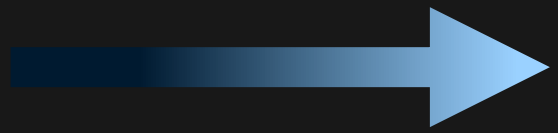
Towards 6G

Dr Mikael Prytz, Ericsson

6G Wireless Summit 2020

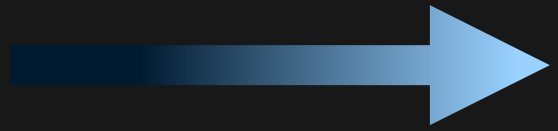
Recorded presentation



- The Internet of Senses
- Connected intelligent machines
- Digitalized & programmable physical world
- Sustainable world
- Non-limiting connectivity
- Trustworthy systems
- Cognitive network
- Network compute fabric

Towards 6G

5G



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2019: 5G took off

13M
subscriptions

High-end smartphones and pocket routers; ~USD 1,000

Coverage in major cities and highly populated areas by early movers

Smartphone-driven use cases

Non-standalone 5G; in one band

2020: 5G to scale up

13M
subscriptions

High-end smartphones and pocket routers; ~USD 1,000

Coverage in major cities and highly populated areas by early movers

Smartphone-driven use cases

Non-standalone 5G; in one band

100M
Subscriptions*

Volume devices, mid-tier smartphones <USD 300

Wide 5G coverage by early movers; 20-25% operators* to launch 5G

Consumer service bundling; trials continue for industries

Standalone 5G introduced; 5G in multiple bands

* Ericsson Mobility Report Nov 2019

* Ericsson analysis

First with commercial 5G live networks in 4 continents

Live North America

AT&T
Sprint
T-Mobile
US Cellular
Verizon

Live Europe

DiGi Romania
Elisa
Eir
O2 UK
Orange Romania
Swisscom
TIM Italy
Vodafone Germany
Vodafone Ireland
Vodafone Spain
Vodafone UK

Live Middle East & Africa

Batelco
Etisalat
Mobily
Ooredoo
STC

Live North East Asia

KT
LGU+
SK Telecom

Live South East Asia, Oceania & India

Optus
Telstra

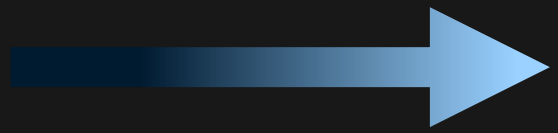
26 Live networks

81 commercial 5G agreements

*As of March 2020

5G for business: ADAS

Towards 6G



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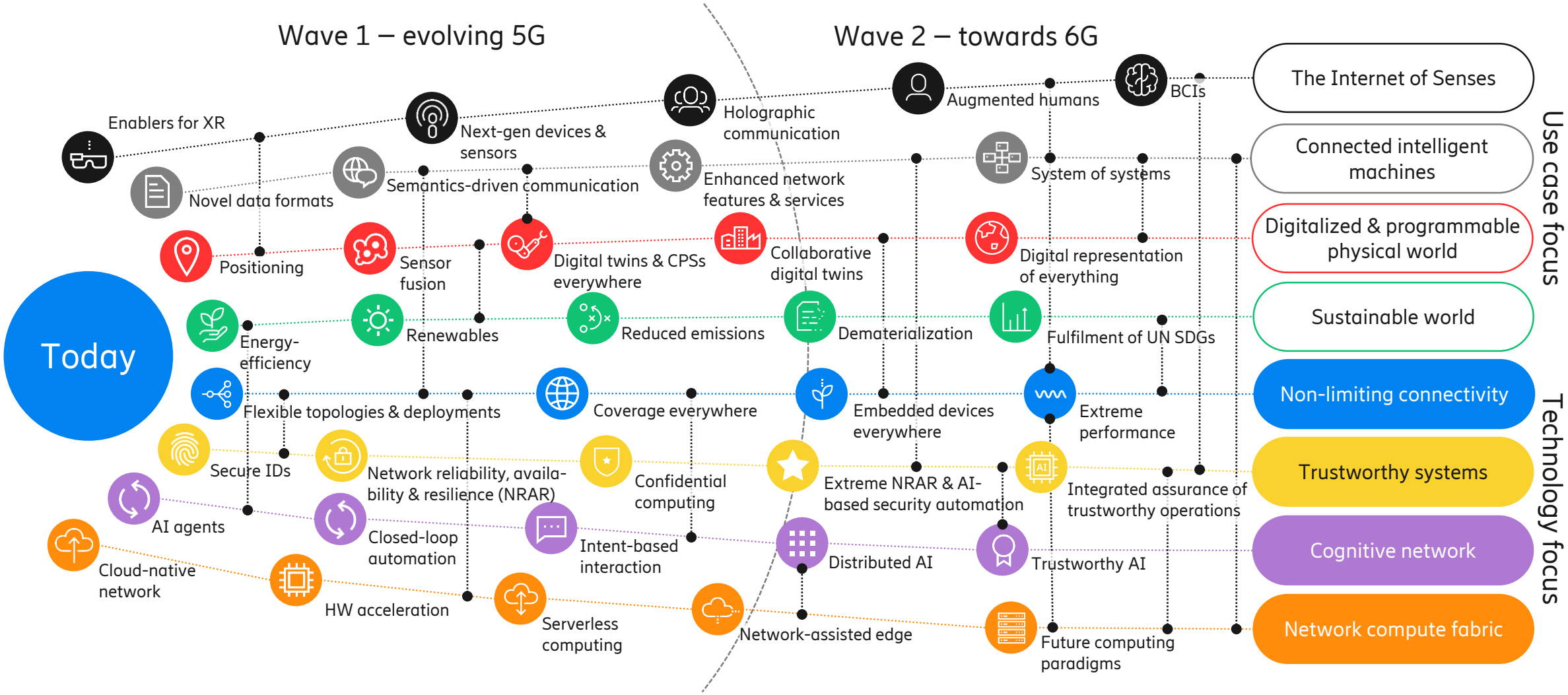
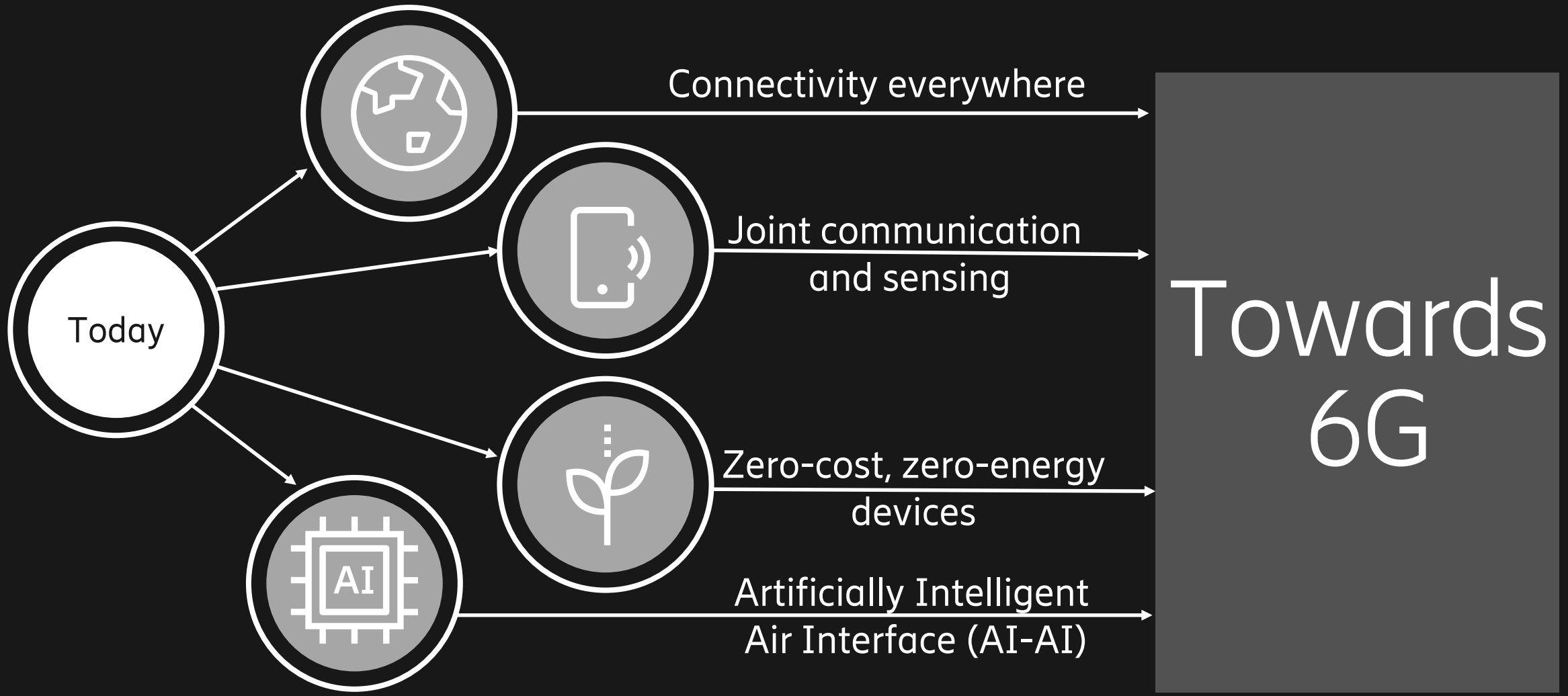
Technology journeys



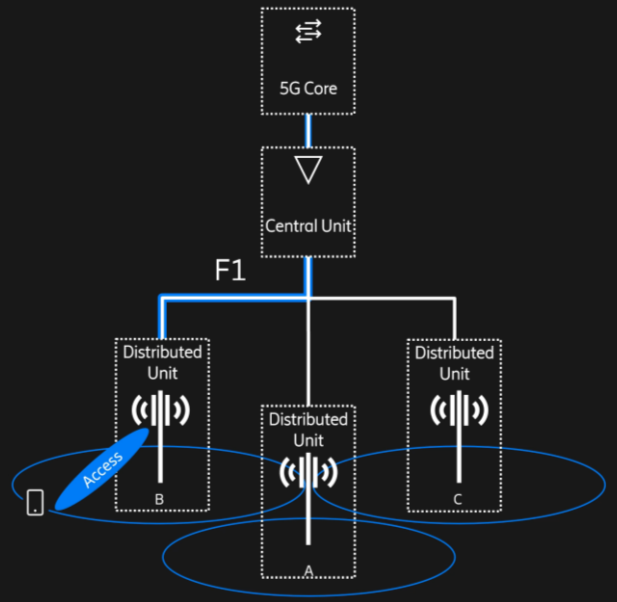
Non-limiting connectivity



Connectivity everywhere

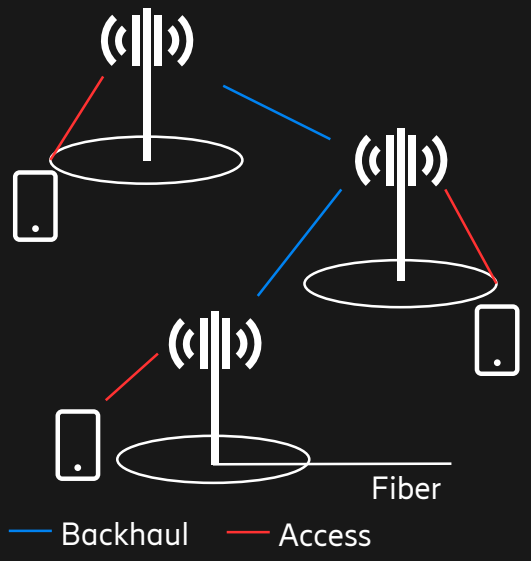
Today

Dual Connectivity
Split RAN architecture
Integrated access and backhaul (IAB)



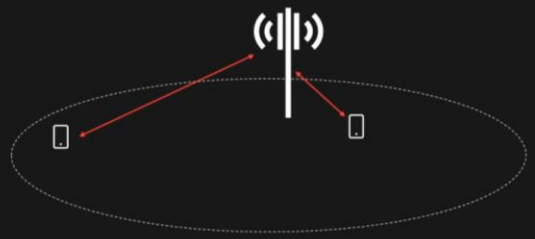
Evolving 5G

New network topologies (e.g. multi-hop IAB)
V2X



Towards 6G

Connectivity everywhere



Joint connectivity and sensing

Today

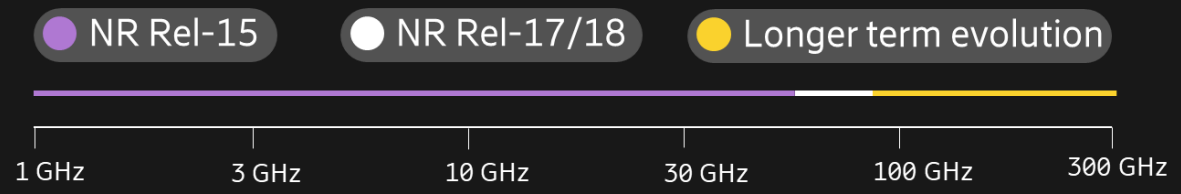
Communication up to 39 GHz

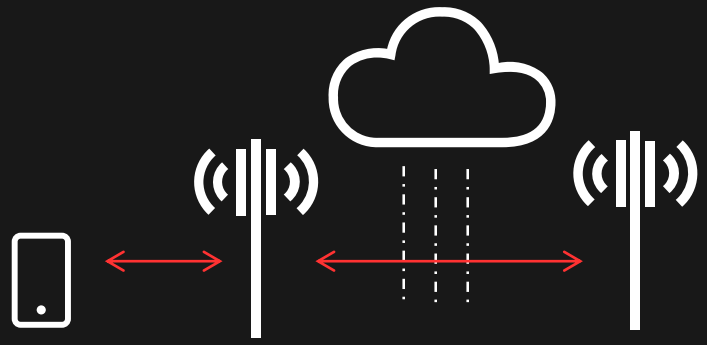
Evolving 5G

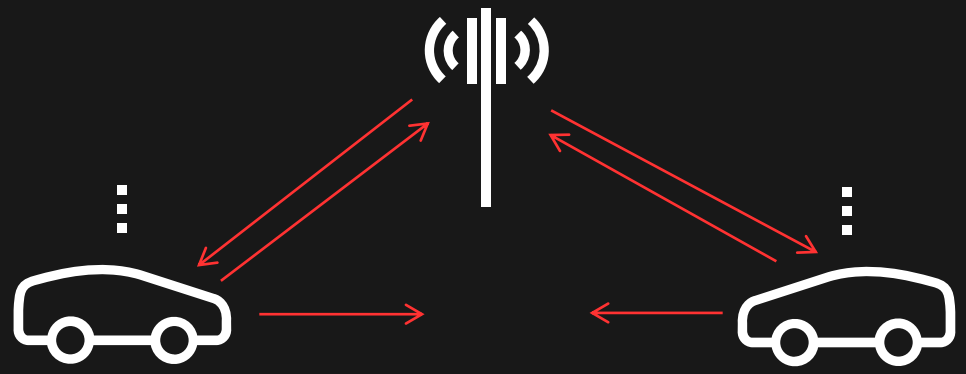
Communication up to 100 GHz
Positioning with cm accuracy

Towards 6G

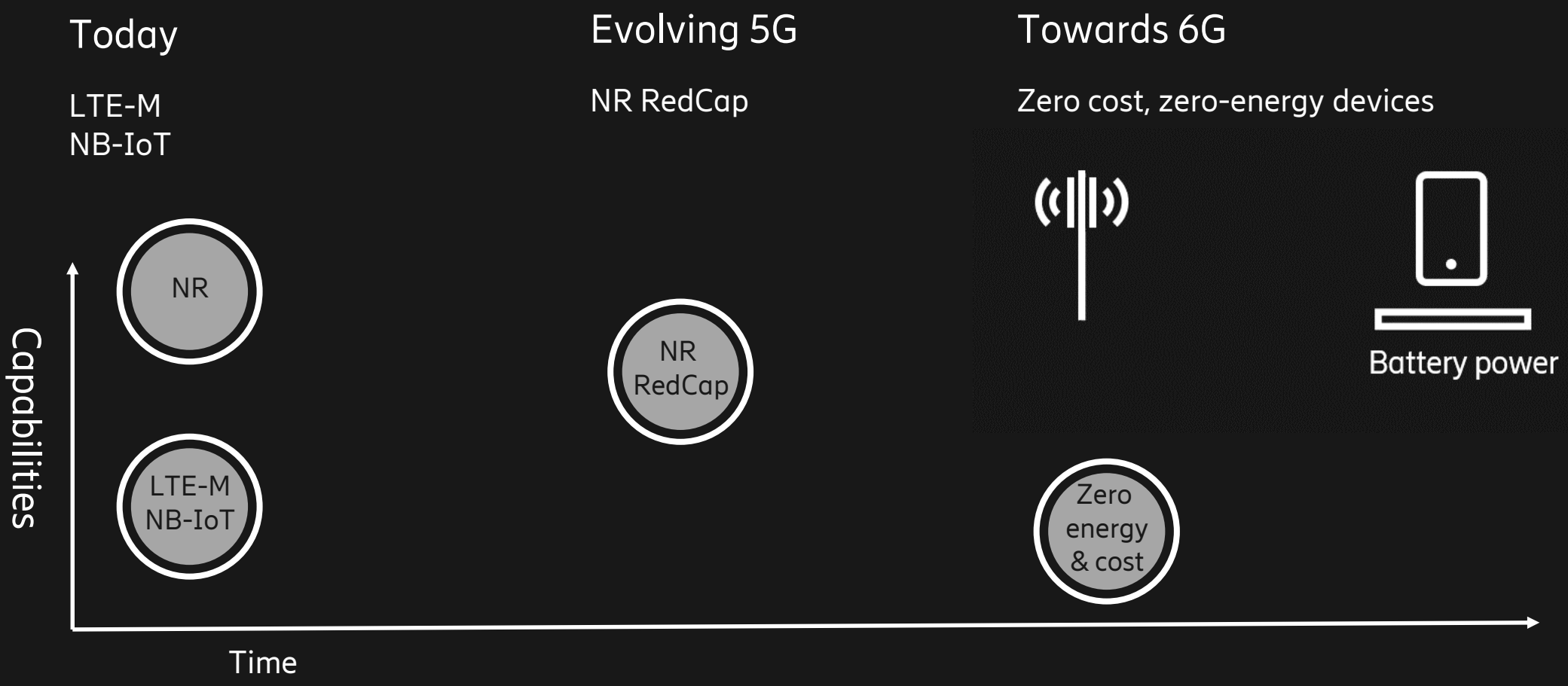
Integrated communication and sensing on frequencies up to 0.3 THz







Zero cost, zero energy devices



Artificially Intelligent Air Interface (AI-AI)

Today

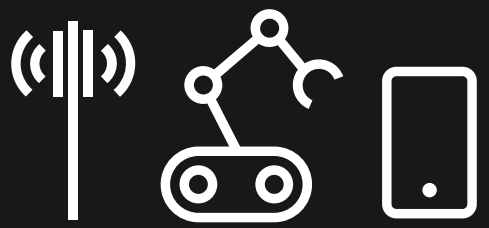
Domain specific AI

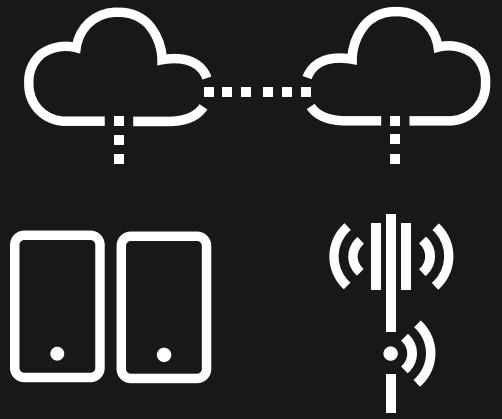
Evolving 5G

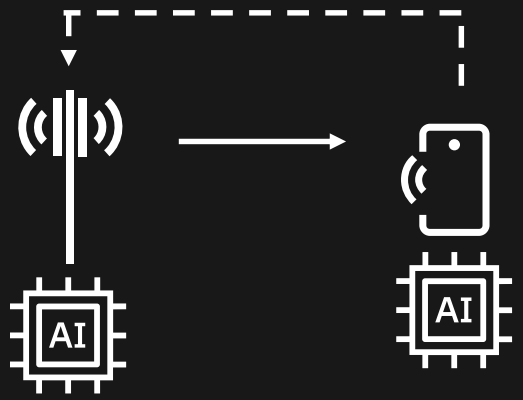
Cross domain optimization
Zero-touch

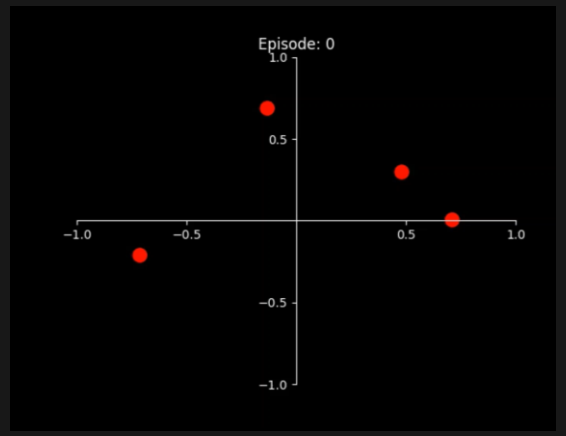
Towards 6G

Artificially intelligent air interface (AI-AI)
with self learning transmission and reception

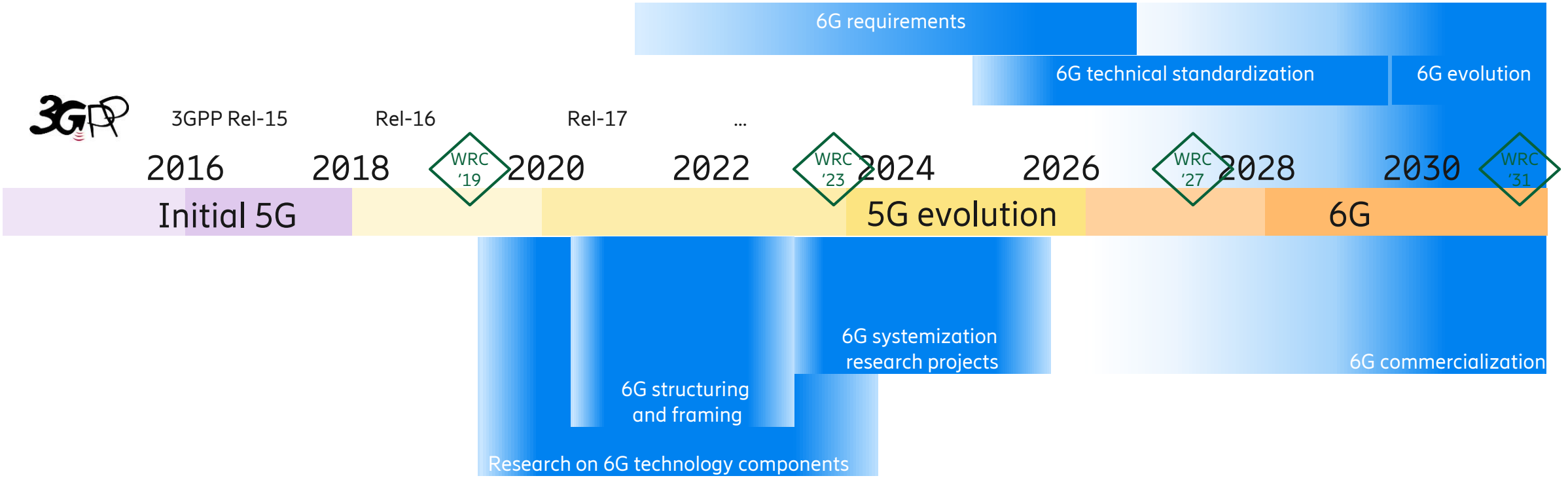






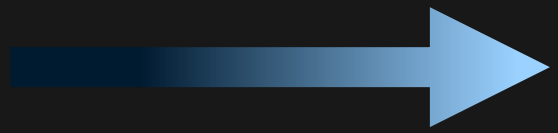
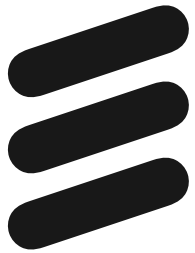


Timeline


6G requirements
6G technical standardization
6G evolution
3GPP Rel-15
Rel-16
Rel-17
...
2016
2018
WRC '19
2020
2022
WRC '23
2024
2026
WRC '27
2028
2030
WRC '31
Initial 5G
5G evolution
6G
6G systemization research projects
6G commercialization
6G structuring and framing
Research on 6G technology components

Towards 6G

5G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