

# Infrastructure sharing for NGA deployment



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# Fiber deployment: essential needs

Facilities required in the deployment of new High Speed Networks:

- **Civil works in the public domain**
- **Infrastructures in buildings**



Provide operators access to civil works (ducts, chambers) so that they can deploy fiber optics in the public domain...



**by imposing access obligations to the incumbent operator**

**[Part one]**

Provide operators access to infrastructures capable of holding network facilities in buildings...



**by imposing access obligations to all operators owning high speed networks**

**[Part two]**



# 1. Regulated access to Telefonica's civil works

# Importance of civil infrastructures



Infrastructures represent between 60 and 80% of FTTH deployment costs

Replication is hardly feasible to new entrants (300.000 km ducts owned by Telefonica in Spain)



Telefonica has economic and operative advantages in NGA deployment (dominant position)

## In the framework of market 4 access to civil works is imposed to Telefonica

Deployment of FTTH networks

Renting ducts, manholes, poles

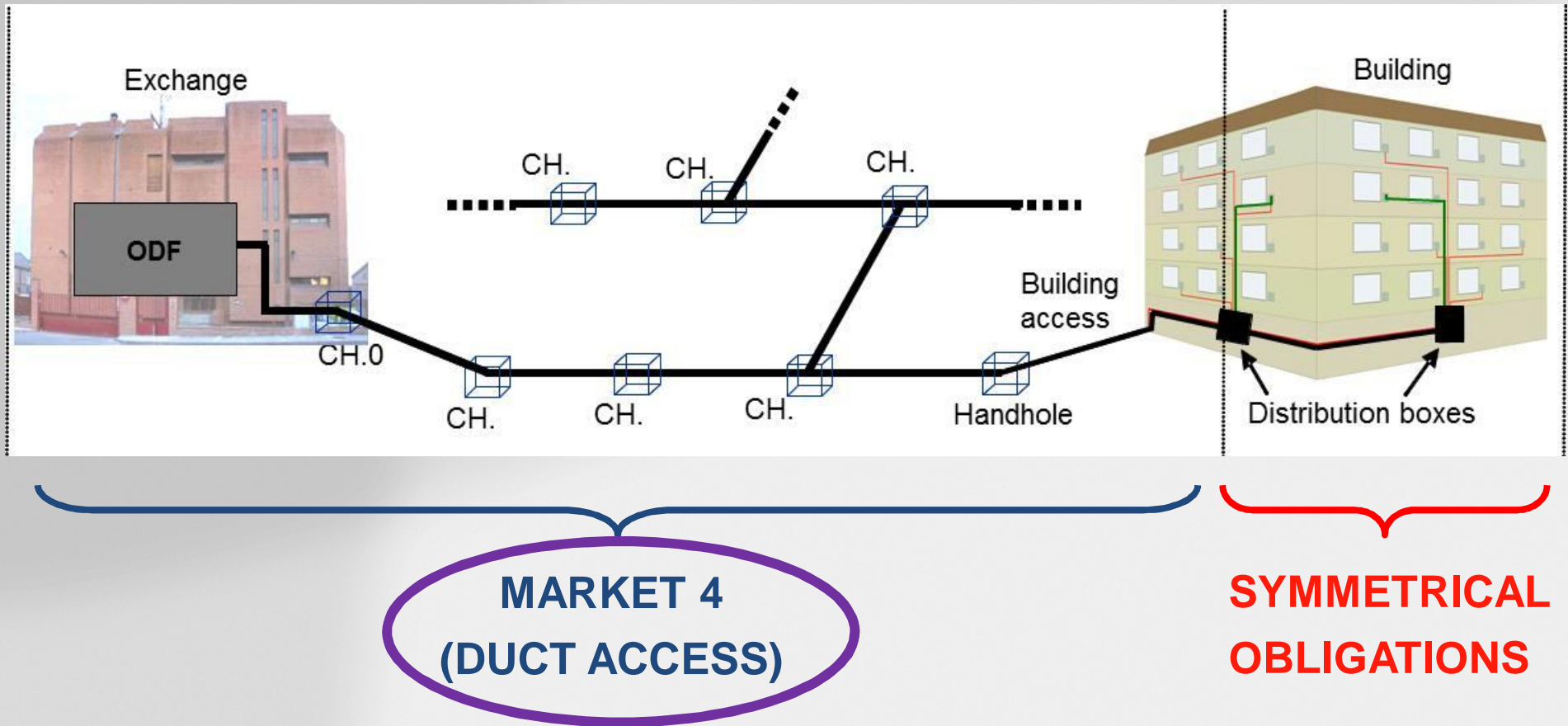
Cost oriented prices, approved by CNMC

Publication of a reference offer:

- Rules about occupation
- Criteria to determine space availability
- Procedures (service provision, alternative solutions, etc.)
- Prices
- SLA and penalties

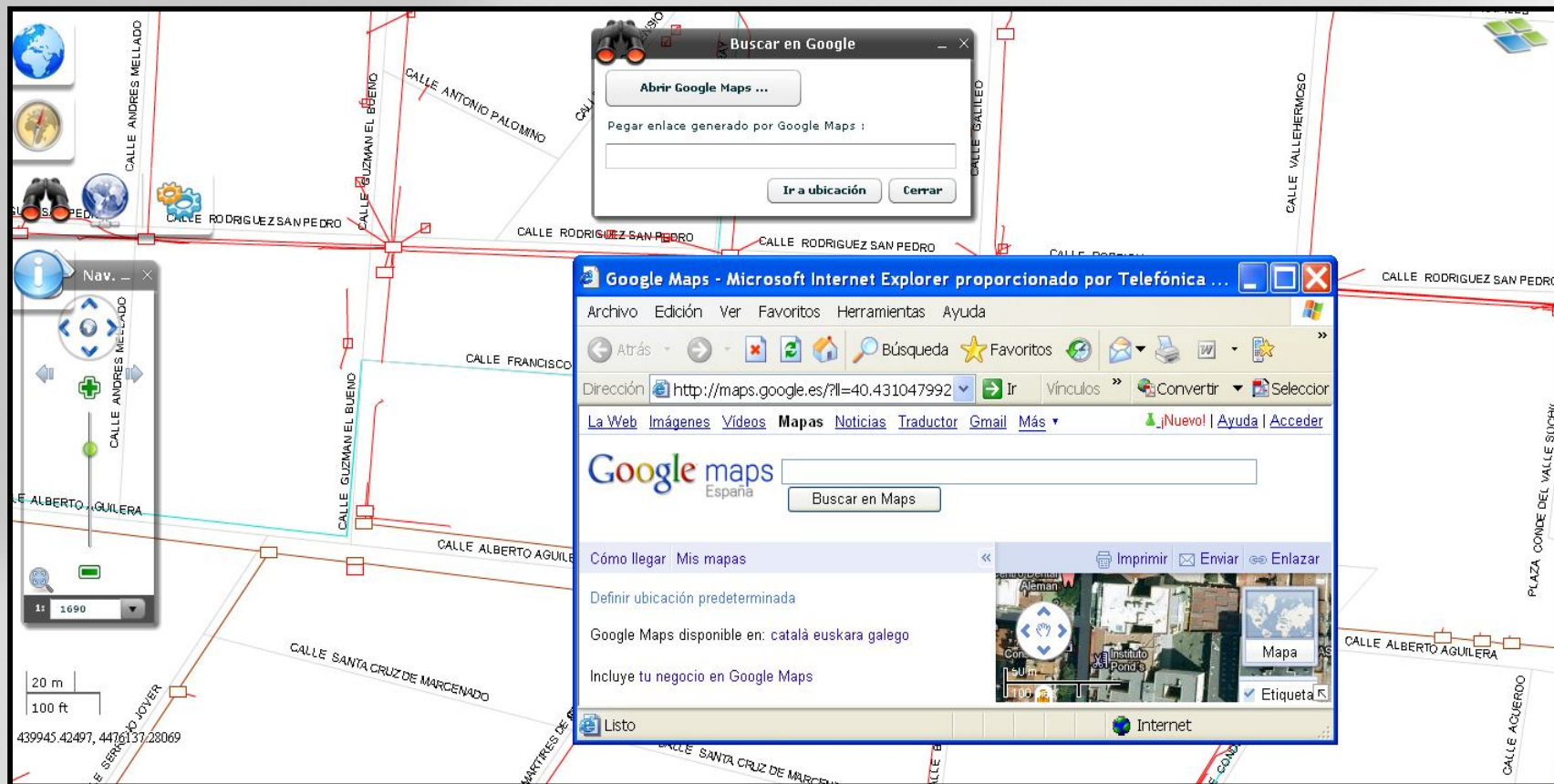


# Scope of the access obligation



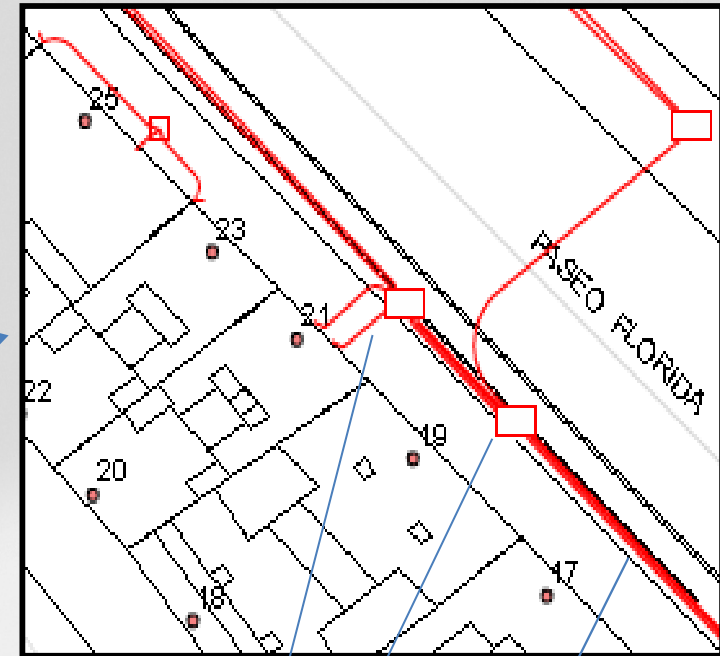
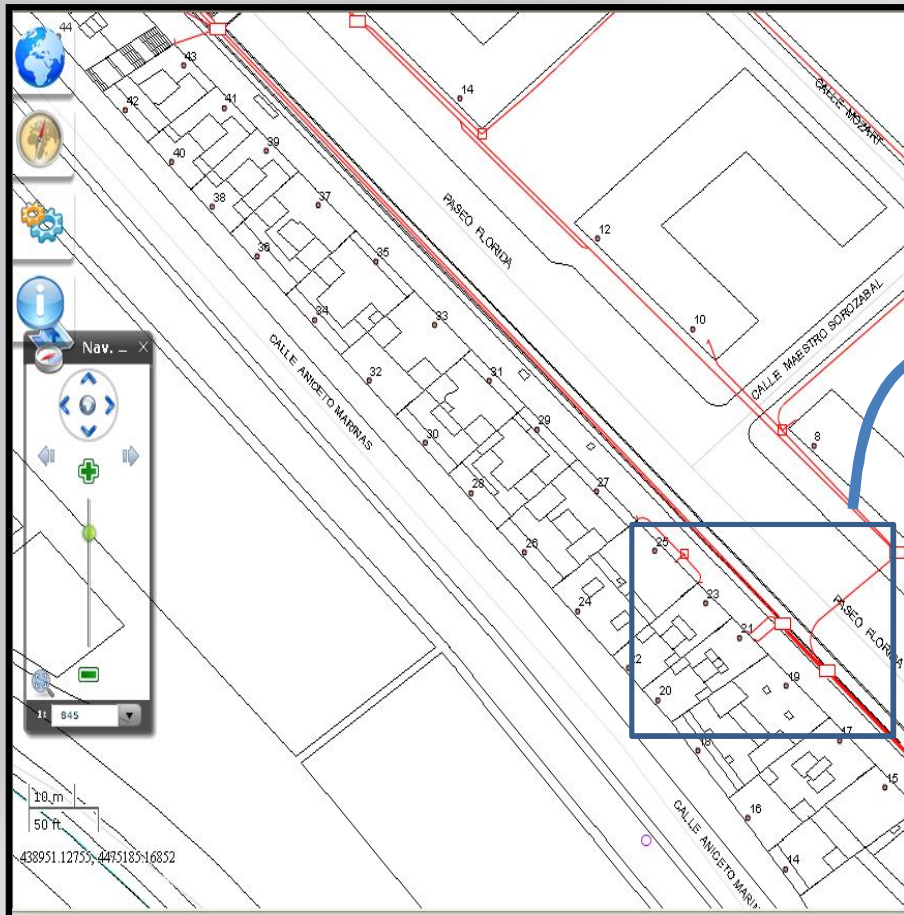
Online access to maps: browsing country wide information about duct location between exchange and building:

Cartography, number and location of ducts, manholes and poles.





# Online access to information



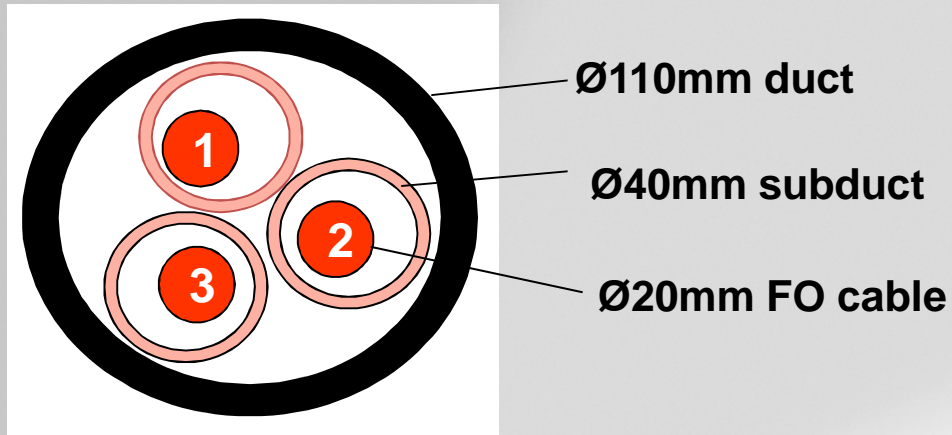
Building access

Manhole

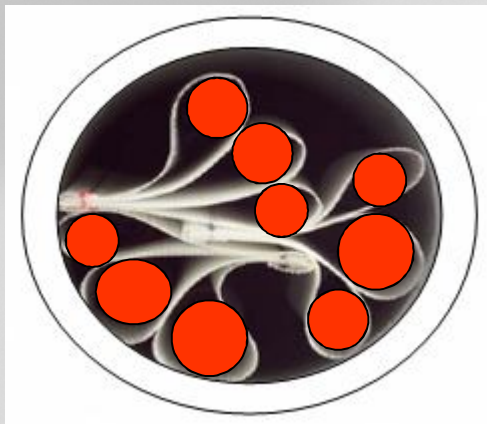
Ducts (number of ducts is available)

# Shared occupation of ducts

**Network separation approach:** Cables 1 / 2 / 3 belong to different operators



**Space scarcity situations (alternative subducting solutions):**



- Flexible subducts
- “Miniducts”



Enhanced space optimization



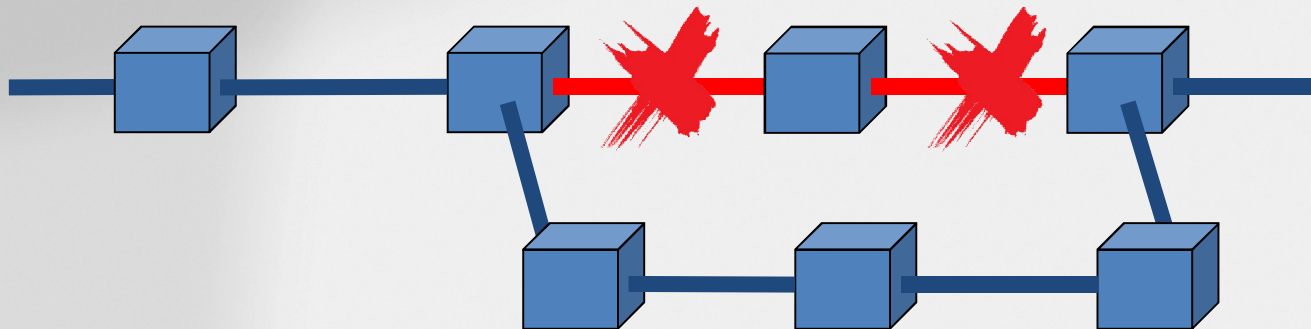
## 1. Alternative paths



Alternative path must be provided  
Additional costs are limited

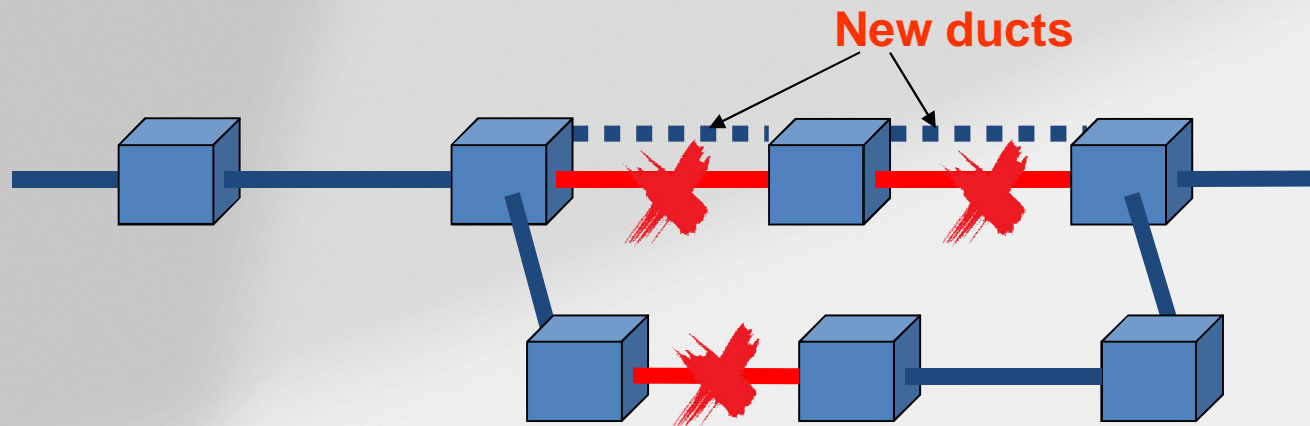


Telefonica is encouraged  
to efficiently identify good  
alternatives



## 2. Construction of new ducts

When no alternative paths are available, Telefonica must increase the section capacity.



Construction costs are assumed by Telefonica and operators.

### **3. Dark fiber provision**

Telefonica must provide dark fiber when significant delays arise in performing the extension of existing infrastructures.

### **4. Removal of “dead cables”**

When space congestion is caused by unused cables (eg. old copper cables) operators can request to Telefonica their removal.

Ducts		Monthly price per km (€)
Duct Ø40mm		62
Duct Ø63mm		175
Flexible ducts or “mini-ducts”	In Ø110mm ducts	8 / cm <sup>2</sup>
	In Ø63mm ducts	18 / cm <sup>2</sup>

Chambers		Monthly price per unit (€)
Manholes		5,1 (average)
Handholes		1,1 (average)

## Telefonica's civil works borrowed by operators until 2Q/2014:



Ducts: more than 9.500 km



Chambers: more than 150.000 installations

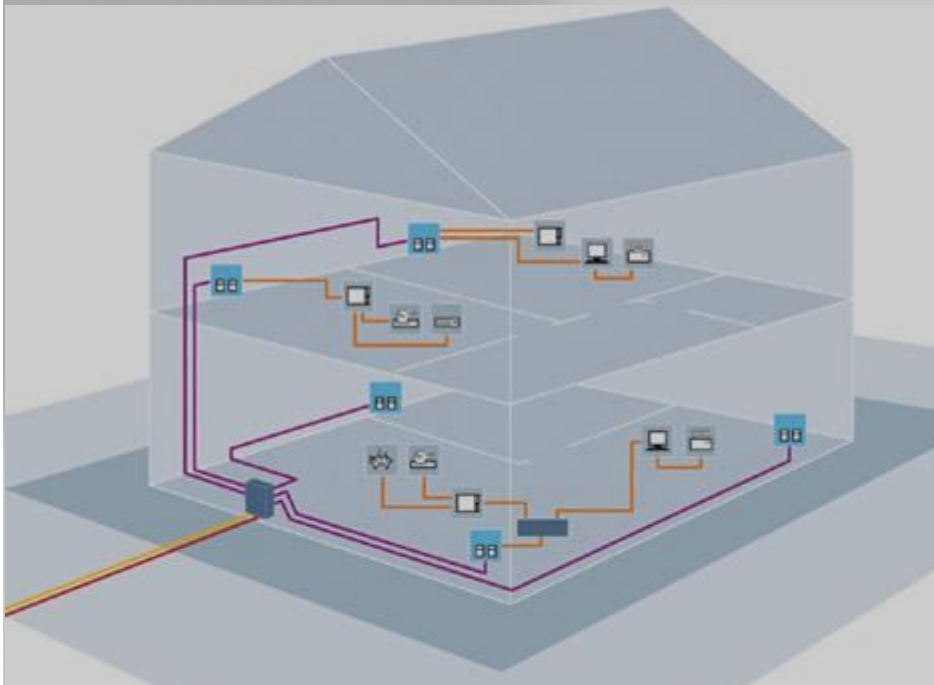


Poles: more than 900 installations



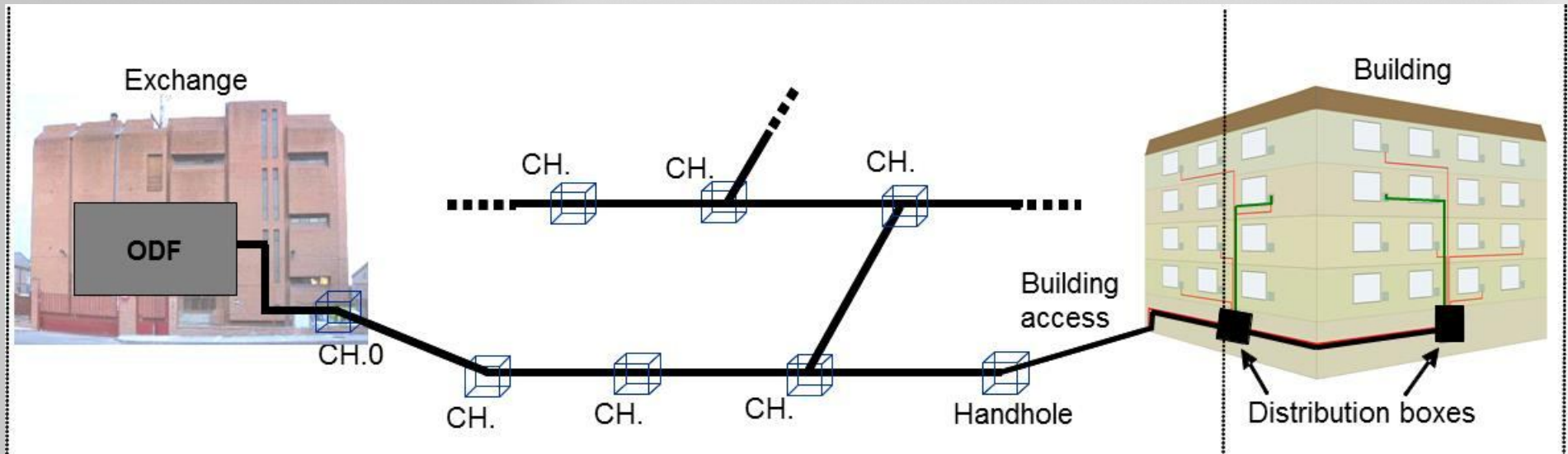
26 operators (4 of them gather 88% of total deployments)

## 2. Symmetrical obligations in the network terminating segment





# Complementary approach



**MARKET 4  
(DUCT ACCESS)**

**SYMMETRICAL  
OBLIGATIONS**

**“Vertical bottleneck”**. Fiber deployment in buildings is challenging: high costs, permissions, negotiation with homeowners.

NGA penetration rates may be affected if no regulatory measures are established.

Regulation should avoid that every operator has to replicate the terminating segment of their NGA networks. Objective **“one terminating segment for all”** in each building.

Such objective is aimed to improve:

- Economic feasibility of the deployment (cost sharing approach)
- Management of relationships with homeowners
- Availability of space
- Operative simplification: only one intervention is required

## The symmetrical approach

**“Start from scratch”**: In contrast to access to civil engineering infrastructure in the public domain, the starting point for the deployment of optical cabling inside buildings is common to all operators.

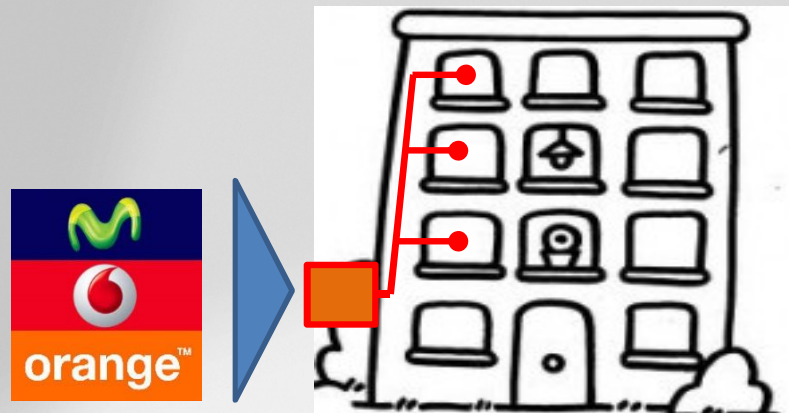
Therefore in early stages of fiber deployment there is no dominant position: it is appropriate the imposition of **“symmetric obligations”**, in the sense that they are applicable to all operators.

# Obligations imposed

**First mover:** In each building the first operator to perform an optical wiring has specific obligations:



The first operator must install optical solutions that enable the subsequent incorporation of other operators by sharing such resources.



If necessary the first operator must install the additional resources needed for the entry of new operators in the building.

Access prices and procedures must be reasonable.

The first operator must provide **information** to allow other operators to plan their access requests:



- Location of the buildings passed with fiber.
- Type of deployment: façade, internal, single family homes or others.
- Characteristics (such as capacity) of the equipment.
- Existence of spare space.

## **New buildings are NGA-ready:**



Since 2012 every new building must be equipped with fiber optics up to every household.

Any operator can terminate his access network in the in-building cabling.

Facilities installed in the building:

- Interconnection point
- Riser cables (vertical wiring)
- Drop cables to every household
- Optical network terminations
- In-house wiring

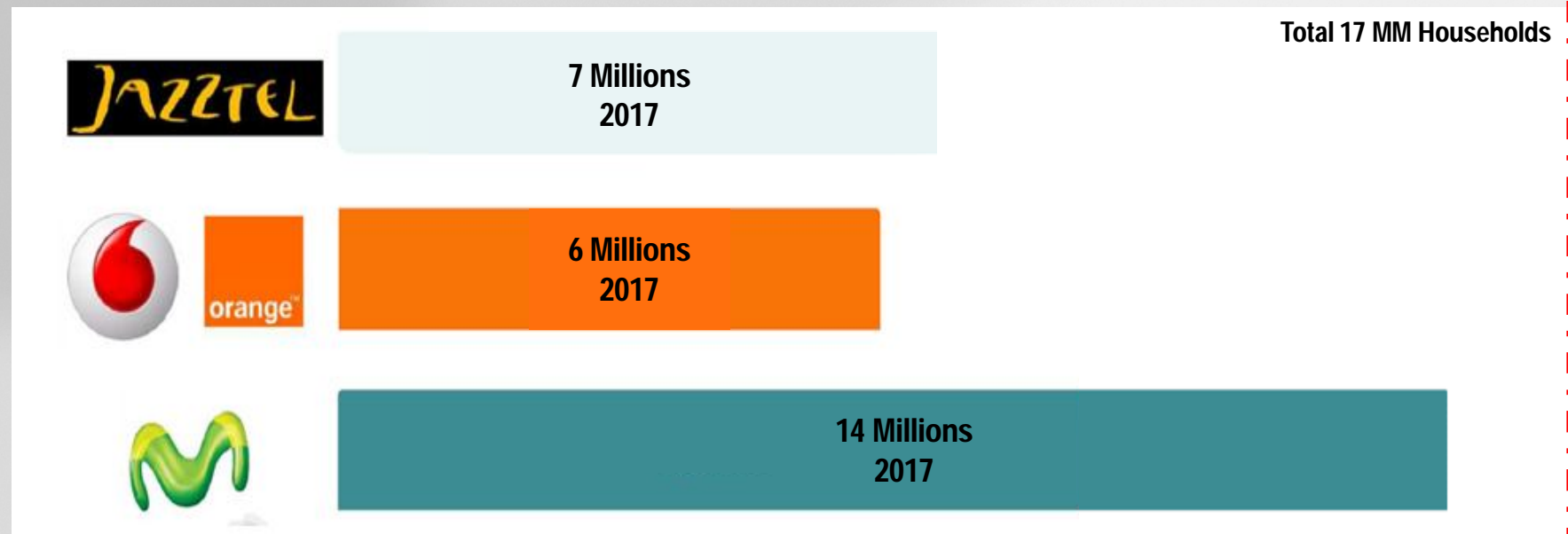


## Agreements reached to share the FTTH terminating segment:

Telefonica-Jazztel joint deployment: 1,5 Million passed homes each.

Telefonica-Orange-Vodafone: general agreement to share terminating segments (CNMC had to intervene in relation to the economical conditions).

## Announced FTTH **deployment plans** made by operators (passed homes):





**COMISIÓN NACIONAL DE LOS  
MERCADOS Y LA COMPETENCIA**

Thank you.