

# Very High Capacity Networks and infrastructure-based competition

Brussels, 24<sup>th</sup>  
June 2019

**FASTWEB**

# EECC's provisions: Very High Capacity Networks definition

## New key definition of Very High Capacity Networks (VHCN)

- **Article 2(1)(2)**

'very high capacity network' means either an electronic communications network which either consists wholly of optical fibre elements at least up to the distribution point at the serving location or an electronic communications network which is capable of delivering under usual peak-time conditions similar network performance in terms of available down and uplink bandwidth, resilience, error-related parameters, and latency and its variation.

- **Recital (13)**

"in the case of fixed-line connection, this corresponds to network performance equivalent to what is achievable by an optical fibre installation up to a multi-dwelling building" and "in the case of wireless connection, this corresponds to network performance similar to what is achievable based on an optical fibre installation up to the base station."

## Criteria for a network to be considered a VHCN

- **Art 82**

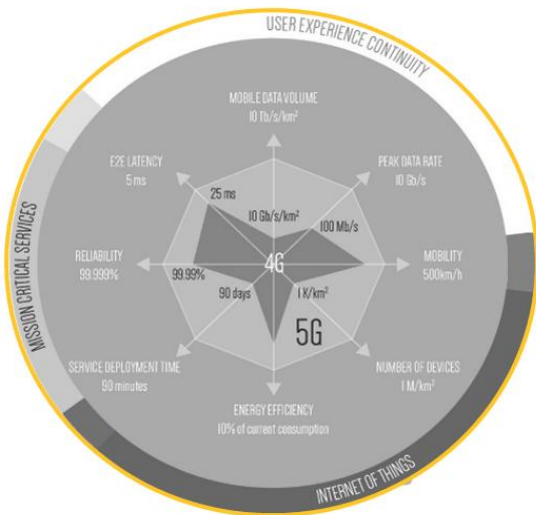
BEREC shall "by 21 December 2020, [...] after consulting stakeholders and in close cooperation with the Commission, issue guidelines on the criteria that a network has to fulfil in order to be considered a very high capacity network."

## BEREC Guidelines: technological neutrality essential for VHCN definition

- The BEREC Guidelines need to define the (quantitative) performance targets a network has to meet in order to be considered a VHCN for the QoS parameters downlink and uplink bandwidth, resilience, error-related parameters, and latency and its variation.
- An effective **technologically neutral approach** would allow BEREC to accurately and genuinely assess not only the state of the art of the QoS achievable by final users, but also the potential evolution.
- BEREC Guidelines should **identify future-proof objective criteria based on quantitative parameters, and not on technical solutions, or on specific standards.**

**Any network which meets the criteria (performance targets) that will be defined in the BEREC Guidelines has to be considered a Very High Capacity Network, including e.g. 5G FWA, based on a technology neutral approach**

### 3 Why 5G qualifies as VHCN



KPI	LTE	5G
<b>LATENCY</b>	25 ms	5 ms
<b>PEAK DATA RATE</b>	100 Mb/s	10 Gb/s
<b>NUMBER OF DEVICES</b>	1K/Km2	1M/Km2



5G parameters will allow performances and quality fully comparable to FTTH networks.

### MILANO: Together to 5G

**Objective:** Fastweb Technology, Marketing & Business Unit collaborate with Digital Magics to promote 3 5G innovative projects proposed by PMI & Start Ups

**Focus:** 5G Applications

**Use Case:** Fixed Wireless Access

**Partner:** Samsung

### MILANO: 1 Gbps FWA

**Objectives:** Test coverage and performance of 26GHz band and launch 5G FWA as an alternative to FTTH

**Focus:** FWA 1Gbps connectivity per user

**Use Case:** FWA (Fixed Wireless Access) test bed

**Partner:** Samsung

### GENOVA: WiFi, LTE-A e 5G

**Objective:** extend WOW FI Outdoor coverage and enable 5G applications

**Focus:** WiFi coverage and 5G applications

**Use Case:** Porto 4.0 and environmental monitoring

**Partner:** Porto Antico di Genova, Ericsson, Leonardo S.p.a

### CAGLIARI: LTE-A e 5G

**Objective:** test Enterprise Networks

**Focus:** 5G Applications

**Use Case:** Smart City, Smart monitoring

**Partner:** CRS4, Regione Sardegna, Huawei

### ROMA: WiFi e 5G

**Objective:** extend WOW FI Outdoor coverage and enable 5G applications

**Focus:** WiFi coverage and 5G applications

**Use Case:** Traffic Mobility, Turismo, Safe City, Waste Management

**Partner:** Comune di Roma, ATAC, Ericsson, ZTE

### BARI & MATERA:

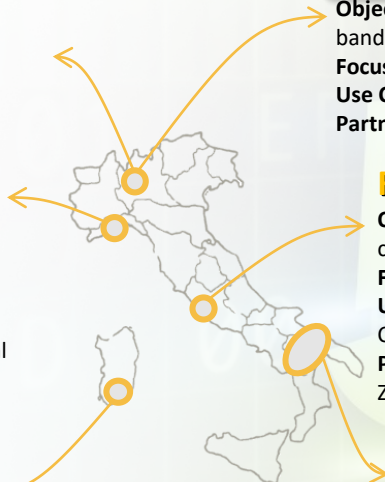
### SPERIMENTAZIONI 5G PRE-COMMERCIALI

**Objective:** showcase real 5G applications for future commercial purposes

**Focus:** mobile coverage, VAS services enabled by 5G

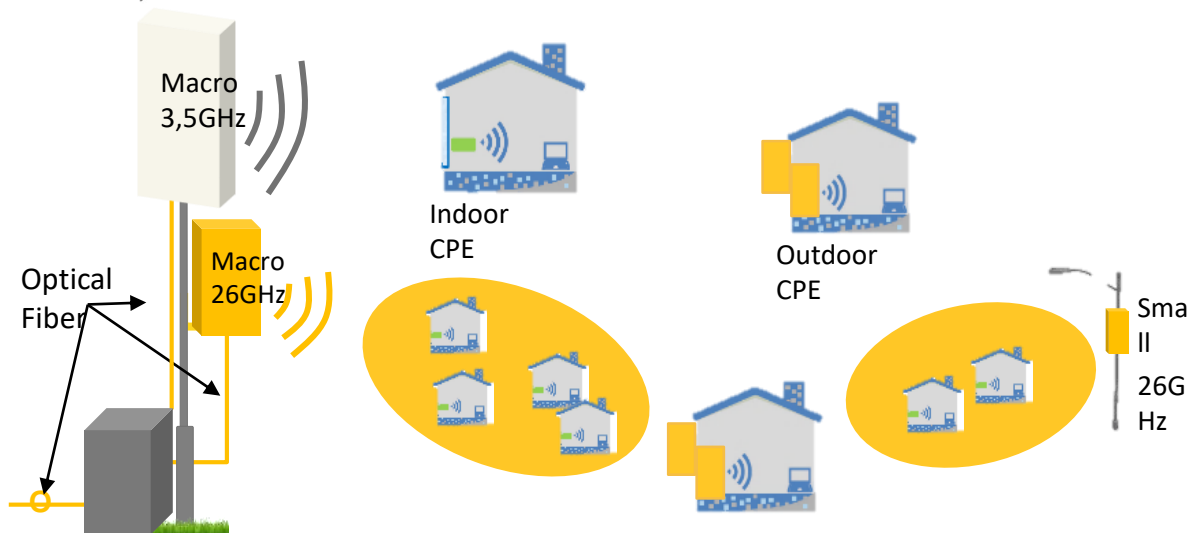
**Use Case:** Porto 4.0, Industria 4.0, Turismo, Safe City

**Partner:** Huawei, Telecom, local partners



## 5 First step towards 5G: FIXED WIRELESS ACCESS...

5G FWA is the first significant application for 5G, enabling up to 1 Gbps connectivity. It will be the first available use case in terms of technological evolution, radio access and available commercial devices.



CPE can be with external or internal antenna depending on radio conditions

## 6

# Field Trials have confirmed potential of FWA 5G performances

Fastweb has carried out the first 5g Fixed Wireless Access trial in Italy



**Performance**



**Deployment**



**Installation**

Download speeds up to **1 Gbps** with a distance up to 500 meters

**Flexibility** and **speed** of deployment due to lack of civil works

**Single receiving equipment** installed on balcony or roof depending on building



## 7 5G FWA: a compelling alternative to FTTH to deliver UBB connectivity

### HIGH THROUGHPUT



**> 1Gbps**  
DL Throughput

### QUICK DEPLOYMENT



**DRILL or DIG**  
not needed

### LOW COST



**ONE CPE**  
to cover an entire  
building

In a truly technology neutral approach, all the wireless solutions capable of delivering fiber-like solutions, and in particular, the FWA based on 5G, must be considered VHCN

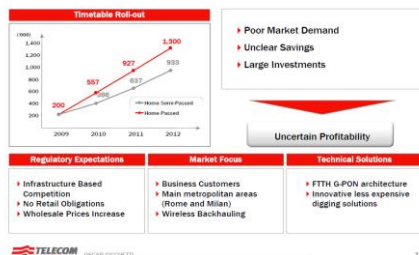


# Infrastructure-based competition remains true driver for NGA investments

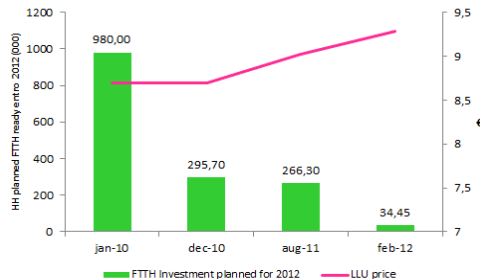
2009-2012

Telecom Italia  
2009 Results & Strategic Plan Update

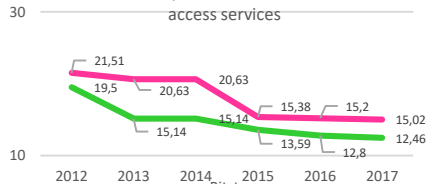
## Wired Access – Fiber Selective Development



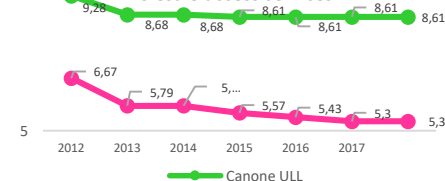
## Piani Investimento FTTH al 2012 da piano Telecom 2009-12



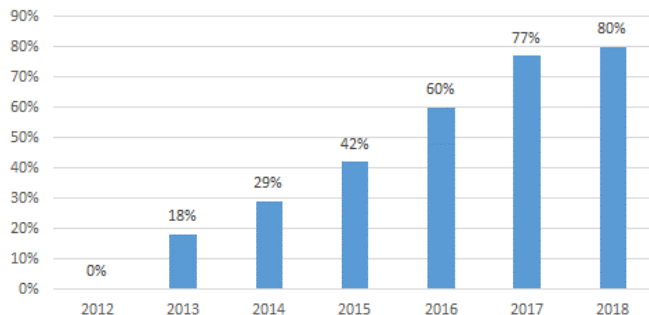
## Evolution of prices for active wholesale access services



## Evolution of prices for passive wholesale access services



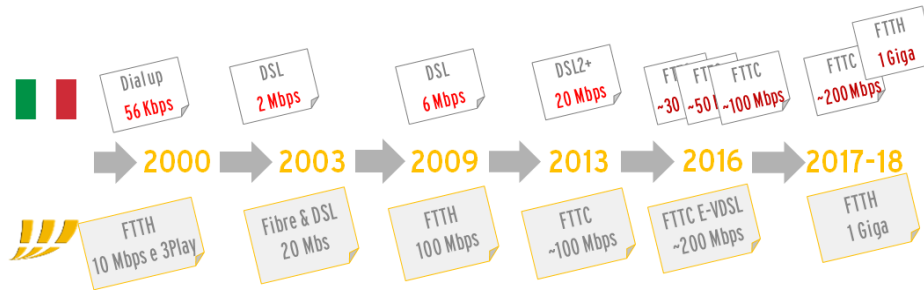
## FTTC Coverage



2013-2017

1  
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# Infrastructure based competition remains true driver for NGA investments

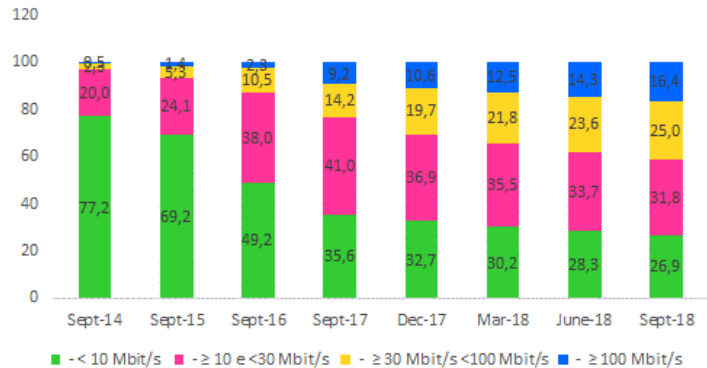


**FLASHFIBER**  
FASTWEB TIM

29 cities & 3 Mln HHs by 2020

open  
fiber

% of Access Lines by Speed



## Future-proof criteria for VHCN definition to ensure infrastructural competition

- The target that a network has to fulfil in order to be considered a very high capacity network should **be future-proof objective criteria based on quantitative parameters, and not on technical solutions, or on specific standards.**
- In a crucial moment of technological step change, the Commission's objectives around VHCN are essential but they should not weaken existing objectives around competition, end-user benefits and definitely the Digital Single Market.
- Any network which meets the performance targets that will be defined in the BEREC Guidelines has to be considered a Very High Capacity Network so as to **ensure infrastructure-based competition as to not stifle both long-term investments and innovation** in a highly dynamic market.



**Experience has shown that infrastructure-based competition has driven investments and VHCN must be identified so as to avoid the risk of creating obsolete definitions in a very crucial phase rich in evolutionary leaps that will shape an era of ubiquitous UBB access**