Access to ducts, poles and in-building wiring

Practicalities and implications

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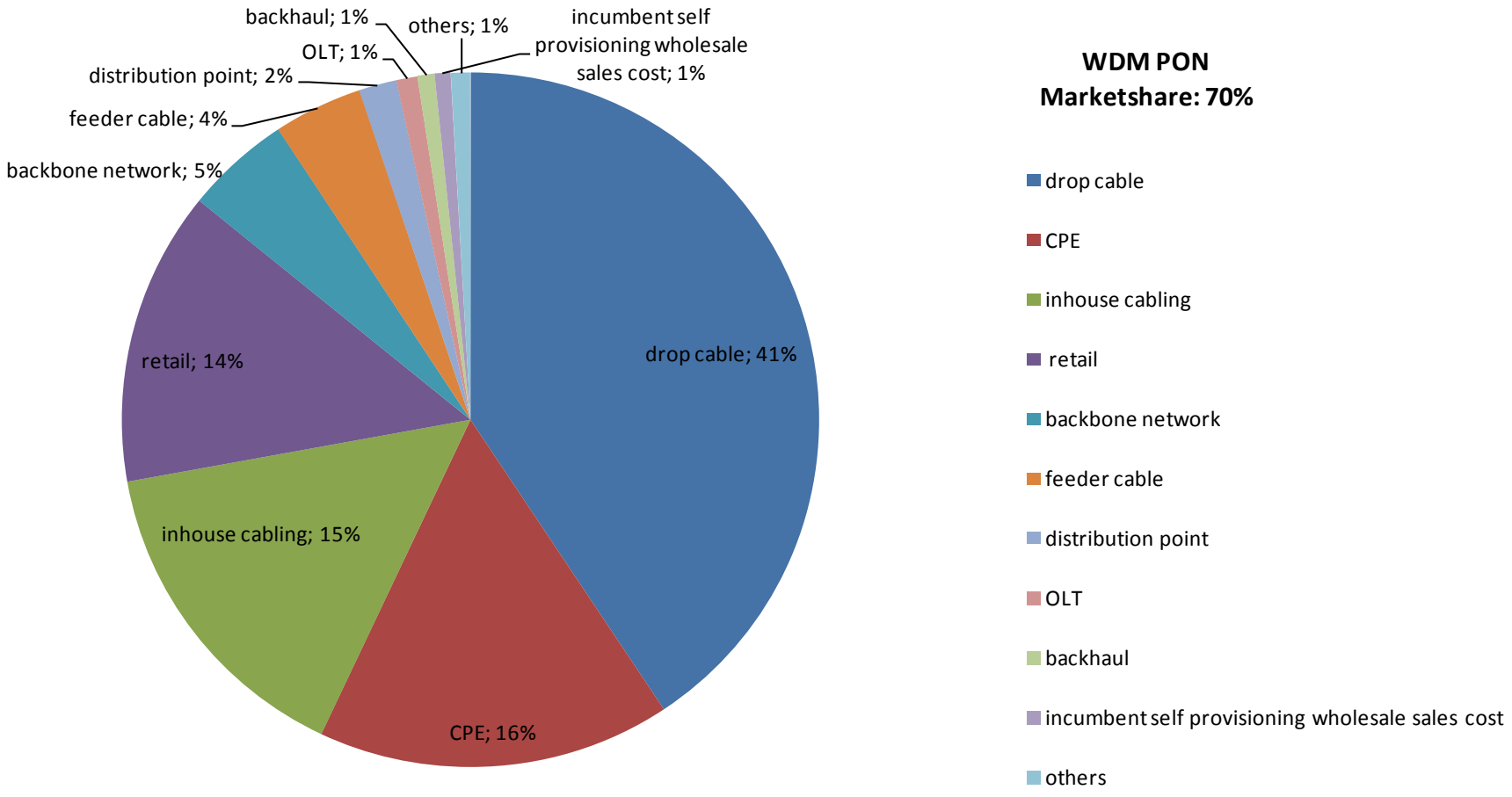
Study objectives

- Study on duct, pole and in-building wiring access commissioned by Vodafone
- Objectives:
  - Benchmark regulatory, operational conditions and outcomes for 5 countries (ES, DE, FR, PT, UK)
  - Identify best practices
  - Implications for regulatory practice and the European Electronic Communications Code
- Conclusion expected March/April 2017

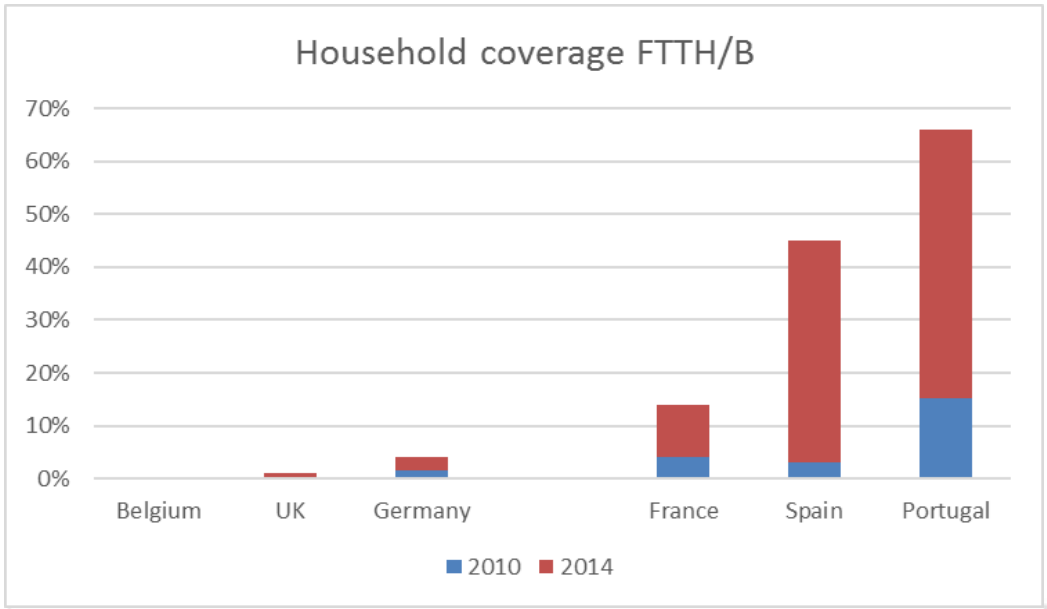
Contents

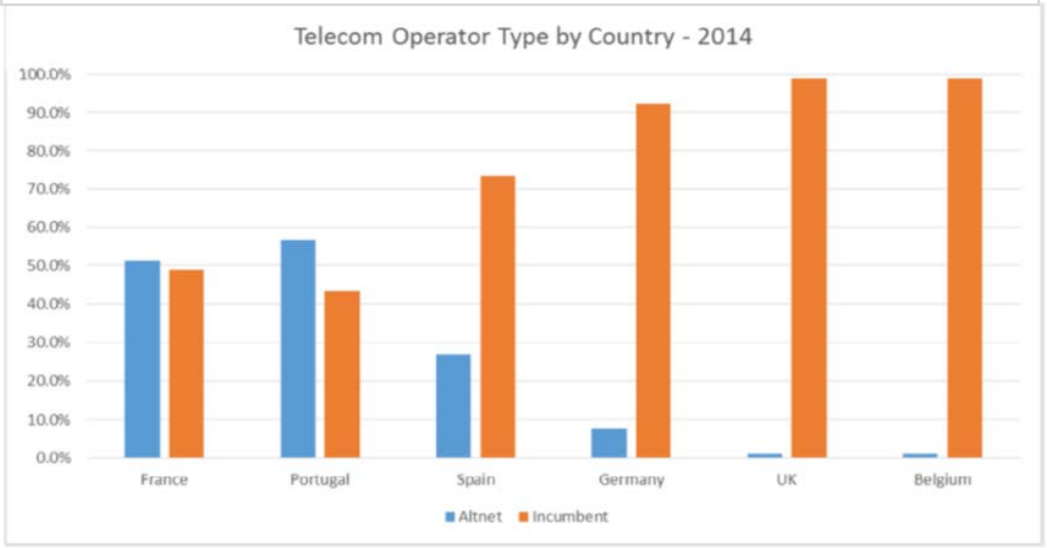
Infrastructure costs >50% total network cost



- Final segment carries greatest cost – ‘drop cable’ 39% and in-building wiring 14% of total costs

Infrastructure access strategy supports VHC

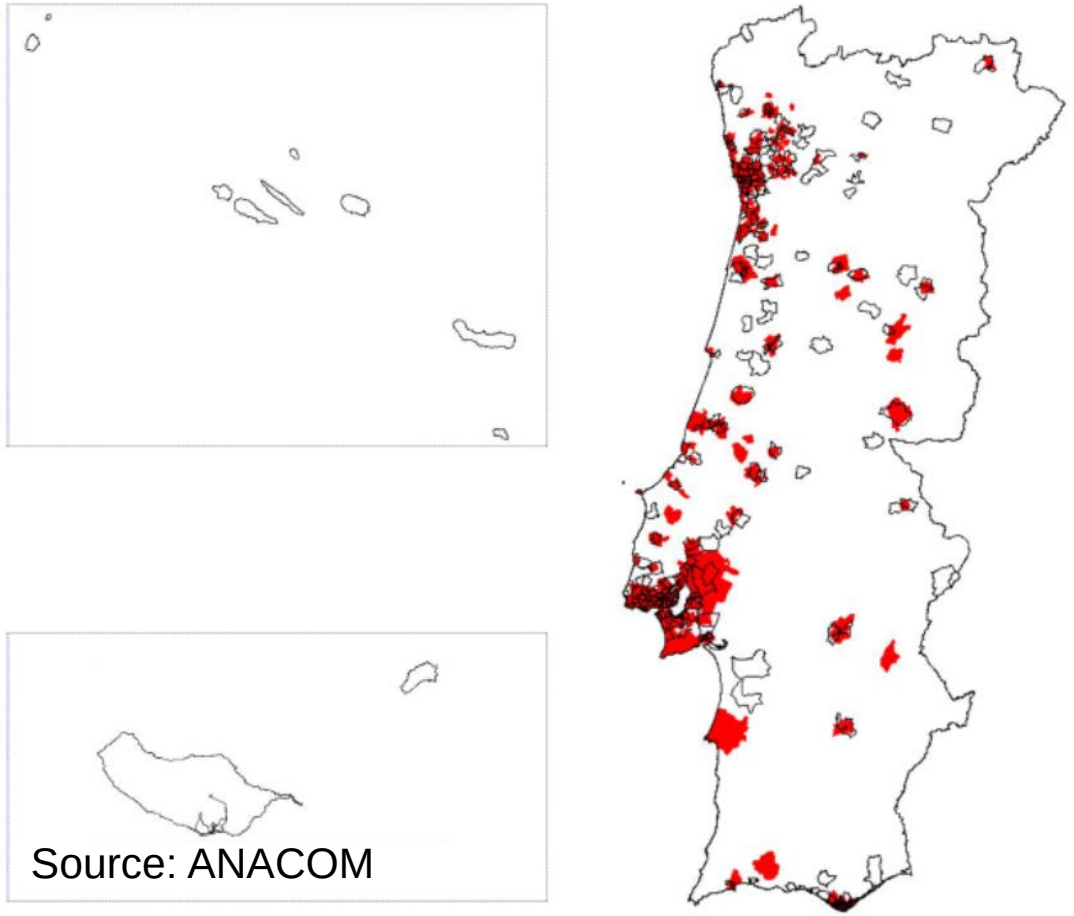




- Various strategies for promotion of NGA since 2008
- FR, ES, PT focused on SMP passive access (ducts and poles) coupled with symmetric obligations on in-building wiring
- These countries generally experienced expansion of FTTH/B and development of infrastructure competition in more densely populated areas
- Promising route supporting EU VHC objectives

Impacts for infrastructure competition and rural deployment

Red highlighted areas indicate alternative infrastructure providers with >50% coverage



Source: ANACOM

- Areas in red show where alternative operators to incumbent have >50% VHC coverage in Portugal
- According to ANACOM, 46% households in areas where 2+ alternative players have >50% coverage supported by infrastructure access
- Pole access playing important role for rural coverage in France including regional initiatives (RIPs)

Agenda

- The role of infrastructure access in boosting VHC broadband
- Regulatory approaches
- Operational practices
- In-building wiring
- Conclusions and recommendations

Regulatory approaches to infrastructure access

- SMP duct access mandated across 5 countries in period 2008-2011 under market 4 (later 3a) of EC Recommendation on relevant markets
- Cost-orientation and non-discrimination obligations common to all…

… but differences in implementation

	DE	UK	FR	ES	PT
Network portion	SC to MDF site	Local access (NGA)	Local access (NGA)	Local access (NGA)	Whole network
Usage restrictions	Only cabinet backhaul	Only mass-market FTTx access	Only optical fibre (incl backhaul)	Only NGA (incl backhaul)	None
Pricing	BU-LRIC+ Depreciated assets excl	CO, but no charge control	50 yr asset lifetime, cost allocation	Top-down CCA cross-checked BU	Top-down HCA
Non-discrimination	General ND, but no KPIs or EoI	ND, but no published KPIs or EoI	EoI with KPIs	EoO, KPIs	EoI

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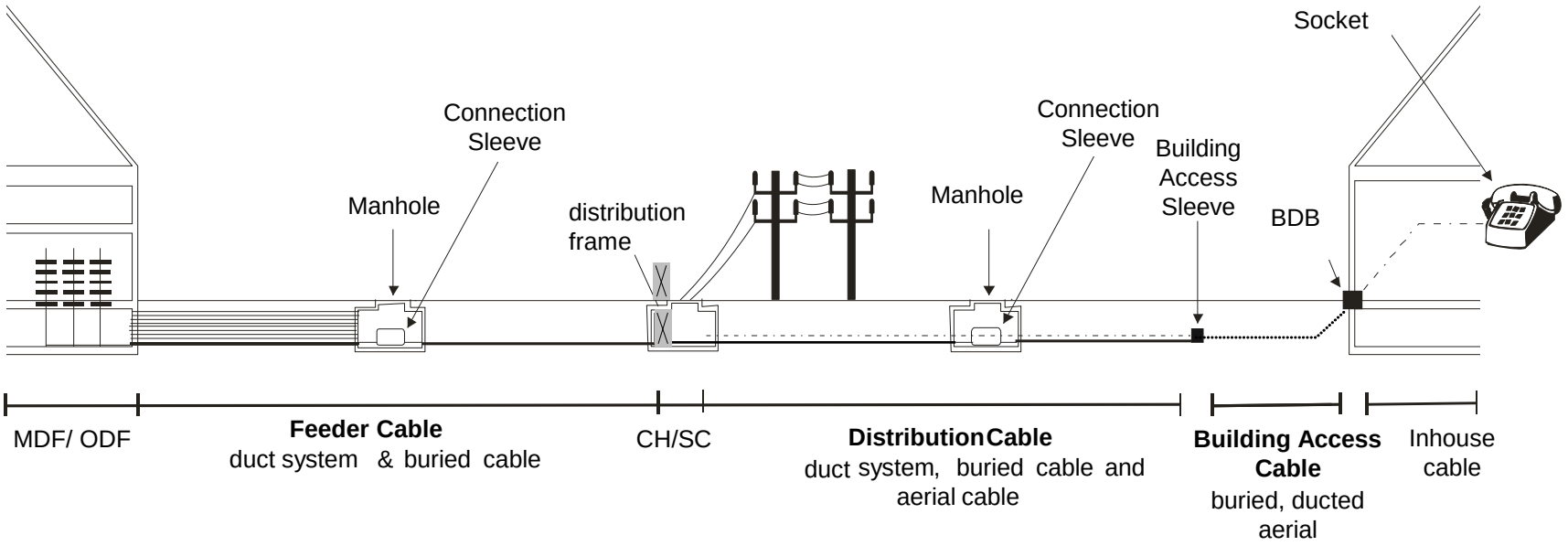
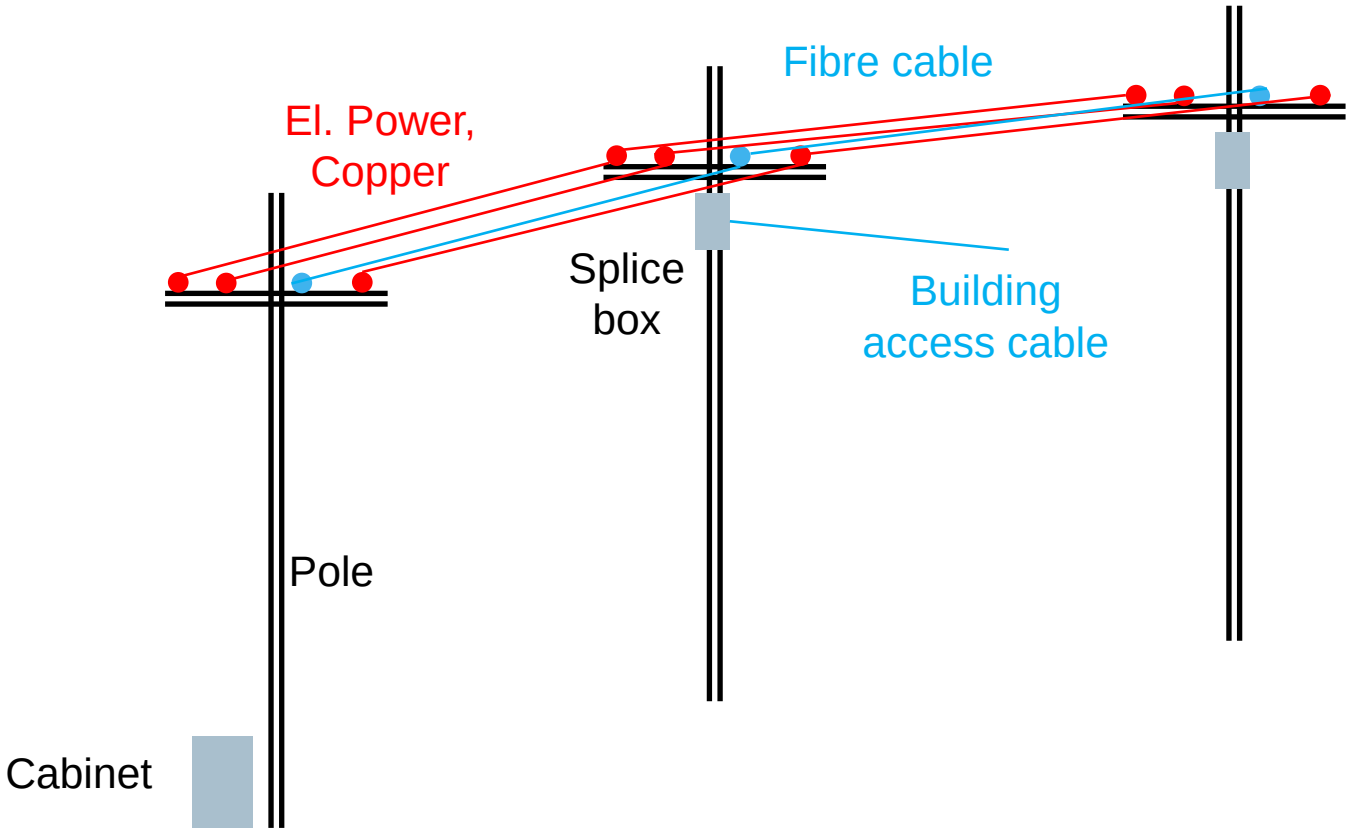
Duct access
A schematic diagram



Legend: MDF - main distribution frame, CH - chamber (manhole), or SC - street cabinet, BDB - building distribution box

Pole access
A schematic diagram

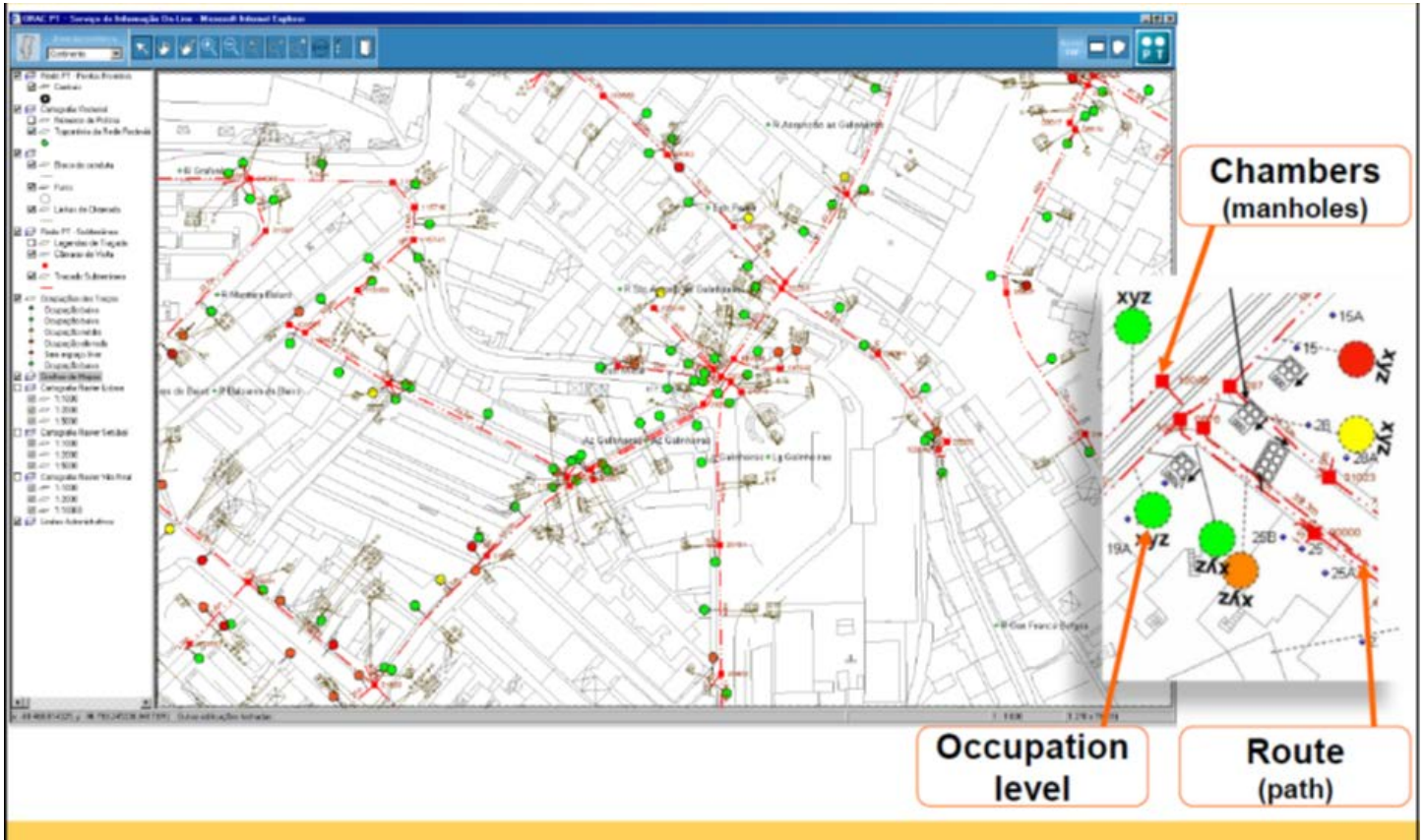


Duct and pole access
Operational processes

- Duct and pole access is different from other access – facility for altnet to build network rather than provisioning of an electronic communication service
- Key steps in process
    1. Information on location and availability
    2. Checking viability (if needed)
    3. Notification/approval for access plans
    4. Decongestion, bypass (if needed)
    5. Build (prior or subsequent notification?)
    6. Completion and notification
- SMP operator SLAs can be simplified if greater responsibility and autonomy for access seekers, but implies commitments from access seekers (eg to notify, take due care)

Duct access
Some innovations (1)

- Accreditation of engineers (often contractors) accessing physical infrastructure (UK, ES, PT) – enables greater autonomy for access seekers
- Availability of online systems (ES, PT) containing up-to-date information on duct location and availability + measures to ensure accuracy of data



Duct access
Some innovations (2)

- Removal of obligation to conduct feasibility analysis (PT) (time saving – depends on automated availability systems)
- Autonomy for access seekers in conducting surveys and decongestion (subject to accreditation)
- Rules limiting space that can be set aside by incumbent (operational reserve and future use) and/or requiring space to be set aside for access (PT – 20%, FR 1+1 rule)
- Less bureaucracy for access seekers in accessing installed cables (ANACOM proposal for notification after works, rather than approval before)

Duct access
SLAs and SLGs in practice

SLAs and SLGs from Portuguese duct access reference offer

Parameter	Level	Penalty per request	Maximum
Deadline for information request	1 working day	d x 50 €	60 working days
Deadline for response to viability analysis	10 consecutive days	d x 50 €	90 calendar days
Deadline for accompanying standard (planned) interventions	24 hours	h x 25 €	n/a
Deadline for urgent (unplanned) interventions	4 hours	h x 50 €	n/a
Availability of accompanying service	95%		
Deadline for response to access and installation request	5 working days	d x 50 €	60 working days
Deadline for financial proposal (budget) for desobstruction request	5 working days	d x 50 €	60 working days

Duct access
KPIs in practice

Extract from Orange's monthly service quality indicators for duct access (December 2016)

Indicateurs communs

Type de commande	Indicateur	Délai contractuel	Volumétrie	Opérateurs alternatifs	Orange détail
Informations préalables (plans	Délai moyen de livraison	10	5 755	4,7	2,9
	Taux de respect du délai contractuel			96%	99%
Informations préalables (schémas de câbles)	Délai moyen de livraison	15	69	13,7	12,5
	Taux de respect du délai contractuel			73%	97%
Déclaration d'étude	Délai moyen de livraison	2**	5 349	0,5	0,6
	Taux de respect du délai contractuel			96%	100%
Accompagnement agent Orange	Délai moyen de livraison	2**	61	0,8	
	Taux de respect du délai contractuel			95%	
	Taux de respect de la date demandée par l'opérateur			61%	
Prêt de clé	Délai moyen de livraison	5	4	12,3	
	Taux de respect du délai contractuel			0%	
Conduite cassée	Délai moyen de Réponse à notification	10	31	17,3	39,8
	Taux de respect du délai contractuel			57%	50%
	Délai de réparation	Meilleurs délais	9	73,3	11,0
	Taux de réparation				
Signalisation SAV	Délai moyen de traitement	Meilleurs délais			

Pole access
Many challenges

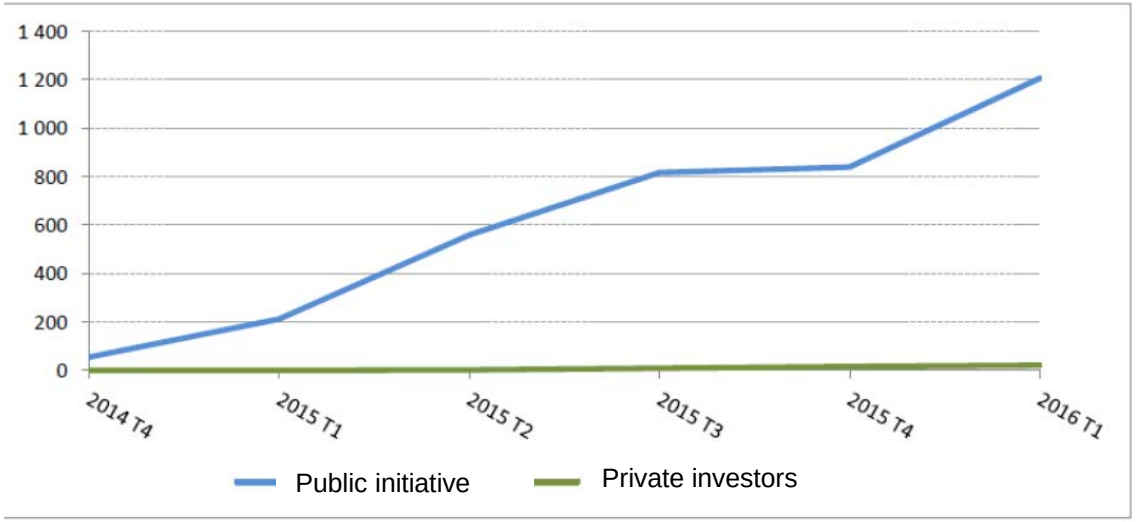
- In general, the level of automation and access seeker autonomy is less for pole access than for ducts
- Some examples
  - Lack of up-to-date complete automated information on location and/or capacity as compared with duct access
  - Mandatory surveys (resulting from lack of up-to-date databases)
  - Lack of clear rules concerning space reservation and responsibility for removing unused cables creating congestion in drop segment
  - In some cases, access seekers pay upfront for augmenting or installing new poles

Pole access
Some innovations

- Software available to Orange/altnets to assess whether pole is full (FR)
- Mutualisation of final segment (in less dense areas) (FR), proposal for access seekers to be able to order installation of a hybrid drop-wire (UK)
- Compensation for pole reinforcement and new poles (FR), cost sharing for pole investments (ES), proposal for costs to be distributed (UK)

Trends in duct and pole access use

FTTH and FTTLA deployments by alternative operators in the aerial infrastructure of Orange (km)



Source: ARCEP July 2016 Public consultation market analyses 31,3b and 4

- SMP Duct usage is expanding in FR, ES, PT
- SMP pole usage is also expanding in these countries (see above for France), but currently lies behind duct access and commercial pole agreements
- ERDF (now Enedis) reported in a 2014 EC workshop that 37% of 550,000km of optical fibre in France had been deployed using its pole infrastructure

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In-building wiring practices

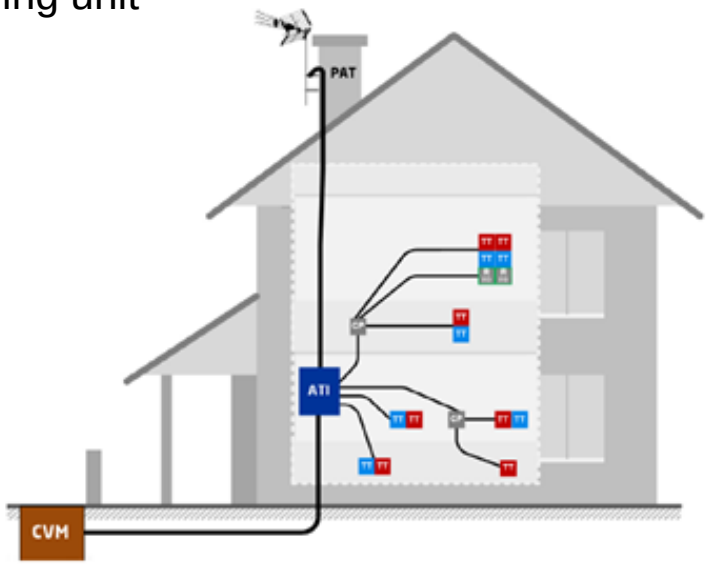
- FR, ES and PT have long-standing national legislation concerning in-building wiring which pre-date the 2014 Cost Reduction Directive
- Core aspect (with SMP duct access) of strategy to foster VHC broadband
- All approaches rely on symmetric obligations which are more detailed than the CRD
- Key elements:
  - Information concerning fibred buildings
  - Obligations and standards concerning the connection point and number of fibres to be installed in-building
  - Rules on pricing/cost-sharing – dispute resolution by NRA

In-building wiring
Innovations

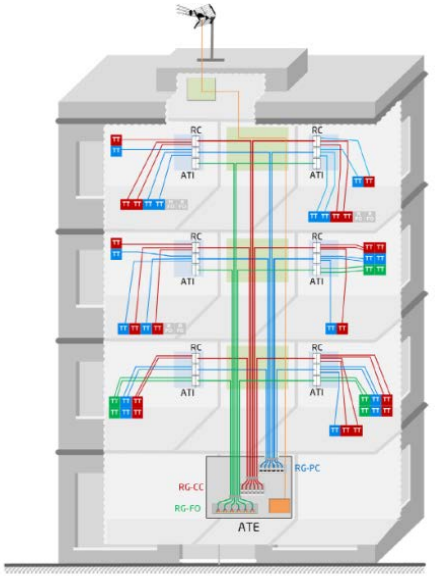
- Information - requirement to notify interested parties concerning fibre installation within 1 month, information on online system (PT)
- Connection point outside building for ease of access (PT – Multioperator chamber), in some circumstances aggregating multiple households for economic viability (FR, and ES in some cases)
- Up to 4 in-building lines to be installed in very dense areas, if demand (FR), additional fibres for business premises compared with residential (ES)
- Cost-orientation principle (FR, PT), subsequent operators share cost

Multi-operator chamber in Portugal

Single dwelling unit



Multi-dwelling unit



Legenda dos dois esquemas anteriores:

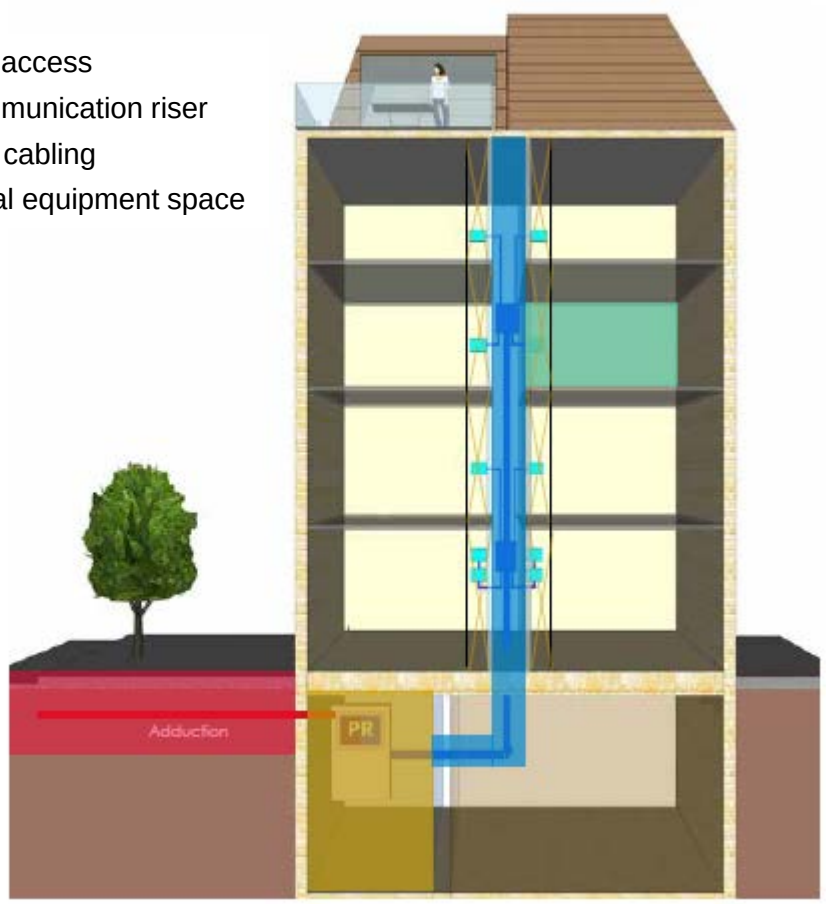
ATI: armário de telecomunicações individual
ATE: armário de telecomunicações de edifício
CVM: câmara de visita multioperador
TT: tomada de telecomunicações
RFO: espaço de reserva para TT de fibra ótica
PAT: passagem aérea de topo
CP: caixa de passagem
TT em par de cobre
TT em cabo coaxial
TT em fibra ótica

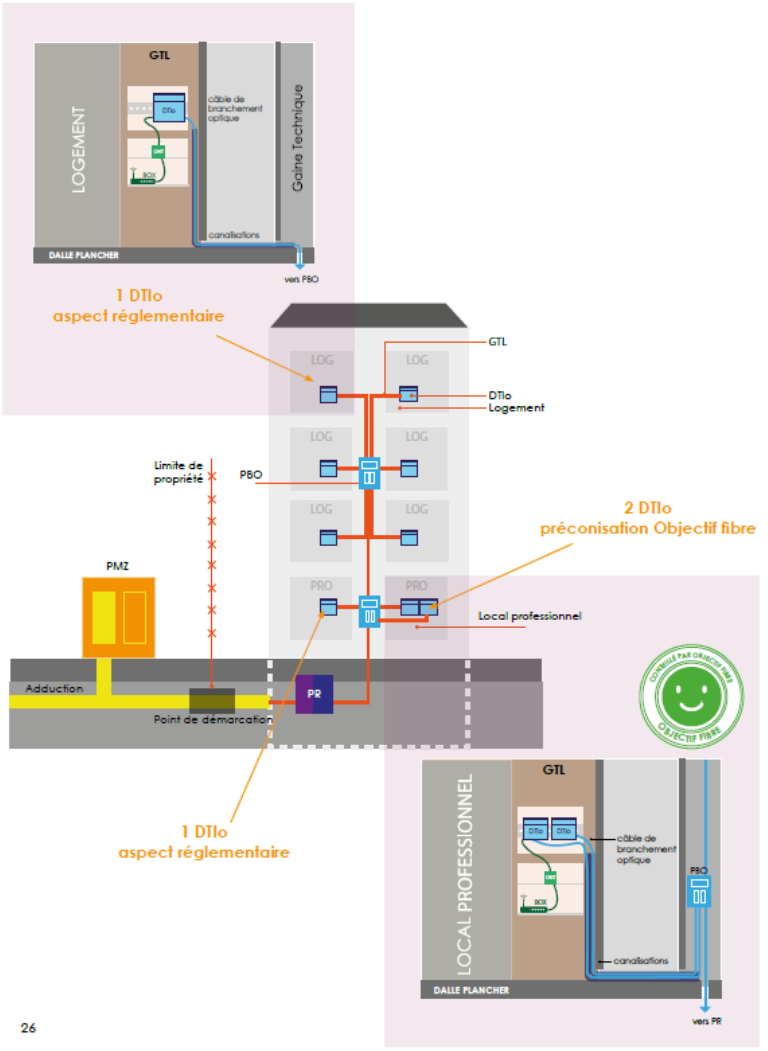
ATI:	Individual telecommunications cabinet
ATE:	building telecommunications cabinet
CVM:	multioperator chamber
TT:	telephone connection unit
RFO:	space reserved for fiber
PAT:	transition to roof area
CP:	passage box

Blue=copper
red=coaxial cable
green=optical fiber

ARCEP guide for best installation practices in new buildings

- Building access
- Telecommunication riser
- In-home cabling
- Technical equipment space





Source: ARCEP_251116-Guide-Immeubles-neufs-BD_2016

Contents

Conclusions

- Infrastructure access can play vital role in expanding VHC in rural areas and supporting infrastructure competition
- Infrastructure access conditions most developed in FR, ES, PT
- Common regulatory features: limited usage restrictions, detailed ND provisions
- Operational innovations: automated information, autonomy for access seekers
- SMP pole access terms and processes less well defined than for duct access
- Cross-sectoral pole access (eg energy companies) can also play significant role
- Symmetric in-building wiring obligations are essential complements to infrastructure access – detailed provisions in FR, ES, PT
- Key innovations include information systems, standards covering connection points, in-building architecture, cost sharing mechanisms

Recommendations

1. NRAs which have not already done so should elaborate SMP duct and pole obligations and support improved processes in line with best practice

2. The civil engineering provisions of the draft EECC (article 70) could make reference to cost-orientation and non-discrimination and could be elaborated with an Annex listing ‘minimum contents of a Reference Offer for Infrastructure Access’ – similar to Annex II on unbundling of the current Access Directive

3. National administrations and NRAs could usefully elaborate CRD provisions on in-building wiring and establish standards to support best practice installation and multi-operator connection points which facilitate infrastructure competition.

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