

The journey towards 6G

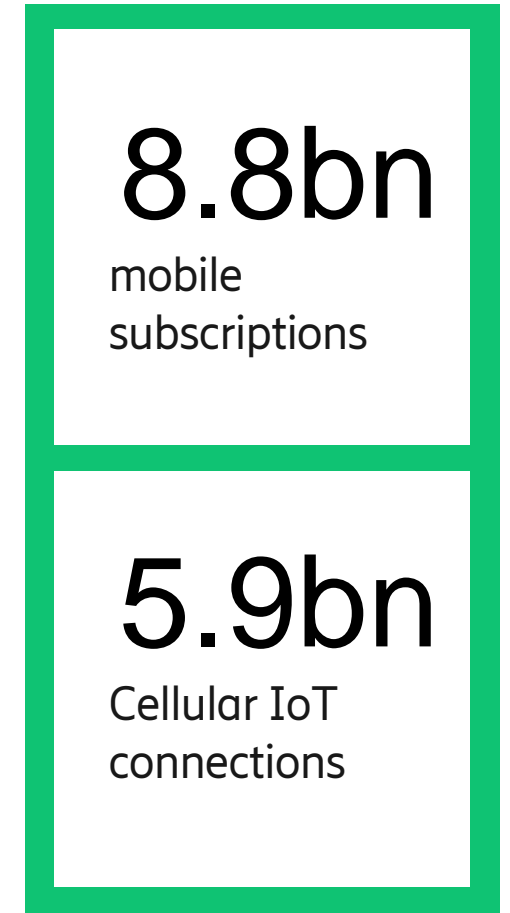
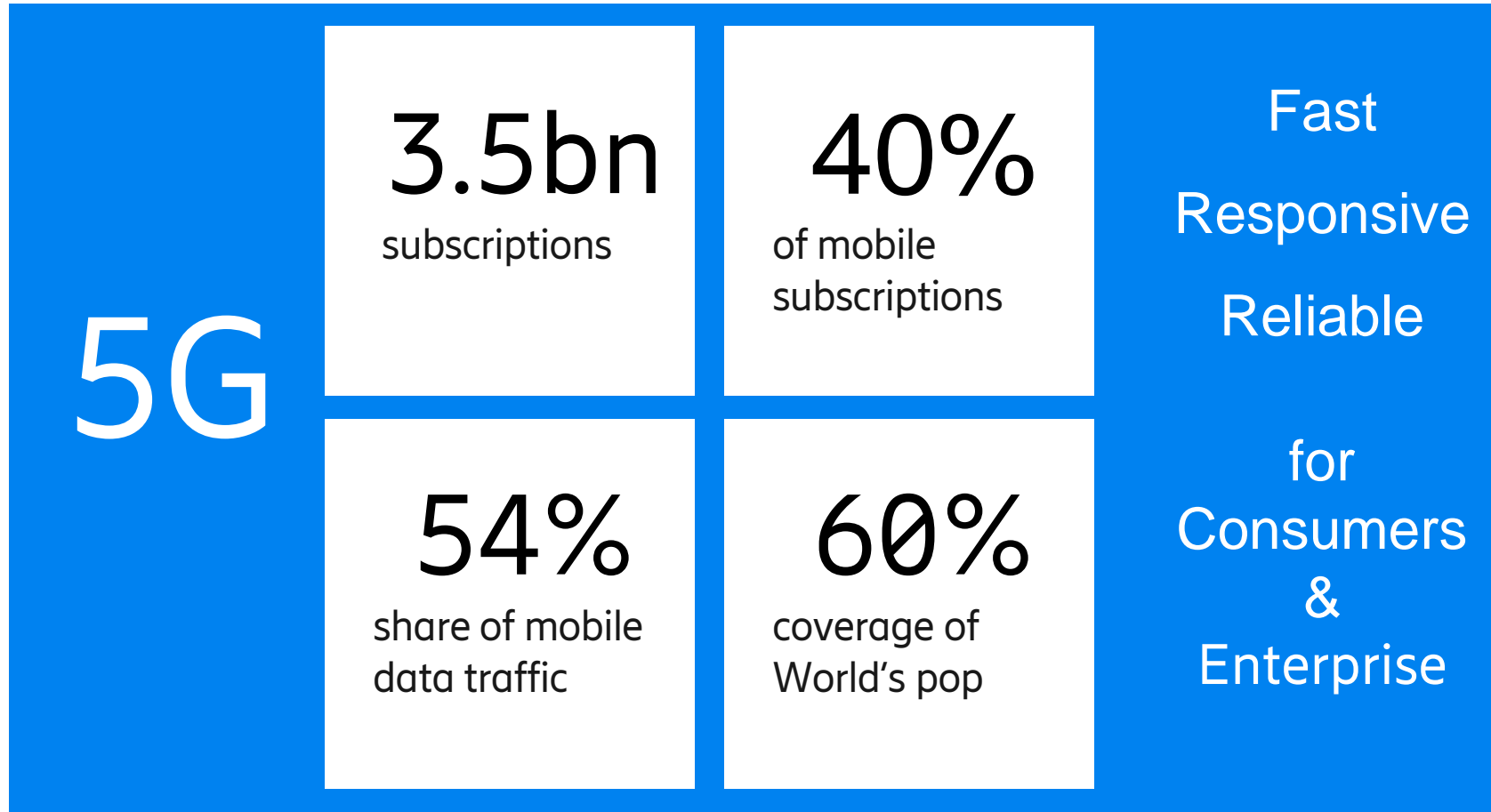


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Workshop on Synchronization and Timing Systems, March 30/31st and April 1st 2021

5G uptake faster than expected

Ericsson Mobility Report, 2026 prediction



Regional/national 6G initiatives



US

ATIS's "Next G Alliance"*



Europe

ICT-52 call – 6G flagship project
Hexa-X (Nokia, Ericsson et al)*
REINDEER*



China

IMT-2030 promotion group*
National key project – 6G part*
(driven by MOST)
6G promotion group (driven by MOST)
Future forum

Japan

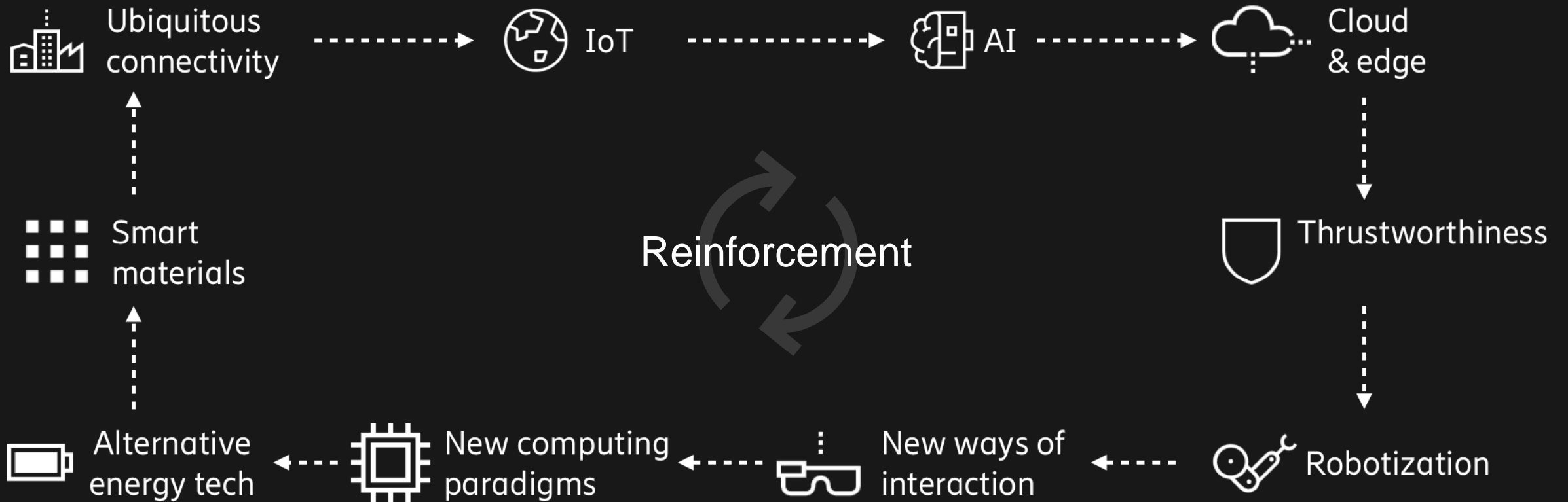
6G promotion strategy (MIC)
Innovative Optical & wireless network forum (IOWN) *

Korea

National program starting up
Decided to start 6G trials from 2026
6G commercialization in 2028

Initiatives still in a research phase

10 exponential technological forces



Technology journeys: 2030 scenarios



Use case scenarios enabled by the network platform

The Internet of Senses



Connected Intelligent Machines



Digitalized & programmable physical world



Connected sustainable world



Use case focus

Limitless connectivity



Trustworthy Systems



Cognitive network



Network compute fabric



Technology focus

Technology scenarios evolving the network platform



Technology journeys towards 6G



Towards Sync and Timing in 6G



Radio-centric sync

- Move focal point of sync closer to the antenna – where sync is needed
- Relax requirements on Packet Fronthaul PTP
- Relax requirements on Cloud

Over the air sync (OTA Sync)

- IAB and 6G Mesh
- TDD operation in FR2, THz
- Enables better accuracy and self-configuration of the CUS-plane

Agile 6G Sync and Timing systems

- Tradeoff between cost of sync accuracy and cost of user bandwidth.
- Technology evolution of time distribution systems.
- High accuracy solutions only where cost justified. E.g Industrial IoT
- Radio coordination, multi-TRP, and D-MIMO

Synchronization for new 6G applications



Smart industry

Time-sensitive networking



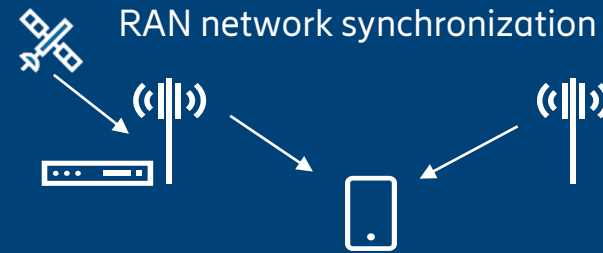
Smart Cities

Positioning/Sensing



Smart power grids

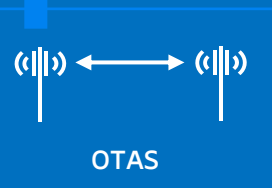
RAN network synchronization



Solution toolbox for network synchronization



GNSS



OTAS



Frequency over transport

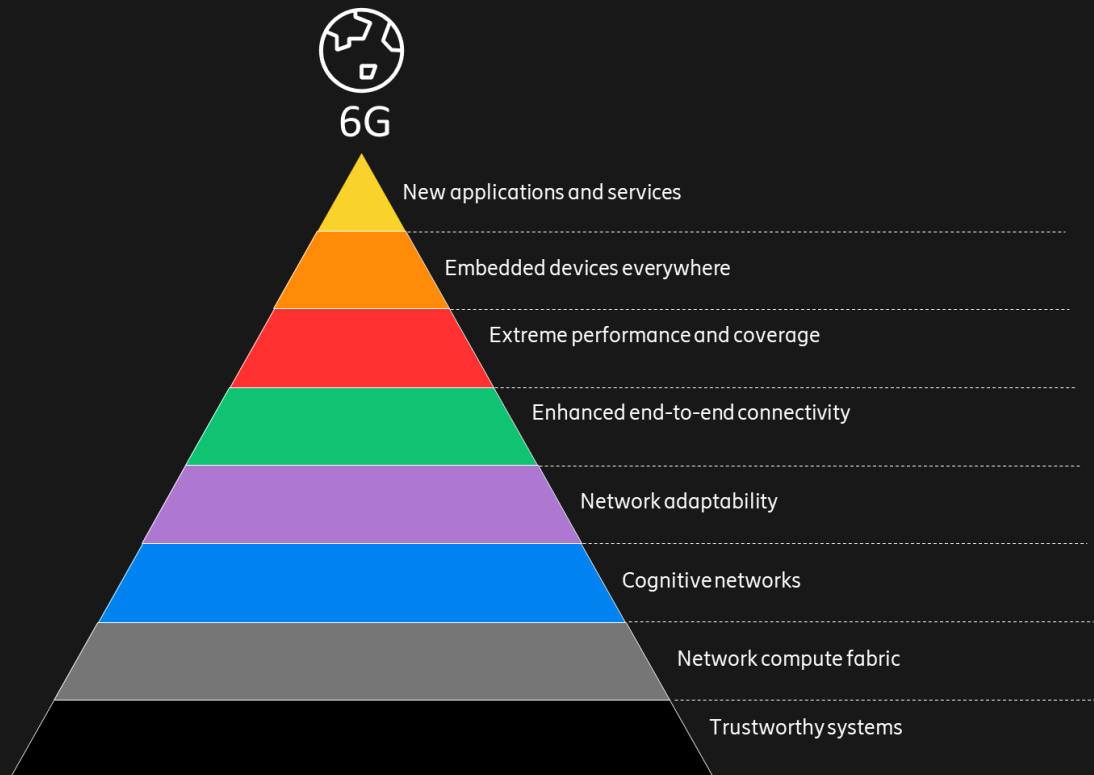


Time/phase over transport



Clocks

6G white paper



Ericsson whitepaper
GFTL ER
November 2020



Ever-present
intelligent
communication –
A research outlook
towards 6G

References

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ericsson.com/future-technologies