

# RSPG Draft Opinion on 6G – Vodafone response

August 2023



## Evolution not revolution

Vodafone Group is pleased to submit its response to the RSPG's draft Opinion on the development of 6G.

Vodafone regards 6G to still be very much at the research stage and, while it is therefore too early to settle detailed aspects of 6G, we welcome the RSPG's early engagement and consideration of key guiding principles.

While 6G activities seek to describe the **services** that would be offered from 2030, this may or may not necessarily involve a new radio standard.

While we expect that 6G will include innovative new services, capabilities and features that extend beyond those of today's mobile networks (such as AI, Sensing, and Positioning capabilities), as identified in the ITU-R work on a framework for IMT-2030, we expect an **ongoing reliance on the extensive national infrastructure investments already made in 5G and 4G**, which themselves are likely to be enhanced by incorporating new technology components and functionalities.

Similarly, the recently completed work by ITU-R Working Party 5D recognises that IMT-2030 is expected to be designed and function in a modular manner, so that **features can be added incrementally** as the market need arises.

In the meantime, public mobile networks in 2030 and beyond must anyway be able to scale to meet **forecasted growth in mobile data traffic**.

The [ETNO report](#) on Europe Data Capacity Growth forecasts continued growth in network capacity over both mobile (25% CAGR) and fixed (20% CAGR), with demand driven by consumption of video, social networking and live sports. The CAGR rate - which is in line with information gathered during RSPG's survey of its members - leads to average mobile usage of 75GB/month (and fixed usage of 900GB/month) by 2030.

Vodafone's own assessment of traffic forecasts and future spectrum needs indicates a clear need for **additional "macro" spectrum ahead of 2030** to avoid congestion in cities. In this regard, 6GHz is the only suitable remaining option to provide this capacity expansion, and needs to be identified for IMT use.

We note several references in the RSPG's Opinion to **densification** – our assessment is that there are very few instances where it is cost-effective and that additional spectrum will remain the only way to meet demand economically, while also minimising energy requirements.

While the **immediate priority for 6GHz spectrum would be to expand current 5G network capacity**, the band could also potentially play a role alongside other bands in supporting the introduction of 6G services, while ensuring the principle of technology neutrality is preserved.

## Ensuring an efficient, level playing field

It is important to maximise opportunities to improve customer experience through interworking with different and **complementary access networks**, including non-terrestrial networks, private networks and other non-IMT terrestrial networks including RLAN – all of which already play a role in Vodafone's offer to its customers across Europe.

It is also important to remember that public mobile networks in particular are licensed with **specific obligations** to provide an essential service, offering choice, operating nationwide and connecting all customers reliably, securely and affordably, and thereby delivering unique social benefits.

Among other things, 6G might seek to explore whether more advanced radio design can improve on the spectrum efficiency already being achieved with 5G. **Incentives to ensure efficient spectrum use should be a consistent ambition for all spectrum use**, informing both the use of spectrum and the allocation of spectrum between different uses.

With mobile spectrum typically awarded through auction, there are already strong incentives for efficient use – and in the absence of similar incentives in use areas such as licence-exempt use, satellite or private networks for verticals, there is a risk that demands for additional spectrum in those areas could lead to inefficient outcomes, and result in unnecessary scarcity and additional cost for mobile spectrum users. It is therefore important to consider how efficiency incentives can be applied more consistently and effectively, which could **improve the overall efficient allocation of spectrum between uses**.

The absence of suitable incentives have arguably contributed to the **scarcity of mid-band 5G spectrum** for public mobile networks in Germany and Italy, and a major delay in the availability of this band for public mobile networks in the Netherlands. In all cases, the allocation of spectrum between national 5G and other uses appears disproportionate to actual demand, and risks disadvantaging users of national public services.

**Differential charging** for different spectrum allocations can also be problematic, particularly where licensees are **serving common markets** (e.g. in-building services, provided by both WiFi and mobile; or enterprise solutions provided over auctioned or locally licensed spectrum; or rural broadband services provided by both satellite and mobile), where spectrum costs can disadvantage customers of one service versus another, and may distort a customer's choice of solution.

## Restoring investor confidence

Vodafone agrees that lessons from 5G can inform a successful strategy for 6G. Our observation is that investment in 5G in Europe has been held back by a number of factors: expensive (and in some instances highly inefficient or discriminatory) award procedures; fragmented sub-scale national mobile networks (preventing network investments achieving the economies of scale necessary, particularly for 5G, to generate a positive payback on investment); in some markets, excessive ongoing annual spectrum fees; and the commercial value from mobile broadband being increasingly captured by global digital players exercising control elsewhere in the value chain.

The situation is further exacerbated by inflation on business input costs, higher interest rates driving increasing costs of servicing debt, as well as uncertainty relating to the cost of tackling high risk vendors.

In this context, while it is still not clear what new 6G services will be in demand, or where in the value chain new revenues and profits will be captured, it is relevant to consider whether there will be a business case for investors to continue to support the upgrade of nationwide public mobile networks, or whether economics will require more selective investment, and maybe even fewer viable national networks.

Maximising the prospects of 6G can therefore be an additional objective in pursuing the spectrum policy reforms that are possible through the revision of the **Radio Spectrum Policy Programme**, where, for example: prolongation of existing licences would facilitate ongoing investment over the longer term; harmonised award procedures would reduce unpredictable or costly auction outcomes; moderated annual fees would preserve cashflow for investment; and a future roadmap of mobile spectrum would ensure traffic growth could be accommodated cost-effectively.

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