Fiber Optic Rollout in Rural Areas in Europe

A Focus in Europe's Major Economies: France Germany, Italy, Spain and the United Kingdom

SAMPLE

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FTTx & Gigabit Society | M00156 | November 2024

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Project leader

Santiago joined IDATE in September 2019 as a Consultant within the Media Telecom BU after having completed a Master's Degree in Industrial and Networks Economics with a specialization in Digital Economics. Santiago has strengthened skills in the organization of the Telecommunication Market from an economic perspective. He monitors techno-economic strategies and innovation in this sector, in both fixed and mobile technologies (4G, 5G, FTTx). He takes part in the drafting of study reports to follow, detect and understand market trends, and present the results. He has active participation in international groups and organizations (such as the European Commission).

Fiber Optic Rollout in Rural Areas in Europe

Synopsis

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The report explores the pivotal role of fiber optic technology in narrowing the digital divide in rural areas across Europe. It begins with an overview of the current state of FTTH/B (Fiber to the Home/Building) deployment in rural regions of various European countries.

The analysis then shifts to focus on the top European economies, examining their rural broadband plans, regulatory frameworks, and financing strategies to drive connectivity in underserved areas.

Countries

Overview of EU27 and UK Rollout of Fiber Optic Networks Nationwide and in Rural Areas.

Focus on Europe's Major Economies: France, Germany, Italy, Spain, and the United Kingdom.

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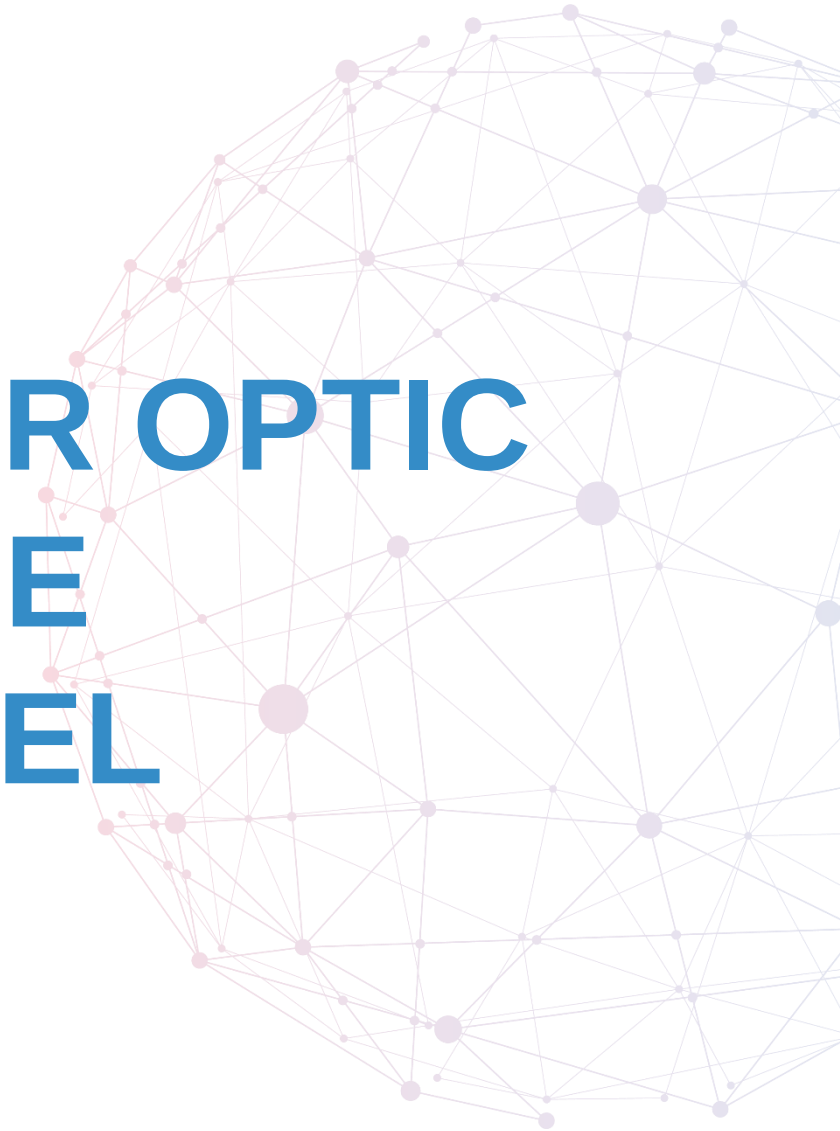


2.1. Connectivity for a European Gigabit society: Digital Targets for 2030

Goals related to broadband coverage to encourage the full digitalization of Europe by 2030.

- Broadband Europe supports the Commission's strategy for achieving a European Gigabit Society by 2025 and the Digital Decade vision for Europe's digital transformation by 2030.

- The initiative aims to connect European citizens and businesses with very high-capacity networks, enabling innovative products, services, and applications across the EU.

This Gigabit Society vision for 2025 relies on three main strategic objectives:

2025

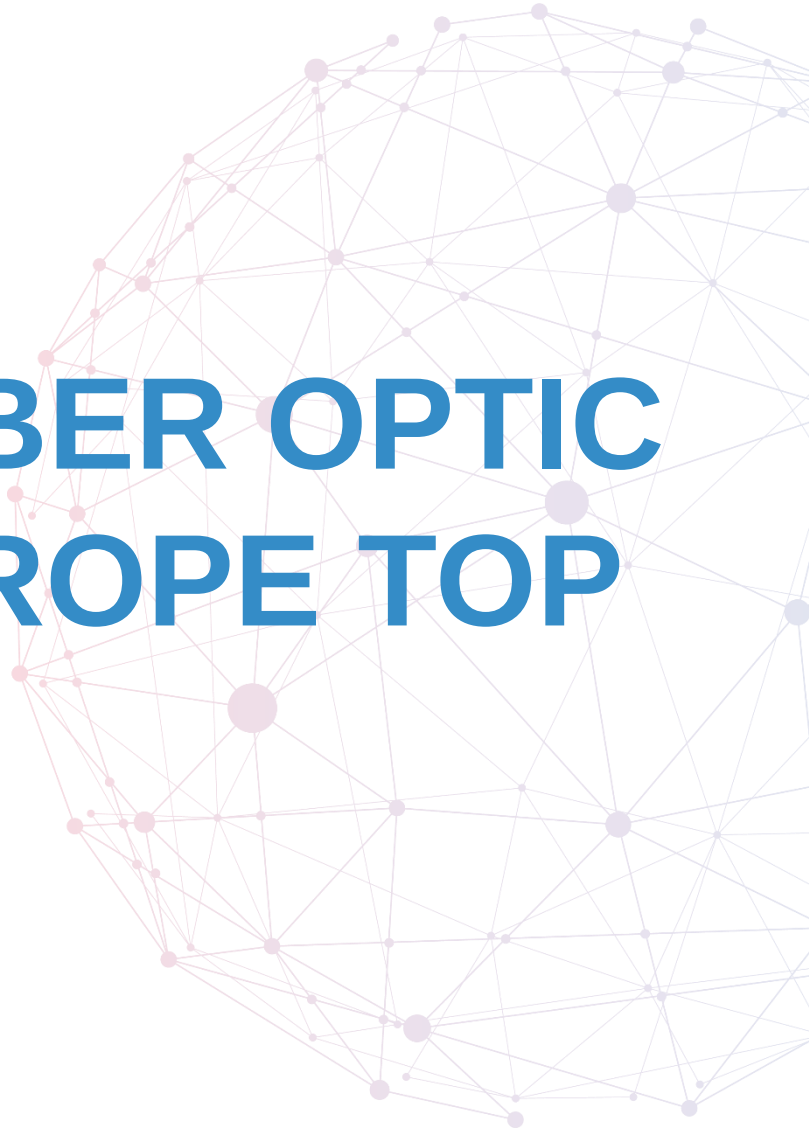
Provide a 1 Gbps connection to all socio-economic institutions
Provide an Internet connection of at least 100 Mbps to all European households
Guarantee uninterrupted 5G coverage in all urban areas and on the main terrestrial transport corridors

The ambition of the Digital Decade is that by 2030:

2030

All European households are covered by a Gigabit network
All populated areas are covered by 5G

03 ANALYSIS OF FIBER OPTIC ROLLOUT IN EUROPE TOP ECONOMIES



3.2 GERMANY

Status of FTTH/B deployment nationwide

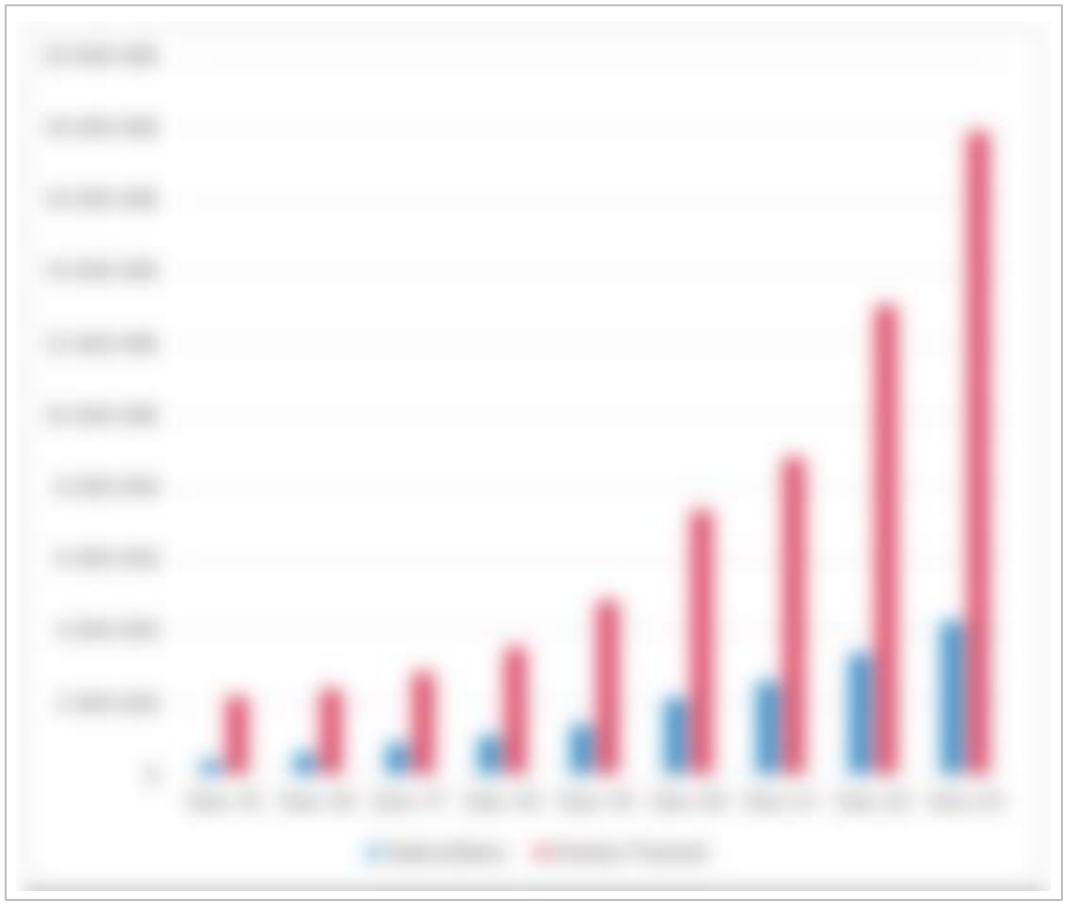
Germany has made notable progress in FTTH/B deployment in the past years

- **National FTTH/B coverage: xx% of HH (EU average: xx%)**
- **Rural FTTH/B coverage: 23xx% of HH (EU average xx%)**
- **FTTH/B take-up rate: xx%**
- **Population density: xx/km2 (EU average xx/km2)**

- **National Broadband Plan of Germany: Gigabit Strategy**
- **Targets:**
  - coverage with fibre of xx50% of all households and companies by 2025
  - uninterrupted wireless voice and data services for all end users nationwide by 2026
  - nationwide supply with FTTH and the latest mobile communications
  - technologies of all areas where people live, work and travel by 2030

- Compared to other European nations, Germany's FTTH/B deployment and take-up remain low. Instead of prioritizing FTTH/B, Germany adopted a technology-neutral approach to expand ultra-fast internet.

FTTH/B Subscribers and Homes passed



Source: IDATE, *Fiber Optic Rollout in Rural Areas in Europe*, November 2024

04 ALTERNATIVE FIBER OPTIC SOLUTIONS FOR DEPLOYMENT IN RURAL AREAS

4.3. Alternative solution: Geostationary orbit (GEO) satellites

GEO Satellites: Help Expanding Connectivity Across Remote Locations: the Pros and Cons

GEO satellites

Upload speeds	Latency	Advantages	Disadvantages
5 -10 Mbps	500-600ms	• Wide existing coverage • No terrestrial backhaul infrastructure requirement	• High latency because of long distance • Donwloads often subject to caps on usage

- GEO satellites maintain a stationary position in the sky and are quite large (around 5 tonnes) with a long operational lifespan of approximately 15 years. Many GEO broadband solutions can make use of already deployed communication satellites. The connectivity is established through a fixed receiver dish, known as a very-small-aperture terminal (VSAT), which is mounted outside the user's premises and linked to an internal modem via coaxial cable.

- GEO solutions are appealing due to their ability to cover nearly any location without requiring additional terrestrial backhaul equipment.

- However, a major limitation of GEO satellites is their position, located 36,000 km above the Earth's surface. This results in high latency in the broadband service, which can negatively impact the user experience for certain applications compared to other broadband technologies. The capacity on each satellite is shared among many users and applications, typically managed by imposing caps on data consumption or download speeds for customers.

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