

DEVELOPING CELLULAR STANDARDS



Cellular standards are the telecommunication technologies that enable mobile device interoperability. They have enabled the smartphone revolution and will now enable the Internet of Things.

HOW THE 5G STANDARD WAS DEVELOPED

The objectives for 5G, like each previous generation, are agreed and set by the International Telecommunication Union. The 3rd Generation Partnership Project (3GPP) is the global initiative through which companies work to find solutions that meet the objectives.

STAGES OF OPEN STANDARDS DEVELOPMENT



OBJECTIVE SETTING

Hundreds of leading engineers, representing public and private sector organisations, gather under the auspices of 3GPP to establish the timeframe and manage the process for developing the technical solutions to the objectives for mobile communication that the next generation of cellular standard should achieve. These include characteristics such as high download speeds and low latency.



RESEARCH AND DEVELOPMENT

World leading telecommunication engineers work within their own organisations (or collaboratively) to develop cutting-edge technologies that provide solutions to the technical challenges identified.

At the cost of thousands of years of working time and billions of Euros in R&D, which often pre-dates standardisation work, many competing inventions are developed and voluntarily submitted for possible use in the standard.



FRAND COMMITMENT

Companies agree to license their patented technical solutions included in the standard on Fair, Reasonable, and Non-Discriminatory (FRAND) terms.



TESTING AND SELECTING 'BEST IN CLASS' CELLULAR TECHNOLOGIES

Thousands of technical solutions are submitted to the standardisation process, for testing and review in 3GPP working groups. The 'best-in-class' technologies from each working group are then agreed upon.



PUBLISHING THE STANDARD

The 5G standard contains detailed technical specifications, spread over thousands of pages, on how to connect and ensure the interoperability of devices through numerous innovative cellular technologies.

The process is open and collaborative and could never be accomplished by one single company or organisation alone.

Cellular standards are open standards. This means that anyone who wishes to contribute technology to the standard may, and anyone who wishes to use this new technology can.



50,000
DELEGATE DAYS PER YEAR



40,000
DOCUMENTS PER YEAR

THE OPEN STANDARDS DEVELOPMENT SYSTEM

Focuses **global** R&D resources.



Ensures **rapid** consumer access to the **latest and best** technologies.



Promotes **competition and innovation** in connected hardware and services.



Ensures global device **interoperability**.



PRESERVING EUROPEAN LEADERSHIP

European companies led the creation of this model of open standards development and have invested billions of Euros into inventing ground-breaking technologies to contribute to open cellular standards.

European companies are among the key contributors to the 5G standard.

European institutions have provided funding for the 5G standard through Horizon 2020 and a tailor-made public-private partnership (5GPPP). This created a fund of more than €3 billion which helped deliver 5G.

Europe's leadership position in cellular communication technologies is central to realising our common ambition to create the world's leading digital innovation ecosystem.

CELLULAR STANDARD DEVELOPMENT PARTICIPATION BY REGION:

EUROPE **41%**

NORTH AMERICA **21%**

ASIA **38%**

Indicative figures based on 3GPP delegate participation 1999–2015