5G & FTTH: the Value of Convergence 13 December 2019, Florence Erzsébet Fitori, Director General FTTH Council Europe

5G & FTTH THE VALUE OF CONVERGENCE

Fibre to the Home

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5G and FTTH: The Value of Convergence

Fibre deployment is the main underlying infrastructure of 5G and it will be instrumental to reach the European 5G related Gigabit Society objectives. FTTH Councils' Global Alliance published a study on fibre 5G convergence estimating the cost value of deploying a converged fibre-5G network in a variety of scenarios.



5G and FTTH: The Value of Convergence

Assumptions: 3 areas







Between 65% and 96% of Fibre costs for 5G xHaul can be eliminated by rolling out an optimised and future proof converged fibre network The extra investment needed to immediately make an FTTH network ready for 5G (even for high density of cells) is only 1% to 7%

KEY FINDINGS

In some cases the cost for fibre to 5G can be virtually eliminated which can potentially decrease the total cost of 5G by order of 50%

5G and FTTH: The Value of Convergence Fibre 5G Convergence – cost savings vs additional



costs

	High Cell Density	Medium Cell Density	Low Cell Density
High Dense Area	74% 5,6%	75% 3,8%	96% 0,4%
Medium Dense Area	75% 7,2%	83% 3,2%	93% 0,8%
Low Dense Area	65% 6,6%	81% 2,7%	85% 1,9%

% of FTT5G saved by convergence -- % of extra investment to make FTTH 5G-ready

Costs included: OSP fiber network (passives) + OLT





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FIBRE INVESTMENT & UPTAKE

FTTH deployment is essentially construction work and the prerequisite of speedy and cost efficient deployment is removing red tape and practical & administrative barriers to FTTH roll out – revision of BCRD.







COPPER SWITCH OFF

Clarity on the treatment and ultimate switchoff of legacy copper networks is very important factor for the fibre investment case. Fibre consumes 40-60% less energy than copper.



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MISLEADING FIBRE ADS

The FTTH Council Europe is promoting fair commercial practices and efficient use of networks by addressing misleading fibre advertising and complementing the new European Electrinic Communications Code (EECC) with guidelines on fibre commercials. Misleading advertising undermines the value proposition of fibre (and potentially 5G), might suppress demand & ultimately the investment incentives.



Assumptions: Costs

INCLUDED

EXCLUDED

- OSP Fiber Network
 - Trenching
 - Ducts
 - Cables
 - Closures
 - Poles
- ISP Central Office
 - ODF
 - Racks

• Fiber Active Equipment

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- 5G Active Equipment
- 5G Site Acquisition
- •5G Spectrum

Assumptions and Objectives

• Heterogeneous 5G Network:

Macro Cells [MC] (on dominant rooftops): current 4G Macro Sites considered if available Small-Cells [SC] (on lamp posts) In High-dense area: additional indoor hotspots in train station, university campus, cultural centre, ..

• Carrier frequency:

3,5 GHz (MC and SC) 26 GHz (SC*)

Two sectors, pointing in opposite directions

• Beamforming

Beam-switching technique

• Target:

Minimum data rate in streets (& optionally indoor) For different target outdoor coverage percentages

Assumptions and Objectives

	High Cell Density	Medium Cell Density	Low Cell Density
High Dense Area	MC+SC @ 3,5GHz: 100%	MC+SC @ 3,5GHz: 100%	MC+SC @ 3,5GHz: 100%
	SC @ 26GHz: 95%	SC @ 26GHz: 50%	SC @ 26GHz: indoor
	+ indoor hotspots	+ indoor hotspots	hotspots only
Medium Dense Area	MC+SC @ 3,5GHz: 100%	MC+SC @ 3,5GHz: 100%	MC+SC @ 3,5GHz: 100%
	SC @ 26GHz: 95%	SC @ 26GHz: 50%	SC @ 26GHz: 25%
Low Dense Area	MC+SC @ 3,5GHz: 70%*	MC+SC @ 3,5GHz: 98%*	MC+SC @ 3,5GHz: 100%*
	(indoor: 30%)	(indoor: 55%)	(indoor: 92%)
	no SC at 26GHz	no SC at 26GHz	no SC at 26GHz

(*) % of "populated" area / villages

Architectural and Material Assumptions

• FTTH (Fiber to the Home / Residential)

P2MP / GPON with 1:32 splitter in Distribution Points

2 fiber per Home (1 active, 1 spare)

Distribution Points / Cabinets per 60 to 96 Homes

Undergound network, with Microducts and Air Blown Fiber cables

Mid span access Feeder cables of 96 or 48 fibers, dropping bundles of 8 fibers per cabinet

• FTT5G (Fiber to the Antenna for 5G)

Fibers per site: 3 scenarios

High fiber count – P2P: 12 active + 12 spare fibers

Low fiber count – P2P: 4 active + 4 spare fibers

High fiber count – P2MP: 12 active + 12 spare fibers, grouped per 4 antennas on an aggregation point with 1:4 splitters

• FTTAll (Converged)

Hybrid GPON and P2P / Share Distribution Ducts, Cabinets, Feeder Cables&Ducts