

CELLULAR IoT EVOLUTION FROM 2G TO 6G

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ROHDE & SCHWARZ

Make ideas real



SONY

Cellular IoT Evolution: From 2G to 6G

Rohde & Schwarz Mobile Test Summit

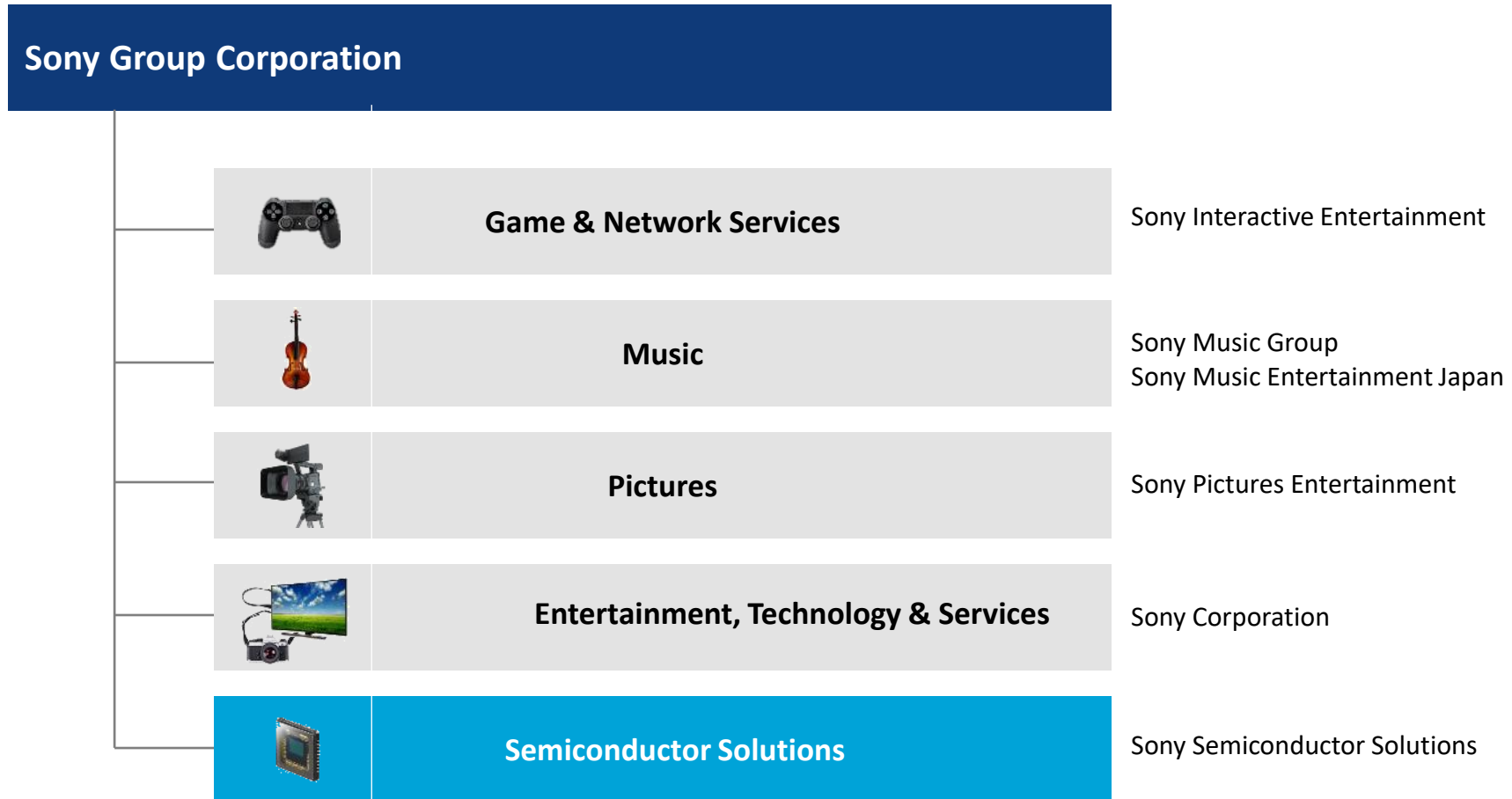
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The Sony Group



What is Cellular IoT



Point Of Sale



Smart Metering



Trackers and Telematics

TN + NTN



Healthcare



Smart Cities

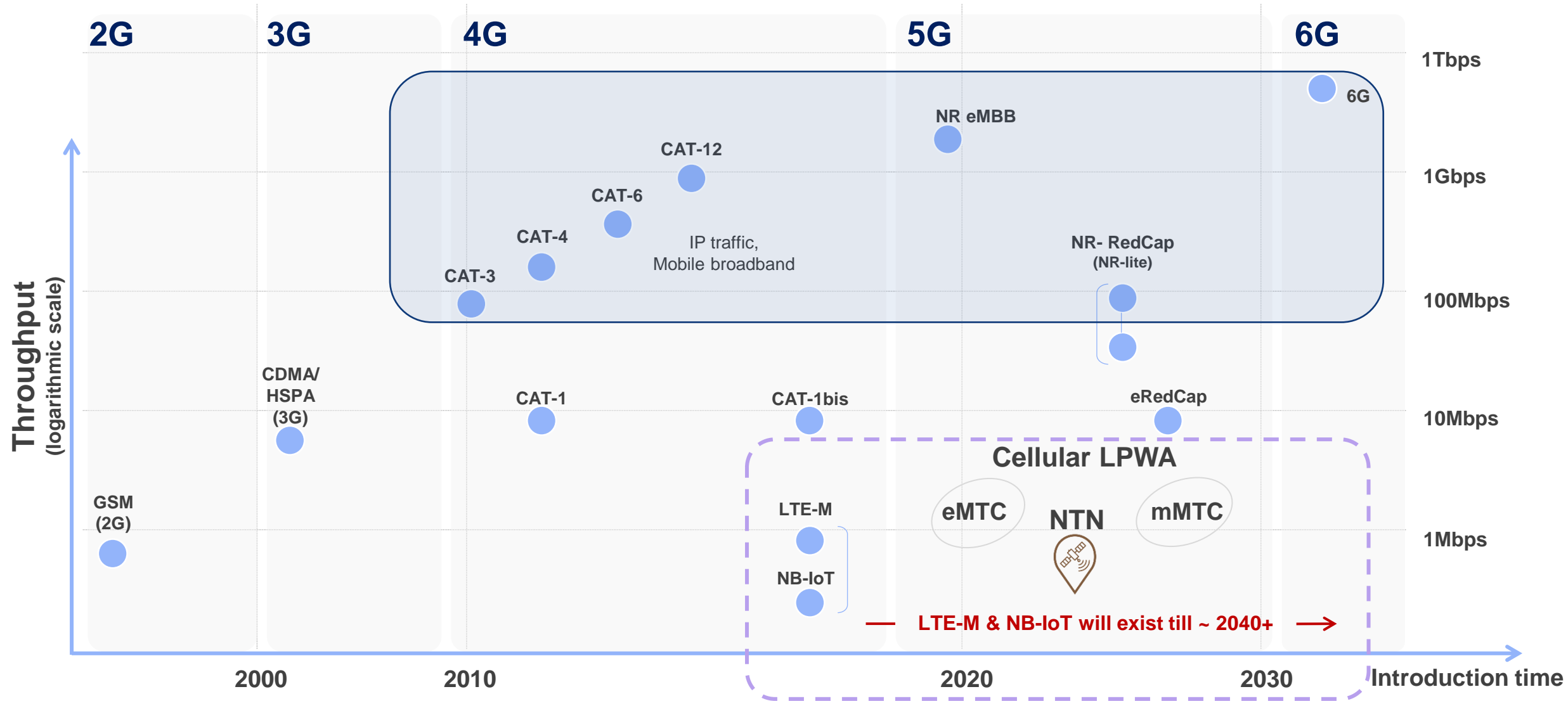


Agriculture

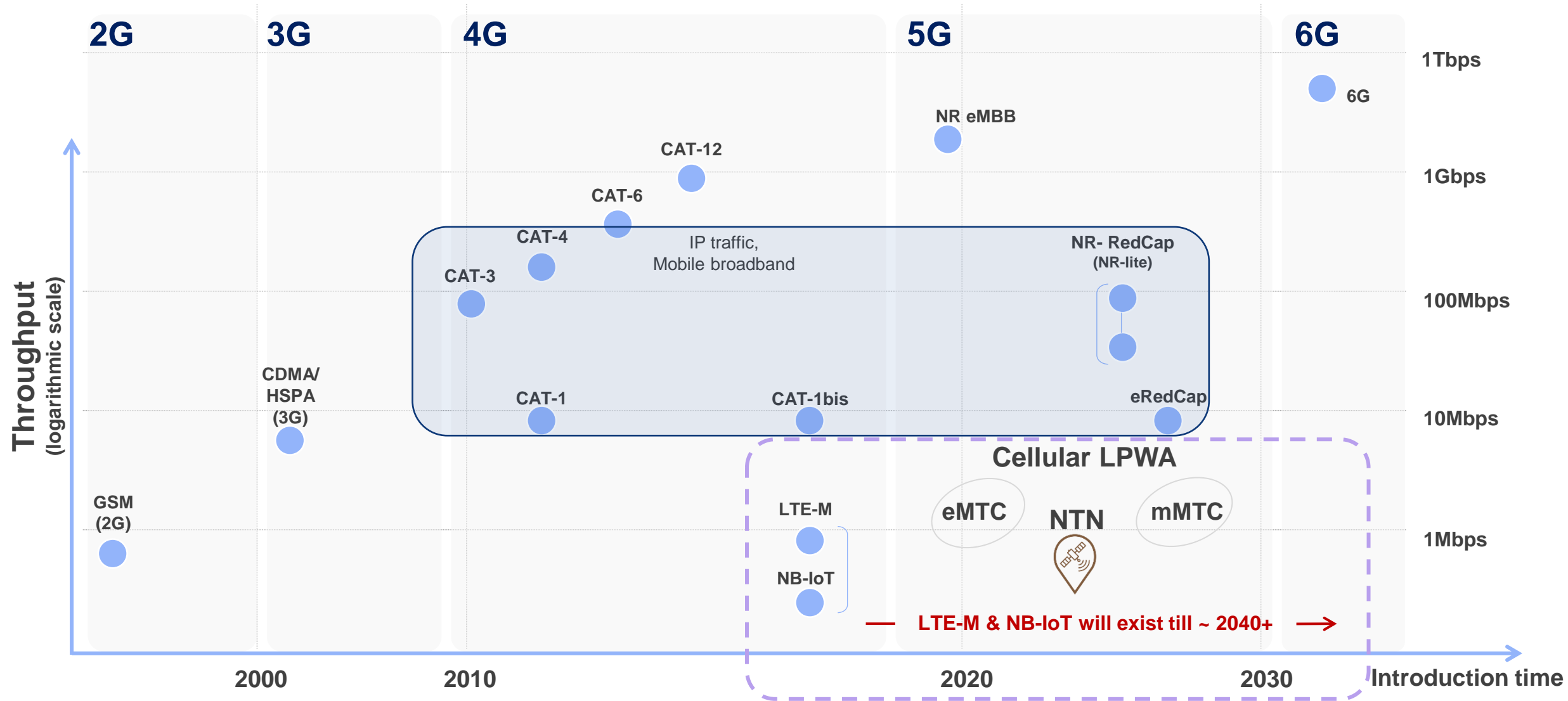


Consumer Electronics

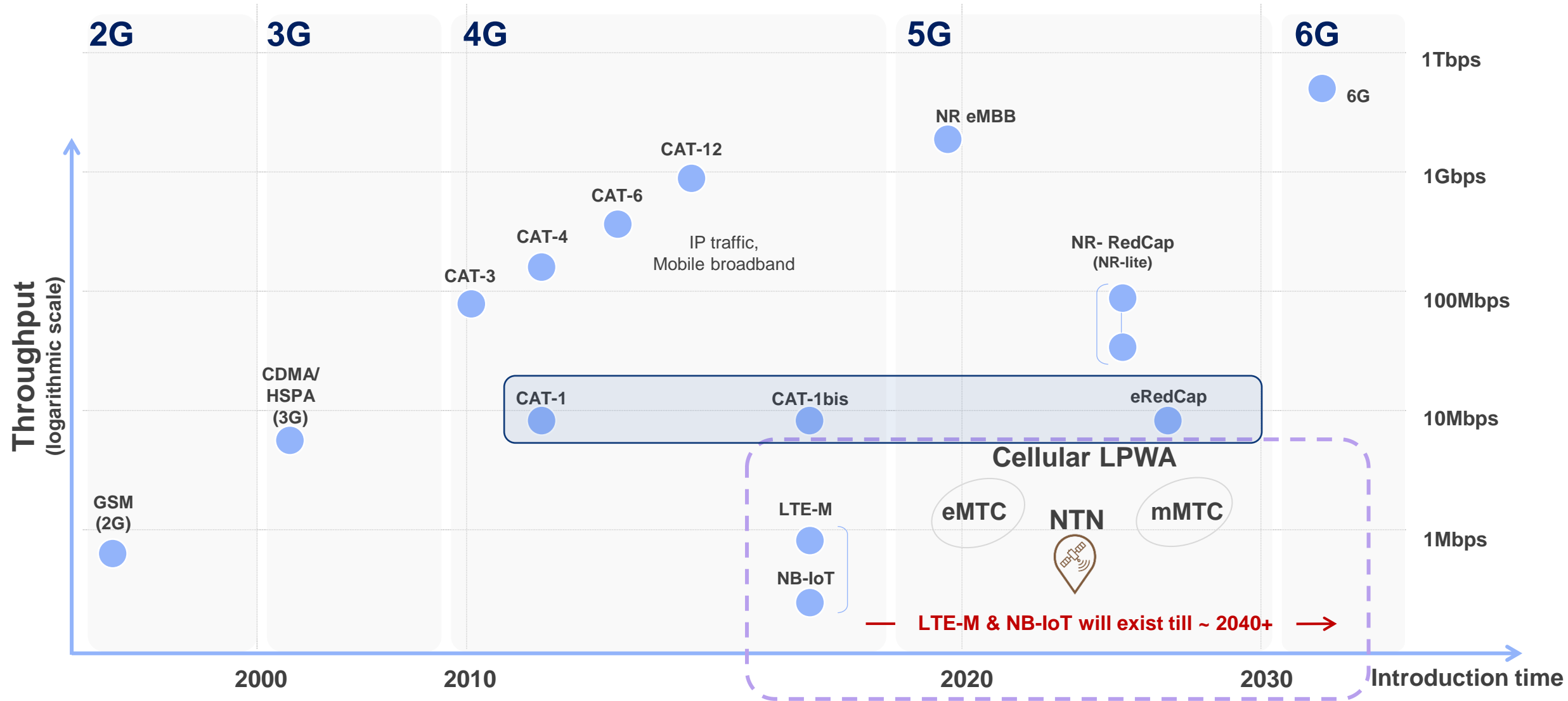
Cellular Technology Evolution



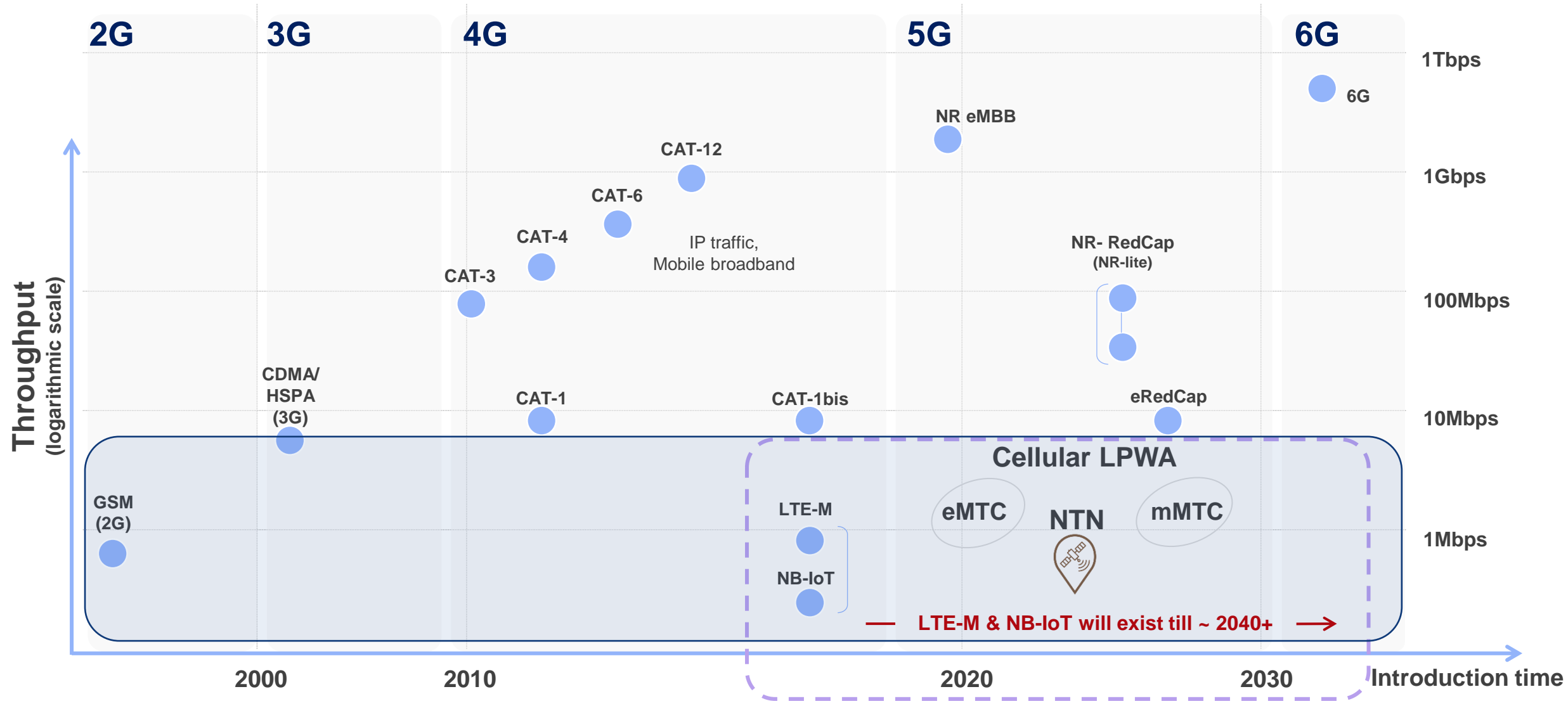
Cellular Technology Evolution



Cellular Technology Evolution



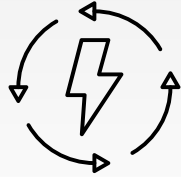
Cellular Technology Evolution



Cellular IoT KPIs for scale



Cost



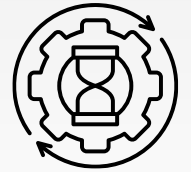
**Power
Consumption**



Coverage



**Global
Operation**



Longevity

Cost: High integration, fewer external components lowering BOM (Bill Of Material) cost

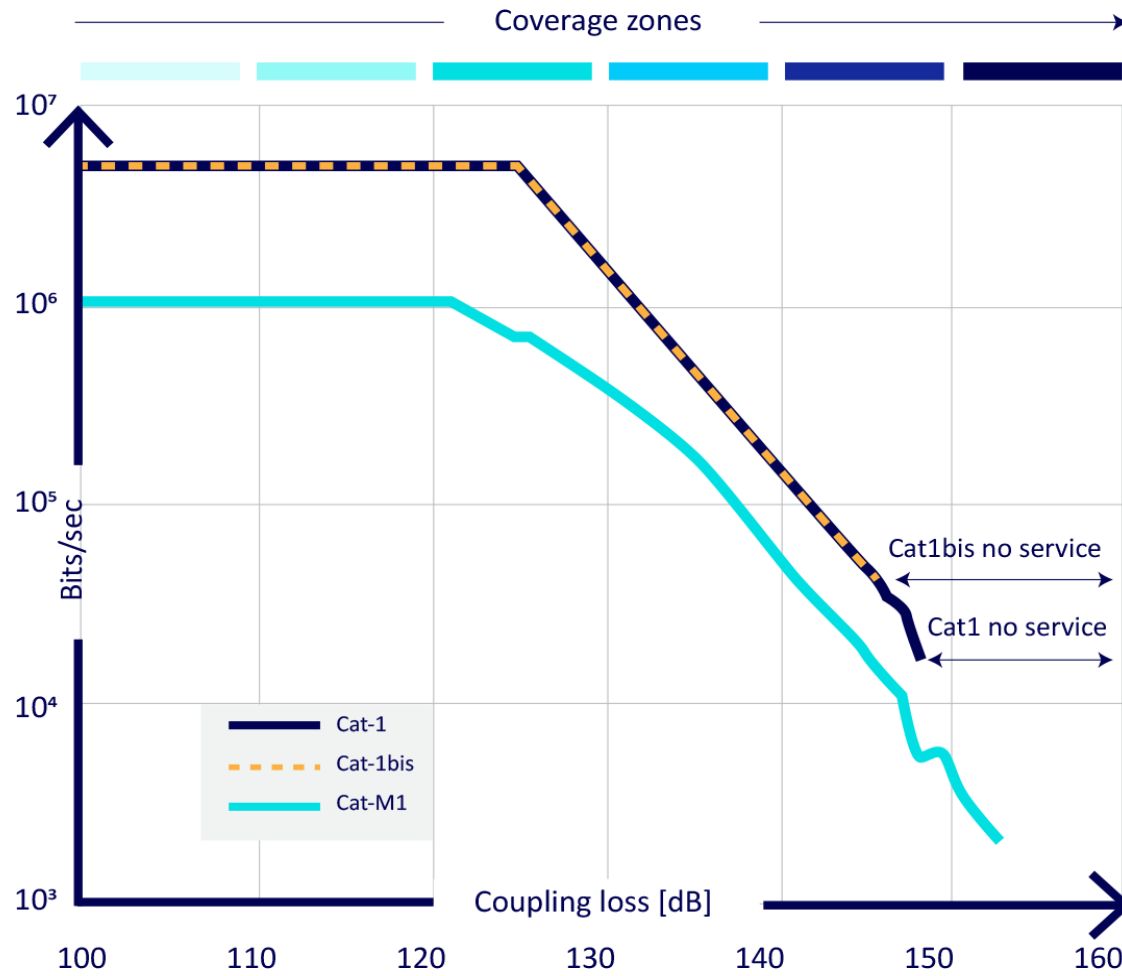
Power Consumption: Lower power consumption → longer battery life

Coverage / Performance: Reliable data transmission at lower throughput with global roaming agreements

Longevity: Devices operation beyond 15 years in a field

Global Operation: Single hardware SKU for global deployment, fast TTM and operational complexity reduction

Coverage vs RAT

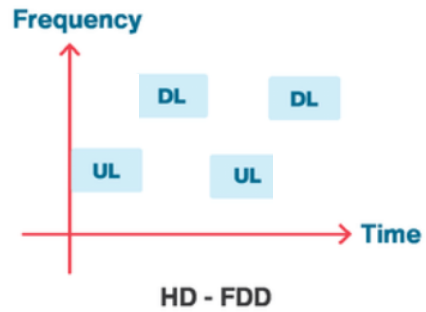


Radio Technology	Network Coverage
CAT 1.bis	-4dB (degradation due to single antenna)
CAT 1	baseline
LTE-M/NB-IoT	+5db (improvement in CE Mode A)

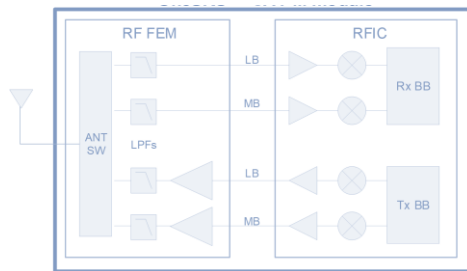
- LTE-M gains 9db coverage improvement comparing to CAT1.bis.
- At harsh network environment - cell edge, indoor, basement - CAT1.bis device may experience no communication with the network

Global connectivity vs Cost vs Communication technology

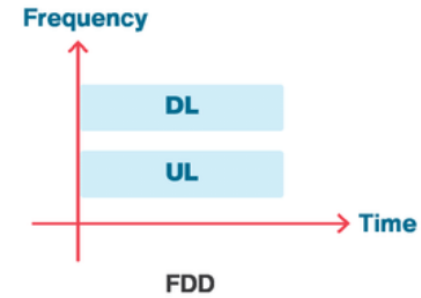
HDFDD - OneSKU



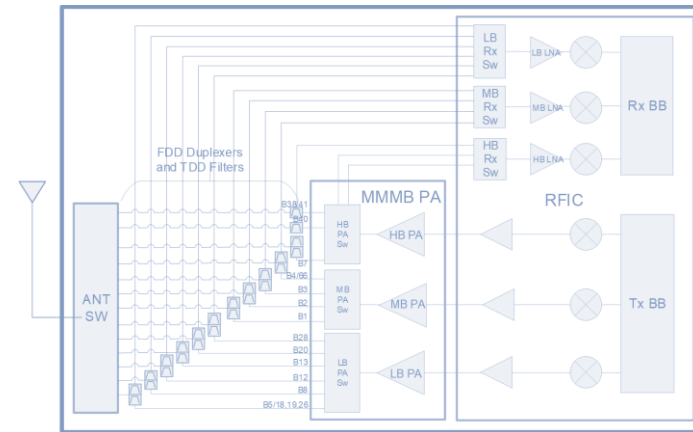
LTE M/ NB-IoT / eRedCAP



FD-FDD Global SKU



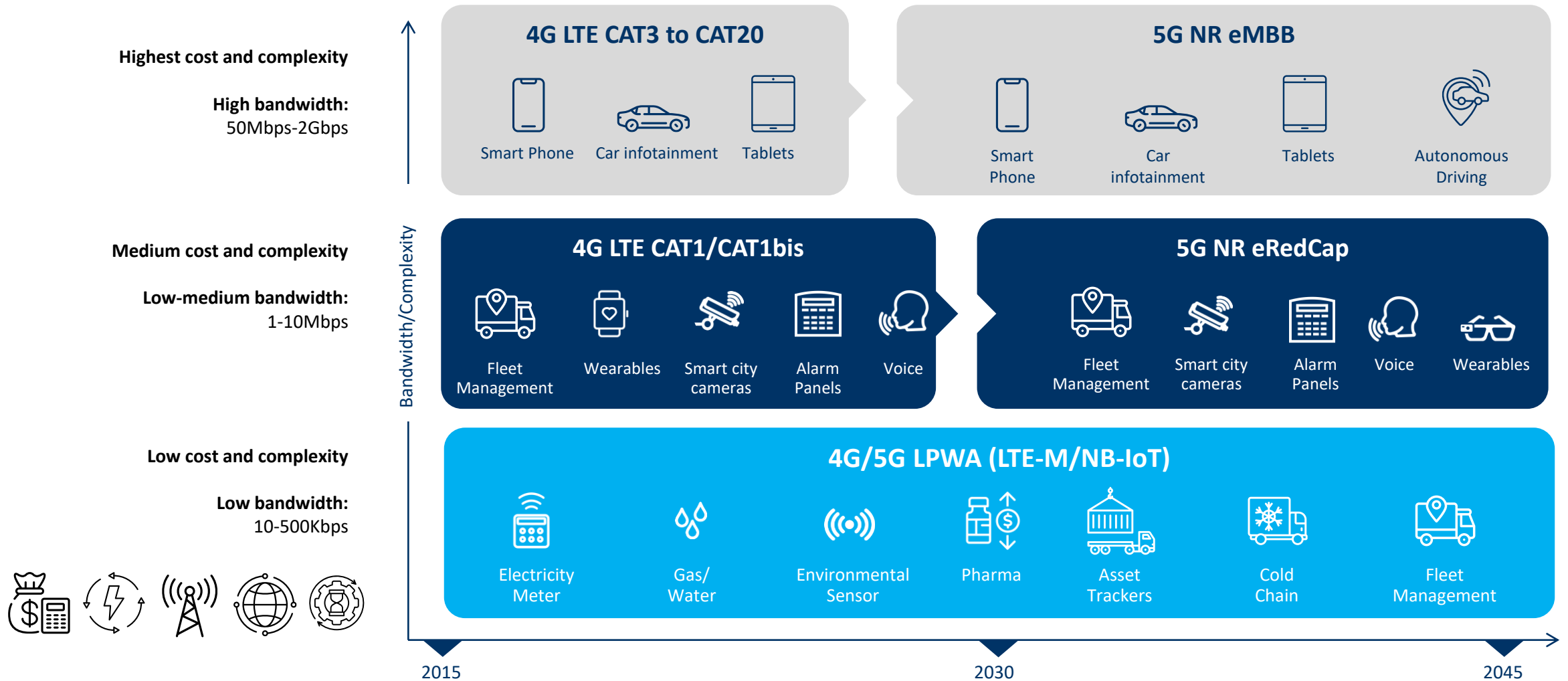
CAT1, CAT1bis, Redcap



Simple and lower cost HW design to support a One global SKU

Cellular technologies direction

LTE-M and NB-IoT are part of the 5G ecosystem, Cat1/Cat1.bis will be replaced by 5G NR eRedCap



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Test. Measure. Innovate

THANK YOU
VERY MUCH

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