Orange Networks

In summary

Connectivity, provided by fixed, mobile and international networks is Orange's core activity. More than ever, Orange differentiates itself through the quality of its networks and the quality of the experience it offers to its consumers, enterprises and wholesale customers and aims to maintain its leadership position.

Key figures

10.8 million customers[1]
Orange leads fiber (FTTH) deployment in Europe - 20% of European households

300 patent families identified
in the 5G environment

9 Orange 5G Labs across Europe
to innovate with economic players

108.000 mobile[2] radio sites
over its 26-country footprint

Data traffic increased 33% in 2021 in Europe

4G traffic carried more than 95%
of mobile data traffic
in Europe at the end of 2021

40 million 4G customers
in the Middle East and Africa, a 33.6% increase compared to 2020[3]

60% of smartphones on sale in Orange channels are 5G-enabled

6 million fiber customers in France (19 Jan 2022)
connecting close to 10,000 customers per day

Find out more

Fixed networks:

Fiber lies at the heart of Orange's fixed network strategy. The fiber capacity means that Orange can offer consumers fiber access of up to 10 Gbit/s[4] . Orange has deployed more than 50 million[5] FTTH lines at the end of 2021, across France, Spain, Poland, Slovakia, Jordan and Ivory Coast. Orange's goal is to have 69 million connectable homes by 2023.

Mobile networks :

5G

Orange has commercially launched 5G in six European countries (France, Luxembourg, Poland, Romania, Slovakia and Spain). By 2023, Orange will have rolled out 5G across 26,000 sites in Europe.

Orange is also preparing for the roll-out of new 5G Stand Alone (SA) core networks that will bring new technical performance from 2023. Today, 5G SA connectivity is available for businesses testing at Orange 5G Labs sites. This will facilitate the introduction of various different uses for consumers (immersive videos, cloud gaming) as well as for business customers (optimized production time and quality, remote machine control, augmented maintenance, etc.).

Orange is considering 5G in three key areas:

1.   **High-speed mobile broadband - for smoother access to services on the move, and new immersive experiences**

5G will enable 360° immersive experiences, combining augmented and virtual reality, for everyday communication, training, entertainment and work. It will also significantly increase the performance of Cloud services.

2.   **New applications to support the transformation of businesses and society and leverage real-time usage**

The deployment of 5G SA from 2023 will enable operators to fulfil the promise of utilising data in 'real-time'. Combined with the Internet of Things, edge computing and artificial intelligence it will enable companies to be more agile, aligned with their customers' needs, and more responsive in their markets. It will also be possible to virtually 'slice' the network and prioritize some slices to cover critical or specific needs and allow different levels of quality and security.

In a forthcoming update to the 5G standard, 5G will make it possible to connect millions of sensors and objects across the same area, to improve their battery life and to geolocate them, while offering reduced latency and improved upload throughputs (massive IoT).

A new world of opportunities is starting for different business sectors, including industry, media, transportation, smart cities or health. This is why Orange has launched a network of nine Orange 5G Lab sites in France and abroad in 2021 to allow economic players to better understand the opportunities, value and benefit of 5G. It is also why it is engaged in co-innovation projects with businesses in Europe. Examples include:

- SNCF and Nokia, to support the modernization and accelerate the transition to very high-speed wireless broadband of the French railway operator's industrial entities.

- ArcelorMittal France and Ericsson as part of the 5G Steel project, which aims to deploy industrial use cases requiring 4G/5G in ArcelorMittal's plants in France, from mobile maintenance to autonomous vehicles.

3. An alternative solution for fixed broadband access in countries where fiber infrastructure is not widely deployed

5G will be used to deliver very high broadband in areas with no fiber. In addition, 5G will use new frequency bands (millimeter waves) delivering a user experience similar to that of fiber optics. With 5G in these bands, people living in countries or territories where fiber cannot be deployed will benefit from fiber-like broadband at home.

This technology will enable businesses and players in smart cities to wirelessly connect factories and urban infrastructures. It will also provide an easy-to-activate solution to connect pop-up stores or mobile construction sites, in the event of an outage of the company's main network, or for tele-medicine.

Virtualization and Automation

- **network functions virtualization** developed across Orange's footprint will continue in the coming years, with full 5G networks and advanced 5G services. This virtualization consists of deploying a standardized infrastructure (the telco cloud), which hosts network software functions enabling the development of new services and increasing flexibility. With the transformation towards On Demand Networks and 5G, Orange is also preparing for the **Edge computing** era, in which, telcos, with their distributed architecture, have an opportunity based on their secure and well-connected real-estate asset. The on-demand and network slicing promises of 5G, combined with cloud offers proposed at the edge (of the network), will enable Orange to develop new business revenues associated with specific services that require on-demand quality.

- On its way towards **zero-touch based networks**, Orange has deployed an experimental 5G SA cloud native and 100% software network named Pikeo. It will be a model for the next generation of more efficient and self-adaptive networks that will enable Orange to offer the best quality of service in every situation, thanks to the contributions of AI and data, and to move towards a more autonomous network. It also uses **Open RAN** technology, which Orange sees as a key solution for the deployment of its future mobile networks in Europe in the coming years.

- **network automation and AI** is also an area Orange is developing in order to improve the quality of network monitoring and the customer experience management. The "Self-Organizing Network" (SON) features (or self-organisations) are implemented on two-thirds of Orange's mobile networks. AI is also being used in various processes (e.g. in optimizing energy consumption of radio sites, fault analysis and network intervention decisions on copper/fiber in France) and will further expand.

Orange's Backbones and International Networks

All traffic is growing and Orange anticipates that the growth will continue over the coming years. To carry this traffic, Orange continues to make substantial investments in its national and international backbones, through the deployment of new cables and the upgrade of existing cables to higher throughput.

With customers all over the world, Orange's global network footprint connects more than 300 Points of Presence with 45,000km of fiber across Europe, the US, Africa and Asia, and more than 40 submarine cables throughout the world.