

5G and FTTH Business Value & Strategy

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5G & FTTH enabling business developments:

Everything is Connected



Technology



Standardization



Policy & Industry pressure



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5G Key Technology Innovations



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https://spectrum.ieee.org/video/telecom/wireless/everything-you-need-to-know-about-5g



What benefit do innovations promise to end-user



What industries are the first to adopt it or benefit from 5G

Vertical Industries that express interest for 5G Pilot & Use

- MEDIA & Entertainment
- Automotive (Autonomous driving AVG)
- Gaming/VR/AR
- Energy/Smart Grids (IoT)
- Aquacultures / Farming
- eHealth (critical care and patient monitoring)
- Shipping & Logistics
- Public Utilities (Power, Water, Gas,...)
- Municipalities (Smart cities, parking, traffic control, tourism, etc.)
- State Authorities (electronic transactions)









Performance and Flexibility at the expense of complexity

UE may have one or more parallel PDU sessions, each with UPF and SMF

UPF may be chained (e.g. visited/home network instances, local DC support)

AMFs may be interconnected (i.e. between old AMF and new AMF)

NRF interfaces to all other control functions to assist discovery

Services exposed could be reused by any authorized consumer

UDSF interfaces to any control function to store unstructured data, may be centralized or placed near to each NF

Clear separation orthogonality of responsibilities





Global Trends

By 2025 (3GPP releases 14 to 16)

- -FTTH will be established as the **single** technology for household connectivity to meet the increased needs of multiple users in the new environment.
- -5 billion people will be accessing the internet through the mobile
- -5G will account for almost 1 in every 7 connections (14%) worldwide
- Global penetration of mobile will reach 110%, reaching9 billion mobile connections
- -6 billion unique subscribers
- -25 billion IoT devices connected



Cosmote footprint and plan 1/3

- Telecom market in Greece is recovering, due to better consumer psychology, as well as broadband (F&M) implementation.
- 26% of our broadband customers are served by fiber infrastructure (FTTC & FTTH), reaching 42% of accessed customers.
- Demand for fiber services is constantly increasing.
- We have invested **2 Billion € in 6 years** for our NG networks, being the largest telecom investor in the country.
- We have already activated 13.000 active VDSL/Vectoring Cabinets.
- Implementation still ongoing to reach 15.500 cabinets by Eo2019, enabling 2 million households to access speeds higher than 100Mbps.
- FTTH roll-out is launched & targeting 1 million houses by 2022.



Cosmote footprint and plan 2/3: FTTH

FTTH Deployment Areas: we need to differentiate in 3 cases:

- Areas around 550m from the Local Exchange (Central Office) where there is no NGA (FTTC) deployment. These areas are characterized as NGA White Areas
- Areas where OTE has already deployed FTTC but they are of high interest for FTTH as well. These areas are characterized as NGA Grey Areas
- c. Newly build areas with no prior cabling infrastructure, Greenfield Areas



Cosmote footprint and plan 3/3: basic FTTH aspects



- Active Equipment in the Central Office (GPON-OLT)
- Optical Distribution Frame (Termination of feeder cable in the Central Office)
- Feeder Optical Cable (1 optical fiber/GPON port at the OLT)
- Optical Splitters (Up to two levels of splitting with total ratio 1:32)
- Passive Optical Cabinet (ODF and Optical Splitters)
- Optical Distribution Cables (4 fiber or 12 fiber cables)
- Optical Building Entry Boxes (OBE) of different sizes (including the second level of splitting)
- Internal Building infrastructure (Vertical + Floor Box + Horizontal) for Big Buildings
- Optical Termination Outlet (OTO) inside each flat
- User GPON ONT





















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More is needed than Technology & Standardization

- New Spectrum License Acquisition can be expensive and delay rollouts.
- Dense Coverage, early enough, can be delayed due to **Regulatory** and **Antenna/Site** acquisition.
- **Powering** of the new sites can take long (in FTTC/B we experience up to 12 months delays).
- Ability and willingness of the users and B2B customers to **change/upgrade** their devices and infrastructure.
- Taxation and heavy usage charges can also delay adoption.
- Complex Operation Model.
- Higher scale of active **Points of Presence**.
- Usage & Content, Digital State Transactions

or, it will be too little, too late.

"

High speed networks exist. However, penetration has to do with crisis, which was faced by consumers, and is directly dependent on something much bigger: the new digital era....

.... Where we'll be in 5 years, not only in Greece, but also in Europe, depends on us...

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Michael Tsamaz, CEO, OTE Group



Thank you for your Attention

Q&A

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