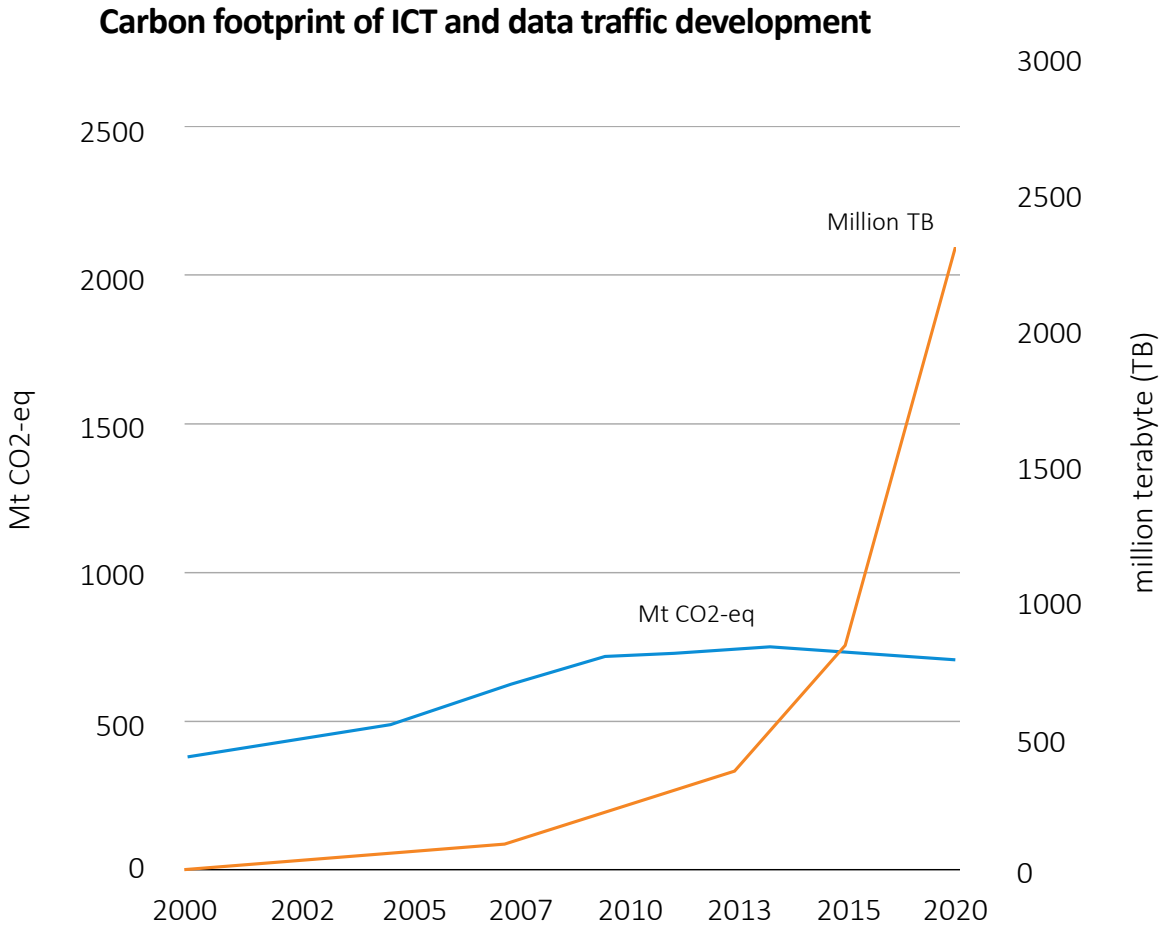
Carbon impact and 5G perspectives

More data, same footprint

IEA June evaluation for data centers

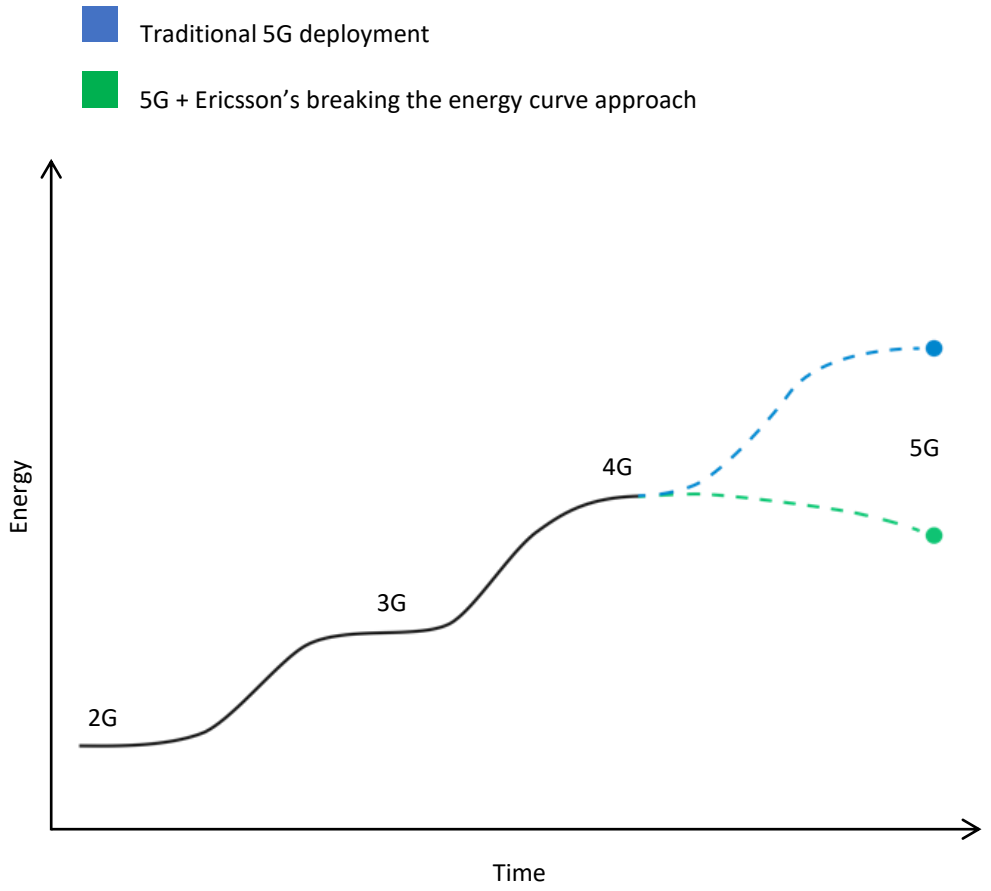


Ericsson assessment for ICT

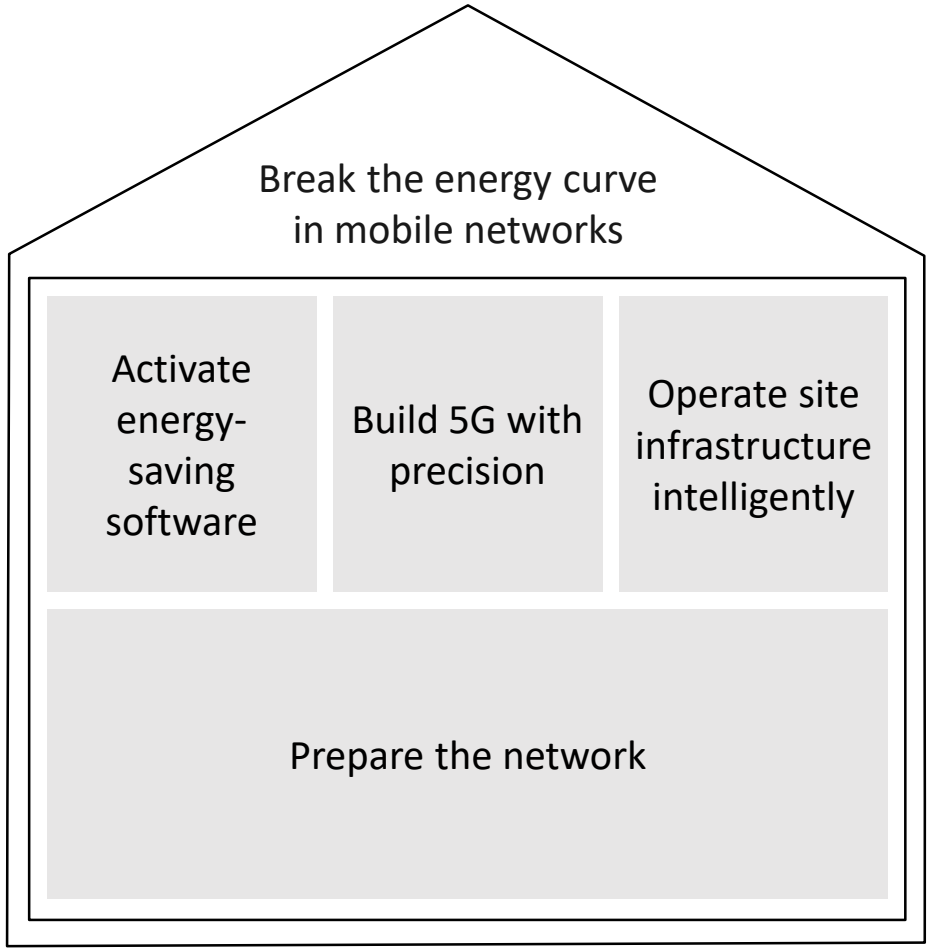


Can we quadruple data traffic without increasing energy consumption?

- YES. Breaking the energy curve is not just a possibility, but an industry requirement.
- The yearly global energy cost of running mobile networks is USD 25 billion.
- From cost and carbon footprint perspectives, energy use is one of our industry's biggest challenges.



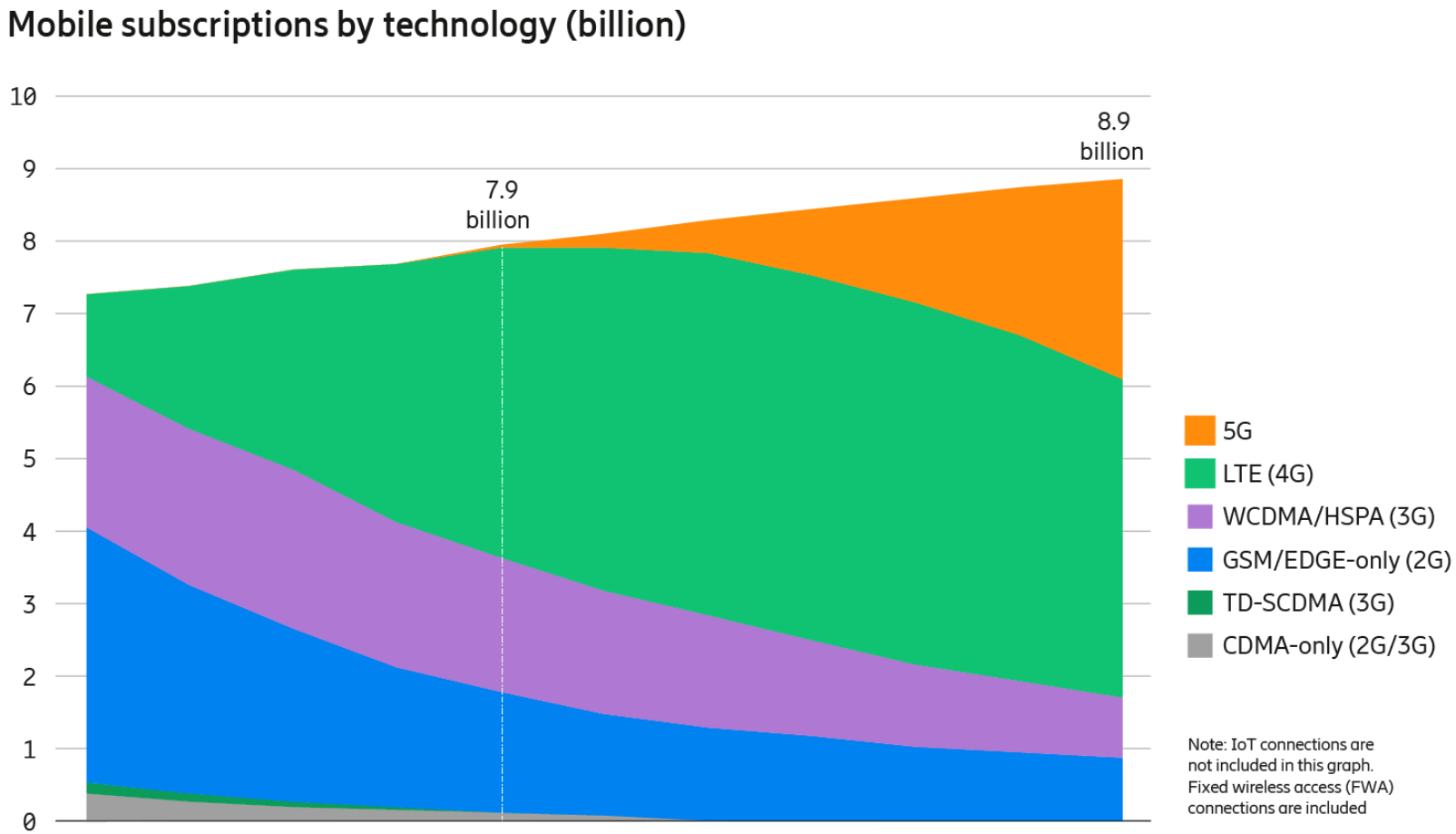
Ericsson’s breaking the energy curve



Benefits for service providers

- Manage traffic growth
- Reduce costs
- Be a technology leader
- Reduce environmental footprint

In 2025 there will be 2.8 billion 5G subscriptions



190m

190 million 5G subscriptions expected end of 2020.

>75

More than 75 service providers around the world have switched on 5G.

Ericsson leading in 5G

First with commercial 5G live networks in 4 continents: Americas, Europe, Asia and Oceania

~111

Commercial 5G agreements

5G publicly announced contracts with more than 40 operators

65+

live networks

We are supporting with our 5G network technology

40+

devices

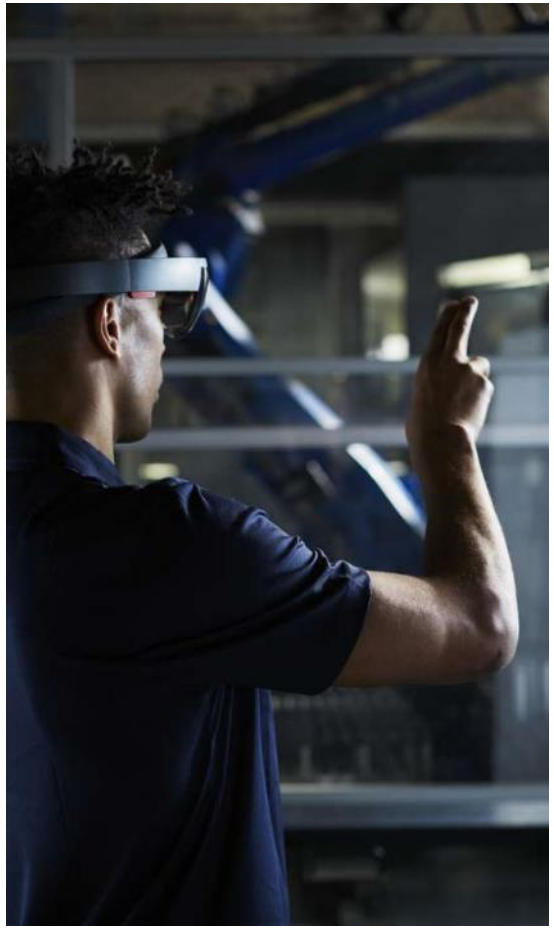
Largest number of supported devices on 5G live networks

5

million radios

We have shipped 4 million 5G HW-prepared radios since 2015

Delivering the full 5G potential for telecom operators



Network evolution

Smooth 5G evolution and superior end-to-end performance

Automation

Automated and agile operations for faster time to market and enhanced experience with less OPEX

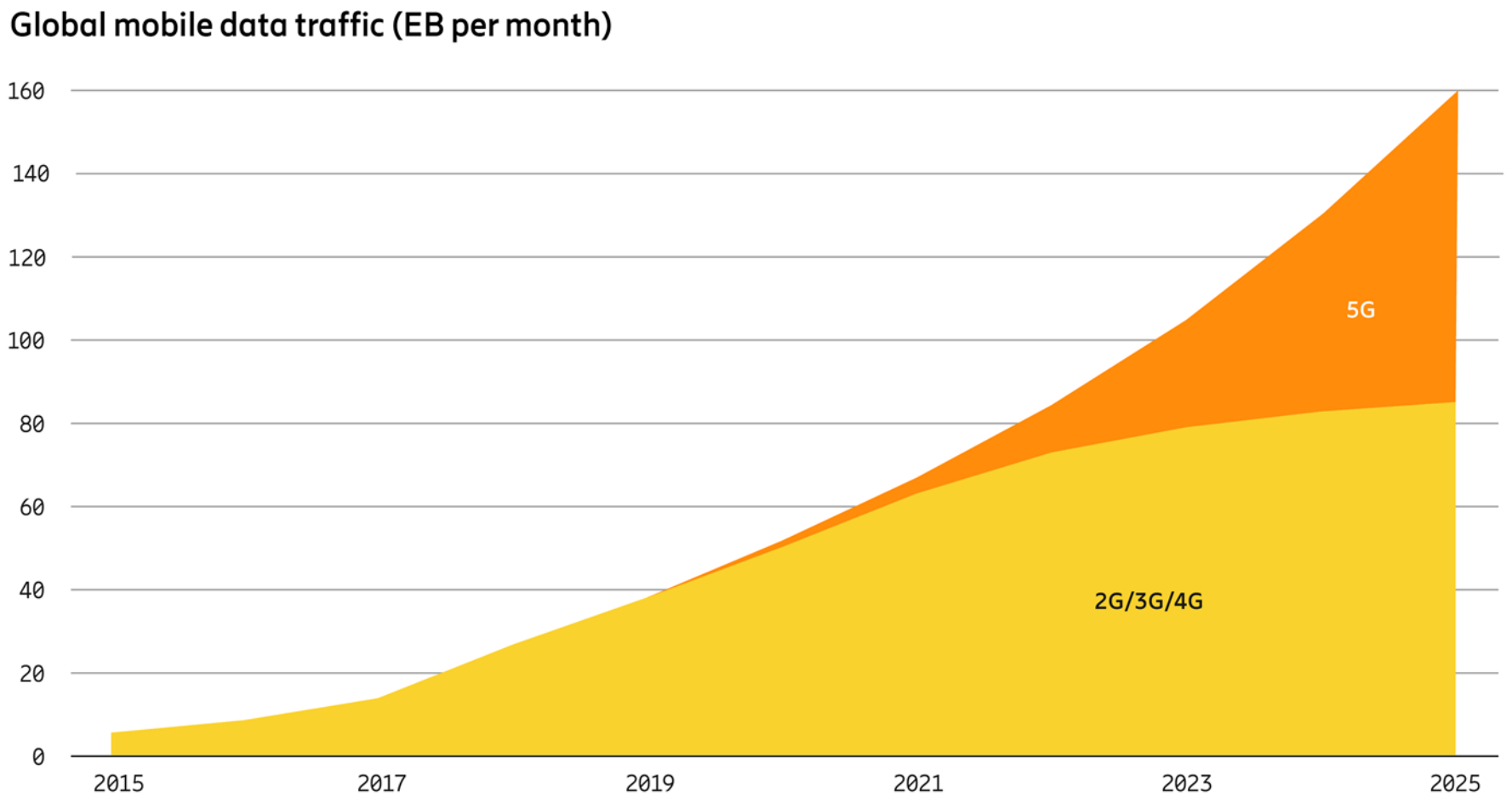
New business

Revenue growth with new services built on secure, trusted & reliable 5G networks in partnership with ecosystem

5G networks forecast to carry nearly half of the world's mobile data traffic in 2025

160EB

Total traffic predicted to reach 160 exabytes per month in 2025



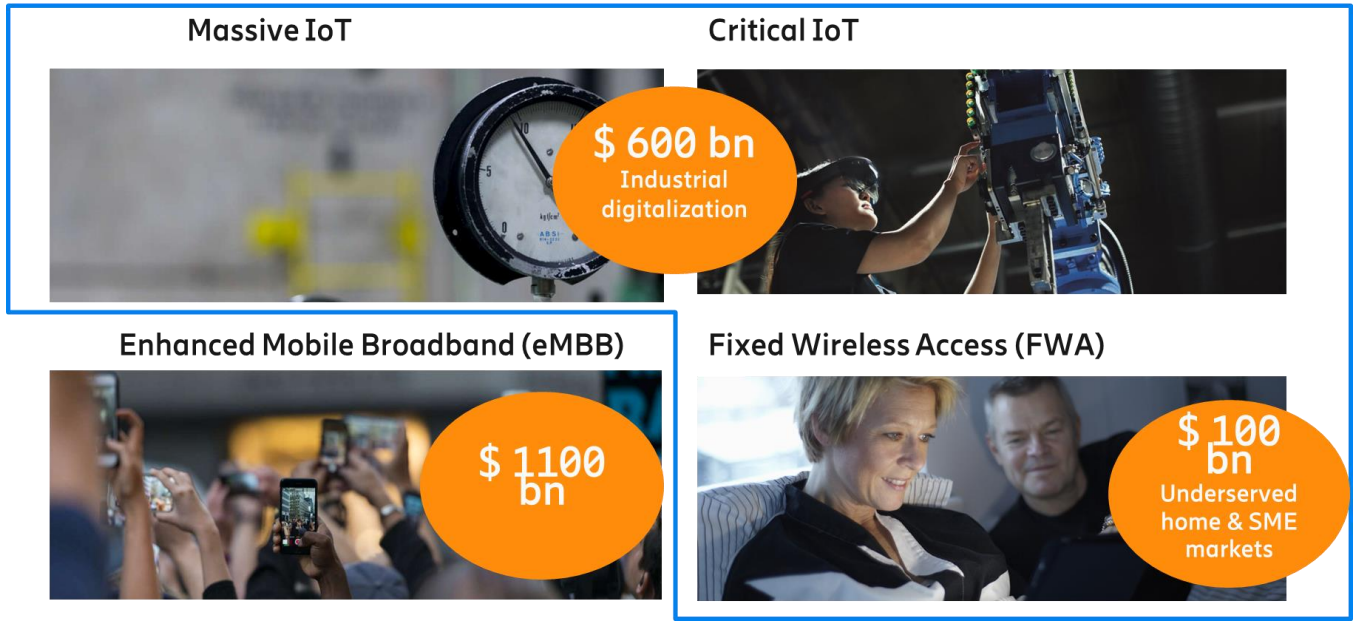
5G addressing operator pain points

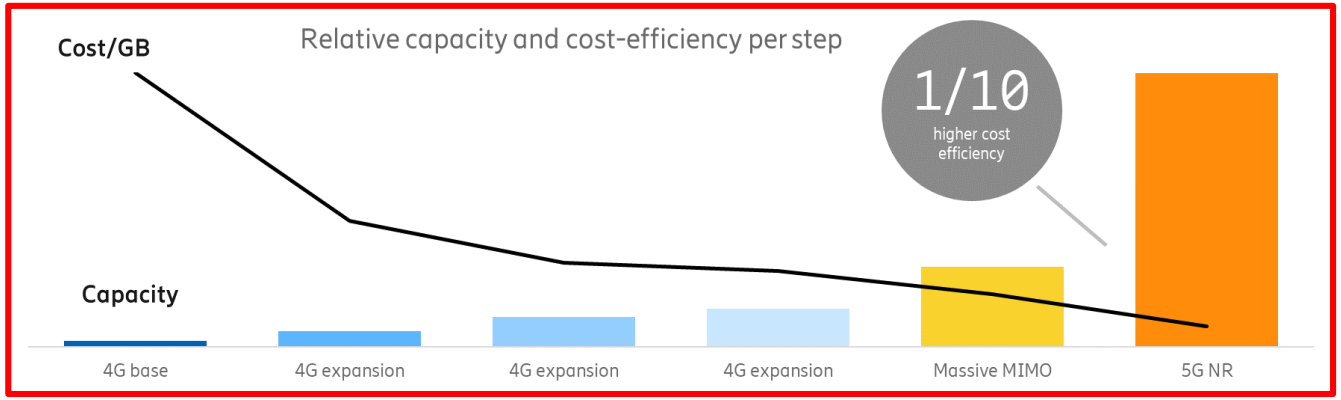
5G benefits

- Lower cost per GB to 1/10
- Automation for efficiency and experience
- 5G enables new growth

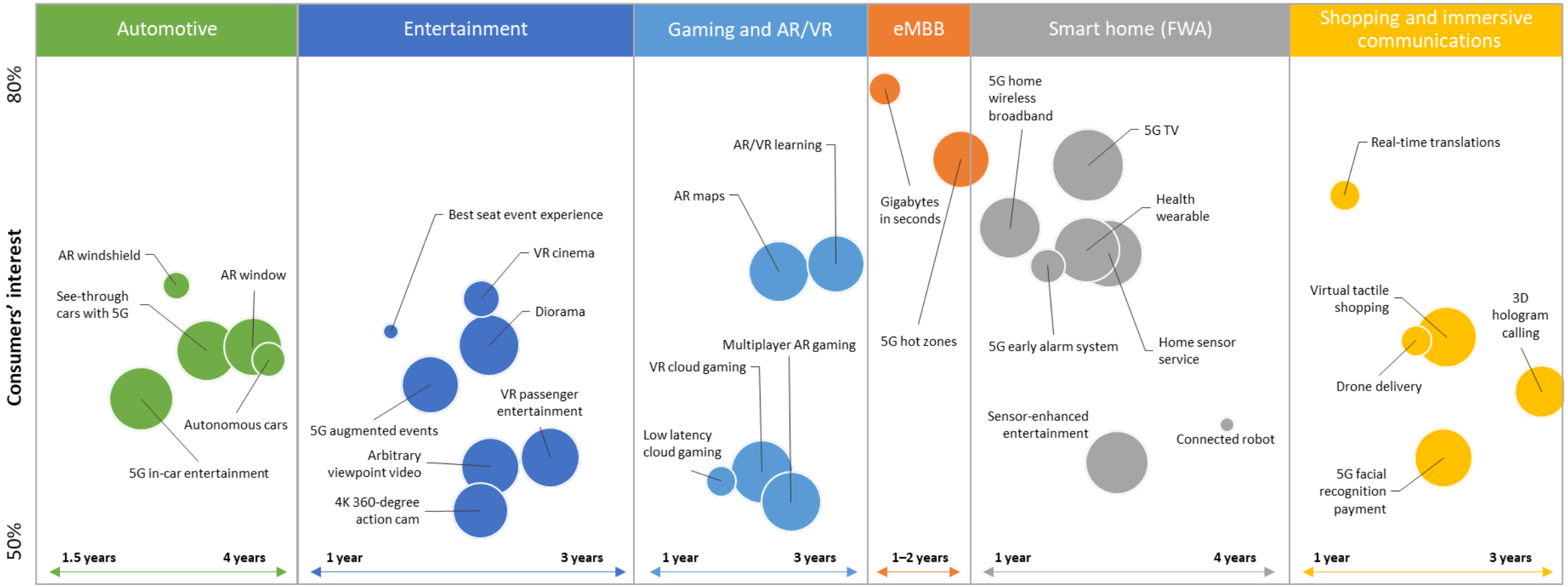
Pain points

- Data traffic growth
- OPEX and operational inefficiencies
- No revenue growth





Consumer 5G use case roadmap



Timeline to go mainstream from 5G launch

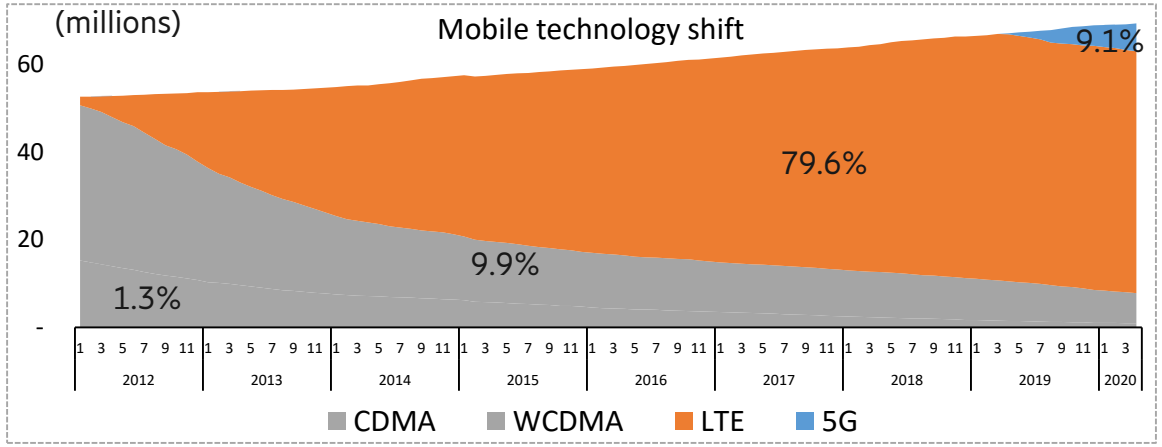
Willingness to pay

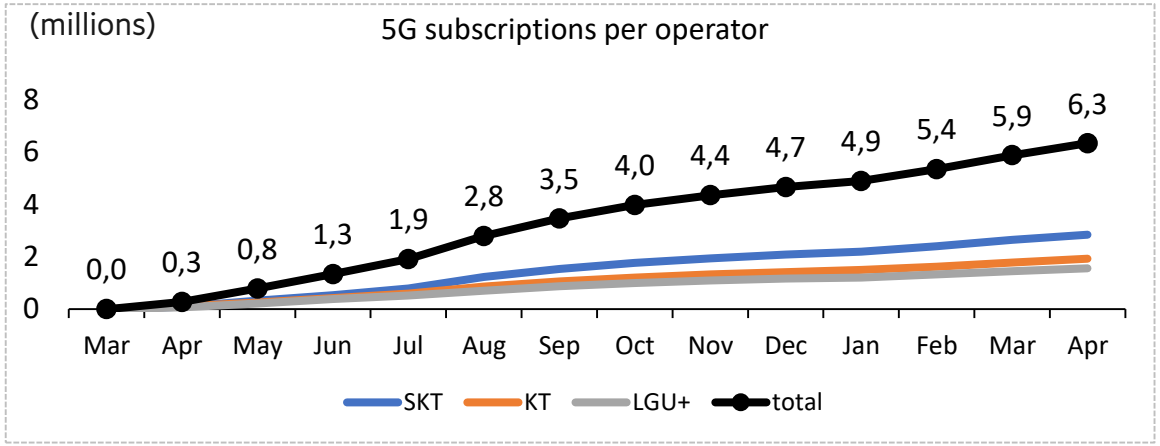
Lowest (47%) → Highest (79%)

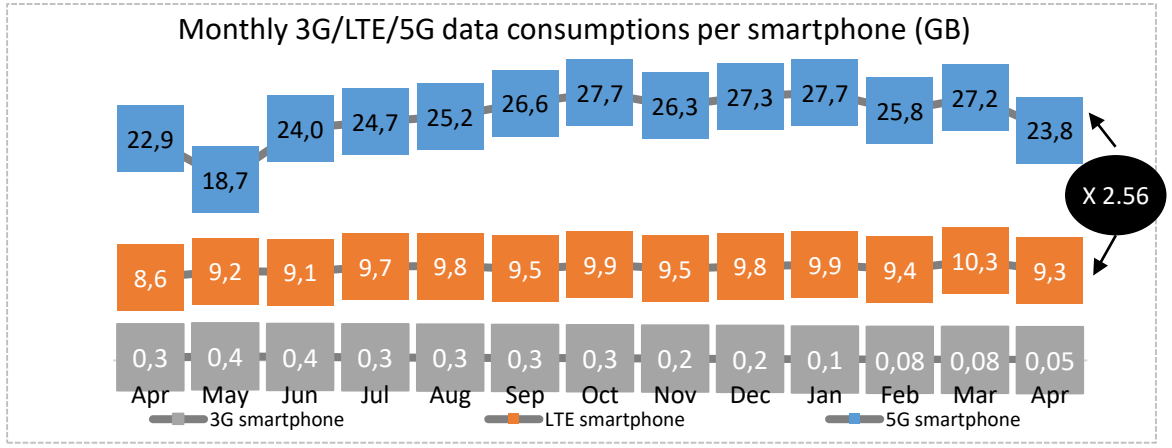
Base: Smartphone users aged 15–69 in Australia, Argentina, Brazil, Belgium, China, Canada, Chile, France, Finland, Germany, India, Indonesia, Ireland, Italy, KSA, South Korea, Singapore, Thailand, Uruguay, the UAE, the UK and the US

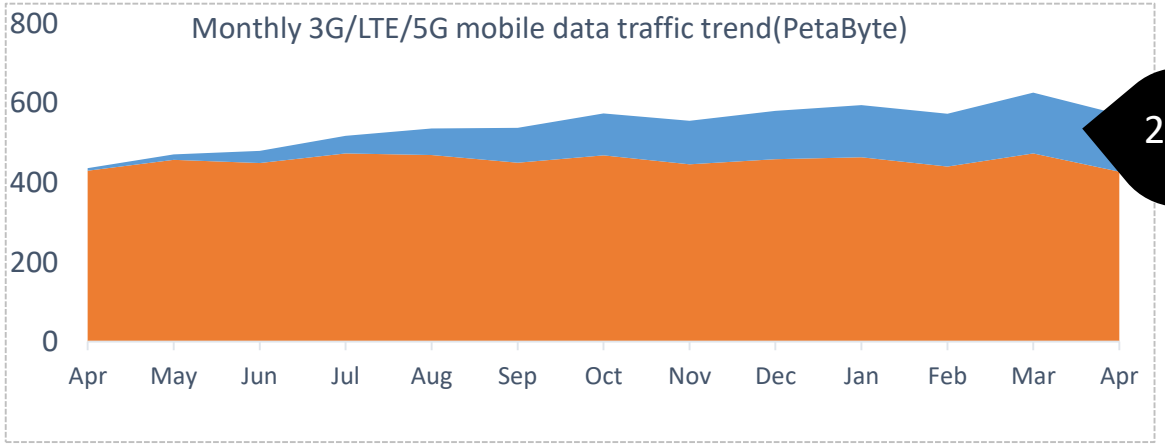
Korea 5G updates

5G in South Korea









93% of the population covered with mid TDD band in 85 cities

*As of May 2020

5G service offerings by Korean telcos.

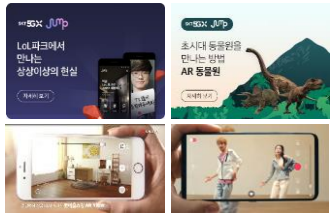
B2C services

— **VR services with the bundle of tariff plans and VR headsets**

- AR devices released: Gear VR, oculus Go VR, pico G2, Google cardboard, Samsung Gear VR
- continue to increase VR contents, e.g. VR screens, educations, games, movies, concert, show, etc.
- services: SKT 5GX Jump VR, KT Super VR, U+ VR

— **AR services with FoC for most 5G subscribers, except low-level of tariff plans**

- try to vitalize AR service by providing themes(e.g. 'AR zoo park'), useful apps.(e.g. mobile shopping) and charged contents(e.g. U+ AR service)



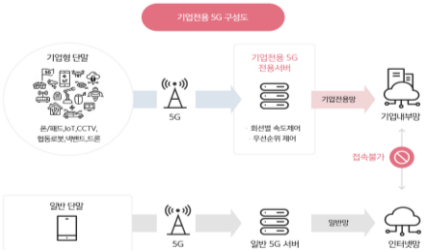
— **boost 5G with 'free services' and accessories**

- opened hot places for various AR/VR contents experiences, etc. (e.g. SKT '5GX Boost Park')
- provides various experiences on contents such as sports, Idol, game, music, etc. via 5G apps.
- release necessary accessories, e.g. KT's neckband camera 'FITT360'

B2B services

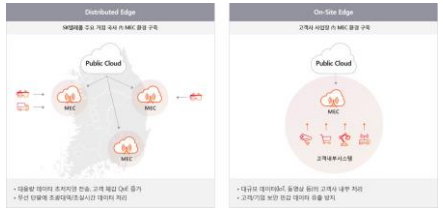
— **Private 5G network service**

- Build private 5G network/dedicated server and provide E2E service
- e.g. SKT's '5GX service' (provides P-5G network, P-security USIM, P-MDMS and P-5G devices). KT/LGU+ also provide the same service



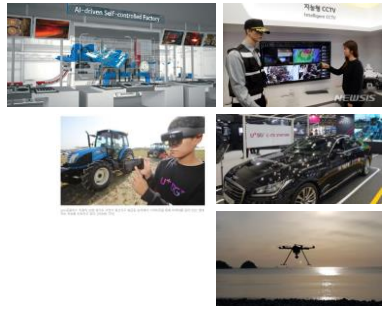
— **MEC(Mobile Edge Computing) service**

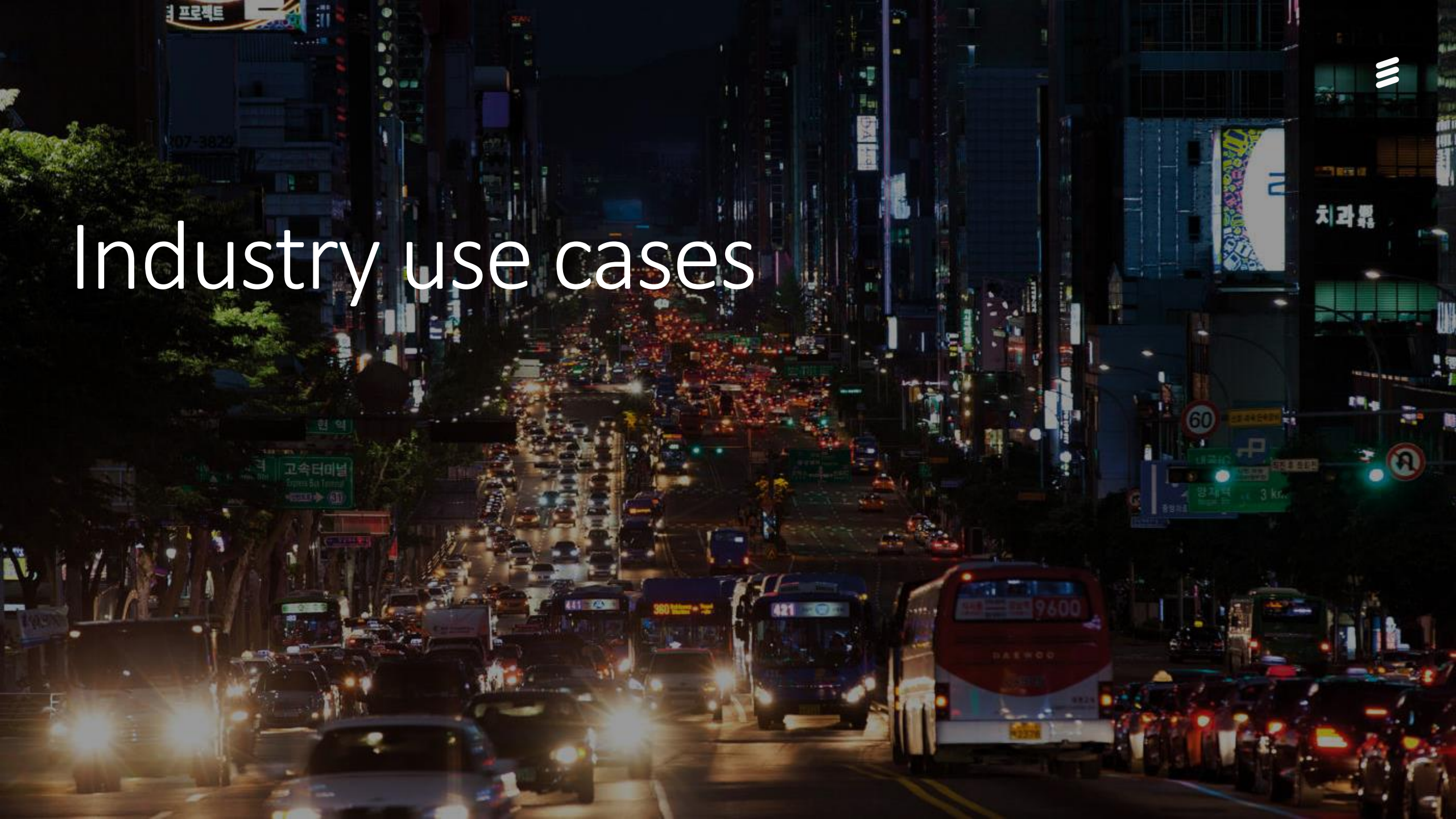
- Building distributed edge or on-site edge
- Use case: Autonomous car, Real-time video analysis, VR/AR collaboration, Smart factory/office/logistics/hospital/etc.



— **Other 5G-based B2B services**

- Smart factory
- Intelligent CCTV service with AI
- Real-time remote control for heavy machine/etc.
- 5G-based V2X network & service: V2V, autonomous car, etc.(e.g. LGU+'s C-ITS)
- Smart drone: control, autonomous flying, video transmitting, cloud drone management, etc.



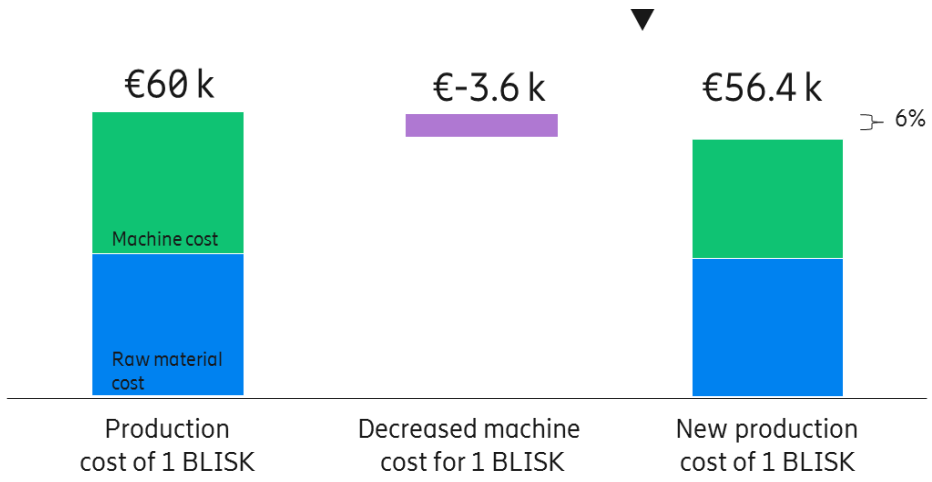


Industry use cases

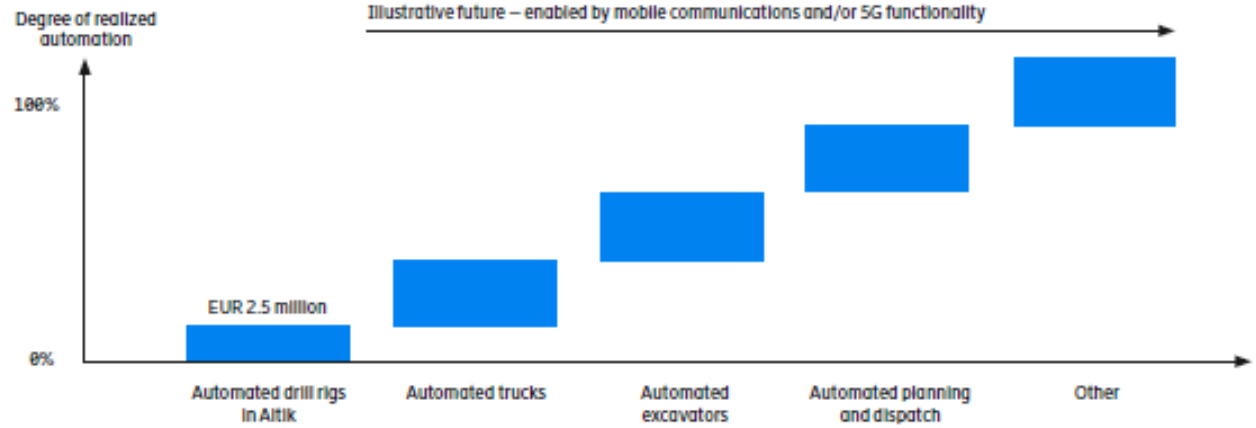
5G/IoT use case

Fraunhofer

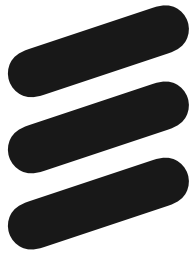
NEW BOLIDEN



- Cost reduction for one BLISK: €3.6 k
- Cost reduction for one factory per year*: €27 M
- Global market cost reduction per year**: €360 M



- 2,5 M€ savings in the first step



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