



# The socio-economic benefits of mmWave 5G (2020-2034)

Europe Edition

**The ultimate success of 5G is dependent on access to mmWave spectrum.**

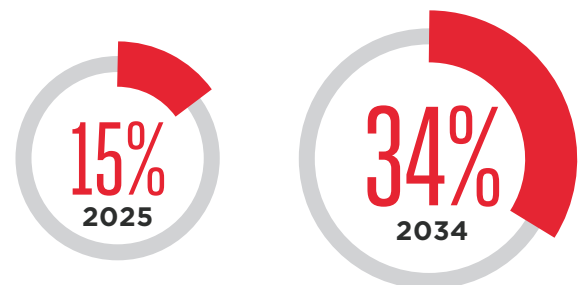
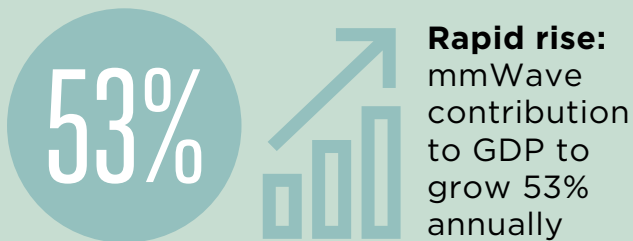
WRC-19 must identify mmWaves for mobile to make the most of 5G's potential, offering the largest capacity, highest speeds and most advanced services. New data commissioned by the GSMA looks at the long-term positive impact of mmWave 5G and details the benefits it helps realise.



## GDP impact of mmWave spectrum by 2034



## THE GROWING IMPORTANCE OF MMWAVES



The share of 5G services using mmWaves

## A LOT AT STAKE AT WRC-19

The 5G work at WRC-19, centered around Agenda Item 1.13 (AI 1.13), looks at IMT spectrum in frequencies between **24.25 and 86 GHz**. The result will have a major impact on the future of 5G.

A successful identification of spectrum for IMT under Agenda Item 1.13 is vital to realise the full potential of 5G networks

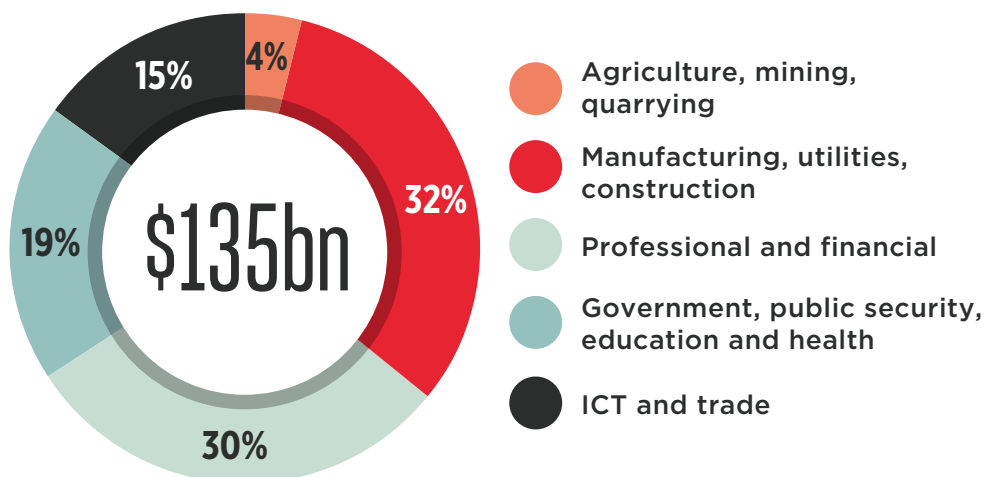
The GSMA supports the 26 GHz and 40 GHz bands

The GSMA also supports 66-71 GHz

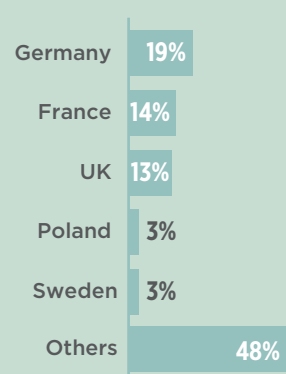
Due to the large amount of spectrum needed for 5G services, the range 45.5-52.6 GHz also needs to be considered

Technical studies show that coexistence between IMT and other services is possible

## WHAT INDUSTRIES WILL BE MAKING THE BIGGEST CONTRIBUTIONS BY 2034?



### From what countries will contributions come from?



## USE CASES - WHY MILLIMETRE WAVES MATTER

Behind these numbers, 5G will be deployed across several new areas. Many 5G use cases will depend on mmWave spectrum to reach their full potential.

### High-speed broadband in home and office



High-speed mobile broadband to homes, offices and public spaces is one of the first 5G use cases being implemented. Fibre-like ultra-high speeds will need the capacity of mmWave 5G.

### Quick deployment/temporary connectivity



The transmission of live events and disaster response efforts require ultra-high speeds and low latency to deliver a high-quality experience to all kinds of users.

### Industrial automation



Large-scale industrial automation relies on mmWaves. That's because next-generation manufacturing will produce large amounts of data. Low-latency communication is also crucial.

### Remote object manipulation



Low latency and data rate requirements mean mmWave connectivity is expected to play an important role here including advanced healthcare applications.

### Virtual reality and meeting



Thanks to latency and peak data rate requirements, mmWaves will benefit virtual and augmented reality. For example, educational applications are likely to produce high volumes of data that will rely on mmWave 5G.

### Next-generation transport connectivity



High data volumes and high-density real-time communications must be addressed by a combination of mmWave and lower bands to enhance services, especially in cities with dense traffic.

## A LONG-TERM PROCESS

The mobile industry has a history of maximising the socio-economic impact of its spectrum resources. There are almost **9 billion** mobile connections and over **5 billion** unique subscribers. This has not happened overnight. It is the result of a harmonised effort across the whole mobile ecosystem. Mobile operators, device makers, system vendors and chipset manufacturers are now working to make mmWave 5G happen. For these efforts to come to fruition, spectrum needs to be agreed at WRC and assigned to mobile operators.

Read the full report at:

<https://www.gsma.com/spectrum/5G-mmwave-benefits>

Read more about what we can accomplish at WRC-19 here:

<https://www.gsma.com/spectrum/wrc-series/>

December 2018