

13 August 2018

Singapore

Qualcomm

Qualcomm Introduction

Alex Orange

Leading mobile innovation for over 30 years

Digitized mobile communications



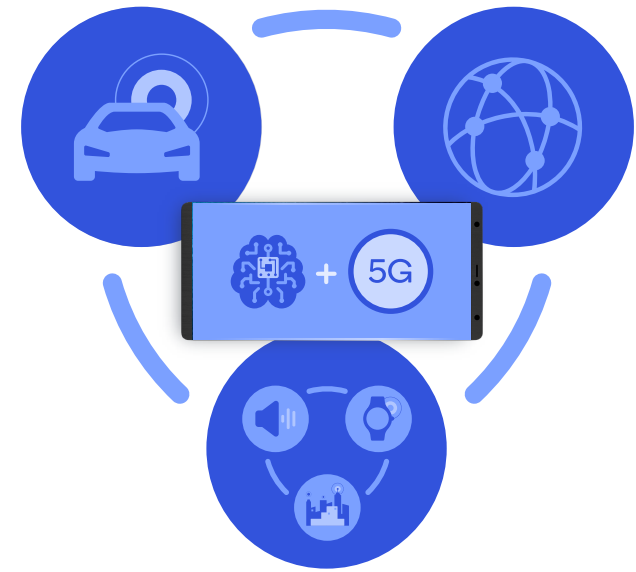
Analog to digital

Redefined computing



Desktop to smartphones

Transforming industries



Connecting virtually everything

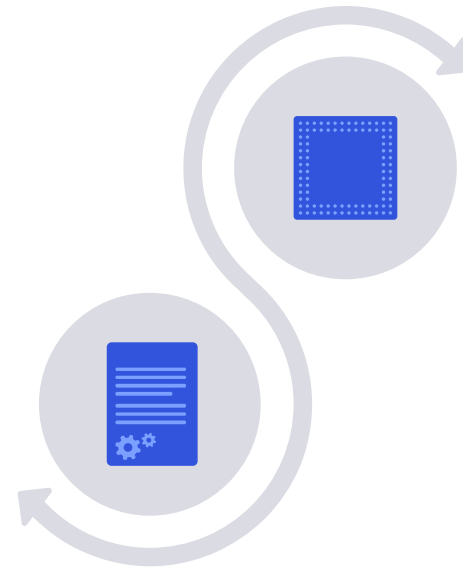
Redefining how the world connects, computes and communicates

Qualcomm business model



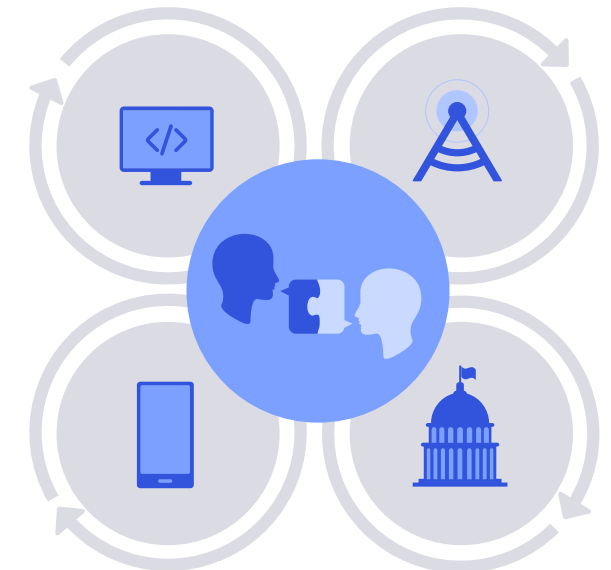
Invent

Passionately engineering
new technologies



Share

Proliferating with
licensing and chipsets



Collaborate

Supporting implementation
across the ecosystem

Using all available spectrum types and spectrum bands

Licensed spectrum

Exclusive use

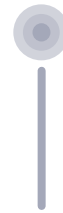
Over 40 bands globally for LTE



Shared spectrum

New shared spectrum paradigms

Example: 2.3 GHz Europe / 3.5 GHz USA



Unlicensed spectrum

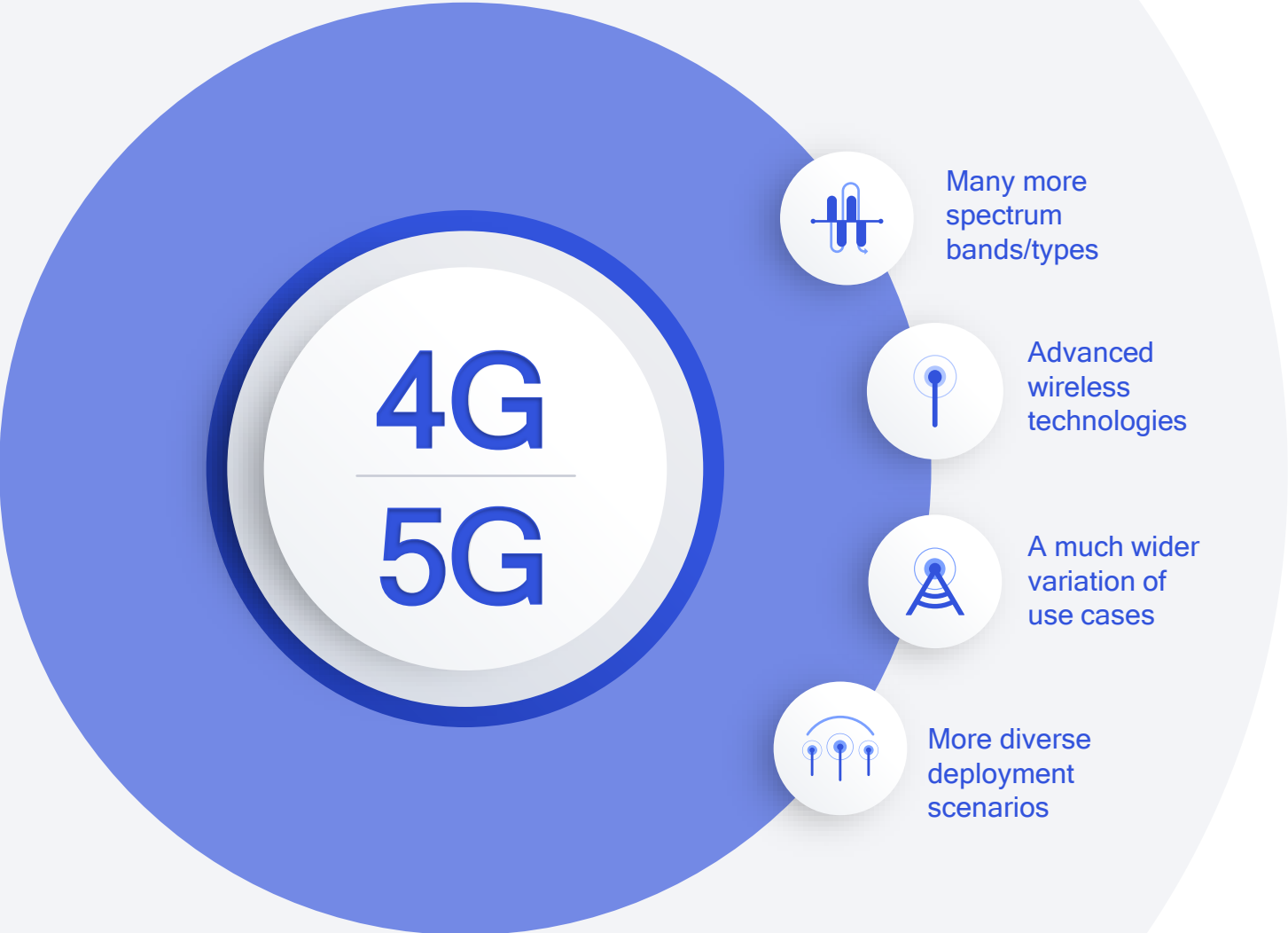
Shared use

Example: 2.4 GHz / 5 GHz / 60 GHz global



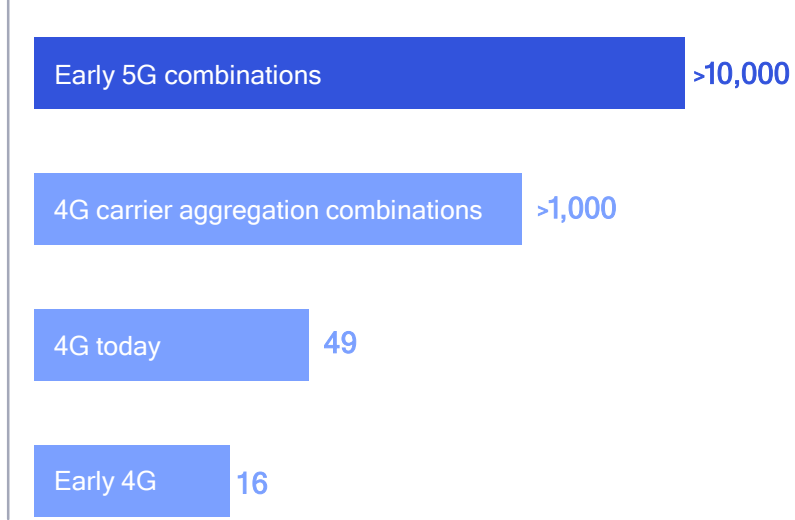
Complexity of mobile RF systems is accelerating

Multi-mode 4G/5G impacts RF-Front End design



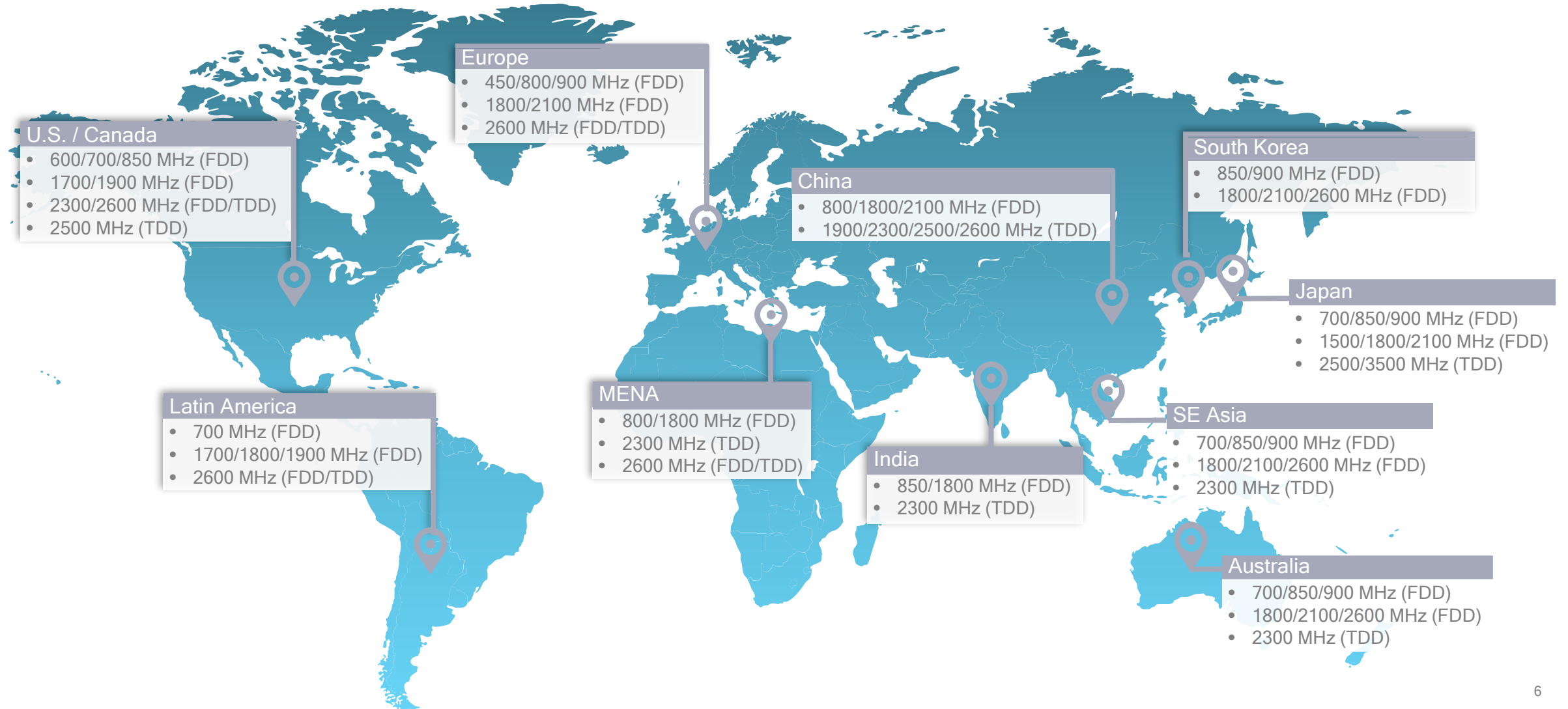
Number of RF bands and band combinations

By technology generation



Global 4G LTE spectrum landscape

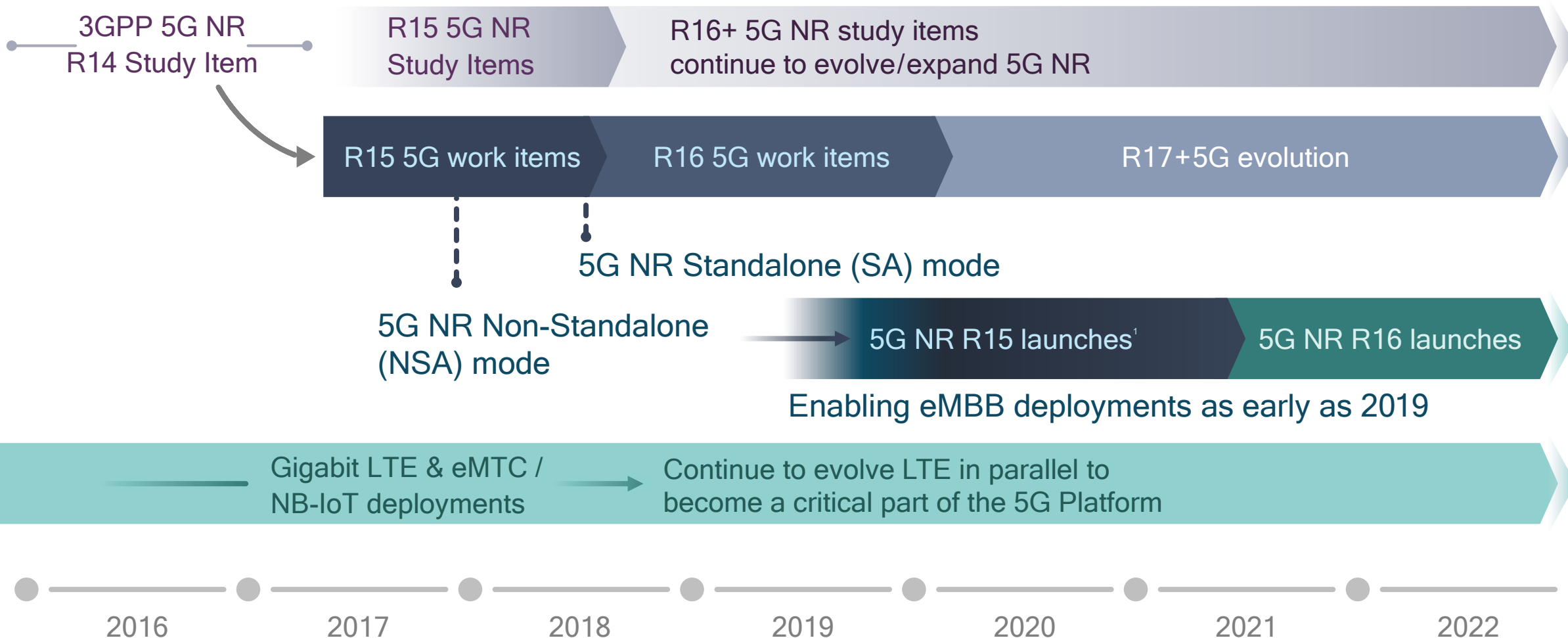
Over 1,000 band combinations now supported for LTE





Accelerating 5G NR - the global 5G standard

To meet the global demand for enhanced mobile broadband

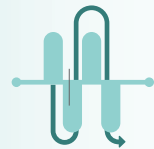


1. Forward compatibility with R16 and beyond

5G NR

5G NR will natively support all different spectrum types

NR shared spectrum will support new shared spectrum paradigms



Licensed Spectrum

Exclusive use



Shared Spectrum

New shared spectrum paradigms



Unlicensed Spectrum

Shared use

High bands above 24 GHz (mmWave)
Extreme bandwidths

Mid bands 1GHz to 6 GHz
Wider bandwidths for e.g. enhanced mobile broadband & mission-critical

Low bands below 1 GHz
Longer range for e.g. mobile broadband and massive IOT



Thank you

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