



SMALL CELLS WORLD CONGRESS 2024

Are we making sustainable progress?

Neil J. McRae

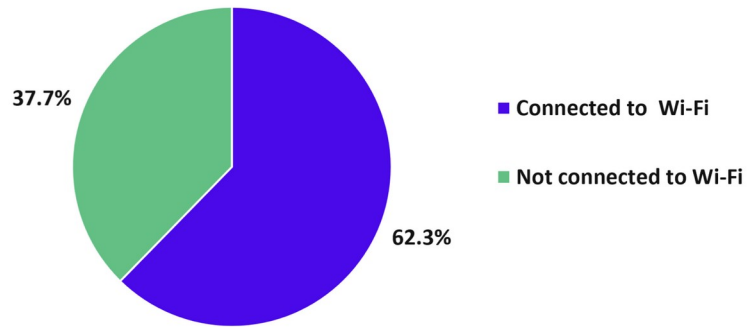


BIO

- Worked in Internet and Telcos since 1990
- Demon, Easynet, COLT, C&W/Voda, BT, LINX, Juniper, DGP, Tarana Wireless.
- UKTIN
- Gamer – Fortnite and Pinball.
- My purpose is to get people connected.

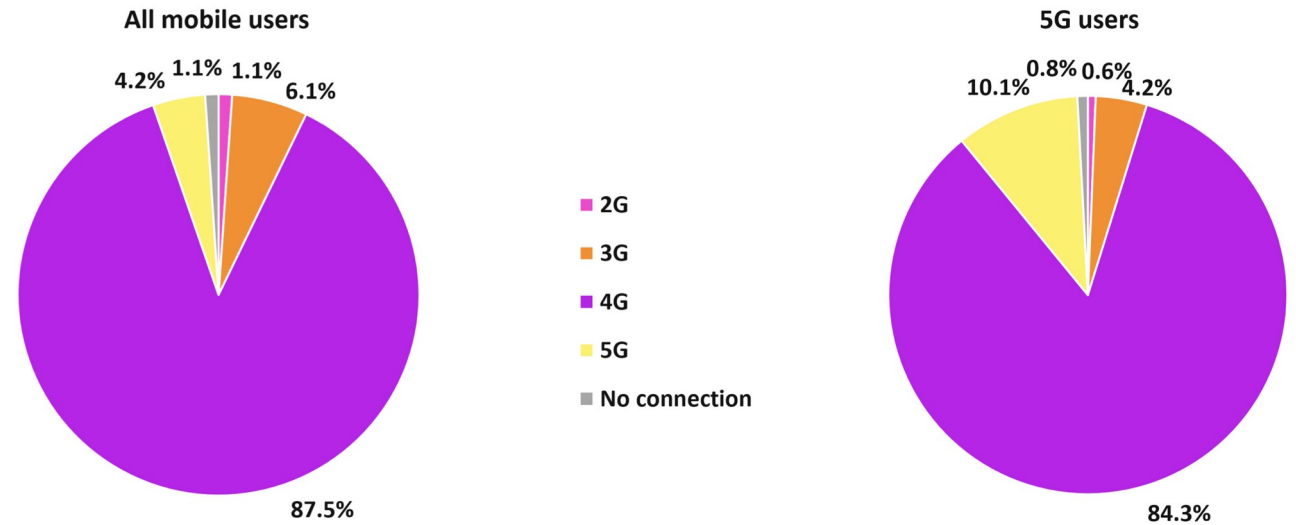
THE UNVARNISHED TRUTH

Figure 1: Average (mean) proportion of time spent connected to Wi-Fi (%)



Source, Ofcom, using crowdsourced data provided by Opensignal; October 2022 to March 2023 data.

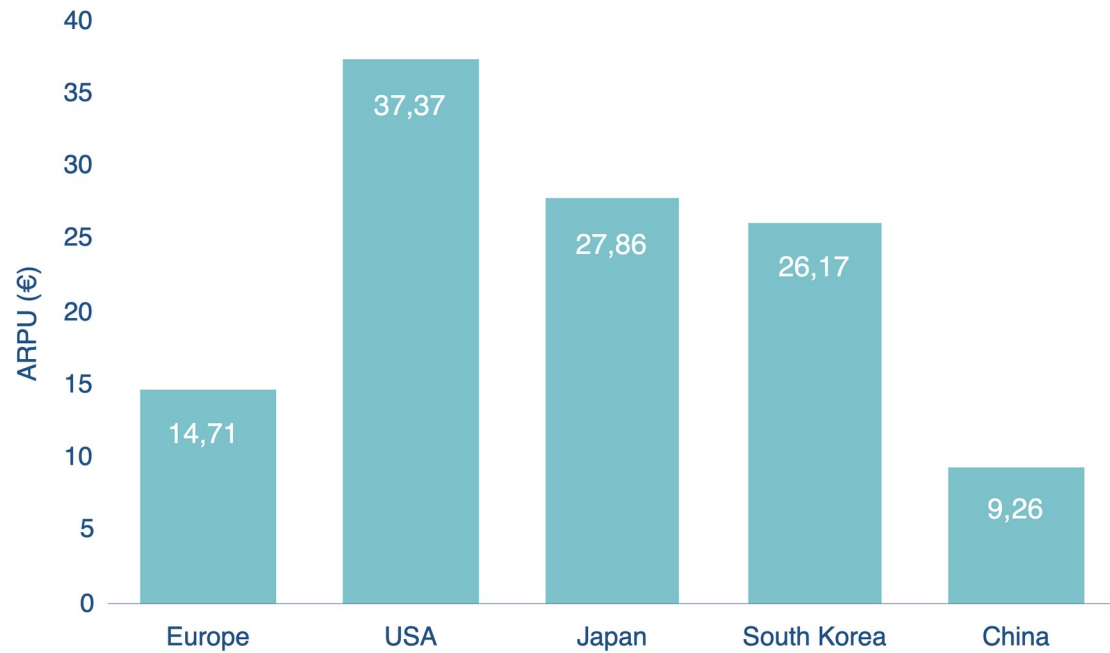
Figure 2: Average (mean) network share by cellular technology, all mobile users and 5G users



Source: Ofcom, using crowdsourced data provided by Opensignal; October 2022 to March 2023 data.

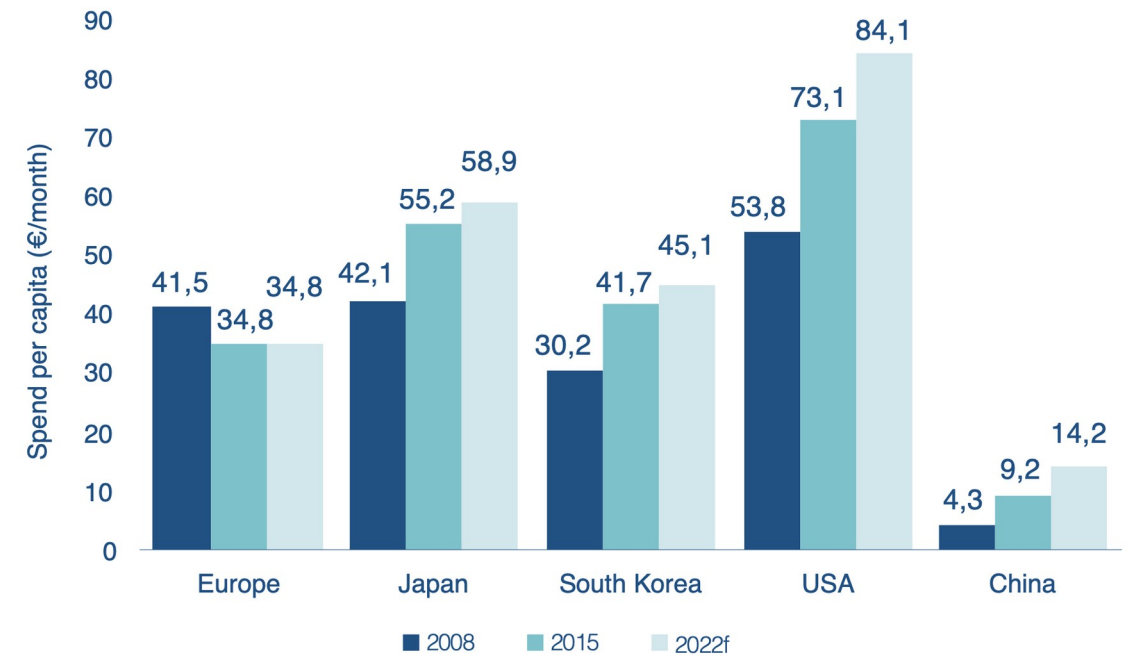
THE UNVARNISHED TRUTH

FIG 1.8 : Mobile ARPU (excluding from IoT SIMs), China, Europe, Japan, South Korea and the USA, 2021



Source: Analysys Mason, 2022

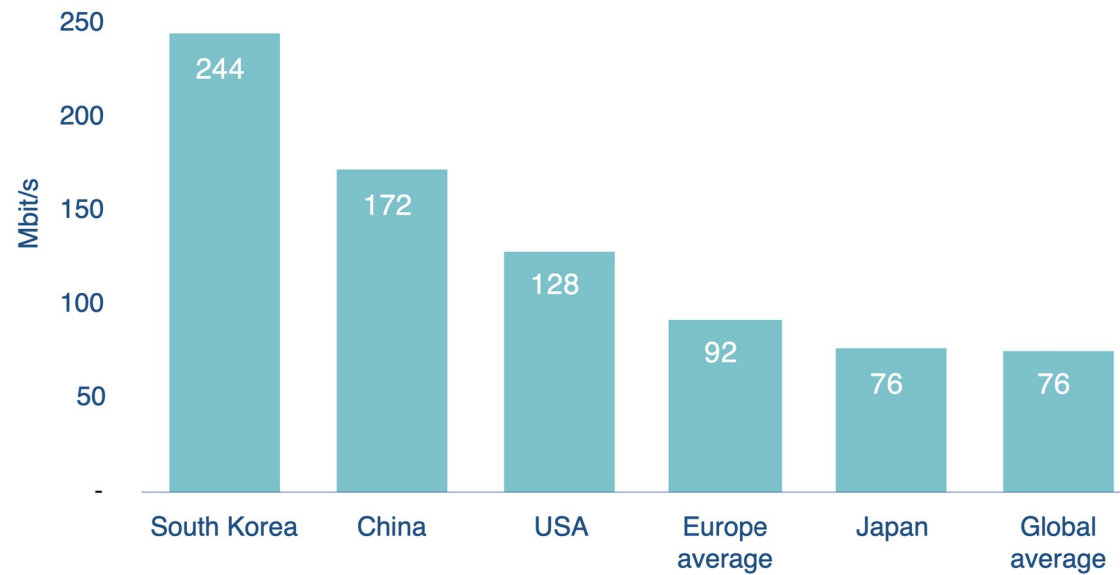
FIG 1.11 : Average spend per capita on mainstream telecoms, China, Europe, Japan, South Korea and the USA, 2008, 2015 and 2022f



Source: Analysys Mason, 2022

THE UNVARNISHED TRUTH

FIG 1.7 : Average mobile downlink speeds, China, Europe, Japan, South Korea and the USA, 2022



Source: Ookla, 2022

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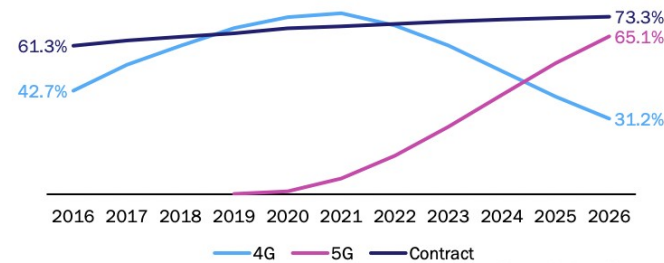
Global telecoms market: trends and forecasts 2021–2026

6

Western Europe: mobile

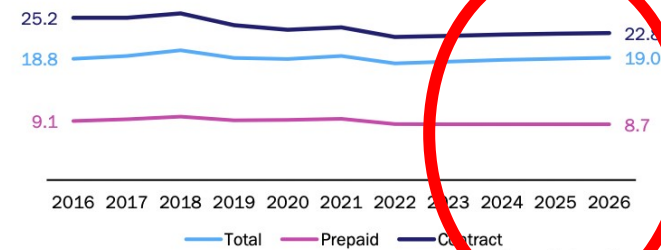


Figure 29: 4G, 5G and contract share of mobile connections, Western Europe, 2016–2026



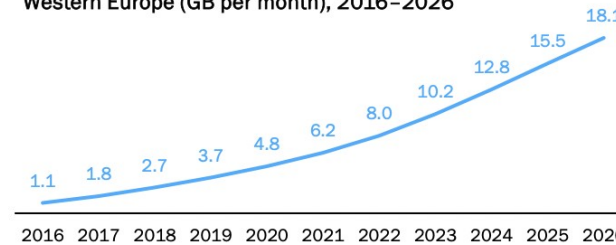
Source: Analysys Mason

Figure 30: Mobile ARPU by plan, Western Europe (USD per month), 2016–2026



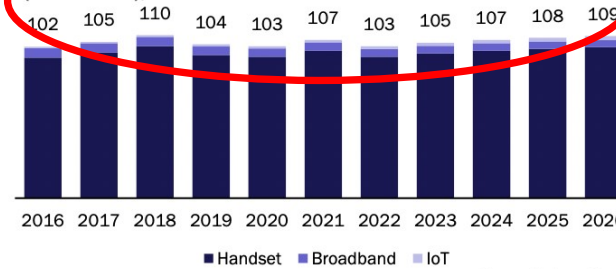
Source: Analysys Mason

Figure 31: Cellular data traffic per handset connection, Western Europe (GB per month), 2016–2026



Source: Analysys Mason

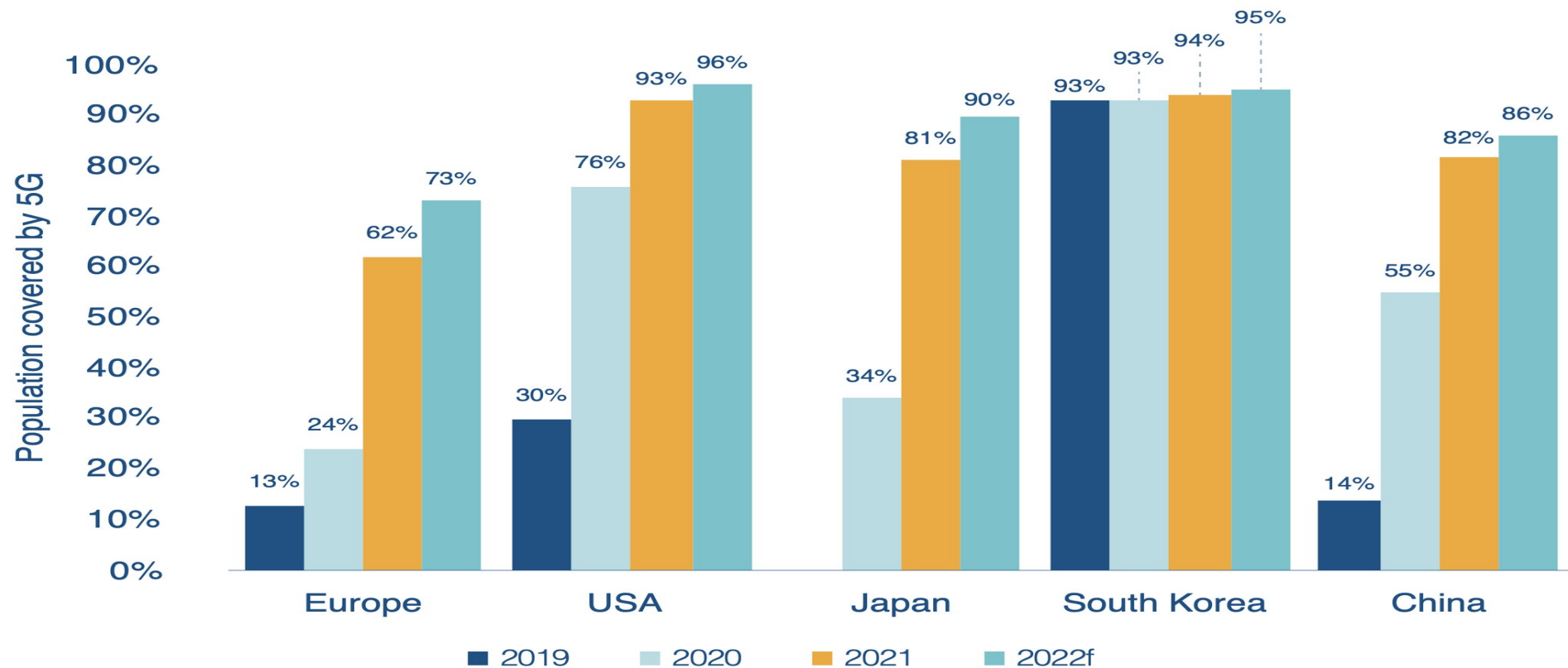
Figure 32: Mobile retail revenue by service, Western Europe (USD billion), 2016–2026



Source: Analysys Mason

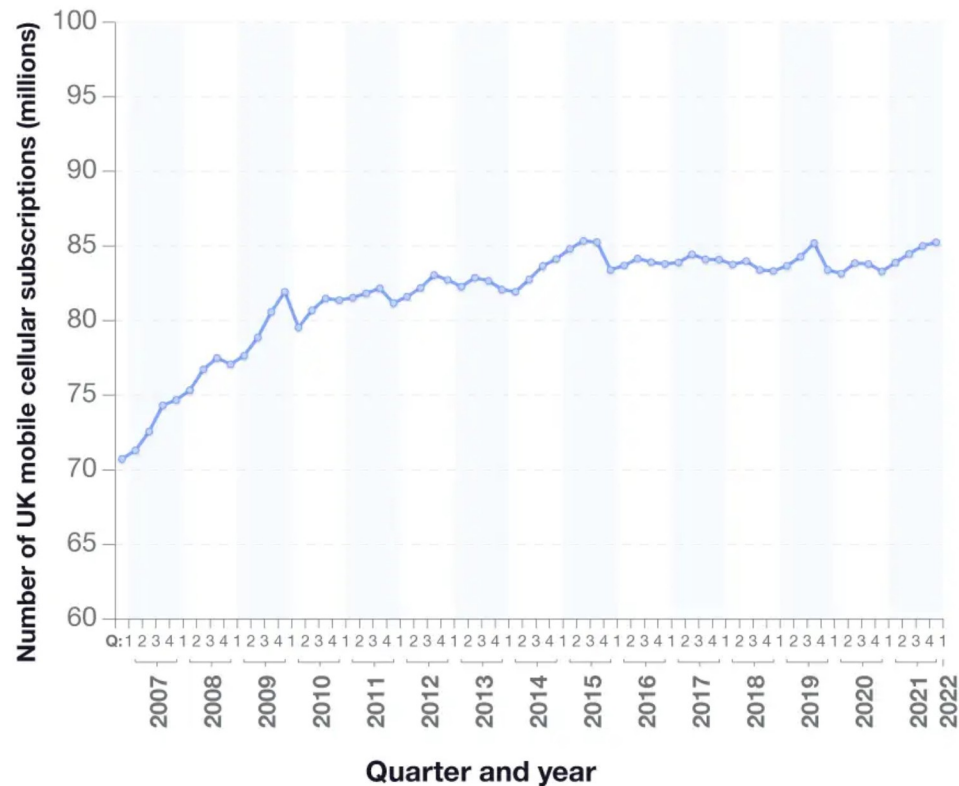
HOW ARE WE DOING?

FIG 1.6 : *Percentage of the population covered by at least one 5G mobile operator, China, Europe, Japan, South Korea and the USA, 2019–2022f*



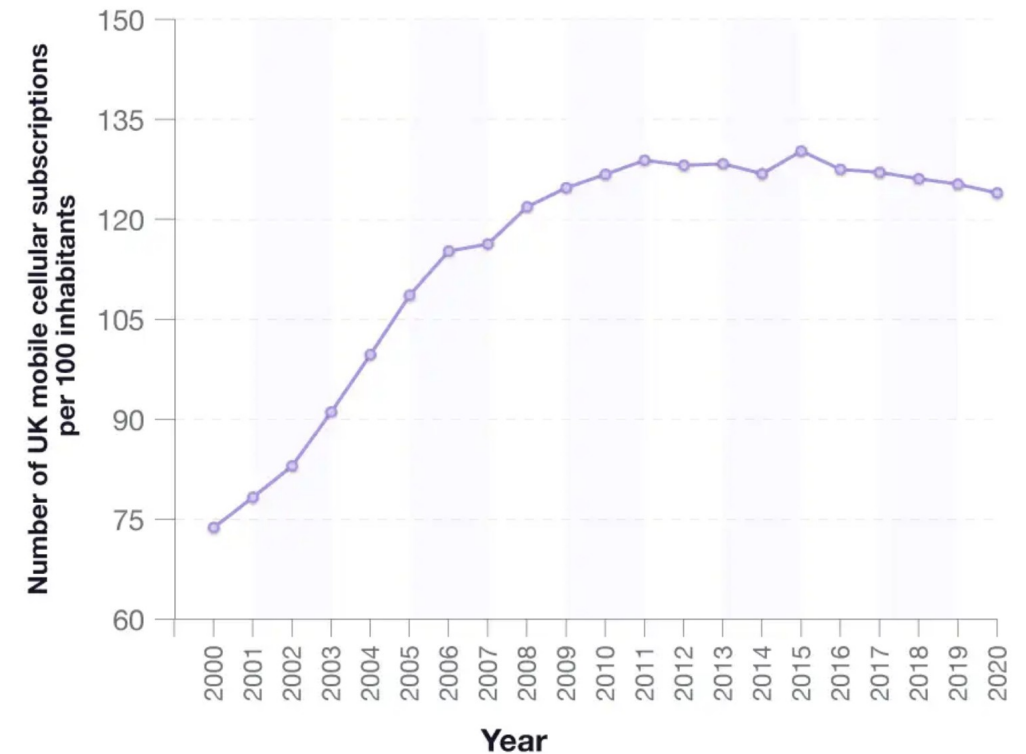
UK CONSUMER MOBILE SATURATED

A breakdown of UK mobile cellular subscriptions over time (2007-2022)



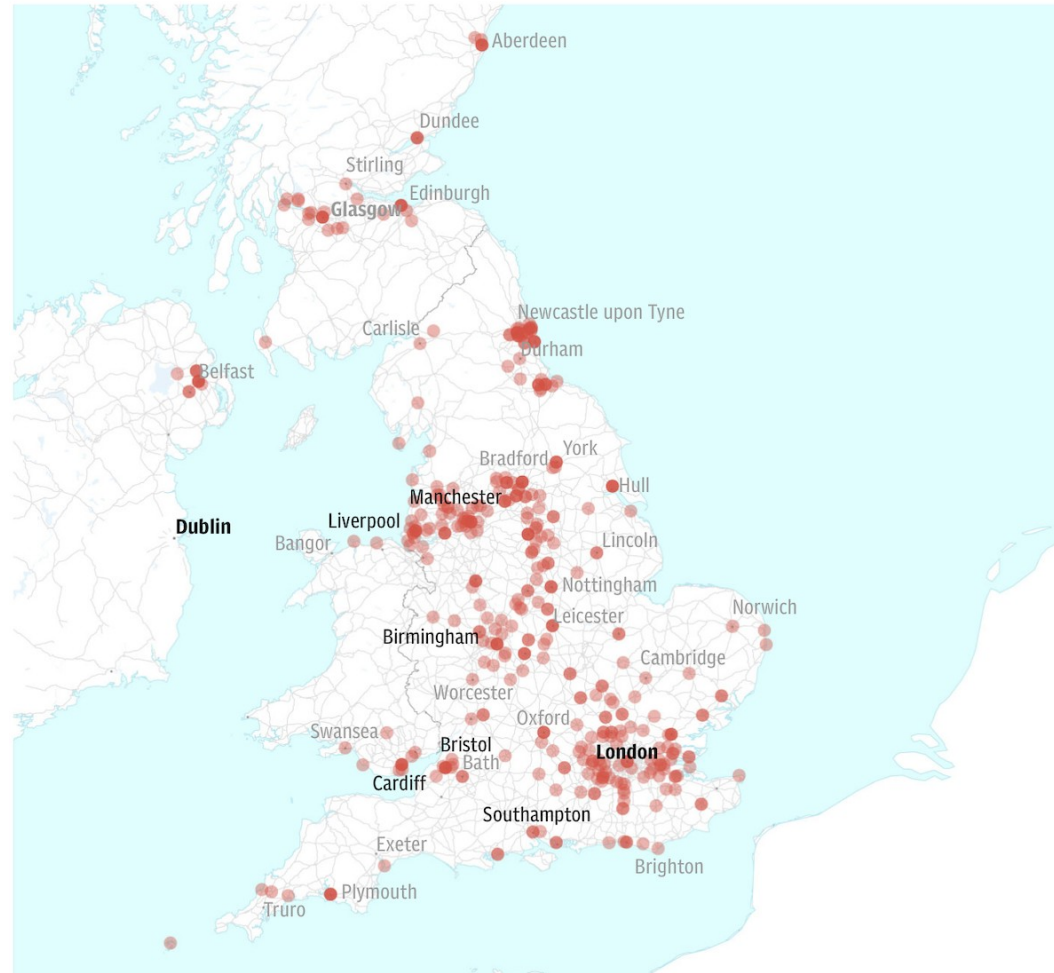
Source: Uswitch via Ofcom

A breakdown of UK mobile cellular subscriptions per 100 inhabitants over time

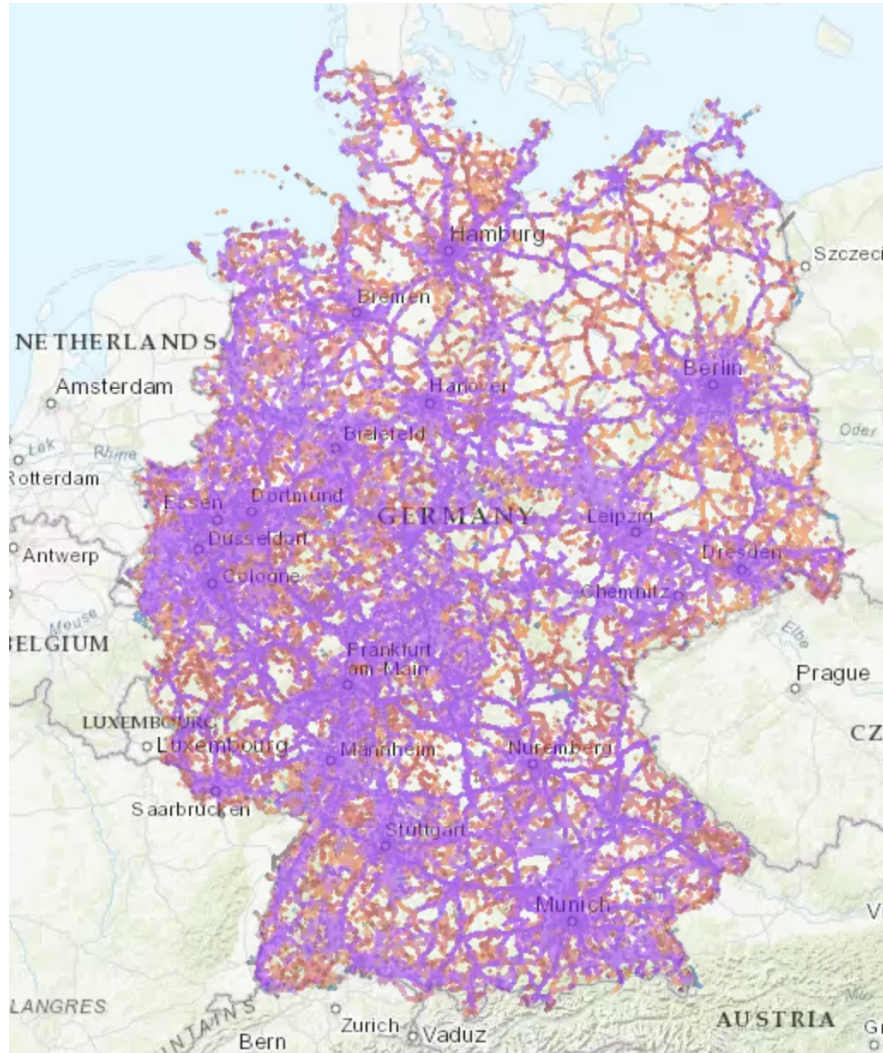


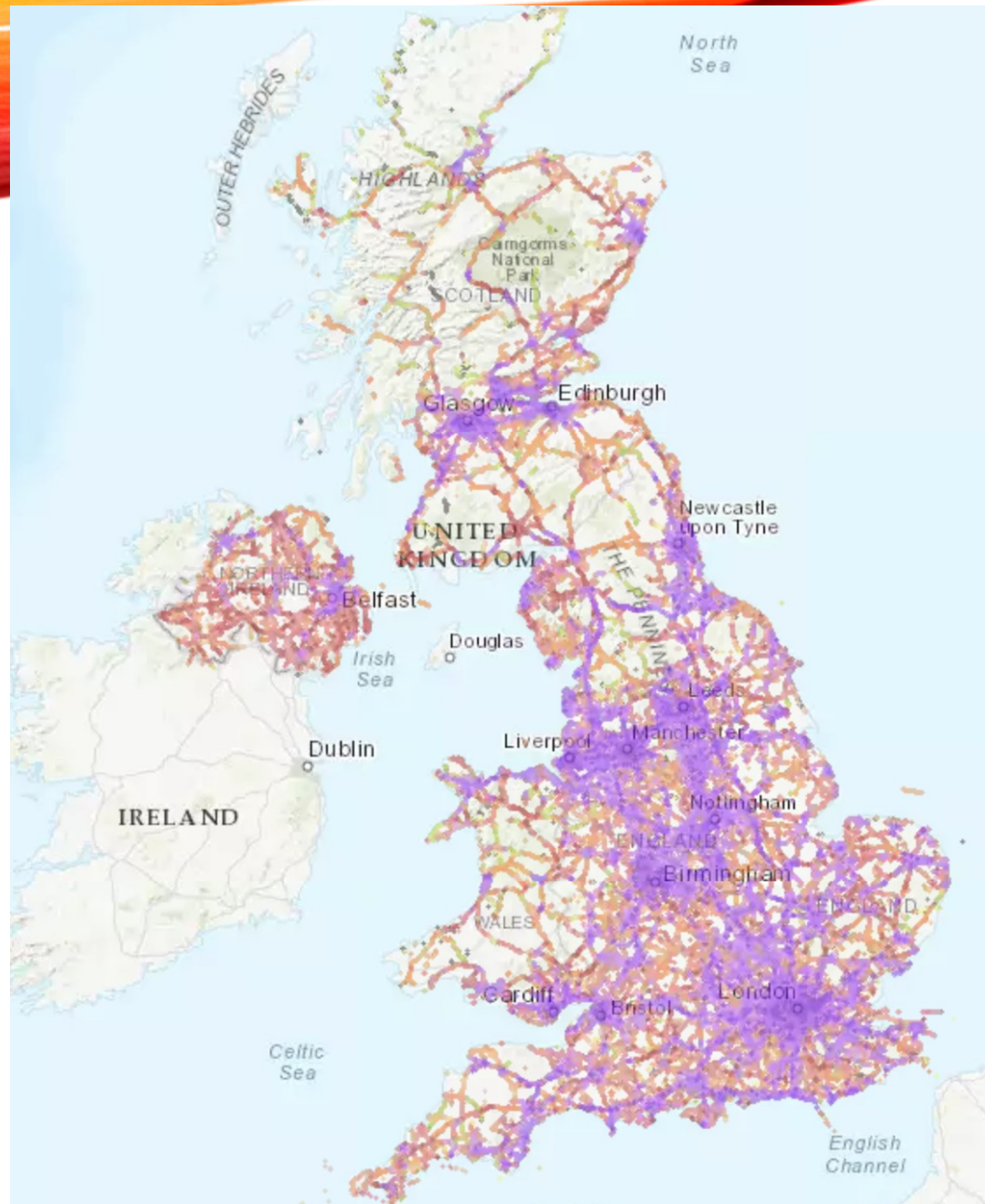
Source: Uswitch via Ofcom and ONS

5G – THE HOLY GRAIL – 77% POPULATION COVERAGE IN UK ROLLOUT



GERMAN OPERATOR

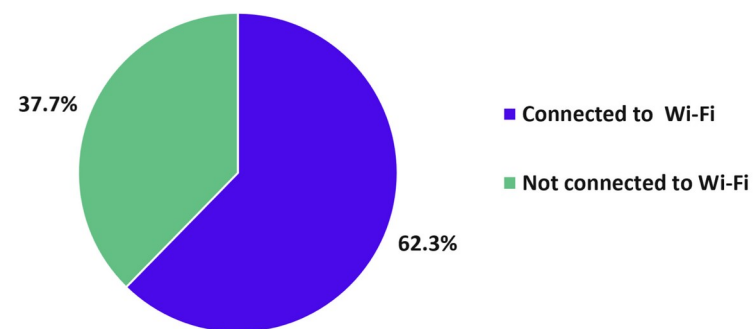




UK OPERATOR

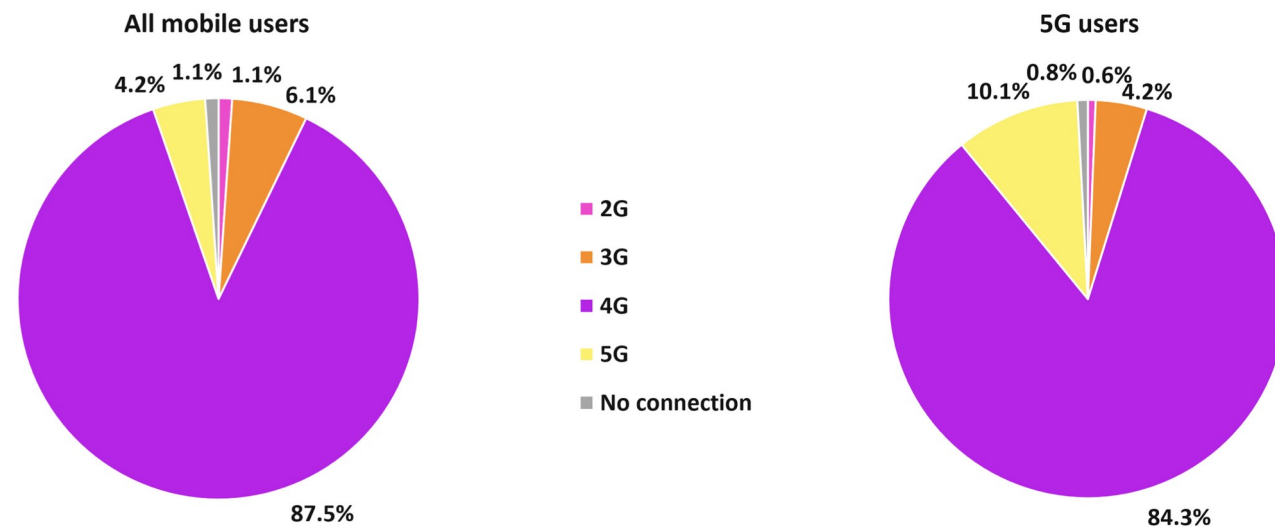
WHERE IS THE NEED?

Figure 1: Average (mean) proportion of time spent connected to Wi-Fi (%)

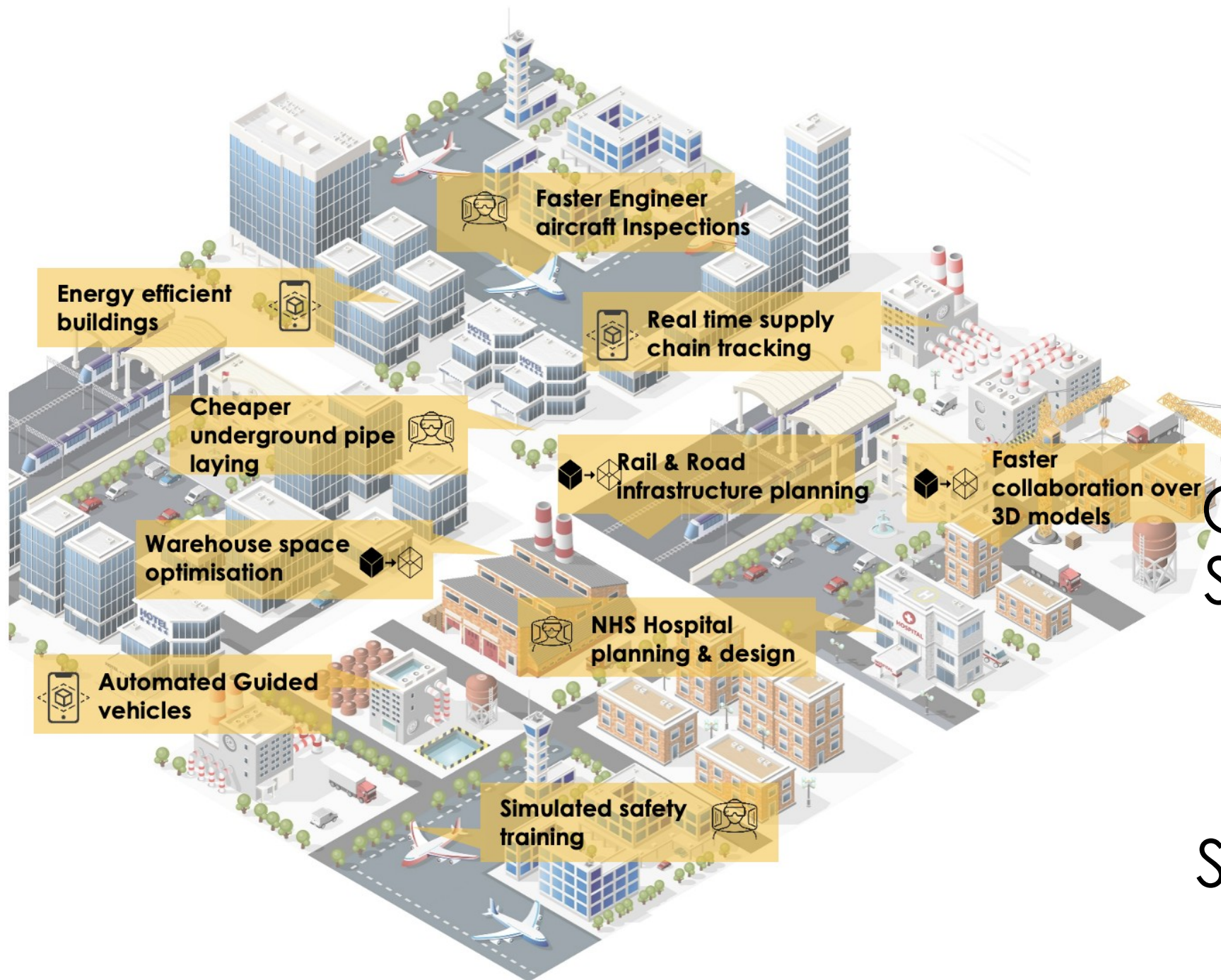


Source, Ofcom, using crowdsourced data provided by Opensignal; October 2022 to March 2023 data.

Figure 2: Average (mean) network share by cellular technology, all mobile users and 5G users



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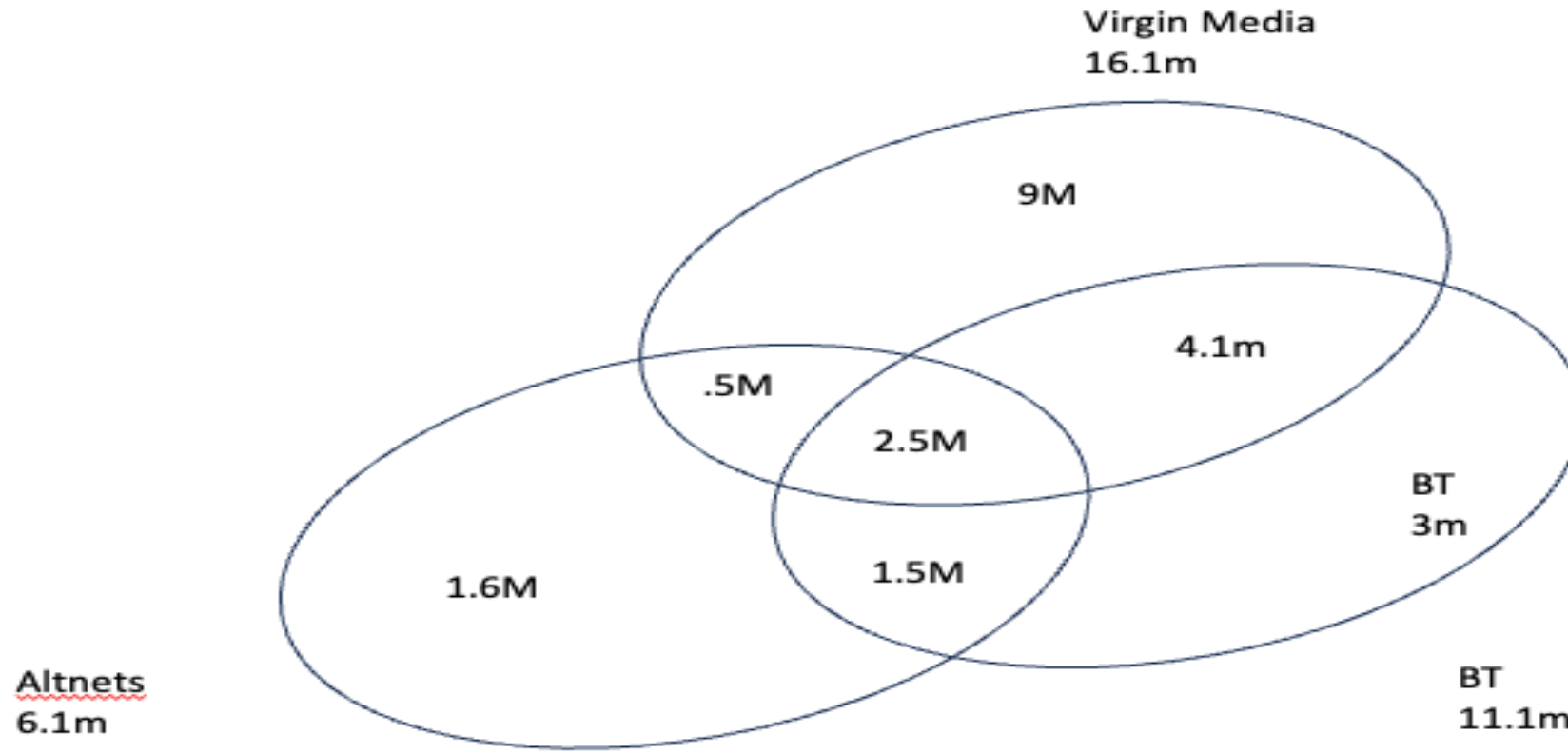


IN ORDER TO
UNLOCK THE
OPPORTUNITY
POLICIES MUST
TURN TO
CONNECTIVITY AT
STREET LEVEL AND
INDOOR
WITH MORE
FLEXIBILITY IN
SPECTRUM USAGE

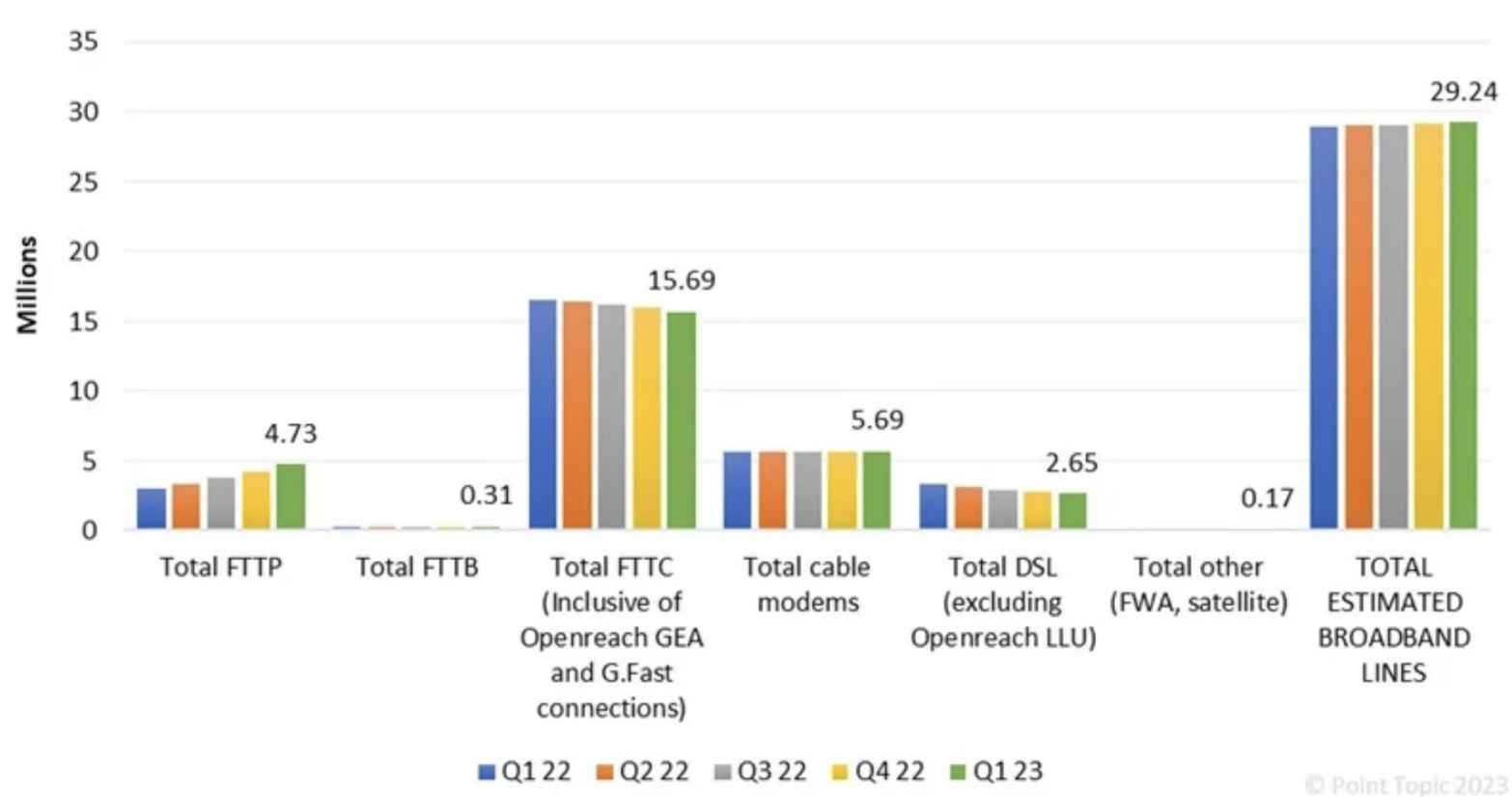
OVERALL UK GIGABIT STATUS

Access to full fibre, all Ofcom percentages are homes passed						
Area	Ofcom May 2022	Ofcom September 2022	Ofcom January 2023	thinkbroadband 28th January 2023 Homes	thinkbroadband 13th May 2023 Home	thinkbroadband 18th May 2023 All Premises
UK	37%	42%	48%	46.68%	51.37%	51.29%
England	36%	41%	47%	45.79%	50.16%	50.53%
Northern Ireland	83%	85%	89%	88.46%	91.81%	92.48%
Scotland	36%	41%	46%	43.25%	47.27%	47.02%
Wales	36%	40%	45%	43.33%	48.02%	47.80%

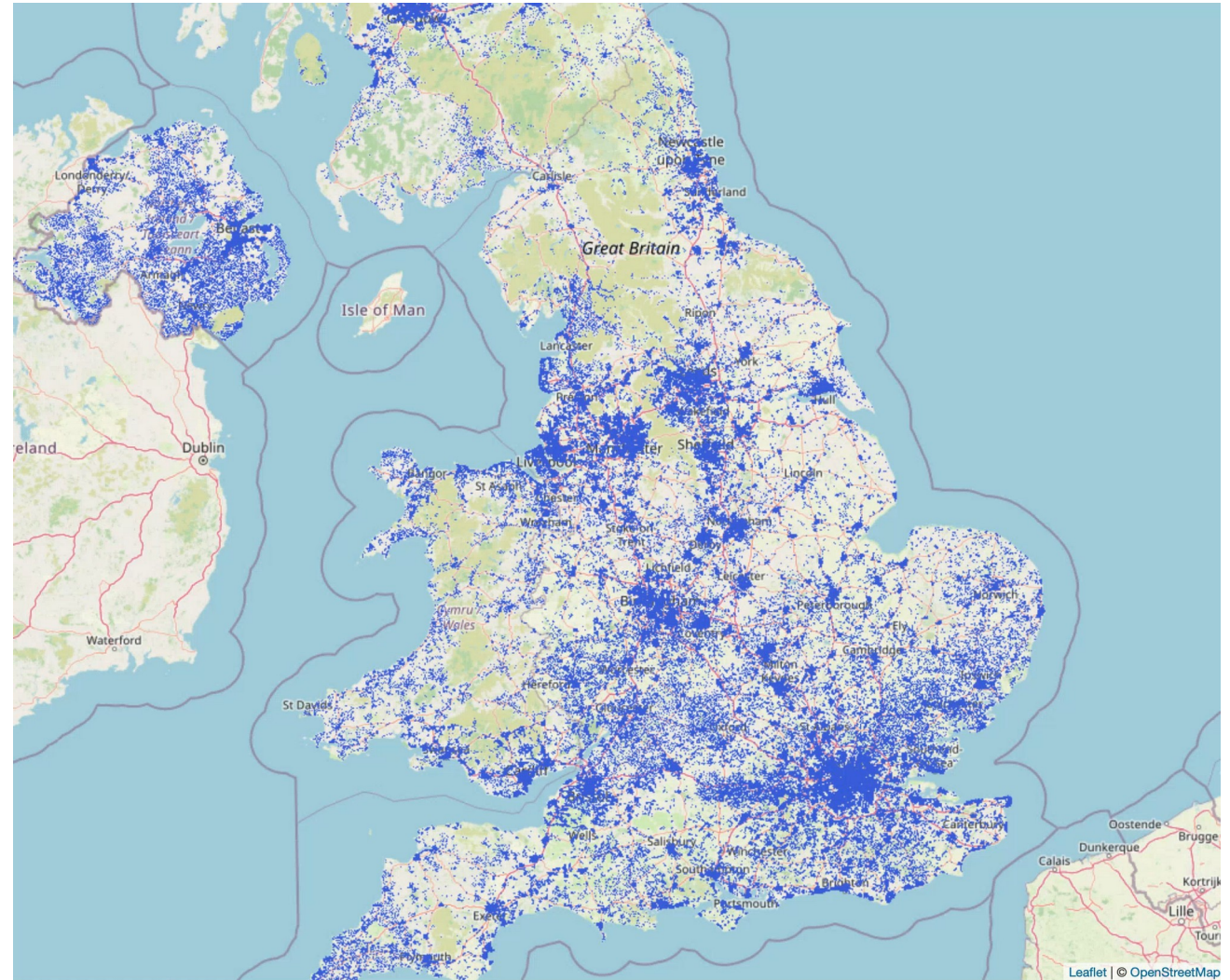
JUST A QUICK DIVERSION – ULTRAFAST (DEC 2023)




TAKE UP STRUGGLES



FRAGMENTATION DRIVES CHALLENGES FOR SYNERGIES OR WHOLESALE



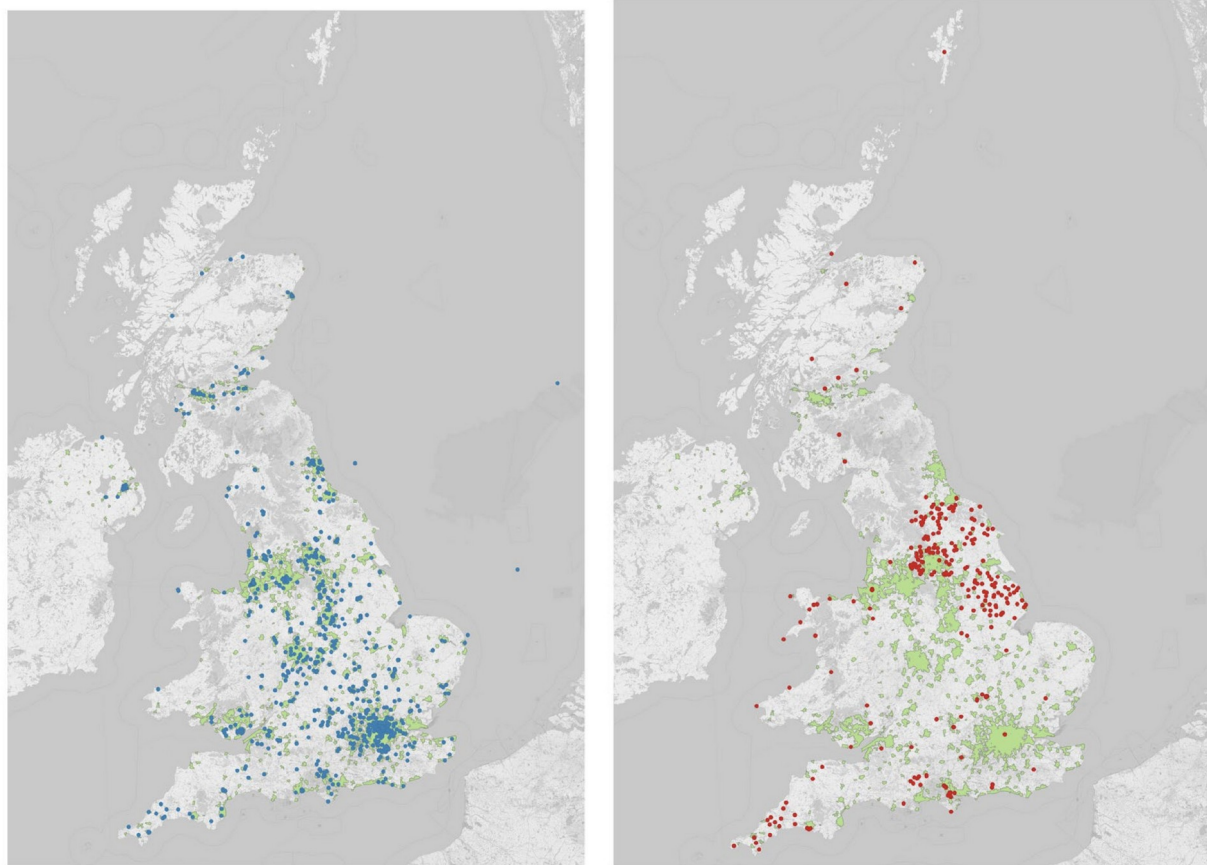


WISPS -2023

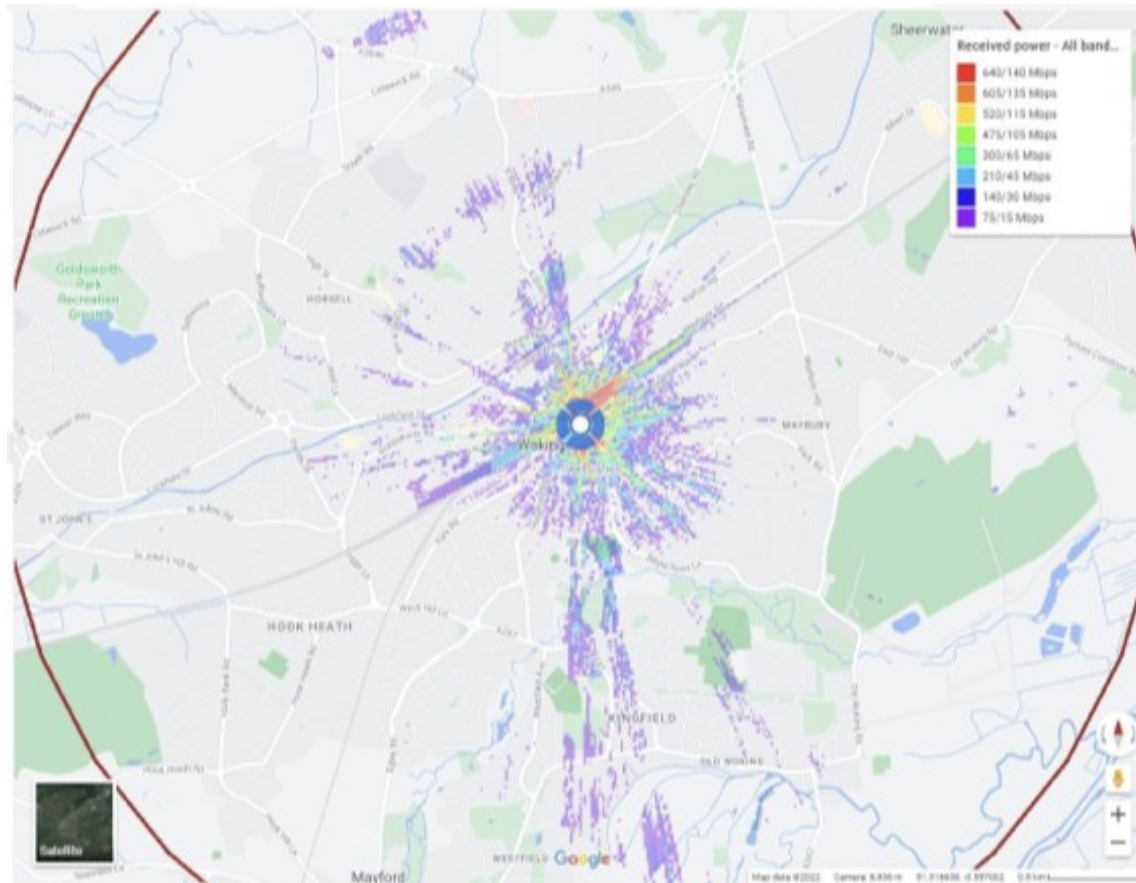
- Over 90 WISPs operating in the UK Nearly all offering sub 50M service
 - Over 50 Community based operators
 - 15 new “startups”
 - 30 Small
 - 6 large
 - Boundless
 - M247
 - ORBITAL
 - Quickline
 - Voneus

3.8-4.2GHz – OPPORTUNITY?

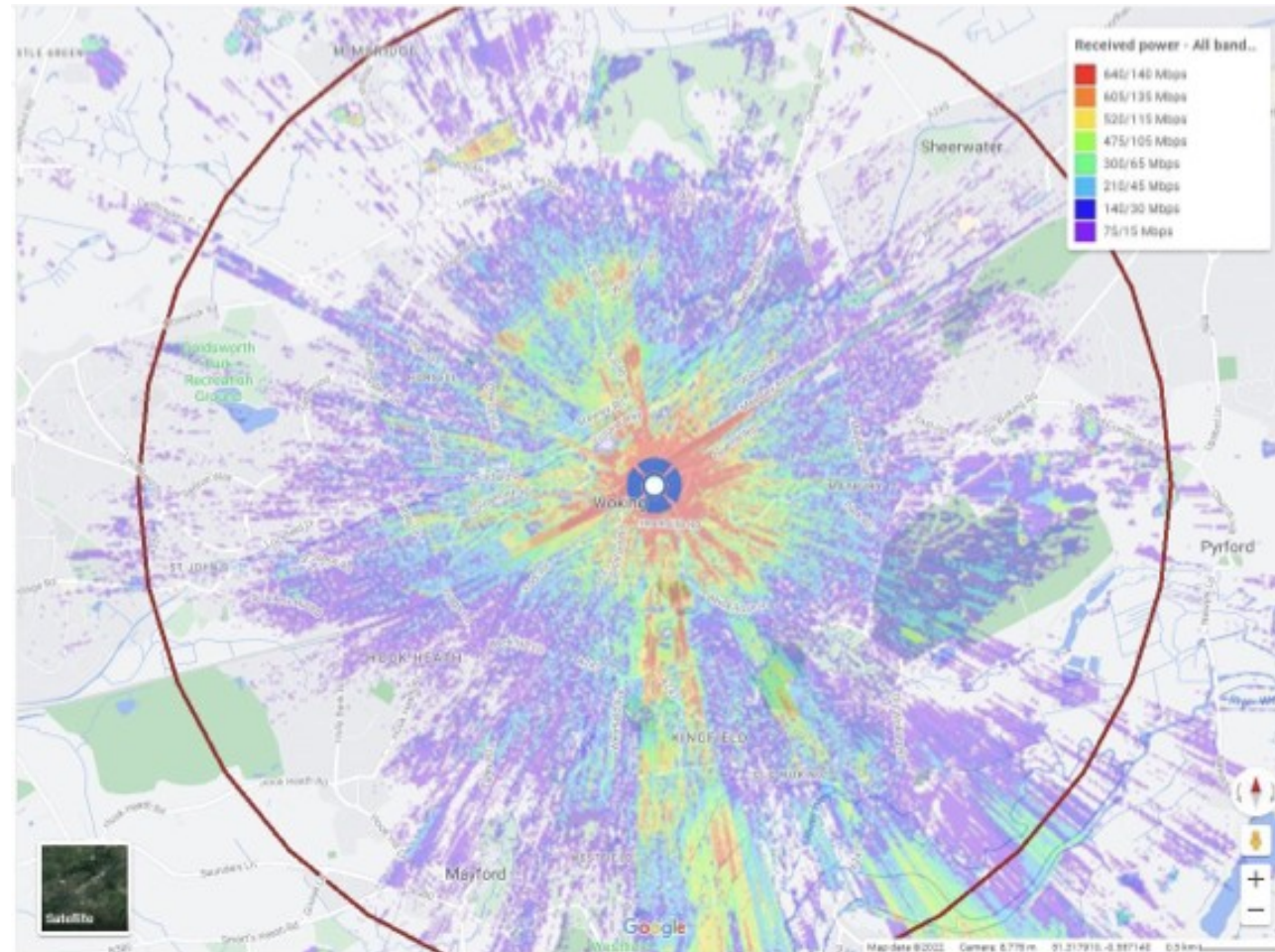
**Figure 2.2: Shared Access Licence Locations, Low Power (blue dots) and medium power (red dots).
Urban areas highlighted in green¹²**



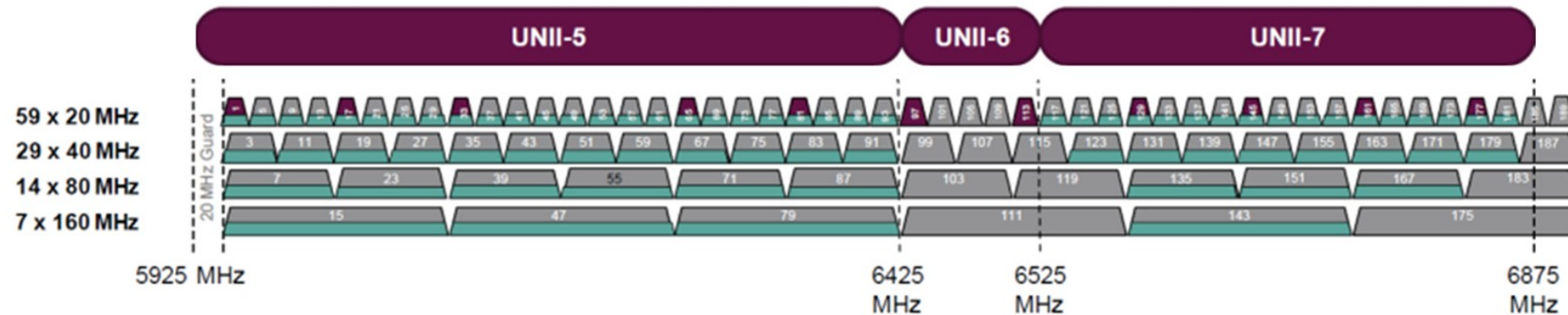
3.8-4.2GHZ OPPORTUNITY – LOW POWER



3.8-4.2GHZ OPPORTUNITY? – HIGH POWER



AND FINALLY 6GHZ?



- United States- UNII-5 & UNII-7 approved for standard power (36 dBm EIRP) outdoor use.
- Canada- UNII-5, UNII-6 & UNII-7 approved for standard power (36 dBm EIRP) outdoor use.



ANSWERS

- Thank you.
neil@DOMINO.ORG