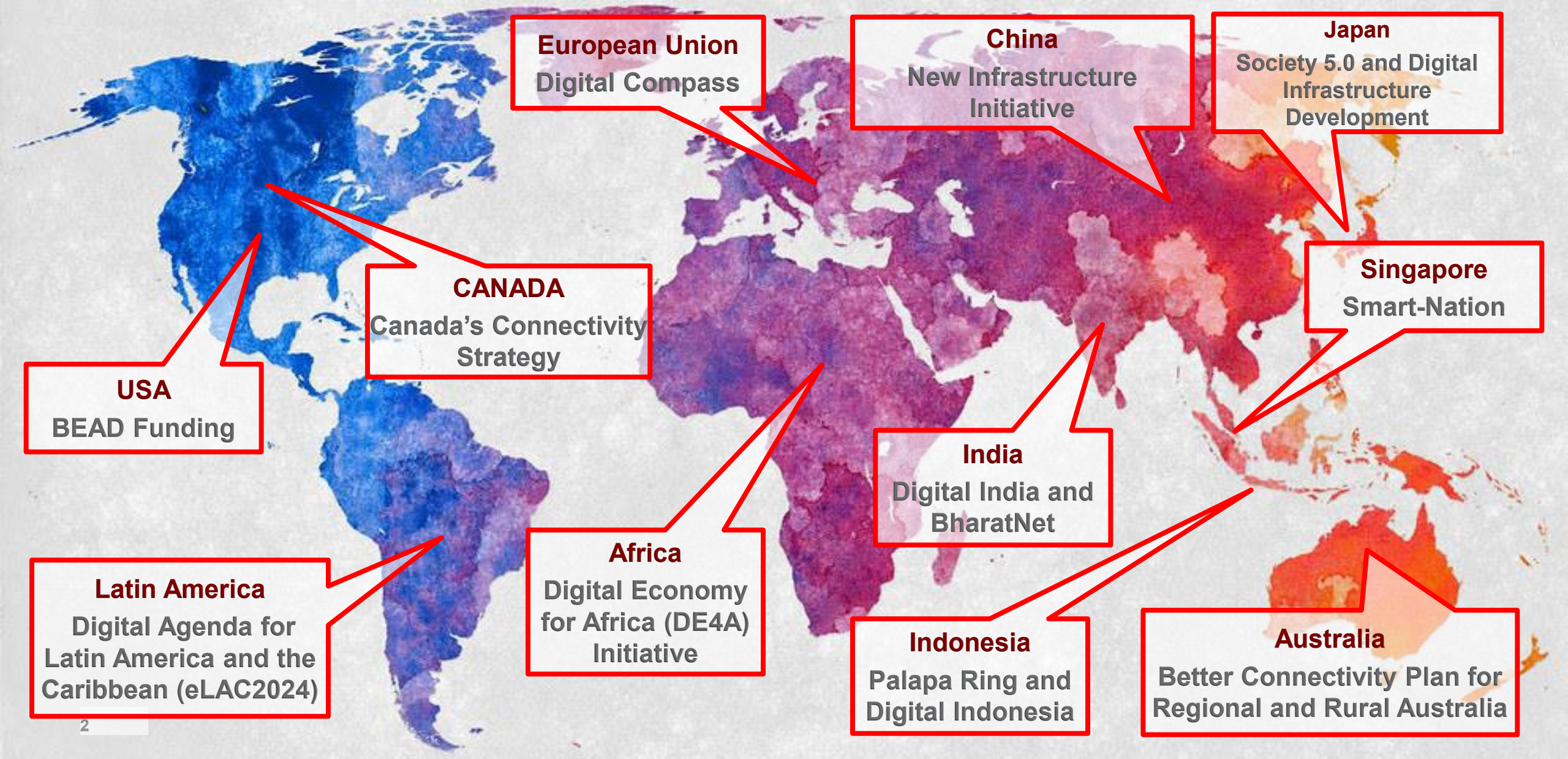
27ο Συνέδριο infocom world 2025

A Brave New World of Infrastructure: The Networks of Tomorrow

Ioannis Tenidis

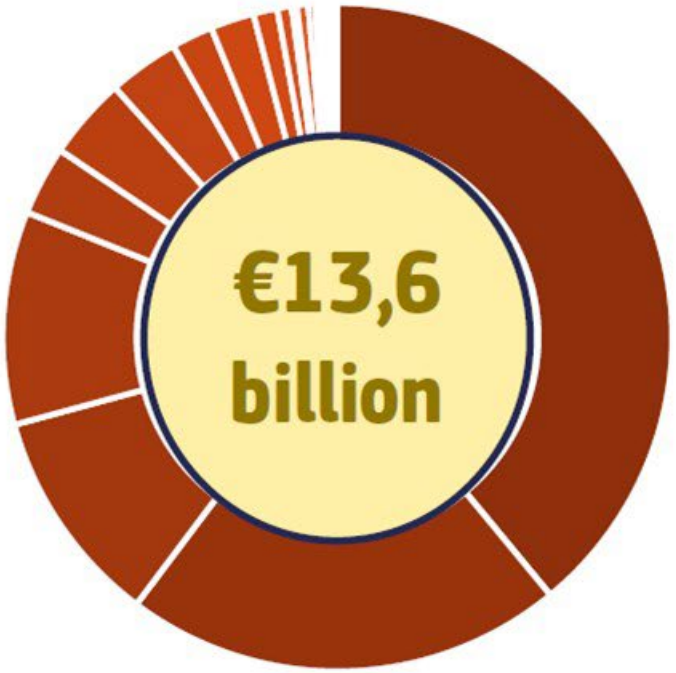
Director, Product Line Management

Initiatives and funding for Ultra Fast Broadband Connectivity



RRF (Recovery and Resilience Facility) Funds in the European Union
€13.6 Billion for digital connectivity

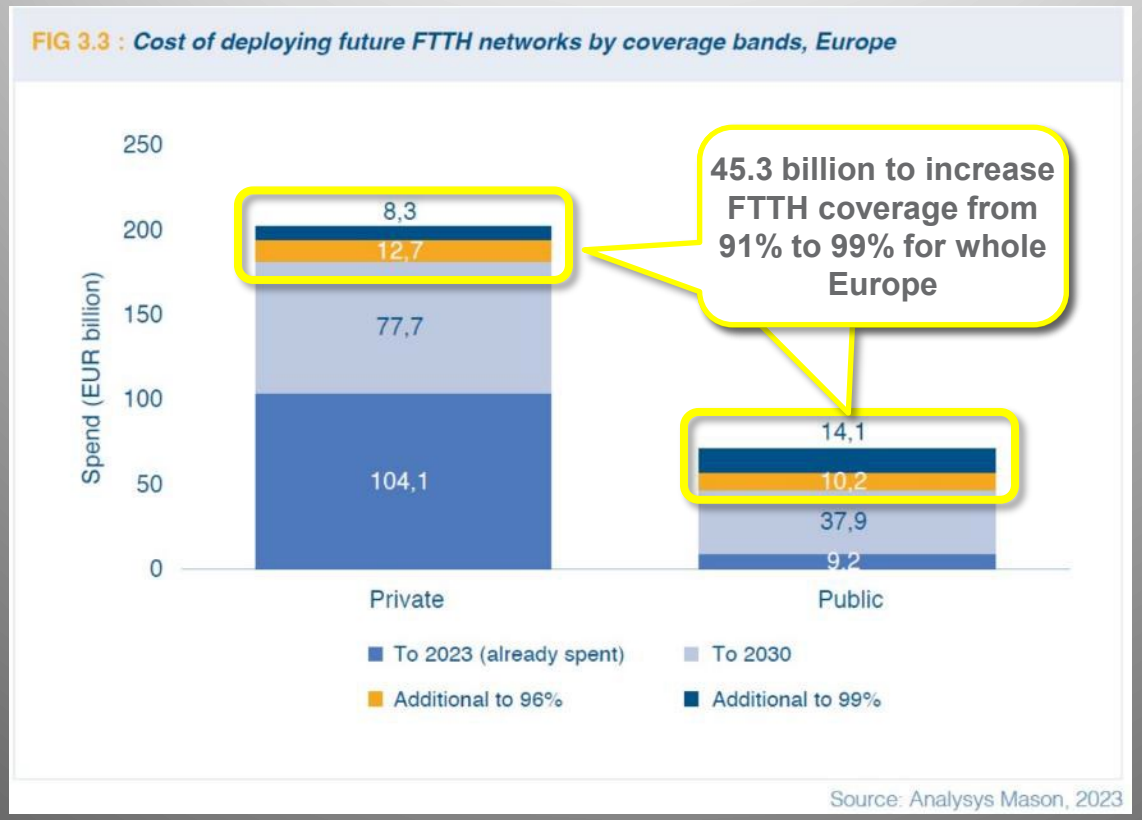
Connectivity (to foster the widespread deployment of very high-capacity networks, including 5G and fiber)
Expenditure in EUR millions per Member State



- Italy, € 5306
- Greece, € 1403
- Sweden, € 464
- Croatia, € 157
- Lithuania, € 74
- Slovenia, € 30
- Latvia, € 17
- Germany, € 0
- Malta, € 0
- Spain, € 2887
- Austria, € 456
- Bulgaria, € 272
- Romania, € 94
- Cyprus, € 45
- Estonia, € 24
- Denmark, € 13
- Slovakia, € 0
- The Netherlands, € 0
- Poland, € 1431
- France, € 540
- Czechia, € 287
- Belgium, € 35
- Finland, € 32
- Ireland, € 19
- Portugal, € 10
- Luxembourg, € 0

European Commission - RECOVERY AND RESILIENCE SCOREBOARD – Thematic Analysis, April 2024

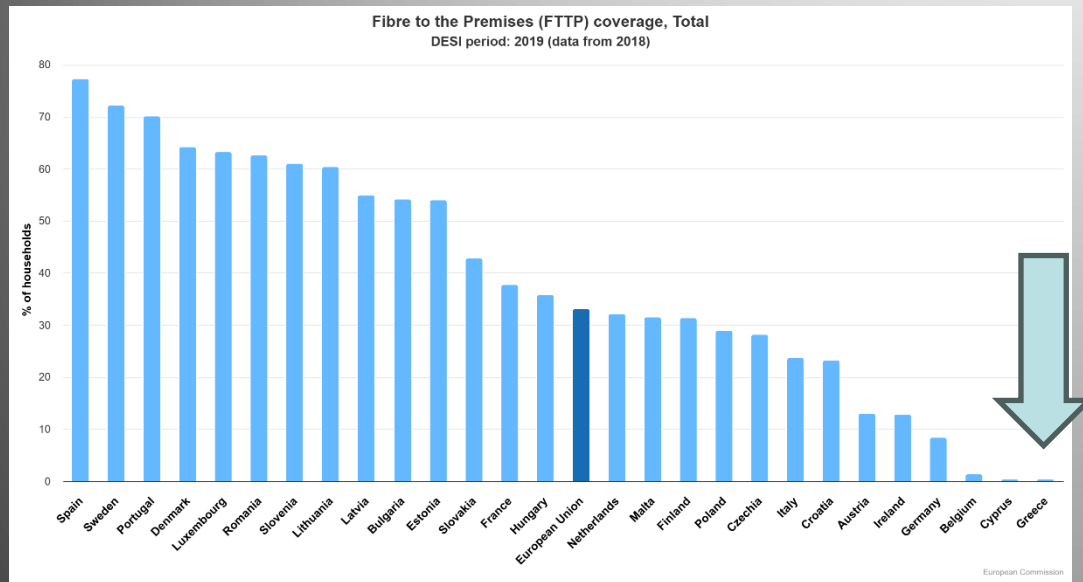
Europe's FTTH projections

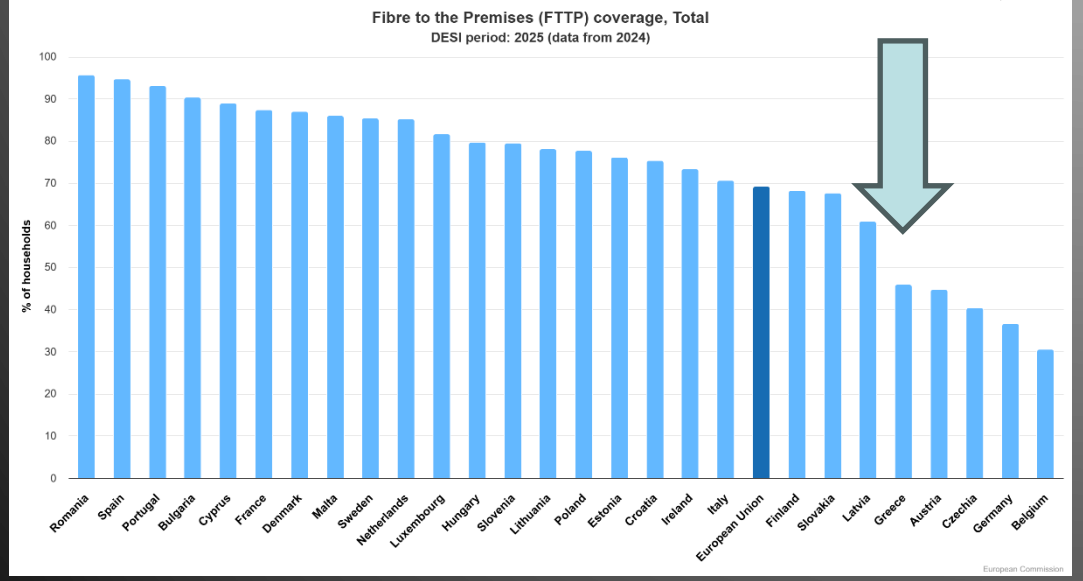


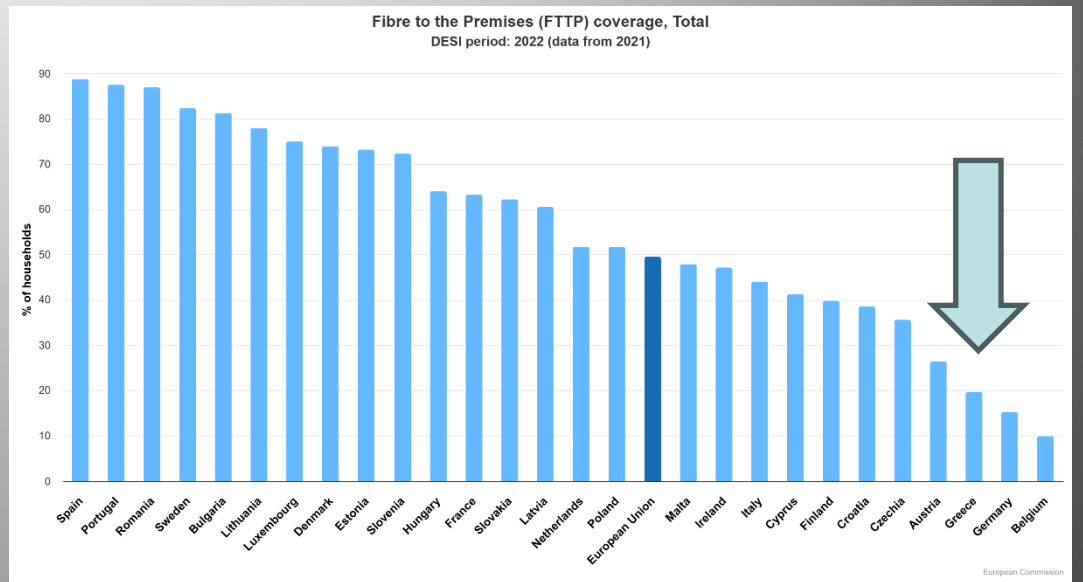
For the EU27 alone, the additional cost for coverage projection (91%) by 2030 amounts to €97 billion and the additional cost to reach 99% is €37 billion

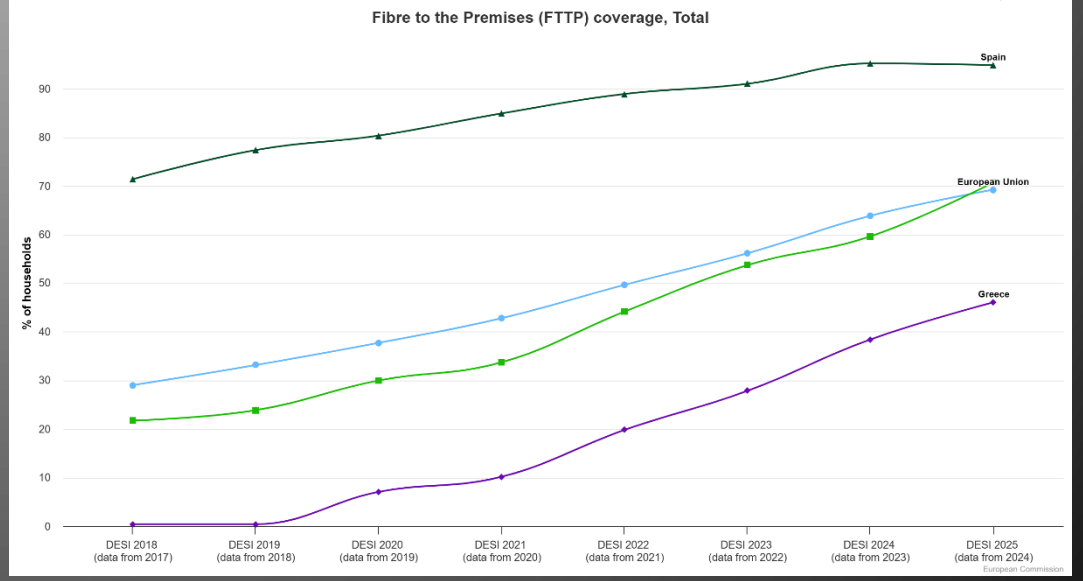
Deploying FTTH/FTTP everywhere is very costly and requires time. Do we have ?

How fast are we deploying FTTP in Greece?

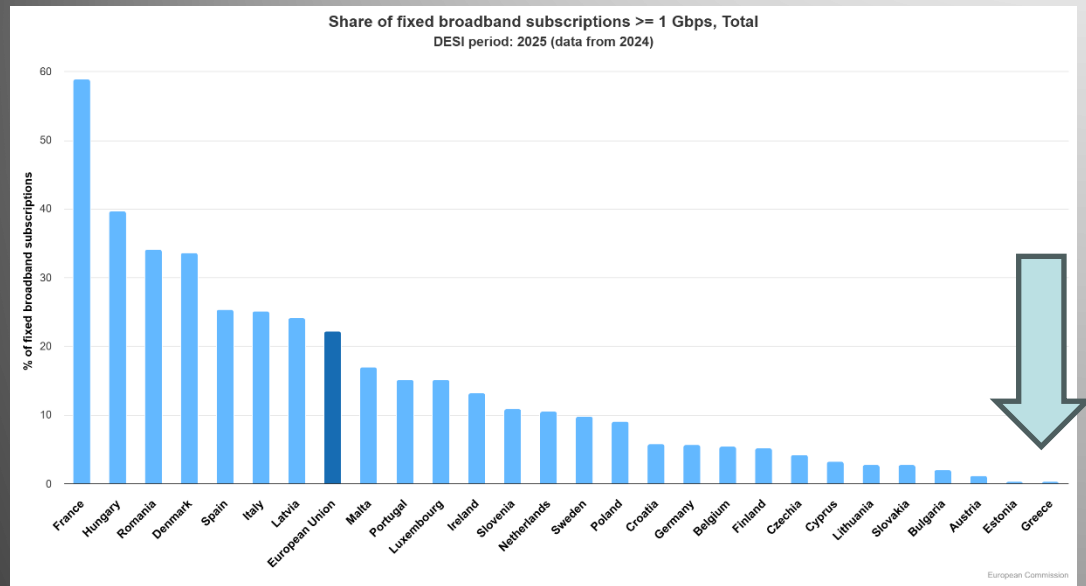


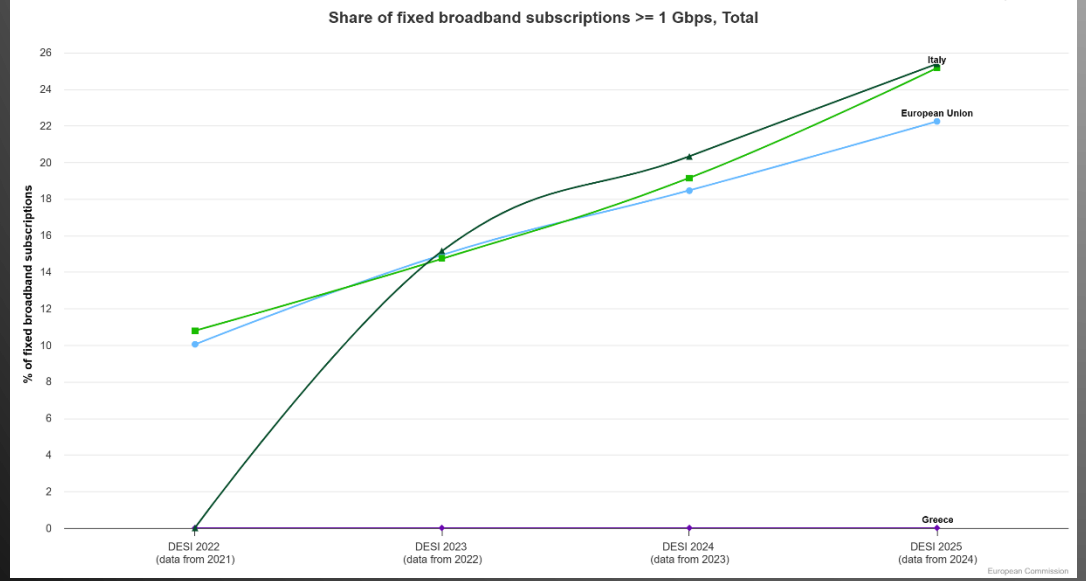


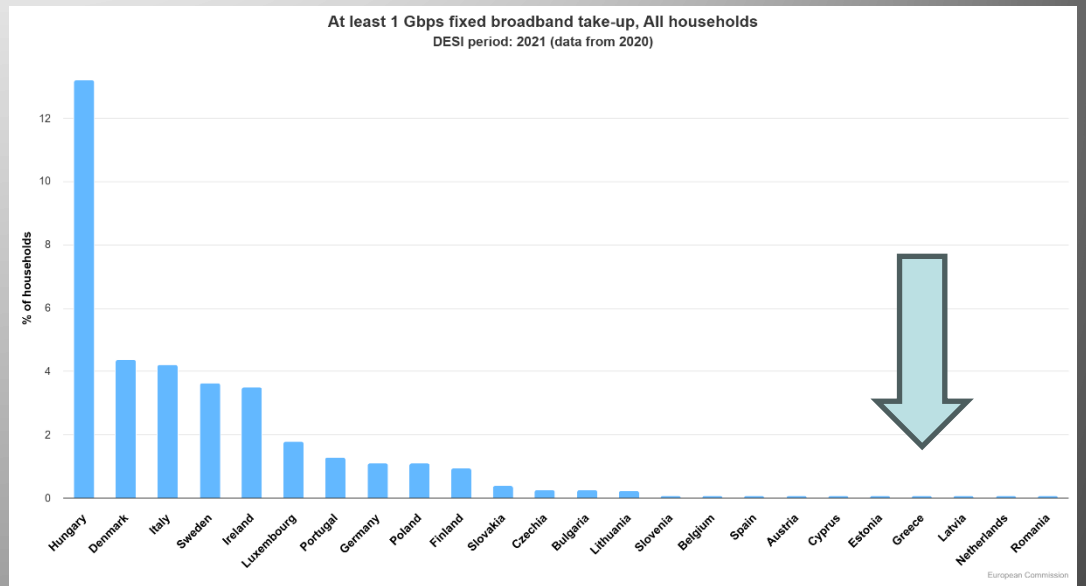


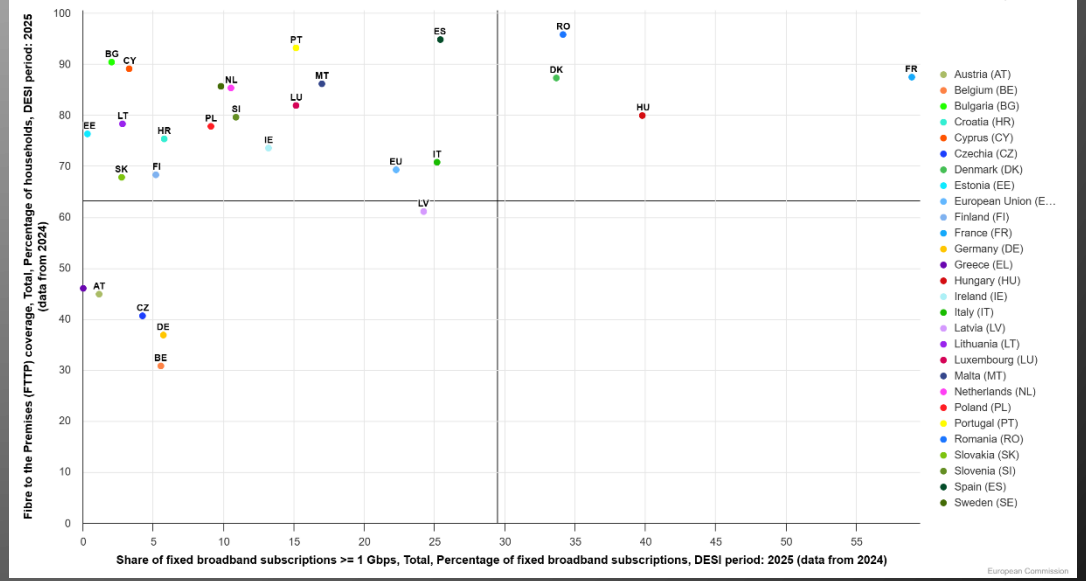


How fast are we activating 1Gbps service in Greece?

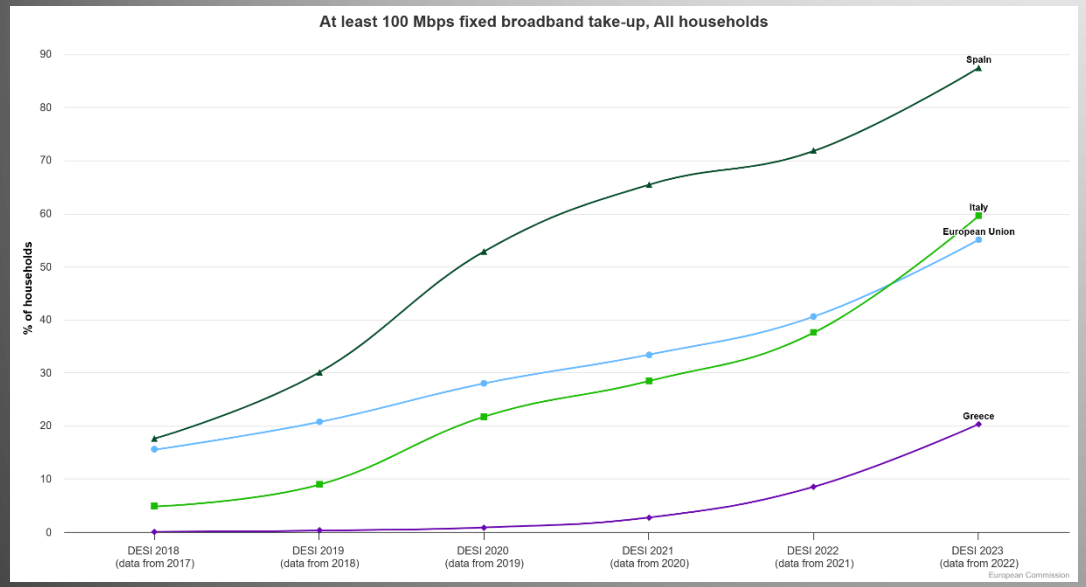


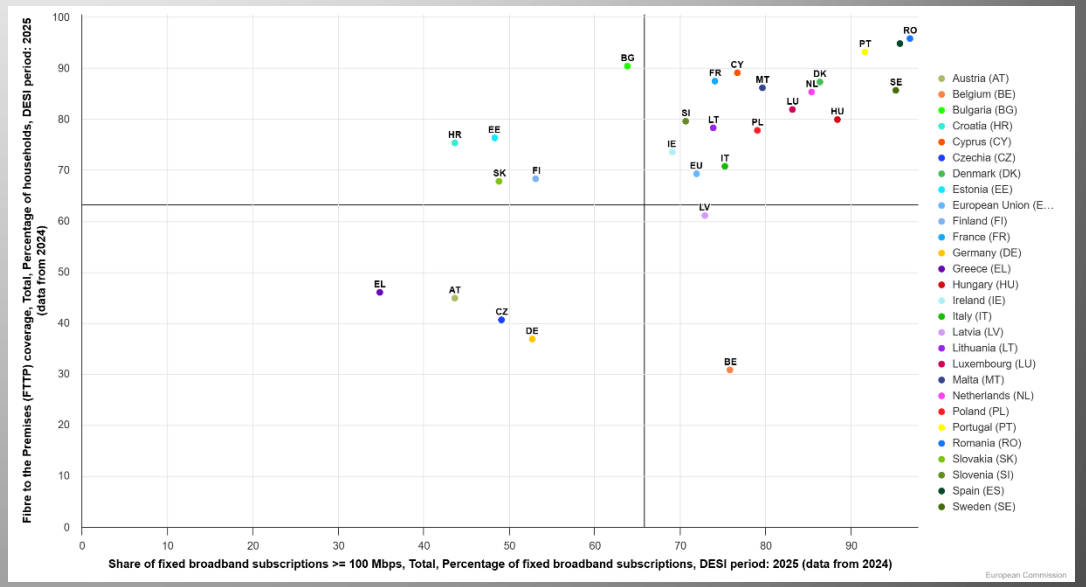


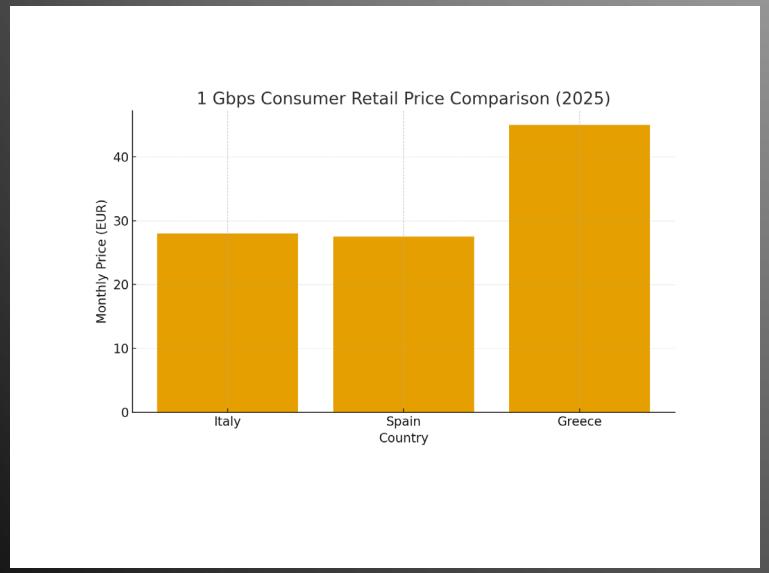




The Greek paradox







The legacy defines our future!

Prices in Greece compared with EU average*

≥30 - <100 Mbps		
Single Play	Double Play	Triple Play
+33%	+4%	-4%

≥100 - <200 Mbps		
Single Play	Double Play	Triple Play
+33%	+4%	-7%

≥200 - <999 Mbps		
Single Play	Double Play	Triple Play
+22%	-4%	-12%

≥ 1 Gbps		
Single Play	Double Play	Triple Play
+9%	-10%	-16%

*deviation in percent from the EU average in the respective basket/bundle combination

Prices in Italy compared with EU average*

≥30 - <100 Mbps		
Single Play	Double Play	Triple Play
+29%	+7%	+12%

≥100 - <200 Mbps		
Single Play	Double Play	Triple Play
+24%	+4%	+9%

≥200 - <999 Mbps		
Single Play	Double Play	Triple Play
+14%	-5%	+3%

≥ 1 Gbps		
Single Play	Double Play	Triple Play
-21%	-31%	-19%

*deviation in percent from the EU average in the respective basket/bundle combination

Prices in Spain compared with EU average*

≥30 - <100 Mbps		
Single Play	Double Play	Triple Play
-15%	-25%	+1%

≥100 - <200 Mbps		
Single Play	Double Play	Triple Play
-18%	-28%	-2%

≥200 - <999 Mbps		
Single Play	Double Play	Triple Play
-25%	-33%	-8%

≥ 1 Gbps		
Single Play	Double Play	Triple Play
-32%	-39%	-8%

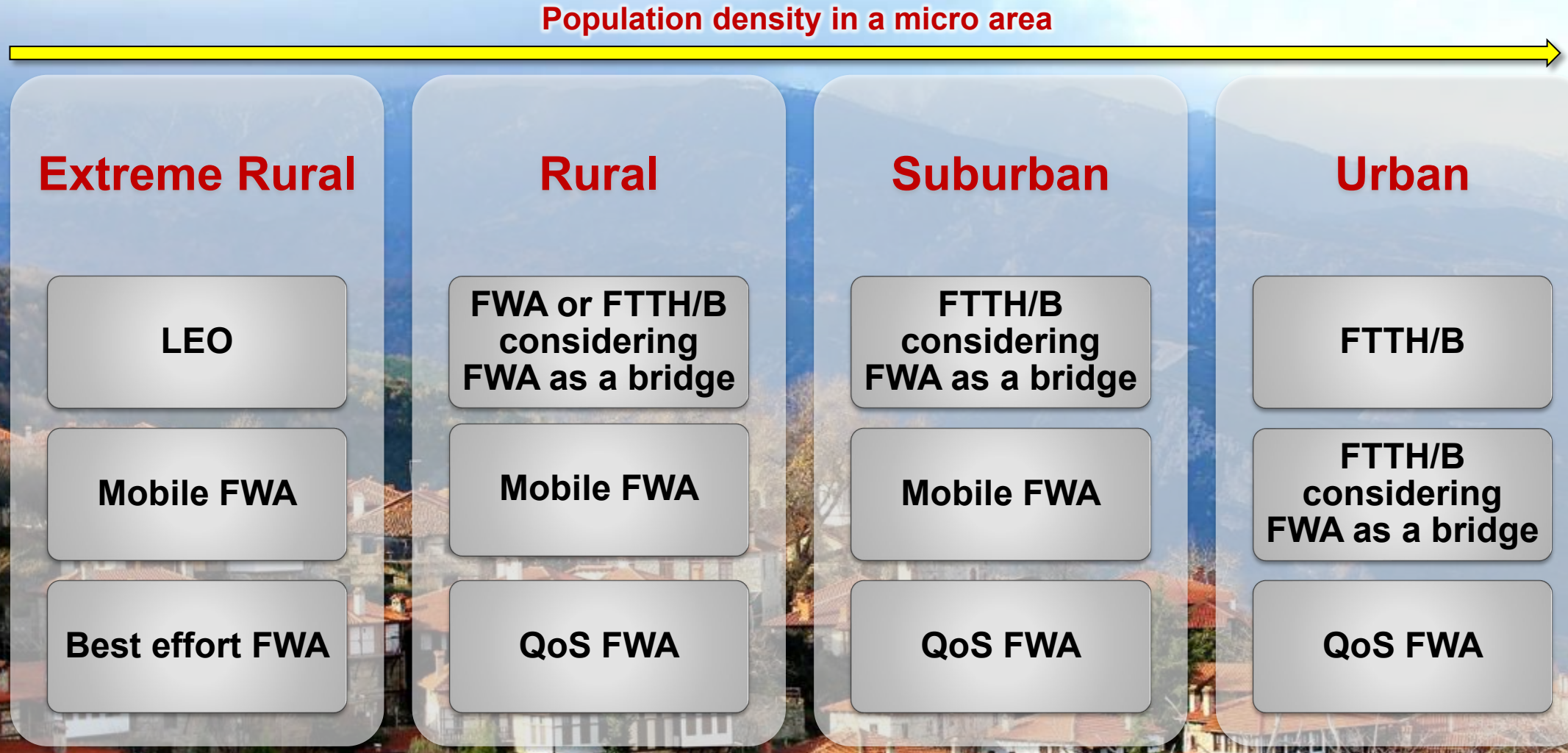
*deviation in percent from the EU average in the respective basket/bundle combination

Source: European Commission, 2023

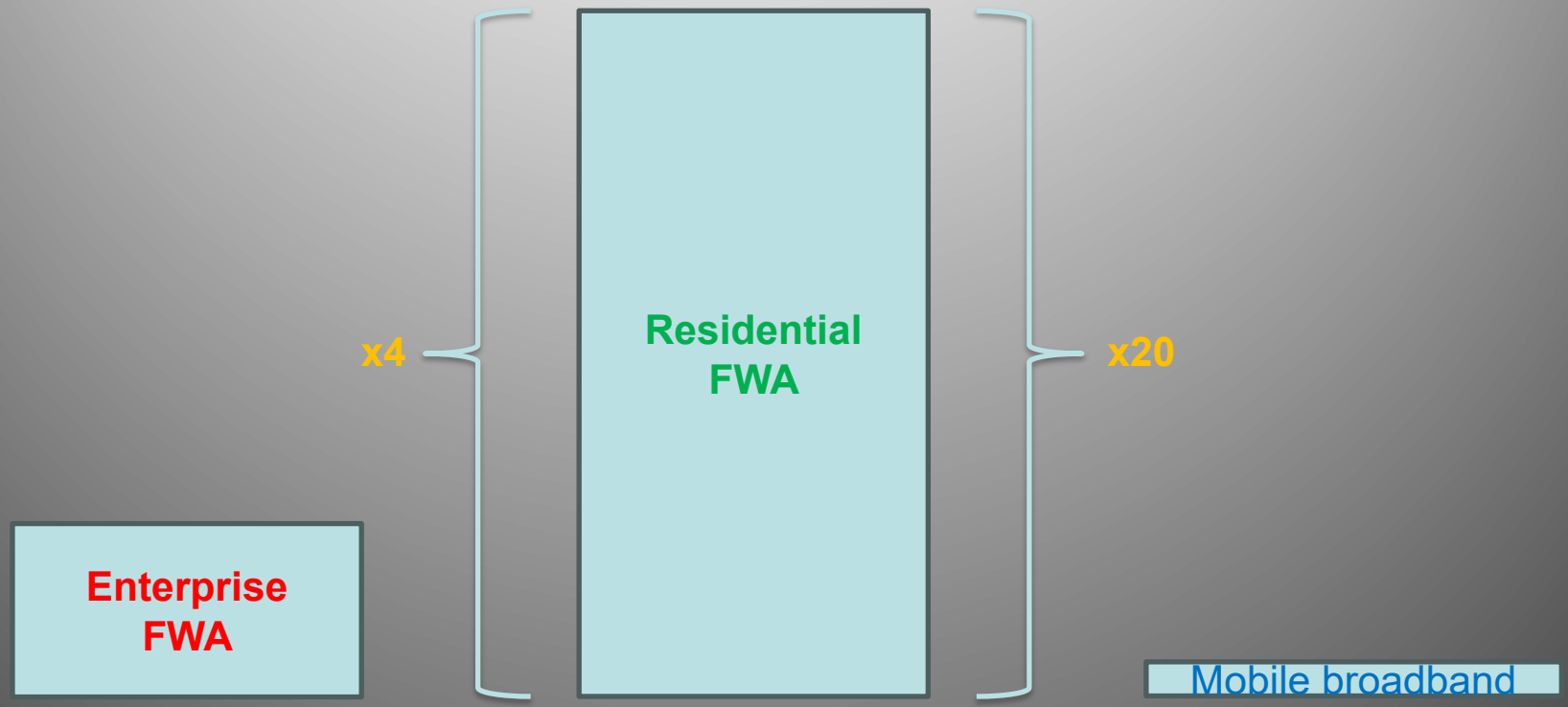
FTTH…slow progress, expensive, not everywhere

What else can we do to expedite Gigabit to the Home and reduce its cost?

A toolbox of technologies



Mobile BB vs business FWA vs residential FWA



Are the Mobile networks ready to support also FWA?

Impact on Mobile FWA capacity planning & optimization: COVID-19 and AI vs. usual triple-play model

	COVID-19	AI APPs
Locality of capacity demand	X	
Downlink capacity	X	X
Uplink capacity		X
Traffic pattern	X	X
QoS	X	X

Are the Mobile networks ready to support also FWA and its growth?

Mobile RAN…everywhere but best effort

Can we rely on QoS FWA?

Broadband access, homes, businesses, industries

Telecom

- Home & business ultra-broadband access
- Digital TV broadcast networking
- Private enterprise networks

Reliable FWA for

- Activation of TV streaming service
- Activation of service with committed rate
- Activation of service with committed quality

Retail business model

- Broadband Access (FWA) to homes
- Broadband Access (FWA) to industrial campus
- Broadband Access (FWA) to shopping malls
- Broadband Access (FWA) to SMEs

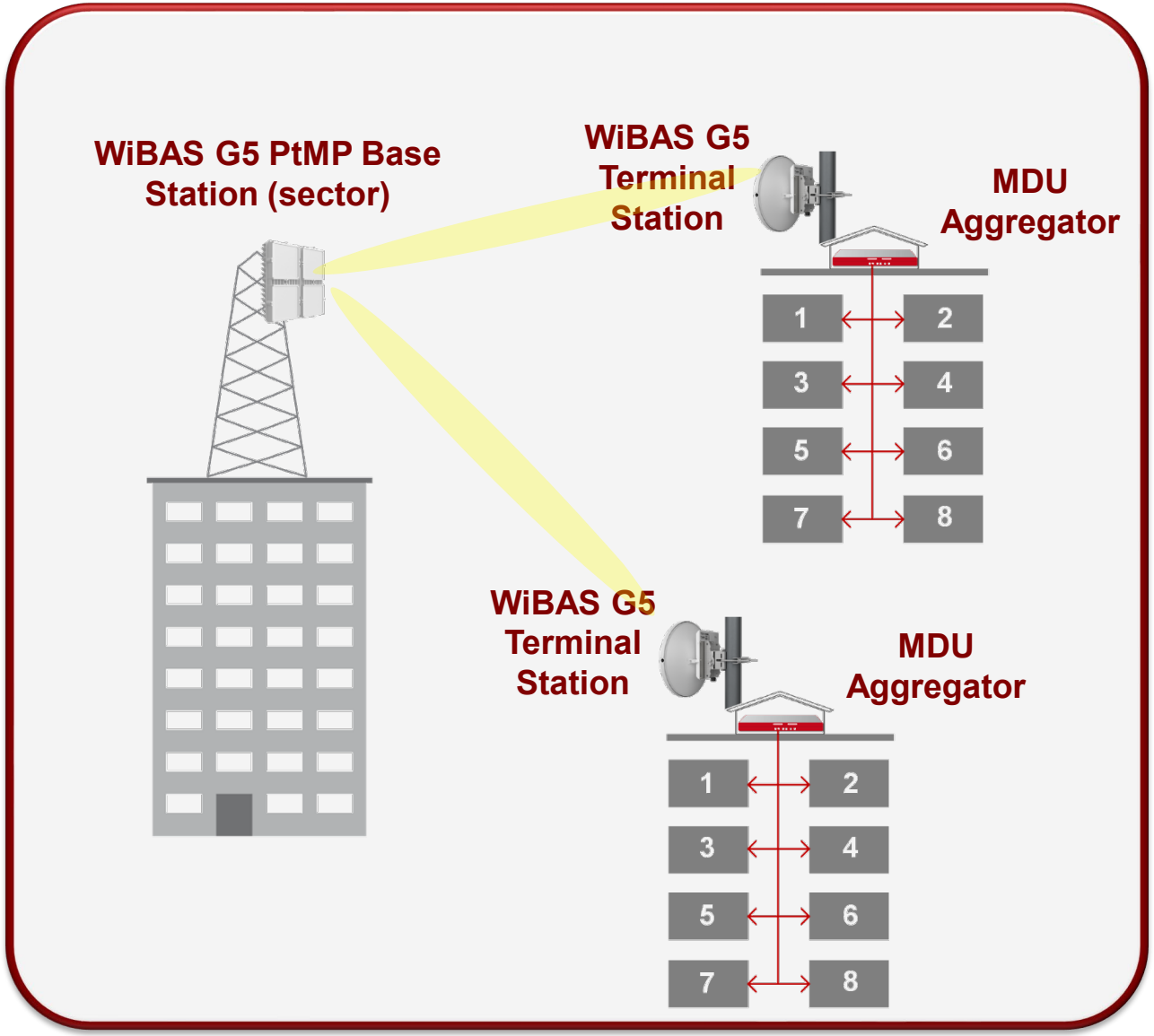
Wholesale business model

- Leasing of circuits to operators/ISPs
- Leasing of circuits to government
- Leasing of circuits to private enterprises

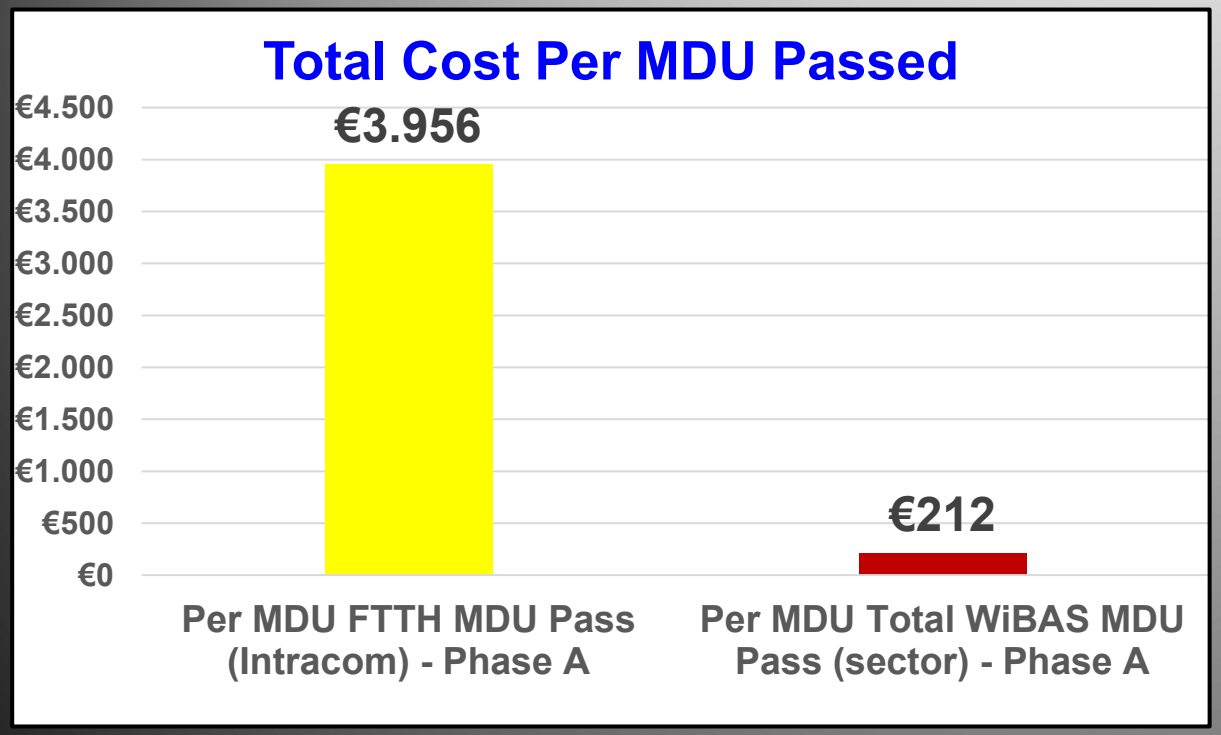
mm wave FWA to/for Multi Dwelling Units – Gigabit to the Tenant

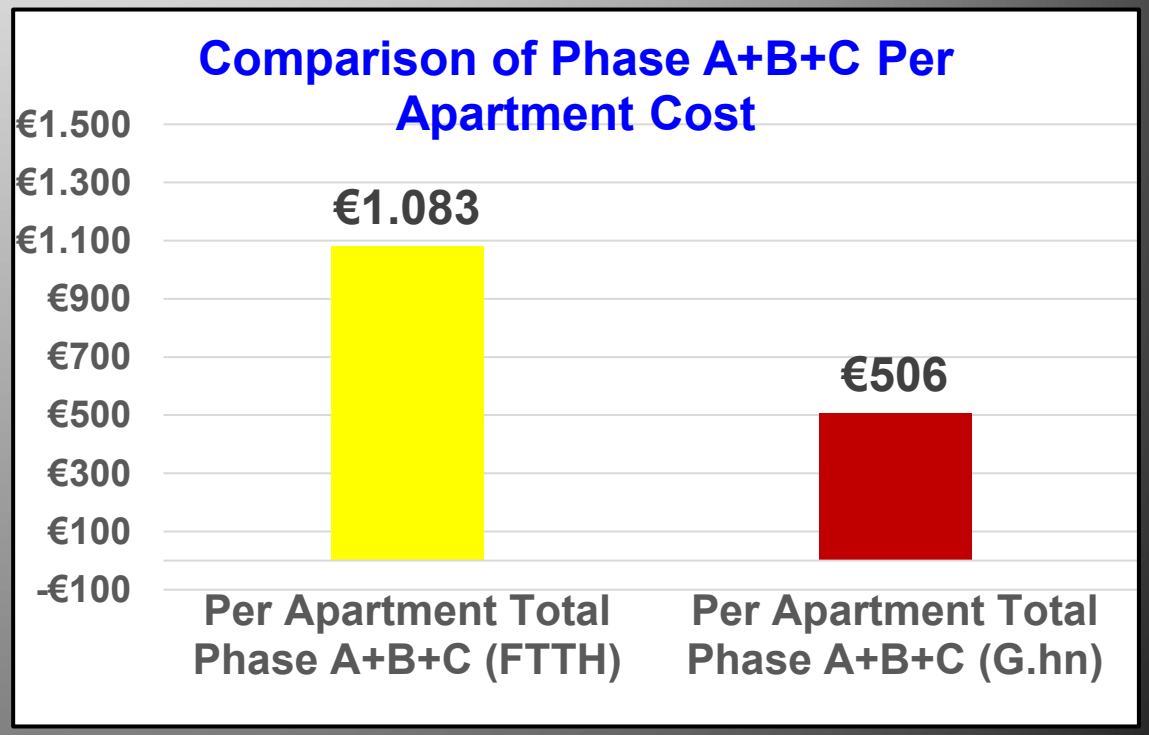
Why QoS FWA for Gigabit-to-the MDU

- Faster deployment than FTTH
  - No trenching
  - No MDU wiring
- Old problems solved
  - Reverse power feed
  - All outdoor
- Wider window of opportunity



Economics for Gigabit to the Building (MDU) and to the Tenant





Fast to gain market share, at lower cost per tenant, enabling Gigabit, with QoS

Devices and Intelligence

Automatic and Proactive situation management

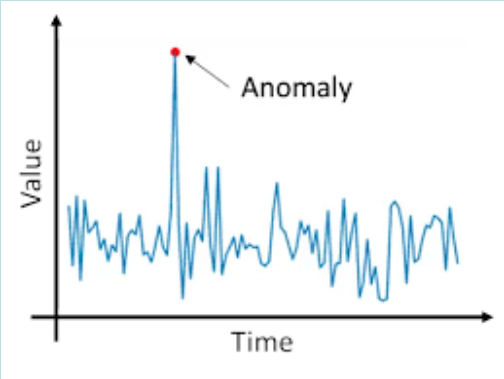
AI Engagement: Target / Objectives

Reduce energy consumption and carbon footprint

- FWA Radio Terminals configuration optimization
- MIMO optimization based on predicted network load
- E2E Radio backhaul optimization

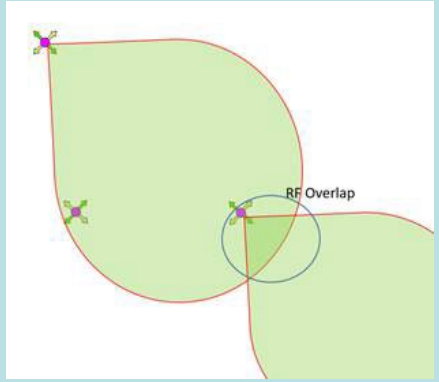
Predict and mitigate performance and reliability issues

- Anomaly detection
- Root-cause analysis
- Interference analysis
- Self-healing recommendations
- Closed Loops



Optimize network (interference, configuration, …)

- Interference mitigation
- Equipment reprovisioning
- Reallocation of terminals
- Gap filling with sector (re)configuration
- New sector recommendation (for geography, capacity, quality, etc.)



AI/ML Use Cases in the FWA Space

- **Power consumption efficiency**
  - Traffic-aware **MIMO scaling**, antenna muting / RF-chain shut-down and **deep sleep** techniques
- **Performance diagnostics**
  - **Classify detected network degradation issues** (e.g. overload, coverage, interference, latency) utilizing anomaly detection algorithms, to improve operational efficiency and enhance resolution times
  - **Failure predictions for network elements** using relevant telemetry data (historical and active) and anomaly detection algorithms, enabling cost savings and enhanced uptime
- **Performance optimizer**
  - **Interference mitigation and gap filling** with sector and terminal (re)configuration and new sector recommendation (for geography, capacity, quality, etc.), to improve network efficiency
  - **FWA Radio Terminals optimization** (reprovisioning) and/or reallocation to sectors, to adapt to network conditions
- **CapEx Planning**
  - **Predictive CapEx planning** – time-series forecasting of per-site throughput growth to schedule sector upgrades 6-12 months ahead

QoS FWA – Accelerator for gigabit to everyone, anywhere

- **Fiber-Like Performance, No Delays**
  - Multi-Gigabit speeds without fiber trenching
  - Instant broadband with minimal disruption
- **Rapid, Scalable Deployment**
  - No costly last-mile fiber builds
  - Deploys in weeks, accelerating copper phase-out
- **Future-Proof,mmWave Licensed Spectrum**
  - Stable, interference-free connectivity
  - Avoids congestion & regulatory uncertainty