

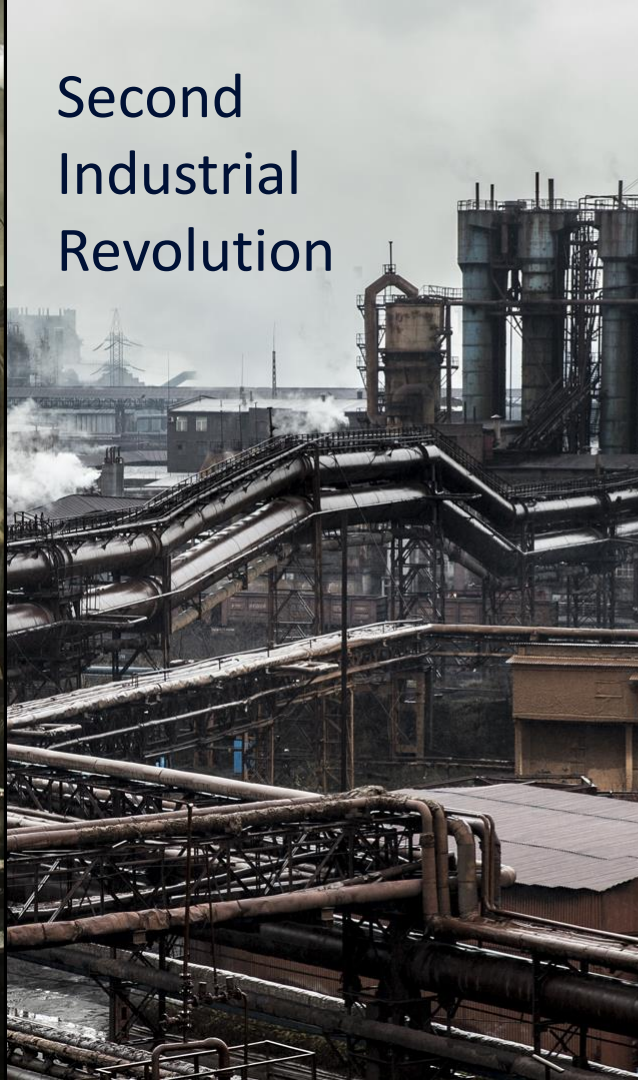
5G – enabling the 4th industrial revolution

NOKIA

First
Industrial
Revolution



Second
Industrial
Revolution

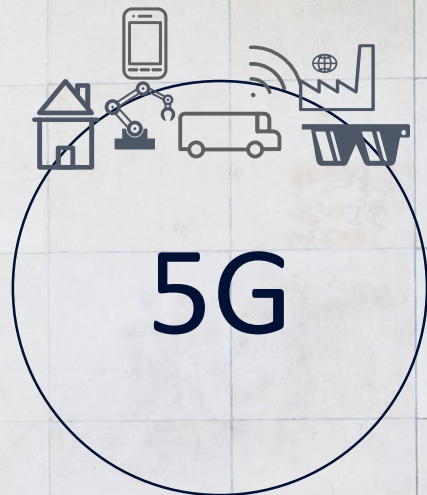
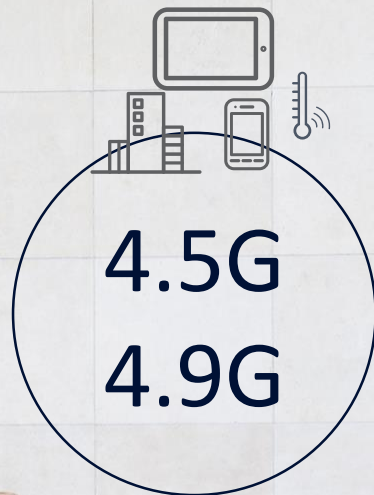
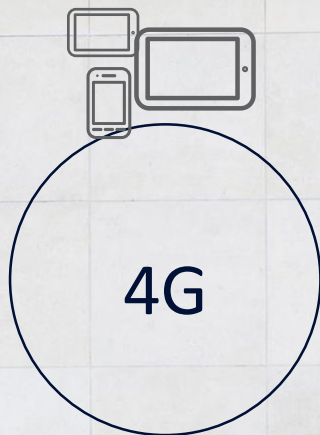
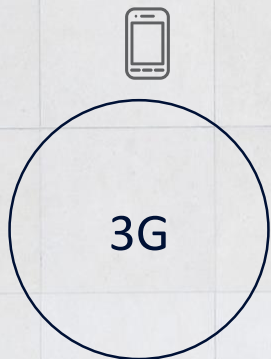


Third
Industrial
Revolution



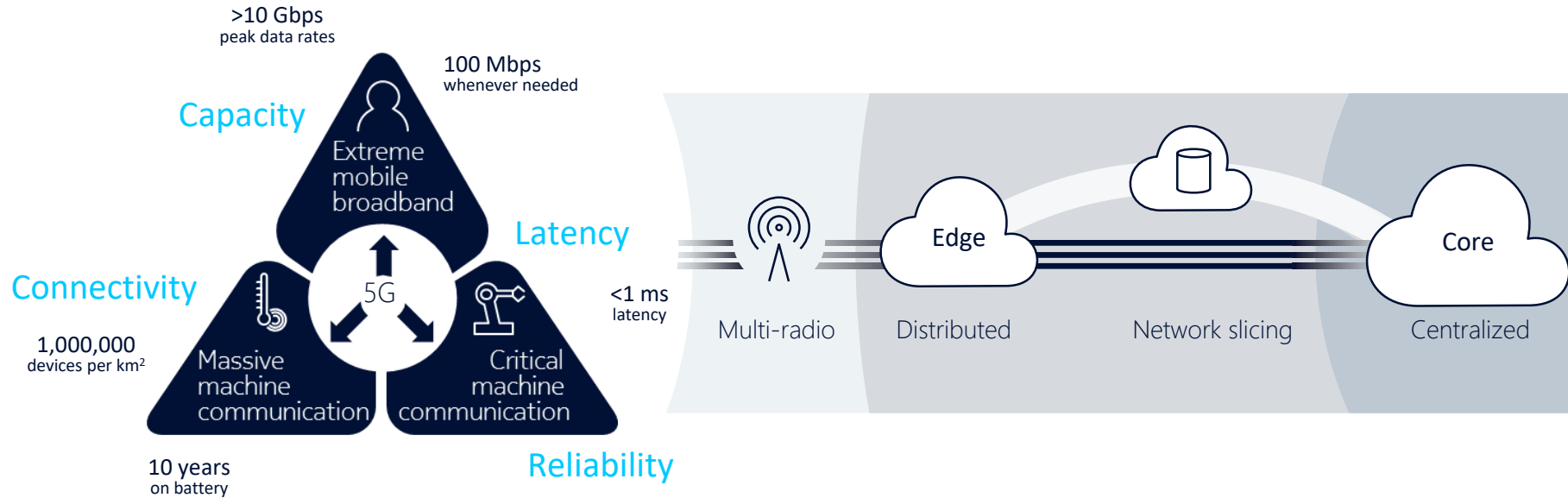
NOKIA

Fourth Industrial Revolution

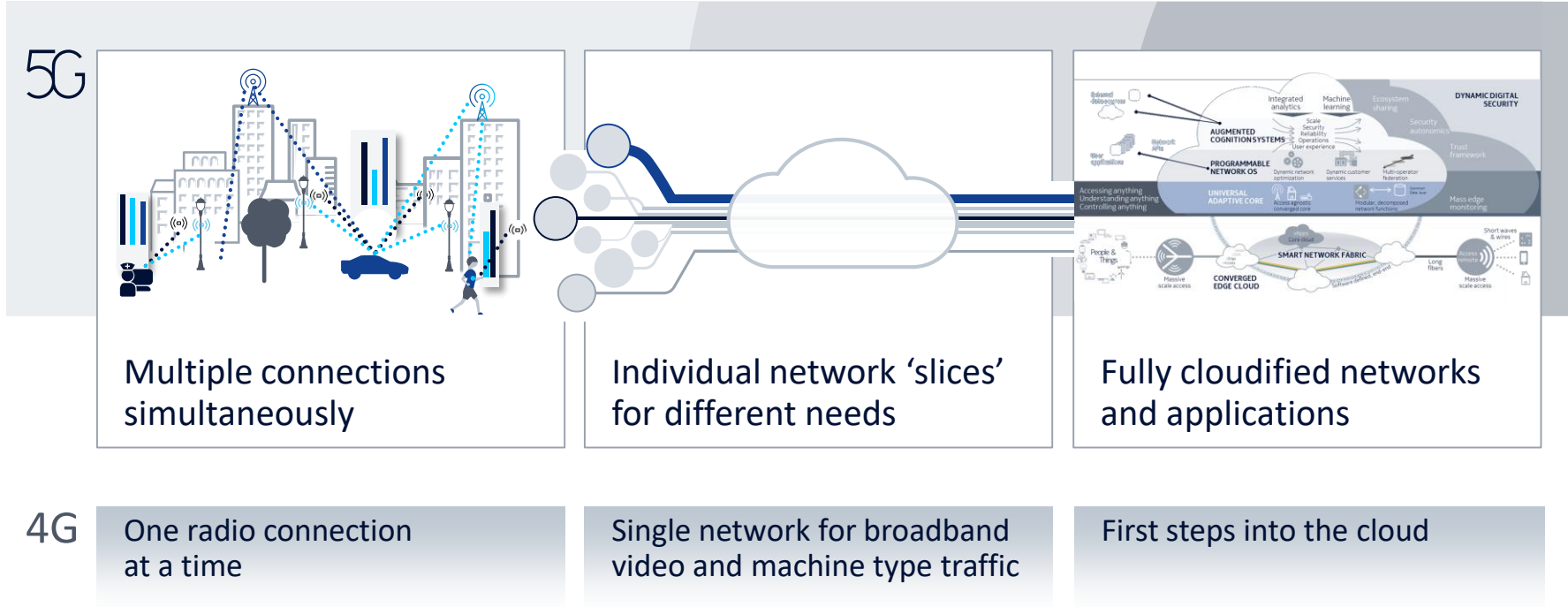


5G introduces huge technological advantages

10 Gbps data rate, 1ms latency and ultra-reliability – when and where needed



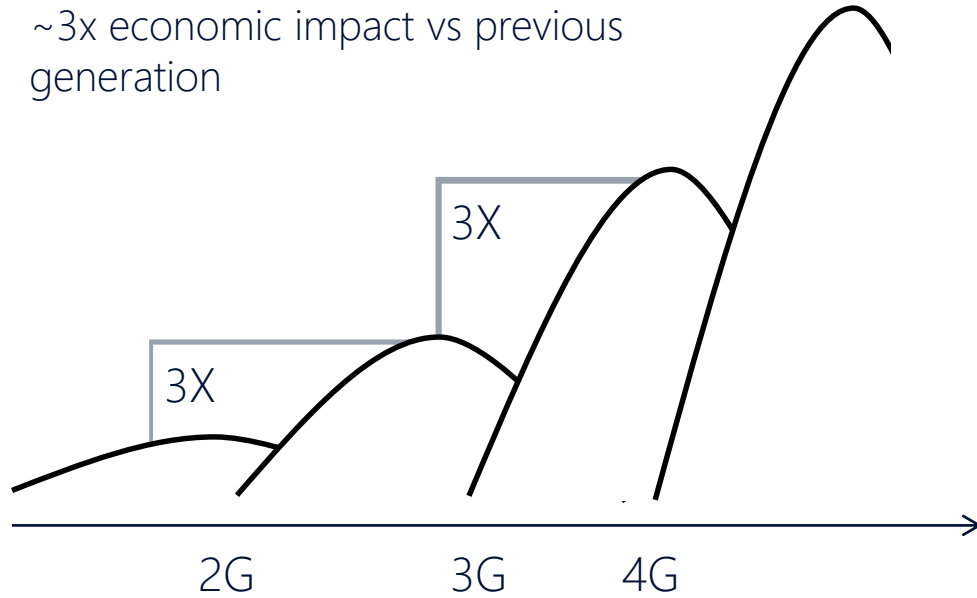
Expanding the human possibilities – from 4G to 5G



5G design

Economics

~3x economic impact vs previous generation



Consumer 5G survey key findings

>86%

Need or would like faster connectivity on next smartphone



Top use case—use cellular connectivity everywhere

~50%

Likely to purchase a phone that supports 5G next



Willing to pay extra for 5G

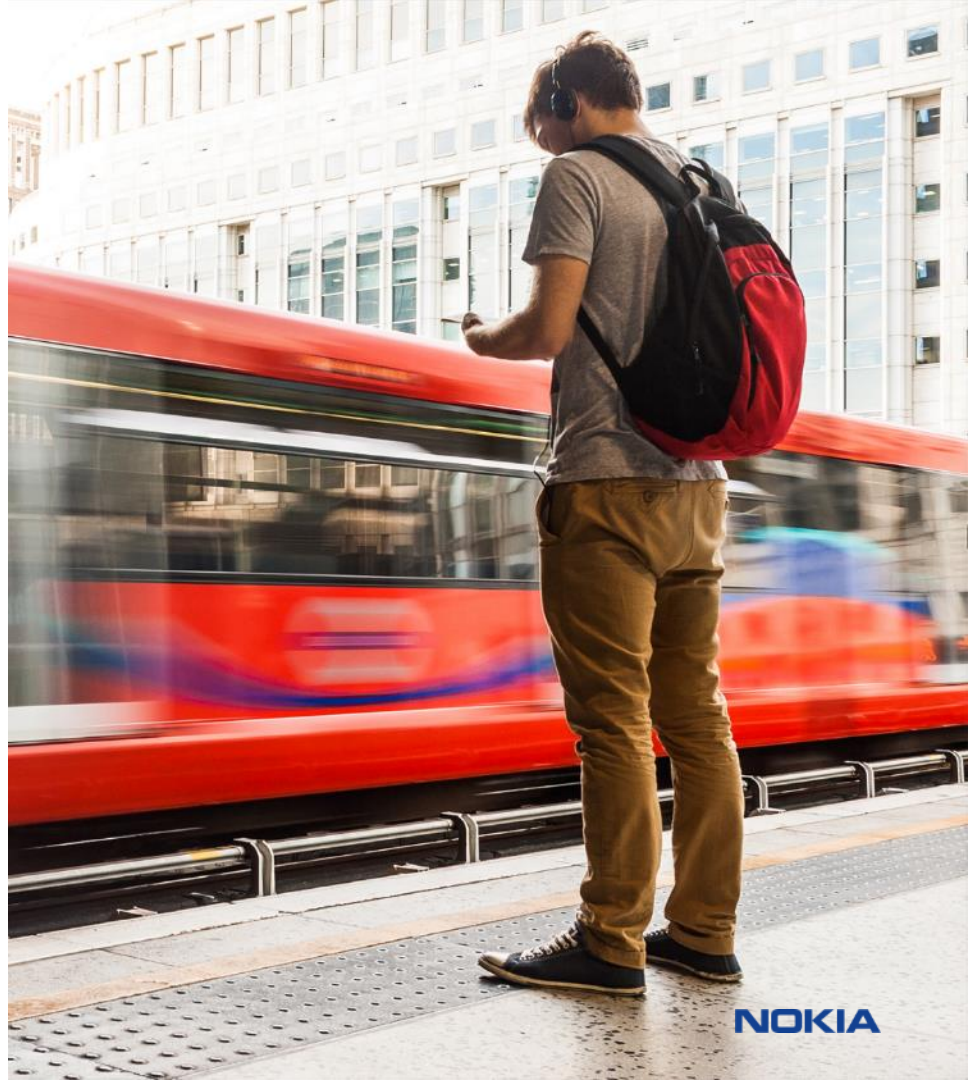
Top 3 reasons for 5G:

10x
faster
speeds

10x
quicker
response time

More
cost-effective
data plans

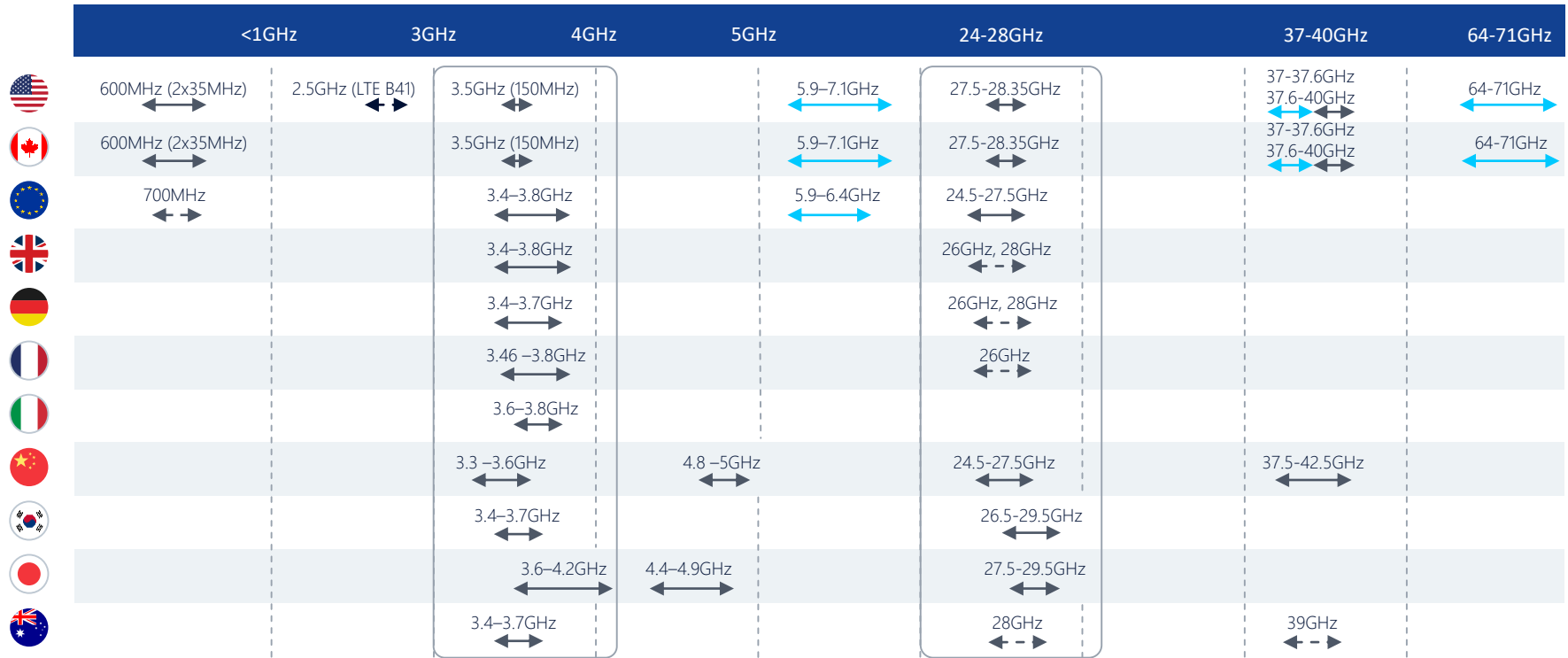
Source: "Making 5G a reality: Addressing the strong mobile broadband demand in 2019 and beyond," September 2017, jointly published by Qualcomm Technologies, Inc. and Nokia.



Global snapshot of 5G spectrum

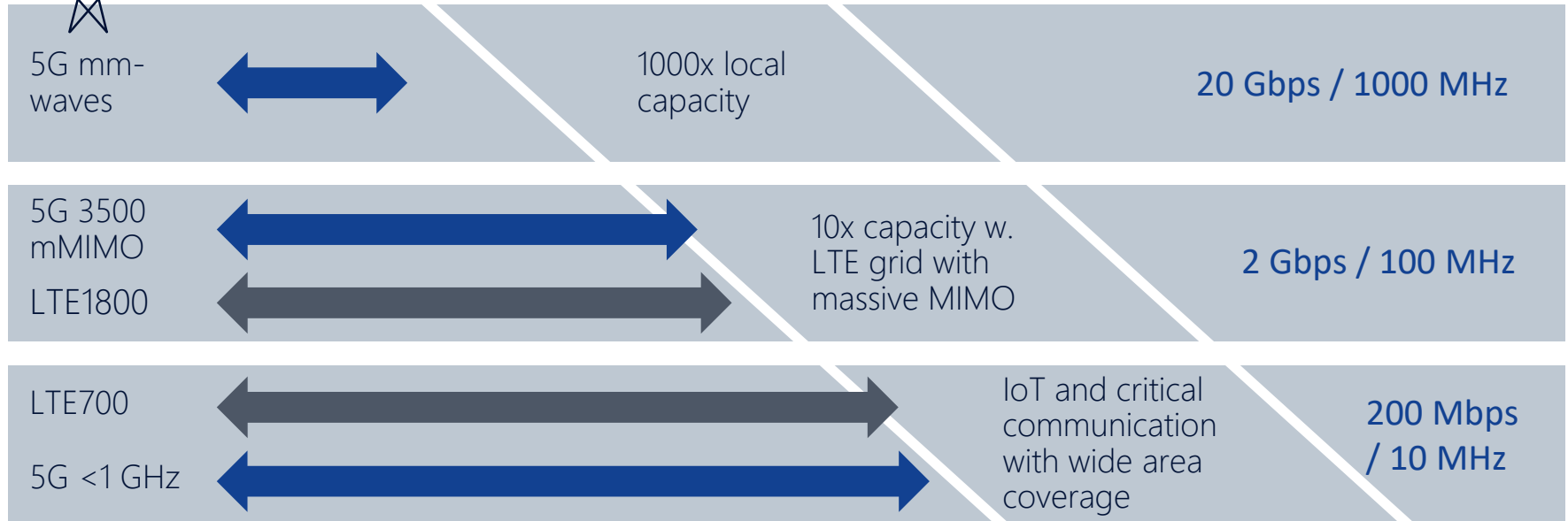
Around the world, there is a pattern of band allocation

New 5G band

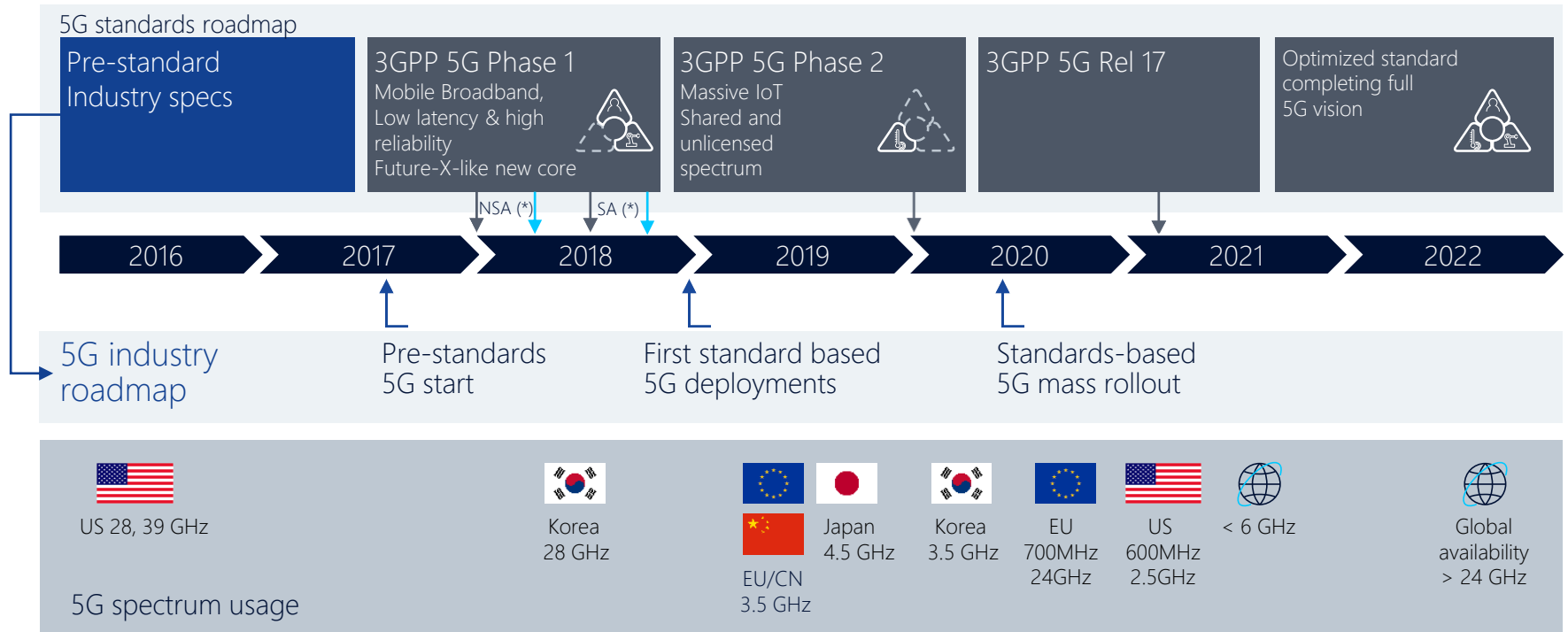


Right mix of 5G coverage and capacity by combining diverse spectrum

High bands for capacity | Low band for IoT and low latency critical communications



Coherent 5G industry roadmap

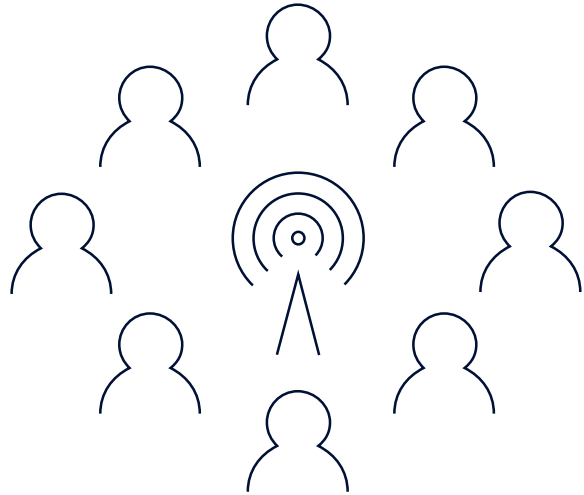


*) NSA: Non standalone; SA: Standalone

↓ functional freeze ↓ protocol (ASN.1) freeze

The power of 5G lies in the hands of end-users

Each of us consumers, enterprises, venues, governments, cities...



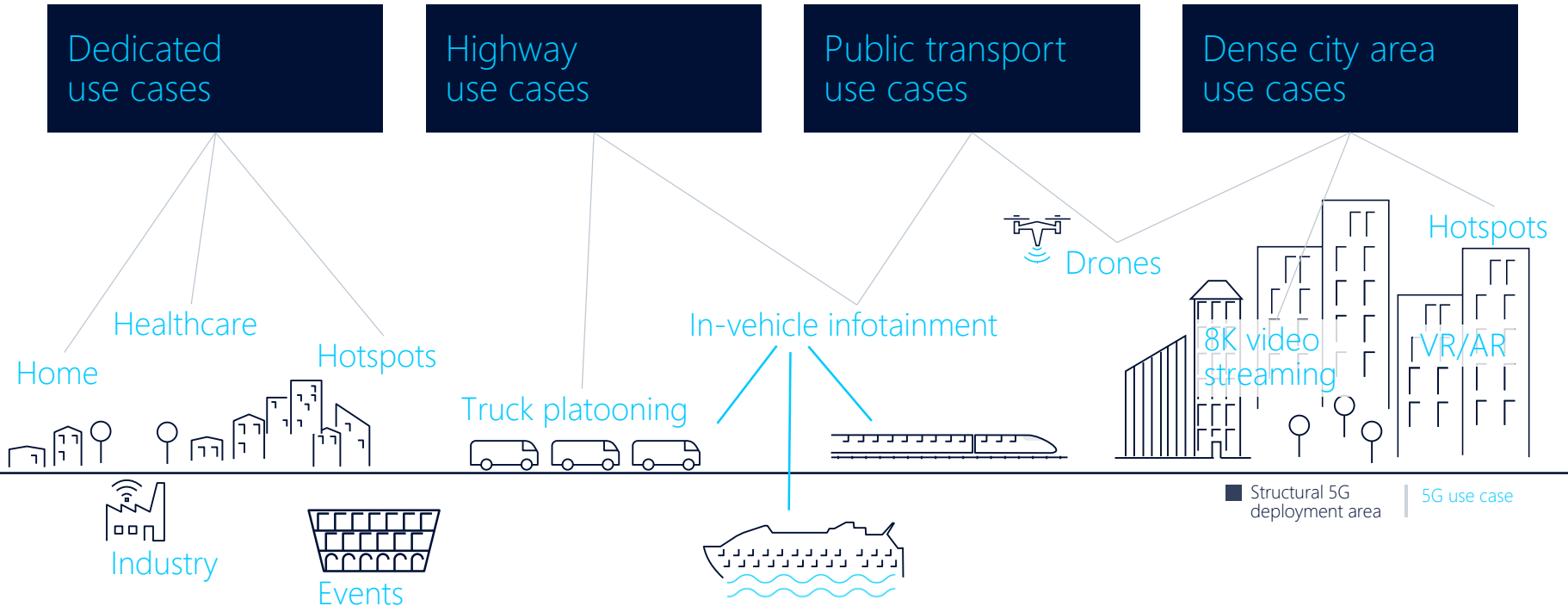
Coverage first deployment



Use-case led deployment

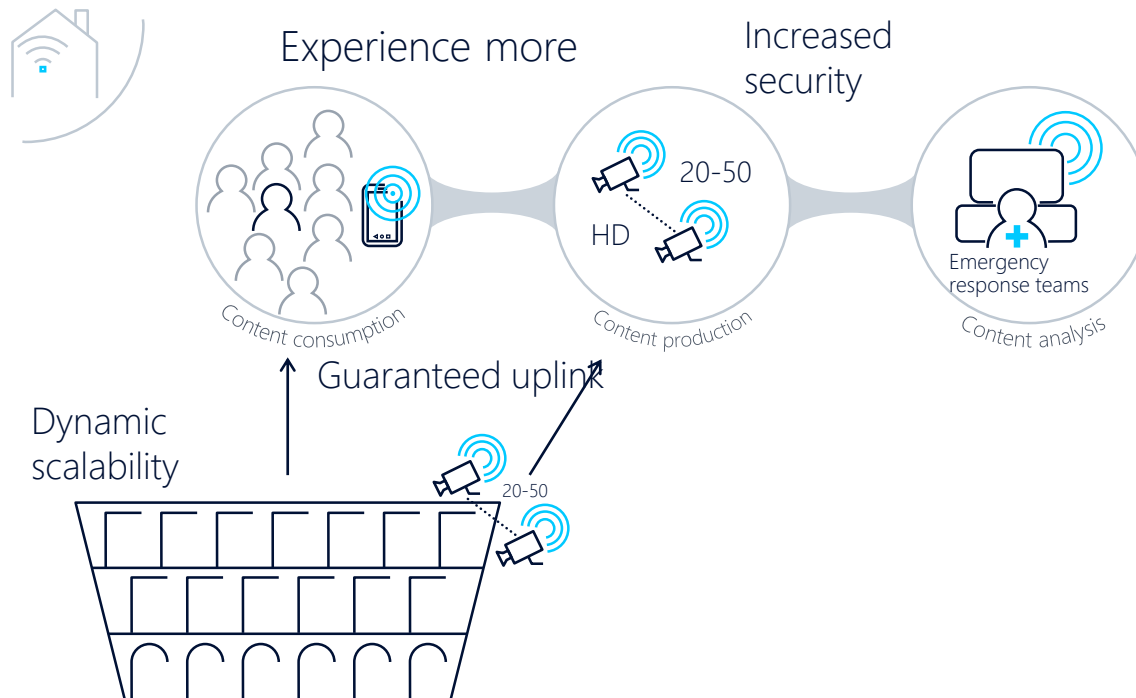
5G early market use cases

Nokia study unveils high value use cases and their business models



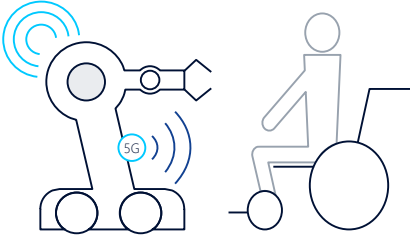
5G event experience – get close to the action

Be there,
when you
can't be
there

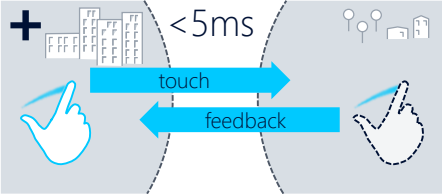


5G for connected healthcare

Remote care



Remote examination and surgery



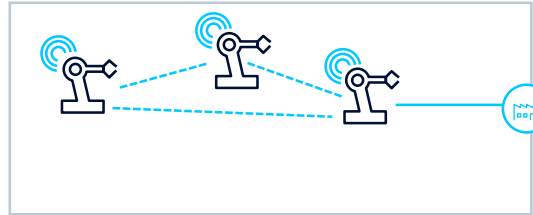
Same sense of touch



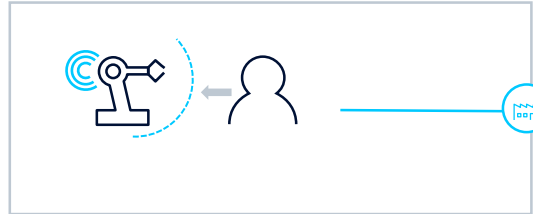
Haptics & vision in sync

5G industry experience

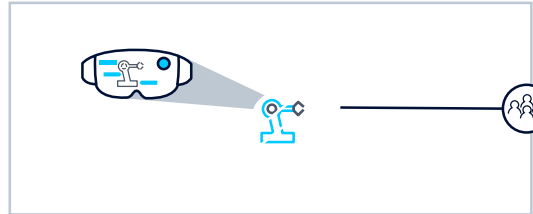
Manufacturing and process automation



Intrusion detection



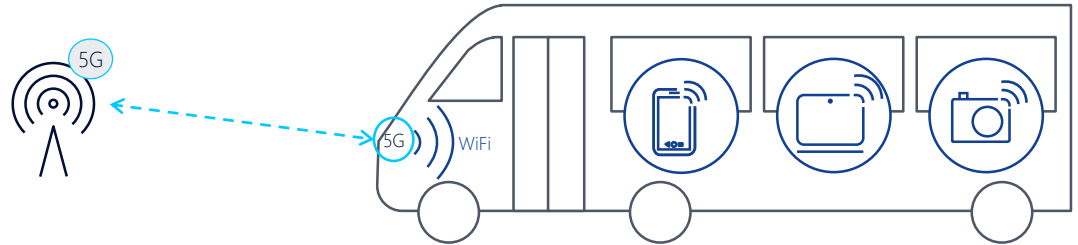
Maintenance



Wireline connections today

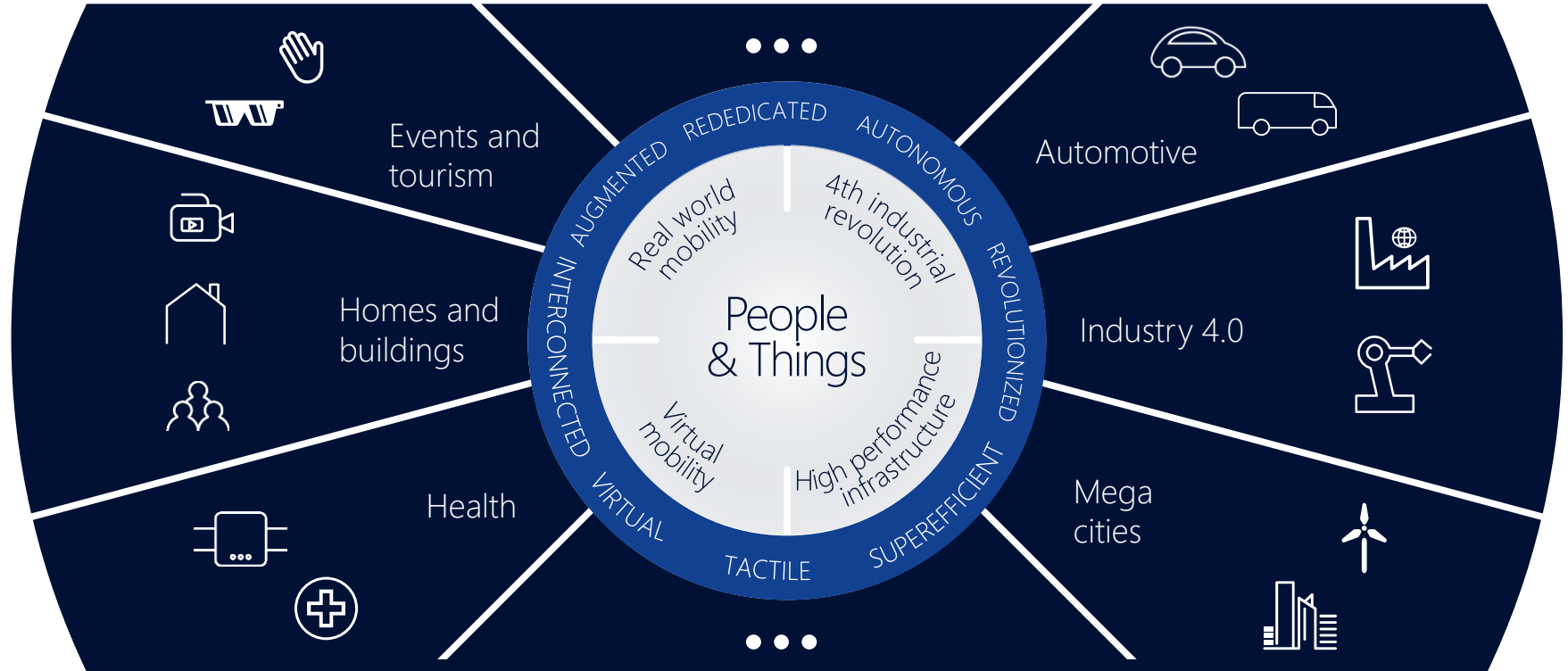
>90%

5G in-vehicle infotainment – additional business with urban 5G deployments



5G use-cases go beyond the early adopted use-cases

Limited only by our imagination of the human possibilities



The image features the Nokia logo in a large, white, sans-serif font, centered horizontally across the upper half of the frame. The background is a blue sky with light, wispy clouds. Below the sky, a cityscape with several tall skyscrapers is visible, rendered in a slightly desaturated blue tone. A network of thin white lines connects various points across the cityscape, suggesting a digital or communication network. The overall aesthetic is clean, modern, and tech-oriented.

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www.networks.nokia.com/innovation/5G