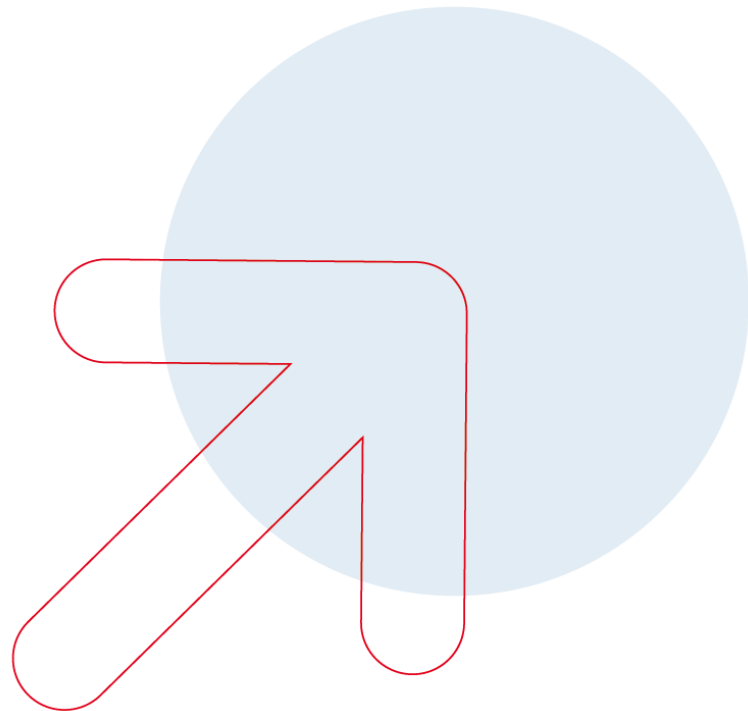


# WIK-Consult • Report

Study for BEREC



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## **Study on the evolution of the competition dynamics of tower and access infrastructure companies not directly providing retail services**

**FINAL REPORT**

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The scope of the study is limited to the companies involved in a recent transfer or separation (e.g. divestment, spin-off, externalization) of key network assets to be used as inputs for the provision of electronic communications services at retail level in the selected countries. The timeframe considered is, typically, 5 years.

## **Imprint**

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## Abstract

In this study, we provide an overview of recent developments regarding infrastructure companies and explore the motivation for their creation, impact on competition and investment and implications for regulation.

We find that the largest European mobile operators have in recent years divested or separated their tower infrastructure, with a view to value creation, unlocking capital and/or achieving efficiencies. Some larger broadband providers including incumbents have also created fibre netco JVs to access finance and/or address gaps in fibre coverage.

Sharing physical infrastructure should in theory support competition in networks and services and boost the business case for VHCN deployment by reducing costs. However, infrastructure sharing, in areas where duplication is viable, can also limit incentives to compete on coverage and quality (and may thus be restricted under competition law), while concerns can also arise around wholesale access terms to infrastructure (price and in some case discrimination) where there are limited alternatives available.

Extending the BCRD and EECC RoW provisions to cover towercos could improve deployment conditions for towercos, as well as ensuring consistency in application of the rules and providing a means to address any concerns about access conditions. SMP regulation / commitments or, in certain cases, symmetric rules should be appropriate to address any competition concerns relating to fibre netcos, but will likely require more granular geographic market analysis to address market power in specific areas and attention to consistency between access regulation applied under different legal bases.



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## List of acronyms

3LOM	Three layer open model
5G NSA	5G non-standalone
5G SA	5G standalone
AdIC	Autorité de la Concurrence (French NCA)
ALOM	Active layer open model
AMEL	Appel à Manifestation d'Engagements Locaux
AMII	Appel à Manifestation d'Intention d'Investissement
ARPU	Average revenue per user
ATC	American Tower Corporation
B2B	Business-to-business
BCRD	Broadband Cost Reduction Directive
BEREC	Body of European Regulators for Electronic Communications
BoR	Board of Regulators (BEREC)
BRP	Benchmark reference price
CDP	Cassa Depositi e Prestiti
CDPQ	Caisse de dépôt et placement du Québec
CEF	Connecting Europe Facility
CMA	Competition and Markets Authority (UK NCA)
CPI	Consumer price inflation
CRO	Cabinet Ripartilinea Ottico (engl. Optical Distribution Cabinet)
DAS	Distributed antenna system(s)
DBA	Danish Business Authority
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, tax, depreciation and amortization
ECN	Electronic Communications Network
EEA	European Economic Area
EECC	European Electronic Communications Code
EMF	Electromagnetic field
EoI	Equivalence of Input
EV	Enterprise value
FTTB	Fibre to the building
FTTC	Fibre to the curb/cabinet
FTTH	Fibre to the home
FTTP	Fibre to the premises
FWA	Fixed Wireless Access
GIA	Gigabit Infrastructure Act
GIP	Global Infrastructure Partners
GPON	Gigabit passive optical network
HFC	Hybrid fibre coaxial
InDiD	Infrastructure Digitale de Demain
INWIT	Infrastrutture Wireless Italiane S.p.A.
IoT	Internet of Things
IPO	Initial public offering
IRU	indefeasible right of use
ISP	Internet service provider
ITRE	European Parliament's Committee on Industry, Research and Energy
JV	Joint Venture
M&A	Mergers and acquisitions
MBNL	Mobile Broadband Network Limited
MIG	Mobilfunkinfrastrukturgesellschaft

MNO .....	Mobile network operator
NBI .....	National Broadband Ireland
NBP .....	National Broadband Plan (Ireland)
NCA .....	National Competition Authority
NRA .....	National Regulatory Agency
ODF .....	Optical Distribution Frame
OMERS .....	Ontario Municipal Employees Retirement System
OMT .....	Order Mix Target
Opex .....	Operational Expenditures
PI .....	Physical infrastructure
PIN .....	Public Initiative Networks
PLOM .....	Passive layer open model
PON .....	Passive optical network
POPC .....	Program Operacyjny Polska Cyfrowa
PRISSMA .....	Plateforme de Recherche et d'Investissement pour la Sûreté et la Sécurité de la Mobilité Autonome (engl: Research and Investment Platform for the Safety and Security of Autonomous Mobility)
PTE .....	Punto di Terminazione Edificio
PTO .....	Punto di Terminazione OLO
RAN .....	Radio access network
REIT .....	Real estate investment trust
ROCE .....	Return on capital employed
RoW .....	Right of Way
RRF .....	Recovery and Resilience Facility
SAWAP .....	Small-Area Wireless Access Points
SdF .....	Studio di Fattibilità
SIP .....	Single Information Point
SMP .....	Significant market power
TFEU .....	Treaty on the Functioning of the European Union
TIM .....	Telecom Italia
TIS .....	Telecommunications Infrastructure Services
V2X .....	Vehicle to everything
VF .....	Vodafone
VHCN .....	Very high capacity network
VULA .....	Virtual unbundled local access
WACC .....	Weighted average cost of capital
WLA .....	Wholesale local access



## 1 Executive summary

### 1.1 Introduction

Infrastructure companies have become an increasingly important part of the telecoms landscape in many European countries. Such companies include towercos, which build and operate (mainly) physical assets for mobile networks such as towers, and fibre netcos, which build and operate fibre access networks.

While some infrastructure companies have been established as independent investors, others have been created through the spin-off of core assets by telecom operators or established as joint ventures (between telecom operators and/or with infrastructure funds) for the deployment of new infrastructure.

In this study, prepared for BEREC, we provide an overview of infrastructure companies in Europe and key international markets and explore (i) the motivation for their creation, their business model and future plans; (ii) the implications of these developments for competition and investment in very high capacity networks; and (iii) implications for the application of regulation.

The analysis has been based on a range of inputs from NRA and industrial stakeholders including a stakeholder workshop held on 20 June 2023, data gathering regarding 10 focus companies and 7 focus countries (France, Germany, Italy, Poland, Spain, United Kingdom, United States), 15 interviews and the results of an online survey (June-July 2023) for which responses were received from 30 NRAs, 41 infrastructure companies and 34 telecom operators.

### 1.2 Prospects and dependencies for towercos and netcos

A majority of physical mobile infrastructure such as towers is now controlled by infrastructure companies across Europe. Tower companies include companies which started out as independent investors (such as American Tower and Cellnex) as well as companies which were created by telecom operators from the spin-off of key infrastructure. Operator spin-offs can be solely controlled by a telco (such as Totem), but are increasingly involving joint ventures with infrastructure funds (e.g. Vantage) and/or other telecom operators (e.g. INWIT). The process for telecom operators to divest mobile infrastructure has in some cases been gradual, involving reduced shareholdings over time (e.g. Vodafone, Telefonica).

Although some towercos control backhaul and/or have engaged in deploying indoor cells (Distributed Antenna Systems), towercos typically focus on deploying and operating passive assets. Following a spate of acquisitions, in particular by independent towercos, towercos in Europe are primarily focused on consolidating their existing portfolio by

increasing the tenancy ratio and appealing to additional types of clients (such as FWA, IoT providers or broadcasters). It is notable that tenancy ratios in the US (at 2.3) are higher than in Europe (where some towercos have a ratio of 1.3). However, increasing tenancy ratios in Europe for existing infrastructure would imply consolidation, which may not be feasible or may encounter objections from competition authorities.

Towercos typically only expand coverage to meet specific demand from clients. Although some are considering expanding deployment of DAS and providing hosting for edge computing, expansion into active RAN services (while not ruled out if demand emerges) is not a priority for towercos. Small cells (for 5G network densification) are considered a potential growth area, but not in the short term. Interest rate rises pose a key risk for some towercos (in particular those which funded acquisition through increases in debt). Towercos do not highlight major concerns regarding barriers to deployment but some note that there can be challenges accessing public land and rooftops, and a common concern is that low EMF limits create further problems with scarcity of sites, in particular in built-up urban areas.

In contrast with towercos, the role (and scope) of fibre netcos varies significantly between countries. Fibre netcos are often regionally focused and operated by alternative (non-incumbent) telecom operators and/or investors or municipalities. Some netcos have been established to fill in gaps in fibre coverage in zones which are commercially viable, but may have been underserved (e.g. UK, IE), while in some countries such as Portugal, France and Austria, netcos mainly focus on rural areas often with support from State Aid. Although most fibre netcos do not involve the incumbent, in some cases where deployment lagged behind (including Germany and Italy) incumbent operators have engaged in establishing netco / JVs for the deployment of fibre, while incumbents in the UK and Czechia spun off the management of access infrastructure into a separate company.

Most fibre netcos operate active equipment and offer VULA (where required or expected to do so) and bitstream. Passive access to unbundled fibre is not always offered, except where required e.g. in the context of State Aid or symmetric regulation. The main future opportunities for fibre netcos come from completing coverage and in some cases expanding to new regions. Extending down the value chain to offer “white label” products and extend the customer-base to B2B clients is another opportunity for some. Meanwhile, the potential for infrastructure competition / overbuild from the incumbent in areas of limited viability presents a key risk for fibre netcos. Fibre netcos also note that they face challenges accessing crucial physical infrastructure and that conditions for access to poles is often less well developed than those for ducts. Complex and lengthy permit granting procedures and the lack of digital permit application systems are also issues that affect both fibre netcos and, even more acutely, towercos, due to the additional scrutiny on visual and environmental impacts in the context of mobile infrastructure.



### 1.3 Impact on competition and investment

Developments with the creation of towercos are in general too recent to assess concrete impacts on competition and investment in 5G (and any effects are also likely to have been mitigated by competition law remedies). However, economic theory and feedback from stakeholders suggest that the impacts may vary depending on the potential for duplication and the ownership structure of the towerco.

While the efficiencies that can be achieved through consolidation of physical infrastructure in the case of towers should in principle reduce costs and increase viability for new 5G network deployments (specifically densification), there are factors which tend to mitigate against these effects. Specifically, as decisions (and any obligations) around coverage and network densification rest with the MNOs (as construction by towercos is based 'on demand'), towercos are unlikely to be a driving force (but rather an enabler) in the deployment of 5G. Furthermore, the fact that newly built passive infrastructure may be shared could limit the incentives for MNOs to expand and densify their network as part of a strategy to compete on coverage and quality.

The impact of towercos on *downstream competition* in mobile services and 5G (and future network generation) deployment will depend on whether the terms offered by towercos are reasonable. In this context, relatively few problems are reported regarding terms and conditions for access to towerco infrastructure for the moment, and telcos which have divested infrastructure (and reached agreements for leaseback) mainly report that the experience has been positive. However, some smaller telecom operators have reported concerns around availability and price of facilities, delays in deployments or concerns that preferential treatment<sup>1</sup> for anchor tenants could create unfair and discriminatory conditions. Problems could also arise in future when current agreements (and competition law commitments) expire, in particular in areas where there are limited alternative options available for MNOs (other towercos or viable self-build), due to economic, planning or environmental constraints. In these cases, there could be an incentive to raise wholesale prices above the competitive level even by towercos which are fully independent.

As regards fibre netcos, the status and role played by the company is likely to determine the impact on investment. Whereas alternative fibre netco investors have often proved to be catalysts for fibre deployment, the involvement of an incumbent in a fibre netco (in particular if it involves a JV with other possible fibre investors) or the creation of a JV between operators which collectively have a high market share could limit infrastructure competition (or a race to invest) from alternative operators in areas where this might otherwise be possible, and thus provide disincentives for investment in such areas. Concerns in that regard have been raised and considered by NRAs and competition

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<sup>1</sup> Preferential treatment could for example be in the form of prioritisation in deployment commitments, favourable contractual conditions (including contract term and/or price) and/or the potential to nominate "strategic" sites which are restricted for other access seekers

authorities in the UK and Italy.<sup>2</sup> As regards the impact of fibre netcos on *downstream (network and service) competition*, if an SMP operator controls the netco, market power and associated incentives regarding wholesale pricing and discrimination will likely persist (and that has been reflected through SMP designations on SMP-controlled fibre netco JVs in Italy, German and Belgium as well as the continued regulation of the wholesale spin-off of BT in the UK (Openreach)). In addition, alternative (non-incumbent) fibre netcos may gain market power (and with it the ability (and depending on corporate objectives the incentive) to price above the competitive level) in the local areas in which they operate, in particular in less dense areas where duplication is not viable, where copper networks provide less of a constraint and where any State Aid remedies expire.

In addition to any impacts from wholesale prices, the nature and quality of downstream competition is likely to depend on the types of wholesale access offered. For example, fibre unbundling or (if that is not possible) appropriately specified VULA together with appropriately dimensioned backhaul will enable more diverse and dynamic downstream competition than bitstream. However, fibre unbundling / effective VULA is often not offered by fibre netcos (or is offered on terms that are relatively unattractive compared with bitstream) unless there are requirements to offer these products e.g. to meet State Aid requirements. Concerns have also been raised by access seekers around the variety of access conditions and transparency of the methodology used to set wholesale prices (and frequency of wholesale price reviews) in some cases where netcos have deployed fibre with the support of State Aid.

#### **1.4 Application of regulation and competition law to infrastructure companies**

As previously noted, infrastructure companies including towercos face similar challenges to vertically integrated telecom operators in the deployment of infrastructure. Competition concerns can also arise in certain situations (in particular in the absence of alternative options) both as regards towercos and fibre netcos. However, if the EECC and BCRD are transposed literally, different rules apply – in particular to passive towercos (which are typically not classified as ECN providers) – than apply to vertically integrated mobile operators. An overview of the applicability to towercos and fibre netcos of potential provisions regarding access to infrastructure is shown in the table below. One example is that while towers, masts, ducts and poles (among other infrastructures) are included within the scope of the access obligations in the BCRD, the provisions apply only when these assets are operated by ECN providers (and not when they are operated by towercos which do not meet the definition of ECN providers).

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<sup>2</sup> Specifically in relation to volume incentives in the Equinix fibre access offer by Openreach in the UK and in the co-investment offers proposed by FiberCop in Italy

Table 1-1: Applicability to towercos and fibre netcos of provisions regarding access to infrastructure

Provision	Applicable to:	Relevant to passive towercos	Relevant to fibre netcos
SMP regulation (regulates wholesale access conditions)	Undertakings found to have SMP in a relevant market that meets the 3 criteria test	Potentially, but only if 3 criteria test can be met for tower infrastructure (likely possible only in discrete geographic areas)	Yes – would in most cases require geographically segmented market definition
Symmetric regulation of wiring and cables – terminating segment (Art 61(3) EECC)	ECN providers or owners of wiring, cables and associated facilities	No (except insofar as towercos own cabling)	Yes, but restricted scope (primarily for passive access to in-building cabling / or if justified first distribution point)
Sharing of passive infrastructure incl towers and roaming (Art 61(4) EECC)	ECN providers via spectrum licences	No (as towercos do not own spectrum)	Not relevant
State Aid conditions	Recipients of State Aid	Yes	Yes
Access to physical infrastructure under Art 3 BCRD	Network operators (undertaking providing or authorised to provide public communications networks)	No (unless they are a “network operator”)	Normally yes but access obligations relate only to physical infrastructure (ducts and poles) and not dark fibre

Source: WIK-Consult

In addition to being excluded from certain obligations, towercos that are not ECN providers may also not benefit from the rights regarding Rights of Way (RoW) and shorter timeframes for permit granting that are provided under the EECC and BCRD.

In practice, certain countries such as Italy and Portugal have transposed the EECC and/or BCRD in a wider sense which has resulted in towercos being captured by the relevant provisions at a national level. However, approaches vary, and in many countries, towercos are not covered or only partially covered by the rights and obligations set out in the BCRD and EECC provisions on RoW.

The situation regarding regulation of fibre netcos under the BCRD and EECC is more homogeneous as these companies are typically ECN providers. In this context, access regulation has been applied to netcos linked to the SMP operator (through JVs or as wholly or partially owned but legally separate entities) via SMP designation and remedies, and to alternative (non-incumbent) netcos via State Aid access rules, where they have been recipients of State Aid. However, there has been only limited experience by NRAs

in assessing and addressing situations where State Aid remedies do not apply and alternative fibre netcos have gained a strong position in specific local areas. This issue is likely to become increasingly relevant with the withdrawal of copper and has been examined in Denmark and Sweden in the context of market /SMP analysis and addressed via specific symmetric regulation in France. Another area which may become increasingly important as incumbents accelerate efforts to transition customers onto fibre is to address conduct by incumbent SMP operators such as price differentiation targeted at potential competitive zones, volume commitments or incentives which may serve to impede the development of alternative infrastructure deployment (including by alternative fibre netcos).<sup>3</sup>

## 1.5 Possible options to address identified concerns

Our analysis suggests that while towercos can support investment and do not generally present competition challenges, there are circumstances where disputes could arise around terms and conditions for access to their infrastructure - in particular where there are limited alternatives available. Ownership of towercos by telcos could also add concerns around potential discrimination. Moreover, it does not seem logical to apply different rules to towers, ducts or poles depending on whether the infrastructure is controlled by a telco or a towerco.

**Including associated facilities including the assets of passive only towercos within the scope of Article 3 BCRD/GIA would address current anomalies where the ownership of an asset affects access conditions and could provide a safeguard to address potential disputes that may arise regarding access and pricing (including potentially justified price increases) in cases where there are limited alternatives available and where competition law or State Aid remedies do not apply or have expired.** It should not be necessary in the legislation to differentiate the obligation to meet reasonable requests for wholesale access on fair and reasonable terms based on which business or ownership model a towerco pursues, as excessive prices for access to towers could for example occur in areas with limited competition regardless of the business or ownership model. It is true that discriminatory conditions are a potential concern that tends to be specific to towercos with telecom shareholders. However, the access provisions of the BCRD (and proposed GIA) are sufficiently general to allow them to be tailored to different situations, while preserving the ability of investors to make a return on their investment. Appropriate approaches to different situations could also be clarified in Guidance.<sup>4</sup>

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<sup>3</sup> These issues have been examined by NRAs in the UK and Italy

<sup>4</sup> In many MS, the national law transposing BCRD provides further guidance on pricing (as detailed in BEREC report on pricing for access to infrastructure and civil works according to BCRD BoR (10) 23). The draft GIA includes a proposal that the Commission may, in close cooperation with BEREC, provide guidance on the application of Article 3.

Competition challenges could also arise in cases where State Aid remedies on netcos expire and/or where existing constraints (from copper) on fibre netcos are removed following copper switch-off, leaving access seekers with limited assurance that wholesale access conditions will continue to be reasonable.

**As a possible solution, NRAs are likely in future (in particular when copper presents less of a constraint and/or has been decommissioned) to need to consider whether to designate as SMP in their geographic areas netcos in receipt of State Aid (or in areas where only one VHCN is viable but which do not require State Aid). They would also need to consider in this context whether netcos meet the criteria to be treated as wholesale only companies in the context of Article 80 EECC, and what would be the consequences for the type of regulation applied (including the applicability of price control), noting that especially in State Aid zones, netcos can be expected following the retirement of copper to have a monopoly on wholesale broadband access provision.**

Competition over infrastructure companies (in particular smaller fibre netcos) could also be impeded in cases where wholesale access is not standardised.

**As a solution, when setting conditions linked to the receipt of State Aid, national authorities responsible for State Aid could consider, together with NRAs, the establishment of consistent rules for wholesale access across multiple wholesale access providers, which are monitored and updated on a regular basis, with alignment, to the extent possible between the wholesale access requirements under different regulatory remits such as State Aid, SMP regulation and (where relevant) symmetric regulation under Article 61(3) EECC. As noted above, SMP access regulation could also be extended to netcos and where justified to towercos in receipt of State Aid where obligations under State Aid have expired.**

In addition, infrastructure companies (in particular fibre netcos) or vertically integrated fibre infrastructure investors may be negatively affected in situations where infrastructure competition (in or for the market) is viable and likely but where an SMP operator and/or multiple retail providers with significant market shares engage in a JV which limits available market share for a competitor.

**As a solution, it may be useful for competition authorities and NRAs to consider, during the course of the market analysis process regarding wholesale local access or, where relevant a separate market for towers in the context of concentrations or ex ante market analysis (for SMP or symmetric regulation), distinguishing between geographic areas where infrastructure competition is or could be expected to develop and areas where infrastructure competition is not expected to develop, and considering in the latter case whether and if so where alternative investors may act as first movers. Differentiated approaches could then be taken towards the approval (or otherwise) of a JV involving an SMP (or large) operator and/or the**

**scope of volume commitments that could be required or discounts that could be offered by such an operator in cases where entry by alternative players can be expected.**

## 2 Introduction and methodology

Infrastructure companies have become an increasingly important part of the telecoms landscape in many European countries. Such companies include towercos, which build and operate (mainly) physical assets for mobile networks such as towers, and fibre netcos, which build and operate fibre access networks.

While some infrastructure companies have been established as independent investors, others have been created through the spin-off of core assets by telecom operators or established as joint ventures (between telecom operators and/or with infrastructure funds) for the deployment of new infrastructure.

In this study, prepared for BEREC, we seek to provide an overview of recent developments regarding infrastructure companies in Europe and key international markets and to explore:

- The motivation for the creation of infrastructure companies;
- Assets and business models under their control, and future plans and prospects;
- Challenges and opportunities arising for infrastructure companies and telecom operators;
- Implications of these developments for competition and investment in fixed and mobile very high capacity networks;
- The approaches that have been taken to support infrastructure deployment and preserve competition under competition law, and ex ante telecom regulation including the EU Electronic Communications Code (EECC) and Broadband Cost Reduction Directive (BCRD); and
- Possible implications for the application of SMP and symmetric regulation by NRAs

The analysis has been based on a variety of inputs from NRAs and industrial stakeholders including:

- A stakeholder workshop held on 20 June 2023
- Key financial and operational data collected for 10 infrastructure companies from financial statements and press releases
- An online survey conducted from June-July 2023 for which we received responses from 30 NRAs, 41 infrastructure companies and 34 telecom operators
- 15 interviews with stakeholders including 11 infrastructure companies, 3 multi-national telecom operators and a competition authority
- Analysis of developments in 7 “focus” countries (France, Germany, Italy, Poland, Spain, United Kingdom, United States)
- Analysis of selected Reference Offers and regulatory decisions

The report is structured as follows:

- Chapter 3 provides an overview of technological and market developments
- In chapter 4, we discuss opportunities and challenges, and the impact of infrastructure companies on competition and investment in VHCN
- In Chapter 5, we consider the implications for regulation and competition policy, and discuss how the role of SMP and symmetric regulation might evolve in markets featuring infrastructure companies
- In Chapter 6, we conclude with the key findings of the study.



### 3 Technological and market developments

In this chapter, we provide a definition and typology for the different forms of infrastructure company (section 3.1). We then provide an overview of developments in the creation of infrastructure companies across Europe, the UK and US (section 3.2) and discuss the outlook for these companies, including potential areas for expansion (section 3.3).

#### 3.1 What are infrastructure companies?

For the purposes of this study, we refer to infrastructure companies as companies which are building and maintaining telecommunications infrastructure (passive infrastructure, but also in some cases active) while not offering retail services to end customers. The two main groups are mobile tower companies (towercos) and fibre network companies (fibre netcos or fibrecons).

##### 3.1.1 Towercos

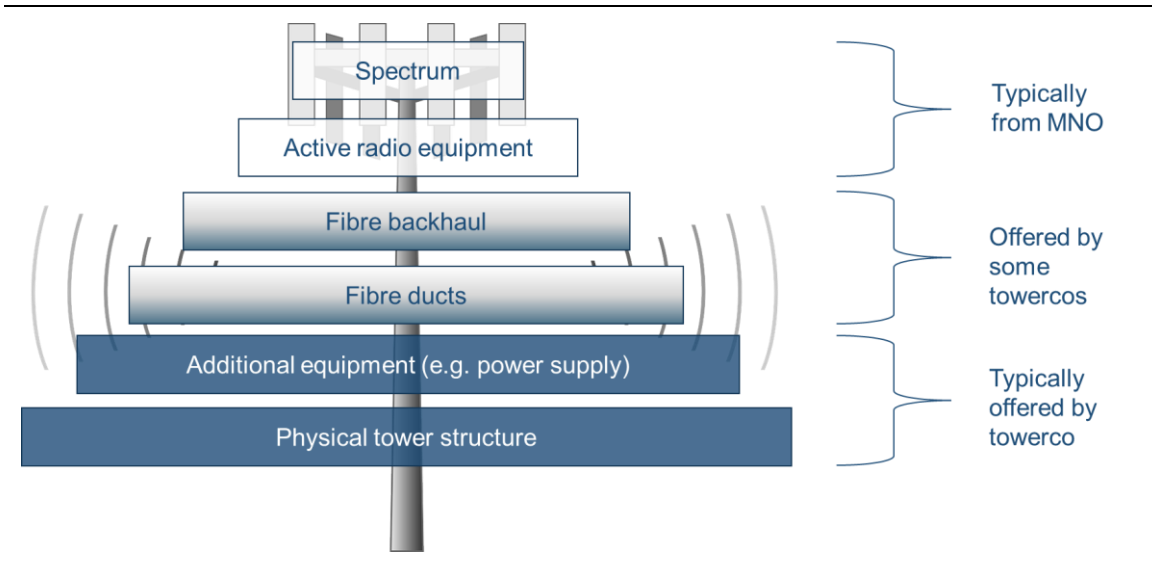
A towerco is a company that builds, operates and maintains mobile/cell phone tower infrastructure. This includes the physical tower infrastructure, i.e. the pole/mast, power equipment, access facilities and other components that are neutral in nature and not specific to particular telecom operators such as site security, cooling and power supply. The towerco also either owns the land or manages the relationship with the landlord.<sup>5</sup>

Active infrastructure (radio equipment/antennas) is typically not included and brought on the site by the mobile network operator serving its customers from the tower. Some towercos also offer fibre backhaul from the site, others do not or only make it available depending on demand and available assets in the specific region. Depending on the area and business model, towercos may also rent out their infrastructure to other stakeholders such as terrestrial broadcasters, fixed wireless access (FWA) and/or WiFi operators and specialized IoT network providers. Figure 3-1 illustrates the lower layers of the mobile value chain and the split in responsibilities between towercos and telcos.

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<sup>5</sup> Towercos may in some cases also represent the landlord and/or MNO to the public in case of any disputes (e.g., in regard to alleged harm caused by antennas).

Figure 3-1: Towerco infrastructure



Source: WIK-Consult

While present for some years previously, the rise of towercos started in earnest in the 1990s in the United States. The three largest US towercos, American Tower, Crown Castle and SBA Communications all expanded their portfolio rapidly at that time and recognized that they could multiply their revenues by offering tower space to more than one mobile network operator.<sup>6</sup> The first tower sharing agreements were made on the simple model of “Steel & Grass”, which meant that the towerco would provide the physical tower (“Steel”) and the location where it stands upon (“Grass”). Nowadays, the deals are more differentiated and customized and typically include aspects like power supply and maintenance and in some cases also services such as fibre backhaul.<sup>7</sup> Towercos rarely build towers on their own initiative but utilize “built-to-order/suit” programmes in which they decide where to construct new sites based on customer/tenant needs.

The US towercos were independent and without significant telecom shareholders from the outset and operated in a “neutral-host” model, with the aim of hosting more than one MNO per tower. For the towerco, it is beneficial to have more than one tenant on a tower as the marginal cost to facilitate another tenant is low (e.g., no additional cost for ground lease, far lower construction costs than building a separate tower for the second tenant).<sup>8</sup>

Another interesting aspect of the US tower business is that mobile towers are seen not as a means to deliver telecommunications and thus as an investment in digital

<sup>6</sup> <https://www.linkedin.com/pulse/towersharing-part-3-history-towercos-syed-rohail-naqvi> (last accessed 14.09.2023).

<sup>7</sup> <https://www.totemtowers.com/blog-entry/towerco-what-is-it/> (last accessed 14.09.2023).

<sup>8</sup> See the introduction into the business model from American Tower: [https://go.pardot.com//25692/2020-12-17/71kyw1/25692/1608219428Tkp1cPjD/atc\\_investor\\_relations\\_introduction\\_to\\_tower\\_industry\\_american\\_tower\\_q2.pdf](https://go.pardot.com//25692/2020-12-17/71kyw1/25692/1608219428Tkp1cPjD/atc_investor_relations_introduction_to_tower_industry_american_tower_q2.pdf) (last accessed 14.09.2023).

infrastructure but as real estate investments. The three largest independent mobile tower companies in the US are all publicly listed as real estate investment trusts (REIT).<sup>9</sup>

In contrast with the US, in Europe telco-independent towercos were a niche business until recently. Mobile network operators historically built their tower infrastructure themselves, and the few operators that created towercos early on (e.g. Deutsche Telekom, which founded its towerco Deutsche Funkturm in 2002), still held 100 percent of the shares and thus total control for a long time.

However in recent years, almost all larger European mobile network operators have spun off their mobile towers into separate companies. As noted below, different business models are possible for towercos.

- **Telco-controlled** towercos are those that are still 100 percent owned by the MNO from which they were spun off. The largest company in Europe which operates under this model is TOTEM, the towerco that holds towers in Spain and France and is fully owned by Orange.
- **Telco-investor JVs**, which are towercos that are typically created when MNOs sell a part of their tower subsidiary to capital investors. Vantage Towers is an example of this model. Almost 90 percent of the company is owned by a consortium of Vodafone (50 percent) and investors Global Infrastructure Partners (GIP) and KKR.<sup>10</sup>
- **Two-telco JV** towercos are shared companies that manage the towers that were built by two telecom operators. The most notable example is the Italian company INWIT which was previously jointly owned by Telecom Italia and Vodafone although these stakes were subsequently significantly reduced<sup>11</sup>.
- **Independent** towercos are not owned by telecom operators in any major way. For the purpose of this study, we consider companies that are a joint venture of several investors as independent. Independence is used in terms of the influence of telecommunications companies. Cellnex is the largest independent towerco in Europe, while American Tower owns most towers worldwide. The expansion of independent towercos in particular has come not only from building new mobile sites but also from the acquisition of existing sites of smaller towercos or mobile network operators.

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<sup>9</sup> To classify as a REIT in the US, a company needs to have at least 75 percent of its assets invested in real estate alongside further, similar requirements. A REIT in the US does not need to pay any federal income tax if it pays out at least 90 percent of its taxable income in dividends to its shareholders. It is therefore attractive to investors that have a preference for a high and steady income stream. See <https://www.reit.com/what-reit> (last accessed 14.09.2023).

<sup>10</sup> For further information on Vantage Towers and its ownership history, see section 3.2.1.

<sup>11</sup> TIM and VF progressively reduced their stake in INWIT, such that today the company is independent with a minority telecom shareholding. Vodafone's shares of INWIT have been transferred to Vantage Towers, their influence became therefore more indirect in recent years. Vantage Towers owns a 33.2% stake in INWIT. <https://www.vantagetowers.com/en/our-european-markets/joint-ventures> (last accessed on 08.09.2023).

Telcos such as Vodafone and Telefónica have pursued a gradual approach to divestiture, starting with full control before gradually bringing in external investors such as pension funds and investment firms or divesting to an independent towerco.<sup>12</sup>

One distinguishing feature for towercos compared to fibre netcos (see next section) is that they often operate in more than one jurisdiction and have nationwide scale in their respective countries of operation.

### 3.1.2 Fibre netcos

In the context of this study, fibre netcos (fibrecos) are separately incorporated companies that build, operate and maintain fibre infrastructure in the access network, i.e. to the customer premises. Although they may not fulfil the legal definition<sup>13</sup> to benefit from regulatory relief in accordance with the EU Electronic Communications Code (article 80), they could be said to operate through a “wholesale-only” model in that the netco does not serve customers directly and all retail services are offered by access seekers.<sup>14</sup> Fibrecos often own the passive infrastructure, i.e., ducts, poles and dark/unlit fibre, in the access network.<sup>15</sup> Beyond that, the level of infrastructure and services varies from company to company. While some offer a backbone network<sup>16</sup>, others do not or rely on partners to perform this function. Ducts and poles are often based on a combination of own infrastructure and access to the physical infrastructure of the incumbent/other telco operators and/or utilities. The exact mix depends heavily on the country-specific situation as well as the regulatory regime regarding duct and pole access.<sup>17</sup>

Active network infrastructure (e.g., switches) is often provided and operated by the fibreco. There are also operators that only offer active infrastructure in some regions or where requested by access seekers. In-building wiring is provided by either the fibreco or the building owner: the split is region- and agreement-dependent and typically mirrors

<sup>12</sup> See <https://www.vodafone.com/news/corporate-and-financial/vodafone-enters-co-control-partnership-gip-and-kkr-vantage-towers>; <https://www.vantagetowers.com/sites/tower-co-v2/files/investor/cmd/introduction-and-key-investment-highlights.pdf> (last accessed 14.09.2023). and <https://www.telefonica.com/en/about-us/countries-emerging-business-units/telefonica-infra/>.

<sup>13</sup> Examples of companies that may not fulfil the legal definition but consider themselves wholesale-only are joint ventures of two or more telcos that serve the retail branches of their mother companies (e.g. Glasfaser Nordwest in Germany).

<sup>14</sup> See Godlovitch, I.; Knips, J.; Wernick, C. (2020): Benefits of the wholesale only model for fibre deployment in Italy, study for Open Fiber, available at: [https://www.wik.org/fileadmin/Studien/2020/Openfiber\\_wholesaleonly.pdf](https://www.wik.org/fileadmin/Studien/2020/Openfiber_wholesaleonly.pdf) (last accessed 14.09.2023).

<sup>15</sup> This is not however the case for Openreach, where assets are owned by BT Group, see [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0020/104474/delivering-independent-openreach.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0020/104474/delivering-independent-openreach.pdf). (last accessed on 23.11.2023).

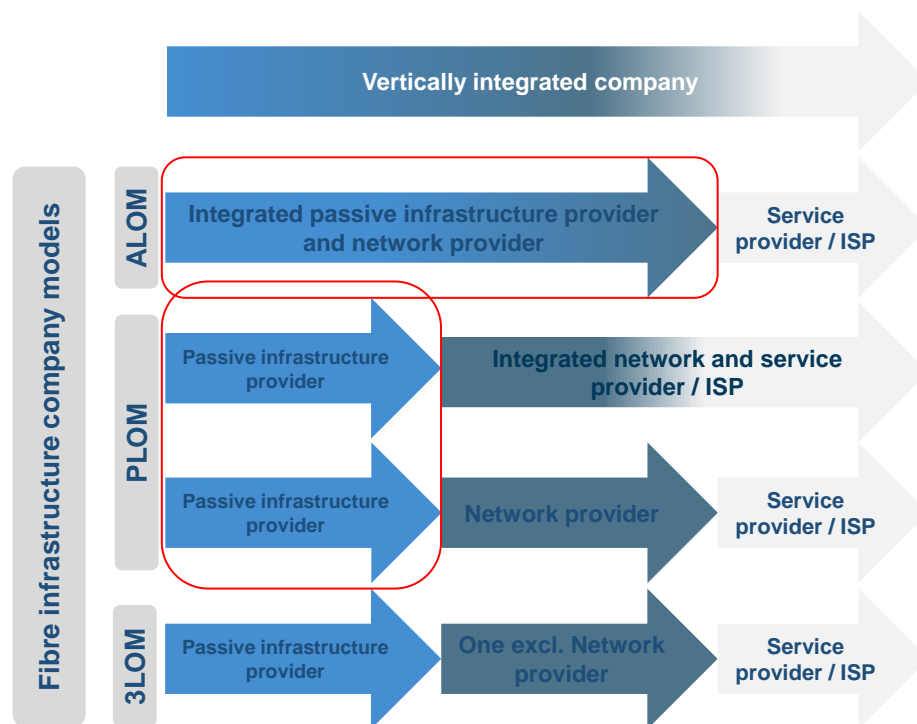
<sup>16</sup> See e.g. the backbone activities of CityFibre in the UK: <https://cityfibre.com/news/cityfibre-launches-first-800-gbps-backbone-ring-as-part-of-a-multi-terabit-national-dwdm-project> or Open Fiber in Italy: <https://openfiber.it/en/operators/become-partner/>.

<sup>17</sup> For example, in countries such as FR, ES and PT there is extensive use of access to incumbent ducts and poles based on the SMP regime, whereas access to utility ducts and poles (supported by NRA dispute settlement in the context of the BCRD) is more significant in IT.

the situation that applies for vertically integrated telcos. Customer premise equipment (esp. router) is typically provided by the ISP and not the fibreco.

Looking at business models for fibre netcos, it makes a significant difference if a company only builds the passive infrastructure or if it also operates active network elements. The European Commission describes three network layers in its broadband investment guide<sup>18</sup> and derives different business models from it (see Figure 3-2 below).

Figure 3-2: Fibreco business models



Source: WIK-Consult based on European Commission<sup>19</sup>

- A fibreco that operates not only the passive infrastructure but also the active technology as a network provider and only offers active wholesale products is operating in the so called “active layer open model” (**ALOM**). One operator that only offers active wholesale products and thus operates in the ALOM is the Spanish company Onivia (see section 3.2.2).
- An operator that only provides passive fibre infrastructure and no active infrastructure is utilizing the “passive layer open model” (**PLOM**). Access seekers can then provide the active layer and serve retail customers and/or sell active access products to ISPs. The PLOM is e.g., common in fibre rollout in France, as practiced by XP Fibre (see section 3.2.2).

<sup>18</sup> See European Commission (2014): Guide to High-Speed Broadband Investment, available at: <https://digital-strategy.ec.europa.eu/en/news/broadband-investment-guide> (last accessed 14.09.2023).

<sup>19</sup> See European Commission (2014): Guide to High-Speed Broadband Investment, available at: <https://digital-strategy.ec.europa.eu/en/news/broadband-investment-guide> (last accessed 14.09.2023).

- The less common “three layer open model” (**3LOM**) works from a fibreco perspective in the same manner as the PLOM as only passive infrastructure is provided. There is however a contract that gives one network provider exclusivity over providing the active infrastructure on the network.<sup>20</sup> This network provider is in turn not allowed to serve retail customers itself to not favour its own retail branch over access seekers. An example for this model would be the first phase of the nÖGIG project in Lower Austria.<sup>21</sup>

From an investor standpoint, as is the case for towercos, wholesale-only fibrecons can be interesting due to the potential for relatively high and stable returns. The expectation of stable returns, compared with the generally low level of interest rates in recent years, could explain the high degree of investor activity. This interest has been particularly strong in countries which lag behind in fibre deployment such as the UK and Germany but is not limited to wholesale-only companies, as there has also in recent years been an inflow of funds into vertically integrated operators in these countries.<sup>22</sup>

The different categories of ownership for fibre netcos are basically the same as for towercos (see section 3.1.1). There are independent<sup>23</sup> fibrecons (e.g. OpenFiber in Italy) as well as those that are a JV of a telco and one or more capital investors (e.g. pension funds, investment firms) (e.g. XP Fibre in France) or of two or more telcos (e.g. Glasfaser Nordwest in Germany). There are also fibrecons that are in the sole ownership of one telecom operator but acting as separate companies (e.g. Openreach in the UK).

There are however some important differences between fibre netcos and towercos. For one, there are no fibrecons listed separately on stock exchanges<sup>24</sup> in Europe. They also rarely operate in more than one country<sup>25</sup>, and are often focused on certain regions within a country. In some cases, this regional focus may reflect perceived investment opportunities / attractive returns in areas which may not have been served by the incumbent, while in others<sup>26</sup> it can be linked to conditions associated with the award of State Aid.

Another difference between towercos and fibre netcos is that, while most larger MNOs have incorporated their existing mobile towers in separate companies, divestment is less

<sup>20</sup> This could also mean exclusivity only for a certain geographical area.

<sup>21</sup> <https://digital-strategy.ec.europa.eu/en/library/lower-austria-holistic-solution-supply-entire-rural-area-sustainable-ftth-austria> (last accessed on 23.11.2023).

<sup>22</sup> See e.g. <https://www.golem.de/news/windhundrennen-investoren-ueberrennen-laendliche-haushalte-mit-glasfaser-2111-161230.html> (last accessed 14.09.2023). <https://gigaclear.com/posts/gigaclear-secures-investment-for-rural-fibre-broadband-rollout> <https://www.hyperoptic.com/press/posts/kkr-acquires-majority-stake-in-hyperoptic/> (last accessed 07.11.2023)

<sup>23</sup> For the purpose of this study, we consider companies that are a joint venture of several investors as independent. Independence is used in terms of the influence of telecommunications companies.

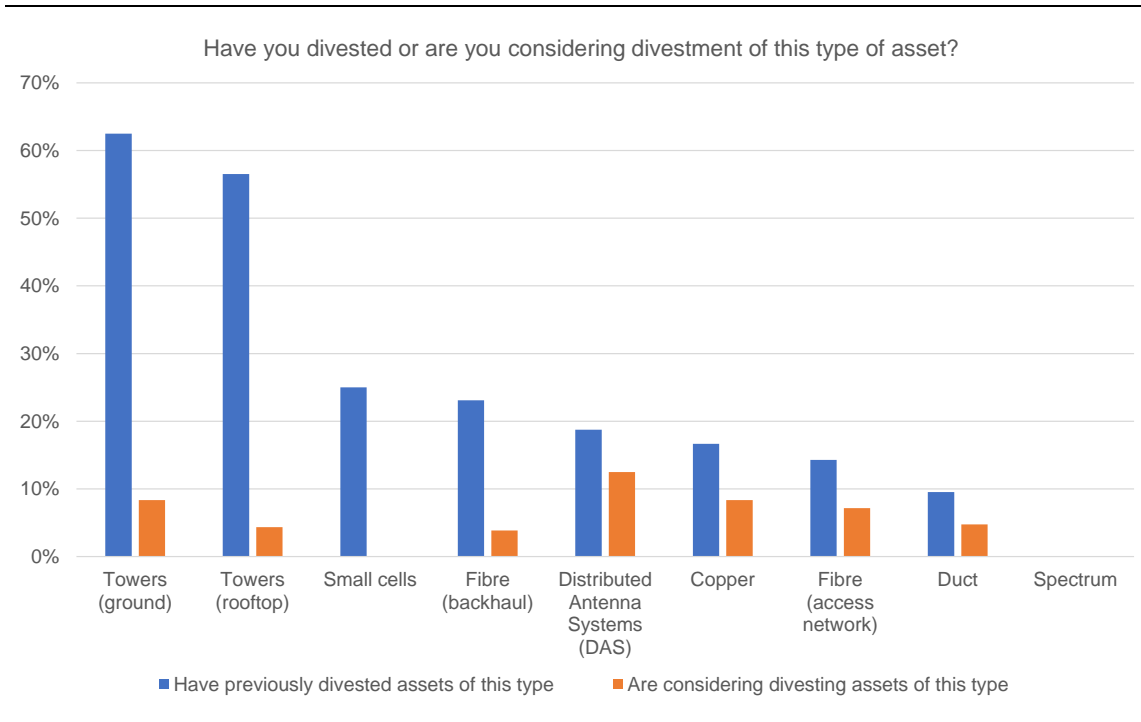
<sup>24</sup> For fibrecons that are subsidiaries of telecom operators, a public listing of the mother company may exist (e.g., Openreach, which is the fixed network infrastructure subsidiary of the publicly listed British incumbent BT Group).

<sup>25</sup> RUNE Group is a rare example for this as the company is incorporated in Luxembourg and its subsidiaries are primarily active in Slovenia and Croatia, see <https://www.ebrd.com/work-with-us/projects/psd/53252.html>. (last accessed on 23.11.2023).

<sup>26</sup> For example, wholesale-only companies were preferred in the context of State Aid awards in PT.

common among the larger fixed network providers,<sup>27</sup> and vertical integration (including infrastructure) remains a more common model in fixed network deployment than in mobile. When longstanding fixed network operators engage in fibrecos (e.g., through JVs), this typically only happens for new construction from that point onwards, while tower subsidiaries are often based on the existing tower portfolio of an operator. This finding is supported by the answers to the survey for this study. As seen below, the majority of telcos have divested towers but only few did so with fixed assets in the access network.

Figure 3-3: Divestment of assets by telecom operators



Percentage based on telecom operators that marked for the type of asset that they own this type of asset and/or have divested this type of asset and/or are considering divestment of this type of asset. In total, 32 companies answered the question on ownership and (potential) divestiture of assets.

Source: WIK-Consult based on survey data for this study

## 3.2 Landscape for towercos and netcos in the EU and elsewhere

### 3.2.1 Towercos

There are active towercos in most EU/EEA countries. Most of the MNOs have carved out their tower business into separate companies or sold the towers to independent towercos.

<sup>27</sup> Although it is more rare, incumbents in some countries such as IT and DE have made use of JV netcos to benefit from capital injections / defray risk in the deployment of fibre.



This divestiture activity has been particularly intense in recent years as shown in Table 3-1.

Table 3-1: Significant towerco deals in recent years in Europe (selection)

Seller / MNO	Buyer	Year	Number of sites	Purchase price	Main countries	Notes
Cellnex	Stonepeak	2023	4,557	730 mln EUR	DK, SE	Sale of 49 percent of Cellnex' "Nordic" business to investment firm
Play ("On Tower Poland") / Iliad	Cellnex	2023	8,500	510 mln EUR	PL	Sale of remaining 30 percent of Iliad's PL tower business to Cellnex
Vodafone (Vantage Towers)	Global Infrastructure Partners (GIP) / KKR	2023	84,600 (incl. JVs in IT, UK)	4.9 bln EUR*	CZ, DE, EL, ES, HU, IE, PT, RO (+ IT, UK through JVs)	Delisting of stock with an offer to shareholders included. New deal targets 50 / 50 split between Vodafone and capital investors.*
Deutsche Telekom (GD Towers / Deutsche Funkturn)	Digital Bridge and Brookfield	2023	>40,000	10.7 bln EUR	AT, DE	Deal was announced in 2022. Capital investors bought a 51 percent share in Deutsche Telekom tower business in AT and DE.
CK Hutchison	Cellnex	2022	24,600	10 bln EUR	AT, DK, IE, IT, SE, UK	Deal was announced in 2020, last part closed in 2022 (in the UK)
Free / Play ("On Tower" / Iliad)	Cellnex	2022	See initial deals in the last three rows of the table	1.09 bln EUR	FR, PL	Purchase of remaining 30 percent of Iliad's FR tower business (950 mln EUR) and an additional 10 percent of Iliad's PL tower business (140 mln EUR)
Telia	Brookfield / Alecta	2022	3,800	500 mln EUR	SE	Sale of 49 percent of Telia Towers to capital investors, Telia kept control of 51 percent. A similar deal was made before for Telia's towers in Finland and Norway.
Altice / SFR (Hivory)	Cellnex	2021	10,500	5.2 bln EUR	FR	
ATC Europe	CDPQ / Allianz Capital Partners	2021	~30,000	2.6 bln EUR	DE, ES, FR	Sale of part of ATC's European business to capital investors (30 percent to CDPQ, 18 percent to Allianz)



Seller / MNO	Buyer	Year	Number of sites	Purchase price	Main countries	Notes
Polkomtel	Cellnex	2021	7,000	1.6 bln EUR	PL	Also includes Polkomtel's active infrastructure and fibre backhaul
Telefónica (Telxius)	American Tower	2021	30,722	7.7 bln EUR	DE, ES (+ Latin America)	
Play (Iliad)	Cellnex	2021	7,000	800 mln EUR	PL	Acquisition includes 60 percent of a newly formed towerco, the rest of the company stayed with Play / Iliad
Arqiva	Cellnex	2019	7,400 (+ 900 rights to market)	2.2 bln EUR	UK	
Free / Salt (Iliad)	Cellnex	2019	10,700	2.7 bln EUR	CH, FR, IT	Cellnex bought 2,200 sites in IT, 70 percent of FR tower business (5,700 sites) ("On Tower France") and 90 percent of CH tower business (2,800 sites)

\*After the transaction, Oak Holdings holds 89.3 percent of Vantage Towers. Oak Holdings was held by Vodafone (64 percent) and capital investors GIP and KKR (36 percent). This yielded 4.9 bln EUR cash proceedings to Vodafone. The investors increased their share to 40 percent for an additional 500 mln EUR in mid-2023 with the option to increase the share to 50 percent at the same price per share by the end of the year.

Source: WIK-Consult research based on investor statements and press releases of companies<sup>28</sup>

**28** Sources of deals in order listed in the table:

Cellnex: <https://www.cellnex.com/news/stonepeak-acquire-49-interest-cellnex-subidiaries-sweden-denmark/> (last accessed on 23.11.2023).

Iliad (Play): <https://www.cellnex.com/news/cellnex-control-100-ontower-poland/>

Vodafone: [https://www.vantage-towers.com/sites/tower-co-v2/files/2022-11/20221109\\_Press%20release\\_Vantage%20Towers%20welcomes%20creation%20of%20a%20JV%20by%20VF%20with%20GIP%20and%20KKR\\_final.pdf](https://www.vantage-towers.com/sites/tower-co-v2/files/2022-11/20221109_Press%20release_Vantage%20Towers%20welcomes%20creation%20of%20a%20JV%20by%20VF%20with%20GIP%20and%20KKR_final.pdf), (last accessed on 23.11.2023). <https://www.vodafone.com/news/corporate-and-financial/vodafone-enters-co-control-partnership-gip-and-kkr-vantage-towers>, <https://investors.vodafone.com/sites/vodafone-ir/files/2023-05/vodafone-fy23-annual-report.pdf>, <https://www.commsupdate.com/articles/2023/07/19/vodafone-group-sells-additional-shares-in-vantage-towers/> (last accessed on 23.11.2023).

Deutsche Telekom: <https://www.telekom.com/en/media/media-information/archive/deutsche-telekom-completes-tower-transaction-1025420> (last accessed on 23.11.2023).

CK Hutchison: Start: <https://www.cellnex.com/news/cellnex-add-30000-telecommunication-european-sites-ck-hutchison/>, last closing: <https://www.cellnex.com/news/cellnex-closes-ck-hutchison-deal-uk/> (last accessed on 23.11.2023).

Iliad (Free / Play): <https://www.cellnex.com/news/cellnex-closes-q1-2022-60-growth-revenue-ebitda-cash-flow/> (last accessed on 23.11.2023).

Telia: <https://www.teliacompany.com/en/press-releases/FB062772181B1E3C> (last accessed on 23.11.2023).

Altice / SFR (Hivory): <https://www.cellnex.com/news/cellnex-closes-acquisition-hivory-france/> (last accessed on 23.11.2023).

ATC Europe: [https://www.allianz.com/en/press/news/financials/stakes\\_investments/210616\\_Allianz-to-partner-with-American-Tower-in-Europe.html](https://www.allianz.com/en/press/news/financials/stakes_investments/210616_Allianz-to-partner-with-American-Tower-in-Europe.html),

The deal overview shows that many of the larger European multinational MNOs have sold parts or all of their tower portfolio (or shares in their towerco) to capital investors, e.g. Vodafone, CK Hutchison and Telefónica. The way this is done differs from company to company and depends on the preferences of seller and buyer. The two main ways to divest the infrastructure is by selling the towers outright or by selling a share (often around 50 percent) of the towerco subsidiary to investors. While the first method mainly attracts existing independent towercos as buyers, the latter appears to be the preferred way to sell to large capital investors such as pension funds. The potential degree of operational control for the divesting MNO is higher in the second method.

The map below shows towercos in Europe which have submitted an answer to the survey for this study, were mentioned in the survey by national regulators or have a significant presence in the focus countries of this study.

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<https://www.cdpq.com/en/news/pressreleases/american-tower-partners-with-cdpq-in-europe> (last accessed on 23.11.2023).

Polkomtel: <https://www.cellnex.com/news/cellnex-closes-acquisition-polkomtel-infrastruktura/> (last accessed on 23.11.2023).

Telefónica: <https://www.telefonica.com/en/communication-room/press-room/telefonica-sells-telxius-tower-division-to-american-towers-corporation-at-record-multiples-for-7-7-billion-euros/> (last accessed on 23.11.2023).

Iliad (Play): <https://www.cellnex.com/news/cellnex-closes-acquisition-network-7000-play-sites-poland/> (last accessed on 23.11.2023).

Arqiva: <https://www.cellnex.com/news/noticia-126/> (last accessed on 23.11.2023).

Iliad (Free / Salt): <https://www.cellnex.com/news/noticia-108/> (last accessed on 23.11.2023).

Figure 3-4: Map of selected towercos in Europe



Source: WIK-Consult based on information from company websites / reports and survey answers for this study. Map created with mapchart.net. Colours are used to provide a clear demarcation between the different countries, and do not signify different conditions

State aid has only played a limited role in the construction of towers by towercos thus far. While according to the company survey for this project, almost a third of towercos<sup>29</sup> (primarily the larger towercos) have received public funding, the funding has been mainly for smaller and discrete projects (e.g., in the context of the 5G corridor projects that facilitate connected mobility across borders<sup>30</sup>). However, in Germany there is additionally a government undertaking (“Mobilfunkinfrastrukturgesellschaft” – MIG) which will award €2.1 billion for passive mobile infrastructure in underserved regions,<sup>31</sup> while in Italy two tenders have been awarded for the construction of new sites and backhaul for existing sites under the EU RRF framework. Towercos were beneficiaries of the first funds allocated under these schemes.

<sup>29</sup> 21 towercos answered the question about public funding, 6 claimed to have received state aid.

<sup>30</sup> See <https://5gobservatory.eu/5g-corridors/> (last accessed 14.09.2023).

<sup>31</sup> [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_21\\_2667](https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2667) (last accessed 14.09.2023).

Table 3-2 provides an overview of the number of sites controlled by the largest towercos in Europe. The largest towercos in Europe are Cellnex and Vantage Towers. These are also the companies that are active in the largest number of different European countries. American Tower is the biggest towerco worldwide with almost 225,000 towers.<sup>32</sup>

Table 3-2: Headline operational data of largest towercos

Company	Number of sites in Europe	Country split (EU + relevant other countries):	Ownership / type of towerco
<b>Cellnex</b>	110,830	FR: 24,598; IT: 21,287; PL: 15,500; UK: 12,410; ES: 10,462*; PT: 6,398; CH: 5,421; AT: 4,529; NL: 4,079; SE: 2,864; IE: 1,921; DK: 1,563	Independent
<b>Vantage Towers</b>	46,100 (without JVs) <sup>33</sup>	DE: 19,800; ES: 8,400; EL: 4,900; CZ: 4,000; PT: 3,400; RO: 2,300; HU: 2,200; IE: 1,300	Telco-investor JV
Deutsche Funkturm	34,600	Only active in Germany, sister company active in Austria	Telco-investor JV
<b>American Tower</b>	30,900	DE: 14,800; ES: 11,800; FR: 4,300; US: ~43,000	Independent
TOTEM	27,100	FR: 19,500; ES: 7,600	Telco-controlled
<b>INWIT</b>	23,300	Only active in Italy	Formerly two-telco JV, now largely independent

\*The amount of sites for Cellnex in Spain includes 1,693 sites that are not used for telecommunications infrastructure but only broadcasting services.

Includes all towercos with at least 20,000 sites in Europe; **bold**: Focus companies for this study;

Source: WIK-Consult based on company reporting (most current data available, end of 2022 or newer)

The six towercos with more than 20,000 sites in Europe include examples from the different ownership structures set out in section 3.1.1<sup>34</sup>. Towercos own the vast majority of towers in all focus countries. The main difference between countries lies in the predominating ownership structure of those companies (independent towercos vs. telco-controlled / JV towercos).

Further details regarding selected towercos are provided below.

<sup>32</sup> For a more detailed assessment of the biggest towercos in different parts of the world and worldwide, see: <https://dgtlinfra.com/top-100-cellular-towers-companies/> (last accessed 14.09.2023).

<sup>33</sup> Vantage Towers has 84,600 sites in total, incl. the JVs in Italy (INWIT) and UK (Cornerstone).

<sup>34</sup> Cellnex and American Tower are independent, Vantage Towers and Deutsche Funkturm are telco-investor JVs, TOTEM is telco-controlled and INWIT is a two-telco JV.

### Details of selected towercos

**American Tower Corporation (ATC)** was founded in 1995 as a unit of American Radio and quickly established itself as a neutral host / operator independent towerco in the US market. When American Radio was acquired by CBS/Viacom in 1998, American Tower was spun off and went public separately. By 2005, it became the largest towerco in the US through a merger with SpectraSite. Over the years, the company expanded to other territories such as Latin and South America, Africa and India.<sup>35</sup>

The European business of American Tower started in 2012 when the company bought 2,000 mobile sites from KPN in Germany for 393 EUR mln.<sup>36</sup> The market entry in France happened in 2017 when the company bought FPS Towers from Antin Infrastructure Partners for 727 EUR mln, a company with around 2,500 mobile sites.<sup>37</sup> The European footprint was expanded immensely in 2021 when American Tower bought Telxius, the towerco of Telefónica<sup>38</sup> for 7.7 EUR bln. This transaction included ~11,500 towers in Spain and ~12,500 in Germany.<sup>39</sup> The European American tower subsidiary ATC Europe in itself was partly sold to capital investors in mid-2021 when Caisse de dépôt et placement du Québec (“CDPQ”) and Allianz Capital Partners acquired 48 percent (30 and 18 percent respectively) for a total of 2.6 EUR bln.<sup>40</sup>

Table 3-3: Sites per country - American Tower

American Tower		Number of mobile sites per country				
		2018	2019	2020	2021	2022
France	Towers	2,495	2,518	3,078	3,754	4,246
	DAS	9	9	9	9	8
Germany	Towers	2,208	2,211	2,217	14,739	14,799
	DAS	0	0	0	0	0
Poland	Towers	0	0	27	49	57
	DAS	0	0	0	0	0

<sup>35</sup> <https://www.american tower.com/company/history.html> (last accessed 14.09.2023).

<sup>36</sup> <https://www.businesswire.com/news/home/20121114007276/en/American-Tower-Corporation-Announces-Acquisition-of-Tower-Sites-from-KPN-in-Germany> (last accessed 14.09.2023).

<sup>37</sup> American Tower annual report 2017: <https://americantower.gcs-web.com/static-files/82ae55bc-2626-41e6-9460-1fd376775932> (last accessed 14.09.2023).

<sup>38</sup> By the time of the sale, Telefónica’s infrastructure branch Telefónica Infra held 50.01 percent of Telxius, the rest was already held by investors KKR (~40 percent) and Pontegadea (~10 percent).

<sup>39</sup> In addition to that, ~7,000 towers in Latin America were part of the transaction. See <https://americantower.gcs-web.com/static-files/6c45b8c2-cao2-451e-8353-c8f3a26a2601> (last accessed 14.09.2023).

<sup>40</sup> American Tower annual report 2022: <https://americantower.gcs-web.com/static-files/87be76b9-6e93-452b-a708-7de9e30ee1f9> (last accessed 14.09.2023).

American Tower		Number of mobile sites per country				
		2018	2019	2020	2021	2022
Spain	Towers	0	0	0	11,490	11,610
	DAS	0	0	0	0	1
United States	Towers	40,359	40,567	42,490	42,639	42,600
	DAS	398	407	448	451	454
Rest of the world	Towers	123,923	132,452	136,048	145,464	149,743
	DAS	1,294	1,358	1,324	1,318	1,250

Source: American Tower annual reports. Includes towers that are operated but not owned (mainly in the US) which are almost exclusively leased long-term and often include purchase options.

Besides the influence of acquisitions, e.g. in terms of increase in sites in Germany and Spain in 2021, Table 3-3 shows that there is limited use by ATC of DAS infrastructure and it is not increasing. Most of these antenna systems are used in indoor settings with a limited number being used outdoors.<sup>41</sup> The table also shows that in mature tower markets such as the US, there is no rapid rollout of new sites but rather smaller and steadier changes in the portfolio.

American Tower mainly provides passive access to its towers. Any potential to include active services may be hindered by regulation, including capital market regulation due to its status as a real estate company / REIT.

While American Tower has not received large sums in government funding for the rollout of its towers, the company does participate in consortia that receive funds for innovative projects. In France they participate in the Paris2Connect program (together e.g., with the city of Paris), where a part of Paris (3.5 road kilometres) is fully connected with a private network to facilitate testing new applications such as real-time traffic alerts.<sup>42</sup> Additional smaller state aid funded projects with American Tower's participation in the realm of connected car in France are InDiD<sup>43</sup> cooperation and PRISSMA.<sup>44</sup> The company also participates in the cross-border rail project 5GonTrack between Deutsche Bahn and several German towercos and MNOs.<sup>45</sup>

<sup>41</sup> <https://americantower.gcs-web.com/static-files/87be76b9-6e93-452b-a708-7de9e30ee1f9>

<sup>42</sup> See <https://paris2connect.agorize.com/fr/challenges/appel-a-experimentations/pages/paris2connect?lang=en> (last accessed on 23.11.2023).

<sup>43</sup> <https://trimis.ec.europa.eu/project/indid> (last accessed on 23.11.2023).

<sup>44</sup> <https://prissma.univ-gustave-eiffel.fr/en/> (last accessed on 23.11.2023).

<sup>45</sup> <https://digital-strategy.ec.europa.eu/en/news/5g-coverage-along-transport-corridors-first-wave-projects-selected-co-funding-5g-corridor> (last accessed on 23.11.2023).



The most prominent access seeker on ATCs towers in Europe is Telefónica as they function as an anchor tenant in Spain and Germany.<sup>46</sup> Among the further access seekers are Vodafone in Spain and Germany, as well as Orange in Spain and France.<sup>47</sup>

**Cellnex** is the largest independent towerco in Europe with more than 100,000 sites. The company is currently not active in other world regions. The Spanish company started in the early 2000s under the name Abertis Telecom (subsidiary of Abertis). In 2015, the company was renamed to Cellnex Telecom and made its debut on the Madrid Stock Exchange. Today, the biggest shareholder Edizione<sup>48</sup> holds 9.9 percent of the shares. The largest telecom shareholder, CK Hutchison, owns less than 5 percent of Cellnex' shares.<sup>49</sup>

Much of Cellnex' tower portfolio was acquired from competitors over the years. Among the recent acquisitions are 5,000 sites from Bouygues Telecom in France in 2017<sup>50</sup>, the acquisition of the majority of 7,900 sites from Iliad in France and Italy in 2019<sup>51</sup> as well as 7,000 sites in Poland in 2019<sup>52</sup> and more than 7,000 sites acquired from Arqiva in the UK in 2020.<sup>53</sup> The biggest deal was announced in late 2020 when Cellnex acquired the complete European portfolio of CK Hutchison (operating under the Three brand), consisting of 24,600 mobile sites for 10 bln EUR. As 1.4 bln EUR of this deal was paid in Cellnex shares, CK Hutchison is the largest telco shareholder of the company.<sup>54</sup> In 2021, Cellnex acquired Hivory, the towerco of Altice in France, i.e., the towers used by MNO SFR, encompassing more than 10,000 sites for 5.2 bln EUR.<sup>55</sup> In 2022 and 2023, Cellnex acquired the remaining 30 percent of Iliad's business ("On Tower") in France for almost 1 bln EUR<sup>56</sup> as well as the remaining 40 percent in Poland for a total of 650 mln EUR in two steps.<sup>57</sup>

<sup>46</sup> Telefónica accounts for 71 percent of American Tower's European revenue. It is by far the second largest non-North American access seeker behind Indian MNO Airtel. See: <https://americantower.gcs-web.com/static-files/87be76b9-6e93-452b-a708-7de9e30ee1f9> (last accessed 14.09.2023).

<sup>47</sup> [https://go.pardot.com/l/25692/2020-12-17/71kyzt/25692/1608220603vlVkQTwk/atc\\_investor\\_relations\\_american\\_tower\\_corporation\\_international\\_overvie.pdf](https://go.pardot.com/l/25692/2020-12-17/71kyzt/25692/1608220603vlVkQTwk/atc_investor_relations_american_tower_corporation_international_overvie.pdf) (last accessed 14.09.2023). and [https://go.pardot.com/l/25692/2020-12-17/71kyww/25692/16082196765leaqcNS/atc\\_investor\\_relations\\_american\\_tower\\_financial\\_operation\\_update\\_q3\\_2.pdf](https://go.pardot.com/l/25692/2020-12-17/71kyww/25692/16082196765leaqcNS/atc_investor_relations_american_tower_financial_operation_update_q3_2.pdf) (last accessed 14.09.2023).

<sup>48</sup> Edizione is a holding company owned by the Benetton family.

<sup>49</sup> <https://www.cellnex.com/sections/shareholder-structure/> (last accessed 14.09.2023).

<sup>50</sup> <https://www.bouygues.com/wp-content/uploads/2017/02/bouygues-telecom-and-cellnex-sign-agreement.pdf> (last accessed 14.09.2023).

<sup>51</sup> <https://www.euronews.com/2019/05/07/iliad-to-sell-mobile-towers-in-france-and-italy-to-cellnex-for-two-billion-euros> (last accessed 14.09.2023).

<sup>52</sup> <https://www.cellnex.com/news/cellnex-revenues-grow-55-1-6-billion/> (last accessed 14.09.2023).

<sup>53</sup> <https://www.arqiva.com/news-views/news/cellnex-purchase-of-arqiva-telecoms-division-cleared-by-cma> (last accessed 14.09.2023).

<sup>54</sup> See <https://dgtlinfra.com/cellnex-acquires-24-6k-towers-from-ck-hutchison-for-10bn/> (last accessed 14.09.2023). For more information about the details of the acquisition in the UK (as CK Hutchison brought their towers there into the JV MBNL) see the case study United Kingdom in the annex of this study.

<sup>55</sup> <https://www.cellnex.com/news/cellnex-closes-acquisition-hivory-france/> (last accessed 04.10.2023).

<sup>56</sup> <https://www.cellnex.com/news/cellnex-closes-q1-2022-60-growth-revenue-ebitda-cash-flow/> (last accessed 23.10.2023)

<sup>57</sup> Ibid as well as <https://www.cellnex.com/news/cellnex-control-100-ontower-poland/> (last accessed 23.10.2023)

Table 3-4: Sites per country - Cellnex

Cellnex		Number of mobile sites per country				
		2018	2019	2020	2021	2022
<b>France</b>	Sites	2,807	9,192	10,312	22,797	24,598
	Tenancy ratio	1.07	1.03	1.05	1.17	1.17
<b>Italy</b>	Sites	8,308	10,121	10,610	20,272	21,287
	Tenancy ratio	1.43	1.47	1.54	1.52	1.57
<b>Poland</b>	Sites	0	0	0	15,298	14,651
	Tenancy ratio	N/A	N/A	N/A	1.12	1.14
<b>Spain</b>	Sites	6,980	8,144	8,645	8,664	8,769
	Tenancy ratio	1.93	1.88	1.91	1.94	2.01
<b>United Kingdom</b>	Sites	608	608	7,996	7,996	12,410
	Tenancy ratio	1.52	1.52	1.45	1.47	1.27
Austria	Sites	0	0	4,470	4,494	4,529
	Tenancy ratio	N/A	N/A	1.15	1.16	1.16
Denmark	Sites	0	0	1,317	1,411	1,563
	Tenancy ratio	N/A	N/A	1.07	1.10	1.10
Ireland	Sites	0	565	1,781	1,834	1,921
	Tenancy ratio	N/A	2,02	1,65	1,67	1,65
Portugal	Sites	0	0	5,052	5,875	6,398
	Tenancy ratio	N/A	N/A	1.21	1.20	1.35
Nether-lands	Sites	801	921	924	4,069	4,079
	Tenancy ratio	2.54	2.49	2.49	1.48	1.42
Sweden	Sites	0	0	0	2,668	2,864
	Tenancy ratio	N/A	N/A	N/A	1.28	1.26
Switzer-land	Sites	2,327	5,270	5,315	5,367	5,421
	Tenancy ratio	1.09	1.13	1.13	1.14	1.17

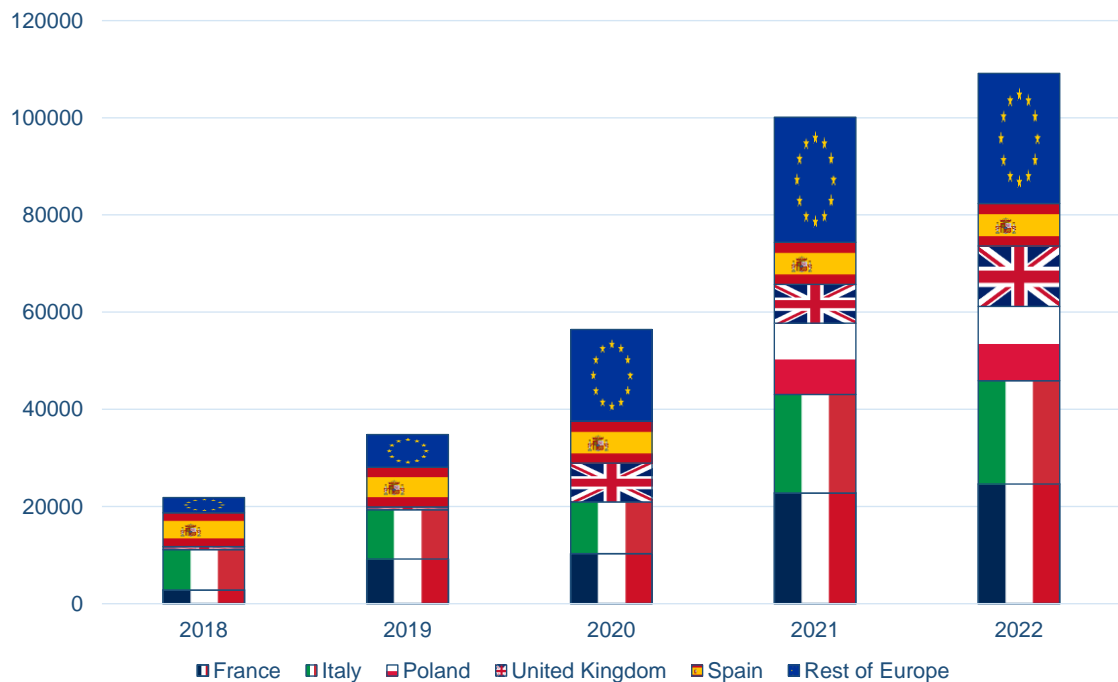
Printed in bold are focus countries for this study. Sites in Spain only include those marked as „TIS sites“ in Cellnex' reporting, i.e., excluding the ~16 percent of Spanish sites that are only used for



broadcasting but not telecommunications services. This distinction is not relevant for other countries as Cellnex does not offer broadcasting-only sites there.

Source: Cellnex reporting.

Figure 3-5: Sites per country – Cellnex



Source: WIK-Consult based on Cellnex reporting.

The detailed country breakdown for Cellnex shows that the company has increased its size rapidly over the last few years, growing from about 20,000 sites in 2018 to more than five times that in 2022.

This increase has been achieved through the aforementioned acquisitions, which have mainly been debt-financed through bonds. Due to that, Cellnex has about 18 bln EUR in gross debt, most of which is due in 2026 to 2028 (see Figure 3-6). As the company placed most of its bonds in the period up to 2022<sup>58</sup>, debt-refinancing in times of rising interest rates in the Eurozone<sup>59</sup> may become challenging in the upcoming years. In addition, Cellnex was loaned 335 mln EUR by the European Investment Bank in July 2023.<sup>60</sup> To reduce this debt and attain higher ratings from agencies, Cellnex most recently sold 49 percent of its “Nordics” business to Stonepeak for 730 mln EUR (pending regulatory

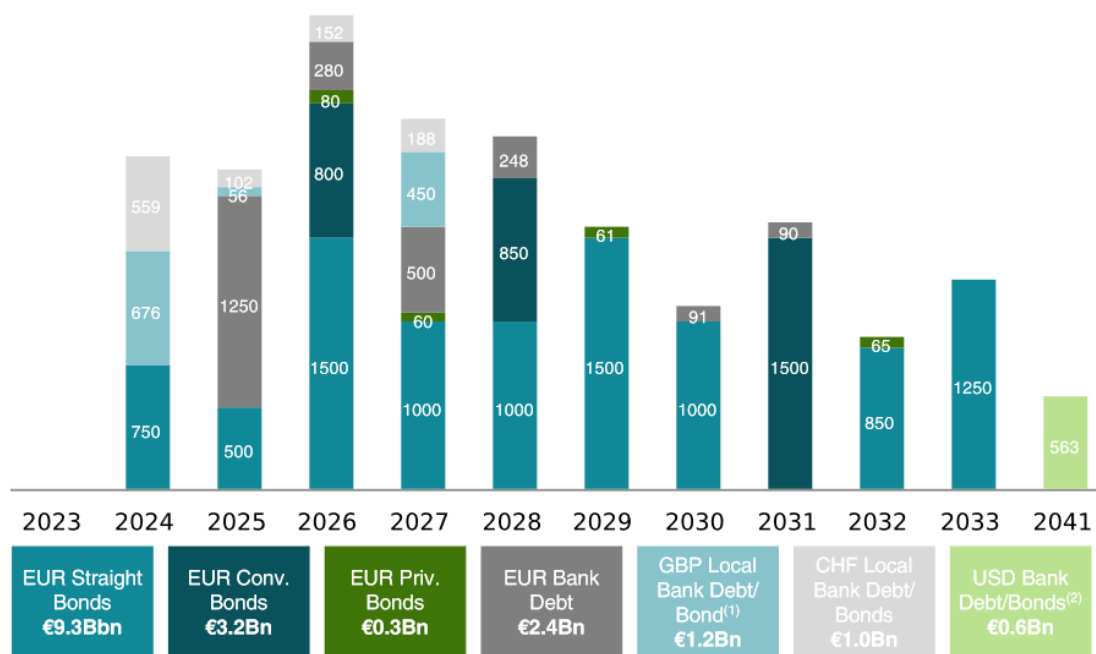
<sup>58</sup> See <https://www.cellnex.com/investor-relations/financial-income/> (last accessed on 23.11.2023).

<sup>59</sup> See <https://www.ecb.europa.eu/press/pr/date/2023/html/ecb.mp230914~aab39f8c21.en.html> (last accessed on 23.11.2023).

<sup>60</sup> <https://www.eib.org/en/press/all/2023-293-eib-and-cellnex-sign-eur315-million-loan-to-support-5g-infrastructure-rollout-and-european-digital-transition> (last accessed on 23.11.2023).

approvals).<sup>61</sup> A more detailed look into the resulting challenges in comparison to other competitors can be found in Table 3-6 and the following discussion.

Figure 3-6: Long-term debt structure of Cellnex



Source: Cellnex annual report 2022, page 117.<sup>62</sup>

Similarly to its competitor American Tower, Cellnex participates in state-aid funded projects particularly in the realm of smaller, innovative projects, e.g in the transport sector. The EU funded six cross-border projects with a total of 12 million Euro as part of the European Commission's Connecting Europe Facility (CEF-2) Digital Programme for V2X (vehicle to everything) communications infrastructure between France and Spain, Spain and Portugal, and Italy and Austria (two projects each).<sup>63</sup>

Access seekers using passive access to Cellnex' towers include a large number of MNOs in the respective countries due to Cellnex' status as an independent towerco. Of particular importance are the anchor tenants such as CK Hutchison/Three, Iliad, SFR, Bouygues Telecom, Play and Salt. These are MNOs that sold their tower business to Cellnex.

**INWIT** (*Infrastrutture Wireless Italiane*) evolved from the towerco joint venture of Telecom Italia (TIM) and Vodafone in Italy. The company is only present in Italy. A unique feature of the company is that it started with just one telecom operator as its shareholder and

<sup>61</sup> <https://www.cellnex.com/news/stonepeak-acquire-49-interest-cellnex-subidiaries-sweden-denmark/> (last accessed on 23.11.2023).

<sup>62</sup> <https://annualreport.cellnex.com/2022/assets/documentos/doc-integrated-annual-report.pdf> (last accessed on 23.11.2023).

<sup>63</sup> <https://www.cellnex.com/news/european-commission-awards-cellnex-six-projects-enhance-5g-infrastructure-transport-corridors/> (last accessed on 23.11.2023).

transitioned to a joint venture. In 2015, Telecom Italia transferred its tower business to the newly established INWIT, which was in 2016 listed on the Italian stock exchange. In 2019 it was decided that Vodafone would join the company with its towers, which was approved by the European Commission in 2020. TIM and Vodafone remained with 37.5 percent of shares each, with the intention to remain jointly in control but reduce each share over time to 25 percent.<sup>64</sup>

While in 2023 two companies still together hold the majority of shares of INWIT, the shareholdings of TIM and Vodafone have been significantly reduced. 33.2 percent is held by Central Tower Holdings, which is held by the owners of Vantage Towers, the spun off towerco of Vodafone. Therefore Vodafone only holds about half of this 33.2 percent. Another 29.9 percent of INWIT is held by the Daphne 3 Holdings, of which TIM only holds 10 percent.<sup>65</sup>

INWIT has received state aid to deploy towers in very rural areas (Italian NRRP program), so called mountain communities.<sup>66</sup> The company also received a long-term loan from the European Investment Bank (EIB) of ~300 mln Euro to expand coverage and capacity of mobile networks in 2021.<sup>67</sup>

The two telcos which were initially involved in a JV through INWIT are anchor tenants. However, INWIT also has agreements in place with the other MNOs as well as with FWA providers. In addition to passive tower access, they also have fibre backhaul capabilities in place to deliver services on a larger part of the value chain to its customers. INWIT is also active in providing DAS solutions.

**Vantage Towers** is the towerco carve-out of Vodafone and is by mid-2023 a joint venture between Vodafone and a consortium of Global Infrastructure Partners (GIP) and KKR. Vodafone spun off their towers into the separate company Vantage Towers in 2020, the company was listed on the Frankfurt stock exchange in March 2021.<sup>68</sup> Vantage Towers included all towers of Vodafone as well as the Vodafone shares of the joint ventures INWIT (Italy) and Cornerstone (UK). Vodafone's share of Vantage Towers was still at ~82 percent after the company went public, i.e., only a minority of shares was sold to investors.

In 2023, Vantage Towers delisted from the stock exchange and went private again, after the company Oak Holdings made a public offer to shareholders valuing the company 33 percent higher than when it initially went public. Oak Holdings, the new owner which now holds ~89 percent of Vantage Towers, is planned to be 50 percent owned by Vodafone

<sup>64</sup> <https://www.vodafone.com/news/technology-news/merger-of-vodafone-italy-towers-into-inwit-completed> (last accessed 14.09.2023).

<sup>65</sup> <https://www.inwit.it/en/investors/share-information/> (last accessed 14.09.2023).

<sup>66</sup> <https://www.inwit.it/en/press-releases/inwit-and-uncem-together-to-reduce-the-digital-divide/> (last accessed on 23.11.2023).

<sup>67</sup> <https://www.eib.org/en/projects/pipelines/all/20200946> (last accessed on 23.11.2023).

<sup>68</sup> <https://www.vantagetowers.com/sites/tower-co-v2/files/investor/results-report-and-presentation/2021/vt-ag-statutory-financial-statements-202021-ger.pdf> (last accessed 14.09.2023).

with investors GIP and KRR holding 25 percent each in the long run. In July 2023, the share of Vodafone in Oak Holdings was still at 60 percent. GIP and KKR can reduce this share to the envisioned 50 percent for the same price per share as previous transactions until the end of 2023.<sup>69</sup> Due to that, the (indirect) share of Vodafone in Vantage Towers stood at 53.4 percent as of July 2023.

Similar to its competitors, Vantage Towers participates in government-funded cross border programs/corridors such as the 5GonTrack program between Germany and France and the 5GCarolina project between Germany and the Czech Republic (Munich – Prague).<sup>70</sup> The company also participated in building sites in rural areas in Germany funded by the Mobilfunkinfrastrukturgesellschaft (“MIG”).

As Vodafone spun off Vantage Towers, they are the anchor tenant on the towers. The degree to which other tenants also use the towers varies. For the joint ventures with Telecom Italia in Italy and Telefónica in the UK, the tenancy ratios are relatively high due to two anchor tenants who co-locate at many sites. Other tenants include the 1&1, which is building the fourth mobile network in Germany from the ground up.<sup>71</sup>

The main business of Vantage Towers also includes passive access to its sites with the usual components such as power supply. In some cases, the company also offers fibre backhaul to/from the sites.<sup>72</sup>

### **Operational and financial trends**

Table 3-5 shows that the towercos differ significantly in growth of sites, depending on their acquisition activity. The independent towercos Cellnex and American Tower acquired towers and thus grew their portfolio, while the JV (partly telco-owned) towercos did not engage in such acquisitions (the incorporation of Vodafone’s towers into INWIT was not an acquisition per se). The higher activity on the M&A market of independent towercos is a pattern that is generally present in the market. While American Tower has a geographically diverse portfolio, Cellnex and Vantage Towers are focussed solely on towers in Europe. Cellnex’ acquisitions mainly consisted of buying existing tower portfolios of MNOs that wanted to divest (e.g. CK Hutchison, Iliad, see Table 3-1).

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<sup>69</sup> See <https://www.telcotitans.com/vodafonewatch/vodafone-pockets-another-500m-from-vantage-deal/6882.article> (last accessed on 23.11.2023).

<sup>70</sup> <https://www.munich-prague.org/5gcarolina.html> (last accessed on 23.11.2023).

<sup>71</sup> For further information, see competition cases in the annex.

<sup>72</sup> <https://www.vantagetowers.com/sites/tower-co-v2/files/investor/cmd/portfolio-overview-vf.pdf> (last accessed 14.09.2023).

Table 3-5: Number of mobile sites per focus company and year

Company	Number of mobile sites					Comments
	2018	2019	2020	2021	2022	
Cellnex	23,440	36,471	58,104	101,802	110,830	135,000 total sites incl. Transactions not yet closed
Vantage Towers	N/A	45,400	45,700	45,700	46,100	84,600 sites total incl. JVs in Italy (INWIT) and UK (Cornerstone)
American Tower	170,686	179,520	186,000	220,131	224,768	30,721 sites currently in Europe, mainly through acquisition of TEF tower business (Telxius). Most of them incorporated into the company in 2021.
INWIT	11,000	11,200	22,300	22,800	23,300	Jump from 2019 to 2020 due to incorporation of Vodafone's towers

Source: Company websites/reporting

Table 3-6 shows the headline financial data of the four focus towercos in recent years. Market capitalization of the companies as well as revenue corresponds to the differences in sizes between the companies. The stock market capitalization as an indicator of company value fluctuates, but a generally increasing trend in towerco valuation is recognizable. In contrast to the towercos, the main stock index for European telecommunications companies, the STOXX Europe 600 Telecommunications, fell from end of 2018 to the end of 2022 by ~7 percent.<sup>73</sup> Towercos were more in line with worldwide stock market trends, which included falling valuations in 2022, Cellnex and INWIT even overperformed over the period despite a disproportionate decline in 2022.<sup>74</sup>

While towercos EBITDA are high with ~60 to ~90 percent compared to the usual figures among larger vertically integrated telcos, which normally lies between 30 and 50

<sup>73</sup> The index includes all exchange listed telecommunications companies among the 600 biggest listed European companies. Its biggest holdings are Deutsche Telekom, Orange, Telefónica and Vodafone. See <https://qontigo.com/index/SXKGR/> (last accessed on 23.11.2023).

<sup>74</sup> A measure for the developed and emerging markets in terms of their total stock market valuation including 2,900 of the biggest companies worldwide, the MSCI ACWI (All Country World Index), increased by ~43 percent between the end of 2018 and end of 2022 including a setback of ~15 percent from the end of 2021 to the end of 2022. See <https://www.msci.com/zh/our-solutions/indexes/acwi>. (last accessed on 23.11.2023).

percent<sup>75</sup>, it is more meaningful in this context to look at profitability measures such as the return on capital employed (ROCE).

The ROCE sets the Earnings (Before Interest and Taxes, EBIT) in a ratio to the capital employed, which is defined as assets minus current liabilities. A high ROCE shows that a company has high earnings compared to the capital it uses to achieve these earnings. In particular, it can be a warning sign if the return of the employed capital is lower than the cost of capital (weighted average cost of capital, WACC). If general interest rates go up in the market (as they have been in the Euro area since mid-2022)<sup>76</sup>, companies with a low ROCE could be affected more than those with a higher ROCE when debt needs to be refinanced. In the case of the focus towercos, Cellnex has a lower ROCE than its competitors, which is influenced by its high leverage (particularly due to the issuance of bonds) because of its acquisition activity.

Table 3-6: Financial data of focus towercos

Company	Company value / market capitalization in billion Euro					Revenue in billion Euro					Return on capital employed (ROCE) in percent				
	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
<b>Cellnex</b>	5.19	14.8	25.8	34.7	21.6	0.90	1.03	1.60	2.53	3.50	3.33	1.59	0.44	0.30	0.93
<b>Vantage Towers*</b>	N/A	N/A	16.3	16.2	16.9	N/A	N/A	0.55	1.02	1.10	N/A	N/A	2.87	5.09	6.10
<b>American Tower</b>	63.8	93.2	91.3	122	90.3	6.47	6.77	6.59	8.21	10.0	6.73	7.20	6.63	5.15	3.99
<b>INWIT</b>	3.58	5.24	9.53	10.3	9.04	0.38	0.40	0.66	0.79	0.85	11.21	9.37	3.32	4.02	4.72

\*The financial year for Vantage Towers ends on 30th of March. Value for 2022 is End of March 2023 (for other years respectively). No data for Vantage Towers before the IPO.

Source: Company websites/reporting and WIK-Consult calculation based on that.

<sup>75</sup> For the whole company (i.e. mobile and fixed business combined). See Knips, J.; Wernick, C. (2021): Kapitalmarktbeurteilung und Performance deutscher börsennotierter TK-Unternehmen im internationalen Vergleich, WIK research brief in German, available at: [https://www.wik.org/fileadmin/files/\\_migrated/news\\_files/Kurzstudie\\_Kapitalmarktbeurteilung\\_und\\_Performance.pdf](https://www.wik.org/fileadmin/files/_migrated/news_files/Kurzstudie_Kapitalmarktbeurteilung_und_Performance.pdf), p. 10.

<sup>76</sup> [https://www.ecb.europa.eu/stats/policy\\_and\\_exchange\\_rates/key\\_ecb\\_interest\\_rates/html/index.en.html](https://www.ecb.europa.eu/stats/policy_and_exchange_rates/key_ecb_interest_rates/html/index.en.html) (last accessed on 23.11.2023).

Table 3-7: Further operational data of focus towercos

Company	Sites per type	Typical contract length	Tenancy / customer ratio total and focus countries		CPI linkage and escalators in (major) contracts
	2022/2023	2022	2022/2023		2022/2023
Cellnex	Mobiles sites: 111,000 Sites incl. forecasted roll-out: 135,000 DAS/Small Cells: 7,500+	Major contracts: 10-20 years initial runtime, typically 25+ years incl. extensions	Total**	1.35	Conditions differ strongly per tenant. 35% of income on fixed escalators (1% or 2%), 65% CPI-linked: Some capped (e.g. at 2.25% for CK Hutchison in all countries, 4% Iliad in PL), some uncapped (Telefónica, Sunrise). Floor typically at 0%.
			ES	2.01	
			FR	1.17	
			IT	1.57	
			PL	1.14	
			UK	1.27	
Vantage Towers	Mobile sites: 46,300 (without JVs); 84,700 (with JVs) Ground/rooftop split: 35%/65% Small Cells*: ~1,300 DAS*: ~4,100	Master service agreement with Vodafone: 8+8+8+8 years length	Total**	1.46	Master service agreement with Vodafone: 85% of CPI capped at 3% in most countries.
			DE	1.24	
			ES	1.84	
			UK**	1.92	
American Tower	Mobile sites: 223,000 DAS: 1,700+ (almost only US) Data centres: 28 (mainly US)	Average remaining ground lease term: >8 years	**		International (non-US) contracts typically inflation-linked
INWIT	Mobile sites: 23,000+ (43% urban, 57% rural) DAS/Small Cells: 7,000+ Fibre backhaul links: 1,700	8+8 years for anchor tenants; 6+6 or 9+9 for others	2.2		Anchor tenants: 100% of prior year CPI (no cap, 0% floor); non-anchor tenants: ~75% of prior years' CPI, some capped

\* Information about Small Cells/DAS for Vantage Towers from Capital Market Presentation for the IPO in 2020.

\*\* Total for Cellnex for all mobile sites, The company claims in its annual report that for DAS, the tenancy ratio is at 3 MNOs per infrastructure. Total for Vantage Towers not including JVs, value for UK is that of JV Cornerstone; American Tower does not publish tenancy/customer ratios. A report from 2020 claims a tenancy ratio of 1.8 to 2.4 for US towers and 1.4 to 1.8 for non-US towers. This was before the acquisition of the majority of towers in Europe.

Source: Company websites/reporting and information given by operators for this study, for American Tower additionally: <https://insidetowers.com/american-tower-on-a-roll/> (last accessed on 23.11.2023).

As it is shown in Table 3-7, contract runtimes in the towerco market are typically long term. The focus companies have their anchor tenants locked in for at least 8 years initial



runtime, often with automatic renewals after this period. As those renewals are often “all-or-nothing”<sup>77</sup> and anchor tenants can only quit a small percentage of sites before the end of the runtime, it is assumed that cancellations before the end of the total runtime are rare.

The tenancy ratios differ between countries and operators. Two-telco JVs INWIT and Cornerstone have a higher tenancy ratio than one-telco or independent towercos as expected. The differences between countries for each towerco may be influenced by historical traditions of infrastructure sharing, which could explain the relatively high tenancy ratios in some countries e.g. in Spain.<sup>78</sup>

Inflationary pressure on towercos may play a role in the next years as tenant contracts are often linked to consumer price inflation (CPI) but capped at 2 or 3 percent. Ongoing high inflation rates in the EU could lead to an inflation-adjusted decline in revenues for some towercos that benefits those telcos that have the respective contracts locked in.

Most towercos also host non-MNO clients. These clients can be companies offering FWA connections (this was e.g. reported by Cellnex) or specialized IoT networks (e.g., Sigfox, LoRaWan, networks of utilities), often using unlicensed spectrum. In addition to that, towercos often host terrestrial broadcasters and public administrations (e.g., for emergency purposes).

### 3.2.2 Fibre netcos

Fibre netcos that operate wholesale-only, i.e. without their own retail branch, are active in most EU/EEA countries. Many of them operate only in a smaller part of the country due to the fragmented nature of the fibre markets, particularly in rural areas in many countries. Some are also JVs of telcos and investors or of more than one telco created to facilitate deployment of new networks. Carve-outs of existing networks as has occurred frequently in the tower business are less common, although incumbents in the UK and Czech Republic have established separate (wholly or partially owned) companies for the operation of the network infrastructure, while Telecom Italia has created a JV for the deployment of fibre networks, which encompasses existing ducts and copper in the secondary network. The map below shows fibre netcos in Europe which have submitted an answer to the survey for this study, were mentioned in the survey by national regulators or have a significant presence in the focus countries of this study.

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<sup>77</sup> See the discussion of Cellnex regarding up- and downsides of the potential Three / Vodafone consolidation in the UK <https://www.cellnex.com/app/uploads/2023/07/Cellnex-Results-Q2-2023.pdf> (last accessed 14.09.2023).

<sup>78</sup> See e.g. <https://www.vodafone.com/news/technology-news/vodafone-announces-expanded-network-sharing-agreement-with-orange-in-spain> (last accessed 14.09.2023).



Figure 3-7: Map of selected fibre netcos in Europe



Source: WIK-Consult based on information from company websites / reports and survey answers for this study. Map created with mapchart.net. Colours are used to provide a clear demarcation between the different countries, and do not signify different conditions.

According to the survey for this study, 8 of the 19 fibrecos that answered the respective question reported the use of public funding, a higher share than for towercos. Those that received funding and provided more detailed information typically note that they participated in the rollout of fibre networks in rural areas in their respective country. However, only a few (e.g., the focus company Nexera, see section below) were primarily active in state-aid areas. Notable companies that were carved out / separated from existing telecom operators are Openreach in the UK and CETIN in the Czech Republic. Other fibrecos, even if vertically integrated operators are involved, are typically used to cover areas where the respective operator was not present yet (or not present with fibre).

Table 3-8: Information on fibre netcos

Country	Company	Number of access lines (newest data available) covered	Ownership / type of towerco
IT	<b>Open Fiber</b>	13 mln real estate units	Independent
	Fibercop	5 mln households	Incumbent-investor JV
UK	<b>Openreach</b>	10 mln premises	Incumbent subsidiary
	CityFibre	2.2 to 2.5 mln premises	Independent
ES	<b>Onivia</b>	3.6 mln	Independent
	Bluevia	4 million premises covered	Incumbent-investor JV
	Lyntia	2.5 mln households covered	Independent
FR	<b>XP Fibre</b>	3.6 mln	Telco-investor JV
	TDF	750,000 premises	Independent
SE	Stokab	>90 percent of premises in the Greater Stockholm area	Independent, publicly-owned
DE	<b>Glasfaser Northwest</b>	700,000 premises	Incumbent-altnet JV
PL	<b>Nexera</b>	600,000	Independent
IE	SIRO	500,000 premises passed	Altnet-utility JV
CZ	CETIN	250,000 households	Independent

Includes the most significant fibreco in the focus countries and examples from the rest of Europe; **bold**: Focus countries and companies for this study

Source: Company reporting, survey, NRA information, WIK-Consult calculations

Further details about selected fibre netcos are provided below.

### **Focus companies**

**Glasfaser Northwest** is the fibreco joint venture between the German incumbent Deutsche Telekom and regional operator EWE Tel. As the name suggests, it is only active in deploying fibre in the Northwest of Germany. It was founded in January 2020<sup>79</sup> with the plan to connect by 2030 up to 1.5 million households and businesses to the fibre

<sup>79</sup> <https://glasfaser-nordwest.de/unternehmen/> (last accessed 14.09.2023).

network.<sup>80</sup> The joint venture was approved by the German Competition Authority (Bundeskartellamt) subject to certain remedies. These included a binding commitment that the JV would deploy more fibre connections than expected from independent rollout of both operators and that wholesale access would be provided.<sup>81</sup>

According to the annual report 2022/2023 (including data up to the end of June 2023), Glasfaser Nordwest has deployed fibre to 700,000 households and business locations.<sup>82</sup> The list of current construction and sales areas on the website lists projects with 860,000 households and business locations out of which 530,000 were marked as being in the planning stage, with the remainder mostly further along in the construction process.<sup>83</sup> The company has not received any public funding to expand its network.

Currently, the network of Glasfaser Nordwest is used mainly by the retail branches of the two JV partners, Deutsche Telekom and EWE. In addition, customers can choose between several partners depending on their exact location: some are secondary brands of EWE (swb, osnatel), while others are regional municipal operators (e.g., Stadtwerke Buxtehude). Retail and business offers are also planned by the end of 2023 from Plusnet, an operator that historically served only business customers but is active all over Germany.<sup>84</sup> Access to non-anchor tenants (it is not certain if the conditions are exactly the same for the two anchor tenants) is given via bitstream, i.e., active wholesale products only, which means that the operator acts as a ALOM provider on the wholesale market (see Figure 3-2).<sup>85</sup>

**Onivia** is a fibre operator in Spain. The company started in 2019 by acquiring 940,000 FTTH access lines from MasMovil in 5 major Spanish cities, being financed by investors Macquarie Capital and Aberdeen Standard Investments.<sup>86</sup> This was due to a fibre network agreement between MasMovil and Orange, which led to MasMovil divesting the overlapping part of its infrastructure to Onivia. In addition to Macquarie Capital and Aberdeen Standard, Arjun Infrastructure Partners and Daiwa Energy & Infrastructure Co. Ltd. have joined the company as investors. There are no telecom shareholders.

In 2021 and 2022 Onivia's fibre footprint expanded further when they acquired additional parts of MasMovil's FTTH network. The first chunk included 1.1 million building units<sup>87</sup>,

<sup>80</sup> <https://glasfaser-nordwest.de/netzausbau/> (last accessed 14.09.2023).

<sup>81</sup> [https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2019/05\\_12\\_2019\\_Telekom\\_EWE.html?nn=3591568](https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2019/05_12_2019_Telekom_EWE.html?nn=3591568) (last accessed 14.09.2023).

<sup>82</sup> [https://glasfaser-nordwest.de/wp-content/uploads/Jahresbericht\\_-2022\\_2023\\_GFNWfinal.pdf](https://glasfaser-nordwest.de/wp-content/uploads/Jahresbericht_-2022_2023_GFNWfinal.pdf) (last accessed 14.09.2023).

<sup>83</sup> <https://glasfaser-nordwest.de/gebiete/> (last accessed 14.09.2023).

<sup>84</sup> <https://glasfaser-nordwest.de/privatkunde/> (last accessed 14.09.2023).

<sup>85</sup> <https://www.telekom.com/de/konzern/details/wir-brauchen-den-gut-gefuellten-werkzeugkasten-566316> (last accessed 14.09.2023).

<sup>86</sup> <https://onivia.net/en/macquarie-capital-to-acquire-fibre-broadband-network/> (last accessed 14.09.2023).

<sup>87</sup> <https://onivia.net/en/onivia-doubles-in-size-and-expands-its-coverage-over-two-million-homes-nationwide/> (last accessed 14.09.2023).

the second purchase included an additional 500,000 units.<sup>88</sup> Through these acquisitions, the company now controls 3.6 million FTTH access lines, with an additional 500,000 planned by the end of 2023. The medium term goal is 7-8 million homes passed. Public funding is not involved in Onivia's network rollout.

Wholesale access is provided through bitstream. The company can therefore be characterized as operating in the ALOM (see Figure 3-2), as no passive access to infrastructure is given. The two bitstream products offered (called Impulsa and Integra) are targeted to ISPs of different sizes as they differ e.g., in the interconnection points typically offered. In addition, the company offers fibre and mobile services on the same platform. The major customer of Onivia's network is MasMovil. Other ISPs include Orange in rural areas as well as Vodafone. Besides these large companies, Onivia also works with smaller, local companies to increase network utilisation.

**Open Fiber** was founded by energy company Enel in the end of 2015 to deploy FTTH networks across Italy. In 2016, the national investment bank Cassa Depositi e Prestiti (CDP) joined as a shareholder with 50 percent. In 2021, ownership changed as Enel sold its share to Macquarie Real Asset Infrastructure (40 percent) and the CDP (10 percent), the latter becoming the controlling shareholder.

Open Fiber currently covers 13 million households through FTTH and 2.5 million through FWA, the latter predominantly in rural areas. This makes Open Fiber the largest FTTH provider in Italy. The current plan is to extend the coverage to 21-22 million households of which 9 million would be in white spots. The deployment in white and grey areas has been supported through public subsidies.<sup>89</sup> The 2022 annual revenue of Open Fiber was 470 mln EUR, an increase from 380 mln EUR in 2021, mirroring the rapid increase in fibre footprint.<sup>90</sup>

The company offers active as well as passive network access. The active services range from Open Internet (de facto a resale product) through to Open Stream (an equivalent to VULA) to Ethernet services mainly aimed at providing business connectivity.<sup>91</sup> While in more densely populated regions ("black areas"), most access seekers use passive access, the split is the other way around in more rural regions ("white areas"), as the switches in these areas are smaller.

Around 130 retail operators use Open Fiber's network including the anchor clients such as Vodafone and Wind. They also offer access to utility companies.<sup>92</sup> In grey and white areas where deployment was supported by State Aid, a price ceiling was established in the tender, and prices cannot be increased without the consent of the NRA AGCOM.

<sup>88</sup> <https://www.macquarie.com/au/en/about/news/2022/spanish-fibre-business-onivia-expands-coverage-of-its-rural-fibre-network-with-support-from-macquarie-capital.html>

<sup>89</sup> <https://openfiber.it/en/coverage-plan/general-information-2/> (last accessed 04.10.2023).

<sup>90</sup> <https://openfiber.it/en/open-fiber-world/press-releases/financial-statements-open-fiber-2022/> (last accessed 14.09.2023).

<sup>91</sup> <https://openfiber.it/en/operators/operators-services/> (last accessed 14.09.2023).

<sup>92</sup> <https://openfiber.it/en/operators/partner-operators/> (last accessed 14.09.2023).

Price reductions are permitted however, and Open Fiber has engaged in promotional offers with the aim of accelerating take-up. Prices in black areas are set on a commercial basis.

**Openreach** is the fixed network infrastructure subsidiary of the UK incumbent BT Group. The Openreach division was established in 2006 through a process of functional separation. The separation process was further strengthened following Ofcom's Strategic Review of Digital Communications in 2016, to include an independent board and the legal separation of Openreach from BT. Ofcom continuously monitors Openreach's activities. Over the years, there have been rumours regarding a (partial) sale of Openreach but no formal steps have been taken in this direction.<sup>93</sup>

Openreach manages the complete fixed network of BT. Its assets include not only FTTH lines but also the legacy copper network (incl. FTTC), and it is SMP regulated. Openreach's full fibre (FTTB/H) footprint reached 10 million premises (homes, businesses and public buildings) in March of 2023, 90 percent of which were private homes.<sup>94</sup> The copper and fibre networks<sup>95</sup> served 28.6 million homes and businesses with at least 30 Mbit/s download speed (i.e., through FTTC and FTTH). Openreach's revenue was GBP 5.675 bln (6.376 bln EUR) in the year ending 31 March 2023, an increase of four percent compared with the previous year. EBITDA margins increased from ~56 percent in 2019/2020 steadily to almost 61 percent in 2022/2023.

As the UK's biggest fibre network builder, Openreach has benefited from several UK broadband/fibre subsidy programs in the past and also benefits from the current 5 bln GBP umbrella programme "Project Gigabit".<sup>96</sup>

Almost all ISPs in the UK serve retail customers through Openreach's network to some extent. The largest tenant is BT, and the most significant alternative operators are Sky, TalkTalk, Vodafone and Zen. In total, the company serves over 650 access seekers.<sup>97</sup> The largest retail operators not relying on the access network of Openreach are the main cable operator Virgin Media and the larger vertically integrated FTTH providers such as Hyperoptic. They may still access BT's physical infrastructure such as ducts and poles.

The wholesale products offered on the fibre network are mainly active (FTTH VULA, Ethernet, leased lines). On copper networks, active products are offered as well as passive unbundling. In addition, duct and pole access is provided and used extensively

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<sup>93</sup> E.g. in 2020: <https://www.reuters.com/article/us-tmt-conference-bt-group-idUSKBN27Y2RD> (last accessed 14.09.2023). and 2021: <https://www.theguardian.com/technology/2021/nov/04/bt-scrap-hunt-for-openreach-partner-as-fibre-rollout-costs-fall> (last accessed 14.09.2023).

<sup>94</sup> <https://www.openreach.com/news/openreach-hits-10-million-full-fibre-milestone/> (last accessed 14.09.2023).

<sup>95</sup> <https://www.openreach.com/news/openreach-hits-10-million-full-fibre-milestone/> (last accessed 14.09.2023).

<sup>96</sup> <https://www.gov.uk/government/organisations/building-digital-uk/about>

<sup>97</sup> <https://www.openreach.com/> (last accessed 14.09.2023).

in the UK. All changes to Openreach's fibre wholesale offers need to be declared 90 days in advance to facilitate a review by Ofcom.

In the years since 2021, the wholesale pricing scheme of Openreach was amended twice through the so-called "Equinox" offers (Equinox 1 and Equinox 2). The key aspect of these offers is a discount mechanism for ISPs that promotes FTTP connections instead of legacy lines through copper/FTTC. ISPs that sell at least 80 percent of their lines on Openreach's network through FTTP receive discounts. With Equinox 2, these discounts can amount to up to 42 percent compared to the list price, depending on the connection speed. Altnets criticized the scheme. Parts of this criticism were addressed with Equinox 2, a so-called failsafe mechanism that should reduce incentives to migrate customers from altnet fibre to Openreach fibre in case both are available in an area.

**Nexera** is a Polish company mainly active in deploying fibre in rural areas. It was formed as the first wholesale-only operator in the country in 2015 by investor Infracapital (85 percent share) and Nokia (15 percent share). The latter reduced its share over the years to 4.9 percent. Nexera was established to rollout fibre networks in rural areas with state aid (POPC programme), 712 million PLN (~160 mln EUR) were awarded to the company.<sup>98</sup> There is also some commercial deployment by the company. In 2021, they borrowed 1 bln PLN (223 mln EUR) from a consortium of 5 banks to deploy fibre optic networks in the regions in Poland where they are already active (mainly Łódź, Świętokrzyskie, Warmia-Masuria, Kuyavia-Pomerania in Central/East Poland).<sup>99</sup>

Nexera currently serves around 600,000 households<sup>100</sup> and is aiming to reach around 1,000,000 households.<sup>101</sup> As the company is relying on State Aid to support much of its network roll-out, they are mandated to offer active and passive wholesale access. The vast majority of access lines in Poland are marketed through active wholesale products. There are more than 50 companies active on the network including the incumbent Orange and all three other nationwide operators.<sup>102</sup>

**XP Fibre** is the name given to Altice Europe's French FTTH deployment company since 2021. Previously it was named SFR FTTH. SFR FTTH started its fibre rollout in 2015. In 2019 there was a significant capital injection, when a consortium of Axa, Allianz and OMERS purchased 49.99 percent of the company for 1.8 bln EUR. In 2020, the company acquired its competitor Covage before rebranding to XP Fibre in 2021.<sup>103</sup>

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<sup>98</sup> <https://www.nexera.pl/en/popc> (last accessed on 23.11.2023).

<sup>99</sup> <https://www.nexera.pl/en/articles/nexera-received-over-pln-1-billion-financing-from-a-consortium-of-banks-for-the-development-of-fibre-optic-networks-in-poland-51223399> (last accessed 14.09.2023).

<sup>100</sup> <https://www.telecompaper.com/news/nexera-acquires-new-infrastructure-segment-in-lodz-region--1475221> (last accessed on 23.11.2023).

<sup>101</sup> <https://www.nexera.pl/en/nexera-regions> (last accessed on 23.11.2023).

<sup>102</sup> See UKE (2023): Raport o stanie rynku telekomunikacyjnego w 2022 roku, available at <https://uke.gov.pl/akt/raport-o-stanie-rynku-telekomunikacyjnego-w-2022-roku,485.html> (last accessed on 03.08.2023).

<sup>103</sup> <https://www.xpfibre.com/qui-sommes-nous> (last accessed 14.09.2023).



XP Fibre is active in 24 Public Initiative Networks (PIN) as in AMEL (Appel à Manifestation d'Engagements Locaux) and AMII (Appel à Manifestation d'Intention d'Investissement) as defined by the French National Broadband Plan.<sup>104</sup> They deployed 6.3 million FTTH connections by Mid-2023, with the goal to reach 7.3 million connections by 2024.<sup>105</sup> The network is mainly built using existing physical infrastructure from incumbent Orange (ducts and poles), but poles from energy companies and its own ducts are used.<sup>106</sup> XP Fibre is expecting a take-up rate of 53% across its footprint by the end of 2023.<sup>107</sup>

Access is mainly given on a passive level, as it is the standard model in the French FTTH market, often on the basis of IRUs. The conditions are the same for all operators. Active access is the exception and only offered when there is demand from access seekers. In total, more than one hundred companies use XP Fibre's FTTH network, including the largest French ISPs Orange, Bouygues Telecom, SFR and Free.

### 3.3 Future outlook

Most towers in Europe have now been outsourced by the respective MNOs into separate towercos.<sup>108</sup> The influence of infrastructure companies in this sector is therefore already high and will likely continue to grow. Currently, there are no signs that mobile network operators that have divested will start building their own towers again<sup>109</sup> or buy existing towercos to incorporate them into the mother company. There may however be shifts in towerco ownership and the importance of independent towercos compared to MNO-controlled/influenced towercos. One point to note is that acquisitions of towers in the past were mainly made by independent towercos (e.g., the very active behaviour of Cellnex), while telco-controlled or JV towercos were far less active. If this process continues, the share of towers owned by independent towercos may increase further.<sup>110</sup> As interest rates rise and thus the cost of financing acquisitions increases, and as fewer telco-owned towers remain for divestment, it is however a reasonable assumption that deals will be less frequent in the near future than in the recent past. As regards the pressure on independent towercos arising from high leverage, recent developments suggest that towercos could raise money by selling shares in country operations as an alternative to selling towers if refinancing becomes an issue.<sup>111</sup>

<sup>104</sup> For further information see Workshop presentation and France case study.

<sup>105</sup> See Workshop presentation.

<sup>106</sup> See workshop report.

<sup>107</sup> See workshop presentation

<sup>108</sup> This observation is sensible as the sum of Cellnex, American Tower's European Portfolio, Vantage Towers, INWIT and the divested towers from Deutsche Telekom alone are almost 250,000 sites, while the total number of towers in Europe is estimated at 440,000. See <https://ewia.org/wp-content/uploads/EY-European-Wireless-Infrastructure-Report-2022.pdf> (last accessed on 23.11.2023).

<sup>109</sup> Neither in additional areas to the divested towers nor as a direct competitor of the towercos.

<sup>110</sup> In late 2021, it was at 35 percent, see <https://ewia.org/wp-content/uploads/EY-European-Wireless-Infrastructure-Report-2022.pdf> (last accessed 14.09.2023).

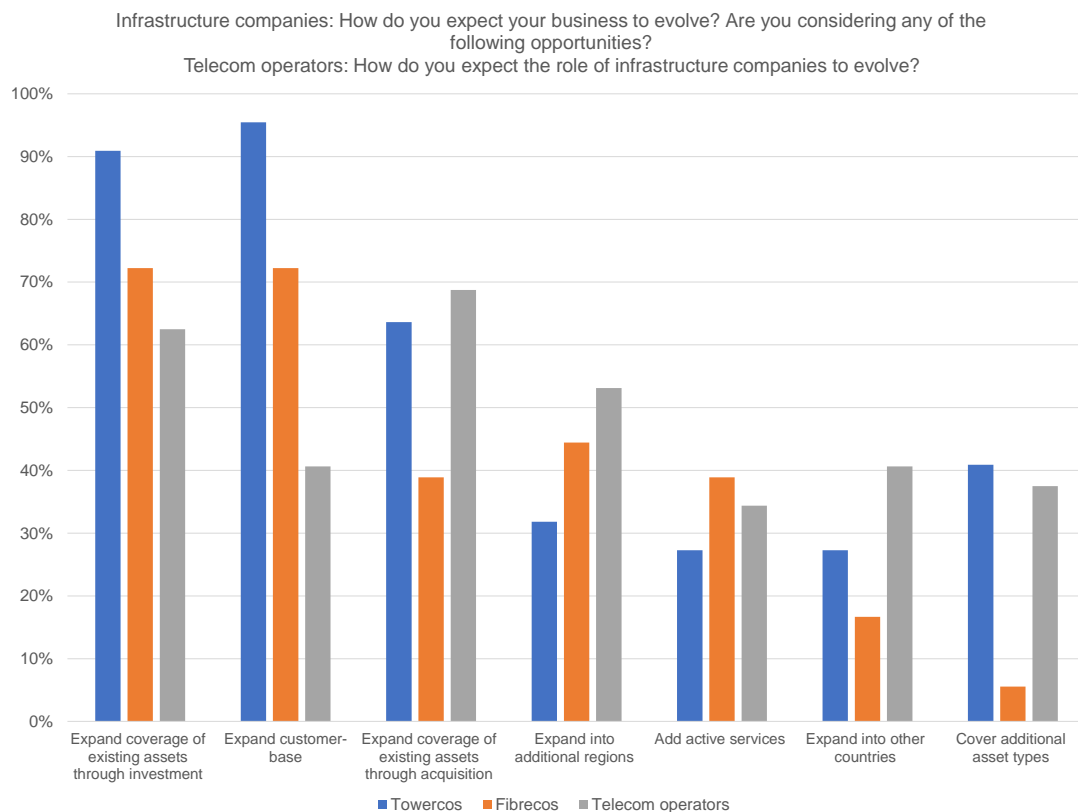
<sup>111</sup> See Cellnex' sale of 49 percent of its Nordics operations: <https://www.cellnex.com/news/stonepeak-acquire-49-interest-cellnex-subsidiaries-sweden-denmark/> (last accessed on 23.11.2023).

For fibrecos, the situation is fundamentally different as existing fibre infrastructures have only rarely been divested into separate companies. Fibrecos are either independent or were established to support the new fibre deployment of telco operators, often through joint ventures with investors. There is currently no indication that a significant number of telco operators plan to spin off their existing fibre network infrastructure. On the other hand, there is a trend in some countries where the incumbent is lagging behind in fibre deployment (e.g., Germany and Italy) to use telco-telco or telco-investor JV fibrecos to gain ground against alternative operators that have been deploying fibre more aggressively. Certain telcos which own legacy infrastructure including copper and cable, such as BT (UK), Telecom Italia and Play (HFC operator in Poland) have also divested this infrastructure into separate companies with the intention of deploying fibre and transitioning customers only to the new network. Due to the fragmented nature of the fibre market in some countries, it is also possible (and in some cases already reality) that a telco operator may make its own fibre build out in one region and build fibre through a JV (e.g. with an investor) in another region of the country at the same time. While a consolidation of networks may happen at some point, it depends on the structure and maturity of the respective market when and how this is shaped.

Future plans of infrastructure companies and the expectations of telecom operators are shown in Figure 3-8.



Figure 3-8: Planned areas of expansion



Percentage based on companies of the respective type that answered the question (22 towercos, 18 fibrecos, 32 telecom operators).

Source: WIK-Consult based on survey data for this study

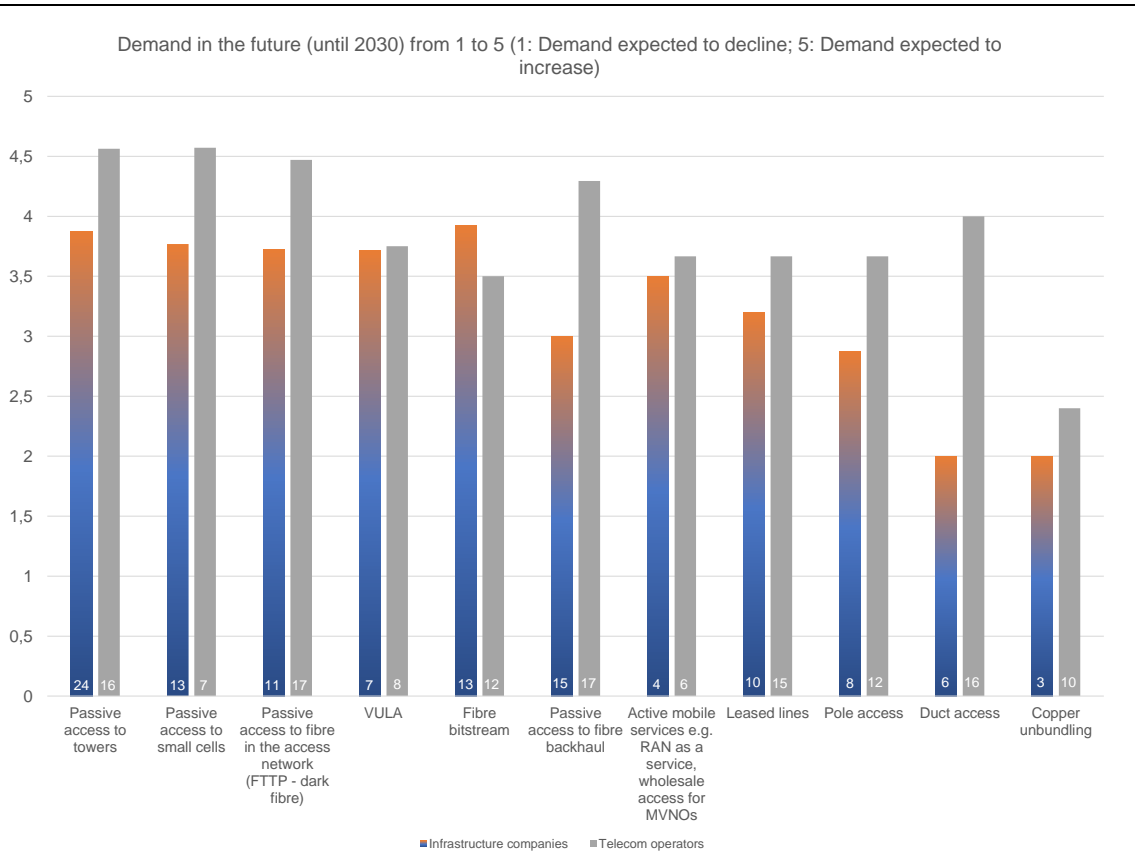
Most infrastructure companies, especially towercos, want to expand their customer base, i.e., attract more tenants to use their assets. There is the general possibility to co-locate more for many towercos as e.g., several country operations of Cellnex (PL, FR, UK, CH, DK, AT, SE) and Vantage Towers (DE, CZ) have less than 1.3 tenants per tower on average. Other operators such as INWIT, Cellnex in Spain and Vantage Towers in Romania have more than 2 tenants per site on average, which shows that there is room for extension in many markets that lie below this number. Telecom operators generally expect (although to a lesser degree) that infrastructure companies will be able to achieve this aim.

Following a spate of acquisitions in particular by the independent companies, towercos mostly stress that their coverage is driven by customer demand, and their preference is to grow their footprint through “build to order / suit” programmes. This is expected to include towers, and could include small cells, if and when demand (currently limited) expands. On the other hand, telecom operators expect infrastructure companies to expand more through acquisition of assets. Other expansion possibilities such as expansion into further countries and additional asset types are less relevant for towercos in general, and only some towercos mentioned such opportunities (e.g. to invest in data

centres). Towercos generally noted that they were not interested in obtaining their own spectrum, and would consider active RAN services only if demanded by customers. Backhaul was not considered a core business area, as towercos note that other backhaul options are often available. Moreover, towercos express concern about the different risk and return profile presented by active services.

In contrast with towercos, and consistent with the differing dynamics associated with deploying fibre access networks, fibre netcos do generally plan to expand their coverage proactively. This is mainly within regions, or specific Member States. New business opportunities for this group include expanding the number and range of wholesale customers (e.g. in some cases to include resellers) to increase take-up on the network. Edge computing hosting facilities and backhaul for 5G are also seen as potential growth areas for some.

Figure 3-9: Future demand for wholesale products



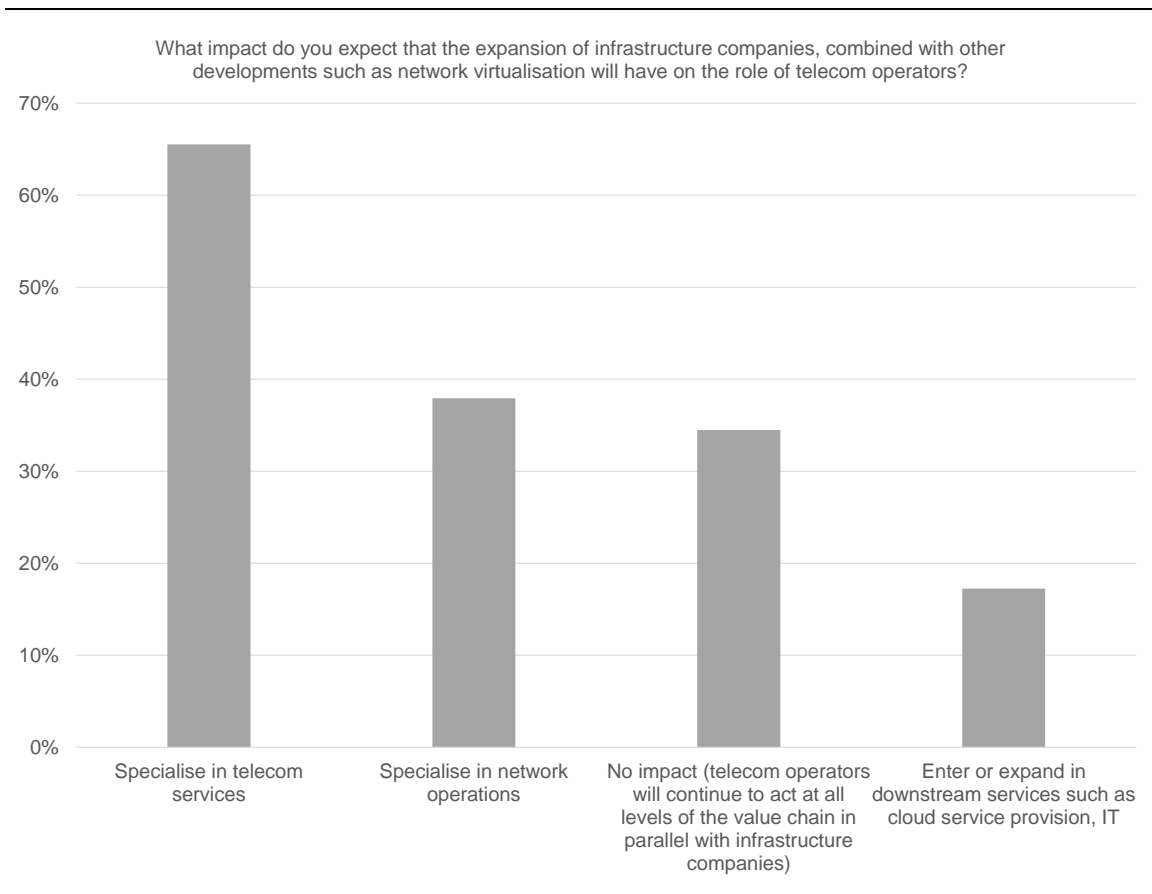
Average based on companies answering about the demand of the respective product, the number of companies it refers to is indicated at the bottom. Total number of responses for the question: Infrastructure companies: 37; Telecom operators: 25

Source: WIK-Consult based on survey data for this study

The figure above shows that, in general, telecom operators expect future demand for most wholesale products to be higher than infrastructure companies do. It is notable that there is limited demand for wholesale access to small cells today, but demand for

wholesale access to this asset is expected to expand in the future. However, some interviewees for this study were more sceptical about the general economic viability of and need for small cells. In terms of active vs. passive access, telecom operators see higher demand for passive products in the future (access, as well as backhaul), while infrastructure companies envision a larger role for active access. For infrastructure companies, copper unbundling and ducts access are expected to be considerably less relevant than other products. However, telecom operators on the contrary see a role for duct access in the future. This highlights the inherent tension between the interest of infrastructure companies (in particular netcos) to sell access as far down the value chain as possible and the interest of telcos to have the potential to use passive access, both in the form of dark fibre (e.g. for backhaul and business connections) and (to a lesser extent) ducts.

Figure 3-10: Role of telecom operators in the future



Percentage based on companies that answered the question (29 telecom operators).

Source: WIK-Consult based on survey data for this study

Telecom operators see themselves and their peer group more as specialists in telecom services, i.e., not engaged as much in infrastructure as it was in the past. This is already a reality in the tower business, as most MNOs have spun off their towers in separate companies, many even onboarding investors or selling them completely. Additional

downstream services such as the provision of cloud services, IoT etc. are seen as a future business possibility by some telcos, but this is typically confined to larger multi-national groups.

## 4 Issues affecting competition and investment in VHCN

In this chapter we consider the opportunities and threats stemming from the rise of infrastructure companies, for telecom operators and infrastructure companies themselves and for competition and investment more widely (section 4.1). We then consider in more depth conditions and associated challenges related to infrastructure deployment (section 4.2) and access to infrastructure (section 4.3).

### 4.1 Opportunities and threats stemming from the rise of infrastructure companies

#### 4.1.1 Telecom operators

Telecom operators engaging in divesting infrastructure report that it yielded a number of (mainly financial but also operational) benefits including:

- **Higher valuations for the separated assets.** The valuation multiples (e.g. EV/EBITDA, Price-to-/Sales ratio) for separated infrastructure companies are higher than those of typical large, integrated telco operators with significant tower assets.<sup>112</sup> This gives the potential to inject capital into the core business and/or to **reduce debt** in particular related to non-strategic assets.<sup>113</sup> Another possibility is to use new capital for higher dividends or share buyback programmes to satisfy investors.<sup>114</sup>
- The potential (for example by bringing in infrastructure fund partners) to **boost investment capacity for new (fibre and 5G) infrastructures.**
- The potential to **focus management and operational resources on the core business of connectivity** as well as (for some telecom operators), expanding into downstream services such as digital security, cloud computing and IoT.
- Increased efficiency and **reduced capital cost** linked to the use/leasing of the divested assets. Operational (leasing) cost may be lower than anticipated from the classical telco-tower model due to the potential to increase utilisation of the assets through co-investment or wholesaling.

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<sup>112</sup> See Knips, J.; Wernick, C. (2021): Kapitalmarktbewertung und Performance deutscher börsennotierter TK-Unternehmen im internationalen Vergleich, WIK research brief in German, available at: [https://www.wik.org/fileadmin/files/migrated/news\\_files/Kurzstudie\\_Kapitalmarktbewertung\\_und\\_Performance.pdf](https://www.wik.org/fileadmin/files/migrated/news_files/Kurzstudie_Kapitalmarktbewertung_und_Performance.pdf), p. 13 – 15 as well as <https://www.mckinsey.com/industries/technology-media-and-telecommunications/our-insights/delaying-an-organizational-overhaul-for-growing-europes-telcos> (last accessed 24.10.2023).

<sup>113</sup> See <https://www.detecon.com/en/journal/towerco-deals-below-surface-or-what-mobile-operators-can-do-manage-their-new-landlords> (last accessed 14.09.2023).

<sup>114</sup> It was e.g. announced by Telia after selling part of their tower business that they would initiate share buybacks, see [https://www.teliacompany.com/assets/u5c1v3pt22v8/WrWPdNipzIzwnMo115EAg/b67577aa59da008e962374ad9e2be1f2/Telia\\_Company\\_Q2\\_2022\\_Eng.pdf](https://www.teliacompany.com/assets/u5c1v3pt22v8/WrWPdNipzIzwnMo115EAg/b67577aa59da008e962374ad9e2be1f2/Telia_Company_Q2_2022_Eng.pdf). (last accessed on 23.11.2023).

However, some telecom operators also highlight that divestiture can bring challenges. Survey responses show that these can include:

- A **loss of control** over key infrastructure assets, with associated concerns regarding the **quality of services** offered by the infrastructure company (e.g. maintenance)
- A risk of **dependency** on a third party, which may include dependency on infrastructure companies to meet key deployment commitments made by MNOs e.g. in the context of spectrum awards
- A **lack of clarity around who is responsible / bears the cost** for certain aspects of infrastructure maintenance
- **Higher opex** resulting from ongoing lease payments

Other risks could include **wholesale competition from infrastructure companies** in cases where they move down the value chain e.g. to offer resale or other active services to service providers, or offer infrastructure services directly to end-users, who can then more readily bypass telcos in meeting their connectivity needs.<sup>115</sup> This is more pronounced for fibre netcos, as towercos would need mobile spectrum to offer mass market services directly to end-users. They may however engage in the provision of business services through unlicensed spectrum or in cases where spectrum is assigned directly to (business) customers.<sup>116</sup>

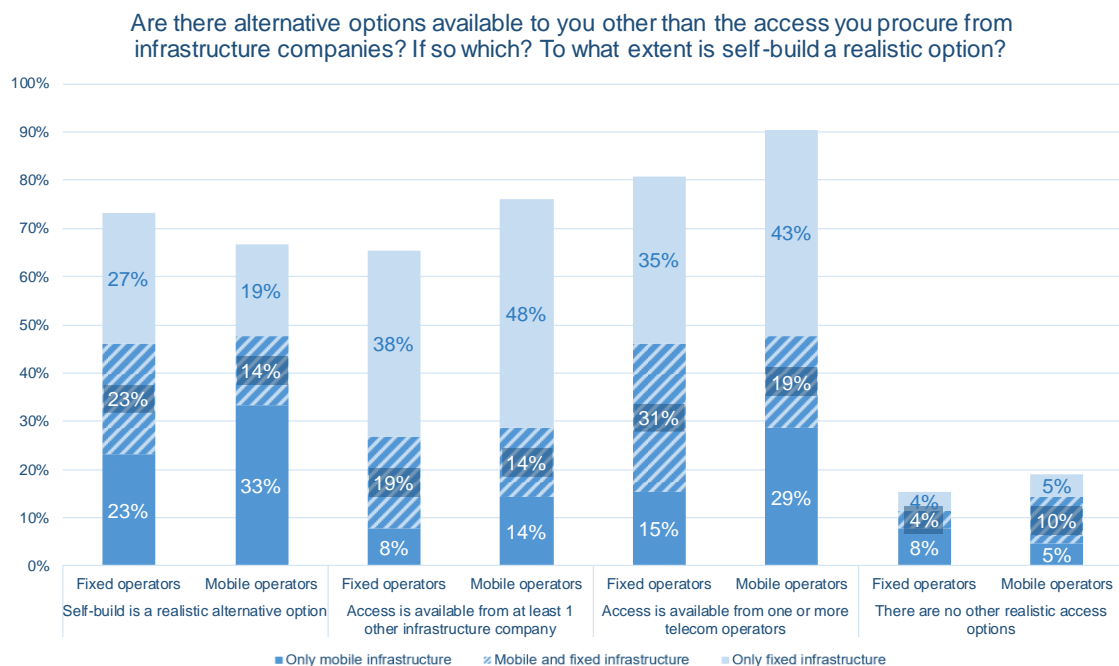
Another key challenge is the risk of **increased tariffs or unreasonable terms once current long-term access agreements expire in the event that there are no adequate alternatives available**. In this context, while survey results (see Figure 4-1) show that alternative operations are generally available (including self-build), certain telecom operators responding to the survey noted that there were no other realistic mobile or fixed infrastructure options available to them other than the access provided by existing infrastructure companies. This was considered especially problematic in rural areas (for economic reasons) or (for mobile) in urban areas where planning restrictions and lack of available sites limit available options. Telcos that noted that self-build might not always be a viable option also cited difficulties in obtaining finance and/or the long lead times that might be required to find and lease sites and obtain relevant permissions.

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<sup>115</sup> Examples of this can be found e.g. in the provision of dark fibre directly to business and public sector end-users by fibre netcos such as Stokab [https://stokab.se/download/18.796da515175469f3e544f/1603888583380/The%20role%20of%20wholesale%20only%20models%20in%20future%20networks%20and%20applications%20\(2018\)%20WIK-Consult.pdf](https://stokab.se/download/18.796da515175469f3e544f/1603888583380/The%20role%20of%20wholesale%20only%20models%20in%20future%20networks%20and%20applications%20(2018)%20WIK-Consult.pdf) (last accessed 14.09.2023). or in the provision of mobile private networks for B2B customers as envisaged in the acquisition by Cellnex of Edzcom <https://www.cellnex.com/trends/edzcom-vision-boost-industry-4-0/> (last accessed 14.09.2023).

<sup>116</sup> See e.g. the 3.7 to 3.8 GHz frequency spectrum for private local networks in Germany as described in Godlovitch, I.; Strube Martins, S.; Gries, C.; Knips, J.; Wernick, C. (2023): Study on wholesale mobile connectivity, trends and issues for emerging mobile technologies and deployments, study for BEREC, available at: <https://www.berec.europa.eu/en/document-categories/berec/reports/study-on-wholesale-mobile-connectivity-trends-and-issues-for-emerging-mobile-technologies-and-deployments>. (last accessed on 23.11.2023).

Figure 4-1: Alternatives to infrastructure companies for telecom operators



Percentage based on companies that answered the question (31 telecom operators of which 26 are fixed operators and 21 mobile operators (i.e., 16 operate in the fixed as well as in the mobile market)).

Source: WIK-Consult based on survey data for this study

#### 4.1.2 Infrastructure companies

As noted in section 3.3, there are a number of opportunities available to infrastructure companies to consolidate and potentially expand their business.

The towerco business model has been supported by favourable capital market regulation<sup>117</sup> that has facilitated investment in towerco stocks in the US. In addition, large investors worldwide such as insurance companies and pension funds have found investment in neutral tower infrastructure interesting in times of low interest rates.<sup>118</sup>

In addition, infrastructure companies could take advantage of the following opportunities to expand their revenues and/or profitability:

- **Increasing tenancy/access seeker ratios** as a means to boost returns on their investments / acquired assets. While this holds for fixed and mobile infrastructure, it should be noted that towerco tenancy ratios of 2.3 have been achieved in the

<sup>117</sup> The classification of towercos as Real Estate Investment Trusts (REITs) and thus real estate companies facilitated the investment in these companies, they have to distribute 90 percent of their earnings to investors as to not pay federal income taxes on a corporate level. Therefore investors can be sure to receive relatively reliable dividends. See also <https://www.reit.com/what-reit>.

<sup>118</sup> See <https://www.detecon.com/en/journal/towerco-deals-below-surface-or-what-mobile-operators-can-do-manage-their-new-landlords> (last accessed 14.09.2023).

more mature US market, but it may be more challenging to achieve the same levels in Europe as the towerco / neutral host model is relatively recent and thus there may be more existing competing infrastructures.

- **Expanding the customer base** to include B2B end-users and other actors requiring access to sites for IoT, WiFi, FWA provision (for towercos) or dark fibre, tower backhaul (for fibre netcos).
- **Expanding to meet new infrastructure** or service requirements, for example in relation to hosting facilities for edge computing, or hosting (or deployment of) small cells and DAS.
- In particular for fibre netcos, moving down the value chain to offer **resale / white label services**, to capture additional value from broadband services which is currently captured by incumbents and (partially) infrastructure-based alternative broadband providers which may be relying on physical or virtual unbundling

On the other hand, towercos face an important threat from developments in capital markets. Several of the towercos are **highly indebted** due to an acquisitory business model.<sup>119</sup> Recent **increases in interest rates** could hamper their ability to make further acquisitions and pose financial threats when refinancing. Higher interest rates are also likely to make other assets such as government bonds more attractive for investors relative to infrastructure companies.

As the infrastructure company business model (and expectations of stable and high returns) is predicated on aggregating wholesale market shares and may depend on contracts with key anchor tenants, another important threat to the business model could come if there is **infrastructure competition** from alternative networks which could themselves aggregate substantial wholesale market shares. This is a particular concern for infrastructure companies in areas where only one parallel infrastructure is economically viable (whether or not in State Aid zones) or where the alternative infrastructure can aggregate sufficient market share to make another infrastructure economically unviable e.g. by combining the wholesale market shares of major telecom operators including the incumbent. These concerns have been explicitly raised for example in the context of the BT Equinix and Telecom Italia / FiberCop offers (see section 5.2.2).

Certain infrastructure companies also note that they consider that the **potential scenario of price regulation** on their core offers could undermine the predictability needed to execute their business plan.

#### 4.1.3 Implications for competition and investment

Responses to the survey conducted for this study suggest that telecom operators consider that for the most part infrastructure companies are likely to have a positive

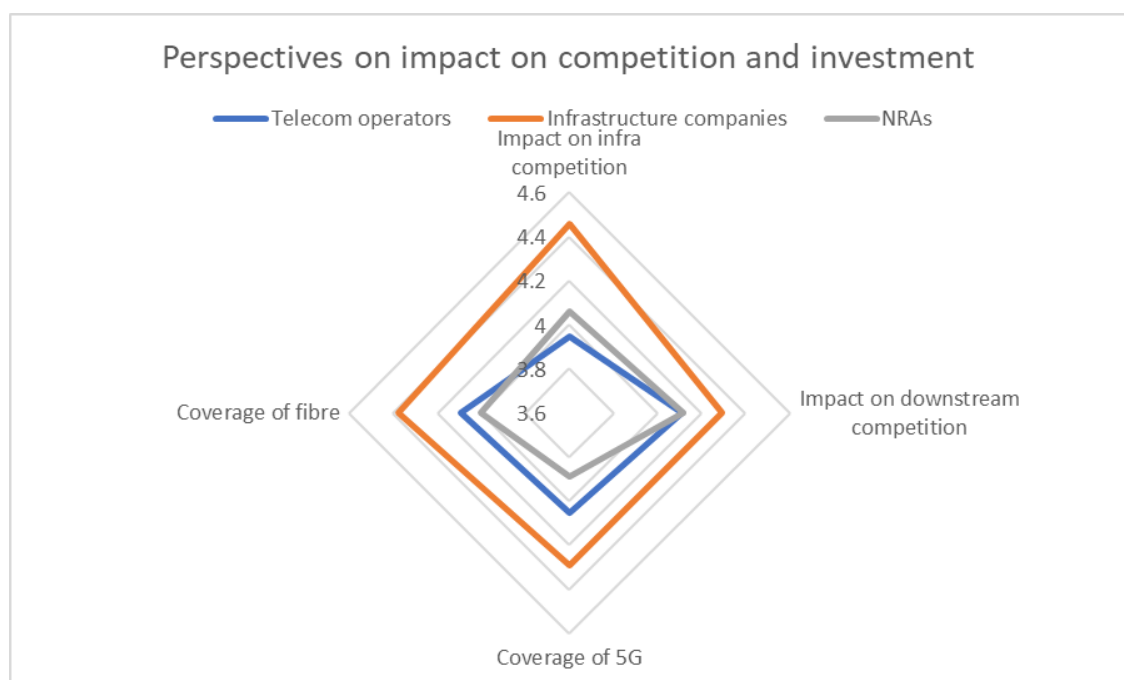
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<sup>119</sup> See <https://www.ft.com/content/82b29ff2-7398-4151-8823-8f04db25fab0> (last accessed 14.09.2023).



impact on coverage of fibre and 5G, as well as fostering downstream (service) competition. However, some telecom operators fear that the expansion of infrastructure companies may come at the expense of infrastructure competition. On the other hand, while some NRAs cite examples of positive outcomes arising from the creation of specific infrastructure companies, many note that developments (i.e. the divestment of mobile infrastructure and the creation of fibre netcos (in particular those involving incumbents)) are recent and that it is not possible to gauge the effects at this stage.

Figure 4-2: Perspectives from stakeholders on the impact of infrastructure companies on competition and investment (1=negative impact, 5=positive impact)



Source: WIK-Consult Survey responses Q2 2023. Response to the question: “In your view, has the development of infrastructure companies had a negative or positive impact on (a) infrastructure competition (b) competition in downstream services and (c) investment in core infrastructure assets? - Implications for deployment / coverage of 5G infrastructure / Impact from 1 (negative) to 5 (positive)

In practice, we observe from interviews, established examples and competition cases, that the impacts are likely to vary depending on the circumstance.

For example, in relation to fibre netcos:

- The introduction of fibre netcos in competition with the incumbent has proved to be important in boosting investment in fibre and infrastructure competition.<sup>120</sup>

<sup>120</sup> Evidence of the positive effect of alternative fibre investors on deployment and infrastructure competition is provided inter alia in the WIK 2015 study Competition and investment in superfast broadband networks <https://www.wik.org/veroeffentlichungen/veroeffentlichung/competition-investment-an-analysis-of-the-drivers-of-superfast-broadband> (last accessed 14.09.2023) and WIK 2016 study Regulatory, in particular access, regimes for network investment in Europe <https://op.europa.eu/en/publication-detail/-/publication/c0da75d9-9a8c-11e6-9bca-01aa75ed71a1> (last accessed 14.09.2023).

Examples include the municipal networks in Sweden, OpenFiber in Italy and City networks in Germany. In these cases, fibre infrastructure deployment was initially led by alternative investors, triggering a response from the incumbent.<sup>121</sup> On the other hand, as has been recognised in market analyses by a number of NRAs,<sup>122</sup> the involvement of the incumbent in a netco is unlikely to change deployment or competition dynamics, or might even undermine them in the case of a JV (see below).

- The impact of infrastructure companies (in particular fibre netcos) on downstream competition is likely to depend on the types of wholesale access offered (which influences the potential for innovation), and potential for access seekers to make use of that access, which will in turn depend on the degree to which wholesale access aggregates sufficient customers to be economically viable. For example, netcos that offer fibre unbundling or (if that is not possible) appropriately specified VULA<sup>123</sup> are likely to enable more diverse and dynamic downstream competition than those which offer only bitstream.<sup>124</sup> However, local access may not be viable in rural areas without effective backhaul, or may be considered less attractive than bitstream for operators seeking full coverage with limited investment. In addition to enabling innovation and access at suitable levels of aggregation, the degree to which access from fibre netcos supports downstream competition may also depend on the degree to which it is standardised,<sup>125</sup> especially in countries which feature multiple small wholesalers.

As regards towercos:

- Consolidation of infrastructure through the emergence of towercos, which seek to maximise the utilisation of their assets, should in principle reduce costs and improve the viability for multiple MNOs to deploy 5G networks in areas where deployment of multiple networks is challenging, including rural areas and urban areas with restrictions based on planning and availability of sites.

<sup>121</sup> More details on the Italian case can be seen in the WIK (2020) study Benefits of the wholesale only model for fibre deployment in Italy [https://www.wik.org/fileadmin/Studien/2020/Openfiber\\_wholesaleonly.pdf](https://www.wik.org/fileadmin/Studien/2020/Openfiber_wholesaleonly.pdf) (last accessed 14.09.2023).

<sup>122</sup> For this reason, in Italy, the FiberCop TIM majority owned JV netco is SMP regulated. Glasfaser Nordwest (DT JV) has also been designated SMP, as has the Proximus JV Fiberklaar and Unifiber.

<sup>123</sup> For an assessment of ideal specifications, see WIK (2018) Assessment of the technicalities of VULA products in the context of a state aid investigation <https://op.europa.eu/en/publication-detail/-/publication/9e902280-ecc5-11ea-b3c6-01aa75ed71a1/language-en> (last accessed 14.09.2023).

<sup>124</sup> This is one of the reasons underlying the distinction in the EC Recommendation on Relevant Markets susceptible to ex ante regulation between the market encompassing physical and virtual unbundled access (wholesale local access) and downstream wholesale central access <https://digital-strategy.ec.europa.eu/en/news/commission-updated-recommendation-relevant-markets> (last accessed 14.09.2023).

<sup>125</sup> The issue of standardisation is discussed inter alia in the WIK 2019 study Competition and investment in the Danish broadband market [https://www.wik.org/fileadmin/files/\\_migrated/news\\_files/Competition\\_and\\_investment\\_in\\_the\\_Danish\\_broadband\\_market.pdf](https://www.wik.org/fileadmin/files/_migrated/news_files/Competition_and_investment_in_the_Danish_broadband_market.pdf) (last accessed 14.09.2023). In this context, it is interesting to note that the French model, which involves standardised passive fibre wholesale inputs has enabled nationwide ISPs to provide broadband on the basis of multiple wholesalers. Intermediary service providers also play an important role in this market, and in Sweden, which also features multiple wholesalers often, although not exclusively offering, passive access to unbundled fibre.

This means that in theory, by reducing per operator costs, the towerco business model of outsourcing and sharing of infrastructure should support mobile infrastructure deployment. However there are factors which mitigate against this effect.

- Firstly the existence of alternative tower infrastructure (from other towercos and/or MNOs), which has been fostered inter alia by conditions imposed by competition authorities in the context of M&A and joint ventures, is likely to limit the degree to which passive infrastructure sharing is possible in practice at least for existing sites which are supporting 4G and 5G NSA.
- As regards extending / densifying networks, interviews conducted for this study show that deployment of new towers or other new infrastructure (such as small cells) by infrastructure companies is expected to be demand-based and not pro-active. Thus, the decisions of MNOs are likely to remain pivotal to future network densification in the context of 5G SA. Thus towercos are likely to act as facilitators rather than drivers of 5G network densification.
- The fact that newly built passive infrastructure may be shared with other operators could limit the incentives for MNOs to expand and densify their network as part of a strategy to compete on quality.<sup>126</sup>
- The impact of towercos on downstream 5G (and future network generation) deployment and competition amongst MNOs will depend on whether the terms offered by towercos are reasonable. In this context, there may for the moment be adequate incentives and reciprocal bargaining power to ensure that towercos set reasonable prices, terms and conditions, in particular for MNOs that have agreed access conditions as part of divestment arrangements and for other network operators in cases where towercos stand to benefit from increasing tenancy ratios and where they could otherwise risk duplication of their infrastructure. However, following the expiry of existing agreements, whether terms and conditions are reasonable is likely to be affected by the degree to which alternative options for access seekers (such as access from other towercos or viable self-build) are available that constrain the conduct of the towerco. The degree of choice available for existing passive infrastructure can be safeguarded by competition law remedies in the context of M&A but this will only be enduring if structural remedies are applied (as opposed to time-limited behavioural remedies). For new infrastructure built “on demand”, there may also initially be constraints on the terms in cases where there can be competition “for the market” e.g. between different towercos or in cases where own build remains a possibility. However, there may be insufficient constraints on access terms for these newly built sites when current access

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**126** It should be noted in this context that 5G network densification has not materialised to a significant degree. It is not clear however to what extent this has been influenced by factors that may disincentivise densification (such as effects from network sharing) vs limitations on demand for bandwidth and/or applications that would necessitate network densification.

agreements expire in cases where there are practical (e.g. relating to permissions or site availability) or economic barriers which limit the potential for alternative infrastructure.

- In addition, major shareholdings by one or more telecom operators in the towerco could influence to what extent the deployment and access conditions offered to third parties are non-discriminatory or favour shareholders over others. This concern has been expressed by access seekers in the context of interviews conducted for this study, and the German competition authority is currently investigating a complaint made by 1&1 regarding alleged delays (and implied discriminatory treatment) by Vantage Towers in providing access to base stations (see section 7.4.7)

It is also important to consider the specific role that infrastructure sharing / co-investment between two or more telcos may play in fibre netcos and towercos and the associated implications for infrastructure and service competition and investment.

In practice, in the context of infrastructure companies, JVs can be positive for investment if they help to build a business case for the deployment of towers, other mobile infrastructure or fibre in a zone where deployment would otherwise not be viable (without the combination of wholesale shares of the respective operators). In this context, passive infrastructure sharing for both towers and fibre terminating segments is encouraged by the regulatory framework in some countries.<sup>127</sup> However, infrastructure sharing can also risk undermining infrastructure competition in areas where it might be viable, and thus co-investments such as INWIT, or the fibre netco JVs such as FiberCop in Italy and Glasfaser Nordwest in Germany have attracted scrutiny from competition authorities regarding the impact of a possible “concentration”.

A key concern is that if the JV partners together hold a high combined wholesale market share and when they involve the larger market players, co-investment JVs may have negative effects on infrastructure competition and investment dynamics in areas where infrastructure competition could emerge (between the partners or another player) or where there is the prospect that in the absence of a JV different players might engage in a race for coverage, which can be an important accelerator of deployment. Wholesale access conditions which could add on further market shares from other parties e.g. due to volume commitments, could further raise concerns about such impacts. These issues

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<sup>127</sup> For example, mobile passive infrastructure sharing is encouraged by the French regulatory framework – see <https://www.arcep.fr/la-regulation/grands-dossiers-reseaux-mobiles/le-partage-de-reseaux-mobiles.html#c30642>. Article D. 98-6-1 Code des postes et des communications électroniques (CPCE) encourages passive infrastructure sharing throughout the territory. Article L. 34-8-6 of the CPCE focuses on mountain areas, Under article L 34-9-1 CPCE : in rural areas with low housing and population density, the operator must indicate, at the request of the mayor and in the information file submitted to the town hall, the justification for not using a solution for sharing sites or pylons. The rural areas concerned will be defined by decree following advice from Arcep. Passive infrastructure sharing is also encouraged in countries such as Denmark and Belgium. (last accessed on 23.11.2023).

have been examined for example in the context of the TIM/Fastweb JV FiberCop (see section 5.2.1).

In an attempt to address the negative effects of co-investment on infrastructure competition, the French NRA ARCEP<sup>128</sup> identified in advance zones or building categories (based on the size of multi-dwelling units) where infrastructure duplication could be considered feasible in the secondary network / terminating segment, as well as areas where it was assumed that duplication would not be viable and thus mutualisation / co-investment was required. Incentives to invest in non-contestable zones were encouraged through the “race to invest” principle, and through a series of Guidelines and dispute resolution procedures, the NRA established common access requirements that should apply to all operators deploying fibre – effectively requiring them to make a co-investment offer (via IRU) generally available to other parties on a non-discriminatory basis. Interviews suggest that this approach is considered by larger broadband providers to have been effective. However, as such an approach could only be established prior to widespread FTTH roll-out, and required specific legal provisions, it seems doubtful that this model could be applied more widely.

Similarly, for mobile, the targeted coverage system established by the 2018 “ Mobile New Deal” aims to improve the coverage of areas in which a need for digital territorial planning has been identified by local authorities and the government. This system replaces the previous national mobile coverage programs which targeted white areas, with the aim of increasing the impact of the measures and allowing local authorities to be more involved. In this context, at the initiative of the government, the four largest mobile operators in France have made commitments to each provide coverage in 5,000 areas which are identified by local authorities and government departments. These commitments were incorporated in the authorization of the MNOs to use the frequencies licensed in 2018.<sup>129</sup> In this targeted coverage system, when several operators are designated by a ministerial decree to be responsible for the coverage of the same identified area, they have to share the passive elements of the infrastructures. If an area has been defined for all the four operators and, on the date of publication of the decree, none of them provides mobile services at a level of “good coverage” (voice/SMS), the operators are subject to an obligation to RAN sharing. More generally, it should be noted that supporting investment in challenge areas through co-investment by telcos under a JV model should mitigate concerns about the potential for excessive wholesale pricing (which might apply if an independent infrastructure company is relied upon to serve such areas), but could create concerns around discrimination against any operators or other access seekers that are

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<sup>128</sup> Further details regarding the French symmetric regime for the regulation of FTTH can be found in the French case study in WIK (2019) Competition and investment in the Danish broadband market [https://www.wik.org/fileadmin/files/migrated/news\\_files/Competition\\_and\\_investment\\_in\\_the\\_Danish\\_broadband\\_market.pdf](https://www.wik.org/fileadmin/files/migrated/news_files/Competition_and_investment_in_the_Danish_broadband_market.pdf) (last accessed 14.09.2023).

<sup>129</sup> See <https://www.arcep.fr/la-regulation/grands-dossiers-reseaux-mobiles/la-couverture-mobile-en-metropole/le-new-deal-mobile.html> and ARCEP / Direction Générale des Entreprises (2018): Description des engagements des opérateurs sur la Généralisation d’une Couverture Mobile de Qualité pour l’Ensemble des Français, available at [https://www.arcep.fr/uploads/tx\\_gspublication/description-dispositif-couverture-mobile-220118.pdf](https://www.arcep.fr/uploads/tx_gspublication/description-dispositif-couverture-mobile-220118.pdf) (last accessed on 25.10.2023)

not part of the co-investment. This concern has for example been assessed by the Italian competition authority in the case of INWIT (see section 5.2.1).

## 4.2 Conditions for deploying infrastructure

### 4.2.1 Dependencies and challenges for towercos

As noted in section 3.1.1, towercos focus primarily on building, operating and maintaining the mobile / cell phone tower infrastructure, which means that they provide poles/masts, power equipment, access facilities and other (neutral) components such as site security and power supply. Towercos have a strong interest in making the maximum use of their existing infrastructure and increasing the tenancy rate. They also need to deploy new infrastructure for example to support 5G roll-out, address coverage gaps, capacity bottlenecks, EMF limitations, as well quality problems caused by changes in the surrounding vegetation or buildings.<sup>130</sup>

The conditions for deploying mobile infrastructure relate strongly to the requirements which mobile sites (ground and rooftops) must meet. The sites:

- Must be technically suitable and fit into the existing network architecture. As a rule, the height and the distance of the site from the area to be covered are decisive. As noted in section 3.1.1, towercos rarely build towers on their own initiative but utilize “built-to-order/suit” programmes in which they decide where to construct new sites based on customer/tenant needs.<sup>131</sup> When this is the case, this also means that the flexibility in choosing the location of a site is limited. According to feedback from interviews, the areas indicated by customers tend to be very specific.
- Must comply with urban development rules, antenna and EMF regulations.
- Need building permits when no permit exemptions apply.
- Require agreements with the owners of the land or buildings when the towerco does not own the land. The towerco manages the relationship and must agree with the landlord on the rental amount and duration of the contract.
- Must (be able to) be connected to the power supply.

Active infrastructure (radio equipment/antennas) is typically not included in the services of the towerco and brought on the site by the mobile network operator serving its customers from the tower. The site also must be connected to the network of the MNO.

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<sup>130</sup> Strube Martins, S.; Wernick, C. and Tenbrock, T. (2022): Potentiale zur Beschleunigung des Breitbandausbaus, available at [https://www.wik.org/fileadmin/files/migrated/news\\_files/WIK\\_Beschleunigung\\_Breitbandausbau\\_final.pdf](https://www.wik.org/fileadmin/files/migrated/news_files/WIK_Beschleunigung_Breitbandausbau_final.pdf) (last accessed on 01.09.2023).

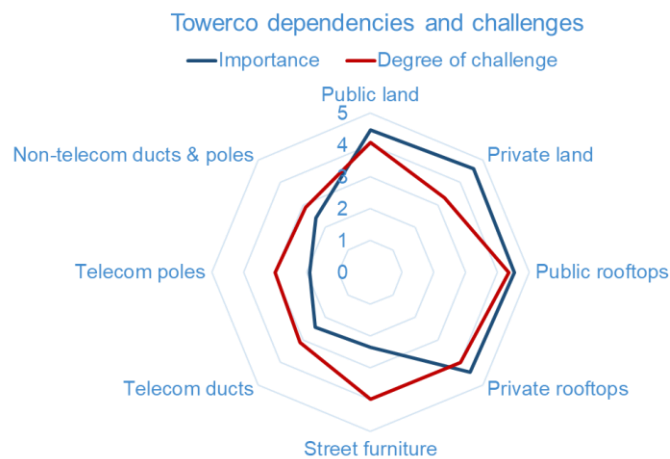
<sup>131</sup> In particular where new sites are built to order for specific individual clients, this may also mean that the location and nature of the site best reflects the needs of that client / MNO as regards optimal coverage in relation to its existing coverage and radio spectrum assignment



Some towercos also offer duct access and/or fibre backhaul from the site. Others do not or only make it available depending on demand and available assets in the specific region.

As can be seen in Figure 4-3, survey data shows that the most important facilities for towercos are public and private land and public and private rooftops. The survey data also show that the respondents experience the most challenges regarding access to public land and rooftops in general. While access to public land can be very important to extend coverage outside cities (e.g. along highways and public roads), rooftops are essential in built-up areas (urban areas). Although towercos also report challenges regarding access to street furniture, this is for the moment considerably less important to their business, and towercos have more limited experience in this area.

Figure 4-3: Towerco dependencies and challenges when deploying infrastructure



Source: Survey results.

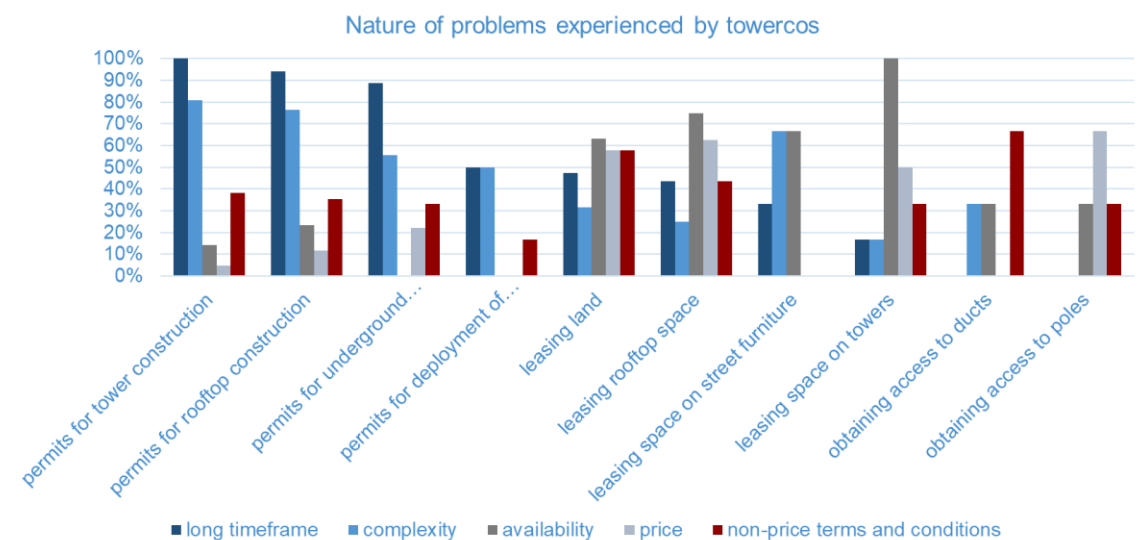
As regards the nature of problems, Figure 4-4 shows that availability of land and rooftop presents a challenge for many towercos. In interviews and survey responses towercos explain that restrictive EMF limits often drive the need to find additional sites in urban areas and the scarcity of land and rooftop space can be compounded by competing demands from the energy sector for example to deploy solar panels or wind turbines.

It can also be difficult to identify property owners due to a lack of information or inaccurate information. Towercos cite negotiations with property owners concerning the price of leasing land and rooftop space as a challenge. There are also cases where the infrastructure companies have to negotiate with properties owned by several entities which makes it more difficult to reach an agreement.

The cost of supplying sites with electricity has been indicated as a key issue by Deutsche Funkturm in Germany. In some cases, the distribution network operators are not interested in connecting locations and court decisions were necessary to enforce the

connection. The tariffs for the connection to the electricity network can be higher than the cost of renting the site.<sup>132</sup> The construction of roads to enable access to sites in rural and remote areas can also create additional costs.

Figure 4-4: Nature of problems experienced by towercos



Source: Survey results.

#### 4.2.2 Dependencies and challenges for netcos

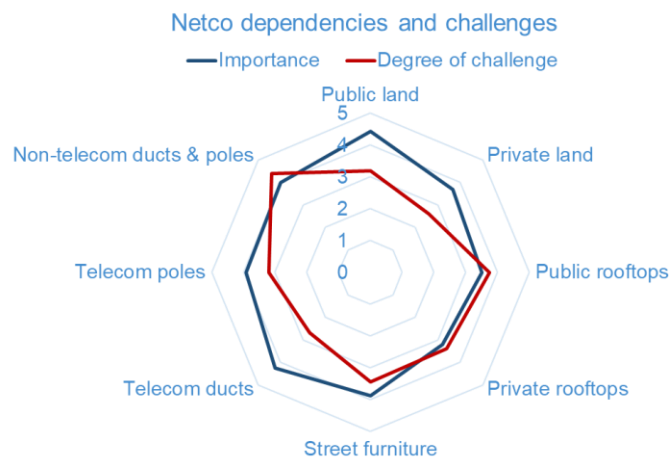
As shown in Figure 4-4, netcos have a high dependency on access to public land (typically roads and pavements) and telecom ducts and poles when rolling out fibre networks. Accessing non-telecom ducts (e.g. Technical Road Channels) and in particular poles (especially from energy companies) is also important for netcos in certain countries (such as Italy) and regions (particularly rural areas in countries such as France and Portugal). Netcos note in the survey that they experience particular challenges with accessing non-telecom ducts and poles. However, there are in practice wide variations in this experience, and it may be influenced by the relative prevalence / importance and thus regulatory attention given to incumbent ECN physical infrastructure compared with alternative options from utility companies.<sup>133</sup>

<sup>132</sup> Interview with Deutsche Funkturm.

<sup>133</sup> In countries where incumbent ECN operators have ubiquitous physical infrastructure and this is subject to strict rules established under ex ante SMP regulation, demand for non-telecom infrastructure may be less, and access conditions may not be as well established. Conversely, in countries where there is significant reliance on non-telecom infrastructure, access conditions may have been established through dispute resolution procedures under the BCRD to address any challenges.



Figure 4-5: Netco dependencies and challenges when deploying infrastructure



Source: Survey results.

#### 4.2.3 Challenges common to infrastructure companies

When it comes to permit granting, both towercos and netcos identify long timeframes and the complexity in obtaining permits as a challenge. Companies are faced with geographically fragmented regulations as different laws and procedures at regional and administrative level apply. Obtaining approvals can also be difficult when competences for permit granting are distributed across a high number of administrations from different areas, e.g. dealing with issues such as environmental protection, historical monuments, national security and critical infrastructures. Another concern around permit granting procedures and the lack of information is that local authorities in some countries or regions have not yet digitalised administrative procedures and are relying on paper-based systems. Although both towercos and netcos report difficulties with permit granting, the concerns and timeframes are generally more pronounced for mobile infrastructure. Towercos report delays of one year or more for ground tower and rooftop construction permits. The results from the evaluation of the BCRD WIK conducted for the European Commission showed a similar picture.<sup>134</sup>

Both towercos and netcos also report that the price of accessing poles in particular (and in some cases the non-price terms)<sup>135</sup> is a major barrier to deployment. In other studies conducted by WIK-Consult, stakeholders noted that one reason could be that less attention had been given to access to poles in the context of regulatory proceedings than

<sup>134</sup> See European Commission, Directorate-General for Communications Networks, Content and Technology, Godlovitch, I., Kroon, P., Strube Martins, S. et al. (2023) Support study associated with the review of the Broadband Cost Reduction Directive – Evaluation report, available at <https://data.europa.eu/doi/10.2759/560564> (last accessed on 08.09.2023).

<sup>135</sup> Challenges regarding pole access include for example processes for assessing and freeing capacity – see <https://www.wik.org/fileadmin/Studien/2017/best-practice-passive-infrastructure-access.pdf> (last accessed on 23.11.2023).

to ducts and/or that there was in some cases less information regarding poles and more challenges (e.g. in relation to load bearing) than apply for ducts.<sup>136</sup>

### 4.3 Conditions for wholesale access

#### 4.3.1 Access to towerco infrastructure

##### Typical conditions

As they operate in an unregulated environment, access conditions to towerco infrastructure are typically bespoke. Exceptions include a few cases where towercos have made use of State Aid or conditions have been established in the context of competition law commitments.

Access to passive infrastructure (e.g., towers) may be provided on the basis of a standard agreements and standard principles set out in a master agreement (e.g., ATC). Prices can be set based on standard criteria e.g., INWIT uses price grids to link charges to the physical space needed, and the location of the tower (although certain exceptions are allowed for). Agreements may also include (full or partial) CPI linkage. For example, Vantage notes that the terms of its agreement with Vodafone provide CPI-linked revenues that support the margins of Vantage Towers.<sup>137</sup> INWIT often uses caps in CPI linkage which are however lower than the inflation in recent months/years.<sup>138</sup> Meanwhile, Index-linking for inflation could become a point of contention between towercos and access seekers, in light of recent inflationary pressures.

Agreements are typically based on a long term lease (e.g., via IRU). The most common lease periods are 6-10 years and 11-20 years although longer leases have been agreed in certain cases. There may be specific conditions for “anchor” tenants which divested their infrastructure.<sup>139</sup>

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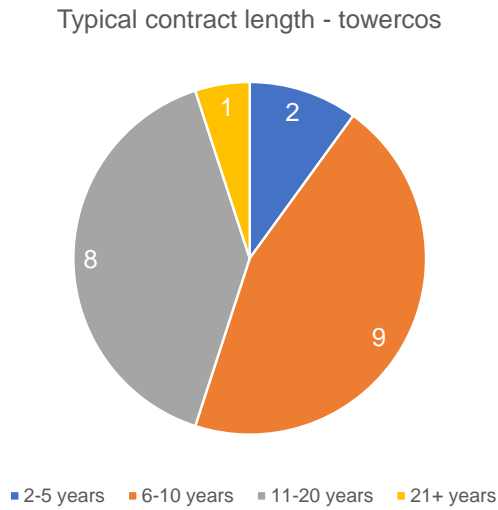
<sup>136</sup> See European Commission, Directorate-General for Communications Networks, Content and Technology, Godlovitch, I., Kroon, P., Strube Martins, S. et al. (2023) Support study associated with the review of the Broadband Cost Reduction Directive – Evaluation report, available at <https://data.europa.eu/doi/10.2759/560564> (last accessed on 08.09.2023) and Godlovitch, I.; Plückebaum, T.; Held, C.; Kiesewetter, W.; Sabeva, D. and Strube Martins, S. (2017): Best practice for passive infrastructure access, available at <https://www.wik.org/fileadmin/Studien/2017/best-practice-passive-infrastructure-access.pdf> (last accessed on 08.09.2023).

<sup>137</sup> Vantage Towers (2023): Annual Report 2022/23, available at <https://www.vantagetowers.com/sites/tower-co-v2/files/2023-06/vt-fy23-annual-report.pdf> (last accessed on 08.11.2023).

<sup>138</sup> See workshop presentation

<sup>139</sup> This may for example include longer lease terms and/or specific conditions relating to the sale or building of new sites or coverage guarantees.

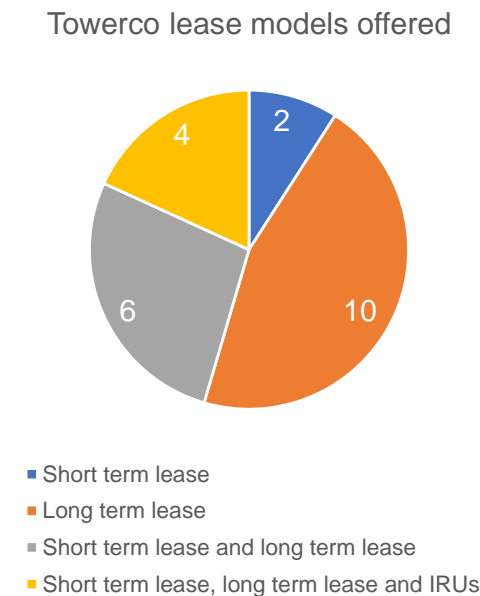
Figure 4-6: Typical contract length – towercos (number of towerco respondents noting that they offer a contract length of a given term)



Source: Survey results.

Short term lease options may also be available (e.g., by some towercos for non-anchor/secondary tenants that co-locate at an existing site). Figure 4-7 shows the different options offered by towercos which responded to the survey conducted for this study.

Figure 4-7: Lease models offered – towercos (number of towerco respondents noting that they offer a contract length of a given term)



Source: Survey results.

For tenants relying on long term leases, several mobile infrastructure companies indicated that at the end of the contract period, the contract is automatically prolonged until actively terminated by the customer. This particularly holds for anchor tenants (e.g. Vodafone's initial master agreement with Vantage Towers runs for 8+8+8+8 years).<sup>140</sup> INWIT reports that for its anchor tenant TIM, the contract involves 8+8 year renewal cycles, but similar contracts are available for other clients (e.g. with 6+6 or 9+9 year renewal cycles).<sup>141</sup> Some answered that when a contract expires, the situation depends on customer needs but that there is an interest in maintaining the commercial relationship.

### **Illustrative terms and conditions**

There is relatively limited publicly available information about the terms and conditions for access to the facilities of towercos.

However, it is understood that in the US, which is the most mature market for the towerco business model, MNOs lease cell tower space for 5-10 years with multiple renewal terms. On average, cell tower lease rates in the United States range between \$1,500 and \$3,500 per tenant, per month and there is no discount if more tenants use the tower. The leasing contracts usually include rent escalators which for example are fixed at 3% annually. As a general rule, rooftop antenna lease rates are lower than ground-based cell tower lease rates. As shown in Figure 4-8, they range between \$1,000 and \$3,000 per tenant, per month.<sup>142</sup>

Figure 4-8: MLAs and lease rates in the US by carrier

#### ***MLAs and Lease Rates – Wireless Carriers and Tower Companies***

<b>Wireless Carrier</b>	<b>Tower Company</b>	<b>Cell Towers</b>	<b>Lease Rate</b>	<b>Escalator</b>
Verizon	American Tower	11,489	\$1,900/month	2% Fixed
AT&T	Crown Castle	9,708	\$1,900/month	2% Fixed
T-Mobile	Crown Castle	7,180	\$1,905/month	CPI
DISH Network	All TowerCos	Thousands	\$1,500/month	<i>n.a.</i>

Source: Simmons, A. (2022): Cell Tower Lease (Rates, Agreements, Buyout, Value), August 9, 2022, <https://dgtlinfra.com/cell-tower-lease-rates-agreements/>. (last accessed on 23.11.2023).

As an example of conditions linked to State Aid conditions, ("Piano Italia 5G") which was granted to INWIT, TIM and Vodafone Italia colocation prices are aligned with the 2021

<sup>140</sup> See Vantage Towers annual report FY 2023: <https://www.vantage-towers.com/sites/tower-co-y2/files/2023-06/vt-fy23-annual-report.pdf>, p. 27. The Vodafone MSAs have been entered into for an initial term of eight years (until November 2028), and renew automatically following the expiration of their initial term for three additional eight-year terms, subject to the Vodafone Operator's right, at the end of each term, not to extend the agreement.

<sup>141</sup> See workshop presentation

<sup>142</sup> Simmons, A. (2022): Cell Tower Lease (Rates, Agreements, Buyout, Value), August 9, 2022, <https://dgtlinfra.com/cell-tower-lease-rates-agreements/> (last accessed 14.09.2023).

OPEN FIBER FWA Reference Offer (€8,000 per site), according to a volume discounting model approved by AGCOM.<sup>143</sup>

For Vantage Towers a discount of up to 15 percent is given in most countries<sup>144</sup> to the anchor tenant Vodafone, if other companies co-locate at a site. This additional tenant discount does not apply to Vodafone's partners, Deutsche Telekom and Telefónica Deutschland, sharing on German "white spot" sites or to additional active sharing counterparties on those sites.<sup>145</sup> It is also possible to declare sites as "strategic" against a fee, granting the right to refuse other tenants. 3 percent of Vantage Towers' sites are currently designated as strategic by Vodafone.<sup>146</sup>

### **Perspectives from clients about towerco terms and conditions**

MNOs mostly consider that commercial relationships are positive and market conditions dynamic and most telcos consider that it is possible to access mobile infrastructure from other infrastructure companies or telecom operators.<sup>147</sup>

However, some telecom operators responding to the survey cite concerns over limited availability (e.g. as a result of EMF limits, but also pre-emption rights exercised by anchor tenants), price and deployment delays by infrastructure companies with whom they have entered specific contracts. Conflict of interest resulting from telco shareholdings, and the potential for discrimination in deployment prioritisation, terms and conditions, including pricing, is also cited as a concern in particular by later entrants into mobile markets.

#### 4.3.2 Access to netco infrastructure

As with towercos, the conditions for access to fibre netcos are typically bespoke, with the exception of netcos under the control of or divested by SMP operators (e.g. Openreach, FiberCop, CETIN CZ), and (in relevant areas) those in receipt of State Aid (e.g. Open Fiber, Nexera), and those subject to symmetric regulation (e.g. Xp Fibre, Orange Concessions, TDF in France).

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<sup>143</sup> In the guidelines for 5G networks (Annex A to Resolution No. 67/22/CONS), AGCOM approved with modifications the price list and conditions proposed by INWIT in Resolution No. 26/23/CONS

<sup>144</sup> Other than in Greece (where the discount does not apply) and within certain Central and Eastern European markets (where the discount is lower), the additional tenant discount is 15% of the original anchor fee. Vantage Towers (2023): Annual Report 2022/23, available at <https://www.vantagetowers.com/sites/tower-co-v2/files/2023-06/vt-fy23-annual-report.pdf> (last accessed on 08.11.2023).

<sup>145</sup> Vantage Towers (2023): Annual Report 2022/23, available at <https://www.vantagetowers.com/sites/tower-co-v2/files/2023-06/vt-fy23-annual-report.pdf> (last accessed on 08.11.2023).

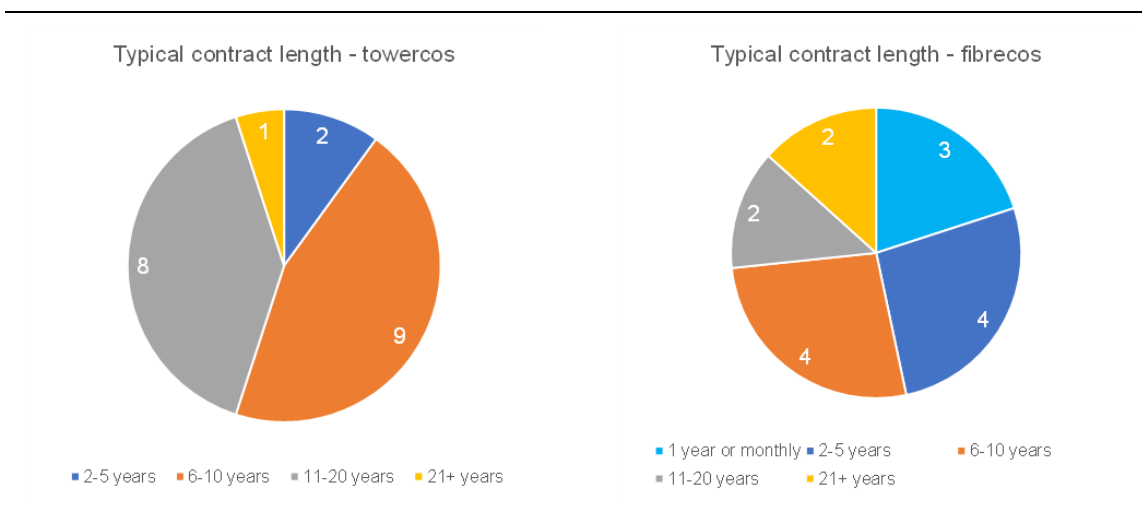
<sup>146</sup> A "strategic site" is a site that is of strategic importance to Vodafone from a network management perspective. Vodafone has consent rights over other MNOs co-locating on strategic sites. See Vantage Towers (2023): Annual Report 2022/23, available at <https://www.vantagetowers.com/sites/tower-co-v2/files/2023-06/vt-fy23-annual-report.pdf> (last accessed on 08.11.2023).

<sup>147</sup> Survey responses

Long-term contracts are often offered (in some cases via IRU) for passive assets (such as unbundled fibre), while active access (e.g. VULA, bitstream) is more frequently available on the basis of short term lease. Some netcos also note that larger (main) customers rely on IRUs.

Contract lengths vary, but “typical” contract durations are shorter than for towercos e.g. 1, 2-5 or 6-10 years. A wide range of practices apply after contract expiry e.g. automatic renewal, renegotiation, open end contracts etc.

Figure 4-9: Typical contract length of towercos and fibrecons (number of towerco and fibreco respondents noting that they offer a contract length of a given term)



Source: Survey results.

### **Examples for long term risk sharing and volume discounts**

One example of long-term “risk sharing” are conditions proposed by FiberCop, a JV owned by the incumbent, the investor KKR and Fastweb, which include options for:<sup>148</sup>

- Minimum commitment: Purchase commitments of guaranteed minimums of semi-GPON access for a period of 10 years.
- IRU with access to the CRO<sup>149</sup>: Purchase of equipment dedicated to the co-investor through payment of a 20 year IRU, with the possibility of purchasing Semi-GPON access at the co-investment rate thereafter without any need for a guaranteed minimum commitment.
- IRU to “capacity”: Purchase of capacity (right to access a given number of lines) via 20 year IRU (so-called capacity IRU), whereby access seekers would make

<sup>148</sup> TIM (2022): Testo consolidato dell’offerta di co-investimento di TIM nella nuova rete in fibra di FiberCopTIM (2022): OFFERTA DI RIFERIMENTO DI TELECOM ITALIA 2021 Servizi di Accesso NGAN, available at [https://wdc.wholesale.telecomitalia.it/tw\\_news/2022/06/27/proroga-al-31-dicembre-2022-dei-prezzi-base-di-adesione-allofferta-di-co-investimento-di-tim-nella-nuova-rete-in-fibra-di-fibercop/](https://wdc.wholesale.telecomitalia.it/tw_news/2022/06/27/proroga-al-31-dicembre-2022-dei-prezzi-base-di-adesione-allofferta-di-co-investimento-di-tim-nella-nuova-rete-in-fibra-di-fibercop/) (last accessed on 25.10.2023).

<sup>149</sup> Cabinet Ripartilinea Ottico or Optical Distribution Cabinet

an advance payment of a fee based on the current value of the fees due to semi-GPON access for the entire duration of the IRU.

Table 4-1: One-time IRU fees of TIM/fibrecom

	IRU 5 years (Euro)	IRU 10 years (Euro)	IRU 15 years (Euro)	IRU 20 years (Euro)	Contribution (Euro)
1 Optical Fibre in the Primary Network, from the PTO to the Telecom Italia Attestation Centre <sup>(2)</sup>	1,184.58	1,967.32	2,484.53	2,826.29	
1 Optical Fibre in Secondary Network (FTTH only), from PTO to building PTE	745.31	1,237.79	1,563.21	1,778.24	
Updating cartography and alphanumeric database (for each SdF followed by the order)					262.89
Optical exchange at PTC/ODF					73.53
PTE Access Activation (per Operator) <sup>(1)</sup>					163.13
PTO Access Activation (per Operator) <sup>(1)</sup>	with Minipozzetto				1,074.53
	without Minipozzetto				672.32
Testing of primary or secondary optical fibre <sup>(3)</sup>					85.96

(1) One-off contribution per PTO/PTE, invoiced by Telecom Italia to an Operator when it commits for the first time a PTO/PTE for the provision of one of the NGAN Access services of Market 2, including the service End to End service.

(2) Valid values for requests relating to the cities covered by Telecom Italia's NGAN plan.

(3) In the case of Optical Fibre Interconnection, only the contribution envisaged for the service in Paragraph 17.1 shall be applied.

Source: WIK-Consult based on TIM / FiberCop.<sup>150</sup> Machine translation from Italian to English.

In the UK Openreach offers volume discounts in the so called "Equinox 2" offer. The offer introduces discounts to operators with a share of 90% FTTP connections for new orders. The offer includes a failsafe mechanism to ensure that in areas where there are other operators apart from Openreach there is still a choice between Openreach and alternative network operators.

<sup>150</sup> Infrastrutture di Posa Locali e Aeree, Tratte di Adduzione, Fibre Ottiche Primarie e Secondarie, Segmenti di Terminazione in Fibra Ottica e in Rame (Mercato 3a) (approvata da AGCom con delibera 39/22/CONS), available at [https://wdc.wholesale.telecomitalia.it/tw\\_offerte/2022/02/24/mercato-3a-offerta-di-riferimento-2021-accesso-ngan-pubblicazione-del-24-02-2022-definitiva/](https://wdc.wholesale.telecomitalia.it/tw_offerte/2022/02/24/mercato-3a-offerta-di-riferimento-2021-accesso-ngan-pubblicazione-del-24-02-2022-definitiva/) (last accessed on 25.10.2023).

Table 4-2: Monthly rental of Equinox 2 tariff of Openreach

## Rentals

Feature	Monthly rental on 01/04/2023	Annual indexation from 01/04/2024
40/10 Mbit/s	Per list price	Per list price
55/10 Mbit/s or 80/20 Mbit/s	£15.50	CPI or 0% whichever is highest
115/20 Mbit/s	£15.80	
160/30 Mbit/s	£16.20	
220/30 Mbit/s	£17.30	
330/50 Mbit/s	£18.30	
550/75 Mbit/s	£19.30	CPI-1.25% or 0% whichever is highest
1000/115 Mbit/s	£21.30	
1200/120 Mbit/s	£22.30	
1800/120 Mbit/s	£29.30	

The Year 6 review mechanism also applies (see below).

Source: <https://www.openreach.co.uk/orpg/home/products/pricing/notificationDetails.do?data=ThQLPOgdo8c%2FpcQINXj7bQ1SIIR3Eedo8zGwEN2opunM7syXRb8LBQKYy16hmQCxNbuS4in2Opzba%2BeTCy5nyaAmkKMAog%2BKEa%2FzywyXh%2B733FkRprdkPimbVIJEBnnx> and <https://www.openreach.co.uk/cportal/updates/briefings/ultrafast/nga201721> (last accessed on 23.11.2023).

### **Examples of reference offers in state aid areas**

In areas rolled out with state aid, the tariffs for passive services of Open Fibre in Italy<sup>151</sup> are broken down into:

- Installation fee
- one-time access fee to the ODF in the building (only for GPON FTTB service) - payments depends on calculations in the feasibility study
- Extraordinary Charges
- Fees for Activation, Migration and Deactivation
- Monthly fee
- IRU
- Maintenance fee

<sup>151</sup> [https://openfiber.it/app/uploads/2023/02/Aree-Bianche\\_ListinoServizi\\_CD\\_230203.pdf](https://openfiber.it/app/uploads/2023/02/Aree-Bianche_ListinoServizi_CD_230203.pdf) (last accessed on 04.09.2023)



Open Fiber indicates a monthly rental fee of 10.8 Euro per month for an FTTH connection, while the installation fee amounts to 110 Euro.<sup>152</sup>

In Ireland, NBI (National Broadband Ireland), the operator rolling out in state aid financed areas, is constrained to price Bitstream and VULA in accordance with a benchmark reference price ('BRP') in accordance with the NBP (National Broadband Plan) Contract, while SIRO, as an unregulated commercial provider, can price its VULA on a fully commercial basis.

Table 4-3: NBI bitstream pricing list

Table D - Wholesale Bitstream Port Rental Prices – Effective from 1 <sup>st</sup> January 2022				
Charge Ref	Product(s):	Service Speed	Access Service Provider	Wholesale Bitstream <sup>11</sup>
				Price per Month
RC1.0	Bitstream Consumer Standard	500 Mbit/s / 50 Mbit/s	NBI	€29.72
RC1.1	Bitstream Consumer Premium	1,000 Mbit/s / 100 Mbit/s	NBI	€34.72
RC1.2	Bitstream Consumer Elite	2,000 Mbit/s / 200 Mbit/s	NBI	€39.72
RC1.4	Bitstream Business Standard	500 Mbit/s / 100 Mbit/s	NBI	€64.00
RC1.5	Bitstream Business Premium	1,000 Mbit/s / 200 Mbit/s	NBI	€74.00
RC1.6	Bitstream Business Enterprise	2,000 Mbit/s / 400 Mbit/s	NBI	€84.00
RC1.7	Bitstream SCP Standard	150 Mbit/s / 30 Mbit/s	NBI	€29.72
RC1.8	Bitstream SCP Premium	300 Mbit/s / 50 Mbit/s	NBI	€34.72

Source: <https://nbi.ie/service-provider-portal/> (last accessed on 04.09.2023)

NBI charges a bitstream usage charge that is presented in table below.

<sup>152</sup> [https://openfiber.it/app/uploads/2023/02/Aree-Bianche\\_ListinoServizi\\_CD\\_230203.pdf](https://openfiber.it/app/uploads/2023/02/Aree-Bianche_ListinoServizi_CD_230203.pdf) (last accessed on 04.09.2023)

Table 4-4: NBI Bitstream usage charge

Table I - Wholesale Bitstream per user usage charge from 1 <sup>st</sup> July 2022				
RC1.13	Wholesale Bitstream monthly per Mbps usage per user	Per user monthly charge based on 95 <sup>th</sup> percentile average usage across a service providers base	From 1 <sup>st</sup> July 2022	€0.27

Source: <https://nbi.ie/service-provider-portal/> (last accessed on 04.09.2023)

Table 4-5: NBI VUA (VULA) pricing list

Table M - Wholesale VUA Rental Prices – Effective from 1 <sup>st</sup> January 2022				
Charge Ref	Product(s):	Service Speed	Access Service Provider (NBI)	Wholesale VUA <sup>18</sup>
				Price per Month
RC3.0	Minimum Wholesale VUA Product (VUA Consumer Standard)	500 Mbit/s / 50 Mbit/s	NBI	€26.00
RC3.1	VUA Consumer Premium	1,000 Mbit/s / 100 Mbit/s	NBI	€31.00
RC3.2	VUA Consumer Elite	2,000 Mbit/s / 200 Mbit/s	NBI	€36.00
RC3.3	VUA Business Standard	500 Mbit/s / 100 Mbit/s	NBI	€54.00
RC3.4	VUA Business Premium	1,000 Mbit/s / 200 Mbit/s	NBI	€64.00
RC3.5	VUA Business Enterprise	2,000 Mbit/s / 400 Mbit/s	NBI	€74.00
RC3.6	VUA SCP Standard	150 Mbit/s / 30 Mbit/s	NBI	€26.00
RC3.7	VUA SCP Premium	300 Mbit/s / 50 Mbit/s	NBI	€31.00

Source: <https://nbi.ie/service-provider-portal/> (last accessed on 04.09.2023)

### **Pricing under the symmetric regulation in France**

Fibre netcos (and vertically integrated) fibre deployers in France offer conditions for access to unbundled fibre which have become standardised over time following symmetric regulation with dispute resolution by ARCEP.

The symmetric obligations applying to the fibre terminating segment require all operators installing fibre in buildings to offer – in a transparent and non-discriminatory manner, and under reasonable technical and economic conditions, passive access to the terminating segment of the fibre (point of mutualisation). Offers should include:

- An offer to participate in the co-financing of FTTH lines for example through a long term right of use (IRU), both from the start of the investment and subsequently.

- An offer of passive access rental.

The location of the access point varies according to whether the connection occurs in very dense or less dense areas. ARCEP determined in decisions and recommendations made in the period 2009-2014 that the connection point in very dense areas:

- Can be at the base of the building for buildings hosting more than 12 households or offices (or which are connected to a visitable public sewage network through a supply tunnel which is also visitable); or
- Should be at a point aggregating 100 lines for buildings hosting less than 12 households or offices (in accordance with the Jan 2014 ARCEP Recommendation).

The connection point in less dense areas must be:

- At a point aggregating at least 1000 lines; or
- At a point aggregating at least 300 lines if backhaul is made available to a point aggregating 1000 lines.

The scope of (households covered by) the “terminating segment” was set by ARCEP to reflect the conditions for replicability of the infrastructure. For the terminating segment, there is no expectation of network duplication, and thus a co-investment regime is preferred.

Pricing options for the terminating segment include:

- One-off payments for IRU which vary depending on the time of co-investment + low recurring fees to cover operational costs; or
- Short term contracts with higher monthly fees

The wholesale prices are differentiated by

- The time of entering the co-investment (ex-ante or ex-post)
- The area of fibre roll-out

In less dense areas the co-investor can limit the share of connections which are co-financed to 5% of households in the area covered by a mutualisation point.

The IRU contracts typically have a duration of 20-40 years.

The fixed fee for a 20 year IRU is around €500 per line. Renewal costs € 1 for another 20 years. For co-investing operators, there is a recurrent fee of around € 5 per active line per month (for access to the mutualisation point at a location gathering 300 lines).<sup>153</sup> This

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<sup>153</sup> The monthly rental for FTTH connections currently amounts to 5-6 Euros for Orange and xpfibre.

fee reflects the financing of uncofinanced shares for the building operator as well as maintenance, service and access to civil infrastructures.<sup>154</sup>

### **Perspective of the telcos**

While access seekers are broadly positive about terms for access to fibre supplied by most netcos, , concerns have been expressed around the terms offered by incumbent subsidiaries (e.g. in Germany, where SMP obligations are in the process of being determined) and around the pricing and consistency of offers from fibre companies in rural (State Aid) areas more generally, particularly in cases when such offers have not been subject to approval and regular scrutiny by NRAs. Alternative fibre netcos also cite concerns around the impact of volume commitments and incentives offered by SMP-owned netcos on the prospects for infrastructure competition.

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<sup>154</sup> [https://www.wik.org/fileadmin/files/\\_migrated/news\\_files/Competition\\_and\\_investment\\_in\\_the\\_Danish\\_broadband\\_market.pdf](https://www.wik.org/fileadmin/files/_migrated/news_files/Competition_and_investment_in_the_Danish_broadband_market.pdf) (last accessed 14.09.2023).

## 5 Implications for regulation and competition policy

In this chapter we consider how available regulatory tools have been used to address the problems relating to deployment and competition as identified in the previous chapter. Section 5.1 sets out the regulatory provisions which seek to address barriers to deployment (as outlined in section 4.2) and summarises their application by NRAs, while section 5.2 discusses the available competition law and regulatory provisions which could support infrastructure and service competition (to address problems such as those outlined in section 4.3) and summarises their application by competition authorities and NRAs. Drawing on this analysis, in section 5.3 we consider what options may be best suited under the EU Electronic Communications Code (EECC) and Broadband Cost Reduction Directive (BCRD) for NRAs to address potential future deployment and competition challenges linked to the emergence of infrastructure companies, and what could be the possible implications for the proposed Gigabit Infrastructure Act (GIA).

### 5.1 Addressing barriers to deployment

#### 5.1.1 Relevant legal provisions

The barriers outlined in section 4.2, which may prevent infrastructure companies from deploying physical infrastructure, such as delays in obtaining permits and Rights of Way or difficulties or unfair terms and conditions in accessing ducts and poles, are intended to be addressed in various measures included in the Broadband Cost Reduction Directive and the EU Electronic Communications Code (EECC). The Connectivity Toolbox, adopted as a Recommendation by the European Commission in 2020,<sup>155</sup> provides further guidance on practical steps that can be taken by Member States and NRAs to reduce the cost of fixed and mobile VHCN deployment by implementing (or in some cases going beyond) the provisions of the EECC and BCRD. An overview of the key provisions is provided below.

#### **Broadband Cost Reduction Directive,<sup>156</sup> Connectivity Toolbox and proposed Gigabit Infrastructure Act**

The BCRD, adopted by the European Parliament and Council in 2014,<sup>157</sup> seeks to support the deployment of high speed broadband by reducing these costs and streamlining administrative procedures for the deployment of fixed and mobile communications networks. To achieve these goals the BCRD includes measures to

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<sup>155</sup> <https://digital-strategy.ec.europa.eu/en/library/commission-recommendation-common-union-toolbox-reducing-cost-deploying-very-high-capacity-networks> (last accessed on 23.11.2023).

<sup>156</sup> The overview of the Directive is drawn from the Support study for the Evaluation of the Broadband Cost Reduction Directive <https://op.europa.eu/en/publication-detail/-/publication/fe50cedf-b718-11ed-8912-01aa75ed71a1/language-en/format-PDF/source-291893473> (last accessed 15.09.2023).

<sup>157</sup> <https://eur-lex.europa.eu/legal-content/en/TXT/?uri=celex%3A32014L0061> (last accessed 15.09.2023). (last accessed on 23.11.2023).

facilitate access to existing infrastructure of network operators including operators of utilities and transport networks as well as electronic communications providers (article 3 of the BCRD), as well as measures to support co-ordination of civil works between network operators and electronic communication providers (article 5 of the BCRD).<sup>158</sup> The Directive also contains measures which aim to limit the timescales for the approval of permit applications for civil works (article 7 of the BCRD), and ensure that new and renovated buildings are constructed with in-building infrastructure which is “high-speed broadband ready” (article 8 of the BCRD).

These measures are supported by requirements for network operators to provide information regarding existing infrastructure and planned civil works, via a “Single Information Point” (SIP) in articles 4 and 6 of the BCRD.

The BCRD also sets out a range of optional measures which Member States can choose to apply, and allows Member States to go further still in expanding obligations beyond those mandated or suggested in the Directive.

The Connectivity Toolbox<sup>159</sup> and associated 2020 EC Recommendation include a set of Best Practices that could serve to support the implementation of the BCRD and extend certain measures beyond those required under the scope of the BCRD to further reduce the costs of deployment. Relevant recommendations in the toolbox include:

- BP1: Introduce permit exemptions and fast track procedures
- BP 4: Provide for electronic means for permit applications
- BP 5: Introduce a digital platform for permit applications
- BP 6&7: Introduce tacit approval and fast track procedures for Rights of Way
- BP 10: Limit fees required for civil works permits
- BP 11-13: Improve transparency by ensuring the publication of regular information updates on planned civil works via a SIP, ensure information from public sector bodies is made available via a SIP in electronic format and include georeferenced information
- BP 16-17: Ensure access is provided to physical infrastructure suitable for VHCN deployment (not limited to SAWAP role); and
- BP 18: Develop guidelines on pricing methodologies and reference offers to facilitate access to physical infrastructure

Building on the non-binding Recommendations of the Connectivity toolbox, in February 2023 the Commission published a proposal for a Regulation which replaces the current BCRD. Unlike the BCRD, which required transposition by the Member States, the Gigabit

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<sup>158</sup> All network operators are captured within the relevant article (article 5), but only operators which are wholly or partly financed by public means are required to meet reasonable demands for co-ordination of civil works.

<sup>159</sup> [https://ec.europa.eu/newsroom/dae/document.cfm?doc\\_id=75185](https://ec.europa.eu/newsroom/dae/document.cfm?doc_id=75185) (last accessed on 23.11.2023).

Infrastructure Act, if adopted, would be directly applicable in all the Member States.<sup>160</sup> Key adaptations<sup>161</sup> in the draft GIA include:

- Updating the aim / scope of the Directive from “Next Generation Access” networks to “Very High Capacity Networks” to align with ambitions of the EECC and Digital Decade Connectivity targets
- Extending the definition of “network operator” (and therefore the scope of undertakings with rights and obligations under the Regulation) to include undertakings providing “associated facilities” to networks, thereby including towercos within the remit of the Directive’s provisions
- Extending the obligation (Article 3) to offer access to existing physical infrastructure to physical infrastructure that is not part of a network but is owned or controlled by public sector bodies and adding an option for Member States to establish a body to co-ordinate public sector assets. The new article also provides the possibility for the Commission to issue guidance on the application of access provisions.
- Article 4 as amended mandates the provision of minimum information on existing physical infrastructure by network operators and public sector bodies owning or controlling physical infrastructure, including georeferenced information, via SIPs in electronic format.
- Article 5 clarifies that the obligation to coordinate civil works relates to civil works that are ‘fully/partially financed by public means’. It sets out that requests for coordination of civil works should be filed at least 2 months before the submission of the final project and specifies when a request to coordinate civil works can be considered unreasonable. It provides for the possibility for the Commission to issue guidance on the application of civil works coordination provisions.
- Article 6 provides for the right of access to minimum information for all (public and private) planned civil works carried out by network operators via SIPs in electronic format, including georeferenced information. It provides for the earlier and proactive provision of minimum information on planned public civil works by all network operators via SIPs to facilitate the potential coordination of civil works.
- Article 7 introduces a new principle of nationally consistent rules governing the conditions and procedures applicable for granting permits, including rights of way. It makes the submission of applications in electronic format via SIPs mandatory. It mandates the Commission to specify the categories of deployments that will be exempted from permits by way of an implementing act. It introduces several measures aiming to ensure permits, including rights of way, applications are dealt with within the legal deadlines, e.g. a shorter period to consider the application complete, tacit approval or compensation for damages caused by non-compliance

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<sup>160</sup> European Commission (2023): Commission presents new initiatives, laying the ground for the transformation of the connectivity sector in the EU Brussels, 23 February 2023, Press Release, available at [https://ec.europa.eu/commission/presscorner/detail/en/ip\\_23\\_985](https://ec.europa.eu/commission/presscorner/detail/en/ip_23_985) (last accessed on 04.09.2023).

<sup>161</sup> This is a non-exhaustive list of the changes. A full description of changes can be found in the introduction to the proposed GIA at <https://ec.europa.eu/newsroom/dae/redirection/document/93925> (last accessed 15.09.2023).



with the deadlines. Finally, it lays down that fees and charges for permits, including rights of way, cannot go beyond the administrative charges.

In May 2023, BEREC published its Opinion on the draft GIA.<sup>162</sup> While welcoming the proposal as a whole, BEREC noted that it did not see the need for further Guidance from the European Commission regarding the terms and conditions associated with access to physical infrastructure, as such decisions were specific to national circumstances and thus in its view were best left to the discretion of NRAs/DSBs. Similarly, BEREC raised concerns that the proposed provisions regarding the determination of “fair and reasonable” prices in the event of a dispute were overly prescriptive and proposed the removal of the conditions set out in Article 3(2) lit (c) of the draft Regulation. The GIA is currently under negotiation in the European Council and Parliament. The lead (ITRE) committee within the European Parliament adopted its position in September 2023.<sup>163</sup>

### **EU Electronic Communications Code**

The EECC complements certain of the BCRD provisions in particular by requiring the establishment of procedures and setting maximum timeframes of 6 months for the granting of Rights of Way (Article 43), and by allowing competent authorities to impose co-location and sharing of network elements and associated facilities which are installed by making use of provisions on RoW (Article 44). In addition, Article 57 of the EECC requires that small area wireless access points (SAWAP) that meet certain criteria established through an EC Implementing Act should benefit from permit exemptions (unless exempt under national conditions), and require public authorities to make available physical infrastructure to operators to host SAWAP. In particular, article 57(4) EECC requires the provision of access by public bodies to physical infrastructure suitable for the deployment of SAWAP (which had not been covered in the BCRD) such as bus stops, billboards, traffic lights, etc.

Article 61 (3) (symmetric access to wiring, cables and associated facilities inside buildings or up to the first concentration point), also provides that NRAs may impose obligations to grant access to wiring and cables and associated facilities inside buildings. Such rights and obligations could apply to fibre netcos.

Finally, the provisions on market analysis and remedies in the EECC can be used to impose obligations for electronic communication network (ECN) operators with Significant Market Power (SMP) to provide duct and pole access and associated facilities. In cases where the SMP operator has an extensive duct and pole network, this type of access is typically more suitable for and preferred by access seekers.<sup>164</sup> This preference

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<sup>162</sup> <https://www.berec.europa.eu/en/document-categories/berec/others/berec-analysis-of-the-european-commission-legislative-proposal-for-a-gigabit-infrastructure-act> (last accessed on 23.11.2023).

<sup>163</sup> <https://www.europarl.europa.eu/news/en/press-room/20230918IPR05422/gigabit-infrastructure-act-faster-rollout-of-gigabit-capable-connectivity> (last accessed on 23.11.2023).

<sup>164</sup> See European Commission, Directorate-General for Communications Networks, Content and Technology, Godlovitch, I., Kroon, P., Strube Martins, S. et al. (2023): Support study accompanying the



is confirmed by the survey undertaken for this study in which access to telecom physical infrastructure was on average rated as more important by respondents than access to physical infrastructure from other network operators such as energy and sewerage. Access to SMP physical infrastructure such as ducts and poles is regulated by NRAs under the former market 3a/2014 (and /or the new market 1/2020), market 4/2014 (and/or the new market 2/2020) or under a separate /autonomous physical infrastructure market (UK, PT<sup>165</sup>, FR and ES).

Under Article 26 of the EECC, NRAs are also empowered to intervene in telecommunications markets and to impose obligations on an operator by means of binding decisions in the context of dispute resolution. However, any obligations imposed on an undertaking by the national regulatory authority in resolving a dispute must comply with the Directive, and thus may go beyond the other provisions mentioned, only to the extent that this is permitted by the Directive.<sup>166</sup>

### 5.1.2 Applicability of rights and obligations to infrastructure companies

To what extent the measures taken under the BCRD and the EECC support the deployment of infrastructure (by infrastructure companies and others) depends on whether the rules from the EECC and BCRD addressing barriers to deployment as transposed in the Member States apply to infrastructure companies present in their jurisdiction and on whether the infrastructure companies take advantage of those rules when building their own infrastructure.

#### **Applicability of EU provisions to infrastructure companies**

As a general rule, the BCRD provisions will always apply in cases where netcos and towercos meet the definition of “network operator”.

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review of the Broadband Cost Reduction Directive – Impact assessment – Final report, available at <https://data.europa.eu/doi/10.2759/34519> (last access on 08.09.2023); European Commission, Directorate-General for Communications Networks, Content and Technology, Godlovitch, I., Kroon, P., Strube Martins, S. et al. (2023): Support study associated with the review of the Broadband Cost Reduction Directive – Evaluation report, available at <https://data.europa.eu/doi/10.2759/560564> (last accessed on 08.09.2023) and Godlovitch, I.; Hoceped, C.; Lemstra, W.; Plückebaum, T.; Strube Martins, S.; Kroon, P.; Lucidi, S.; Alexiadis, P. and Char, S. (2020): Future electronic communications product and service markets subject to ex-ante regulation, Recommendation on relevant markets, Final Report, available at <https://digital-strategy.ec.europa.eu/en/library/study-future-electronic-communications-product-and-service-markets-subject-ex-ante-regulation> (last access on 08.09.2023).

<sup>165</sup> Draft decision to notified by ANACOM to the EC in November 2023. See <https://circabc.europa.eu/d/a/workspace/SpacesStore/767a545e-36f3-4ca8-a81f-b8fc6643b385/Projeto%20Decis%25c3%25a3o%20M1%20-%20Vers%25c3%25a3o%20P%25c3%25ablica.docx> (last accessed on 23.11.2023).

<sup>166</sup> See Article 26(3)

In this context, “network operator” as defined in the BCRD means:

- *an undertaking providing or authorised to provide public communications networks as well as an undertaking providing a physical infrastructure intended to provide:*
  - (a) *a service of production, transport or distribution of gas, electricity, including public lighting; heating, water; or*
  - (b) *transport services (including railways, roads, ports and airports)*

The provision of public communications networks implies the operation of **active telecom networking equipment**. It is further clarified that “cables including dark fibre” are not considered to be physical infrastructure within the meaning of the BCRD. Thus, some undertakings that hold physical infrastructure but do not qualify as public communications network providers would not constitute “network operators” and would not be subject to the rights and obligations set out in the BCRD, including rights relating to permit granting deadlines and the right to access and obligation to provide on reasonable request physical assets, such as ducts, poles and towers.

Meanwhile, in the context of the EECC, provisions on Rights of Way (Art 43) to install facilities (including physical infrastructure and cables) and the linked provisions in Article 44 (regarding co-location and sharing of network elements and associated facilities for providers exercising the right to install facilities) apply to “undertakings authorised to provide public electronic communications networks”<sup>167</sup>. Under a literal transposition, this could limit the ability of passive-only infrastructure companies which do not operate an ECN to benefit from such rights on the basis that ECN is defined as “*transmission systems, whether or not based on a permanent infrastructure or centralised administration capacity, and, where applicable, switching or routing equipment and other resources, including network elements which are not active, which permit the conveyance of signals by wire, radio, optical or other electromagnetic means, including satellite networks, fixed (circuit- and packet-switched, including internet) and mobile networks, electricity cable systems, to the extent that they are used for the purpose of transmitting signals, networks used for radio and television broadcasting, and cable television networks, irrespective of the type of information conveyed;*”

However, provisions regarding SAWAP and symmetric access to wiring and cables inside buildings (Article 61(3)) apply more widely.

Specifically, **obligations** under Article 61(3) to grant access to wiring and cables and associated facilities inside buildings or up to the first concentration point may be imposed on the owners of these facilities, whether or not they are ECN providers. Such obligations could therefore include obligations for passive only infrastructure companies not operating an ECN to grant access to in-building wiring (or wiring up to the first concentration point) which they have installed and own. On the other hand, those

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<sup>167</sup> As defined in Article 2(1) EECC

enjoying the right to access to such wiring under Article 61(3) EECC are not specified, and thus infrastructure companies which are not ECN providers could be excluded from this right, if the provision has been transposed in a way that assumes that an ECN provider will be the beneficiary. However, as the vast majority of fibre netcos (for whom these provisions are relevant) are classified as ECN providers, these provisions would normally apply.

As regards Article 57, which is particularly relevant for towercos SAWAP meeting the conditions laid down in the Commission implementing regulation must be exempt from the requirement for permits, irrespective of which entity is applying for permits and planning to install the equipment. Furthermore, the rights to access physical infrastructure controlled by public authorities for the deployment of SAWAP (Article 57(4)) must be granted to “operators” under the terms of the EECC, which is a term that includes undertakings providing or authorised to provide an “associated facility”, and thus should encompass infrastructure companies which do not themselves operate an ECN, including passive only towercos.<sup>168</sup>

#### **Application of BCRD and EECC provisions to infrastructure companies at national level**

Although as noted above, many provisions in the BCRD and EECC do not automatically apply to passive infrastructure companies such as towercos, in the context of the evaluation and impact assessment study on the BCRD, a number of NRAs noted that national transposition extends beyond the minimum requirements of EU legislation, and also applies to non-network operators or assets which are not associated with a network (including public facilities such as street furniture and municipality ducts).

Figure 5-1 shows NRAs’ perspective on the applicability of the EECC provisions to infrastructure companies. However, the results should be interpreted with care, because in some cases responses have been given with respect to netcos, which typically operate active equipment, or have been given with a view to whether the towercos present in the markets concerned operate active equipment.

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<sup>168</sup> Article 2(29) EECC

Figure 5-1: NRA perspective on application of the BCRD and Art. 43, 44 and 61 (3) of the EEC to infrastructure companies

country	RoW Art 43	Co-location and sharing of net. Elements Art 44	SAWAP Art 57	symmetric access Art. 61(3) to wiring	BCRD				
					Country	PIA	SIP	civil works	permit granting
Czech Republic	Yes	Yes	Yes	Yes	Czech Republic	Yes	Yes	Yes	No
Belgium	Yes	Yes	Yes	Yes	Belgium	Yes	Yes	Yes	Yes
Republic of Serbia	Yes	Yes		Yes	Finland	Yes	Yes	Yes	No
Finland	Yes	Yes	Yes	No	Sweden	Yes	Yes	Yes	Yes
Sweden	Yes	Yes	Yes	Yes	Lithuania	Yes	Yes	Yes	Yes
Lithuania	No	Yes	Yes	Yes	Norway	Yes	Yes	Yes	Yes
Slowakia	Yes	Yes	Yes	Yes	Slowakia	Yes	Yes	Yes	
Austria	Yes	Yes	Yes	Yes	Austria	Yes	Yes	Yes	Yes
Estonia	No	No	No	No	Estonia	Yes	Yes	Yes	Yes
Greece	Yes (fixed) No (mobile)	Yes Because of the use of associated facilities	Yes	Yes	Bulgaria	Yes	Yes	Yes	
Croatia	Yes	Yes	Yes	Yes	Greece	Yes	Yes	Yes	Yes
Cyprus	Yes	Yes	Yes	Yes	Croatia	Yes	Yes	Yes	Yes
Hungary	Yes	Yes	Yes	Yes	Cyprus	Yes	Yes	Yes	Yes
Slovenia	Yes	No	No	Yes	Hungary	Yes	Yes	Yes	Yes
Germany					Slovenia	Yes	Yes	Yes	No
Malta	Yes	Yes	No	No	Germany				
Portugal	Yes	Yes	Yes	Yes	Montenegro	Yes	Yes	Yes	
Ireland	Yes	Yes		Yes	Portugal	Yes	Yes	Yes	Yes
Romania	No	Yes	No	No	Ireland	Yes	Yes	Yes	Yes
Italy	No	Yes	Yes	Yes	Romania	Yes	Yes	Yes	No
Netherlands		Yes	Yes	No	Italy	Yes	Yes	Yes	Yes
Poland	Yes	Yes	Yes	Yes	Netherlands	No			
Spain	Yes	Yes	Yes	Yes	Poland	Yes	Yes	Yes	Yes
France (fixed)	Yes	Yes	No	Yes	Spain	Yes	Yes	Yes	Yes
France (mobile)	No	No	No	No	France (fixed)	Yes	Yes	Yes	Yes
					France (mobile)	Yes	Yes	Yes	No

Source: Survey responses by NRAs

In practice, the country whose rules apply most extensively to infrastructure companies is Italy. In Italy, access obligations under the BCRD apply also to “physical infrastructure managing bodies”, which is defined as a private company or public institution managing a physical infrastructure that is intended for specific services. Thus, public institutions which manage infrastructure for services such as electricity (including public lighting) and transport fall within the scope of the legislation, even if they do not operate these networks. Private companies managing infrastructure for these services, which are not themselves network operators are also captured – and thus the obligation is considered to extend to tower companies. The Italian transposition of the BCRD, i.e. Legislative Decree No 33/2016, has been amended several times. In the most recent iteration, the obligation for the physical infrastructure company to justify the refusal of the access’ request has been strengthened, both in the event of unsuitability of the physical infrastructure and in the event of unavailability of space to host network elements. Infrastructure companies are now required to support any such refusal with plans and other technical documents. In addition, the Authority, pursuant to Law no. 118 of 2021, has developed Guidelines (i.e. Decision n. 452/22/CONS) to ensure that during the execution of civil engineering works by physical infrastructure companies or network operators, the installation of additional physical infrastructures is encouraged if necessary to meet the access requests of other network operators.

Infrastructure companies in Italy are also covered by the symmetric rights and obligations contained in the EECC, including those relating to co-location and sharing of network elements and associated facilities (Article 44 EECC) and support for the deployment of small area wireless access points (SAWAP – Article 57 EECC). However, Article 43 EECC (Rights of Way) applies only in cases where the infrastructure company is also an authorised communication operator.

Denmark also features some of the strongest symmetric access regulation applying to companies managing towers. Specifically, the Danish Mast Act aims to enable the use of existing masts and tall structures for the deployment of antennas. This is achieved via a set of rules obliging owners of masts and certain tall structures (rooftops, chimneys, facades etc.) to give others access to setting up antennae on their mast/structure. Municipalities can also require owners of masts/tall structures to give such access in the context of permit granting procedures. This means that municipalities can refuse e.g. granting a permit for the construction of a new mast and oblige the owner of a suitable existing mast or tall structure to give the applicant access to this mast.<sup>169</sup> Disputes regarding the technical suitability of an existing mast/tall structure in such situations can be resolved via an expert opinion from the Danish Energy Agency (DEA). The DEA has to provide its opinion within a deadline of 1 month.<sup>170</sup>

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<sup>169</sup> Toolbox answer Denmark.

<sup>170</sup> Bekendtgørelse af lov om etablering og fælles udnyttelse af master til radiokommunikationsformål m.v., LBK nr 1039 af 11/10/2019, <https://www.retsinformation.dk/eli/ta/2019/1039> (last accessed 15.09.2023).

Similarly in Poland, the NRA notes that all BCRD provisions including those regarding access to physical infrastructure, civil works co-ordination and permit granting apply to infrastructure companies.

Meanwhile, in Portugal, provisions dating from 2009<sup>171</sup> cover access to suitable infrastructure (for the deployment of electronic communications networks) managed by the State, Autonomous Regions and local authorities as well as publicly and privately financed network operators. Thus, the transposition of the BCRD in Portugal applies to all entities that own or manage physical infrastructures suitable to accommodate ECN, including netcos and towercos when applicable. However, only netcos (and not towercos) are covered by the RoW provisions and symmetric rights and obligations set out in the EECC.

Elsewhere however, passive only infrastructure companies (which represent a large proportion of towercos) are often not covered by the provisions or not by all provisions in the EECC and BCRD which seek to support network deployment.

For example, in France, the EECC provisions do not apply to towercos and measures under the BCRD relating to timeframes for permits are also not applicable. In Germany, Regulation on RoW and Art 57 EECC apply to towercos, but towercos are not regulated under the BCRD or by ex ante symmetric regulation under the EECC.

The Spanish NRA notes that the application of the BCRD and symmetric rules under the EECC to infrastructure companies depends on whether the wholesale services that are being provided by an infrastructure company can qualify as a public electronic communications service. However, the fact that many infrastructure companies in Spain (including towercos) offer some limited active services means in practice that they are captured.

In Belgium Articles 3-6 of the BCRD do not apply to towercos but to netcos, while Article 7 has been transposed in more general terms so that it applies to towercos. The national law also provides for rules on sharing mobile infrastructures which were adopted before the BCRD and which also apply to towercos (Article 25 of the Electronic Communications Act).

In Malta, the BCRD rules are applicable to Enemalta (which supplies energy infrastructure) but not in the case of the towerco Phoenix Tower International.

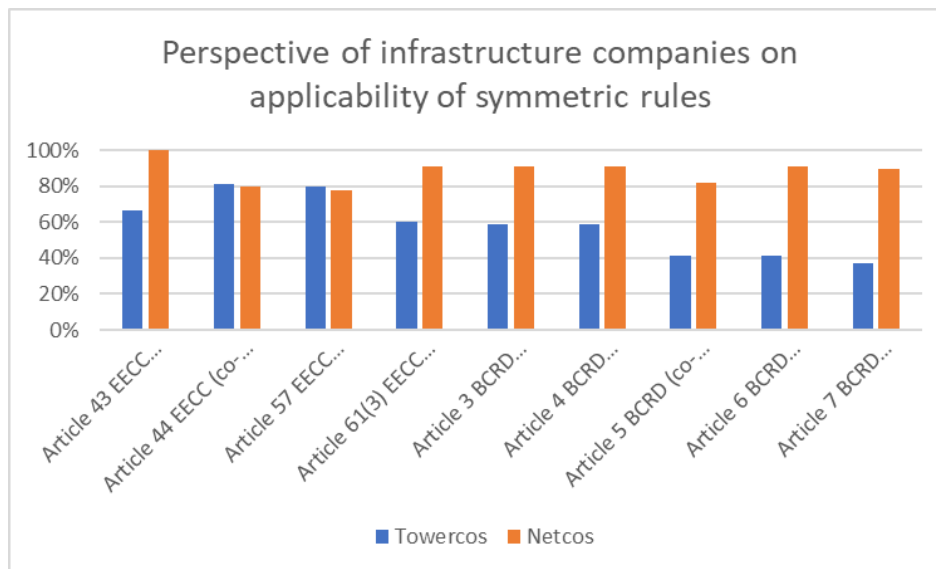
Interviews with multi-national towercos confirm that they perceive that the rules regarding access to infrastructure and other aspects relevant to deployment and their interpretation are different in different countries.

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<sup>171</sup> Decree-Law nr. 123/2009 of 21st may, changed by subsequent legislation.

Figure 5-2 shows how infrastructure companies responding to the survey perceived the applicability of different rules under the BCRD and EECC to their business.

Figure 5-2: Perspective of infrastructure companies on applicability of selected symmetric measures in the jurisdictions in which they operate (% of survey respondents considering that they are captured by EECC and BCRD provisions)



Source: Survey responses

The survey answers show that netcos generally consider that they are covered by EECC and BCRD rights and obligations. The share is lower for SAWAP (Article 57 EECC) and co-location (Article 44 EECC). This is as expected, because these articles are less relevant for netcos as they focus on the deployment of mobile infrastructure. A lower share of fibre netcos report being covered by provisions on co-ordination of civil works (Article 5 of the BCRD), presumably because these obligations apply to network operators performing civil works which are wholly or partly publicly financed, and thus do not cover all of the netcos surveyed.

Up to half or more towercos consider that they do not fall under BCRD provisions regarding civil works and associated information and permit granting, although they state that SAWAP provisions (Art 57 EECC) and provisions on co-location and sharing of network elements (Art 44 EECC) are relevant. Whether towercos consider they fall under the rules of the BCRD and/or EECC provisions on RoW typically depends on whether they provide active services, or dark fibre in cases where this implies authorisation as an ECN operator.



## 5.2 Supporting infrastructure and service competition

As noted in chapter 4, competition concerns may arise in relation to infrastructure companies if they control access to sites or assets that are difficult to replicate and there are limited alternative infrastructures available. This can happen in urban areas, in particular where there are a scarcity of sites and low EMF limits, and also potentially in rural areas in cases where infrastructure is too costly to replicate (in particular fibre, but may also apply to towers in remote locations).

Competition law provides a key mechanism to address competition problems caused by concentrations or agreements involving infrastructure companies. Ex ante regulation can also be used in some circumstances to address concerns relating to terms and conditions for access to infrastructure (and the impact on competition downstream) or the potential for foreclosure.

These mechanisms and their application are further described below.

### 5.2.1 Overview of competition cases

In recent years, as incumbent fixed operators and mobile operators have created netcos and towercos, in particular where these have involved joint ventures, competition authorities have increasingly been called upon to review the underlying agreements and/or mergers to assess whether these would reduce network competition, for example by facilitating collusive behavior or foreclosing (potential) competition.

#### **Competition law procedures**

Depending on the legal and economic framing of the joint company exploiting the towerco or the netco concerned, they are considered, under competition law, as agreements or as ‘mergers’ and therefore subject to different rules and procedures. The main criterion to qualify joint companies either as mergers or agreements is whether the companies have the characteristics of ‘full function’ joint ventures. Full-function means that the netco operates sufficiently independently from its parent companies in the market (as opposed to providing mainly services to its parent companies). If this is the case, the agreement setting up the netco or the towerco (and its subsequent acquisition by third parties) will have to be notified to the EU Commission<sup>172</sup> or the national competition authority, depending on the value of the transaction. The competition authority will look at the expected competitive harm as compared with the situation likely to arise without the merger (known as the counterfactual). The competition authority will review both unilateral and potential coordinated effects (on the parties) of the transaction. If the competition authority finds, when assessing a horizontal merger, i.e. a netco set up by

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<sup>172</sup> Council Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings, available at: <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:32004R0139> (last accessed 15.09.2023).



actual or potential competitors on the same relevant market, evidence of pre-transaction coordination between these competitors, the competition authority will examine whether the transaction is likely to make coordination more stable or effective. If the competition authority finds no evidence of pre-transaction coordination, the competition authority will examine whether the transaction makes it more likely that firms in the market will start to coordinate.<sup>173</sup>

If the joint venture is not ‘full function’, the agreement must comply with article 101 TFEU complaint in case of alleged breach. The competition assessment will in particular consider the type of sharing, the geographic overlap and the safeguards on the exchange of sensitive commercial information. In this regard, the Commission’s revised Horizontal Guidelines<sup>174175176</sup> say that such joint venture is not *prima facie* likely to have an anticompetitive effect under Article 101(1) TFEU when at least the following conditions, listed in its point 265, are fulfilled:

Participating operators control and operate their own core networks and there are no technical, contractual, financial or other disincentives preventing the operators from implementing unilaterally any infrastructure deployments and upgrades.

- a. Participating operators maintain independent retail and wholesale operations, which implies technical and commercial decision-making independence, including the freedom to set prices for their services, determine the product/bundle parameters and differentiate their services based on quality and other parameters.
- b. Operators maintain the ability to follow independent spectrum strategies, including as regards the future acquisitions of spectrum; independent decisions on how to use such spectrum and which spectrum bands, and whether or not to share the spectrum once acquired.
- c. Operators do not exchange commercially sensitive information other than that which is strictly necessary for the implementation of the sharing agreement and, where necessary, they put in place necessary barriers to information exchange.

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**173** See point 22 of the Guidelines on the assessment of horizontal mergers under the Council Regulation on the control of concentrations between undertakings, OJ C 31, 5.2.2004, p. 5

**174** network sharing agreements fall under the category of production agreements (section 3.6).

**175** Communication from the Commission – Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, points 258-266, OJ C 259, available at: [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.C\\_.2023.259.01.0001.01.ENG&toc=OJ%3AC%3A2023%3A259%3ATOC](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.C_.2023.259.01.0001.01.ENG&toc=OJ%3AC%3A2023%3A259%3ATOC) (last accessed on 23.11.2023).

**176** Article 101(1) TFEU prohibits all agreements between undertakings that “have as their object or effect the prevention, restriction or distortion of competition”. Even if an agreement is caught by article 101(1) TFEU, it can still be permissible if it meets the cumulative conditions for an exemption under article 101(3) TFEU. In this regard, the horizontal guidelines say that network sharing agreements, including spectrum sharing, “*would in principle not be restrictive of competition by object within the meaning of article 101(1), unless they serve as a tool to engage in a cartel*”.

## **Netco cases**

In practice, Merger Decisions relating to Netco's involving JVs (including acquisition of fibre network subsidiaries of operators) which do not involve horizontal overlaps or vertical links between the activities of the companies have not been found to be problematic. Examples of JVs of this type include the JVs Macquarie/Aberdeen/Pentacom and MásMóvil Assets in Spain, Iliad/InfraVia in France, and Liberty Global/InfraVia/Liberty Networks, Telekom Deutschland/IFM investors JV, Vodafone/Altice FTTH JV in Germany.

However, the netco JV ('Glasfaser Nordwest') established by the vertically integrated German incumbent Telekom Deutschland with the electricity distribution utility EWE (for which the subsidiary EWE TEL is a competitor on the retail broadband market) gave rise to commitment decisions, because of possible reduced wholesale and downstream competition. The commitments sought by the German NCA provide an indication of the safeguards that competition authorities might propose in cases of horizontal overlap to avoid a reduction of downstream competition. In addition, in order to avoid reduced investments from the JV compared with a situation of network competition, the NCA sought a commitment on coverage target achievements by the JV and a commitment to refrain from targeting urbanized areas at the expense of rural areas. The Decision was annulled on appeal *inter alia* because of concerns that the coverage commitments could have an anti-competitive effect by reducing infrastructure competition. Furthermore, the commitments were limited in time, while the competition concerns could persist beyond the 6 years the commitment would remain in force. However, the annulment case was challenged and the outcome is still pending.

Similarly, in Italy, both the investigations of the 80/20 Telecom Italia and Fastweb Flash Fiber JV and the Fibercop (JV involving Telecom Italia and Fastweb) agreements were only closed after detailed commitments by the parties.

The Flash Fiber JV gave rise to competition concerns because the agreement involved significant coordination between Fastweb and Telecom Italia in strategic choices regarding fibre deployment. The NCA feared in particular that the reduced competition between both operators would, on the one hand, delay fibre deployment in the absence of competitive constraints and, on the other, reduce downstream competition. In order to address both, the NCA sought commitments regarding fibre deployment targets from the JV and regarding access to a guaranteed number of fibres for each optical distributor to competing retail operators. The JV was requested to design its network in a manner which would provide sufficient capacity to Telecom Italia and Fastweb to independently offer VULA and NGA bitstream access to third parties. Moreover, the duration of the JV agreement was limited to 2035, when the business plan estimates that the investments will be recovered and the obligation for the parties to use network infrastructures realized in common was limited to the minimum targets provided by the business plan (25-45% of

households in the JV's coverage area). Beyond this coverage, Fastweb would have the possibility to use the network of the competing infrastructure provider Open Fiber.

The competition concerns raised by the FiberCop agreements also concerned both a possible reduction in wholesale competition and of downstream competition. As regards wholesale competition, the agreements could reduce the contestability of demand for wholesale access services because the agreements included minimum commitments by Fastweb and Tiscali in terms of lines that they had to procure from TIM-FiberCop that appeared to cover most, if not all, of their potential future needs. Moreover, the contracts had a long duration and were capable of blocking a significant part of the demand for wholesale access services. In order to avoid further 'gaming' to dissuade parallel investments by Open Fiber, the NCA sought a binding timetable for deployment and the payment of compensation in case of delay. For the same reason, the advantages of early co-investors in comparison to later access seekers were reduced, to reduce the incentives for the downstream operators to commit all their future capacity needs to FiberCop, thereby limiting the subscribers that were potentially available to (and thus the market share of) the infrastructure competitor Open Fiber. In addition, there were concerns that the structural link between TIM and Fastweb (via FiberCop) could generate an exchange of information and coordination between the two companies in the retail and wholesale markets. The parties committed to set up a technical committee to allow the downstream competitors co-investing in the project to follow, and to some extent influence, the progress of FiberCop's network rollout.

### **Towerco cases**

In the case of towercos, the assessment of the competition authorities concerned focused, in each individual case, on elements such as market structure, relative market shares and other specific conditions of the national markets concerned, such as spectrum rights and impact of emission norms and building permit procedures. It is nonetheless possible to divide the competition law decisions into two clusters based on the existence or not of overlaps, in similar vein to the netco cases.

In cases where there were no overlaps, even when the acquisition led to a Towerco owning more than 50% of the masts (Cellnex/Polkomtel Infrastruktura), transactions were cleared unconditionally. Other examples include the American Tower/Telxius Towers merger (ES), Cellnex/Arqiva (UK), KKR/Altice-SFR tower business, Cellnex/Iliad 7, Bouygues Telecom/Phoenix Tower International, CDPQ/American Tower/ATC Europe (FR), GIP/KKR/Vodafone/Vantage Towers (DE).

However, in the cases encompassing pre-existing overlaps, the NCAs concerned were of the opinion that the acquisitions would raise significant competition concerns and cleared the transactions only following the submission of commitments by the parties. Conditions were imposed to either divest overlapping infrastructure (in the case of the

UK) or ensure the continued provision of access to third parties on fair and reasonable terms (in the case of Italy). More specifically:

- In the UK, the CMA found that the acquisition by Cellnex of the CK Hutchison UK towers would prevent the emergence of an important alternative competitor in the supply of passive infrastructure (i.e. market entry), leaving mobile networks facing higher prices and more onerous contracts in future contract negotiations. In order to address the possible reduction of wholesale competition, the parties had to commit to sale of over 1,000 passive infrastructure sites to a purchaser approved by the NCA and to allow the emergence of an alternative competitor in the supply of passive infrastructure.
- In France, the AdC considered that the acquisition of Hivory (the Towerco from SFR/Altice) by Cellnex would give Cellnex the control of more than 80% of the available high locations and more than 50% of available masts. The AdC noted that this share would likely decrease in the future with the establishment of Totem, the TowerCo of Orange, but could not consider the future TowerCo in its assessment, because it was not yet on the market. The AdC's assessment revealed different impact depending on the infrastructures concerned and the urban density. The AdC found that barriers to entry were not as such as to justify competition concerns outside dense urban areas, neither as regards masts (where collocation is generally possible). To respond to the competition concerns relating to the high share of high sites that would result from the acquisition in dense urban areas the Cellnex Group committed to divest more than 2,900 active "rooftop" sites and more than 300 active "other" sites in such areas to one or more operators approved by the AdC, so as to eliminate the addition of market shares in dense urban areas resulting from the transaction.<sup>177</sup>
- In Italy:
  - The Vodafone Italia/TIM/INWIT JV raised both wholesale and retail competition concerns: the merger would reduce wholesale competition in the Italian municipalities with more than 35,000 inhabitants, where the companies involved together controlled a majority of sites. This would impact retail competition by making the deployment of the networks of downstream market competitors more difficult. These concerns were addressed by the commitment of the parties to make space available on 4,000 towers in municipalities of more than 35,000 inhabitants and by the commitment to not exercise any early termination right as regards all existing hosting contracts and framework agreements in place, and will offer the opportunity to extend those contracts and agreements.

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<sup>177</sup> Decision 21-DCC-197 of 25 October 2021, available at: [https://www.autoritedelaconurrence.fr/sites/default/files/integral\\_texts/2021-11/21-028\\_publique\\_decision\\_21dcc197.pdf](https://www.autoritedelaconurrence.fr/sites/default/files/integral_texts/2021-11/21-028_publique_decision_21dcc197.pdf) (last accessed on 23.11.2023).

- The acquisition by Cellnex of towers from CK Hutchison Networks Italia raised the wholesale competition concern that Cellnex would face less competitive constraints, especially in the municipalities with less than 35,000 inhabitants, and that its increased market power would allow it to increase prices or reduce capacity, which would be a barrier to the development of downstream markets. This concern was addressed by the commitment to make space available on macro and microsites in the above-mentioned municipalities with less than 35,000 inhabitants and the appointment of a monitoring trustee to oversee the implementation of the commitments; arbitrate in access disputes between Cellnex and third parties; and submit biannual reports to the NCA.

In this context, it is important to note that whereas the UK and French NCAs' approach was to require a structural remedy to the identified problem, i.e. to divest infrastructure, the EU Commission, the German and the Italian NCAs all accepted behavioral remedies to the identified concerns, i.e. to offer access on specific terms and conditions and the appointment of a monitoring trustee for a limited time period, e.g. 6 years in the case of the commitments by the German 'Glasfaser NordWest' JV, 8 years in the case of Vodafone Italia/TIM/INWIT JV and 7 years in the case of the Cellnex/CK Hutchison Networks merger in Italy.

The recent TowerCast judgment – even if it concerns mainly DTT broadcasting infrastructure in France – sets moreover a precedent, allowing NCAs to prevent a dominant towerco to acquire even very small towercos, in transactions below both the EU and national merger notification thresholds when the so-called 'Continental Can' conditions are fulfilled, i.e. when it can be established that the degree of dominance thus reached would substantially impede competition, that is to say, that only undertakings whose behaviour depends on the dominant undertaking would remain in the market.<sup>178</sup>

### 5.2.2 Overview of approaches taken through ex ante regulation

Ex ante regulation provides another – forward-looking - mechanism under which NRAs can establish conditions or accept commitments regarding the terms under which access to essential assets owned by infrastructure companies must be provided to third parties.

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<sup>178</sup> Towercast, C--449/21, EU:C:2023:207, paragraph 52  
<https://curia.europa.eu/juris/document/document.jsf?jsessionid=7131AFE694C0AF766A4BA8BE20AA227B?text=&docid=271327&pageIndex=0&doclang=EN&mode=lst&dir=&occ=first&part=1&cid=3584713>

### **Available tools for the application of ex ante regulation to support competition**

Tools that could be used to apply pro-competitive ex ante access regulation (or other conditions linked to access) on infrastructure companies include:

- Market analysis and the application of ex ante access obligations to undertakings designated with SMP under Articles 63-67 of the EU Electronic Communications Code
- The application of symmetric regulation under Article 61(3) EEC to wiring and cables potentially up to the first concentration or distribution point as determined by the NRA
- The intervention of the regulatory authority to resolve disputes regarding access to assets of infrastructure companies that fall within the scope of the BCRD (Article 3) as transposed by the Member State concerned
- Conditions applied to the award of State Aid to infrastructure companies

The following table provides an overview of the conditions attached to different regulatory instruments and their relevance to towercos and fibre netcos. More detail is provided below.

Table 5-1: Overview of conditions attached to regulatory instruments

Provision	Applicable to:	Relevant to towercos	Relevant to fibre netcos
SMP regulation (regulates wholesale access conditions)	Undertakings found to have SMP in a relevant market that meets the 3 criteria test	Potentially, but only if 3 criteria test can be met for tower infrastructure (likely possible only in discrete geographic areas)	Yes – would in most cases require geographically segmented market definition
Symmetric regulation of wiring and cables – terminating segment (Art 61(3) EECC)	ECN providers or owners of wiring, cables and associated facilities	No (except insofar as towercos own cabling)	Yes, but obligations apply generally to passive access at first distribution or concentration point (where replicable economically inefficient or physically impractical). Extension beyond this point and to active access only if SMP regulation and access at first distribution point insufficient to address barriers to replication and limit competitive outcomes for end-users
Sharing of passive infrastructure incl towers and roaming (Art 61(4) EECC)	ECN providers via spectrum licences	No (as towercos do not own spectrum)	Not relevant
State Aid conditions	Recipients of State Aid	Yes	Yes
Access to physical infrastructure under Art 3 BCRD	Network operators (undertaking providing or authorised to provide public communications networks)	No (unless they are a “network operator”)	Normally yes but access obligations relate only to physical infrastructure (ducts and poles) and not dark fibre

Source: BCRD, EECC and Guidelines on State Aid for broadband networks.

**SMP regulation** is subject to specific limitations, and can be applied only to relevant markets which have been found susceptible to ex ante regulation following the three criteria test (which is presumed met in the case of markets listed in the EC 2020 Recommendation on Relevant Markets). In this context, it should be noted that the local access assets of fibre netcos are likely to be captured within the scope of Market 1 (wholesale local access at a fixed location), and (depending on their capability to offer dedicated access) potentially also Market 2 of the EC Relevant Market Recommendation.



Thus, the process for applying ex ante regulation to fibre netcos which are in a position of market power is well-defined.<sup>179</sup>

Turning to towercos, access to ducts or poles owned by infrastructure companies with market power might be captured via SMP regulation in the event that the NRA identifies a separate relevant market for physical infrastructure, or mandates access to physical infrastructure in the scope of a wider market (such as WLA). However, the mobile-specific assets of towercos are not included in the scope of the relevant markets listed in the EC Recommendation, and mobile markets in general are considered to be competitively served at both the retail and wholesale level. Thus, any intervention to mandate access to towers (of a towerco or MNO) through SMP regulation would require a finding by the NRA concerned that there is a competitive problem at retail level (presumably in retail mobile markets) and that the three criteria test (high and non-transitory structural legal or regulatory barriers, market structure does not tend towards effective competition and competition law alone is insufficient to adequately address the identified market failure) is met for a wholesale market which encompasses the underlying physical infrastructure such as towers. It seems on a first view unlikely that such a test would be passed, noting that competition law has in practice been used (and could be expected to be used) to address concentration in tower markets resulting from mergers or JVs, and given that barriers to entry which relate to difficult planning conditions or unduly restrictive conditions relating to EMF would be better addressed through other means (albeit not through mechanisms which are under NRAs' control). However, it is still possible that bottlenecks could arise in tower or small cell infrastructure that cannot be addressed through competition remedies linked to concentrations or by improvements to deployment conditions or EMF restrictions. Specifically, this could occur in cases (likely more rural areas) where tower infrastructure has already been built, it is not economically viable to duplicate that infrastructure, and the towers in question have not been subject to indefinite remedies under competition law or State Aid. In this case, there may be a risk of excessive pricing, in particular following the expiry of any existing access arrangements and/or refusal to supply or discrimination in the terms of supply in cases where the owner or owners of the tower is vertically integrated. Anti-trust proceedings could be brought in this case, but would likely (as is the case for fixed infrastructure) be lengthy and not well suited to addressing detailed access conditions. It cannot be excluded in such cases that a wholesale market for mobile physical infrastructure (likely in specific geographic areas) could be identified in which a single undertaking or JV may have SMP.

In conclusion, SMP regulation could be used to address concerns around downstream competition in cases where fibre netcos and (possibly, under very specific conditions), towercos meet the criteria for SMP. In these cases, obligations such as access, non-discrimination, price control where relevant etc could be imposed to address bottlenecks to competition downstream of the regulated asset(s) to support service competition. It would likely be necessary to consider whether the netco or (if relevant) towerco meets

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<sup>179</sup> Challenges persist with the application of the concept of joint SMP, but this is not specific to whether infrastructure companies are present on the market



the conditions necessary to be considered as “wholesale only” within the context of Article 80 EEC. This would likely only be applicable for fully independent infrastructure companies which do not have unduly preferential agreements with a specific party or parties (such as may arise for example in the context of a divestment agreement). This is because, in order to benefit from potential regulatory relaxations, Article 80 calls for NRAs to assess whether the company has shareholders capable of exercising control over the undertaking, and whether it is bound to deal with a single and separate undertaking operating downstream because of an exclusive agreement or agreement which *de facto* amounts to such. Wholesale only companies within the meaning of Article 80 EEC may only be subject to obligations regarding “fair and reasonable” pricing if justified on the basis of a market analysis and the national conditions, which includes a prospective assessment of the likely behaviour of the undertaking which may be designated with SMP.

In addition, it is important to note that SMP obligations can also be used to avoid foreclosure by an SMP operator (whether operating via an infrastructure company or otherwise) with respect to a potential infrastructure-based competitor. Indeed, despite support for the principle of infrastructure competition, certain provisions in the EEC such as those incentivising co-investment (Article 76), as well as provisions in the draft Gigabit Recommendation regarding relaxation of the price control obligation and/or volume and term discounts could in certain situations run counter to the interests of promoting infrastructure competition.<sup>180</sup> Such tensions are unlikely to arise in geographic markets where alternative operators to the incumbent are unlikely to deploy fibre infrastructure or those which are effectively competitive (and therefore SMP regulation does not apply), but may apply in cases where alternative infrastructure providers have the potential to deploy, or in areas where infrastructure competition exists, but not to a sufficient degree that the market can be found to be effectively competitive.

**Symmetric regulation under Article 61(3) of the EEC** may be a relevant measure under which access obligations could be introduced for fibre netcos where needed, including those offering passive only services. However, in practice the provisions would need to be applied prior to the deployment of fibre in order for the NRA to determine the location of the first concentration or distribution point for passive access. This is not a solution that can readily be retrofitted to the (often PON) architecture deployed. Moreover, access can only be mandated beyond the location of the first concentration point under symmetric regulation only if access at the first concentration point “*does not sufficiently*

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<sup>180</sup> BEREC (2023): BEREC Opinion on the Draft Gigabit Connectivity Recommendation, available at <https://www.berec.europa.eu/system/files/2023-05/BoR%20%2823%29%2083%20Draft%20BEREC%20Opinion%20on%20the%20draft%20Gigabit%20Recommendation%20final%20post%20BoR%20comments%20clean%200.pdf> (last accessed on 08.09.2023) and Godlovitch, I.; Hoceped, C.; Lemstra, W.; Plückebaum, T.; Strube Martins, S.; Kroon, P.; Lucidi, S.; Alexiadis, P. and Char, S. (2020): Future electronic communications product and service markets subject to ex-ante regulation, Recommendation on relevant markets, Final Report and annex with case studies on geographic analyses, available at <https://digital-strategy.ec.europa.eu/en/library/study-future-electronic-communications-product-and-service-markets-subject-ex-ante-regulation> (last access on 08.09.2023).

*address high and non-transitory economic or physical barriers to replication which underlie an existing or emerging market situation significantly limiting competitive outcomes for end-users*". Moreover, symmetric access obligations may not be imposed where NRAs determine that obligations would compromise the economic or financial viability of a new network deployment, in particular by small local projects or where providers are wholesale only and make available wholesale access offers on fair, non-discriminatory and reasonable terms and conditions. Both of these exemptions are relevant to many fibre netcos, and are likely to limit the applicability of this provision although they may provide incentives for fibre netcos to voluntarily provide wholesale access on FRAND terms.

Access to towers is covered by the provisions of Article 61(4) EEC. However, the provisions are applicable to ECN operators in the context of granting rights of use for radio spectrum. They would thus not apply to towercos which (in the vast majority of cases) do not control spectrum or operate ECNs.

Access obligations could in principle be applied in the context of **State Aid**, to any type of infrastructure company. In the most recent version of the EC State Aid Guidelines, it is recommended that access obligations to VULA and infrastructure such as ducts, poles and dark fibre be granted for the lifespan of the infrastructure concerned.<sup>181</sup> However, access obligations that were applied prior to the most recent update to the State Aid Guidelines were often limited in time.

**Intervention under Article 3 of the BCRD** can be used to set terms for access to towers and poles used for the deployment of mobile infrastructure (in addition to ducts and other associated facilities), following a dispute. However, if transposed in a literal manner, it cannot be applied to set terms for access to towers controlled by towercos in cases where they do not act as network operators (the majority of cases). Article 3 BCRD cannot be used to establish terms for access to the fibre access infrastructure of netcos, as dark (or lit) fibre is excluded from the scope of the access obligations under the Directive. However, the potential for a fibre netco to refuse provision of duct access on the basis that it is providing a "viable alternative means of wholesale physical network infrastructure access" on fair and reasonable terms and conditions,<sup>182</sup> could provide an incentive for fibre netcos to improve the term of access to fibre access networks, as a means of avoiding the potential infrastructure competition that may result from offering access to its ducts. There may be scope in this context for NRAs to clarify what type of alternative physical network infrastructure access and what terms may be needed to justify a refusal to provide access to physical infrastructure (ducts and poles) within the context of Article 3 BCRD.

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<sup>181</sup> Paragraphs 133-135 Communication From The Commission Guidelines on State aid for broadband networks 2023/C 36/01 [https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52023XC0131\(01\)](https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52023XC0131(01)) (last accessed 15.09.2023).

<sup>182</sup> Article 3(3)f BCRD

### **Application by NRAs of ex ante regulation to infrastructure companies**

As regards **SMP regulation**, the regulatory approach taken by regulators depends on whether the infrastructure companies are owned by an SMP regulated network operator or whether an SMP regulated company holds a significant share in the infrastructure company.

Netcos with significant participation from an SMP regulated telco are typically SMP regulated. In Italy, the FiberCop TIM majority owned JV is SMP regulated. TIM / FiberCop has applied for regulatory relief for its VHCN deployment under Art 76 (co-investment). The decision is still pending.

In Germany the incumbent/regional operator JV Glasfaser Nordwest has been designated with SMP as subsidiary of the incumbent Deutsche Telekom. The decision of BNetzA on the remedies is awaited in 2023.

The JV of Proximus, Fiberklaar and Unifiber, have inherited the regulatory SMP obligations (access, non-discrimination, transparency, price control) imposed by BIPT on Proximus as a result of the joint control exerted by Proximus. Also, recently a joint-venture ("Wyre") between Telenet and Fluvius has been set up, which will inherit the regulatory SMP obligation imposed by BIPT on Telenet as a result of the joint control exerted by Telenet (however, Telenet holds SMP only in the market for central access to wholesale cable networks (and broadcasting), not on the market for local/central access to FTTH).

In Portugal, in ANACOM's draft decision concerning the M1/2020 market analysis notified to the EC in November 2023, infrastructure companies with direct links with the incumbent (i.e. fibre operator) were identified as having SMP (e.g. Fastfiber in M1/2020).

The incumbent (wholly or partially owned) spin-offs Openreach in the UK and CETIN in the Czech Republic are SMP regulated and considered not to meet the Article 80 criteria as a wholesale-only network operator.

In Spain, on 8 August 2021, Telefónica notified CNMC of its intention to negotiate and conclude an agreement for the transfer of part of its copper network, under the terms of a sale and lease-back (together the Transaction) agreement with a third-party. The regulator CNMC decided to maintain the regulatory obligations applied to Telefónica in the markets 1/2020 and 3b/2014 and market 2/2020 as it concluded that the voluntary transfer of Telefónica's copper assets did not have an impact on the last review of the relevant markets.<sup>183</sup>

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<sup>183</sup> European Commission (2022): Case ES/2022/2396: Voluntary separation of Telefonica's copper network in Spain – Remedies in markets 1/2020, 2/2020 and 3b/2014 Commission Comments pursuant to Article 32(3) of Directive (EU) 2018/1972, available at <https://circabc.europa.eu/ui/group/2328c58f-1fed-4402-a6cc-0f0237699dc3/library/1a4d0766-e338-4b3a-841c-d014eab3f17e/details> (last accessed on 25.10.2023).

Most SMP obligations applied on incumbent operators have focused on ensuring non-discrimination and preserving the potential for downstream competition. However, there also have been efforts in the UK to set SMP rules so as to limit concerns regarding impact on infrastructure competition of the Equinox offers based on volume commitments. Openreach is required to provide 90 days' notification of commercial terms where the price or other contractual conditions are conditional on the volume and/or range of services purchased, and Ofcom has engaged in analysis and in a recent case issued a consultation regarding the competitive effects of the offers. Specifically, on 1 July 2021, Openreach notified new pricing arrangements for its Fibre to the Premise ('FTTP') services that applied from 1 October 2021 (the 'Equinox 1 Offer'). On 30 September 2021 Ofcom published a Statement with the view that the Equinox 1 Offer did not raise competition concerns requiring ex-ante intervention.<sup>184</sup> In December 2022 Openreach notified new pricing arrangements for FTTP services (the Equinox 2 offer) which was followed by a consultation published by Ofcom in February 2023. Eventually, Ofcom concluded that the Equinox 2 offer did not raise competition concerns.

The Equinox 1 Offer gives ISPs cheaper prices for Openreach FTTP products, as long as they largely stop making new sales of legacy broadband products where Openreach FTTP is available and switch to selling mainly FTTP products instead. In particular, ISPs pay discounted prices for Openreach's FTTP rental and connection services if they meet certain targets for the percentage of new orders they place which are FTTP (referred to as 'Order Mix Targets' or 'OMTs'). To qualify for the full rental discounts ISPs must achieve an Openreach Order Mix of at least 80% in each calendar quarter. The discounted rental prices apply to all the FTTP lines that the ISP purchases from Openreach (not just the orders placed in that quarter). The level of the discount varies by product bandwidth although there is no discount on Openreach's FTTP 40/10 product. To qualify for the full connection discounts ISPs must achieve an Openreach Order Mix of at least 90% in each calendar quarter. Between 90% and 80%, the level of the connection discount reduces at a constant rate from maximum discount to zero discount. The discounted connection prices apply to the orders placed in that quarter. The Equinox 1 Offer includes an average revenue per user ('ARPU') share mechanism if an ISP's average FTTP rental amount exceeds the specified threshold.<sup>185</sup>

Compared to the Equinox 1 Offer, the main amendments made by the Equinox 2 Offer are:

- Lower rental charges for all FTTP products except 40/10.
- Lower connection charges for migrating existing customers from legacy to FTTP 80/20 and above.

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<sup>184</sup> The Ofcom decision was appealed to the Competition Appeal Tribunal. In July 2022 the Tribunal dismissed the appeal.

<sup>185</sup> For more details on the equinox offer see Ofcom (2023): Openreach proposed FTTP offer starting 1 April 2023 (Equinox 2), Statement, 24 May 2023, available at [https://www.ofcom.org.uk/data/assets/pdf\\_file/0023/261932/statement-equinox-2-offer.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0023/261932/statement-equinox-2-offer.pdf) (last accessed on 11.09.2023).

- The introduction of a mechanism (the 'Failsafe Mechanism'), intended to address any risk of ISPs being disincentivised from placing orders with altnets.

The Failsafe Mechanism allows ISPs who are also purchasing services from altnets to have their performance against the OMTs assessed outside of any overlapping areas. A third party (the 'Independent Verifier') is responsible for the detailed application of the Failsafe Mechanism. If an ISP's number of orders per premise for legacy services is more than 50% greater in the overlap area than in the rest of the Openreach FTTP footprint, then this may trigger a review and amendment of the Failsafe Mechanism by Openreach (the 'Legacy Cross-Check').<sup>186</sup>

SMP obligations on alternative operators acting as netcos are more rare, but have started to come under consideration in countries where such operators (often multiple local providers) have taken the lead in deploying fibre networks.

For example, in Denmark the NRA in its original 2021/2022 market analysis notification to the European Commission identified 14 SMP operators in 17 geographic markets, including 7 wholesale-only and 7 vertically integrated operators. In this notification, the NRA proposed to make the self-commitments of 4 operators (EWII, Fibia, Norlys and TDC) binding for a period of 5 years (EWII three years). The remaining 10 operators included 7 wholesale-only and 3 vertically integrated operators for which the DBA proposed to impose access, non-discrimination and fair and reasonable prices on the wholesale-only operators (Energi Ikast, Jysk Energi, MES Fibernet, Nord Energi, RAH Fiberbredband, SEF Fiber and Thy-Mors Energi) and access, price control, non-discrimination and transparency obligations on the vertically integrated operators (Aura, BornFiber and Nef Fiber).

However, in its decision the Commission expressed serious doubts concerning the SMP decision and the imposition of measures in 5 geographic markets: EWII, Aura, Energi Ikast, MES Fiber and Nord Energi. The Commission explained that the market shares should be interpreted in the light of the relevant market conditions, and in particular of the dynamics of the market and the extent to which products are differentiated. The Commission observed that in some markets the percentage of parallel coverage (by cable and fibre network) was already significant or very significant (above 40% in the 5 geographic markets concerned by the serious doubts) and therefore there was no or less need for regulation. The Commission also had different views on the assessment of the (voluntary) wholesale opening of networks. BEREC supported the DBA approach of finding SMP and regulation for vertically integrated Aura. As a result, the DBA withdrew the notified measures with regard to 4 of the 5 regional markets so that the in-depth investigation was limited to the analysis regarding the operator Aura. With respect to this operator the DBA argued that Aura should be SMP regulated because the operator has

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<sup>186</sup> For more details on the equinox offer see Ofcom (2023): Openreach proposed FTTP offer starting 1 April 2023 (Equinox 2), Statement, 24 May 2023, available at [https://www.ofcom.org.uk/data/assets/pdf\\_file/0023/261932/statement-equinox-2-offer.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0023/261932/statement-equinox-2-offer.pdf) (last accessed on 11.09.2023).

close to full coverage, fiber roll-out by alternative operators was not to be expected, Aura's market shares increased in the last years before the market analysis and Aura had so far not opened its fibre network at wholesale level, although it had taken steps in that direction, in particular by entering into an agreement with Fibia for the use of its wholesale platform.<sup>187</sup> The DBA agreed to possibly revise the remedies decision in case Aura submitted a self-commitment. Aura submitted its self-commitment in September 2022 and the DBA made the self-commitment binding in its decision of 15 December 2022. In the self-commitment Aura commits not to charge a monthly fee higher than the value of 202 DKK based on the LRAIC model developed by the DBA for Norlys and adapted to Aura.<sup>188</sup>

In Sweden, the NRA in its 2019 market analysis defined a separate market for fibre without designating regional network operators with SMP. The Commission, supported by BEREC, contested PTS' definition of a national market because of the lack of demand- and supply-side substitution of wholesale access between non-overlapping regional networks. The NRA PTS subsequently withdrew its notification of wholesale local access fibre and copper markets. Although there has not yet been a new notification of the market analysis, the declining relevance of copper as a constraining factor and the presence of fibre netcos with in some cases high regional market shares, raises questions about whether some netcos may be able to exert market power within their coverage area.

**Symmetric access obligations** under the EECC have only rarely been used to establish conditions for the provision of access by fibre netcos. The main example of its application is in France, where symmetric access regulation for passive access to the fibre terminating segment has been applied. This has the effect of providing the same access conditions across multiple vertically integrated players and netcos for fibre access, and aligns conditions between commercial and State Aid zones. However, these rules were established at a time when networks were in the process of being deployed, and the conditions are unlikely to be replicable in other jurisdictions.

Only a limited number of Member States have provided for the potential to apply **access obligations to the towers of infrastructure companies under national transposition of the BCRD**, or provisions which predated it.<sup>189</sup> As noted above in section 5.1, these include (i) Portugal where provisions dating from 2009 cover access to suitable infrastructure by entities that own or manage physical infrastructures, (ii) Italy, where access obligations under the BCRD apply also to "physical infrastructure managing bodies", (iii) Denmark, where the Mast Act requires owners of masts and certain tall

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<sup>187</sup> <https://digital-strategy.ec.europa.eu/en/news/end-depth-investigation-proposed-regulation-some-regional-fibre-networks-denmark> (last accessed on 23.11.2023).

<sup>188</sup> European Commission (2022): Case DK/2022/2411: market for fixed wholesale local and central access in Denmark (commitments). Commission Comments pursuant to Article 32(3) of Directive (EU), available at <https://circabc.europa.eu/ui/group/2328c58f-1fed-4402-a6cc-0f0237699dc3/library/e12662ae-ddb6-4b33-948a-a4960f69cba1> (last accessed on 11.09.2023).

<sup>189</sup> See also BoR (17) 245 <https://www.berec.europa.eu/en/document-categories/berec/reports/berec-report-on-the-implementation-of-the-broadband-cost-reduction-directive> (last accessed on 23.11.2023).



structures (rooftops, chimneys, facades etc.) to give others access to setting up antennae on their mast/structure, and where disputes can be settled by the DEA,<sup>190</sup> and (iv) Austria where Article 64 of the Telecommunications Act 2021 obliges site owners to grant mandatory access for providers of a public communications network, fire brigades, rescue services and security authorities, provided that this is economically reasonable and technically possible, in particular in terms of frequency.

Meanwhile in Italy, while towercos such as INWIT have themselves applied for dispute resolution to access physical infrastructure under Article 3 BCRD, they have not themselves been subject to dispute resolution under this provision. This could however result from the fact that access obligations were attached as a condition of the JV, and are being supervised by a monitoring trustee.

**State Aid specific access obligations** apply on fibre netcos *inter alia* in Italy, Poland and Portugal. In Portugal fibre networks in rural areas have been licensed to wholesale-only network operators. In Poland different price regulation applies to wholesale-only network operators in the context of state aid with margin squeeze tests being applied for vertically integrated operators, whereas wholesale-only operators are price regulated based on benchmarking rules.

State Aid specific access obligations apply on towercos in Italy, within the framework of “Piano Italia 5G,” which was granted to INWIT, TIM and Vodafone Italia under the EU recovery and resilience programme, in line with the Italian NRA (AGCOM) “Guidelines for wholesale access conditions to networks ultrabroadband networks that are recipients of public contribution - integration for 5G networks” (Annex A to Resolution No. 67/22/CONS).<sup>191</sup>

## 5.3 Possible options to address identified concerns

### 5.3.1 Implications for the BCRD / GIA

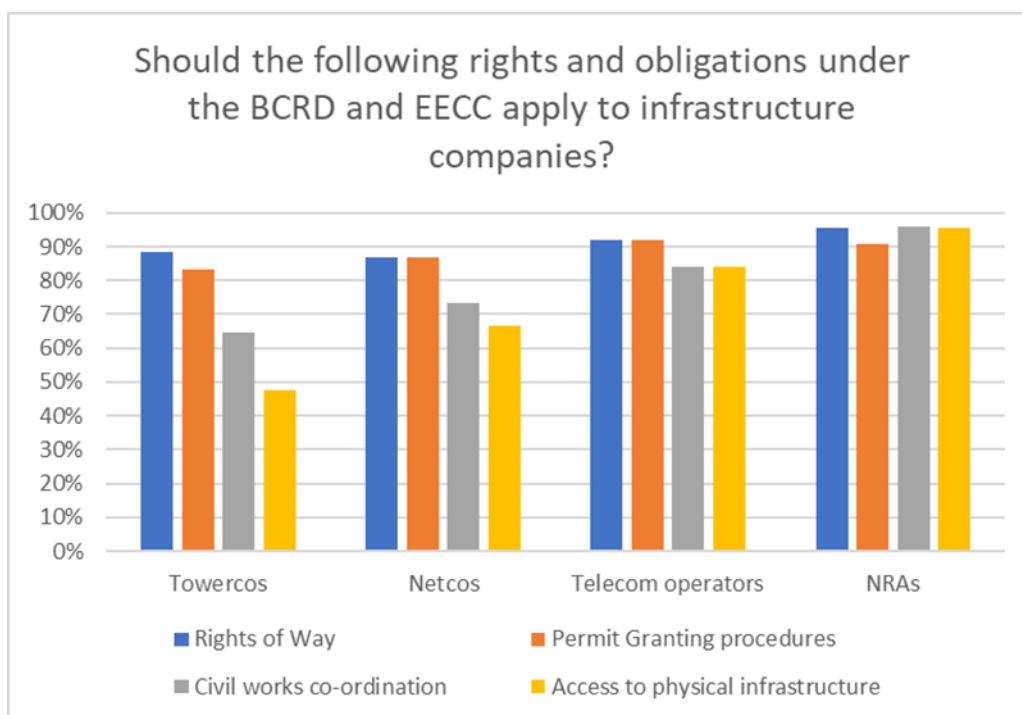
As noted in section 4.2, many infrastructure companies and in particular towercos are experiencing problems with accessing land and rooftops in certain situations and in obtaining permits in a reasonable period. These problems are similar to those which have been highlighted by MNOs when installing their own infrastructure both in the context of the survey conducted for this study and in the survey and consultation exercises conducted during the review of the BCRD. It seems reasonable to conclude that

<sup>190</sup> Bekendtgørelse af lov om etablering og fælles udnyttelse af master til radiokommunikationsformål m.v., LBK nr 1039 af 11/10/2019, <https://www.retsinformation.dk/eli/ta/2019/1039>. (last accessed on 23.11.2023).

<sup>191</sup> [https://www.agcom.it/documentazione/documento?p\\_p\\_auth=fLw7zRht&p\\_p\\_id=101\\_INSTANCE\\_FnOw5IVOIXoE&p\\_p\\_lifecycle=0&p\\_p\\_col\\_id=column-1&p\\_p\\_col\\_count=1&\\_101\\_INSTANCE\\_FnOw5IVOIXoE\\_struts\\_action=%2Fasset\\_publisher%2Fview\\_content%2F101\\_INSTANCE\\_FnOw5IVOIXoE\\_assetEntryId=26139674&\\_101\\_INSTANCE\\_FnOw5IVOIXoE\\_type=document](https://www.agcom.it/documentazione/documento?p_p_auth=fLw7zRht&p_p_id=101_INSTANCE_FnOw5IVOIXoE&p_p_lifecycle=0&p_p_col_id=column-1&p_p_col_count=1&_101_INSTANCE_FnOw5IVOIXoE_struts_action=%2Fasset_publisher%2Fview_content%2F101_INSTANCE_FnOw5IVOIXoE_assetEntryId=26139674&_101_INSTANCE_FnOw5IVOIXoE_type=document)

companies deploying passive infrastructure / associated facilities for the deployment of electronic communications networks should benefit from the same conditions regarding **Rights of Way** and conditions for **permit granting** regarding this infrastructure as apply to ECN operators. This could be done for example by relating RoW and permit granting rights to the deployment of infrastructure which could support the deployment of an ECN, or extending rights to providers of “associated facilities” to an ECN. As can be seen in Figure 5-3, the vast majority of respondents to the survey including telcos and infrastructure companies themselves agree with this approach, and it could also serve to limit the risk that infrastructure companies are unable to meet deployment targets to which their MNO clients have committed in the context of spectrum licences. However, the analysis of the rules currently applied in sections 5.1 and 5.2 suggests that this would require changes to legislation in a number of cases.

Figure 5-3: Stakeholder perspectives on potential applicability of BCRD and EECC provisions to passive infrastructure companies (% of survey respondents by type)



Source: survey responses

The perspectives of infrastructure companies (particularly although not only towercos) regarding rights and obligations for civil works co-ordination and access to physical infrastructure are more nuanced.

A particular concern regarding provisions on civil works co-ordination is that requirements such as those in the GIA to pre-notify works could lead to delays in construction, while the obligation to co-ordinate civil works, when done between different ECN infrastructure



providers, could undermine the business case for network deployment due to the risk of unviable overbuild. These concerns are not specific to infrastructure companies however, and were raised by many alternative network investors (including vertically integrated firms) in the context of the review of the BCRD.

It should be noted that in Article 5 of the draft GIA, obligations to co-ordinate (as opposed to a right to negotiate) apply only to network operators performing civil works which are fully or partially financed by public means. Thus commercial deployments by infrastructure companies including towercos would be exempt from obligations to co-ordinate. This should alleviate concerns regarding potential unviable overbuild. However, the Article 6 obligation to provide 3 months prenotification would still apply to purely commercial deployments, potentially giving rise to delay. As the practical use of **civil works co-ordination** is limited in some countries (and considered by undertakings deploying ECN infrastructure to be inferior to duct and pole access),<sup>192</sup> there may be a case to reconsider the length of the pre-notification period and/or the mandatory nature of this provision.

Meanwhile, for publicly financed civil works, there have been efforts to address concerns regarding the potential use of civil works co-ordination to engage in unviable overbuild, by providing that such an obligation could be deemed unreasonable in cases where the requesting operator did not declare its intention to build in the relevant area e.g. in the context of forecasts or State Aid proceedings. This offers some clarity and appears logical. However, even if the requesting operator did state its intention to deploy, co-ordination could still create viability challenges in cases where more than one operator declared its intention to deploy (in the absence of knowledge of other declarations), but where only one network is in practice viable or where the second network intends to target specific high value areas. Thus, another solution, analogous to that used in the context of the obligation to provide access to physical infrastructure such as ducts (Article 3 BCRD / draft GIA), could be to allow refusal of civil works co-ordination in circumstances where access to the deployed publicly financed (fibre or tower) infrastructure is provided on fair and reasonable terms and/or to reflect the impact on the business case of co-deployment in the cost sharing arrangement.

Regarding **access to physical infrastructure**, fibre netcos which rely on the BCRD to obtain access to ducts and poles (i.e. take advantage of the rights) support the idea that infrastructure companies should be covered by this provision. Their support may also be influenced by the knowledge that in practice, fibre netcos are mostly already addressed by the rights and obligations enshrined in the BCRD. On the other hand, towercos and passive only fibre netcos with their own ducts are more likely to object to the proposal (put forward in the draft GIA) that they, as providers of associated facilities, should be covered by the Article 3 Access to physical infrastructure as they are concerned that it

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<sup>192</sup> European Commission, Directorate-General for Communications Networks, Content and Technology, Godlovitch, I., Kroon, P., Strube Martins, S. et al. (2023) Support study associated with the review of the Broadband Cost Reduction Directive – Evaluation report, available at <https://data.europa.eu/doi/10.2759/560564> (last accessed on 08.09.2023)

could be used by clients to settle disputes around the access terms for core tower infrastructure or to access ducts and bypass their fibre infrastructure (in the case of netcos). Such companies argue that their business model already envisages and consists in the non-discriminatory provision of access to tower and (where relevant) fibre assets, and that the potential for price regulation of such assets could undermine certainty and chill investment. However, it is not clear why a tower or duct asset should be covered within the scope of the Article 3 provisions if provided by an MNO (entailing the same potential risks to certainty and the prospects for investment), but be excluded if divested to an infrastructure company. Moreover, provisions exist within Article 3 BCRD (and the proposed GIA) to ensure that any prices established via dispute resolution are fair and reasonable, provide a fair opportunity to recovery costs and reflect the impact on the access providers' business plan. While few complaints and nearly no disputes<sup>193</sup> regarding the access terms offered by towercos (at least in the focus countries covered in this report), it is possible that disputes might arise once time limited access obligations imposed under competition law or State Aid procedures expire. In addition, it is possible that disputes may arise in the shorter term as a result of efforts by towercos to increase wholesale rates to reflect inflation, or (in cases where there is telco ownership of towercos) stemming from concerns by MNOs about discrimination, where it has the effect of limiting their ability to achieve coverage targets compared with the owner of the facilities. As such disputes are likely to be better addressed through ex ante measures, there seems to be a compelling case for operators of associated facilities including towercos to be covered by the provisions of Article 3 BCRD, as proposed in the draft GIA and as mandated in practice in countries such as Italy and Portugal.<sup>194</sup>

Although there have been discussions about differentiating the scope of obligations depending on the ownership structure of towercos (and in particular whether they are independent or controlled by one or more telecom operators), it is not clear that making such a distinction in the context of national legislation or the GIA is necessary or appropriate. As even independent towercos may have incentives to set wholesale charges above the competitive level in situations where there are few options available and may be involved in disputes e.g. regarding price increases to reflect inflation, they should remain within the scope of the Regulation. The existing provisions which allow dispute resolution bodies to set wholesale charges which are "fair and reasonable", when coupled with appropriate guidance, should provide sufficient flexibility to address the different cases. It could however be clarified in a recital that "fair and reasonable" prices may also refer to prices which are non-discriminatory, in cases where the main concern is preferential treatment of a shareholder compared with third party access seekers.

In conclusion, **including associated facilities and thereby covering the assets of passive only towercos within the scope of Article 3 BCRD/GIA would address**

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<sup>193</sup> An exception is the case brought by 1&1 alleging anti-competitive practice by Vantage in Germany

<sup>194</sup> In Portugal the provisions of the BCRD transposed in the Decree-law 123/2009 apply to entities that own or manage physical infrastructure, this includes netcos and towercos. In Belgium the provisions of the BCRD do not apply to towercos but the Belgian law contains obligations related to sharing of mobile infrastructures, which apply also to towercos.

current anomalies where the ownership of an asset affects access conditions. It could also provide a safeguard to address potential disputes that may arise regarding access and pricing (including potentially justified price increases) in the short term and support continued access and competition in downstream mobile markets in the longer term, in situations where competition law or State Aid remedies expire but where the underlying concerns remain and cannot be addressed through other measures. It should not be necessary to distinguish the nature of obligations depending on different business and ownership models. However, it could be clarified in a recital that the concept of “fair and reasonable” prices could also refer to prices which are non-discriminatory, in situations where preferential treatment has been given without reasonable justification.

### 5.3.2 Fostering wholesale access to netcos

Certain telecom operators interviewed in the context of this study highlighted concerns around the perceived lack transparency and/or consistency in the rules applied to netcos in receipt of State Aid. This can occur in particular when the access rules are established in the context of different State Aid award procedures and are not monitored and updated on a regular basis. Best practice in this area tends to involve the **establishment of consistent rules for wholesale access across multiple wholesale access providers by the NRA, which are monitored and updated on a regular basis, with alignment, to the extent possible, between the wholesale access requirements imposed under different regulatory remits such as State Aid, SMP regulation and (where relevant) symmetric regulation under Article 61(3) EECC**. Standardisation of technical and commercial access conditions can in turn facilitate the emergence of intermediaries which facilitate access to multiple netcos and boost take-up on the network.<sup>195</sup>

The alignment of products and terms between State Aid recipients and regulation applied to commercial networks can also facilitate a transition from SA remedies towards other solutions. In this context, **when SA associated obligations expire, NRAs are likely in future (in particular when copper presents less of a constraint and/or has been decommissioned) to need to consider whether to designate as SMP in their geographic areas netcos in receipt of State Aid (or in areas where only one VHCN is viable but which do not require State Aid). They would also need to consider in this context whether netcos meet the criteria to be treated as wholesale only companies in the context of Article 80 EECC, and what would be the consequences for the type of regulation applied (including the applicability of price control), noting that especially in State Aid zones, netcos can be expected to have a**

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<sup>195</sup> See Godlovitch, I.; Strube Martins, S.; Wernick, C. (2019): Competition and investment in the Danish broadband market, available at [https://www.wik.org/fileadmin/files/migrated/news\\_files/Competition\\_and\\_investment\\_in\\_the\\_Danish\\_broadband\\_market.pdf](https://www.wik.org/fileadmin/files/migrated/news_files/Competition_and_investment_in_the_Danish_broadband_market.pdf) (last accessed on 08.09.2023).

### **monopoly on wholesale broadband access provision following the retirement of copper.**

Symmetric passive wholesale access on all operators deploying fibre (under national regulations consistent with Article 61(3) EECC) has been used as an alternative to this approach in countries such as France, but may be less easy to apply in the vast majority of jurisdictions where the architecture of fibre access networks was not determined by the NRA during the deployment phase. Obligations for symmetric active access under Article 61(3) could be considered, but require specific justification taking into account the competition dynamics that apply following a market analysis and associated SMP remedies. This limits the circumstances in which symmetric active access can be justified and may tend to favour the use of SMP obligations, in particular in areas where the network is likely to hold a monopoly.

#### 5.3.3 Addressing tensions between co-investment and infrastructure competition

As shown in the Italian FiberCop case, as well as other competition cases involving fibre netco JVs between the incumbent and other telecom operators, tensions can arise between the principle of encouraging co-investment in the context of EECC Article 76 and the aim of fostering infrastructure-based competition.

These tensions can best be addressed by encouraging co-investment (in particular that involving an SMP operator) only in circumstances where and to the extent that infrastructure-based competition (or deployment in an area supporting one infrastructure by an entity other than the incumbent) is not viable or likely. This issue has been addressed in France by the “ex ante” definition by the regulator of zones where access network duplication can or cannot be expected to develop. Elsewhere e.g. in Italy and the UK, it has required consideration by the NRA (and in some cases the competition authority) of how to limit the aggregation of market share on the SMP network in areas that could be served by an infrastructure-based competitor through SMP obligations or commitments which limit the scope of volume commitments or discounts or circumstances in which they can be applied. In this context, **it may be useful for competition authorities and NRAs to identify, in the context of a concentration or ex ante market analysis linked to symmetric or SMP remedies, geographic areas which may be contestable. This would allow authorities to differentiate their approach towards the approval (or otherwise) of a JV fibre netco involving an SMP operator and/or the scope of any volume commitments or incentives allowed.**

Although Article 76 EECC is not relevant in this case, similar considerations regarding the appropriateness of approving JVs and/or volume commitments or incentives apply in the case of concentrations or a possible ex ante market analysis of mobile physical infrastructure.

## 6 Conclusions

In recent years, there has been a trend in Europe towards the outsourcing of the construction and operation of core assets required for telecoms networks. This has however taken different paths in fixed and mobile.

### 6.1 Key findings regarding mobile infrastructure companies

In mobile, the largest operators have all divested existing tower infrastructure, either selling to independent towercos or into separate companies which can attract capital from investment funds. As a result, we estimate that the majority of towers in Europe may now be controlled by towercos. This has provided short term benefits for the telecom operators concerned (including increased valuations and release of capital), but will increase the operational expenditure of traditional telecom operators in the longer term and could create dependencies by telcos on infrastructure companies for key coverage and (to a lesser extent) quality requirements, as well as exposing them to the risk of higher access prices (resulting in higher Opex) once the current contracts with infrastructure companies expire. At the same time, while the core concept of towercos (the ability to save on cost and improve efficiencies by consolidating infrastructure) should in theory improve the economics of deployment (including 5G network densification), such infrastructure sharing could also limit the incentives for MNOs to compete on quality and coverage.

Maintaining adequate levels of competition at the level of essential mobile infrastructure (where this is economically feasible) will thus be important both in safeguarding the long-term interests of the mobile operators which depend on them and in sustaining incentives to compete on coverage and quality. In principle, when mergers or concentrations occur, competition issues should be handled through investigations by the competition authority and potential commitments made in this context. A review of cases in selected European markets shows that competition authorities have indeed sought to address competition problems linked to concentration in tower assets. This has primarily involved structural remedies whereby overlapping infrastructure is divested to maintain infrastructure competition. However, time-limited behavioural remedies have been introduced in a number of cases, and there may be other situations where disputes over access terms could arise. Specifically, disputes are most likely to occur in cases where economic or planning limitations restrict the degree to which mobile infrastructure can be replicated (and/or where switching costs are high), and where remedies under competition law or State Aid do not (or no longer) apply. In addition, in cases where there are limited alternative options and the available tower infrastructure is controlled by a towerco which is controlled by one or more telco shareholders, there is a risk that access may be provided on discriminatory terms and conditions, which impede effective coverage and competition amongst all mobile operators in the market.

As currently drafted, EU legislation provides limited tools to address in an ongoing manner potential competition issues that may arise outside of a concentration in mobile infrastructure. SMP obligations relating to access, non-discrimination and price control could potentially be applied, but would require an assessment that in the absence of such obligations, there would be competition problems in the retail mobile market. A wholesale market for mobile physical infrastructure would need to be defined and would need to pass the three criteria test. This would likely be relevant only for very specific geographic areas in which only a single mobile physical infrastructure is viable. Other measures that could be used to regulate access to towers under the EECC<sup>196</sup> and BCRD<sup>197</sup> apply only to infrastructure owned and controlled by mobile operators and not to infrastructure companies, under a literal transposition of the measures concerned. In view of recent trends towards infrastructure outsourcing, the discrepancy in regulation depending on ownership and the risk of disputes requiring swift intervention, there is a case for Member States to extend the transposition so that the relevant provisions of the BCRD can be applied more widely, as is already the case in certain countries, such as Italy and Portugal. This would be consistent with current proposals in the draft Gigabit Infrastructure Act to extend its application so that the rights and obligations (including access obligations to towers under Article 3) apply to owners of associated facilities as well as network operators. Existing provisions in the BCRD that require dispute resolution bodies to ensure that the access provider has a fair opportunity to recover its costs, taking into account investments made and the impact on the business plan, should mean that the extension of Article 3 obligations to cover towercos do not undermine their viability. The existing wording of Article 3 BCRD (if extended to apply to associated facilities) should be sufficiently flexible to address concerns over potential excessive pricing (which could occur in situations of market power regardless of the business or ownership model), as well as potential concerns regarding discrimination in cases where towercos are controlled by one or more telcos. However, it could be clarified in a recital to the GIA and in applicable guidelines that “fair and reasonable” prices could also take into account and address the potential for discrimination.

Concerns about the potential for towercos to limit competition downstream by engaging in active services seem less relevant, as towercos generally have a focus on passive assets and have limited interest in acquiring spectrum and deploying active equipment,<sup>198</sup> perceiving that these business areas carry a different risk and reward profile.

On the other hand, there may be a need for NRAs to be adequately informed regarding the ongoing financial and economic viability and resilience of passive infrastructure controlled by towercos, given the essential nature of this infrastructure in supporting the wider mobile ecosystem going forwards.

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<sup>196</sup> Article 61(4) EECC

<sup>197</sup> Article 3 BCRD

<sup>198</sup> Certain towercos have however deployed DAS for indoor coverage



## 6.2 Key findings regarding fibre netcos

Independent local fibre netcos have existed in some parts of Europe, such as Sweden, for more than two decades. In recent years however the business model has gained favour with larger fixed telecom operators including some incumbents that have used it to access capital from infrastructure funds or to partner with other strategic players e.g. in the energy field (such as SIRO) or form joint ventures amongst telcos (e.g. FiberCop). This business model has typically been used to support the deployment of fibre in specific commercially underserved zones, as well as in some cases (e.g. France, Portugal, Austria) rural areas in receipt of State Aid. Spain also features a wholesale only company (Onivia) that resulted from the purchase by infrastructure investors of fibre access lines divested by Masmovil. The incumbents in the UK (Openreach) and Czechia (CETIN) have also created separate legal entities for the management of infrastructure and wholesale access business, while in Spain Telefónica concluded an agreement for the transfer of part of its copper network, under the terms of a sale and lease-back agreement with a third-party.

In contrast with towercos which have focused on passive infrastructure, fibre netcos often operate as electronic communication providers and provide active services such as bitstream, and (if required by SMP regulation or State Aid rules) VULA.

Independent fibre netcos have played an important role in stimulating fibre deployment and infrastructure-based competition in Europe. However, competition concerns can arise when fibre netco vehicles are used to support joint ventures between broadband providers which could otherwise have deployed competing networks, or where the combined market shares in a joint venture threaten the business case for alternative fibre netcos. In areas where competition for or in the deployment of fibre access is viable, the involvement of the incumbent in a fibre netco JV or in offering volume discounts or requiring volume commitments can raise particular concerns due to the potential to lock in a high market share that is then not available for potential competitors. Although there are typically constraints on their conduct today e.g. from the incumbent copper network or from State Aid rules (where relevant), alternative fibre netcos may be able to exercise market power in future, in particular when the copper network is switched off, as they are likely to become (local) monopolies in areas which cannot support more than one infrastructure.

Because they are typically authorised as ECN operators, there are relatively clear mechanisms through which regulation can be applied to address competition concerns in cases involving fibre netcos. For example, fibre netcos controlled by an SMP operator are likely to be subject to the same designation and regulatory obligations. In cases where alternative fibre netcos gain market power e.g. following copper switch-off and / or the expiry of existing access obligations under State Aid, they could also be designated as SMP. This may require a more granular, geographic market analysis by the NRA. NRAs will also need to consider whether fibre netcos meet the criteria to qualify as “wholesale

only” operators within the meaning of Article 80 of the EECC. If so, the approach to price control will need to be carefully considered, noting that even independent fibre netcos may still have the ability and possibly (e.g. depending on their ownership / objectives) the incentive to raise wholesale prices above the competitive level in situations where they benefit from a monopoly position. In addition, fibre netcos may have an incentive to climb the value chain to offer active services, or to make active services relatively attractive compared with passive access. However, this could limit the potential for access seekers to innovate. Symmetric access obligations under Article 61(3) of the EECC could in theory provide another possible route to apply access regulation on fibre netcos, but strict conditions apply in mandating active access, which may make this solution less suitable in (the majority of) cases where active access (VULA) is prevalent and fibre access has already been deployed using architectures which make passive access economically challenging.

In addition to using SMP regulation where necessary on fibre netcos to support the development of downstream competition, NRAs may also need to consider using SMP regulation to prevent dominant operators from engaging in conduct (such as volume commitments or discounts) which serve to deter switching to an alternative fibre netco. Finally, consistency of approach should be ensured where possible in countries where there are multiple wholesalers which are subject to access regulation with different legal bases (e.g. SMP regulation and access rules based on State Aid).



## 7 Annex I – Summary of competition cases relevant to infrastructure companies

This annex does not seek to be exhaustive. The picture provided may not reflect the situation in jurisdictions which are not covered. Moreover, the cases examined date only back from the last 5 years.

In addition, the merger control procedure plays also a role. For example, while there were mergers in the USA, no competition decisions were adopted because none of the filings has led to court litigation between the government and the parties.

### 7.1 Spain

#### 7.1.1 CNMC Decision on the national roaming agreement between Telefonica and Yoigo

Even if this case does not concern the setting up of a netco but only Telefónica roaming on Yoigo's 4G network, the decision<sup>199</sup> illustrates one of the criteria used by the competition authority to review network sharing agreements. The decision considered that the agreement breached competition law because the agreement concluded in 2008 was exclusive – Telefónica committed to a minimum consumption level and could not resell Yoigo's capacity to third parties without Yoigo's authorisation.

#### 7.1.2 Macquarie/Aberdeen/Pentacom/JV

By decision<sup>200</sup> of 12 March 2020, the EU Commission cleared a transaction whereby the Macquarie Group and the Aberdeen Group acquired joint control over Pentacom Investment Holdco, S.L. ("Pentacom", Spain) which acquired the FttH network assets from MasMovil. The transaction was cleared unconditionally by simplified procedure, given that there were no horizontal overlaps or vertical links between the activities of the companies.

#### 7.1.3 American Tower/Telxius Towers merger Spain 2021

By decision<sup>201</sup> of 23 March 2021, the Spanish NCA unconditionally cleared the acquisition of Telefónica's Telxius Telecom by American Tower. Telxius manages around

<sup>199</sup> Case S/0490/13, available at: [https://www.cnmc.es/sites/default/files/2972752\\_0.pdf](https://www.cnmc.es/sites/default/files/2972752_0.pdf) (last accessed 15.09.2023).

<sup>200</sup> Case M.9646 – MACQUARIE/ABERDEEN/PENTACOM/JV. Available at: [https://ec.europa.eu/competition/mergers/cases/decisions/m9646\\_67\\_3.pdf](https://ec.europa.eu/competition/mergers/cases/decisions/m9646_67_3.pdf) (last accessed 15.09.2023).

<sup>201</sup> Resolución Expte. C/1172/21 ATC - TELXIUS. Available at: [https://www.cnmc.es/sites/default/files/3491872\\_1.pdf](https://www.cnmc.es/sites/default/files/3491872_1.pdf) (last accessed 15.09.2023).

30,700 telecoms sites located in Europe (Germany and Spain) and Latin America (Argentina, Brazil, Chile and Peru).

#### 7.1.4 AIP/Macquarie/Aberdeen/Onivia

By decision<sup>202</sup> of 7 April 2022, the EU Commission cleared a transaction whereby Arjun Infrastructure Partners (AIP), the Macquarie Group and the Aberdeen Group took a stake in, and acquired joint control over, Spanish wholesale-only fibre network operator Pentacom Investments (Spain) Opco S.L.U. and Ucles InfraCo, S.L. (together 'Onivia', Spain). The transaction was cleared unconditionally by simplified procedure, given that following the transaction the companies would not be active on related markets, nor would there be any overlaps between their activities.

#### 7.1.5 MACQUARIE / ABERDEEN / AIP - MÁSMÓVIL ASSETS

By decision<sup>203</sup> of 16 November 2022, the EU Commission cleared a transaction whereby joint control over MásMóvil Assets was acquired by the Aberdeen Group, the Macquarie Group and Arjun Infrastructure Partners (AIP). MásMóvil Assets consist of a FTTH network that will be operated by Uclés Infraco with the support of its sister company Pentacom Investments (Spain) Opco, S.L.U. ("Onivia", Spain) (both jointly controlled by Macquarie, Aberdeen and AIP) to provide wholesale broadband internet access services to internet service providers so that these can provide in turn retail internet services to final costumers. Onivia (together with Uclés Infraco), is a wholesale-only fixed broadband operator in Spain. The transaction was cleared unconditionally by simplified procedure, given the very limited horizontal overlaps and the absence of vertical relationships between the companies' activities.

## 7.2 United Kingdom

### 7.2.1 Cellnex/Arqiva

By decision<sup>204</sup> of 22 April 2020, the UK NCA has cleared without conditions the anticipated acquisition by Cellnex UK Limited of Arqiva Services Limited. By this transaction, Cellnex acquired more than 7,000 sites until then operated by Arqiva. The

<sup>202</sup> Case M.10678 - AIP/MACQUARIE/ABERDEEN/ONIVIA. Available at: [https://ec.europa.eu/competition/mergers/cases1/202216/M\\_10678\\_8267899\\_114\\_3.pdf](https://ec.europa.eu/competition/mergers/cases1/202216/M_10678_8267899_114_3.pdf) (last accessed 15.09.2023).

<sup>203</sup> Case M.10910 – MACQUARIE/ABERDEEN/AIP/CERTAIN MÁSMÓVIL ASSETS. Available at: [https://ec.europa.eu/competition/mergers/cases1/202248/M\\_10910\\_8638450\\_101\\_3.pdf](https://ec.europa.eu/competition/mergers/cases1/202248/M_10910_8638450_101_3.pdf) (last accessed 15.09.2023).

<sup>204</sup> Case ME/6860/19. The Decision is available at: [https://assets.publishing.service.gov.uk/media/5ec246ffe90e071e29d537f6/Cellnex\\_Arqiva\\_full\\_text\\_decision\\_PDFaa.pdf](https://assets.publishing.service.gov.uk/media/5ec246ffe90e071e29d537f6/Cellnex_Arqiva_full_text_decision_PDFaa.pdf) (last accessed 15.09.2023).

NCA found that, following the merger, the combined business will continue to face competition from several other independent providers, including WIG and Freshwave Group. Major customers such as mobile network operators will also continue to use their own existing infrastructure sites, or develop their own new sites, as they did for the majority of their demand at that time. The NCA also considered how ongoing market developments, such as the anticipated UK-wide roll-out of 5G might affect its assessment and distinguished between a national market for the supply of access to macro sites; and a national market for the supply of access to small cell sites.

### 7.2.2 Cellnex/CK Hutchison UK towers

On 4 March 2022, the UK NCA published its final report<sup>205</sup> on the review of the acquisition by Cellnex of CK Hutchison's UK passive infrastructure assets, as part of a broader set of transactions - worth £8.6bn (€10bn) in total - involving assets in several European countries.

In December 2021, the NCA had found that the sale of the CK Hutchison business to Cellnex would raise significant competition concerns. The sale of the business to Cellnex would prevent the emergence of an important alternative competitor in the supply of passive infrastructure, leaving mobile networks facing higher prices and more onerous contracts in future contract negotiations. This, in turn, could result in higher prices or lower quality services for users of mobile networks across the UK over a period of time.

In order to address these concerns, Cellnex proposed the sale of all of its existing sites that geographically overlap with the CK Hutchison assets it has agreed to buy. This would result in a package of over 1,000 passive infrastructure sites being sold to a purchaser approved by the CMA. This structural remedy was eventually accepted<sup>206</sup> by the NCA on 12 May 2022.

## 7.3 France

### 7.3.1 KKR/Altice-SFR tower business

By decision of 26 September 2018,<sup>207</sup> the EU Commission cleared the acquisition of joint control over SFR Filiale, Altice's French tower business, by the American equity firm KKR

<sup>205</sup> Case ME/6860/19. The Decision is available at: [https://assets.publishing.service.gov.uk/media/62221304d3bf7f4f0ec9b75e/Cellnex\\_CK\\_Hutchison\\_-\\_Final\\_Report.pdf](https://assets.publishing.service.gov.uk/media/62221304d3bf7f4f0ec9b75e/Cellnex_CK_Hutchison_-_Final_Report.pdf) (last accessed 15.09.2023).

<sup>206</sup> Notice to accept final undertakings, available at: [https://assets.publishing.service.gov.uk/media/627ccb4fe90e0721b01ea4dc/Cellnex\\_CK\\_Hutchison\\_Notice\\_of\\_Acceptance\\_of\\_Undertakings.pdf](https://assets.publishing.service.gov.uk/media/627ccb4fe90e0721b01ea4dc/Cellnex_CK_Hutchison_Notice_of_Acceptance_of_Undertakings.pdf) (last accessed 15.09.2023).

<sup>207</sup> Case M.9072 KKR/Altice/SFR Filiale, available at: [https://ec.europa.eu/competition/mergers/cases/decisions/m9072\\_72\\_3.pdf](https://ec.europa.eu/competition/mergers/cases/decisions/m9072_72_3.pdf) (last accessed 15.09.2023).

(49.99%) and Altice (50.01%). The transaction was cleared unconditionally because, on the one hand, KKR was not active in the same, related or connected markets as Altice and, on the other, will bring about any change in the situation of SFR Filiale relatively to Altice, since the former is already part of the Altice group.

### 7.3.2 Cellnex – Iliad 7

By decision<sup>208</sup> of 30 August 2019, the French NCA (Autorité de la concurrence) cleared the acquisition by Cellnex of Iliad 7, the wholly-owned subsidiary of Iliad, which manages a portfolio of 5.700 of sites in France. The NCA defined a separate “hosting” market of mobile telephony in France and subsequently assessed whether the acquisition of Iliad 7 from Cellnex would anti-competitive effects in the market. The NCA concluded that the market share of Cellnex after the acquisition, would not enable the latter to increase the prices or degrade the quality of services it provides to mobile network operators. Moreover, the NCA considered potential entry by TDF and ATC, which control ‘marketable’ sites. At the same time, the acquisition did not grant Iliad any priority on the infrastructure sold to Cellnex. For all these reasons the acquisition was cleared unconditionally.

### 7.3.3 Iliad/InfraVia

By decision of 23 January 2020,<sup>209</sup> the EU Commission cleared the creation of a joint venture ‘Investissement dans la fibre des territoires’ (IFT), by Iliad and InfraVia. InfraVia: is a private equity firm managing investment funds specialised in the infrastructure sector, among which Violin Fiber Infrastructure S.à r.l.. The joint venture will take over Iliad’s activity in the co-financing of fibre-to-the-home lines. The transaction was cleared unconditionally by simplified procedure, among other because the JV will take over the activity existing at the time by Iliad and there will thus be no overlap between the activities of the JV and of Iliad.

### 7.3.4 Bouygues Telecom/Phoenix Tower International

By decision of 26 February 2020,<sup>210</sup> the EU Commission cleared the creation of a joint venture ‘Phoenix France Infrastructures’, by Bouygues Telecom and Phoenix Tower International (PTI). The latter belongs to the US private equity firm Blackstone. The joint

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**208** Décision n° 19-DCC-169 available at: [https://www.autoritedelaconcurrence.fr/sites/default/files/integral\\_texts/2019-11/19dcc169\\_version\\_publique.pdf](https://www.autoritedelaconcurrence.fr/sites/default/files/integral_texts/2019-11/19dcc169_version_publique.pdf) (last accessed 15.09.2023).

**209** Case M.9701 - INFRAVIA/ILIAD/ILIAD 73, available at : [https://ec.europa.eu/competition/mergers/cases/decisions/m9701\\_49\\_3.pdf](https://ec.europa.eu/competition/mergers/cases/decisions/m9701_49_3.pdf) (last accessed 15.09.2023).

**210** Case M.9729 - BOUYGUES TELECOM/PHOENIX TOWER INTERNATIONAL/JV, available at : [https://ec.europa.eu/competition/mergers/cases/decisions/m9729\\_72\\_3.pdf](https://ec.europa.eu/competition/mergers/cases/decisions/m9729_72_3.pdf) (last accessed 15.09.2023).

venture resulted from the acquisition of a 60% share in Bouygues Telecom Infrastructures by PTI's subsidiary PTI Iberica, while Bouygues Telecom retained the remaining 40%. The transaction was cleared unconditionally by simplified procedure, given the limited activities that the joint venture will carry out in the territory of the European Economic Area, and it's very limited impact on the structure of the market.

### 7.3.5 Cellnex/Hivory

By decision of 25 October 2021,<sup>211</sup> the French NCA conditionally cleared the acquisition by the Spanish group Cellnex of French tower company Hivory. Hivory, which is owned by Altice and an investment fund managed by Kohlberg Kravis Roberts & Co (KKR), operates approximately 10,000 passive infrastructure sites in France. The NCA considered that the transaction was likely to affect competition in the markets for "rooftop" and "other" sites located in urban areas, where the combined position of the parties (market shares) is very high, and therefore made its clearance subject to commitments from Cellnex. To address this concern, the Cellnex Group committed to divest more than 2,500 active "rooftop" sites and more than 300 active "other" sites in urban areas to one or more operators approved by the NCA, so as to eliminate the addition of market shares resulting from the transaction.

### 7.3.6 CDPQ/American Tower/ATC Europe

By decision of 28 June 2021,<sup>212</sup> the EU Commission cleared the acquisition of a 30% stake in, and joint control over ATI's European Communication Infrastructure Business by Caisse de dépôt et placement du Québec ('CDPQ') of Canada and American Tower International Inc. ('ATI') of the US. The acquired business is the European arm of ATI, which offers mobile network hosting services on around 30,000 communications infrastructure sites in **France**, **Germany**, Poland and **Spain**. CDPQ is a long-term institutional investor that manages funds primarily for public and para-public pension and insurance plans in the Province of Québec. ATI is a wholly owned subsidiary of American Towers LLC, which is itself a wholly owned subsidiary of the American Tower Corporation ('ATC'). The EU Commission concluded that the proposed acquisition would raise no competition concerns, given that the companies' activities do not overlap in the European Economic Area. The transaction was cleared unconditionally by simplified procedure, given that the companies' activities do not overlap in the European Economic Area.

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<sup>211</sup> Décision 21-DCC-197 'relative à la prise de contrôle exclusif de la société Hivory par la société Cellnex France Groupe', available at: <https://www.autoritedelaconcurrence.fr/fr/decision-de-contrôle-des-concentrations/relative-la-prise-de-contrôle-exclusif-de-la-société-hivory> (last accessed 15.09.2023).

<sup>212</sup> Case M.10328 - CDPQ / ATI / ATI EUROPEAN COMMUNICATIONS INFRASTRUCTURE BUSINESS, available at: [https://ec.europa.eu/competition/mergers/cases/decisions/m9729\\_72\\_3.pdf](https://ec.europa.eu/competition/mergers/cases/decisions/m9729_72_3.pdf) (last accessed 15.09.2023).

## 7.4 Germany

### 7.4.1 Deutsche Telekom and Telefónica NGA deployment cooperation

By decision of 4 November 2014,<sup>213</sup> the German NCA stated that the ‘risk sharing’ agreement between Deutsche Telekom and Telefónica which entails the latter, in exchange for upfront commitments can benefit from reduced wholesale broadband fees, did not lead to any noticeable restriction of infrastructure competition between the parties, despite Telefonica transferring new and existing customers to Telekom's infrastructure, and with third parties, neither was bringing about any anti-competitive information exchange. Indeed, for Telefónica access to DT's network appeared the only solution available for fast provision of fixed broadband services in the retail market.<sup>214</sup> Without the cooperation Telefónica would have been unable in the medium term to offer faster broadband access. As the company will not have its own fixed network infrastructure in the future, it is dependent on the cooperation.

### 7.4.2 Telekom Deutschland/EWE Group FTTH/B

By decision of 30 December 2019,<sup>215</sup> the German NCA cleared the joint venture ‘Glasfaser NordWest’ set up by Telekom Deutschland – the subsidiary of Deutsche Telekom AG which operates its network - and EWE Group for the construction and operation of a fibre-to-the-building/home (FTTB/H) network in north-west Germany, following commitments made by the parties. Given that the joint venture was not a full-function joint venture,<sup>216</sup> a parallel case had been opened on 13 June 2019 by the German NCA under (§ 32 B ABS. 1 GWB (the German equivalent of Art.101 TFEU),<sup>217</sup> following the notification of the intended merger by the parties to the German NCA. This parallel procedure was closed by decision of 5 December 2019,<sup>218</sup> making the behavioral commitments offered by the parties binding.

<sup>213</sup> Case B7-46/13, available at : [https://www.bundeskartellamt.de/SharedDocs/Entscheidung/DE/Entscheidungen/Kartellverbot/2015/B7-46-13.pdf?\\_\\_blob=publicationFile&v=2](https://www.bundeskartellamt.de/SharedDocs/Entscheidung/DE/Entscheidungen/Kartellverbot/2015/B7-46-13.pdf?__blob=publicationFile&v=2) (last accessed 15.09.2023).

<sup>214</sup> “Contrary to what was still thought possible in 2010, there will be no parallel copper or fiber optic networks for the time being with broadband expansion across the board. Considering the limited willingness to pay from end-users, the necessary investments can likely not be financed at the moment”, point 11, own translation.

<sup>215</sup> Case B7-21/18 – Telekom und EWE dürfen zum gemeinsamen Glasfaserausbau Gemeinschaftsunternehmen gründen, available at : [https://www.bundeskartellamt.de/SharedDocs/Entscheidung/DE/Entscheidungen/Fusionskontrolle/2020/B7-21-18.pdf?\\_\\_blob=publicationFile&v=2](https://www.bundeskartellamt.de/SharedDocs/Entscheidung/DE/Entscheidungen/Fusionskontrolle/2020/B7-21-18.pdf?__blob=publicationFile&v=2) (last accessed 15.09.2023).

<sup>216</sup> the German merger control rules apply also to non-full-function joint ventures.

<sup>217</sup> Considered not applicable by the German NCA on grounds that “Die Kooperation ist nicht geeignet, den Handel zwischen den Mitgliedsstaaten spürbar zu beeinträchtigen. Die Zusammenarbeit der Beteiligten hat lediglich regionale Bedeutung“(point 27) and aimed to cover only 1.5m FTTH connections within ten years in lower Saxony.

<sup>218</sup> The antitrust (‘Kartellverwaltungsverfahren’) decision is available at: [https://www.bundeskartellamt.de/SharedDocs/Entscheidung/DE/Entscheidungen/Fusionskontrolle/2019/B7-21-18.pdf?\\_\\_blob=publicationFile&v=4](https://www.bundeskartellamt.de/SharedDocs/Entscheidung/DE/Entscheidungen/Fusionskontrolle/2019/B7-21-18.pdf?__blob=publicationFile&v=4) (last accessed 15.09.2023).



The competition concerns resulted from the fact that EWE's subsidiary EWE TEL was, with Vodafone, the largest investor in FTTH deployment in the area concerned. Following the operation, Telekom and EWE will no longer deploy own FTTH networks in the area covered, reducing (potential) infrastructure based competition. While they will continue deploying fibre, this will be for 'Glasfaser NordWest',<sup>219</sup> which will provide bitstream-based wholesale access to the parent companies and third parties. Therefore, the NCA considered that the transaction would restrict competition in the following markets:

- the market for wholesale fixed local access to fibre- and copper-based networks in the cooperation area, in which DT had 90-100% market share while the others, a.o. EWE had 0-5%;
- the market for wholesale fixed central access to fibre- and copper-based networks in the cooperation area, in which DT had a market share (by turnover) of 80-90%, against 10-20% for Vodafone and 0-5% for EWE;
- the markets constituted by tender procedures for state-subsidised broadband rollout projects in the area covered, in which EWE had a market share of 50-60% (by tenders won) and DT 20-30%; and
- the retail mass-market for fixed broadband access in the cooperation area, in which the market shares were the following: Market share (by turnover) of: DT: 30-40%, EWE 20-30%, Vodafone 20-30% (though mainly on cable), 1&1 10-20%, Telefónica 0-5%, Deutsche Glasfaser 0-5%, all others less than 2%.

The restriction would harm consumers by:

- bringing about slower availability of very high-speed broadband networks, and
- leading to higher prices for both copper- and fibre-based broadband access.

The commitments offered by the parties and made binding for 6 years by the mentioned NCA Decision of 5 December 2019 were:

- to deploy the fiber network to cover 300,000 households and business locations by end 2023, of which 120,000 by end 2021, deployment that would be larger than what parties would have achieved independently (responding to the concern of slower availability);
- avoid targeting mainly urban areas covered by cable networks as well as targeting areas in which other telecoms operators deploy FTTH networks;
- grant third parties non-discriminatory access to Glasfaser NordWest's network on an 'Equivalence of Inputs' (EoI) basis (same systems, processes and interfaces) and offer the possibility to buy upfront a certain volume of access lines;
- DT and EWE will sell a minimum number of connections to third-party operators (amount is confidential); and

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<sup>219</sup> 'Glasfaser NordWest' is subject to the ex ante access obligations imposed by BNetzA on Deutsche Telekom in market 1/2018, since the company is jointly controlled by the SMP operator.

- DT and EWE will participate independently in tender procedures for state-subsidised broadband rollout projects and parties will not exchange any information relating to their possible bids.

The NCA decisions were however appealed by Vodafone and Deutsche Glasfaser and eventually annulled<sup>220</sup> on 22 September 2021 by the Higher Regional Court (OLG)<sup>221</sup> of Düsseldorf. The Court found among others that the NCA had not sufficiently motivated how commitments which will remain in force for 6 years will continue to address the competition concerns after that time period.<sup>222</sup> Moreover, the non-discrimination commitment did not guarantee "with sufficient probability that the agreed fees and conditions correspond to those that would have come about under competitive conditions." The income from the wholesale business flow back to TDG/EWE, so that "if they behave in a commercially reasonable manner, there is a considerable incentive for them to achieve higher margins than in the end customer business, in which competitors are also involved, and therefore tend to demand higher wholesale prices".<sup>223</sup> The (ex post) prohibition of abuses of dominant position will not necessarily preclude such behaviour because "because an infringement must first be established and because the TKG only ensures that the wholesale charges are not so high that marketing to the end customer by an efficient undertaking is no longer economical. This is not to say that the competition did not produce better results".<sup>224</sup> In addition, the expansion commitment reinforces, according to the judgment,<sup>225</sup> the "restrictive effect of the joint venture by significantly increasing the number of fibre-optic connections to be built and marketed jointly by the parties compared with the joint venture's own expansion plans and the expansion plans of each of the party outside of a cooperation". This commitment does according to the Court "not take precautions against the prognosis that third-party infrastructure competitors will reduce their planned FTTB/H expansion after the establishment of the joint venture, so that the infrastructure competition of these third-party providers will also be dampened".<sup>226</sup>

**220** Rückschlag für Telekom und EWE beim Glasfaserausbau, LTO Legal Tribune Online, 24.09.2021, available at: <https://www.lto.de/recht/kanzleien-unternehmen/k/glasfaser-ausbau-olg-duesseldorf-az-vi-kart-5-20-v-entscheidung-freigabe-bundeskartellamt-telekom-ewe-vodafone-bgh/> (last accessed 15.09.2023).

**221** By judgment Az. VI-Kart 5/20 V, available at: [http://www.justiz.nrw.de/nrwe/olgs/duesseldorf/j2021/Kart\\_5\\_20\\_V\\_Beschluss\\_20210922.html](http://www.justiz.nrw.de/nrwe/olgs/duesseldorf/j2021/Kart_5_20_V_Beschluss_20210922.html) (last accessed 15.09.2023).

**222** "It is completely unclear at what point the demand for fibre-optic-based more expensive retail lines is expected to increase to such an extent that it will have a relevant impact on the competitive conditions in the retail and wholesale markets. It is also not comprehensibly explained or otherwise recognizable on the basis of which considerations and market mechanisms an increase in retail demand to a certain extent should lead to which competitive reactions of which market participants in which periods of time and to what extent the harmful merger effects, which have been extensively and diversely identified, are to be reduced to a level that is harmless under antitrust law", paragraph 116 (own translation).

**223** Quoted by Vodafone in their submission of 1 October 2021 to BNetzA, available at: [https://www.bundesnetzagentur.de/DE/Beschlusskammern/1\\_GZ/BK3-GZ/2019/BK3-19-0020/Stellungnahmen/BK3-19-0020\\_Stellungnahme\\_Vodafone\\_bzgl.\\_OLG\\_Beschluss\\_download.pdf?blob=publicationFile&v=2](https://www.bundesnetzagentur.de/DE/Beschlusskammern/1_GZ/BK3-GZ/2019/BK3-19-0020/Stellungnahmen/BK3-19-0020_Stellungnahme_Vodafone_bzgl._OLG_Beschluss_download.pdf?blob=publicationFile&v=2) (last accessed 15.09.2023).

**224** Point 139 (own translation)

**225** Point 148 (own translation)

**226** idem



The Düsseldorf Higher Regional Court did not allow an appeal against its judgement. The appeal against denial of leave to appeal (Nichtzulassungsbeschwerde) lodged with the Federal Court of Justice (BGH) is still pending.

#### 7.4.3 Liberty Global/InfraVia/Liberty Networks

By decision of 22 November 2021,<sup>227</sup> the EU Commission cleared the creation of Liberty Networks Germany ('LNG'), a new joint venture based in Germany, by Liberty Global plc of the UK and InfraVia V Invest S.à.r.l. of Luxembourg. LNG will establish and provide fibre-to-the-home internet services in rural districts of several States ('Länder') in Germany. InfraVia is a management company of investment funds specialised in the infrastructure and technology sectors. The Commission concluded that the proposed acquisition would raise no competition concerns, as the transaction only gives rise to minor potential vertical links between the activities of the companies. The transaction was cleared unconditionally by simplified procedure, as the transaction only gives rise to minor potential vertical links between the activities of the companies.

#### 7.4.4 Telekom Deutschland/IFM investors joint venture

By decision of 25 January 2022,<sup>228</sup> the EU Commission cleared the acquisition of joint control of GlasfaserPlus GmbH by Telekom Deutschland GmbH (50%) and IFM Investors Pty Ltd. of Australia (50%). GlasfaserPlus was intended to plan, construct and operate optical fiber telecommunications networks in certain rural and less densely populated areas of Germany. IFM Investors is a global investment manager of assets across infrastructure, listed equities, private capital and debt investments. The Commission concluded that the proposed acquisition would raise no competition concerns given the absence of horizontal overlaps or vertical relationships between the activities of GlasfaserPlus and IFM Investors. The transaction was cleared unconditionally by simplified procedure, given the absence of horizontal overlaps or vertical relationships between the activities of GlasfaserPlus and IFM Investors.

#### 7.4.5 Vodafone/Altice FTTH joint venture

By decision of 25 January 2022,<sup>229</sup> the EU Commission cleared the creation of 'FibreCo' a 50/50 joint venture for deploying and operating a fibre-to-the-home networks (primarily

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<sup>227</sup> Case M.10498 – LIBERTY GLOBAL / INFRAVIA / LIBERTY NETWORKS GERMANY, available at : [https://ec.europa.eu/competition/mergers/cases1/202148/M\\_10498\\_8037167\\_43\\_3.pdf](https://ec.europa.eu/competition/mergers/cases1/202148/M_10498_8037167_43_3.pdf) (last accessed 15.09.2023).

<sup>228</sup> Case M.10548 - TELEKOM DEUTSCHLAND/IFM INVESTORS/JV, available at: [https://ec.europa.eu/competition/mergers/cases1/202206/M\\_10548\\_8161468\\_99\\_3.pdf](https://ec.europa.eu/competition/mergers/cases1/202206/M_10548_8161468_99_3.pdf) (last accessed 15.09.2023).

<sup>229</sup> Case M.10973 – VODAFONE GROUP/ALTICE LUXEMBOURG/FIBRECO, available at: [https://ec.europa.eu/competition/mergers/cases1/202206/M\\_10548\\_8161468\\_99\\_3.pdf](https://ec.europa.eu/competition/mergers/cases1/202206/M_10548_8161468_99_3.pdf) (last accessed 15.09.2023).

focussed on the same geographic area (i.e. mainly urban) as Vodafone's current coax cable network) in Germany. The JV would offer wholesale access on an open access and non-discriminatory basis to these fibre networks

The transaction was cleared unconditionally by simplified procedure because there were only limited horizontal overlaps and vertical links between the parties' activities.

#### 7.4.6 GIP/KKR/Vodafone/Vantage Towers

By decision of 22 February 202,<sup>230</sup> the EU Commission cleared the acquisition of joint control of Vantage Towers AG of Germany by Vodafone Group Plc ('Vodafone') of the UK, Global Infrastructure Management, LLC ('GIP') and KKR & Co. Inc. ('KKR'), both of the US.

GIP is a global infrastructure fund manager primarily focused on investing in transportation, energy, waste and digital infrastructure sectors. KKR is a global investment firm, offering alternative asset management as well as capital markets and insurance solutions.

The transaction was cleared unconditionally by simplified procedure because there were no horizontal overlaps or vertical links between the activities of Vantage Towers on the one hand, and the activities of KKR and GIP on the other hand.

#### 7.4.7 1&1 complaint against Vodafone and Vantage Towers

The German NCA announced by press release<sup>231</sup> of 2 June 2023 that it had, following a complaint filed by 1&1 Mobilfunk GmbH, launched an investigation into possible breaches of German and European competition law by Vodafone and Vantage Towers by impeding 1&1's options for co-using radio masts.

In the spring of 2021, 1&1 and Vantage Towers contractually agreed on co-use of a large number of locations. In the course of 2022, however, the provision of the agreed locations was massively delayed and continues to be delayed. 1&1 relies on the use of these locations to comply with its 5G coverage obligations (1,000 base stations by the end of 2022) and start its own mobile network, which is scheduled to become operational in 2023.

<sup>230</sup> Case M.10991 - GIP/KKR/VODAFONE/VANTAGE TOWERS, available at: [https://ec.europa.eu/competition/mergers/cases1/202309/M\\_10991\\_9002530\\_221\\_3.pdf](https://ec.europa.eu/competition/mergers/cases1/202309/M_10991_9002530_221_3.pdf) (last accessed 15.09.2023).

<sup>231</sup> Bundeskartellamt examines potential anti-competitive impediment of 1&1 by Vodafone and Vantage Towers, available at: [https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2023/02\\_06\\_2023\\_Vodafone\\_1\\_1.html?nn=3591568](https://www.bundeskartellamt.de/SharedDocs/Meldung/EN/Pressemitteilungen/2023/02_06_2023_Vodafone_1_1.html?nn=3591568) (last accessed 15.09.2023).

In parallel, BnetzA is examining whether 1&1 must be fined for failing to meet its coverage obligations resulting from its purchase of frequencies at an auction in 2019.

## 7.5 Italy

### 7.5.1 Telecom Italia and Fastweb Flash Fiber FTTH

By decision of 28 March 2018,<sup>232</sup> the Italian NCA closed the antitrust procedure<sup>233</sup> opened against Telecom Italia SpA and Fastweb SpA on 1 February 2017 for having set up the 80/20 cooperative joint venture<sup>234</sup> named Flash Fiber S.r.l. for the deployment of the secondary network in aimed at the construction of FTTH (Fiber To The Home) networks<sup>235</sup> in the 29 main Italian cities by the JV – i.e. in areas where both Fastweb and TIM had already their own primary network - after having reviewed the commitments submitted by both Telecom Italia<sup>236</sup> and Fastweb.<sup>237</sup> The commitments are made binding by the aforementioned decision.

The Italian NCA's competition concern was that the agreement had the potential to prevent, restrict or significantly distort competition in two national markets:

- the market for fixed wholesale access, where Fastweb is one of the main competitors of Telecom Italia for the provision of active wholesale broadband access and
- the market for broadband and ultrafast-broadband retail telecommunication services, where together both parties would have more than 60% market share.

Indeed, the agreement involved significant coordination<sup>238</sup> between Fastweb and Telecom Italia in strategic choices regarding fixed broadband and ultrafast-broadband networks and could therefore lessen the intensity of static and dynamic competition, as the JV involves the main two vertically integrated operators in the industry.

<sup>232</sup> Case I799, Flash Fiber JV, available at: [https://www.agcm.it/dotcmsDOC/allegati-news/I799-1799B\\_acc.%20imp.ch.%20proc\\_omi.pdf](https://www.agcm.it/dotcmsDOC/allegati-news/I799-1799B_acc.%20imp.ch.%20proc_omi.pdf) (last accessed 15.09.2023).

<sup>233</sup> for a possible breach of Article 101 of the Treaty on the Functioning of the European Union (TFEU) (prohibition of agreements which restrict competition)

<sup>234</sup> Fastweb was granted veto rights on key decisions, giving it a de facto decisive influence on the JV and thus 'joint control' in the legal meaning of the term.

<sup>235</sup> Flash Fiber will install the fibre optic connection between the street cabinet and the end-user's premises, inside the buildings, mainly for residential and microbusiness customers. In this way, TI and FW will build two FTTH networks, of which the first part (primary network) is already built following the investments made independently by the Parties, while the secondary component (between the Optical Nodal Center – CNO and the buildings where the customers' real estate units are located) will be a GPON network, allowing multiple customers to be served simultaneously over the same fiber optic cable. Each building will be reached by a single multifiber cable inside which the optical fibers necessary for the management of two GPON shafts reserved respectively for TI and FW will be dedicated. The civil works will be outsourced to TIM and Fastweb. (see point 24 AGCM Decision)

<sup>236</sup> Available at: [https://www.agcm.it/dotcmsDOC/allegati-news/I799-1799B\\_imp.TIM\\_omi.pdf](https://www.agcm.it/dotcmsDOC/allegati-news/I799-1799B_imp.TIM_omi.pdf) (last accessed 15.09.2023).

<sup>237</sup> Available at: [https://www.agcm.it/dotcmsDOC/allegati-news/I799-1799B\\_imp.FW\\_omi.pdf](https://www.agcm.it/dotcmsDOC/allegati-news/I799-1799B_imp.FW_omi.pdf) (last accessed 15.09.2023).

<sup>238</sup> Flash Fiber only offers access to third parties to passive network elements (not used by its shareholders). As a consequence, Telecom Italia and Fastweb continue competing in the retail broadband access market. Hence the concern of possible coordination.

The parties claimed however that competition exerted by Open Fiber that offer, in the concerned area, wholesale access on its fibre network to the other major ISPs (Tiscali, Vodafone and Wind Tre) would preclude the restrictive effects put forward by the NCA. They nonetheless made the following commitments to address the NCA's concern:

1. deployment by the JV of the planned new FTTH network coverage within predefined yearly milestones: 30% by 2017; 70% by 2018; 85% by 2019 and 95% by 2020.<sup>239</sup> The Parties committed to appoint, after consultation and agreement of the Italian NCA, an independent party, to certify compliance with the predefined coverage milestones;
2. ensuring that the investments are available also for third parties by
  - a) removing the right of first refusal before Flash Fiber can offer dark fiber to third parties, originally stipulated in favour of the parties, from the co-investment agreement;
  - b) ensuring the availability of a guaranteed number of optical fibers for each optical distributor for third party subjects;
  - c) commitment of the JV to provide access, on request, to the vertical segments with third party subjects.
3. The JV will design its network in a manner providing sufficient capacity to Telecom Italia and Fastweb to offer independently VULA and NGA bitstream access to third parties. Both operators will provide VULA on non-discriminatory conditions; Telecom Italia and Fastweb will moreover provide access to ducts for the deployment of FTTH networks, based on IRU on transparent, non-discriminatory, fair and reasonable terms.
4. The duration of the JV agreement will be limited to 2035, when the business plan estimates that the investments will be recovered. An independent third party will be appointed, after consultation and approval of the Italian NCA, to verify the attainment of the recovery point of the investments. If the investments are recouped earlier, the JV will be dissolved. Alternatively, if not yet recovered by 31 Dec 2035, the JV's duration will be extended;
5. Parties will amend the JV agreement as follows:
  - a) modification of art. 7.3, limiting the obligation for the Parties to use network infrastructures realized in common to the minimum targets provided by the business plan (25-45% of households in the JV's coverage area). Beyond this coverage, Fastweb could for example use the services of Open Fiber;
  - b) limitation of the contractual obligation assumed by the Parties to refrain from signing agreements with other companies only to the local exchange areas of the 29 cities covered by the project;
  - c) removal of art. 7.5 (possibility to use Flash Fiber as an instrument of combined participation in the Infratel tenders for the non-covered areas of the territory);
  - d) removal of art. 8 (collaboration between the Parties in the combined implementation of vectoring technologies in the areas, outside the 29 cities, where fiber to cabinet - FTTC networks have been realized).
6. measures to prevent the exchange of commercially sensitive information between the Parties using Flash Fibre, including the appointment of an antitrust compliance officer.

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<sup>239</sup> In 2022, according to AGCom, Flash Fiber covered 3,6 million households (expected 3,8 million in 2023);

With the implementation of these commitments, the NCA considered that the JV would promote infrastructural competition in the fixed network telecommunications markets and allow a rapid covering process of the national territory with new generation networks.

### 7.5.2 Vodafone Italia/TIM/INWIT joint venture

By decision of 6 March 2020,<sup>240</sup> the EU Commission cleared the creation of the joint venture by Vodafone Italia and Telecom Italia, pooling together the parties' passive mobile network infrastructure. Under this agreement, Vodafone's passive infrastructure was combined with the assets of INWIT, the undertaking solely controlled by Telecom Italia that owned and operated the latter's passive infrastructure. After the transaction, Vodafone and Telecom Italia would hold joint control over INWIT and this JV would bring together Telecom's and Vodafone's telecommunications towers across Italy to rent space on these towers to other operators.

The Commission examined the potential effect of the merger on the following markets: (i) supply of hospitality services on macro-sites to customers other than TV and radio broadcasters, (ii) supply of hospitality services on micro-sites, (iii) wholesale access and call origination on public mobile networks, (iv) retail supply of mobile telecoms services, excluding M2M subscriptions, (v) retail supply of M2M subscriptions, (vi) wholesale supply of fixed access services, (vii) retail supply of fixed internet access services, (viii) wholesale supply of fixed backhaul services (exact product market definition left open).

The Commission found that the proposed transaction, as originally notified, would have combined under the ownership of Telecom Italia and Vodafone a very large pool of towers.

The Commission's main concern was therefore that the operation could:

- reduce competition in the market for renting space on towers to telecommunication operators in Italian municipalities with more than 35,000 inhabitants,<sup>241</sup> considering the preferential rights foreseen in the agreement; and
- shut out newcomers from the market, by restricting their access to space on Telecom Italia's and Vodafone's towers in Italian municipalities with more than 35,000 inhabitants.

<sup>240</sup> Case M-9674 Vodafone Italia/TIM/INWIT JV, available at: [https://ec.europa.eu/competition/mergers/cases1/202037/m9674\\_516\\_3.pdf](https://ec.europa.eu/competition/mergers/cases1/202037/m9674_516_3.pdf) (last accessed 15.09.2023).

<sup>241</sup> "in urban areas, the possibilities to build new sites are negligible, and TowerCos' inventories are the only alternative. As discussed in Section 7.3.6. below, due to the potential decrease in space, and thus capacity, to be offered to third parties in the market by the Joint Venture, as result of the MSAs and the preferential rights foreseen therein, MNOs may see reduced capacity available to them in the market", point 225





The EU Commission<sup>243</sup> did not open a procedure regarding this active RAN sharing agreement signed between Telecom Italia and Vodafone, which covers over 70% of the Italian population. Reason is that, on the one hand, both operators maintain separate spectrum holdings and core networks and continue to operate as two commercially independent mobile operators in Italy and, on the other hand, that the agreement, excluded the municipalities over 100.000 habitants, as well as those cities with the most densely populated suburbs.

The Commission noted indeed that “network sharing (...) entails detailed co-ordination and information exchange between competitors, which in certain circumstances may have a negative impact on competition”,<sup>244</sup> but welcomed that “Telecom Italia and Vodafone have decided to scale down their active sharing, leaving out the most densely and highly populated cities and centres of economic importance, corresponding to over 30% of the Italian population and more than 33% of data traffic (...) which increases the areas (and the percentage of Italian population) in which Telecom Italia and Vodafone will continue to compete on network quality while retaining the benefits of network sharing in other cities and towns as well as rural areas”.<sup>245</sup>

These cooperation agreements have also not been subject to antitrust review by the Italian NCA.

#### 7.5.4 Cellnex/CK Hutchison Networks Italia

By decision of 15 June 2021,<sup>246</sup> the Italian NCA cleared the acquisition of CK Hutchison Networks Italia (CKHNI), a subsidiary from from Hong Kong-based conglomerate CK Hutchison, by Cellnex.

At the time of the merger, Cellnex owned over 10,000 telecoms sites across Italy and was already the market leader, with a market share of 60-70% (revenue) and 50-60% (tenancies)<sup>247</sup>. After the acquisition of CKHNI and its 8,900 telecoms sites, these would increase to 70-80% and 60-70%, respectively.

<sup>243</sup> Press release, Mergers, Commission clears acquisition of joint control over INWIT by Telecom Italia and Vodafone, subject to conditions, 6 March 2020, available at: [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_20\\_414](https://ec.europa.eu/commission/presscorner/detail/en/IP_20_414) (last accessed 15.09.2023).

<sup>244</sup> Press release, Mergers, Commission clears acquisition of joint control over INWIT by Telecom Italia and Vodafone, subject to conditions, 6 March 2020, available at: [https://ec.europa.eu/commission/presscorner/detail/en/IP\\_20\\_414](https://ec.europa.eu/commission/presscorner/detail/en/IP_20_414) (last accessed 15.09.2023).

<sup>245</sup> idem

<sup>246</sup> Case C12358 - CELLNEX ITALIA/CK HUTCHISON NETWORKS ITALIA (procedure n. 29717), available at: [https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/43D62DA3967F26DDC125870900523FBE/\\$File/p29717.pdf](https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/43D62DA3967F26DDC125870900523FBE/$File/p29717.pdf) (last accessed 15.09.2023).

<sup>247</sup> This high percentage is due to the fact that the NCA defined the market narrowly by excluding captive sales (sales to vertically integrated companies' own downstream businesses) and that most of INWIT sales are captive sales to parent MNOs (TIM and Vodafone), which were thus not included in the relevant market



The NCA's competition concern was that Cellnex would face less competitive constraint,<sup>248</sup> especially in some geographic areas,<sup>249</sup> and that its increased market power would allow it to increase prices or reduce capacity, which would be a barrier to the development of downstream markets. The fact that the long-term service contract concluded in parallel by Cellnex and Wind Tre appeared to give the latter 'a special right' to authorise third-party access to the acquired sites, so that Wind Tre "could hinder, or in any event delay, their development", also played a role.

To address these competition concerns, Cellnex offered the following commitments (valid for seven years) relating to municipalities with under 35,000 inhabitants:

- Access to some CKHNI towers. Cellnex will make available space on a certain number of CKHNI macro sites (2,500–5,000) to FWA operators and MNOs, between 400-500 and 700-800 sites being made available each year. Cellnex will provide access to these sites to requesting operators on a first come, first served basis and on reasonable and non-discriminatory terms. Cellnex will publish a list of municipalities where the available sites are located.
- The commitments also detail: (i) the procedure for responding to access requests; (ii) the technical reasons for which access may be denied; and (iii) the conditions under which Wind Tre will be able to exercise its pre-emption rights (granted by its service contract with Cellnex) over the space on the sites in question.
- Protections around decommissioning. When decommissioning CKHNI towers, the third parties hosted on them will benefit from certain protections, including priority access to alternative Cellnex sites.
- Refraining from early termination. Cellnex will not exercise early termination rights in relation to its existing contracts for hosting
- services on Cellnex towers. It will also offer the opportunity to extend those contracts and framework agreements.
- Monitoring. Cellnex will appoint an independent expert as the monitoring trustee, who will oversee the implementation of the commitments; arbitrate in access disputes between Cellnex and third parties; and submit biannual reports to the NCA.

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**248** In many areas, the possibility for MNOs to deploy own sites is limited due to regulatory constraints, among which the electromagnetic limits imposed under Italian law and would in any case require a long time to deploy due to the administrative procedures to follow and environmental and planning rules.

**249** in a number of municipalities, Cellnex would control an overwhelming majority of sites, given the large geographic overlaps in the parties' operations. This will mainly be the case in municipalities with less than 35,000 inhabitants falling outside the scope of the remedies of the 2020 Commission decision clearing the creation of INWIT.

### 7.5.5 Phoenix Tower International/Towertel

By decision of 30 March 2021,<sup>250</sup> the Italian NCA cleared the acquisition by the US based company Phoenix Tower International (controlled by Blackstone PTI Fund L.P., a company from the The Blackstone Group Inc) of EI Towers' telecom tower subsidiary, TowerTel, which owns a portfolio of 2,400 towers in Italy. In addition, PTI will obtain the rights to market and lease 1,600 broadcast sites owned by EI Towers. The Italian infrastructure investment fund F2i, one of EI Towers' shareholders will retain a minority interest in TowerTel.

The Italian NCA cleared the transaction unconditionally because of

- the absence of overlaps between the activities of Blackstone's portfolio companies and Towertel, as none of Blackstone's portfolio companies is active in the telecommunications sector in Italy. Consequently, the transaction is not changing the market structure and the related competitive conditions, as it merely replaces the current parent of Towertel, i.e. EI Towers, with Phoenix; and
- the share of the acquired company in the relevant market for passive telecommunications infrastructure at national level is not significant, irrespective of the product market definition adopted. Towertel is estimated to have market shares of around [5-10%], well below those of the more nationally structured operators, both in terms of sites in their portfolio and in terms of the variety and breadth of customers, such as INWIT, Cellnex Italia and CKHNI.

### 7.5.6 Case I850 – FiberCop

On 15 February 2022, the Italian NCA closed<sup>251</sup> an antitrust procedure<sup>252</sup> opened against Telecom Italia S.p.A., Fastweb S.p.A., FiberCop S.p.A., Tiscali Italia S.p.A., Teemo Bidco S.à.r.l. and KKR & Co. Inc. as regards the possible restrictive effects of their agreements<sup>253</sup> regarding the so called 'FiberCop project'.<sup>254</sup>

Under the agreements, Telecom Italia would transfer its passive network assets in the fixed access network segment between street cabinets and end-user premises to the JV as well as its 80% stake in Flash Fiber. Fastweb, from its side would transfer its 20% share. As a result, Flash Fiber would be incorporated into FiberCop.

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**250** Case C12357 - PHOENIX TOWER INTERNATIONAL HOLDCO/TOWERTEL (procedure n.28621), available at: [https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874B/D/0/9C0FE685B13FEB93C12586BC0037CC4E/\\$File/p28621.pdf](https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874B/D/0/9C0FE685B13FEB93C12586BC0037CC4E/$File/p28621.pdf) (last accessed 15.09.2023).

**251** Case I850 – Accordi FiberCop (procedure n. 30002), available at: [https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874B/D/0/29EAF7D9A9B5B9B1C12587F70048A7F3/\\$File/p30002.pdf](https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874B/D/0/29EAF7D9A9B5B9B1C12587F70048A7F3/$File/p30002.pdf) (last accessed 15.09.2023).

**252** For possible breach of Article 101 TFUE. The procedure was opened on 15 December. 2020

**253** Beyond the agreement setting up the JV, there was also an agreement between Telecom Italia and Tiscali, entailing the divestiture of the latter's physical access network in exchange of service based access on Telecom Italia's network.

**254** The joint venture was not susceptible to be notified to the EU (or the Italian NCA) under the merger control rules because it is not a 'full function' JV.

FiberCop would deploy fiber in the secondary network to 13,6 million households over 2.578 cities, which were until then connected to the cabinet only by copper lines. The fibre deployment would be based on a semiGPON infrastructure, with a splitting ratio of 1:64 (1:4 + 1:16; splitters located in the same cabinet). Any willing co-investor would be offered access to this new infrastructure on more favourable terms than those it applies to third-party access seekers, depending on the date of the investment commitment, the advantage being reduced over time. FiberCop would operate as a wholesale only operator.

The NCA considered that the agreements would affect the following two markets:

1. wholesale access to fixed broadband and very high-speed broadband networks, in which Telecom Italia has a 70-90% market share (AGCom 330/20/CONS in the latter case).
2. retail fixed broadband and very high-speed broadband access services, without regard to the underlying technology (Copper/DSL 29%, FTTC 50%, FTTH 12%, FWA 8%), in which the market shares were (Sept. 2021, AGCom): TIM (42,2%), Vodafone (16,5%), Fastweb (14,9%), Wind Tre (14,1%), Tiscali (2,2%).

The competition concerns from the NCA were:

- the agreements could reduce competition in the market of wholesale access services to fixed broadband and ultrabroadband lines and in the market of retail fixed broadband and ultrabroadband services. In particular, the agreements could reduce the contestability of demand for wholesale access services because the agreements had minimum commitments by Fastweb<sup>255</sup> and Tiscali in terms of lines that they had to procure from TIM-FiberCop that appeared to cover most, if not all, of their potential future needs. Moreover, the contracts had a long duration and were capable of blocking a significant part of the demand for wholesale access services (lock-in effect).
- the structure of the project could reduce the incentive to invest of Fastweb<sup>256</sup> and Tiscali<sup>257</sup> (and possibly of other co-investors)<sup>258</sup> by discouraging passive access and favouring the provision of access services (VULA and Bitstream NGA), which on its turn would lead to reduced capacity to differentiate quality of services and providing innovative services. Moreover, FiberCop tariff scheme applied to Fastweb discouraged the expansion of its demand above a certain limit (and thus of its ambition to grow market shares at retail level). Moreover, the

<sup>255</sup> The minimum commitment for Fastweb amounted to the 1-1,25 million lines.

<sup>256</sup> The minimum commitment included copper and FTTC line and active services (VULA and Bitstream NGA). This could have discouraged Fastweb from investing in the infrastructure in the primary network (to the street cabinet) and acquire instead active services (VULA).

<sup>257</sup> Tiscali agreed to dispose its own access infrastructure up to the central office level (Tiscali was providing FTTC through VULA services), with the consequent migration to a Bitstream NGA resale service. In exchange, TIM offered a discount with a minimum commitment on a long-term basis for active services. However, this commitment covered almost all actual Tiscali lines.

At the same time, the agreements provided for an activation/migration on the FiberCop network of a significant share of Tiscali accesses (minimum 300.000-500.000 lines, almost all actual Tiscali lines).

<sup>258</sup> FiberCop's discounted tariff even if the alternative operator didn't invest in its primary network but only used active services provided by TIM (VULA and Bitstream NGA) what could be deemed 'locking-in' users and removing incentives to invest by access seekers.

control of Flash Fiber would be transferred to FiberCop, suggesting Fastweb abandoning deploying its own independent wholesale network.

- A structural link between TIM and Fastweb (via FiberCop) could generate an exchange of information and coordination between the two companies in the retail and wholesale markets.

In order to address these concerns, TIM offered the following commitments:<sup>259</sup>

1. TIM committed to roll out FiberCop's FTTH PON network following a binding timetable<sup>260</sup> and to pay compensation in case of delays. This addresses the risk of unjustified reduction in contestable wholesale demand without "real" new infrastructure deployment.
2. TIM committed to offer dark fibre in the primary access network segment (for backhaul to the OLT) for 20 years with several pricing options (IRU and volume commitment-based).
3. TIM committed to provide from 2026 onwards third-party access seekers with fibres in the terminating segment (with higher prices than those that apply to co-investors). As third-party operators will not have access to dedicated splitters in FiberCop's fibre cabinets, TIM foresees "new functionalities" that ensure the same quality of access as for co-investors.
4. TIM committed to reduce minimum volume commitments, increase the geographical scope of commitment and to make a co-investment offer based on IRU (20 years right of use) with no minimum commitment.
5. TIM committed to increase flexibility for co-investors, in terms of quantity exceeding the minimum commitment that doesn't determine an increase in price charged to co-investors.
6. TIM committed to allow both co-investors and third-party access seekers to install their own Optical Network Terminals (ONTs) at customer premises, subject to technical compatibility.
7. TIM committed to clarify in its ads and other commercial communications that end users are free not to acquire a modem from TIM.
8. TIM committed to limit the scope of the co-investment offer to passive wholesale access services by excluding active access services (VULA, bitstream).
9. TIM committed to allow co-investors to manage independently service provisioning, including by installing in-building vertical network segments following an end-customer request and to manage fault repair.
10. Technical committee will be established to allow co-investors to follow, and to some extent influence, the progress of FiberCop's network rollout.
11. TIM committed to put in place adequate measures (Chinese walls) that prevent operators from exchanging sensitive business information through FiberCop.
12. TIM and Tiscali committed to renegotiate their agreements with lower minimum purchase requirements. In addition, the co-investment agreement would not be formally linked to TIM's other agreements with Tiscali.

<sup>259</sup> as summarized by Mr Luigi DI GAETANO in its presentation 'Competition dynamics of tower and access infrastructure companies: AGCM's experience' to the BEREC workshop held on 20 June 2023.

<sup>260</sup> by 30 April 2026, FiberCop will connect 9.7 (70%) of the aimed at 13.9 million premises.

In parallel, Fibercop, Fastweb<sup>261</sup> and Tiscali<sup>262</sup> also made commitments.

In its aforementioned decision of 15 February 2022, the Italian NCA accepts and makes these commitments binding.

## 7.6 Poland

### 7.6.1 Cellnex/Polkomtel Infrastruktura

By decision<sup>263</sup> of 18 June 2021, the Polish NCA cleared unconditionally the acquisition of Polkomtel Infrastruktura by the Spain-based tower company Cellnex for €1.6bn.<sup>264</sup> Polkomtel Infrastruktura is the subsidiary of Cyfrowy Polsat, that owns both passive and active mobile telecoms infrastructure. The analysis conducted by the NCA showed that although Cellnex Poland will own more than 50% of the telecommunications masts used by mobile networks in Poland after the acquisition of Polkomtel Infrastruktura, the concentration will not lead to a restriction of competition. Cellnex Poland's acquisition of masts previously used mainly by Polkomtel, while not limiting competition, may, according to the NCA, lead to easier access to infrastructure for other operators as Cellnex Poland, which is not an operator but an infrastructure manager, has an economic interest in making masts available to multiple parties at the same time. As a result, the transaction could have a positive impact on the competition between operators and, potentially, facilitate the development of smaller operators, who will be able to take advantage of infrastructure available to them in the market instead of developing their own, as has been the case to date.

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**261** Available at: [https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/9C1C6E9601031B3BC125874F004FCF75/\\$File/p29807\\_all2.pdf](https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/9C1C6E9601031B3BC125874F004FCF75/$File/p29807_all2.pdf) (last accessed 15.09.2023).

**262** Available at: [https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/9C1C6E9601031B3BC125874F004FCF75/\\$File/p29807\\_all5.pdf](https://www.agcm.it/dotcmsCustom/getDominoAttach?urlStr=192.168.14.10:8080/41256297003874BD/0/9C1C6E9601031B3BC125874F004FCF75/$File/p29807_all5.pdf) (last accessed 15.09.2023).

**263** The case number is DKK-2.421.13.2021.AI – See [https://uokik.gov.pl/koncentracje.php?news\\_id=17312](https://uokik.gov.pl/koncentracje.php?news_id=17312) A press release in English is available on: [https://uokik.gov.pl/news.php?news\\_id=17564](https://uokik.gov.pl/news.php?news_id=17564) (last accessed 15.09.2023).

**264** <https://www.broadbandtvnews.com/2021/03/01/cellnex-to-buy-cyfrowy-polsat-company/> (last accessed 15.09.2023).

## 8 Annex II - Workshop report

On 20 June 2023 from 10h-14h30, BEREC and WIK-Consult held a workshop at the IRG building in Brussels (Rue de la Science 14A, 1040 Brussels, Belgium).

The aim of the workshop was to collect stakeholders' views for the **BEREC study on the evolution of the competition dynamics of tower and access infrastructure companies not directly providing retail services**<sup>265</sup>. This study has been commissioned to WIK-Consult by BEREC. The main objectives of the workshop were:

- (i) to explore how and why infrastructure companies have been formed, their future plans and faced challenges
- (ii) to understand the structure of the companies, their business model, expected profitability and their access offers, and
- (iii) to analyse the implications for competition and investment in fixed and mobile very high-capacity networks.

The workshop concluded with a discussion around the implications of the rise of infrastructure companies for regulation under the EU Electronic Communications Code, BCRD and forthcoming Gigabit Infrastructure Act.

The workshop was held in hybrid format. Around 30 participants attended it in person including the majority of the speakers, representatives from certain NRAs, representatives from the BEREC Office and WIK Consult study team, as well as a single representative from each of the trade associations invited (ECTA, ETNO, EWIA, FTTH Council Europe, GIGAEurope, and GSMA). The other speakers as well as other external interested parties attended the conference via Webex. A total of around 200 participants took part virtually, reflecting the perceived importance of the topic and interest by stakeholders in the programme and speakers.

### Workshop proceedings

The workshop started with introductory remarks by Ilsa Godlovitch (WIK Consult) and the Market and Economic Analysis (MEA) Working Group co-chairs Iulia Zaim-Grigore and Jordi Canadell. Iulia Zaim-Grigore and Jordi Canadell highlighted the objectives of the workshop. Thereafter, Ilsa Godlovitch presented the objectives and methodology of the study that WIK-Consult was preparing for BEREC, with particular emphasis on the study timing and opportunities for stakeholder engagement.

The workshop was divided into three sessions (see the agenda in the annex) and the main discussions are presented below:

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<sup>265</sup> See BEREC WP 2023 – item 1.2. - <https://www.berec.europa.eu/en/document-categories/berec/berec-strategies-and-work-programmes/berec-work-programme-2023> (last accessed 15.09.2023)



### ***Session 1: The rise of the towercos - Trends in mobile infrastructure outsourcing***

The first session was chaired by Christian Hocepiéd (University of Namur) and involved presentations from companies with different towerco business models (Cellnex, Vantage Towers and INWIT), as well as examining the perspective of telecom operators divesting infrastructure and/or seeking access to towerco facilities (1&1 and Telefonica).

- **Jaume Pujol** introduced **CELLNEX** as a neutral, wholesale and independent infrastructure provider that started its operations in Spain and subsequently expanded to other EU member states. He noted that Cellnex operates and maintains physical infrastructure that is open to any customer and thus creates a pro-competitive environment. Cellnex's three principal areas of business encompass (i) wireless communications, (ii) broadcasting (mainly in Spain), and (iii) ancillary network services (e.g., for government agencies and municipalities). Starting with around 7,000 sites in Spain, Cellnex has increased its number to 135,000 sites (almost twentyfold) and now operates in 10 EU member states, as well as the UK and Switzerland (with more than 10,000 sites each in France, Italy, Poland, UK, and Spain). Cellnex has invested around 40 billion Euro and has reached more than 40 agreements with clients in the countries where it operates. Cellnex builds new sites for mobile operators "on demand" on the build to suit program. As regards the future, Cellnex's focus will remain on wholesale services; there are no plans to expand into the retail market. In order to sustain its growth, Cellnex aims to attract as many additional tenants as possible to its existing sites, and to consolidate and rationalize its network. In relation to regulatory landscape, Cellnex would like to see an investment friendly environment with protection for existing infrastructure and easier permitting processes. Unreasonable regulatory obligations that could create uncertainty and speculative/opportunistic behaviours should be avoided if the sector wants to deliver the challenges of the Digital Decade programme.
- **Ralf Capito** of **VANTAGE TOWERS** presented his company as a new towerco entrant in the EU. Founded in 2020 as a carve-out by Vodafone, Vantage Towers now operates in 8 European countries directly and in two additional ones via a Joint Venture (Cornerstone, UK; INWIT, IT). Across this footprint it manages more than 83,000 tower sites (in Italy, Germany, and UK the company operates more than 10,000 sites each). The company plans to invest and build thousands of new towers in the coming years, including pilot projects of wooden towers to reduce its environmental footprint. In 2023, a consortium consisting of GIP (Global Infrastructure Partners) and KKR (Kohlberg Kravis Roberts & Co) entered into a strategic partnership to invest in Vantage Towers. The company has been awarded public funds for GINT for a national 5G corridor project as well as other 5G CEF cross-border projects (5GonTrack, 5G Carolina) and is working on additional ones. The company was also awarded other funds for the installation of new sites in rural areas and white spots, e.g., the MIG program in Germany and is willing to consider other opportunities in its footprint. Vantage Towers operates passive infrastructure (macro sites, mobile cell sites, and small cells) and is open to all operators and businesses seeking to enable their connectivity (neutral host model). Its main customers include large European MNOs and other enterprise customers such as broadcasters, utility companies and potentially railway operators. The sharing of passive infrastructure leads to more infrastructure-



based competition among MNOs and Vantage Towers aims to increase its current tenancy ratio of 1.44 to 1.5 in the near to medium term. With regard to the regulatory environment, Vantage Towers criticises the long permit procedures across MS with an average duration of one year (without tacit approval) and lack of access to public infrastructure and buildings. Vantage Towers considers that the potential access and price obligations for towercos as part of the GIA proposal are disproportionate and will put past and future investment at risk, especially in the absence of a specific impact assessment and without any proven market failure among European towercos to address. For now, there is no market failure identified.

- **Fabio Ruffini** of **INWIT** described the company as the largest towerco in Italy with a market share of approximately 45%. Originally a carve-out by Telecom Italia in 2015, the company merged with Vodafone tower assets in Italy to foster the efficient development of 5G. INWIT is listed in the stock market and has no controlling shareholder: less than 30% of INWIT's shares are held by Daphne 3 S.p.A., while about 32% is held by Central Tower Holding Company B.V. and more than 36% are held by other investors. The company operates more than 23,000 towers and 7,000 remote units for DAS and Small Cells. Different to Cellnex, they only grow organically and lease the land where they build the towers. Its business model focuses on hosting passive infrastructure to telecommunications operators. INWIT plans to invest in additional towers which are open to all access seekers. Currently the company has about 50,000 tenants with a tenancy ratio of 2.2 (the highest tenancy ratio in Europe) and is targeting 2.6 by 2030. In addition, it has a small presence in the fibre market and operates around 1,000 km highway and roadway tunnels. With Telecom Italia and Vodafone, INWIT has two anchor partners, but its assets remain available to all market players, such as MNOs, FWA broadband providers and other clients. INWIT (alongside TIM and Vodafone Italia) received EU funds for the implementation of (wireless) 5G network infrastructure in market failure areas in Italy. From a regulatory point of view, INWIT encounters challenges with the processes of permit granting due to the high degree of fragmentation featured by the local authorities (e.g., it takes up to 6-8 months in Italy for permits alone to be obtained and 2 to build). INWIT underlines that the Italian transposition of BCRD (i.e. Legislative Decree n.33/2016), provides a blueprint for infrastructure access regulation that, in INWIT's view, seems more advanced than GIA proposal. Furthermore, limits in electromagnetic emissions (EMF) in Italy are much stricter compared with other EU countries. INWIT's towerco business model is already based on providing access to all potential network operators.
- **Marc Schütze** of **1&1** presented the perspective of a newly launched MNO seeking access to infrastructure: he noted that, after its market entry as the fourth MNO in Germany, 1&1 managed to secure a national roaming agreement with Telefónica Germany following EU intervention, as a remedy taker. The company has agreements with Vantage Towers and American Tower but claims that Vantage Towers has given preferential treatment to Vodafone, a company with which it is affiliated, at the expense of 1&1's network roll-out. After a formal complaint by 1&1, the Federal Cartel Office (BKartA) is currently investigating allegations that Vodafone obstructed 1&1's network expansion in favour of its own network rollout. 1&1 considers that the market for infrastructure is not sufficiently competitive. Therefore, 1&1 favours the approach proposed in the draft GIA to include towercos within the scope of "network operators" which would mean that

they fall within the regulatory scrutiny of NRAs. As shared infrastructure is highly significant for alternative operators, 1&1 considers that an exclusion of these infrastructure companies (from GIA) would threaten the efficiency of Gigabit rollouts and lead to an unequal regulatory treatment of infrastructures.

- **Oliver Füg** of **TELEFONICA** provided an overview of the role of Telxius, the infrastructure company created by Telefónica in 2016 with ca. 16,000 towers. Following expansion in subsequent years, Telefonica divested around 31,000 towers (the European and Latin American tower divisions of Telxius) for 7.7 billion Euro to American Tower in 2021. This represents the highest multiple ever in the tower business and increases vendor diversity in tower market. After the divestiture, Telefónica Germany retains around 28,000 sites nationwide and is the largest MVNO host in the country (including 1&1). The company has engaged in a sell and leaseback agreement with Telxius / American Tower covering around 10,000 sites. American Tower remains free to offer additional contracts to other operators. Regarding regulation, Telefónica would like to see greater availability and accessibility of information about usable infrastructure. Telefonica also considers that the length of administrative proceedings for permits and Rights of Way could be significantly reduced by municipalities and authorities.

Following the session, there was a brief discussion with the participants of the workshop on site and online. The main questions raised concerned:

- (i) the definition of wholesale-only operators and how this notion will be delineated in the study;
- (ii) the leverage percentage/ratio that the infrastructure companies can afford in their modus operandi;
- (iii) the geographical overlap of infrastructure companies;
- (iv) the later timeframe of divestitures in Europe when compared to the USA.

There were also some clarification questions as regards regulation and the perspectives taken on that. Vantage Towers responded to the points raised by 1&1 concerning the investigation by the BKartA, asserting that they had not violated antitrust laws as a neutral host and explaining that this investigation is the best proof that the current system of ex-post abuse control is working. 1&1 replied that the lack of timely deployment could have serious regulatory repercussions for them as an MNO and thus small network operators need (regulatory) protection.

In response to queries on this point, some towercos mentioned they have no plans to offer active infrastructure or retail services to customers although there are frequent ongoing discussions about climbing the value chain. No towerco expressed interest in participating in frequency auctions. The towercos also mentioned that after the expiration of a tenancy agreement, contracts are typically renewed without significant differences in the conditions and under regular market conditions. In response to a participant who highlighted the high debt levels of Cellnex, the representative noted that this was a result of their previous M&A ventures and that it should not be problematic for their business. A representative of GSMA mentioned that the divestiture of passive infrastructure in Europe is slow and lags behind projects in other parts of the world.

## ***Session 2: Fiber netcos, business models and implications***

The second session was chaired by Ilsa Godlovitch (WIK Consult) and involved presentations from two fibre netcos (XpFibre and Onivia) and two telecoms operators which had established and also made use of infrastructure from fibre netcos (Iliad and Vodafone).

- **Lionel Recorbet** of **XPFIBRE** introduced his company as the largest independent FTTH operator in France. XpFibre (then SFR FTTH) was founded in 2018 as a divestiture from SFR / Altice. In 2019, Covage was acquired by XpFibre (then SFR FTTH) to increase its footprint in the fibre market. The footprint covers around 25% of the French territory in medium and low-density areas providing broadband access (mostly on passive infrastructure) to about 7.3 million premises in France. Its business model is based upon an open access reference offer, with standard conditions to all ISPs (residential and enterprise market). All reference offers are public and equal conditions for every operator apply, regardless of commercial volumes. The company benefits from a 20-year contract for deployment and maintenance of the network from Altice. XpFibre has ca. 2,800 customers (status at end 2022) and practices co-investment with ISPs to mitigate take up risks. The company has also received public subsidies for the rollout in rural areas, with 100% households FTTH coverage obligations attached. The reference offers of XpFibre with its clients contain partial inflation pass-through as part of wholesale contracts and typically last 20 years (in the IRU form). XpFibre benefits from the SMP regulation of Orange in France which provides access to ducts and poles, and is considered key in contributing to the success of the business. Therefore, it heavily relies on long-term predictable terms and conditions (such as maintenance) for these wholesale products by Orange, including as regards tariffs. It also uses existing infrastructure from energy suppliers.
- **Icía Martínez Núñez** of **ONIVIA** presented her company as the first independent pure fibre wholesale operator in Spain. Optical fibre is the primary asset of the company. It is focused on wholesaling and does not intend to expand to retail services. Onivia was founded at the end of 2019 (investor financed) with the acquisition of 940,000 FTTH premises in major Spanish cities. Onivia's network is open to all operators. Onivia has launched two major bitstream products: Integra is aimed at large and medium telco operators whereas Impulsa addresses local and regional operators. Due to further acquisitions of rural fibre networks, Onivia's network coverage expanded to around 3.6 million households in 1,300 municipalities at the end of 2022. Typically, Onivia enters into long-term contracts with the larger Tier 1 telco operators. With different pricing offers, Onivia also connects many small and medium operators to its network and can thus achieve a high network penetration. It also provides associated services for ISPs, e.g., connectivity, installation, or mobile service with attractive offers. Some challenges they face are related to the market saturation and the overlap of networks. On the contrary, they are benefiting from access to Telefonica's regulated infrastructure based on cost-orientation, and in the past have received subsidies for deploying in rural areas.
- **Wojciech Rosiak** of **ILIAD** gave an overview of the company's activities in 3 European countries (France, Italy, and Poland), all of them being focus countries for BEREC's upcoming study. Iliad Group has a towerco partnership with Cellnex

in all three countries and maintains an FTTH netco partnership with Infravia in France and Poland. Iliad Group also partners with numerous other companies to access fibre, e.g., Open Fiber, Fibercop, and Fastweb in Italy. In Poland, Iliad acquired mobile network operator Play in 2020. In 2022, Iliad also bought the retail cable operator UPC, which reaches about 3.8 million premises. The cable network was carved out in March 2023, thus creating wholesale HFC & FTTH network operator Polski Swiatlowod Otwarty (PSO). Moreover, Iliad sold half of its stake in PSO to InfraVia Capital Partners. This move provides Iliad with additional funds to build an FTTH network for 2 million premises. Iliad considers that the main benefit of carving out HFC and fibre wholesale units is to achieve greater network utilization and secure long-term financing for rollout plans. In high density areas, there is a high degree of overlap between the infrastructures. PSO received no state aid funds in Poland. For Iliad, the commitment to non-discrimination is a key success factor for wholesale cooperation.

- **Manuel Braga Monteiro** and **Stephen Pentland** of **VODAFONE** presented the dual perspective of the company as an investor in VHCNs but also as a wholesale customer for alternative fibre companies and (regulated) incumbents in many EU markets: Vodafone is present in 10 European Countries (9 member states plus UK) and has the largest next generation broadband infrastructure coverage in Europe (with fibre assets in Spain, Ireland, and Portugal, as well as cable assets in Germany, Netherlands, Romania, and Czechia). Vodafone is also the anchor commercial customer to several network fibre investors and helps drive their fibre investments. The company is also reliant on (regulated) wholesale access to incumbents in some countries to serve their customers there. This represents a challenge to Vodafone, as the incumbents' strategies vary widely across Europe. In Ireland, Vodafone won a tender in 2014 to partner in a Joint Venture with ESB, the national electricity company, to build a wholesale open access fiber network: SIRO. The Joint Venture partners brought together a combination of capabilities and assets and aim to create a competitive wholesale market, as well as expand access to VHCN in Ireland. SIRO has an open commercial wholesale model with 20 retail companies using the infrastructure and it is based upon non-discriminatory volume-based contracts. The rollout took place along the electricity company's network, although there were some challenges linked to managing safety and the conditions of the legacy electricity infrastructure (ducts and poles). SIRO invested around 1 billion Euro and has passed 500,000 premises in over 130 Irish cities and towns. The combination of the fibre investment by smaller players and a competitive retail market has resulted in strong and effective infrastructure competition in Ireland and gave incentives for incumbent Eir to initiate its own fibre programme. While Vodafone considers that GIA is important in supporting alternative networks' fibre rollouts, regulated SMP access is still needed for nationwide broadband retailers.

After the session, the companies addressed some questions: XpFibre was asked if only providing passive wholesale products limits the number of its ISP clients. XpFibre responded that 95% of the French retail market is served by four operators and these players request passive infrastructure access (and operate themselves on the wholesale market for small ISPs offering active solutions). However, some local ISPs have asked for active infrastructure access, so XpFibre also offers (limited) bitstream access. XpFibre elaborated that the penetration rates in its footprint are similar in denser-populated areas

to the ones in scarcer-populated zones, while a de facto monopoly remains at in-building level.

A member of ECTA noted that regulated access to ducts and poles are essential to support alternative networks operators' ability to invest including on the long term. Thus, regulation in that regard is still relevant. Another point that was made reflected on the profitability which is expected through the new investments.

One participant representing Deutsche Glasfaser asked for clarification on the scope of the study as regards the wholesale-only companies, as many network operators have a retail branch, for instance in Germany. Ilsa Godlovitch responded that the recent trend of outsourcing infrastructure which is reflective of the creation of companies not directly providing retail services was the focus of the study.

### ***Session 3: Perspectives of regulators and competition authorities, implications for future regulatory practice***

The third session was also chaired by Ilsa Godlovitch (WIK Consult) and focused on the perspectives of regulators and competition authorities on the divestiture trends and how this affects competition, as well as providing an opportunity for the stakeholders to give their views on the regulatory landscape. Representatives from the Italian Competition Authority AGCM and the UK Electronic Communications Regulatory Authority Ofcom gave presentations in the session.

- **Luigi Di Gaetano** of the Italian Competition Authority **AGCM** focused on the competition dynamics of tower and access infrastructure companies. He noted that competition concerns regarding towercos include horizontal and vertical effects in mergers, vertical restrictions in tenancy agreements and coordinated effects (in Joint Ventures). He noted that the Italian market had featured a number of cases. The European Commission concluded that the Vodafone Italia / TIM / INWIT joint venture would result in substantial combined market shares and created competition concerns. AGCM reached similar conclusions regarding Cellnex Italia's acquisition of CK Hutchinson. As a result, both were required to grant access in areas where they benefited from market power. AGCM also opened an investigation regarding competition problems linked to the Joint Venture FiberCop between Telecom Italia, KKR and Fastweb in late 2020. FiberCop aimed to deploy fibre to more than 2,500 cities and ca. 13.6 million premises. Commitments for TIM and Fastweb were established to balance the problems of foreclosing investment by alternative operators and the need to incentivise the deployment of FiberCop's infrastructure. For instance, to support competition in the wholesale and retail market, TIM must offer dark fibre backhaul access to alternative operators for 20 years. FiberCop was greenlighted by AGCM in February 2022.

After the presentation, one participant asked if the infrastructure competition would deteriorate in the future as a result of the proposed merger of Open Fiber and TIM netco. Mr Gaetano responded that AGCM could not comment and that the situation



regarding possible merger plans in Italy was fluid. There was a comment from the floor that, from a competition perspective, Open Fiber and FiberCop's deployment is complementary, having built infrastructure in different areas.

- **Brian Potterill** of **OFCOM** discussed competition dynamics linked to infrastructure companies in the UK. He noted that, in the mobile market, two major network sharing agreements have been reached in recent years - between Vodafone / Virgin Media O2 and EE / Three. Mobile Broadband Network Limited (MBNL), a JV between EE / Three, is mostly passive sharing. Beacon, involving Vodafone / VMO2 is mostly active sharing, encompassing different arrangements in different parts of the country. In the fixed sector, different regulatory levers have supported fibre rollout. The Ofcom Strategic Review 2016<sup>266</sup> initiated the legal separation of Openreach. The Wholesale Local Access Market Review in 2018 introduced duct and pole access as a remedy, supported by CEO level commitment to support its effective implementation. The Wholesale Fixed Telecoms Market Review in 2021 included a loosening of cost-based remedies and some pricing flexibility. The government strategy to promote fibre investment also included a permissive planning regime for fixed networks. Rights of Way are available for any provider of infrastructure or network, giving them the ability to install poles and dig up the public highway. The UK government also launched a £5bn Gigabit programme. Ofcom regarded the outcome as broadly positive. As a result of these actions, an acceleration of fibre rollout and infrastructure competition can be observed with more than 100 fiber networks with different business models (e.g., focus on multi-dwelling units or rural areas). To conclude, the point that no substantial business/ competition failure has been identified by Ofcom so far was made.

After the presentation, a representative of ECTA asked whether it was a problem that BT only requests fibre access from Openreach and not from any other operators. Ofcom responded that the Openreach rollout is very quick and accounts for over two-thirds of the total rollout. Therefore, it remains possible that BT will never buy from other alternative operators. It was also briefly discussed that the relatively easy access to capital access in the UK may be one driver for the rapid deployment of fibre.

Then, the workshop participants were asked to share their positions about the implications of the development of infrastructure companies - towercos and fibrecos - for regulation, as well as to explain how they interpreted concepts relevant for regulation (e.g., wholesale-only, network operator under the BCRD). Other questions that were asked concerned (i) the different implications of the companies' shareholding on the provision of access, if any, (ii) potential issues which could be faced when leasing infrastructure, (iii) the relevance of SMP regulation, as well as state-aid financing as a "regulatory tool", and (iv) potential over-building problems and infrastructure competition.

Dragan Jovanovic of **ATC/EWIA** stated that the future regulatory regime should follow an evidence-based approach and be more about (competitive) effects than definitions. He added that there is no evidence or even indication yet that there are problems with access

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<sup>266</sup> See Ofcom (2015): <https://www.ofcom.org.uk/consultations-and-statements/category-1/dcr-discussion>

which have given rise to anti-competitive effects or, more generally, market-failure associated with independent towercos, and therefore no regulation on towercos is needed.

Christof Sommerberg of **Deutsche Glasfaser** argued that the definition of infrastructure companies may get blurred as many (private) infrastructure companies offer retail services due to retail market conditions but keep their wholesale business. He also noted that care would be needed regarding potential leverage by SMP operators from copper regulated access to fibre. He noted that wholesale-only seems viable when the wholesale-only operator is a spin-off of SMP operator, as it benefits from captive customers, but could otherwise be challenging. Generally, neither SMP obligations, nor state aid interventions are needed if the retail market is competitive.

Luc Hindrycks of **ECTA** noted that ex-ante regulation would remain important, while access to ducts needs to be regulated for a very long time and claimed that incumbents had not lost money through regulated products. He said that access to ducts that were built with taxpayers' money should be available for 50+ years. Moreover, he questioned whether wholesale only operators should be referred to as such if they are owned by a vertically integrated operator. Referring to long-term perspectives of wholesale-only operators, he added that new competitive issues can emerge if such an operator becomes vertically integrated. He further added that the European model, including the well-established competition law principle that those with special power also bear special responsibility, must be preserved. Deregulation has never led to more investment. On the contrary, where there is less competitive pressure, investments and innovation are ultimately reduced. Hence, the EECC remains fit for purpose, is technology agnostic and based on the timeless basic competition law principles. It allows to regulate any technology and has introduced the concept of VHCN.

Stephen Pentland of **Vodafone** noted that he considered that the dynamics in the mobile and fixed market are quite different as there are fewer infrastructure companies in the fixed sector compared with mobile. Regarding GIA, he noted that access to ducts and poles might significantly accelerate smaller operators' network investments. He also added that future regulation must take into account that the cost of financing has increased considerably which particularly disfavours new entrants. As a result, the divestiture of towers is one opportunity to inject external finance into companies. Finally, the importance of commercial agreements for setting up the regulatory scenery has been stressed.

**ETNO** emphasized that regulation should strive for technological neutrality. They also highlighted the importance of commercial agreements across different business models and markets. They note a preferential regulatory treatment for wholesale-only as defined in the EECC. The Code exempts SMP wholesale-only operators from symmetric access regulation. At the same time, they noted that vertically integrated operators make substantial investments in networks as well, promoting competition through the



implementation of non-discrimination safeguards. It is important that the regulatory framework, explicitly recognizing other pro-competitive models that enhance cooperation is implemented by vertically integrated operators (e.g., co-investment and RAN-sharing).

## 9 Annex III – Country fiches

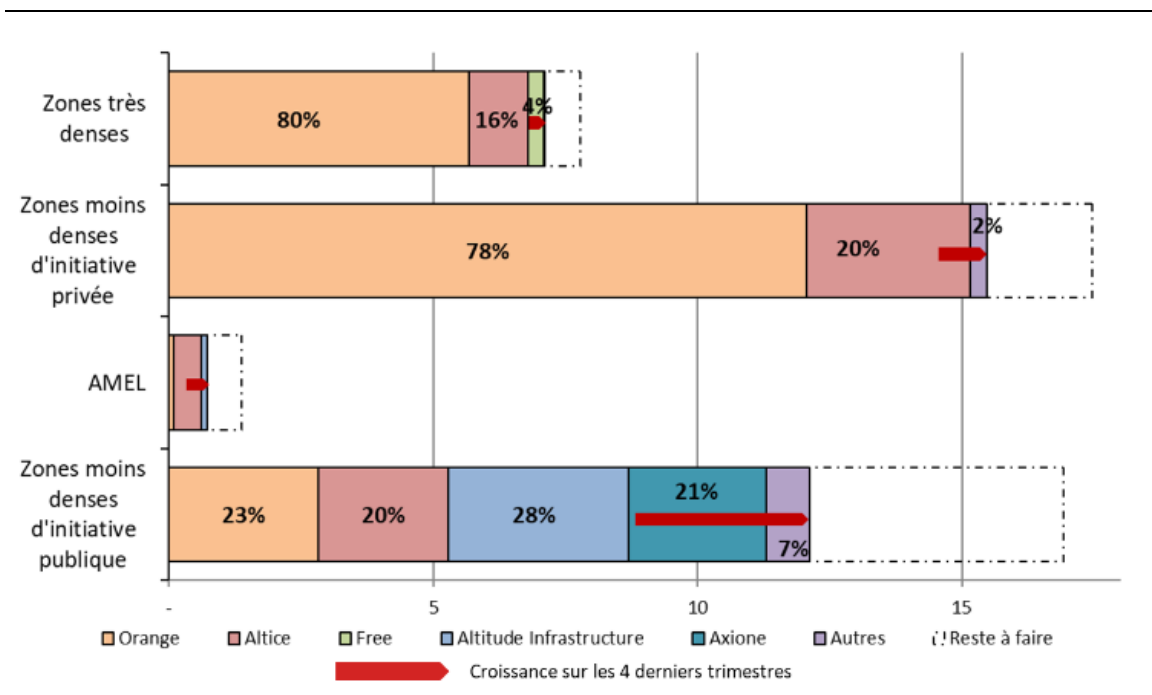
### 9.1 Country fiche: France

*Disclaimer: this country fiche covers companies involved in a transfer or a separation (e.g. divestment, spin-off, externalization) of key network assets to be used as inputs for the provision of electronic communications services at the retail level. The considered transfers or separations have taken place in the last 5 years. Companies' opinions reflected in this document are limited to those of the companies which have been interviewed during the research phase of this study.*

#### 9.1.1 Overview of coverage and service providers

In Q1 2023, 81% of households in France had access to FTTB/H networks (homes passed). The figure below shows the share of coverage of the network operators.

Figure 9-1: FTTH roll-out in France by zone and share of network operators



Source: [https://www.arcep.fr/fileadmin/cru-1677573101/reprise/observatoire/HD-THD-2017/2023-t1/Observatoire\\_HD\\_THD\\_T1\\_2023.pdf](https://www.arcep.fr/fileadmin/cru-1677573101/reprise/observatoire/HD-THD-2017/2023-t1/Observatoire_HD_THD_T1_2023.pdf) (last accessed on 23.11.2023).

Overall, the two largest fibre operators are Orange and Altice.

In 2021 Orange, Banque des Territoires, CNP Assurances and EDF Invest launched a new company called Orange Concessions. It comprises 24 public-initiative networks (RIPs) across France.

Altice has split the network operation from the telco operation (SFR and media incl. a news outlet) and created XpFibre.

Orange Concessions and XpFibre were created less than five years ago.

In February 2013, the French government defined the France Très Haut Débit plan, which has enabled the mobilization of some 3 billion euros in state subsidies to support local authority projects (public-initiative networks whose construction and/or operation among others have been entrusted to Orange Concessions or XpFibre ).<sup>267</sup>

In France, there is a symmetric regulation regime governing fibre architecture and wholesale access. This is complemented by SMP regulated access to ducts and poles of Orange which is used extensively.

In mobile markets the main infrastructure operators are Cellnex (independent), Totem (Orange's subsidiary), TDF (independent), ATC France (independent) and Phoenix France International (JV between Phoenix Tower International and Bouygues Telecom).

### 9.1.2 Significant infrastructure companies present

Infrastructure companies present in France include among others XpFibre, TDF, American Tower Europe, Cellnex, and the incumbent controlled companies Orange Concessions and Totem. Some of these are further described below.

In addition, the French market includes intermediaries which acquire IRUs in infrastructure and sell this onto telecom operators e.g. Free has created IFT, Bouygues Telecom uses SDAIF and SDFAST, Orange uses Scorefit. These intermediaries are typically joint venture companies with infrastructure funds and banks.

#### 9.1.2.1 XpFibre

##### 9.1.2.1.1 Shareholding / control

In March 2019, Altice Europe finalised the creation of SFR FTTH and an agreement was reached with the infrastructure funds of the French group Axa, the German group Allianz and the Canadian fund OMERS, for a minority stake in the capital of SFR FTTH. These long-term investors acquired this minority stake for €1.8 billion.

Altice France remained the majority shareholder in SFR FTTH, which became XpFibre on 30 March 2021.

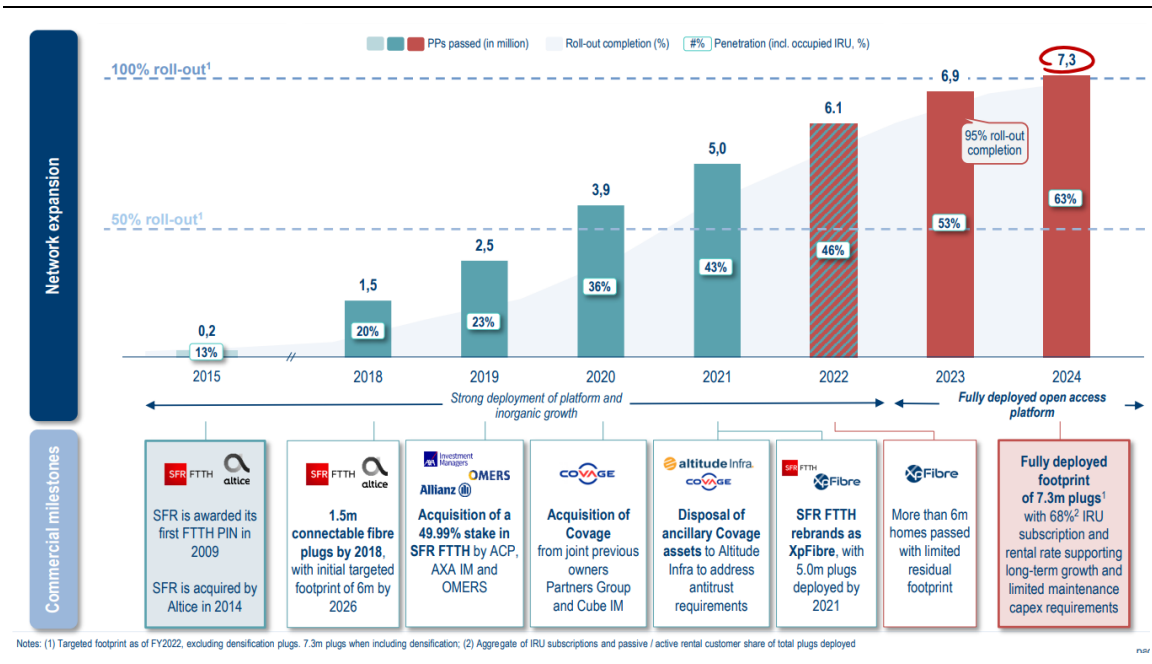
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<sup>267</sup> The public-initiative networks not only were entrusted to Orange Concession and XpFibre but also to other operators, such as Altitude, Axione and TDF.

XpFibre took over the assets of SFR FTTH and those resulting from the acquisition of Covage.

XpFibre is specialised in the planning, construction and operation of telecommunications networks and infrastructure for local authorities. XpFibre operates in low density areas (AMII and AMEL zones, public initiative networks) and in high density areas (XpFibre 92). The fibre optic network deployed by XpFibre is intended to be neutral and open to all operators.

Figure 9-2: XpFibre network expansion and commercial milestones

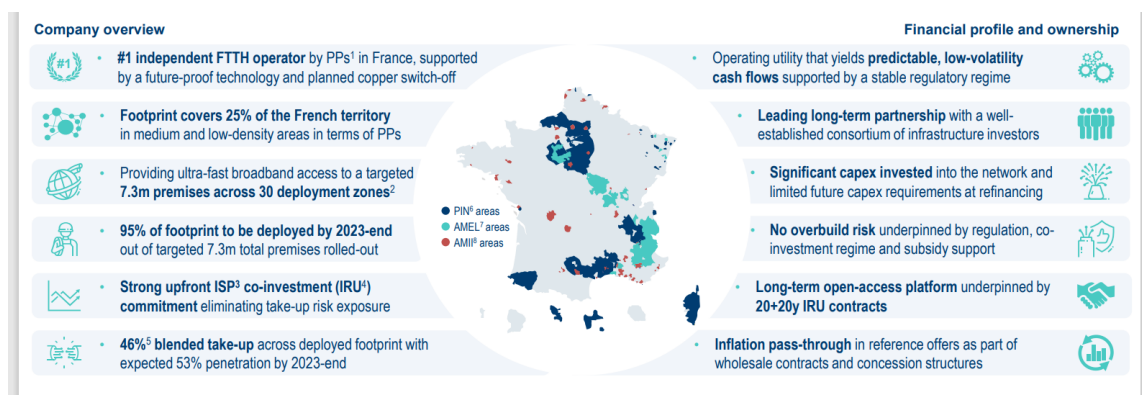


Source: XpFibre (2023): Workshop presentation.

### 9.1.2.1.2 Business model, assets under control and future plans / opportunities

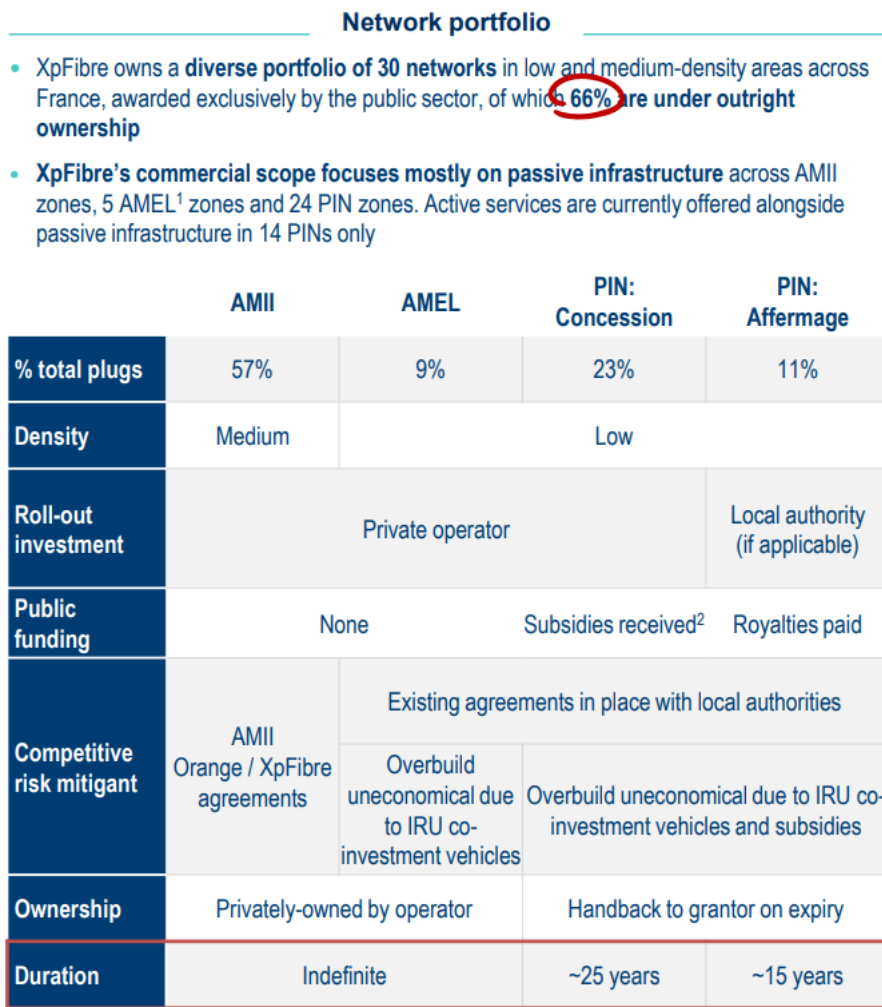
XpFibre is present in 24 Public Initiative Networks, rolled out under Public Service Delegations, 5 AMEL zones and in the AMII zone. In the AMII zone XpFibre has a coverage of 2.6 million fibre connections. Overall, XpFibre targets a coverage of 7.3 million plugs by 2024. They have already reached 6.3 million plugs (84% of the goal, 95% will be reached by the end of the year).

Figure 9-3: XpFibre Company overview



Source: XpFibre (2023): Workshop presentation.

Figure 9-4: XpFibre network portfolio



Source: XpFibre (2023): Workshop presentation.

Most of the network is built using existing physical infrastructure (ducts and poles from Orange). They also use poles from the energy company Enedis<sup>268</sup>, and occasionally ducts from local authorities in cases where these have been deployed in the context of civil works.

Commercial rollout in high density areas is limited to a small area that came into the company by acquiring Covage (The Seine area acquired from Covage (XpFibre 92) covers ca. 800.000 plugs).

#### 9.1.2.1.3 Main customers, wholesale access products & terms and conditions

XpFibre offers Passive access to fibre in the access network (FTTP - dark fibre), Passive access to fibre backhaul, Fibre bitstream, Duct access and Pole access. The main product is passive access to fibre in the access network and XpFibre expects this to remain unchanged.

There are more than one hundred access seekers and the main customers are Orange, Bouygues Telecom, Free, SFR.

The same conditions apply for all commercial operators (there is a reference offer based on passive infrastructure). The reference offers refer to the passive infrastructure (rental or IRUs) with a contract duration of 20 years (1€/plug under *ab initio* cofunding, renewal for 20 years).<sup>269</sup>

XpFibre also offers fibre for mobile tower connections (per metre pricing for dark fibre).  
270

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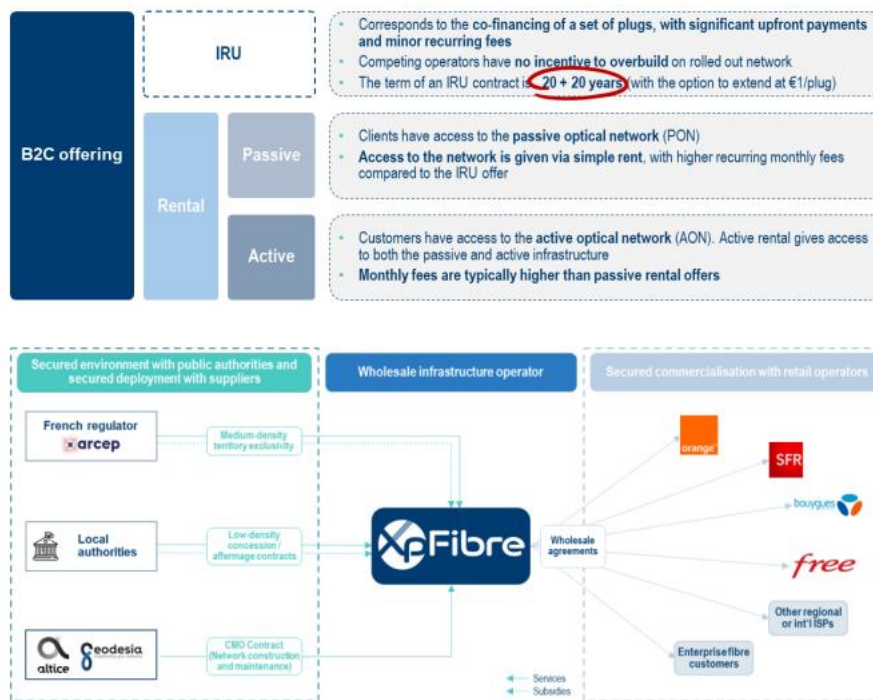
<sup>268</sup> See Workshop Report.

<sup>269</sup> XpFibre (2023): Workshop Presentation and reference offers available at <https://www.xpfibre.com/operateur> (last accessed on 07.11.2023).

<sup>270</sup> XpFibre (2023): Workshop Presentation and reference offers available at <https://www.xpfibre.com/operateur> (last accessed on 07.11.2023).

Figure 9-5: XpFibre wholesale customers

- **Supplier framework (CMO contract)** : XpFibre benefits for a **20-year term of contract** for deployment and maintenance of the network with **Altice**
- **Commercial contracts with ISPs** : XpFibre delivers fiber infrastructure with a 100% open-access model to the residential and enterprise market based on published reference offers



Source: XpFibre (2023): Workshop presentation.

### 9.1.2.2 Orange Concessions

#### 9.1.2.2.1 Shareholding / control

In 2021 Orange, Banque des Territoires, CNP Assurances and EDF Invest launched a new company called Orange Concessions. It comprises 24 public-initiative networks (RIPs) across France. <sup>271</sup>

Orange Concessions was announced in January of 2021, and has been operational since Thursday 4 November 2021. It is 50% owned by Orange and 50% by a consortium comprising Banque des Territoires (Caisse des Dépôts), CNP Assurances and EDF Invest. The partnership that led to the creation of this new structure valued Orange

<sup>271</sup> Orange (2021): Orange Concessions, A milestone in Orange infrastructure strategy, available at <https://www.orange.com/sites/orange.com/files/documents/2021-02/2021%2001%20Orange%20Concessions%20-%20Presentation%20DR1%20Vsent.pdf> (last accessed on 08.11.2023).

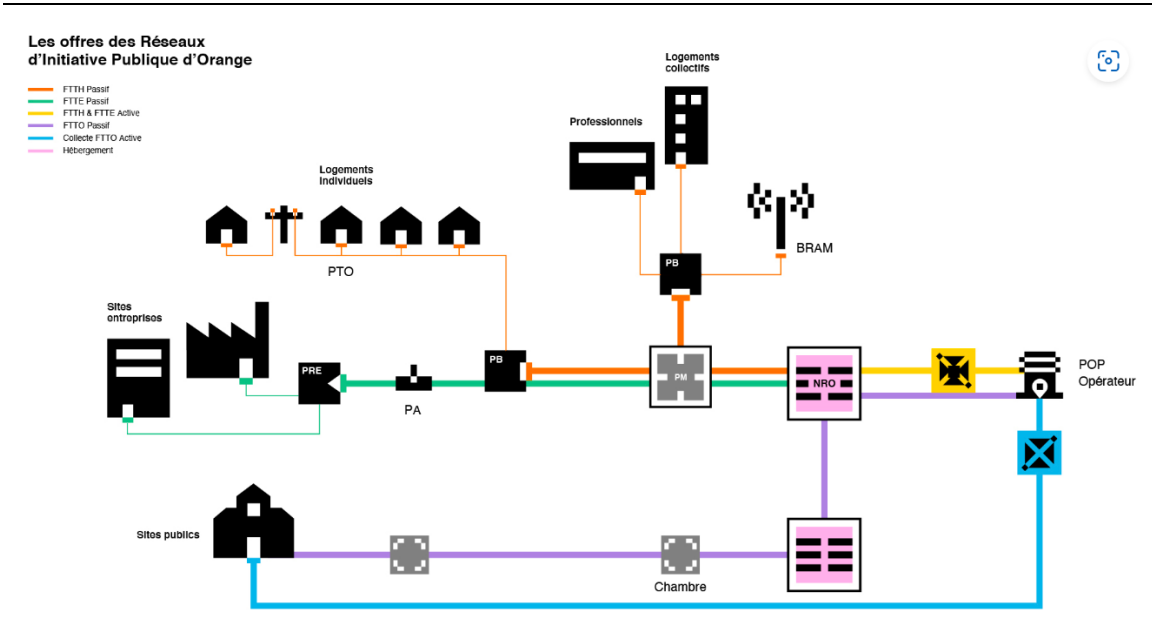


Concessions at €2.675 billion. Orange Concessions announced that by 2025, 30% of FTTH connections in rural France will be operated by Orange Concessions.<sup>272</sup>

9.1.2.2.2 Main customers, wholesale access products & terms and conditions

Figure 9-6 shows the wholesale offers of Orange Concessions.

Figure 9-6: Wholesale offers of Orange Concessions



Source: <https://orangeconcessions.com/fr/>

There are over a hundred access seekers and the main customers are Orange, Bouygues Telecom, Free, SFR.

Wholesale access is based on long-term leasing contracts over 21+ years (20 year contracts that are usually renewed once).<sup>273</sup>

9.1.2.3 Cellnex

9.1.2.3.1 Shareholding / control

In France, the objective of the divestment was to release investment capacity for future investment in new infrastructure.

<sup>272</sup> Orange (2021): Orange Concessions, A milestone in Orange infrastructure strategy, available at <https://www.orange.com/sites/orange.com/files/documents/2021-02/2021%2001%20Orange%20Concessions%20-%20Presentation%20DRI%20Vsent.pdf> (last accessed on 08.11.2023).

<sup>273</sup> <https://orangeconcessions.com/fr/nos-offres/> (last accessed on 08.11.2023).

#### 9.1.2.3.2 Business model, assets under control and future plans / opportunities

In France Iliad sold a stake of 70% of its mobile telecommunications infrastructure management company in France to Iliad in December 2019. This included 5,700 sites 2019.<sup>274</sup> Cellnex and Iliad also agreed on a build-to-suit programme of 4,500 sites (2,500 of which were subject to Iliad's commitment).<sup>275</sup>

Cellnex has 28,777 ground based towers, 320 small cells incl. distributed antenna systems and 15,000 km of fibre backhaul in France.

The scope of Cellnex's infrastructure deployment is largely determined by the requirements of its clients.

#### 9.1.2.3.3 Main customers, wholesale access products & terms and conditions

The company offers passive access to towers, to fibre in the access network (FTTP - dark fibre) and to fibre backhaul.

The main customers are Bouygues Telecom, SFR and Iliad.<sup>276</sup>

The leasing terms are market standard but they are not publicly available.

#### 9.1.2.4 Totem

##### 9.1.2.4.1 Shareholding / control

Totem is a subsidiary of Orange with a separate legal structure and which operates in France and Spain.

##### 9.1.2.4.2 Business model, assets under control and future plans / opportunities

Totem's assets include 11,310 ground-based towers, masts, and 5,850 rooftop sites. Totem is also active in DAS and fibre backhaul.

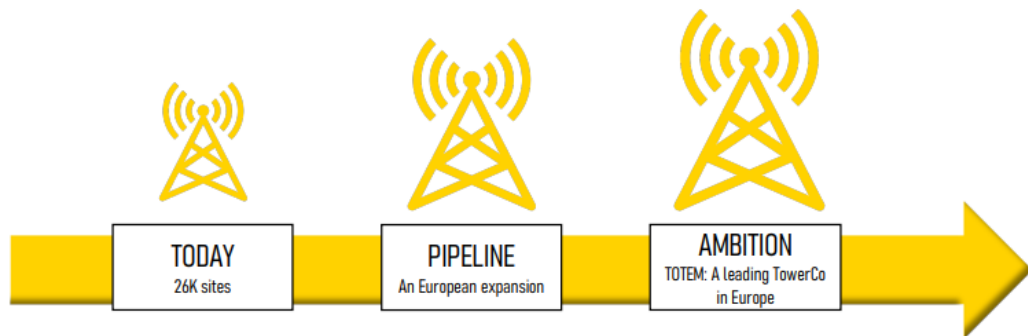
<sup>274</sup> <https://www.ft.com/content/fe39d78-7091-11e9-bf5c-6eeb837566c5> and [https://iliad-strapis3.fr-par.scw.cloud/CP\\_070519\\_Tower.pdf](https://iliad-strapis3.fr-par.scw.cloud/CP_070519_Tower.pdf) (last accessed on 08.11.2023).

<sup>275</sup> [https://iliad-strapis3.fr-par.scw.cloud/CP\\_070519\\_Tower.pdf](https://iliad-strapis3.fr-par.scw.cloud/CP_070519_Tower.pdf) (last accessed on 08.11.2023).

<sup>276</sup> Cellnex (2023): Annual Report 2022, available at <https://annualreport.cellnex.com/2022/assets/documentos/doc-consolidated-management-report.pdf> (last accessed on 09.11.2023).

Figure 9-7 shows the growth strategy of Totem.

Figure 9-7: Growth strategy of Totem



- Tenancy Growth >1.5x by 2026 in France and Spain
- Up to 3 000 new macro sites to be built by 2030
- Carve-out of potential additional sites from Orange footprint (up to 10k)
- Growth off-footprint via acquisitions and BTS programs

Source: Totem (2021): Stand to share, share to win, available at <https://www.totemtowers.com/wp-content/uploads/2023/03/TOTEM-CORPORATE-PRESENTATION-ENG.pdf> (last accessed on 08.11.2023).

#### 9.1.2.4.3 Main customers, wholesale access products & terms and conditions

The main customer of Totem is its shareholder Orange, but Totem is open to provide access to the 4 mobile operators in France.

#### 9.1.2.5 TDF

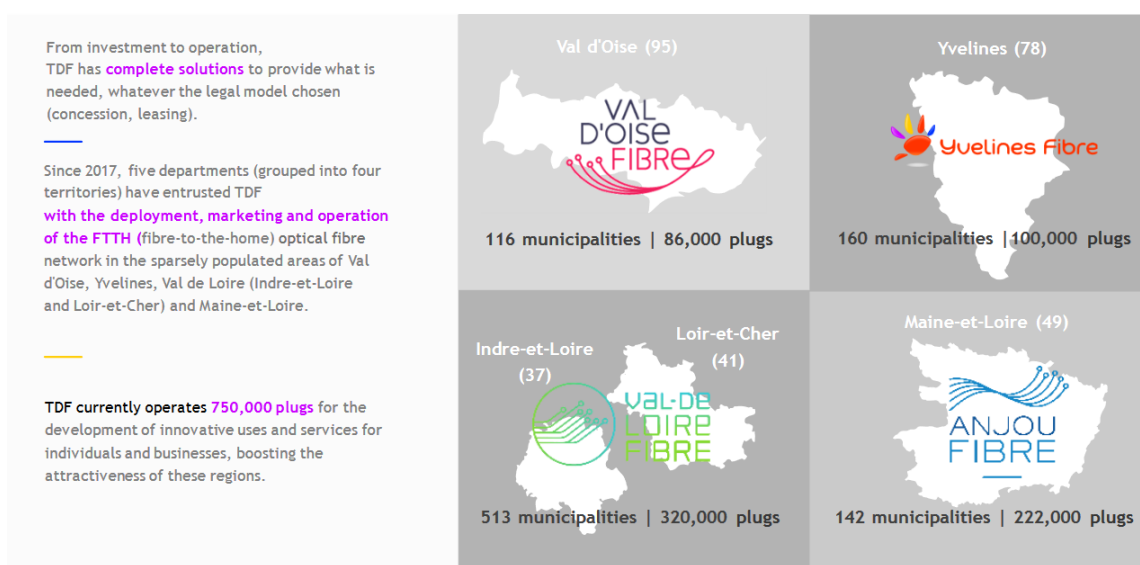
The shareholders of TDF infrastructure are Brookfield Infrastructure Group with 45%, APG Asset Management, PSP Investment and Arcus INFrastructure Partners with 45% and Crédit Agricole Assurances with 10%.

On the mobile side, the company has 19,600 sites (Telecoms, radio and Digital Terrestrial Television infrastructure DTT) including 7,000 telecom ground based sites in use + 800 (in reserve). There are around 700 rooftop towers in use + several thousand (in reserve). TDF has 25 Distributed Antenna Systems (DAS), and also operates small cells and fibre backhaul.

Under French town planning law, a towerco can only build infrastructure if it has a mandate from an MNO. This means TDF consults with MNOs about tower deployment.

In the fixed network TDF operates 750,000 plugs in less dense areas.

Figure 9-8: TDF network



Source: <https://www.tdf.fr/> (last accessed on 23.11.2023).

TDF provides passive access to fibre in the access network (FTTP - dark fibre) and fibre bitstream.

ISPs that are not co-investors have short-term contracts (shorter for residential lines, longer for business lines). ISPs that have co-invested do so on the basis of IRUs.

### 9.1.3 Challenges

#### 9.1.3.1 Challenges linked to deployment of VHCN infrastructure

Infrastructure providers note that long timeframes for permit granting, the price level for the relevant permits as well as non-price terms represent a challenge for deployment for both fibre and mobile networks. Other points raised by French stakeholders include:

- Additional barriers to obtaining permits resulting from citizens' opposition and/or local administrative rules
- Difficulties with the ABF (Architectes des bâtiments de France) concerning monument protection.
- For fibre deployment, lack of adherence by ISPs or subcontractors to technical rules regarding the final connection to the customer ("spaghetti cabling").

#### 9.1.3.2 Challenges associated with accessing assets of infrastructure companies

In France there is symmetric regulation regime for the roll-out of fibre which applies to all undertakings deploying FTTH including infrastructure companies. Access seekers

express that they are largely content with the current system. In fixed markets it is easier than in the mobile market, as there are obligations for other fixed operators in place. IFT is intermediary actor – they buy access on the basis of RO from Orange / Orange Concessions / XpFibre / TDF and others operators – then rent back. Access conditions are very long term so that there is predictability and stability of prices.

Regarding access to mobile infrastructure, one operator has concerns that it may be reliant on access from infrastructure companies as it does not have other options as sites in dense areas are scarce and space is limited. It notes that towers have largely been built by and for other operators' use, and the infrastructure is not dimensioned to grant access to another operator without significant costs. Outside dense areas there could be alternatives to using infrastructure companies but these could be difficult to put into practice, as even where space is available it takes 2 years to build a site. Regarding the potential to choose between accessing the assets of different infrastructure companies, although there is some overlap between ATC and Cellnex, it is complicated to switch sites, and would require changes to the planning of the radio network.

#### 9.1.4 Regulatory conditions

##### 9.1.4.1 Ex ante regulatory conditions

In France there is symmetric regulation regime for the roll-out of and access to passive fibre which applies to all undertakings deploying FTTH including infrastructure companies. This regulation is governed by specific decisions made by ARCEP.<sup>277</sup>

Almost all wholesale VHCN operators for the mass market and business market use SMP access to Orange's civil engineering infrastructure to deploy their cables (NB : non-VHCN deployments, that were realised in the past, also mobilized mainly Orange's civil engineering infrastructures, as for the first cable networks).

Several infrastructure operators in their survey answers considered that their towerco business involves no active network elements, and thus the provision of tower space does not amount to the provision of an electronic communications network.

As regards towercos, no company has been designated as SMP in accordance with article 67 EECC. However, TDF is designated as SMP operator on the upstream wholesale DTT broadcasting services market.

Infrastructure companies in the mobile sector are regulated by the French provisions transposing articles 3-6 of the BCRD.

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<sup>277</sup> <https://www.arcep.fr/la-regulation/grands-dossiers-reseaux-fixes/la-fibre/le-cadre-relatif-a-la-regulation-du-ftth.html> (last accessed on 23.11.2023).

#### 9.1.4.2 Regulatory conditions resulting from competition authority decisions

Following proceedings brought before the French Competition Authority by FPS Towers (now ATC France), TDF made a series of commitments in 2015 to make it easier for other TowerCo's to offer mobile operators alternative hosting solutions for their cell phone equipment.<sup>278</sup>

Cellnex also made the commitment to transfer 3200 sites to Phoenix Tower International as a remedy in the context of the acquisition of Hivory.<sup>279</sup>

In 2015, in response to a complaint made to the French competition authority, TDF made several voluntary commitments in its capacity as a towerco. The authority accepted the commitments and proceeded to close the case: see its decision dated 4 June 2015.

## 9.2 Country fiche: Germany

### 9.2.1 Overview of coverage and service providers

In December 2022, 23 percent of households in Germany had access to FTTB/H networks (homes passed). The German broadband market is characterised by high coverage of FTTC networks, particularly by the incumbent Deutsche Telekom, 86 percent of households had an FTTC connection with at least 50 mbps available. Cable networks are also prevalent, particularly through Vodafone. Around 60 percent of households had access to gigabit via DOCSIS 3.1 upgraded cable networks.<sup>280</sup>

In Germany, FTTB/H has been deployed mainly by smaller altnets, most of them vertically integrated and active in more rural areas, the largest being Deutsche Glasfaser. A lot of the fibre rollout has happened with the help of state aid and in many cases, local, municipality-owned utility companies (or their subsidiaries) participated. Most of these companies do not have an active wholesale business. They offer wholesale services where mandated (due to the granting of state aid) but only very few access seekers participate. The vertically integrated incumbent Deutsche Telekom switched its investment to fibre to the building/home in recent years and provides wholesale access on fibre (due to a non-discrimination obligation). Vodafone has reached a voluntary arrangement to offer wholesale cable access (bitstream) to Telefónica (O2) in the context of the approval of the merger with Unitymedia.

<sup>278</sup> <https://www.autoritedelaconurrence.fr/sites/default/files/commitments//15d09.pdf>  
<https://www.autoritedelaconurrence.fr/sites/default/files/2023-01/22d24.pdf> (last accessed on 23.11.2023).

<sup>279</sup> <https://www.autoritedelaconurrence.fr/fr/decision-de-contrôle-des-concentrations/relative-la-prise-de-contrôle-exclusif-de-la-société-hivory> (last accessed on 23.11.2023).

<sup>280</sup> Gigabitgrundbuch, data from December 2022, available at [https://gigabitgrundbuch.bund.de/cln\\_112/GIGA/DE/Home/start.html](https://gigabitgrundbuch.bund.de/cln_112/GIGA/DE/Home/start.html) (last accessed on 08.11.2023).

Fibrecos have typically been introduced in the context of joint ventures or where FTTH investments have occurred with significant backing from independent investors. Deutsche Telekom formed a joint venture with local operator EWE Tel in the northwest of Germany (Glasfaser Nordwest) as well as a joint venture with Australian investor IFM Global Infrastructure Fund (GlasfaserPlus) - in both cases to roll-out an open access fibre network. Vodafone established OXG Glasfaser together with Altice. Other investor-financed wholesale-only fibre operations such as ruhrfibre (backed by DIF Capital Partners) and Glasfaser Montabaur (backed by Meridiam) have operated with an anchor tenant from the outset, in these cases Vodafone.

One German specificity is the so-called “Betreibermodell” (operator model) in German state aid schemes. Municipalities have the option to use state aid funds for white and grey spots to build fibre networks themselves and to rent the passive infrastructure out to a single ISP, which then offers retail services but is also mandated to make an offer for wholesale access seekers. In these cases, the municipality could be seen as operating a fibre netco, but with a closed wholesale model (at the passive layer).

75 percent of households were covered with 5G through at least one MNO. Including DSS (dynamic spectrum sharing), this number of 5G households rises to 92 percent. While 4G/LTE is practically omnipresent, at least in terms of availability to households, there is an ongoing public debate about mobile coverage on railways and roads. The railway coverage of 5G per MNO is at 50 to 75 percent (depending on the MNO and if DSS is included or not), while smaller roads have a coverage of 39 to 55 percent.<sup>281</sup>

Germany has three active mobile network operators: Deutsche Telekom, Vodafone and Telefónica Deutschland (O2). In addition, Germany is one of the strongest markets in Europe for MVNOs, there are two larger MVNOs, 1&1 and Freenet with a market share of around 8 percent each.<sup>282</sup> 1&1 almost exclusively sells products in the network of Telefónica Deutschland while Freenet is partnered with all three MNOs. All of the operators (MNO as well as MVNOs) follow a multi-brand strategy with premium brands as well as discount brands, that address price-sensitive customers.

1&1 participated in the auction for the 2 GHz and the 3.6 GHz frequency band (“5G auction”) in 2019 and acquired spectrum through its subsidiary, the Drillisch Netz GmbH. They acquired 20 MHz in the 2 GHz band and 50 MHz in the 3.6 GHz band for 1.1 bln Euro.<sup>283</sup> The rollout of their 5G network has begun, mainly making use of the sites of Vantage Towers, but the roll-out is not proceeding as fast as anticipated.<sup>284</sup>

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<sup>281</sup> “Gigabitgrundbuch” data from October 2022, available at [https://gigabitgrundbuch.bund.de/cn\\_112/GIGA/DE/\\_Home/start.html](https://gigabitgrundbuch.bund.de/cn_112/GIGA/DE/_Home/start.html) (last accessed on 08.11.2023)..

<sup>282</sup> [https://www.vatm.de/wp-content/uploads/2022/10/TK-Marktstudie-2022\\_DC-VATM\\_261022.pdf](https://www.vatm.de/wp-content/uploads/2022/10/TK-Marktstudie-2022_DC-VATM_261022.pdf) (last accessed on 23.11.2023).

<sup>283</sup> [https://www.bundesnetzagentur.de/EN/Areas/Telecommunications/Companies/FrequencyManagement/ElectronicCommunicationsServices/MobileBroadbandProject2018/project2018\\_node.html](https://www.bundesnetzagentur.de/EN/Areas/Telecommunications/Companies/FrequencyManagement/ElectronicCommunicationsServices/MobileBroadbandProject2018/project2018_node.html) (last accessed on 23.11.2023).

<sup>284</sup> <https://www.teltarif.de/1und1-netzausbau-ralph-dommermuth/news/92382.html> (last accessed on 23.11.2023).



The three MNOs have divested their tower infrastructure. Telefónica Deutschland put them into the subsidiary Telxius, which was then acquired by American Tower Europe. Vodafone's towerco Vantage Towers was spun off and separately listed and is now private again, with Vodafone retaining a 50 percent share. Deutsche Telekom sold 51 percent of its towerco Deutsche Funkturm (sold together with its Austrian sister company under the name GD Towers) to investors Brookfield Asset Management and DigitalBridge.

## 9.2.2 Significant infrastructure companies present

The following focus companies are included in the country fiche about Germany: Glasfaser Nordwest, Vantage Towers, American Tower Europe.

### 9.2.2.1 Glasfaser Nordwest

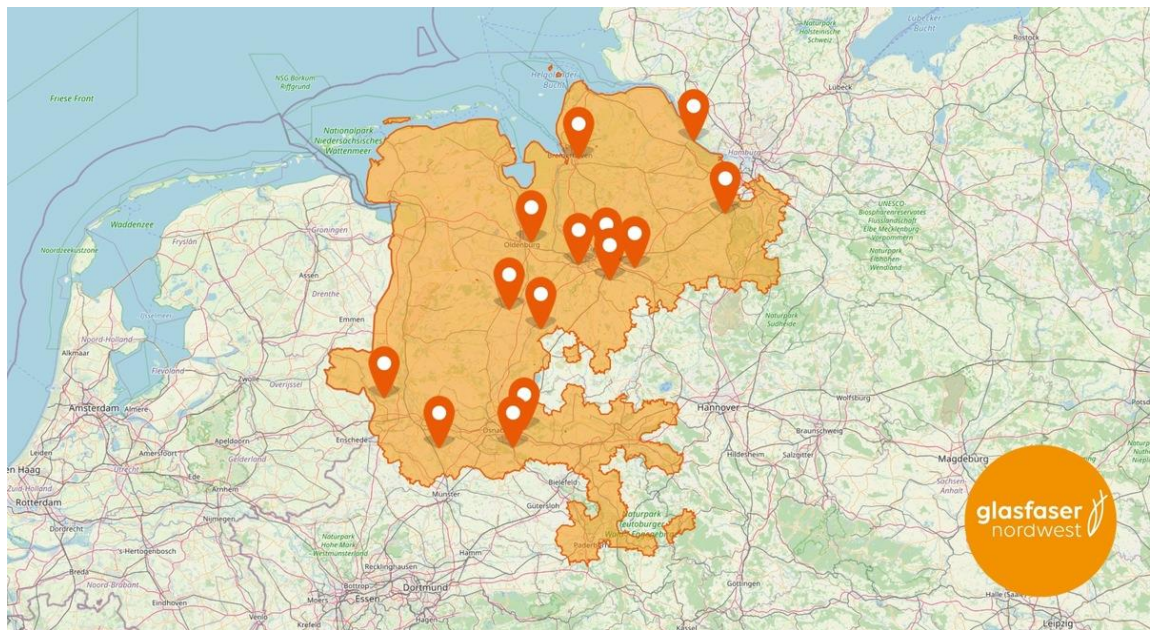
#### 9.2.2.1.1 Shareholding / control

Glasfaser Nordwest is a 50/50 Joint Venture between DTAG and EWETel and was founded in 2020. Glasfaser Nordwest is responsible for the planning, building and operation of active and passive networks. The company rolls out FTTH (no FTTB) when there is a contract at retail level between the access seeker and the end customer.

9.2.2.1.2 Business model, assets under control and future plans / opportunities

According to a publicly available report, Glasfaser Nordwest covered 700,000 premises by mid-2023.<sup>285</sup>

Figure 9-9: Network Coverage Glasfaser Nordwest



Source: <https://www.presseportal.de/pm/148788/4811054> (last accessed on 23.11.2023).

Glasfaser Nordwest’s target is to roll-out 1.5 million premises (private households and businesses) by 2027. Glasfaser Nordwest is deploying commercially without public funds.<sup>286</sup>

The JV benefits from the experience of the partners EWE Netz, Cincet and Deutsche Telekom.

<sup>285</sup> [https://glasfaser-nordwest.de/wp-content/uploads/Jahresbericht\\_-2022\\_2023\\_GFNWfinal.pdf](https://glasfaser-nordwest.de/wp-content/uploads/Jahresbericht_-2022_2023_GFNWfinal.pdf) (value calculated from the document)

<sup>286</sup> <https://glasfaser-nordwest.de/ueber-uns/> (last accessed on 23.11.2023).

### 9.2.2.1.3 Main customers, wholesale access products & terms and conditions

Current customers are shown in Figure 9-10. Others will follow in the future.

Figure 9-10: Glasfaser Nordwest - Wholesale customers



Source: <https://glasfaser-nordwest.de/ueber-uns/> (last accessed on 23.11.2023).

Glasfaser Nordwest is designed as having SMP due to the share of Deutsche Telekom. Bundesnetzagentur is due to publish its decision regarding any regulation of GN's wholesale products in Q3/Q4 2023.

### 9.2.2.2 Vantage Towers

#### 9.2.2.2.1 Shareholding / control

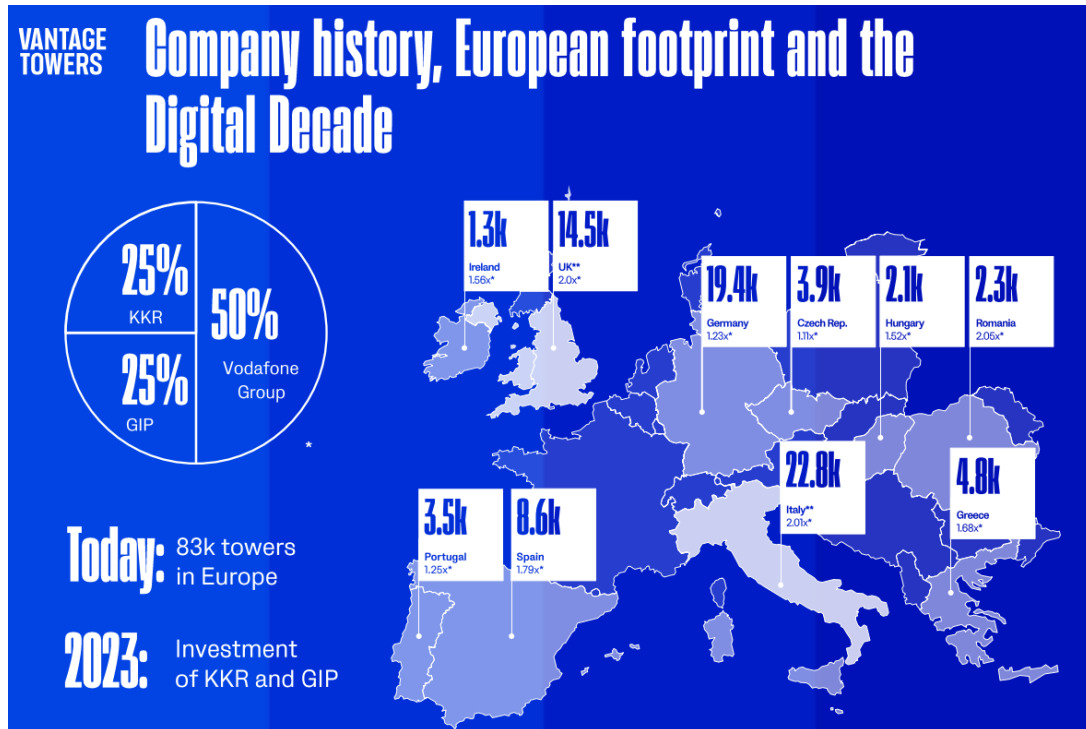
The intended ownership structure agreed upon by Vodafone Group and the investment of KKR/GIP is 50% for Vodafone and 25% each for KKR and GIP. The take-over offer is still ongoing while the last remaining shareholders have yet to accept the take-over offer. Vantage Towers AG is also in the process of being delisted from the Frankfurt stock exchange.

The annual company revenue in 2022 was 1 billion Euro.

#### 9.2.2.2.2 Business model, assets under control and future plans / opportunities

VT has 83,000 towers in Europe and invests in and builds new towers. The figure below shows the European footprint of VT.

Figure 9-11: Vantage Towers company overview



Source: Presentation at BEREC workshop in June 2023.

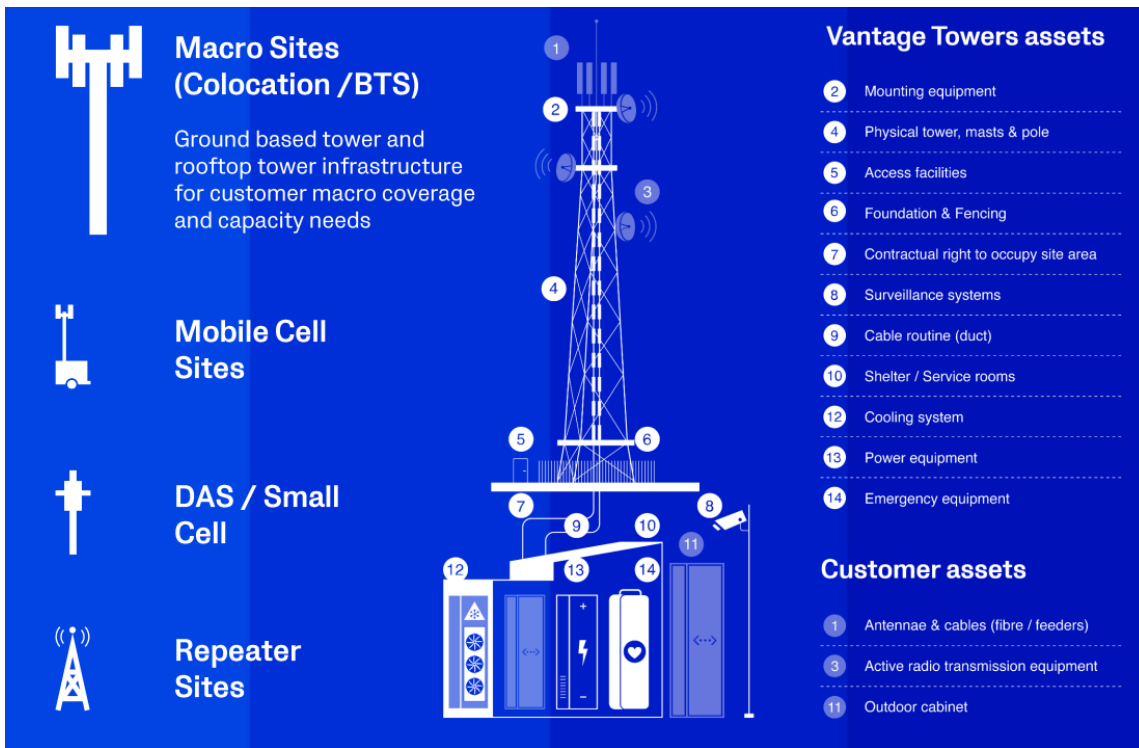
VT operates in the Czech Republic, Germany, Greece, Hungary, Ireland, Portugal, Romania, Spain and is part of JVs in UK and Italy.

The Neutral Host model of TowerCos is based on sharing the infrastructure to as many parties as possible. This enables MNOs to reduce their capital expenditure among other benefits already laid out in the answer to the question on the impact of such infrastructure companies. In addition, the TowerCo business model provides a high level of visibility and a long-term investment perspective, attracting significant funding from market sources. This has led to an unprecedented inflow of capital into the European TowerCo sector of more than €60 billion in the past five years, contributing to the growth and development of the mobile industry.

In rural areas VT also uses public funds. Vantage Towers participates in funding programs of the MIG in Germany for two tower sites subject to the requirements related to the program. The funding for both tower sites is €888,168.00 and €386,109.00, respectively. However, the subsidies have not yet been activated. Additionally, Vantage Towers is also part of the EU funded 5G corridor projects 5GCarolina and 5GonTrack. The funding amount in both corridor projects is based on the actual costs incurred by each member of the project team. As both projects are still ongoing, the final sum can be specified at a later stage.

Figure 9-12 shows the assets of VT in Europe.

Figure 9-12: Vantage Towers assets in Europe



Source: BEREC workshop in June 2023.

The location of the assets is an important aspect in an MNO’s decision at which TowerCo to collocate (geographical attractiveness).

VT has approx. 29,000 towers (ground) and 54,000 rooftop towers. It provides passive access to towers and small cells. Current demand for small cells is low but VT expects demand for small cells to increase in the future.

VT seeks to improve the utilisation of the assets and is aiming to reach a tenancy ratio of 1.5 across its footprint in the near to medium term.

VT is also aiming to expand coverage of existing assets through investment. The company is expanding the site portfolio through its 'Built-to-suit' (BTS) program to provide their customers with tower sites according to their needs and network layout.

In Germany, 5,500 additional sites are planned by 2026 (relating to densification and small cells). VT notes that its expansion is demand driven. New sites are established if VT customers ask for it, sometimes due to their own coverage obligations.

### 9.2.2.2.3 Main customers, wholesale access products & terms and conditions

VT is open to all operators and businesses including European MNOs such as Vodafone, Orange, Telefonica, Deutsche Telekom, Cosmote, CETIN, WIND and others. Other enterprise customers relying on VT's services include broadcasters, utility companies and potentially railway operators such as Deutsche Bahn.

VT counts all the main MNOs as tenants across the European footprint. As mentioned above VT also hosts other than mobile operators (enterprise customers such as broadcasters, utility companies and railway operators) as well as PPDR companies (PPDR: Public Protection and Disaster Relief).

Access is offered based on bespoke long-term lease contracts.<sup>287</sup> The prices depend on volumes as well as contract length. The prices of VT's contracts are either part of VT's legacy Master Service Agreements (MSA) or, in the case of new bespoke contracts, are negotiated with the customer. In these negotiations VT considers numerous aspects such as costs (Capex / Opex), contract duration, volume commitment, and other factors such as whether the standard configuration of its towers is used.

The majority of long-term lease contracts include inflation escalators capped at a certain CPI rate. The specific cap chosen is a strategic competitive decision. The data-related energy consumption for the MNO's active equipment is passed on to tenants, the energy required for the operation of the site is not. Ground lease costs are the biggest cost block.

Some contracts include renewal options that have been agreed upon and provide security and continuity for both parties which is important in the operation and leasing of associated facilities and network elements. If no contract renewal options are in place, then a new commercial solution is developed based on market dynamics and the customer needs at that time. If a site has become redundant from the tenants' perspective, VT notes that site dismantlement is also a possibility.

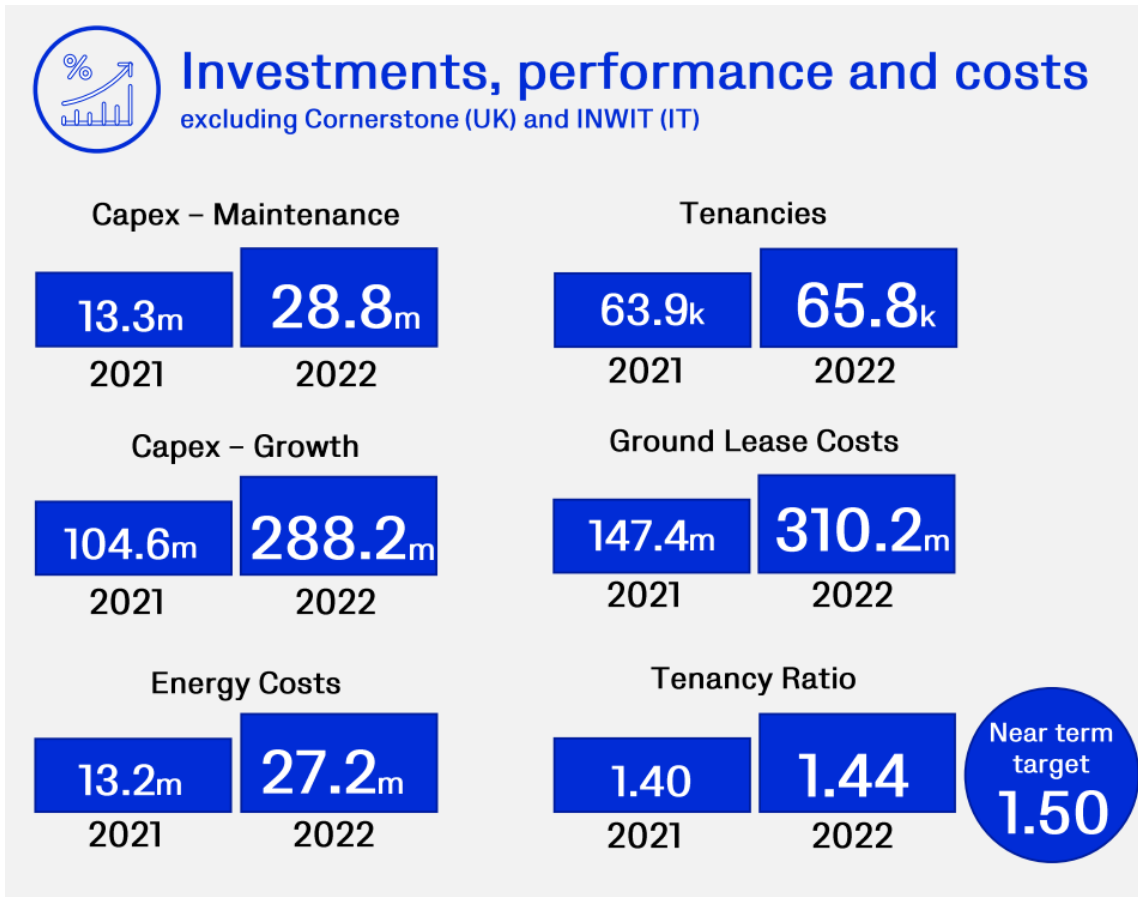
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<sup>287</sup> For the following see Vantage Towers (2022): Annual Report 2021/22, available at <https://www.vantagetowers.com/sites/tower-co-v2/files/2022-10/vantage-towers-annual-report-fy22-v3.pdf> (last accessed on 08.11.2023) and Vantage Towers (2023): Annual Report 2022/23, available at <https://www.vantagetowers.com/sites/tower-co-v2/files/2023-06/vt-fy23-annual-report.pdf> (last accessed on 08.11.2023).



Figure 9-13 provides an overview of the investment, tenancies and costs of VT.

Figure 9-13: Vantage Towers investment, tenancies and costs



Source: BEREK workshop June 2023.

VT’s “Built-to-suit” (BTS) program offers customers a service in which new sites are built to accommodate their needs and existing network layouts. Usually, network planning is undertaken by VT’s customers such that VT is provided with specific locations where additional sites are needed. Especially in densely populated areas, e.g., city centres, this involves a target circle of only 50m which significantly restricts suitable options.

### 9.2.2.3 ATC

#### 9.2.2.3.1 Shareholding / control

ATC is a neutral independent TowerCo. Its company history starts more than 30 years ago in the US. Passive infrastructure was separated from the broadcasting business. In 1992 the business was expanded to cover North America, Latin America, Africa, Europe and India.



ATC Europe is an indirect, partially owned subsidiary of American Tower Corporation, listed on the New York Stock Exchange. ATC started its European operations in Germany in 2012, followed by France in 2017 and Spain in 2021.

ATC made its first investments in Germany around 2012, deploying 2,000 sites. Following the acquisition by ATC of Telxius (divestment from Telefónica), ATC now has 15,000 sites in Germany.

The company cooperates with two additional investors CDPQ from Canada and Allianz Capital (both with less than 50% share). The participation of the Real Estate Investment Trust brings benefits (in terms of tax treatment) as well as obligations (earnings need to be issued/shared with investors).

#### 9.2.2.3.2 Business model, assets under control and future plans / opportunities

ATC Europe's annual revenue of '500 million to 1 billion Euro' is split as follows: Germany and Spain '200 to 500 million Euro' each and France '100 to 200 million Euro'

ATC focuses on the operation and construction of passive infrastructure. It holds ground based towers in various heights (less urban areas) as well as rooftop infrastructure in more densely populated areas. There has been no major push to expand beyond passive infrastructure. Active access is not part of the business model.<sup>288</sup>

In Germany the majority of ATC's assets are rooftops (10,000). There are 4,700 ground based towers. Small cells are very limited so far

ATC wants to grow, increase tenancy ratios, get more customers, and increase the number of sites. It does not aspire to offer active services. ATC is also considering investing in and deploying renewable energy solutions.<sup>289</sup>

#### 9.2.2.3.3 Main customers, wholesale access products & terms and conditions

On the customer side the main access seekers are the MNOs.

<sup>288</sup> <https://americantower.com/de/de/l/%C3%B6sungen/> and ATC (2023): Introduction to the Tower Industry and American Tower, As of June 30, 2023, available at [https://go.pardot.com/l/25692/2020-12-17/71kyw1/25692/1608219428Tkp1cPjD/atc\\_investor\\_relations\\_introduction\\_to\\_tower\\_industry\\_american\\_tower\\_q2.pdf](https://go.pardot.com/l/25692/2020-12-17/71kyw1/25692/1608219428Tkp1cPjD/atc_investor_relations_introduction_to_tower_industry_american_tower_q2.pdf) (last accessed on 08.11.2023) and ATC (2023): American Tower Corporation: An Overview, Third Quarter 2023, available at [https://go.pardot.com/l/25692/2020-12-17/71kyxk/25692/1608219931qz5ZQfj7/atc\\_investor\\_relations\\_american\\_tower\\_corporation\\_overview\\_q3\\_2020.pdf](https://go.pardot.com/l/25692/2020-12-17/71kyxk/25692/1608219931qz5ZQfj7/atc_investor_relations_american_tower_corporation_overview_q3_2020.pdf) (last accessed on 08.11.2023).

<sup>289</sup> The international markets typically pass through a portion of their operating expenses to the tenant (e.g., ground rent, power and fuel costs). ATC (2023): Introduction to the Tower Industry and American Tower, As of June 30, 2023, available at [https://go.pardot.com/l/25692/2020-12-17/71kyw1/25692/1608219428Tkp1cPjD/atc\\_investor\\_relations\\_introduction\\_to\\_tower\\_industry\\_american\\_tower\\_q2.pdf](https://go.pardot.com/l/25692/2020-12-17/71kyw1/25692/1608219428Tkp1cPjD/atc_investor_relations_introduction_to_tower_industry_american_tower_q2.pdf) (last accessed on 08.11.2023).

Rental charges are typically based on the property location, the leased vertical square footage on the tower and the weight placed on the tower from transmission equipment and backhaul solutions. Contract terms generally include an initial term of 5 to 10 years with multiple renewal terms at the option of the tenant. Contracts are typically non-cancellable. Escalations in international markets are typically based on local inflation rates.<sup>290</sup>

#### 9.2.2.4 Deutsche Funkturm

##### 9.2.2.4.1 Shareholding / control

51% of Deutsche Funkturm is owned by Digital Bridge and Brookfield (Bid Co) and 49% by Theta Telekommunikationsdienste GmbH (Deutsche Telekom AG). The company was founded in 2002 in Germany. PHCM is also part of the company (frequency coordination).

##### 9.2.2.4.2 Business model, assets under control and future plans / opportunities

Deutsche Funkturm has revenues of 1-5 billion Euro. and operates in Austria and Germany. It provides passive access to towers and small cells. Currently, demand for small cells is low.

It has 34,000 sites: 300 ground based towers, 700 towers in big locations (mostly combined with broadcasting), 10,000 masts and the rest is rooftops. The number of sites is growing continuously. Deutsche Funkturm is building ca. 1,300 sites per year.

In the future Deutsche Funkturm plans to expand into additional regions and other countries, to cover additional asset types and possibly to add active services although the business model usually is based on passive infrastructure. Furthermore, the company plans to expand the customer-base and the coverage of existing assets through acquisition and investment.<sup>291</sup>

Public funding is used for

- individual whitespot sites by Federal Government/Federal States,
- reopening TV Towers Hamburg und Dresden
- Joint projects '5G-Insel', 'DAKORE-GreenICT' '5G on Track'

For Deutsche Funkturm access to public and private land as well as rooftops is important.

<sup>290</sup> ATC (2023): Introduction to the Tower Industry and American Tower, As of June 30, 2023, available at [https://go.pardot.com/l/25692/2020-12-17/71kyw1/25692/1608219428TkP1cPjD/atc\\_investor\\_relations\\_introduction\\_to\\_tower\\_industry\\_american\\_tower\\_q2.pdf](https://go.pardot.com/l/25692/2020-12-17/71kyw1/25692/1608219428TkP1cPjD/atc_investor_relations_introduction_to_tower_industry_american_tower_q2.pdf) (last accessed on 08.11.2023).

<sup>291</sup> <https://www.dfmq.de/de/unser-unternehmen/ueber-uns.html> (last accessed on 23.11.2023).

Small cells until now have only been built in pilot projects but DF considers that they will become more important in future. DF also expects future growth through internationalisation and the provision of DAS.

#### 9.2.2.4.3 Main customers, wholesale access products & terms and conditions

The customers of Deutsche Funkturm are MNOs (open and closed Network), Broadcasting Operators, Microwave Operators. Mobile network operators of private networks are also customers (energy utilities, administration with security tasks, military).<sup>292</sup>

Assets are built based on specific orders from customers.

### 9.2.3 Challenges

#### 9.2.3.1 Challenges linked to deployment of VHCN infrastructure

There are significant challenges for broadband infrastructure deployment in Germany. In the mobile sector, it can take two years or more between application and commissioning of a mobile site.<sup>293</sup>

Due to Germany's federal structure, each state has a different building code ("Landesbauordnung") and even in federal states with similar rules, the local permitting practice may differ. Administrative delays are further exacerbated due to the lack of digitisation in building permit processes. In terms of harder-to-reach new mobile sites, access to the sites through smaller roadways and electricity supply are typical challenges. One of the biggest challenges in finding and building mobile sites in Germany is to get the owners of the premises to rent them out to the companies. This has to do with commercial conditions as well as with "nimbyism", i.e. owners wanting mobile communications but no sites on their premises.<sup>294</sup> This also has to do with a relatively high fear in parts of the population about electromagnetic fields, particularly regarding 5G. This fear, which is more prevalent in rural areas and in the South of Germany, may also lead premise owners to not offer their property for mobile sites due to public pressure

<sup>292</sup> <https://www.dfmq.de/de/startseite.html> (last accessed on 23.11.2023).

<sup>293</sup> See Möhlmann, H. (2021): Vom Suchkreis zum Standort, Sonderbeilage Bayerische Gemeindezeitung, elektronisch verfügbar unter: [https://www.gemeindezeitung.de/archiv/sonderveroeffentlichung/bayerisches-infrastrukturforum/Sonderdruck\\_Mobilfunkausbau\\_u\\_5G.pdf](https://www.gemeindezeitung.de/archiv/sonderveroeffentlichung/bayerisches-infrastrukturforum/Sonderdruck_Mobilfunkausbau_u_5G.pdf) (last accessed on 23.11.2023).

<sup>294</sup> See Goldbeck, M.; Lindlacher, V.; Schwarz, S. (2021): Funkloch Deutschland? Der Ausbau der mobilen Datennetze in den letzten zehn Jahren, Ifo Schnelldienst, <https://www.ifo.de/DocDL/sd-2021-11-extremwetterereignisse.pdf>, pp. 33-37.

from mobile sceptic groups even though the property owners themselves may see it differently.<sup>295</sup>

In fixed broadband markets, similar problems occur with regard to (municipal) permit procedures. A low degree of standardization in building wiring is also observed. On a municipal level, there are a multitude of authorities that need to give their approval for construction to go forward, often in a slow, paper-based process. This may include departments for nature protection, public parks or waterways as well as services in charge of the removal of buried explosives from World War II. In addition, there are significant personnel shortages on a municipal, permit-granting level as well as in construction.<sup>296</sup>

This is confirmed by interviews conducted for this study. Stakeholders also note problems with the inaccuracy of information about infrastructure and observe that civil works coordination is difficult and time consuming to put into practice..

Stakeholders further cite the following problems which are specific to mobile infrastructure deployment:

- Long timeframes for permits: The lack of permit exemptions for non-intrusive site upgrades and co-locations of new MNOs is a challenge. In Germany there is a tacit approval established, but only for small towers (<30 meter). **Permitting laws / regulations are fragmented** (state level, not federal level) and thereby create additional complexity. Permit granting procedures by local authorities take too long and are too complex. Authorities are often not transparent and not responsive. In addition, **nature and environment protection** (often considerations based on aesthetics / optics) disproportionately delay or even block permit granting, often imposed by EU regulations. Balancing the public interests of connectivity and environment protection seem to be decided by default effectively in favour of the protection of the environment
- Limited availability of sites (private land and rooftops). Problems include:
  - The specificity of **location requirements from MNOs**, limiting the scope of available options when infrastructure companies seek to lease sites
  - **EMF regulation limiting co-location on rooftops**. The allocation of the limited EMF space is decided by the collocating MNOs and has to be approved by the competent authority without any involvement of the hosting TowerCo. More established MNOs may already occupy sites in areas of high demand and restricted EMF limits may limit access for later

<sup>295</sup> See Strube Martins, S.; Wernick, C.; Tenbrock, S. (2021): Potenziale zur Beschleunigung des Breitbandausbaus, study for the German Federal Ministry for Digital and Transport, [https://www.wik.org/fileadmin/files/migrated/news\\_files/WIK\\_Beschleunigung\\_Breitbandausbau\\_final.pdf](https://www.wik.org/fileadmin/files/migrated/news_files/WIK_Beschleunigung_Breitbandausbau_final.pdf) (last accessed on 23.11.2023).

<sup>296</sup> See Strube Martins, S.; Wernick, C.; Tenbrock, S. (2021): Potenziale zur Beschleunigung des Breitbandausbaus, study for the German Federal Ministry for Digital and Transport, [https://www.wik.org/fileadmin/files/migrated/news\\_files/WIK\\_Beschleunigung\\_Breitbandausbau\\_final.pdf](https://www.wik.org/fileadmin/files/migrated/news_files/WIK_Beschleunigung_Breitbandausbau_final.pdf) (last accessed on 23.11.2023).

entrants. German stakeholders note that making information on the available EMF budget readily available to TowerCos, would increase transparency and foster competition by maximizing the shared use of the passive mobile infrastructure

- **Challenges to reach agreement on leases for specific buildings from municipalities.** Municipalities find it difficult to agree on longterm contracts as the usage of a building may change or the owner. Further, as municipalities are focused on financing public administration, it is **difficult to agree on reasonable and fair pricing.**
- **Challenges to obtain usable access to street furniture for the deployment of small cells.** Although Framework agreements have been negotiated with some municipalities, infrastructure companies note that traffic lights are difficult to rent as they tend to be considered critical infrastructure. Moreover the provision of electricity is a challenge, e.g. lamp posts are only connected to electricity at night meaning that the access seeker must be responsible for the connection to electricity during the day. Furthermore the street furniture must be connected with fibre.
- **lack of (access to) digital property databases,** which makes the site search even more burdensome.

#### 9.2.3.2 Challenges associated with accessing assets of infrastructure companies

A potential challenge in the upcoming years for the fibre market is the diverse landscape of smaller altnets, often including municipality-owned operators. As parallel fibre infrastructures are not viable in many regions, ensuring competition over these networks will be important. This can only happen when access is not too cumbersome and expensive, ISPs do not need to make too high one-time investment for access to smaller networks and if there is a sufficient degree of product and process standardization. This could be reached through wholesale platforms that offer interfaces between infrastructure owner and ISP.<sup>297</sup> Standardised interfaces for access are important for access seekers, but also for wholesale-only fibre netcos as they have a natural interest in offering access through a multitude of ISPs.

Some participants in the German market also highlight concerns about discriminatory access and deployment conditions when an infrastructure company is controlled by one or more telcos and the preference for fibre netcos to offer bitstream instead of unbundled access, limiting the potential for service differentiation.

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<sup>297</sup> See Neumann, K.-H.; Wernick, C.; Plückebaum, T.; Böheim, M.; Braun, M. B.; Tenbrock, S.; Schäfer, S.; Bärenthaler-Sieber, S. (2021): Open Access Netze für Österreich, study for the Austrian Federal Ministry of Agriculture, Regions and Tourism, [https://data.breitbandbuero.gv.at/PUB\\_WIK\\_WIFO\\_Open-Access-Netze-fuer-Oesterreich.pdf](https://data.breitbandbuero.gv.at/PUB_WIK_WIFO_Open-Access-Netze-fuer-Oesterreich.pdf). (last accessed on 23.11.2023).

## 9.2.4 Regulatory conditions

### 9.2.4.1 Ex ante regulation

Fixed wholesale only network operators are regulated by the provisions of the BCRD which have been implemented in the TKG.

Regulation on RoW and Art 57 EECC apply to towercos. Towercos are not regulated under the BCRD or by ex ante symmetric or SMP regulation in Germany.

### 9.2.5 Stakeholder perspectives

All but one German infrastructure company participating in the survey for this study reported that they believe that infrastructure companies should be subject to symmetric rights and obligations regarding Rights of Way and permit granting procedures under the EECC and BCRD (future GIA). For civil works coordination, there is one more company that thinks these should not apply to infrastructure companies while most think the same rules should apply. There is a more mixed picture for access to physical infrastructure, where some respondents considered that this should not apply to infrastructure companies. Those companies that elaborated further suggested that they see regulation such as Art. 80 EECC and competition law as sufficient.

SMP obligations (asymmetric regulation) were considered necessary for infrastructure companies by telco respondents with interests in Germany. Those that did see SMP obligations as necessary do however point out that it depends on the ownership structure (e.g. if the incumbent is involved) and on a market analysis. Art. 76 and Art. 80 EECC are not seen as fulfilled by any of the participants in Germany.

## 9.3 Country fiche: Italy

### 9.3.1 Overview of coverage and service providers

As of the end of 2021 Italy had 44% FTTH coverage and 100% 5G (NSA) coverage. The FTTH Council Europe reported that FTTH in Italy had increased to 56% in September 2022. There is no cable infrastructure in Italy.

There are four mobile network operators (Telecom Italia, Vodafone, Wind 3 and recent entrant Iliad). These companies are also active in providing broadband services. In addition, Fastweb plays a significant role in the broadband market and offers fixed wireless access via 26GHz spectrum. There are a range of smaller ISPs, including Tiscali, Sky and Enel (energy company).

### 9.3.2 Significant infrastructure companies present

Italy features two large independent towercos (INWIT and Cellnex) and two significant fibre netcos (Open Fiber (independent) and FiberCop (JV with the incumbent as majority shareholder)). Further details of these companies are provided below.

#### 9.3.2.1 INWIT

##### 9.3.2.1.1 Shareholding / control

INWIT has undergone a transition from a single telco shareholding, to a telco JV to an independent towerco with minority telco shareholdings.

In 2015 the mobile tower business previously managed by Telecom Italia was transferred to the newly established INWIT, and later that year INWIT was listed on the Italian Stock Exchange and started operations.

In 2019 INWIT and Vodafone Italia S.p.A. signed an agreement for a joint venture which would merge their assets dedicated to the installation and hosting of network elements required for the delivery of wireless services. The transaction, together with other agreements between Vodafone, TIM and INWIT, was carried out with the intention of creating synergies to accelerate the development of wireless technology, especially 5G (hereinafter, the Transaction). The Transaction was notified to the European Commission (hereinafter, EC).<sup>298</sup> The EC Decision of March 6, 2020, accepted and made binding the Remedy Package which had been submitted by TIM and Vodafone Italia – and indirectly, by INWIT as a means to address potential anti-competitive effects resulting from the merger. As a result of the Transaction, INWIT's share capital was divided between (i) Vodafone, holder of a stake of approx. 37.5%; (ii) TIM, holder of a stake of approx. 37.5%; and (iii) 35% free float.

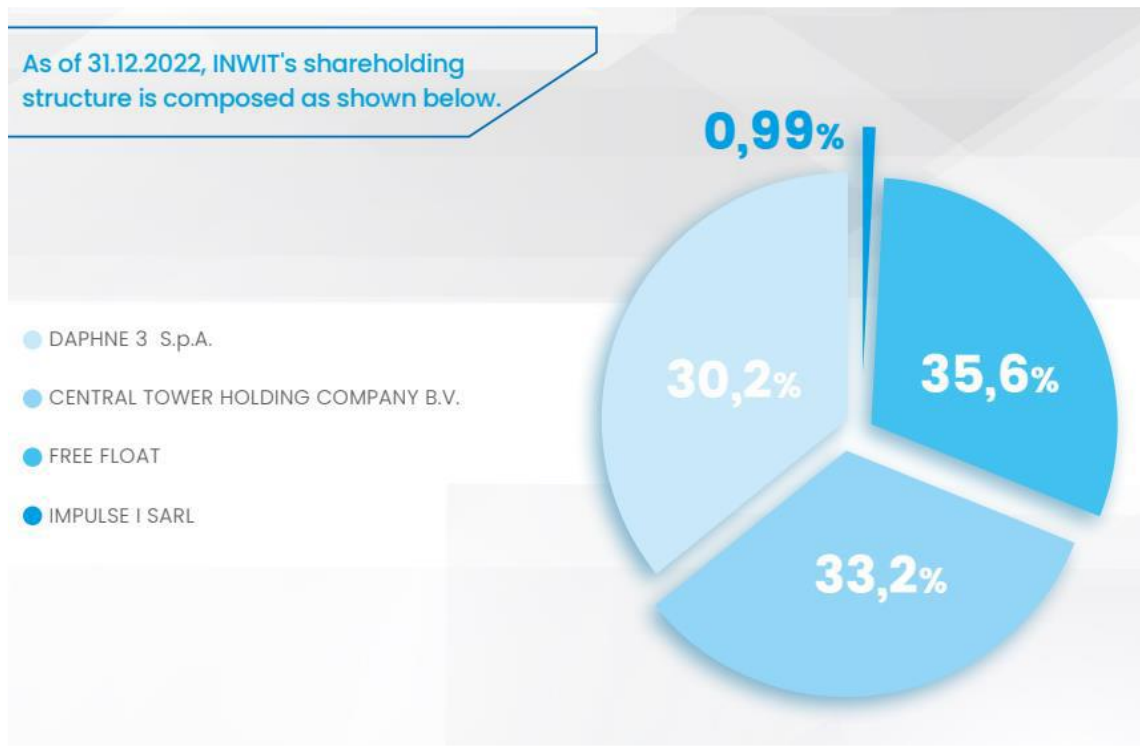
Thereafter, TI and VF progressively reduced their stake in INWIT, such that today the company is independent with a minority telecom shareholding. The current shareholding is shown below.

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<sup>298</sup> In accordance with Article 3 of Council Regulation (EC) No. 139/2004 of January 20, 2004



Figure 9-14: INWIT's shareholding



Source: <https://www.inwit.it/wp-content/uploads/2023/04/INWIT-Integrated-Report-2022.pdf>

Currently, Daphne 3 S.p.A. is 90% controlled by Impulse I S.à.r.l. (in turn controlled by Impulse II S.C.A); while the remaining 10% is held by TIM S.p.A. Central Tower Holding Company B.V. is indirectly owned by Oak Holdings 1 GmbH (in turn co-controlled by Vodafone GmbH and OAK Consortium GmbH).

INWIT currently has 11 members on its Board of Directors, 6 of which are independent. The General Manager is appointed by the Board, and there is no shareholder agreement regarding the appointment of Directors or managers.

#### 9.3.2.1.2 Business model, assets under control and future plans / opportunities

INWIT's business model is based on passive sharing of its infrastructure (field, mast, power supply, air conditioning, site management system etc) as a "neutral host". Since 2020, INWIT's business is increasingly evolving towards the concept of Tower as a service, with the possibility of offering more integrated services.

INWIT has a network of **23,000 towers** spanning across Italy (one tower every about 3 km in rural environments and one every about 5-600 m in centres with high density of housing). The towers host the equipment of MNOs, as well as FWA operators and undertakings engaged in IoT (an example is utilities who use towers to host gateways for the collection of realtime consumption data). INWIT expands its tower footprint based on

feedback from the market. They ask their clients (mobile / FWA) about coverage needs, seek sites based on demand or pro-actively, then they check the interest of their clients. Once they receive a soft or hard commitment they build infrastructure.

Although INWIT's core business is macrosites / towers, **Distributed Antenna Systems (DAS)** for indoor coverage is an expanding segment, currently drawing in revenues of €30m (In December 2022 INWIT had more than 7 thousand remote units for DAS and Small Cells). There is a need for indoor antennas in particular due to physical barriers (e.g. walls) or heavy capacity of people. DAS enables the mobile signal to be amplified so the user can transition from outside to inside. For DAS INWIT buys active equipment from vendors such as Ericsson and installs it on site, and adds a fibre link.

INWIT sees a potential market for outdoor **small cells** (distinct from DAS), but not before 2025/26, as demand for 5G grows, and there is a need to deploy 5G SA and complement existing sites.

INWIT sees little incentive to invest in fibre backhaul, as it considers that this market is overcrowded and the returns are limited. They offer backhaul as part of a suite of services, but when they build a new site, they note that there are usually cheaper alternatives for fibre.

INWIT provides active services only to a limited extent e.g. in connection with DAS. They note that the industry is considering changing the value chain to include ownership of active equipment by parties other than MNOs, which could include towercos.

#### 9.3.2.1.3 Main customers, wholesale access products & terms and conditions

INWIT retains TI, VF as anchor tenants, but also has framework agreements with the other MNOs Iliad and Wind 3, as well as FWA providers such as Fastweb.

In the Remedy Package undertaken before the EC, INWIT – via TIM and Vodafone Italia committed to make available on reasonable and non-discriminatory terms free space on 4,000 sites over 8 years (of which 75% in the first 4 years) in Italian municipalities with a population over 35 thousand where third parties can install, operate, maintain and use equipment for the provision of present and future fixed wireless and mobile services. The available sites – published on the Transparency Register and made accessible on a “first come, first served” rule – are distributed throughout the country, and relate to the most densely populated cities, which are characterized by the greatest difficulties in network development.

In practice, contracts are bespoke but have some common elements. For example, INWIT uses price grids to link charges to the physical space needed, the location of the tower, and other technical specifications.

Within the framework of the State Aid ("Piano Italia 5G,") which was granted to INWIT (alongside with TIM and Vodafone Italia) under the EU recovery, colocation prices are aligned with the 2021 OPEN FIBER FWA Reference Offer (approx. €8,000 per site), according to a volume discounting model approved by the Italian NRA (AGCOM) with the decision n. 26/23/CONS.

### 9.3.2.2 Cellnex

#### 9.3.2.2.1 Shareholding / control

Cellnex is an independent, publicly listed towerco, headquartered in Spain. It has expanded through acquisition as well as organically. CK Hutchison holds the largest share by a telecom operator. This amounted to 4.8% in 2023.

Cellnex expanded its presence in the Italian market with the acquisition of towers from CK Hutchison in 2020.<sup>299</sup> According to analysis by the Italian competition authority AGCM, Cellnex held a market share (of non-captive sales) of 60-70% (revenue) and 50-60% (tenancies) prior to the acquisition, which was set to increase to 70-80% and 60-70%, respectively – following the acquisition.

#### 9.3.2.2.2 Business model, assets under control and future plans / opportunities

As of 2023, Cellnex had 26,831 sites in Italy. This includes 6,917 ground towers, 12,607 rooftop towers, 415 small cells and 4,396 DAS.

Cellnex describes itself as pursuing a neutral, independent wholesale only business model, which focuses on long term investments. Its main industrial goal is to increase tenancy rates.

Cellnex does not set its own coverage goals, but seeks to support its clients in meeting their goals. Clients identify the towns/areas to be covered and then agree on deployment plans to build sites on demand. This results in organic growth of Cellnex' coverage. Cellnex has also significantly expanded its coverage through acquisition. In these cases Cellnex pays for the infrastructure and seeks to operate and manage it on an ongoing basis in a more efficient way than the MNO that divested the asset.

In 2022 Cellnex Italia was awarded a co-funding for an inception study regarding the 5G Corridor on the Italy to Austrian border (5G GAIL) within a consortium of beneficiaries, including Autostrade per l'Italia, Regione Friuli Venezia Giulia, OnTower Austria. The co-funding is dedicated to specific surveys and analysis of the remote cross border area.

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<sup>299</sup> <https://www.cellnex.com/news/cellnex-closes-acquisition-ck-hutchisons-assets-italy/#:~:text=In%20November%202020%20the%20Company,2030%2C%20and%202%2C194%20DAS%20nodes>. (last accessed on 23.11.2023).

The amount co-financed by CEF2 5G Corridors for 5G GAIL inception study amounts to €93.750.

#### 9.3.2.2.3 Main customers, wholesale access products & terms and conditions

Cellnex hosts WindTre S.p.A. and Iliad Italia S.p.A. as anchor tenants, and also provides hosting to TIM S.p.A. , Vodafone Italia S.p.A., Fastweb S.p.A., Opnet S.p.A (formerly Linkem), Eolo S.p.A., Open Fiber S.p.A., and other ISPs providing wireless services, as well as several different Public Administrations for the development of digital wireless services such as Protezione Civile, Ministero dell’Interno, Polizia di Stato, Guardia di Finanza, and other private utilities.

Cellnex’ focus is on physical (passive) infrastructure, which includes access to towers on the ground and installed on rooftops. However, in the Italian market Cellnex also offers access to small cells and DAS. It also offers additional services beyond access to the space on existing infrastructures, to match the specific clients’ demand such as hospitality ancillary services, energy, conditioning, surveillance, maintenance, supervision, NOC, customized civil works, engineering, works and studies, and other customized services.

Cellnex notes that access conditions are bespoke. There are no publicly available Reference Offers or typical contract durations. Anchor tenants which have divested assets typically lease back on the basis of a long term lease e.g. 10 years with the potential for extension if the parties agree. Short term lease is also available with periods as short as 1 day on offer e.g. in the context of specific events. Cellnex also offers “build to suit” options for clients with specific terms and conditions.

At the time of the merger with HK towers, the Italian competition authority (AGCM) was concerned that the agreement between Cellnex and Wind Tre would give the latter a power to authority third party access to the acquired sites which could enable it to hinder or delay their development. To address these concerns, Cellnex offered commitments (valid for seven years) limited to municipalities under 35,000 inhabitants:

- Access to some CKHNI towers. Cellnex will make available space on a certain number of CKHNI macro sites (2,500–5,000) to FWA operators and MNOs, between 400-500 and 700-800 sites being made available each year. Cellnex will provide access to these sites to requesting operators on a first come, first served basis and on reasonable and non-discriminatory terms. Cellnex will publish a list of municipalities where the available sites are located.
- The commitments also detail: (i) the procedure for responding to access requests; (ii) the technical reasons for which access may be denied; and (iii) the conditions under which Wind Tre will be able to exercise its pre-emption rights (granted by its service contract with Cellnex) over the space available on the sites in question.

- Protections around decommissioning. When decommissioning CKHNI towers, the third parties hosted on them will benefit from certain protections, including priority access to alternative Cellnex sites.
- Refraining from early termination. Cellnex will not exercise early termination rights in relation to its existing contracts for hosting services on Cellnex towers. It will also offer the opportunity to extend those contracts and framework agreements.
- Monitoring. Cellnex will appoint an independent expert as the monitoring trustee, who will oversee the implementation of the commitments; arbitrate in access disputes between Cellnex and third parties; and submit biannual reports to the NCA.

### 9.3.2.3 OpenFiber

#### 9.3.2.3.1 Shareholding / control

Open Fiber was founded by Enel in December 2015 with the objective of installing, supplying and operating FTTH communications networks across Italy. From December 2016 following its merger with Metroweb, the company operated as a joint venture between the energy utility Enel, and the equity arm of the national investment bank Cassa Depositi e Prestiti (CDP).<sup>300</sup>

In 2021 there was a change in shareholding. Enel sold 40% of its 50% shareholding to Macquarie Real Asset Infrastructure, with the remaining 10% sold to CDP, which is now the controlling shareholder with 60% of the company. There is no telecom shareholder.

#### 9.3.2.3.2 Business model, assets under control and future plans / opportunities

Open Fiber operates both passive infrastructure (fibre and in some areas ducts) and active equipment for the delivery of broadband services based on FTTH GPON (for consumer and small business) or P2P (for large business and public customers) and (in rural areas) FWA. It operates on a wholesale only basis, but across all layers of the wholesale value chain enabling it to provide services ranging from passive access to ducts and dark fibre through to wholesale Internet access services.

Open Fiber currently has coverage of around 50% of households in Italy via 13m FTTH lines and 2.5m FWA (30/100Mbit/s) lines in rural (white) areas. It plans to extend its coverage to around 21-22m households in total, of which 9m would be in white areas, 9m in black areas and the remaining 3m would be in so-called grey areas, where only one VHCN is viable.

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<sup>300</sup> Cassa Depositi e Prestiti is a company under the control of the Italian government active in the acquisition and management of shareholdings in Italian companies.

In white areas Open Fiber has installed infrastructure with the aid of public subsidies based on a concession contract, under which it builds and manages networks on behalf of Infratel Italia S.p.A., the in-house company of the Ministry of Business and Made in Italy (MiMiT) which is the implementing body of the Intervention Plans included in the Italian Ultra-Broadband Strategy. In grey areas Open Fiber won 8 out of 15 lots available via a public tender,<sup>301</sup> and has committed to serve around 3.2m households in these areas by 2026.

#### 9.3.2.3.3 Main customers, wholesale access products & terms and conditions

Open Fiber offers passive access to its fibre network, as a condition of its concession agreement to provide very high capacity connectivity in white areas.<sup>302</sup> In addition, Open Fiber offers a range of active services including Open Stream (a service equivalent to virtual local unbundled access VULA), Open Internet (which allows operators without their own physical networks to offer Internet access, in essence allowing the existence of FVNO, Fixed Virtual Network Operators), as well as Ethernet and wavelength services aimed at business connectivity.<sup>303</sup>

Open Fiber has signed agreements with approximately 130 operators. Its anchor clients are Vodafone, and WindTre<sup>304</sup>, but it also offers access to Fastweb, as well as media players such as Sky and multi-utilities, which use Open Fiber's FTTH solutions to provide high-speed connectivity services and innovate in fields such as Smart Grids, Edge Computing and Small Cells.

In black areas the split between access types is 90% passive / 10% active. In contrast, in white areas 90% of lines are based on active access. This results from the disbursed structure of network, which means that the switches in rural areas are not large enough to be viable for access seekers to procure passive services.

In white and grey areas, OF offers access based on a price list, which does not involve volume discounts. These prices cannot be raised without consent from the NRA. However, reductions are possible and OF has used promotional offers (€12.5 per month until end 2024, or €16 per month for active access) to seek to accelerate take-up in white areas. In black areas prices are negotiated and are not publicly available since Open Fiber's offer is not regulated in these areas.

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**301** Under Italy's RRF plan (digital) around 6 €bln were allocated for areas private investors were not willing to cover with Gigabit infrastructure by 2026. There was a consultation on the intentions of private players. The conclusion was that ~6m addresses would be eligible for public subsidies. In the ensuing tender no bidder could win more than 8 out of 15 lots.

**302** Services available in the white areas and related prices are described at <https://openfiber.it/app/uploads/2023/02/Aree-Bianche-Listino-Servizi-C-e-D-230203.pdf>

**303** <https://openfiber.it/en/operators/operators-services/> (last accessed on 23.11.2023).

**304** <https://openfiber.it/servizi-operatori/operatori-partner/> (last accessed on 23.11.2023).



### 9.3.2.4 FiberCop

#### 9.3.2.4.1 Shareholding / control

FiberCop is majority owned and controlled by the former incumbent SMP operator in Italy, Telecom Italia. In August 2020, TIM established FiberCop together with KKR and Fastweb, which hold minority shareholdings.<sup>305</sup> TIM's secondary network (between the street cabinet and household), both in copper and in fibre, was brought into the new FiberCop vehicle<sup>306</sup> as well as the fibre network already developed by Flash Fiber S.r.l., the joint venture owned by TIM (80%) and Fastweb (20%).

#### 9.3.2.4.2 Business model, assets under control and future plans / opportunities

FiberCop acts in the wholesale market for the provision of passive access for fibre in the secondary network,<sup>307</sup> as well as operating copper (including the provision of copper subloop unbundling) up to the point in time when copper switch-off occurs.<sup>308</sup>

FiberCop's stated aim is to rapidly develop an ultra-wideband network in Italy through the use of optical technologies with GPON-fibre to the home (FTTH) architecture by 2026. The target coverage in each municipality will be between 65% and 80% and reach a total of 9.7 million buildings ITU (Technical Property Units – concept broader than that of households), out of the 13.9 million in these municipalities. FiberCop's investment also concerns the 29 cities originally covered by infrastructures of the Flash Fiber joint venture.

As regards expansion plans, in the context of its co-investment offer, TIM noted that co-investors could contribute to the identification of priority areas for investment through a “technical committee of co-investors” which would meet at least every 6 months or at the request of a co-investor. Through this committee, co-investors would receive a six-monthly plan indicating the municipalities in which construction is planned. Co-investors would be informed about progress on or any changes to the roll-out plan, and would be able to send FiberCop proposals concerning the areas to be covered. FiberCop stated that it would have utmost regard to these proposals, where they are sustainable from a technical, economic and financial perspective. In evaluating their potential, FiberCop

<sup>305</sup> TIM holds a 58% share of the capital. The other partners in the venture were KKR (37,5%) and Fastweb (4,5%). KKR shares can go up to 45% and TIM's ones down to 50,5%, if certain operative targets are not achieved by 2023.

<sup>306</sup> Following the outcome of the jurisdictional consultation, initiated by TIM on 7 September 2020, the European Commission determined that the transaction - consisting of the contribution of TIM's secondary network to FiberCop and the simultaneous entry of KKR (at 37.5%) and Fastweb (at 4.5%) - does not qualify as a concentration within the meaning of Council Regulation (EC) No 139/2004 of 20 January 2004 on the control of concentrations between undertakings.

<sup>307</sup> In parallel, TIM will continue providing existing (currently regulated) services (e.g., VULA, SLU) to OLOs by relying on the inputs purchased by FiberCop. These wholesale access products would continue to be provided making use of existing systems and processes for the sales to OLOs.

<sup>308</sup> AGCOM has established decommissioning rules and timeframes with decision n. 348/19/CONS, followed by implementing decisions n. 34/21/CONS and n.111/21/CIR. A new proposal is under consultation in the framework of new market analysis review (decision n. 152/23/CONS).



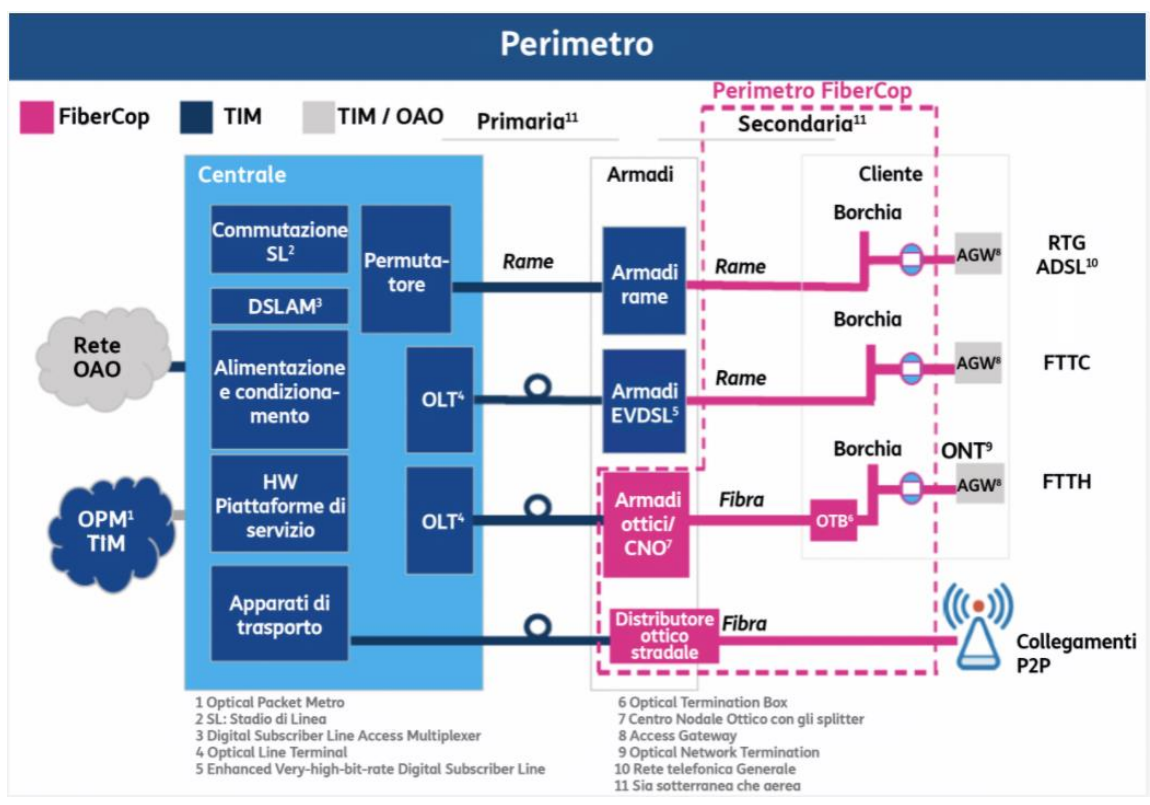
would take into account the purchase commitments that the co-investors were willing to make in the areas concerned. FiberCop would communicate its reasons, if it decided not to follow up on co-investors' proposals.

9.3.2.4.3 Main customers, wholesale access products & terms and conditions

The main customers of FiberCop are its telecom shareholders Telecom Italia and Fastweb. FiberCop lists a number of other partner operators on its website including Iliad.<sup>309</sup>

The assets under its control are shown below, and are restricted to ducts, copper, fibre and ancillary assets in the primary network.

Figure 9-15: FiberCop assets



Source: TIM

The products proposed to be offered by FiberCop are shown in the following table.

<sup>309</sup> <https://www.fibercop.it/i-nostri-partner/> (last accessed on 23.11.2023).

#### Products offered by FiberCop (to TIM and Other Licensed Operators (OLOs))

- Semi-Gpon in fiber
- Full-GPON in fibre if requested by a co-investor and if technically feasible
- Secondary copper lines (cabinets excluded)
- Dark fiber (secondary network only)
- Backhauling for BTSs
- P2P fiber connection
- Access to civil engineering (secondary network only)

To provide services over the FiberCop secondary network, alternative operators can procure backhaul services in the primary network from TIM, which will be operating the optical loop termination (OLT), deployed at the central office, where alternative operators are expected to connect.<sup>310</sup>

FiberCop has proposed terms for access to its infrastructure which are based on “long term risk sharing” via “structural purchase agreements” / one-way access to the semi-GPON. Three options are available for this purchase, namely:

- **Minimum commitment:** Purchase commitments of guaranteed minimums of semi-GPON access for a period of 10 years.
- **IRU with access to the CRO:** Purchase of equipment dedicated to the co-investor through payment of a 20 year IRU, with the possibility of purchasing Semi-GPON access at the co-investment rate thereafter without any need for a guaranteed minimum commitment
- **IRU to “capacity”:** Purchase of capacity (right to access a given number of lines) via 20 year IRU (so-called capacity IRU), whereby access seekers would make an advance payment of a fee based on the current value of the fees due to semi-GPON access for the entire duration of the IRU

TIM applies different thresholds for participation in the access arrangement in each case. While participation in the IRU with access to the CRO is available by exchange area, and can be purchased for single exchange areas, participation in the Capacity IRU option requires access seekers to join at least 75% of the central areas falling within the FiberCop co-investment (approx 4,200 access points). TIM notes that access to co-investment prices in the IRU modes are limited to the areas selected for the IRU.

A different approach is taken for the “pay per use” option, whereby co-investors must commit to purchasing access to at least 8% of premises covered by FiberCop across the municipalities (or sub-municipalities) selected by the co-investor, but retains the possibility to pick the access lines in any of the different areas covered to meet the

<sup>310</sup> Source TIM, notiziario tecnico, Figura A – Schema del perimetro di rete tra FiberCop e TIM, available at: <https://www.gruppotim.it/content/tiportal/it/notiziariotecnico/edizioni-2020/n-3-2020/1-La-Nuova-Evoluzione-Accesso-Fisso/approfondimenti-1.html> (last accessed on 23.11.2023).

threshold overall. In addition, an exemption is made for operators with a broadband market share of less than 5%, which would only need to commit to volumes of at least 1% of households covered by FiberCop in the municipalities for which they have joined the co-investment. “Co-investors” pursuing this option, must undertake to achieve the minimum turnover targets agreed for each year and the entire 10 year period from the year of joining. As regards lines in excess of those ordered, a tolerance of 15% above the order value is provided, but for lines between 115%-130% of the order volume, an uplift of 5% is charged. For orders above 130% of the order volume, the same price is charged as for non-investors. An exception is that co-investors committing to guaranteed minimums in all the municipalities included in the co-investment offer have higher tolerance thresholds, with the non-co-investor price only applying for lines in excess of 150% of those orders. Moreover, co-investors have the right to increase the minimum guarantee on an annual basis.

Purchase of point-to-point fibre connections (for business connectivity) is also subject to guaranteed minimum commitments with a requirement to purchase connections for at least 0.2% of the premises served by FiberCop in the municipalities selected by the co-investor.

Joining the co-investment is permitted during the period from 2021-2030. However, TIM notes that the conditions of access will reflect the “different levels of risk accepted by individual co-investors”. TIM considers that the first investors, which enter into arrangements in 2021 and the first half of 2022 “accept greater risks” and that others should face increasingly higher prices of the years to counter any incentive not to commit the capital in the early stages.

### 9.3.3 Challenges

#### 9.3.3.1 Challenges linked to the deployment of VHCN infrastructure

The main companies deploying VHC passive infrastructure in Italy are Open Fiber and FiberCop (for the fixed network), and INWIT and Cellnex (regarding infrastructure to support 5G).

Open Fiber notes that it has already taken advantage of cost reduction opportunities made possible as a result of Italy’s strong implementation of the BCRD. Open Fiber is re-using around 70% of existing ducts and poles in white areas and 50-60% in in black areas. Open Fiber has signed more than 300 access agreements to reuse infrastructure including 200 with municipalities which have their own ducts or poles (mainly streetlamps), and around 100 with other utilities.

Stakeholders in Italy also generally cite difficulties relating to the time to obtain permits and the number of different authorisations required. One stakeholder noted that if one of

the many bodies is late in providing an approval, the whole process is delayed. Another problem cited is that the lack of buy-in from local authorities in Italy to achieving the digital decade targets. Stakeholders praise national legislation, which has introduced the principle of tacit approval (now at 60 days down from 90), but say that there is a problem with enforcement of these principles at local level. They note that while under the EU recovery plan it is necessary to cover areas of market failure, municipalities establish local criteria that fail to take this into account. One stakeholder commented that some municipalities in Italy had actively sought to delay or block new deployment as a result of factors such as upcoming elections, while others had levied fines or taken enforcement action for what it considered to be minor breaches of conditions.

Stakeholders do not highlight significant barriers to deploying small cells (and access to street furniture is not yet considered significant by the stakeholders who provided feedback). However, when it comes to deploying mobile infrastructure more generally stakeholders report that low EMF limits restrict the potential to co-locate on existing base stations, and in turn drives operators to locating new sites. However, this is difficult in particular in urban areas as there are limitations on the installation of antennas on historical buildings. The last to enter a particular area can find that possible antenna sites are already taken, which then increases reliance on infrastructure companies, because difficulties and high prices accessing land and rooftops (in particular in urban areas) can make self-build challenging.

#### 9.3.3.2 Feedback regarding the terms of access to infrastructure companies

Major access seekers in Italy include Iliad Italy, Fastweb, Vodafone and WindTre. TIM also acts as an access seeker to its majority owned JV FiberCop and former JV INWIT.

Access seekers are generally looking for **long-term agreements that provide stability**, and (in areas which are subject to regulated prices) close attention by the regulatory authority.

Positive aspects of the Italian regime which were cited by access seekers include the 2 yearly review by AGCOM of wholesale pricing in areas funded with State Aid, whereby rates have been benchmarked against regulated rates applied under SMP regulation (TIM Reference Offers).

Challenges cited by telecom operators seeking wholesale access in Italy include:

- Challenges in obtaining access to fixed passive infrastructure (fibre unbundling). This is not always possible or economically viable due to the architecture of the network. This is cited as a problem for example in Milan and areas of the former metroweb network, where Open Fiber has a limited number of splitters for passive services, and in former Flash Fiber areas due to the network architecture of TIM. More generally, one stakeholder notes that the decision by TIM and its

subsidiaries to follow the FTTC architecture for FTTH roll-out, served to maintain the access bottleneck.

- Comparatively high rates for access to fibre in white areas.
- Risk of discrimination by infrastructure companies with telecom shareholdings in favour of their shareholders.
- Limited alternatives to TIM for mobile backhauling in rural areas (although there are choices available in urban areas).

Access seekers which are not majority stakeholders in infrastructure companies note that it is important that alternative wholesale networks remain, thus providing (at least in theory) the option to switch once long-term contracts expire. This is considered particularly important in fixed networks, where there is limited capability to duplicate access infrastructure, but is also relevant for mobile infrastructure, in particular in areas where planning restrictions make it difficult to self-construct.

Some stakeholders have expressed concern that the nature of the terms proposed by FiberCop (and in particular the volume commitments) could give rise to lock-in, which impacts the potential for infrastructure competition at the passive layer. FiberCop made certain concessions in this area in order to address concerns from the competition authority – including that volume commitments should be made on a regional basis. It also reduced the committed volumes required to 8%. However, some stakeholders still express concerns that this would require even larger access seekers to commit substantially all of their volumes to the FiberCop network in a given area, as not all households take fixed wireline broadband access, and thus an 8% share of access lines would imply a higher market share of broadband connections.

### 9.3.4 Regulatory conditions

#### 9.3.4.1 Applicability of symmetric rights and obligations under the BCRD and EECC

As regards the BCRD, all provisions including those regarding access to physical infrastructure, civil works co-ordination and permit granting apply to infrastructure companies in Italy, provided they obtain general authorization for the provision of electronic communications networks or services. The national transposition of the BCRD, i.e. Legislative Decree No 33/2016, has been amended several times. In the most recent iteration, the obligation for the physical infrastructure company to justify the refusal of the access' request has been strengthened, both in the event of unsuitability of the physical infrastructure and in the event of unavailability of space to host network elements. Infrastructure companies are now required to support any such refusal with plans and other technical documents. In addition, the Authority, pursuant to Law no. 118 of 2021, has developed Guidelines (i.e. Decision n. 452/22/CONS) to ensure that during the execution of civil engineering works by physical infrastructure companies or network

operators, the installation of additional physical infrastructures (i.e. microducts) is encouraged if necessary to meet the access requests of other network operators.

Infrastructure companies in Italy are also covered by the symmetric rights and obligations contained in the EECC, including those relating co-location and sharing of network elements and associated facilities (Article 44 EECC), support for the deployment of small area wireless access points (SAWAP – Article 57 EECC). However, Article 43 EECC (Rights of Way) applies only in cases where the infrastructure company is also an authorised communication operator.

#### 9.3.4.2 Applicability of asymmetric (SMP) obligations on infrastructure companies under the EECC

Mobile markets are not regulated in Italy. There are thus **no SMP obligations applying to mobile infrastructure companies (towercos)**, although these companies are subject to commitments under competition law proceedings relating to mergers and acquisitions, as well as conditions regarding wholesale access in cases where they are recipients of State Aid.

As regards fixed infrastructure, **independent infrastructure companies such as Open Fiber are not subject to SMP regulation**. However, **deployment of fibre infrastructure by such companies has been taken into account in the market analysis process for the review of the Wholesale Local Access and dedicated connectivity markets, in particular to distinguish non-competitive areas from municipalities which have been deemed to be “effectively competitive” (and thus regulation is not applied) or “contestable”, where lighter regulation applies.**<sup>311</sup>

FiberCop, the legally separated infrastructure company majority owned by the incumbent TIM under a JV with Fastweb and financial investors, has not yet been designated as an SMP operator. However, in the draft market analysis decision under national consultation (Decision no. 152/23/CONS) **AGCOM is proposing an SMP designation for TIM and FiberCop, which would result in obligations on FiberCop** including access to civil engineering infrastructure, and access and use of certain network resources, including copper and fibre in the secondary network (including passive access to the semi-GPON), as well as transparency, non-discrimination, accounting separation and price control. AGCOM is considering applying a “full equivalence” (“Equivalence of Input”) model to all

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**311** In the latest Resolution adopted in February 2023 (Resolution No. 41/23/CONS of 22 February 2023), 55 municipalities with a population of around 5m were found to be contestable. In its draft market analysis of 2023, under consultation, AGCOM notes that contestable municipalities are characterised by greater constraints on TIM's behaviour due to the coverage level of the wholesale only operator and lower TIM market shares. On this basis, it considers that cost-orientation for TIM's fibre local access services (VULA, semi-VULA, full-GPON services) can be replaced with the principle of “fair and reasonable” pricing. AGCOM is also proposing to remove the obligation for “fair and reasonable” prices on wholesale dedicated capacity in contestable municipalities for Market 2. A notice period until 31 December 2024 is proposed, during which prices and terms would remain at the regulated values as of 2023.



services offered to the market by FiberCop, as a separate company active only in the wholesale market.

**In parallel to the market analysis process, TIM has submitted a co-investment offer involving FiberCop to the NRA under art. 76 (co-investment) and art. 79 (commitments) EECC.** The Offer and the related commitments concern the creation of a new FTTH/B network in 2,549 municipalities to be implemented by 2026 (9.7 million ITU) in black and grey areas. The investment only concerns the creation of the secondary network and is realised through FiberCop. The Offer allows interested operators to join the co-investment by choosing from the following four possible options or purchase agreements:

- i) access to the optical cabinet (or Access to the CRO) in "IRU" mode for 20 years;
- ii) access to the CRO and to the secondary network capacity in "IRU" mode for 20 years;
- iii) purchase of Semi-GPON lines in "pay per use" mode with "guaranteed minimums" for 10 years;
- iv) purchase of P2P fibre connections in secondary network with "guaranteed minimums" for a period of 10 years.

AGCOM notes that as of Q2 2023, 10 operators appeared to have adhered to the Offer: 7 with modality of purchase of Semi-GPON lines in "pay per use" with "guaranteed minimums" for 10 years (among which Fastweb) and 3 with access to the CRO in "IRU" for 20 years (among which Iliad). The latest version of the commitment proposal was submitted by TIM on 21 October 2022, and is under consideration by AGCOM. **If the proposition and associated commitments are found to be compatible with Article 76 of the EECC, TIM/FiberCop could benefit from regulatory forbearance in relation to VHCN infrastructure.**

#### 9.3.4.3 Treatment of infrastructure companies in the context of State Aid

Under the Strategia Banda Ultralarga (approved by the Italian authorities in 2015)<sup>312</sup> a public Design Build and Operate (DBO) model was pursued for State Aid for ultrafast broadband coverage in white areas. This model was chosen in part due to the importance given to strengthening competition and having a sounder wholesale and retail market.<sup>313</sup> Moreover, points were awarded in the tendering process for "measures taken to ensure equivalence with respect to retail operators". This factor accounted for 20 out of 70 points given for the technical criteria.

<sup>312</sup> <https://bandaultralarga.italia.it/en/strategia-bul/strategia/> (last accessed on 23.11.2023).

<sup>313</sup> <https://op.europa.eu/en/publication-detail/-/publication/d6b8368d-f3dd-11ea-991b-01aa75ed71a1/language-en/format-PDF/source-290535304> (last accessed on 23.11.2023).



In practice the independent infrastructure company Open Fiber was awarded the contract to act as a “concessionaire” for all areas tendered under this process. The wholesale price charged by the concessionaire to operators and the price of the services to connect public administrations were among the economic awarding criteria for the tenders (specifically for maintenance, management and commercial exploitation of the network).

More recently, the Italian Government announced plans to allocate around €6.7bln in funds under the Recovery and Resilience Programme to the deployment of VHCN, including 5G and FTTH.<sup>314</sup> On May 24th 2022, Infratel published the tender award notice in the context of Piano Italia 1 Giga for “grey areas” – areas which no private investor has declared its willingness to serve with Gigabit infrastructure by 2026. In contrast with the earlier procedure covering white areas, this procedure involved a “gap funding” model, with the network remaining under the ownership of the State Aid recipient. A ceiling was applied allowing a single bidder to win a maximum of 8 lots. Open Fiber won 8 of the 15 lots tendered and was awarded €1.88 bn of public funds to deploy and run a VHC network to connect 3.2m households. The remaining lots were awarded to JV TIM/FiberCop. In these cases, wholesale prices are approved by AGCOM. A price cap was set based on the regulated rates applied to TIM from 2021 and the rates are expected to be reviewed every 2 years.

The Open Fiber product descriptions and price lists for both grey and white areas are available at <https://openfiber.it/en/infratel-area/services/marketing-wholesale-service/>.

The wholesale access prices approved for TIM under the NRRP are available at [Piano Italia 1 Giga – Wholesale \(telecomitalia.it\)](https://pianoitalia1giga.telecomitalia.it)

The wholesale access prices approved for INWIT under the NRRP are available at <https://pico.in-wit.it/psite/Index>.

### 9.3.5 Stakeholder perspectives

**Italian stakeholders are supportive of the draft GIA in as much as it reinforces existing rules in Italy.** They are also positive about provisions which would provide a single point of reference for permits and Rights of Way, which should accelerate permit granting. However, some stakeholders **stress the importance of maintaining existing implementing rules in Italy that go beyond the provisions of the GIA** such as Guidelines on access to buildings and deadlines for permit approval which are shorter than those proposed in the draft GIA. Meanwhile, some infrastructure companies also express **concerns that as a directly applicable Regulation, GIA could go beyond existing measures in Italy in ways that they consider would be disproportionate e.g. by facilitating price regulation in the tower market or causing delays in**

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<sup>314</sup> [https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/italys-recovery-and-resilience-plan\\_en](https://commission.europa.eu/business-economy-euro/economic-recovery/recovery-and-resilience-facility/italys-recovery-and-resilience-plan_en) (last accessed on 23.11.2023).

deployment (due to pre-notification requirements in relation to civil works coordination).

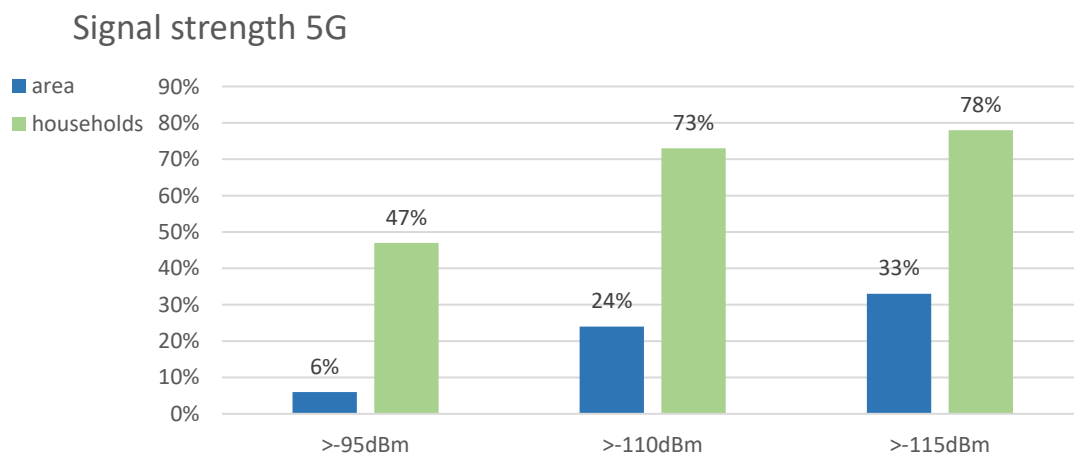
## 9.4 Country fiche: Poland

### 9.4.1 Overview of coverage and service providers

VHCN coverage in Poland has increased at a steady pace, and reached 70% of households in mid-2021, up from 65% in 2020. FTTP coverage was 51.9% in 2021 compared to 44.6% in 2020. DOCSIS 3.0 cable networks cover around 44% percent of households.

By the end of 2022, mobile network operators in Poland will have deployed 5G NSA (non-standalone) technology using frequency resources from the 2100 MHz and 2600 MHz. Further development of fifth-generation mobile technology will be possible by making even higher frequencies available to operators in the 3.6 frequencies in the 3.6 GHz (3.4-3.8 GHz) and 26 GHz bands (24.25-27.5 GHz), as well as the use of 5G technology in the standalone (SA) architecture. 5G technology in the NSA architecture is already widely deployed in shared radio bands above 2 GHz. It covers one-third of the country and three-quarters of homes.<sup>315</sup>

Figure 9-16: 5G coverage in 2022 (in % of households in green and in % of area in blue)



Source: UKE (2023).<sup>316</sup>

<sup>315</sup> See UKE (2023): Raport o stanie rynku telekomunikacyjnego w 2022 roku, available at <https://uke.gov.pl/akt/raport-o-stanie-rynku-telekomunikacyjnego-w-2022-roku,485.html> (last accessed on 03.08.2023).

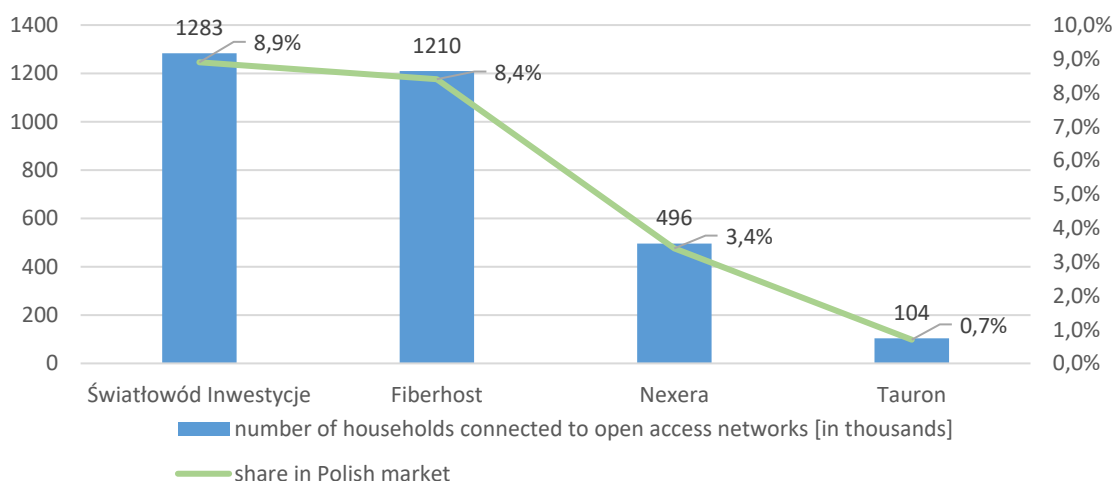
<sup>316</sup> See UKE (2023): Raport o stanie rynku telekomunikacyjnego w 2022 roku, available at <https://uke.gov.pl/akt/raport-o-stanie-rynku-telekomunikacyjnego-w-2022-roku,485.html> (last accessed on 03.08.2023).

The penetration of internet services has been increasing steadily during the last few years with around 63.2% of households using fixed-line internet in 2022. A large number of players are active on the internet access market in Poland. The largest players in the fixed broadband market in terms of number of fixed-line retail internet subscribers are Orange and UPC<sup>317</sup> with 23.8% and 15.9% market share in 2022 respectively followed by Vectra with 7.1% and Netia with 7.0%.<sup>318</sup> Operators with individual shares not exceeding 1% hold a total share of 36.2% of fixed-line internet users, highlighting the fragmented nature of the market.

At the infrastructure level, fixed broadband access is provided by a large number of network operators with local fibre or HFC networks. These include independent wholesale only fibre operators (Nexera and Tauron), wholesale only operators with a retail shareholder (Polski Światłowod Otwarty, Światłowod Inwestycje and Fiberhost) and vertically integrated operators (Orange and Vectra). Overall, the Polish market is characterised by hundreds of small local operators (some only serving 1 or 2 villages).

The figure below shows the number of households connected to open access networks (in thousands).

Figure 9-17: number of households connected to open access networks (in thousands and %)



Source: UKE (2023).<sup>319</sup>

<sup>317</sup> UPC merged with P4 Sp. z o.o., which is subsidiary of Iliad.

<sup>318</sup> UKE (2023): Report on the state of the telecommunications market in Poland in 2021, available at <https://www.uke.gov.pl/en/newsroom/report-on-the-state-of-the-telecommunications-market-in-2021,365.html> (last accessed on 24.07.2023).

<sup>319</sup> See UKE (2023): Raport o stanie rynku telekomunikacyjnego w 2022 roku, available at <https://uke.gov.pl/akt/raport-o-stanie-rynku-telekomunikacyjnego-w-2022-roku,485.html> (last accessed on 03.08.2023).

In 2022 there were four MNOs: Orange Polska, Polkomtel (brand: Plus), P4 (brand Play) and T-Mobile Polska. Polkomtel<sup>320</sup> acquired the MNO Aero 2<sup>321</sup> at the end of 2021. In 2022 there were 122 MVNOs in the Polish market. In terms of revenues in 2022, Orange and Polkomtel were the largest operators with 27.9% and 26.1% market share respectively. T-Mobile had a market share in terms of revenues of 22.9% and P4 of 20.9%. In terms of users in 2022 P4 was the largest operator with a market share of 30.2% followed by Orange with 26.6%, Polkomtel with 20.4% and T-Mobile with 19.2%.<sup>322</sup>

Poland has stated that it plans to use State aid as a complement to private investment to incentivise further 5G network roll-out in Poland. In this context, Poland plans to conduct interventions supporting the 5G network development in areas with low population density and along road infrastructure in 2023.<sup>323</sup>

Public funds are available for fibre access networks and fibre backhaul to towers supporting the 5G standard from the National Recovery and Resilience Plan (NRP) and from European Funds for Digital Development 2021-2027 – EU grants for the digital transformation of the economy and society. The NRP is a development plan setting out the objectives for rebuilding and building Poland's socio-economic resilience following the crisis caused by the COVID-19 pandemic and the reforms and investments to achieve them.

#### 9.4.2 Significant infrastructure companies present

Poland features two towercos (Cellnex and NetWorkS!<sup>324</sup>) and several fibre netcos, including independent wholesale only fibre operators (Nexera and Tauron), wholesale only operators with a retail shareholder (Polski Światłowód Otwarty, Światłowód Inwestycje and Fiberhost) and operationally vertically integrated operators (Orange and Vectra)<sup>325</sup>. Further details on Cellnex and Nexera are provided below.

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<sup>320</sup> Polkomtel was acquired by CPS in 2014.

<sup>321</sup> Aero 2 was an independent infrastructure provider created by Cyfrowy Polsat (CPS) before the acquisition of Polkomtel by CPS.

<sup>322</sup> UKE (2023): Report on the state of the telecommunications market in Poland in 2021, available at <https://www.uke.gov.pl/en/newsroom/report-on-the-state-of-the-telecommunications-market-in-2021,365.html> (last accessed on 24.07.2023).

<sup>323</sup> European Commission (2022) Digital Economy and Society Index (DESI) 2022 Poland, available at <https://digital-strategy.ec.europa.eu/en/policies/desi-poland> (last accessed on 24.07.2023).

<sup>324</sup> The main shareholders of NetWorkS! are T-Mobile Polska S.A. and Orange Polska S.A., that in 2011 signed an agreement on the common use of their radio access networks. One of the main goals of NetWorkS! is to provide the two shareholders with network planning, construction and maintenance services. <https://www.networks.pl/en/about-networks/#about-the-company> (last accessed on 19.10.2023).

<sup>325</sup> According to Polish accounting law these operators are independent but operationally they are vertically integrated.

#### 9.4.2.1 Nexera

##### 9.4.2.1.1 Shareholding / control

Nexera was formed in 2015. It is owned by two shareholders, Infracapital and Nokia. Nokia initially held a share of 15% but now holds 5%, while the remaining shares are held by Infracapital. Nexera is a wholesale-only operator focused on FTTH. It provides active services to retailers.<sup>326</sup>

Nexera was established to roll-out networks financed with State aid (POPC programme) which is due to end in 2023.<sup>327</sup>

Nexera is also deploying networks commercially, but notes that public funds provided the initial basis which enabled it to start investing.<sup>328</sup>

##### 9.4.2.1.2 Business model, assets under control and future plans / opportunities

Nexera reached a FTTH coverage of 600.000 HH in July 2023. The aim is to achieve 800,000 HH in the next 6-12 months. In the future, the coverage target is 1,000,000 HH. Nexera is investing in four regions in Poland and is concentrating in these four regions.

##### 9.4.2.1.3 Main customers, wholesale access products & terms and conditions

Nexera is required to provide as many wholesale services as possible due to State aid rules. In practice a high proportion are understood to make use of bitstream access. There are more than 50 active service providers using the Nexera network. These include all four nationwide operators incl. the incumbent, Orange, regional operators and very small local operators.<sup>329</sup>

The User-Operator may choose one of two variants of the monthly fee for using the BSA Service: (A) averaged for all types of buildings or (B) differentiated depending on the type of building. The figures below show the monthly fee for the BSA Service.

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<sup>326</sup> <https://www.nexera.pl/en/about-us> (last accessed on 23.11.2023).

<sup>327</sup> <https://www.nexera.pl/en/about-us> (last accessed on 23.11.2023).

<sup>328</sup> <https://www.nexera.pl/en/about-us> (last accessed on 08.11.2023).

<sup>329</sup> <https://www.nexera.pl/en/operator/wallet> (last accessed on 08.11.2023).

Figure 9-18: monthly fee for BSA service averaged for all types of buildings

VARIANT A - fee averaged for all types of buildings

no. FEE	UNIT	NET CHARGE [PLN]
1. BSA 300/100Mbps service	Service at AUU	37,00
2. BSA 400/100Mbps service	j.w	39,00
3. BSA 500/100Mbps service	j.w	41,00
4. BSA 600/100Mbps service	j.w	43,00
5. BSA 700/100Mbps service	j.w	44,00
6. BSA 800/100Mbps service	j.w	45,00
7. BSA 900/100Mbps service	j.w	46,00
8. BSA 1000/100Mbps service	j.w	47,00
9. Additional configuration for retail services Multi-P Premium*	j.w	3,00
10. Additional configuration without ONT**	j.w	-1,00

\* Fee added to monthly fee when selecting optional Multi-P Premium configuration.

\*\* Discount applied to the monthly fee when selecting the optional "No ONT" configuration. The amount consists of a discount for the lack of a device and a fee for maintaining the interoperability of the ONT used by OK with OLT NEXERA.

Source: <https://www.nexera.pl/pl/operator/offer> (last accessed on 08.11.2023).

Figure 9-19: monthly fee for BSA service depending on the type of building

no. FEE	UNIT	NET CHARGE [PLN] for MFH <sup>''</sup>	NET CHARGE [PLN] for SFH <sup>*</sup>
1. BSA 300/100Mbps service	Service at AUU	30,00	39,00
2. BSA 400/100Mbps service	j.w	32,00	41,00
3. BSA 500/100Mbps service	j.w	34,00	43,00
4. BSA 600/100Mbps service	j.w	36,00	45,00
5. BSA 700/100Mbps service	j.w	37,00	46,00
6. BSA 800/100Mbps service	j.w	38,00	47,00
7. BSA 900/100Mbps service	j.w	39,00	48,00
8. BSA 1000/100Mbps service	j.w	40,00	49,00
9. Additional Multi-P configuration Premium <sup>'''</sup>	j.w	3,00	3,00
10. Additional configuration without ONT <sup>****</sup>	j.w.	-1,00	-1,00

\* SFH - a detached building or a semi-detached, terraced or group building, serving housing needs, constituting a structurally independent whole, in which it is allowed to separate no more than two residential premises or one residential premises and commercial premises with a total area not exceeding 30% total area of the building.

<sup>''</sup> MFH – non-SFH building.

<sup>'''</sup> Charged in addition to monthly fee when selecting optional Multi-P Premium configuration.

<sup>\*\*\*\*</sup> Discount applied to monthly fee when selecting optional "No ONT" configuration. The amount consists of a discount for the lack of a device and a fee for maintaining the interoperability of the ONT used by OK with OLT NEXERA.

Source: <https://www.nexera.pl/pl/operator/offer> (last accessed on 08.11.2023).

Although Nexera does not sell services to end users, there is an active map on its website where end users can check where Nexera is providing services and obtain a list of service providers.<sup>330</sup>

#### 9.4.2.2 Cellnex

##### 9.4.2.2.1 Shareholding / control

Cellnex is an independent, publicly listed towerco, headquartered in Spain. Edizione holds the largest share by a telecom operator. This amounted to 9.903% in 2023. It has expanded through acquisition as well as organically.

In October 2020, Cellnex in Poland entered into an agreement with Iliad to acquire a 60% controlling stake in Play Communication's infrastructure. The value of the transaction

<sup>330</sup> <https://www.nexera.pl/en/> (last accessed on 08.11.2023).



amounted to EUR 830 million and also included the commitment to build another 4500 facilities by 2030, entailing an investment of up to EUR 1.3 billion.

In July 2021, Cellnex finalized a transaction with Cyfrowy Polsat Group concerning the acquisition of 99.99% of shares in Polkomtel Infrastruktura's telecommunications infrastructure.

The acquisition involved an investment of €1.6 billion from Cellnex, as well as an additional programme to launch up to approx. 1,500 locations and invest a further approx. €600 million over the next 10 years in active infrastructure.

Business model of Cellnex in Poland includes also building private LTE/5G networks for Polish industries, some existing infrastructure maybe used for this purpose. Thus the company is going to increase the tenancy ratio in industrial locations.

#### 9.4.2.2.2 Business model, assets under control and future plans / opportunities

As of 2023, Cellnex had 15,500 towers in Poland. Cellnex Poland consists of:

- On Tower Poland (acquired from the Play network)
- Towerlink Poland (acquired from Polkomtel).

After fulfilling its obligations to Play and Polkomtel, the company will own approx. 21 thousand facilities. In 2021 alone, Cellnex invested over PLN 10 billion in Poland and committed to invest another PLN 8.5 billion over the next 10 years.<sup>331</sup>

#### 9.4.2.3 Other wholesale only infrastructure operators

**Polish Open Fiber (Polski Światłowód Otwarty, PSO)** has been established by Play and UPC in a joint venture with Infravia (French Investment Fund specialised in infrastucure investments) as a wholesale operator providing services based on the FTTH and HFC network. The wholesale products offered are a resale (white brand) of the HFC network and BSA on the FTTH network. On cable networks there is an intention to move to offering BSA and to upgrade the cable network to FTTH. The wholesale operator is a joint venture of the retail arm owned by Iliad and the investor Infravia.

The main shareholders of **NetWorks!** are the two largest telecommunications operators in the country: T-Mobile Polska S.A. and Orange Polska S.A, each of them holding 50% of interest in the company. The company was formed after these operators signed an agreement in 2011 on the common use of their radio access networks. One of the main goals of the company is to provide both companies with network planning, construction

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<sup>331</sup> <https://www.cellnex.com/news/cellnex-poland-completes-milestone-company-integration-opens-new-office/> (last accessed on 23.11.2023).

and maintenance services and ensure an optimal technological base to compete in the market.

### 9.4.3 Challenges

#### 9.4.3.1 Challenges linked to the deployment of VHCN infrastructure

According to interview partners and survey responses, the main deployment challenges in Poland are connected with RoW, in particular for private properties, while obtaining RoW under public roads is easy but expensive. According to one operator public local taxes are very high, and these high fees result in significant OPEX when investing in villages and the countryside. In RoW cases if there is a dispute decisions can take around one year. However, they are often forced to go around the property. Stakeholders consider that access to ducts and poles in Poland has become easier in recent years following the implementation of the BCRD. However, access to poles can still be a challenge. Poles mainly belong to Orange Polska and vertically integrated, state controlled energy companies.

#### 9.4.3.2 Feedback regarding the terms of access to infrastructure companies

The provision of services based on bitstream access to wholesale network access has increased significantly in Poland, also due to the structural changes in the market, i.e. the trend in the market of providing fibre-optic networks (based on PON architecture) in a wholesale model to other operators.<sup>332</sup>

### 9.4.4 Regulatory conditions

#### 9.4.4.1 Ex ante regulation

As regards the BCRD, all provisions including those regarding access to physical infrastructure, civil works co-ordination and permit granting apply to infrastructure companies in Poland.

The infrastructure companies have not been designated as having SMP. However, offers of infrastructure companies are regulated by State aid rules when they use public funding. The State aid regulation provides for margin squeeze regulation for vertically integrated operators, while wholesale-only operators are price regulated based on benchmarking rules.

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**332** UKE (2022): Report on the state of the telecommunications market in Poland in 2021, available at <https://www.uke.gov.pl/en/newsroom/report-on-the-state-of-the-telecommunications-market-in-2021,365.html> (last accessed on 24.07.2023).

According to the NRA there are ongoing analyses considering whether to regulate infrastructure companies (i) on the basis of SMP or (ii) on the basis of symmetric access obligations. It cannot be excluded that in future market reviews, (asymmetric) SMP obligations with reference to PIA, fibre access or other facilities such as towers may be imposed on infrastructure companies.

In case of divestment of assets by a telecom operator, UKE notes that each case is analysed individually and the divestment might influence the regulatory approach in future cases.

#### 9.4.5 Stakeholder perspectives

Stakeholders in Poland highlight concerns around access conditions relating to fibre networks deployed with the support of State Aid. While access seekers call for greater transparency and more oversight of access conditions for State Aid funded networks (and those funded under EU funding regimes such as the RRF), those in receipt of State Aid note concerns about uncertainty regarding how the networks will be regulated in future, following the expiry of State Aid based rules, and how provisions on wholesale only networks (under Article 80 EECC) will be interpreted in that regard.

### 9.5 Country fiche: Spain

#### 9.5.1 Overview of coverage and service providers

As of the June 2022, Spain had 89.8% FTTH coverage and 82.4% 5G coverage.<sup>333</sup>

There are four mobile network operators: Movistar (Telefónica), Orange, Vodafone and Yoigo (Grupo MasMovil). All are also active in providing broadband services. In addition, there are a number of smaller ISPs including Avatel, Adamo and Digi Spain.

#### 9.5.2 Significant infrastructure companies present

Spain features two large independent towercos (American Tower and Cellnex) as well as Vantage and Totem<sup>334</sup> as towercos with a telco shareholder (Vodafone and Orange). Three significant fibre netcos (Onivia, Lyntia and Bluevia<sup>335</sup>) also operate in Spain. Further details of some of these companies are provided below.

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<sup>333</sup> See [https://avancedigital.mineco.gob.es/banda-ancha/cobertura/Documents/Informe\\_Cobertura\\_BA\\_2022.pdf](https://avancedigital.mineco.gob.es/banda-ancha/cobertura/Documents/Informe_Cobertura_BA_2022.pdf)

<sup>334</sup> Totem has about 7,600 sites in Spain. See <https://www.totemtowers.com/es/totem-en-espana/>

<sup>335</sup> Bluevia is a network operator created in 2022 that offers wholesale FTTH access services owned by Telefónica and investment funds with a coverage of more than 4 million households in the rural areas.

### 9.5.3 Towercos

#### 9.5.3.1 Cellnex

##### 9.5.3.1.1 Shareholding / control

Cellnex is a neutral and independent wholesale towerco that was founded in 2001. The company began its tower business in 2012 and changed its name to Cellnex in 2015. From 2012 to 2014, the Spanish company Abertis Telecom (with origins in operating and maintaining broadcasting networks) acquired more than 7,000 telecommunication towers from Telefónica and Yoigo in Spain<sup>336</sup>, which laid the groundwork for its position as a towerco.

After launching in Spain, Cellnex subsequently expanded to other EU member states: Acquisitions took place in Italy (2014), the Netherlands and UK (2016), France and Switzerland (2017), Ireland, Spain, and UK (2019), Portugal (2020) and Austria, Denmark, France, Ireland, Italy, Poland, Netherlands, and Sweden (2021). In many cases, Cellnex acquired infrastructure from telecommunications operators with a view to operating and managing the sites. The former operators secure access to the towers via long term contracts with Cellnex and in some cases both parties also agree on further development plans.

Following this period of rapid growth, Cellnex has a presence in 12 European Countries (the 10 member states France, Italy, Switzerland, Poland, Austria, Netherlands, Spain, Ireland, Portugal, Denmark as well as the UK and Switzerland). Having invested more than 40 billion Euro, Cellnex has around 135,000 sites plus 7,500 DAS and small cells sites in Europe altogether. The company has the largest presence in France, Italy, Poland, UK, and Spain with more than 10,000 sites each.<sup>337</sup>

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Its network was acquired to Telefonica and therefore the public funding received by Telefonica for deploying FTTH in rural areas can be allocated to Blueví. In the last 5 years 2018-2022 there have been two national funding programmes: PEBA-NGA (2018-2020) and UNICO-Banda Ancha (2021-2022) that supported the roll out of next-generation broadband networks in the grey and white areas. In addition, there have been regional programmes with the same purpose. In this period Telefónica has received from PEBA-NGA and UNICO-Banda Ancha around 492,103 million €, accounting for 57% of the total funding of those programmes. Bluevia was founded by the Telefónica Group and the consortium of the bank insurance group Crédit Agricole Assurances and investor Vauban Infrastructure Partners: a platform for the commercialization and deployment of fibre networks (FTTH) in Spain, mainly in rural areas and with limited overlap with other networks. See <https://www.telefonica.com/en/communication-room/press-room/bluevia-a-neutral-ftth-wholesale-provider-in-spain-is-created/> (last accessed on 23.11.2023).

**336** See <https://www.commsupdate.com/articles/2014/01/03/abertis-acquires-1741-mobile-towers-from-telefonica-and-yoigo/> (last accessed on 23.11.2023).

**337** See <https://www.cellnex.com/about-cellnex/> (last accessed on 23.11.2023).

In Spain, Cellnex has 11,323 sites.<sup>338</sup> Beside Telefónica and Yoigo, the company also purchased 1,500 sites from Orange in Spain.<sup>339</sup>

Cellnex is publicly listed and has no telcos amongst its largest shareholders. Edizione with 9.9%, TCI with 9.4% and GIC with 7% hold most of the shares. However, CK Hutchison holds 4.8% of the shares.<sup>340</sup>

#### 9.5.3.1.2 Business model, assets under control and future plans / opportunities

The company's business model focuses on the operation and construction of physical infrastructure: Ground based towers and rooftop towers as well as (limited) small cells and DAS. The towerco infrastructure is open to any client which requests access. In addition to mobile infrastructure, Cellnex is active in broadcasting (mainly in Spain), and ancillary network services (e.g., for government agencies and municipalities). The company also has a fibre network of 65,000 km in France and Spain (access network and backhaul).

Cellnex receives state aid for some investment projects: the European Commission awarded Cellnex six projects for the deployment of 5G infrastructure in cross-border corridors: The works cover two road corridors linking Spain with France (Barcelona – Montpellier/Toulouse and Bilbao – Bordeaux) and two corridors linking Spain with Portugal (Salamanca – Porto – Vigo and Mérida – Évora). In total, the projects account for an investment of about €24 million, 50% of which will be financed by the European Commission. These projects are expected to be completed by end of 2025.<sup>341</sup>

In the future, Cellnex's focus will remain on wholesale services for passive infrastructure. Currently, there are no plans to expand into the retail market or to obtain spectrum. The company might add extra services along the value chain if there is demand from its customers.

The company aims at organic growth, with no plans in terms of certain number of towers to be reached in the next couple of years. To sustain its growth path, Cellnex aims to attract additional tenants to its existing sites, increase the tenancy ratio, consolidate and rationalize its network, while maintaining long term contracts for the anchor tenants and building new sites "on demand" for its clients: When Cellnex's clients identify new towns or areas to be covered, they together agree on a deployment plan (e.g., for 3 years) to build additional sites.

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<sup>338</sup> See <https://www.cellnex.com/es-en/about-cellnex/> (last accessed on 23.11.2023).

<sup>339</sup> See <https://www.cellnex.com/news/noticia-129/> (last accessed on 23.11.2023).

<sup>340</sup> See <https://www.cellnex.com/sections/shareholder-structure/> (last accessed on 23.11.2023).

<sup>341</sup> See [https://www.cellnex.com/news/european-commission-awards-cellnex-six-projects-enhance-5g-infrastructure-transport-corridors/#\\_ftnref1](https://www.cellnex.com/news/european-commission-awards-cellnex-six-projects-enhance-5g-infrastructure-transport-corridors/#_ftnref1) (last accessed on 23.11.2023).

#### 9.5.3.1.3 Main customers, wholesale access products & terms and conditions

Cellnex provides passive access to its towers and small cells as well as passive access to fibre in the access network and to fibre backhaul, in those areas where it controls these assets.

Cellnex has a wide range of clients, ranging from small communication providers with a local demand of only one site to clients with national scope: They include MNOs and other telco operators (FWAs, ISPs etc.) as well as service providers such as IoT and WiFi providers, public administrations, broadcasters, private network owners and other wholesale providers.

Besides many MNOs that sold their infrastructure to Cellnex and continue to access it, other major customers include Telefónica, MasMovil and RTVE in Spain, Bouygues Telecom and SFR in France, Iliad in France and Italy, Wind Tre in Italy, Salt in Switzerland, Play and Plus in Poland, MEO, NOS and Digi in Portugal, BT and 3 UK in the UK, and CK Hutchinson in six European countries.<sup>342</sup>

Cellnex concentrates on a broad portfolio of services and infrastructure. For instance, they fully operate networks for some public administrations and provide fibre to the tower for telco operators. Other areas include private protection and disaster relief with a special focus on SLA and network resiliency, e.g., when other networks are down. Fibre to the business is also offered in very few specific cases.

The terms and conditions (including prices, volumes, and length) for more than 100 clients in 12 countries are bespoke and subject to commercial negotiations. The agreements vary from country to country and refer to the customer's request to hospitality, hosting, housing, build to suit or other relevant services. Depending on the needs of the clients, the lengths of the contracts range from 1 day (e.g., backhaul for an event) to some years. In some cases, both parties arrange long-term agreements of 10 years with options for extension.

#### 9.5.3.2 American Tower

##### 9.5.3.2.1 Shareholding / control

American Tower Corporation (ATC) is a neutral and independent towerco that started its business in the US in 1995 after carving out the passive infrastructure from the broadcasting business (see the history in the USA case study).

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<sup>342</sup> See <https://www.cellnex.com/es-en/about-cellnex/> (last accessed on 23.11.2023).

In 1992, the company subsequently expanded its business to other countries in North America, to Latin America, Africa, Europe, India and Australia.<sup>343</sup> The global portfolio encompasses nearly 226,000 tower sites.<sup>344</sup> In Europe, the company is active in France, Germany, and Spain (around 30,000 sites in total with a focus on the latter two countries: ca. 14,800<sup>345</sup> sites in Germany and ca. 11,700 sites in Spain<sup>346</sup>, only ca. 2,800 sites in France<sup>347</sup>). The company ceased operation in Poland in 2023 after the sites (around 65) were sold to a group of investors.<sup>348</sup>

Although present in Europe since 2012, a major boost in activity can be traced back to American Tower's acquisition of Telxius, from Telefónica in 2021:<sup>349</sup> Telxius, a company of the Telefónica Group (minority owned by KKR and Pontegadea) reached an agreement with American Tower for the sale of its telecommunications tower divisions (more than 30,000 sites) in Spain and Germany as well as in Argentina, Brazil, Chile, and Peru.<sup>350</sup>

ATC Group owns 52% of American Tower Europe. In addition, ATC Europe has 2 long-term oriented major investors: Canadian private pensions investor CDPQ (Caisse de dépôt et placement du Québec) (30%) and Allianz Capital Partners (10%). No major telecommunications shareholder is involved.<sup>351</sup>

#### 9.5.3.2.2 Business model, assets under control and future plans / opportunities

American Tower's business model focuses on the operation and construction of passive infrastructure: Ground based towers in various heights (primarily in less dense areas) and rooftop towers in more densely populated areas. The land and space on buildings is typically rented. Small cells only play a limited role.

#### 9.5.3.2.3 Main customers, wholesale access products & terms and conditions

ATC's main focus is on providing passive access to its towers. The largest MNOs represent the main wholesale customers. Broadcast clients only account for a fraction of the business. In Spain, American Tower has a significant relationship with Telefónica following its acquisition of Telxius. Other clients include Vodafone, Orange, and Masmovil

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<sup>343</sup> See <https://www.americantower.com/company/our-global-presence/index.html> (last accessed on 23.11.2023).

<sup>344</sup> See <https://americantower.com/de/de/company/> (last accessed on 23.11.2023).

<sup>345</sup> See <https://americantower.com/de/de/index.html> (last accessed on 23.11.2023).

<sup>346</sup> See <https://americantower.es/en/index.html> (last accessed on 23.11.2023).

<sup>347</sup> See <https://atcfrance.fr/en/find-sites/> (last accessed on 23.11.2023).

<sup>348</sup> See <https://www.datacenterdynamics.com/en/news/american-tower-to-exit-poland/> (last accessed on 23.11.2023).

<sup>349</sup> See <https://www.americantower.com/company/history.html> (last accessed on 23.11.2023).

<sup>350</sup> See <https://www.telefonica.com/en/communication-room/press-room/telefonica-sells-telxius-tower-division-to-american-towers-corporation-at-record-multiples-for-7-7-billion-euros/> (last accessed on 23.11.2023).

<sup>351</sup> See <https://www.allianzcapitalpartners.com/en/media/news/061621-allianz-partner-american-tower-europe> and <https://dgtlinfra.com/american-tower-atc-europe-allianz/> and



as well as numerous medium to small non-MNO access seekers (e.g., connectivity and governmental service providers).

While prices are the outcome of commercial negotiations, there are standard agreements and standard principles for clients to access the ATC's infrastructure.

## 9.5.4 Fibrecos

### 9.5.4.1 Onivia

#### 9.5.4.1.1 Shareholding / control

Onivia is a neutral and independent wholesale fibre operator in Spain. The company was founded in 2019 when an investor consortium acquired around 940,000 FTTH access lines from MasMovil in 5 major Spanish cities (Madrid, Barcelona, Valencia, Sevilla, and Malaga).<sup>352</sup> The sale of MasMovil's network was based on a major (fibre) network agreement between Masmovil and Orange due to overlapping networks of the two companies. At that time, the investors saw an opportunity due to the lack of wholesale FTTH actors in the market: As a new company it was easier to deploy a network platform.

Macquarie Capital (25%) acted as a lead investor and sponsor of the transaction with Aberdeen Standard (37%) joining as a major co-investor. Subsequently, Daiwa Energy & Infrastructure and Arjun Infrastructure Partners (25%) were also added as fellow investors. No major telecommunications shareholder is involved.<sup>353</sup>

In 2021, MasMovil sold a majority stake in its wholesale FTTH network covering 1.1 million rural homes across Spain to Onivia. The investor-based decision enabled Onivia to double its FTTH network in size.<sup>354</sup> Onivia again expanded its rural FTTH network in 2022, when it acquired an additional half a million FTTH premises from MasMovil in urban and rural areas.<sup>355</sup>

<sup>352</sup> See <https://onivia.net/en/macquarie-capital-to-acquire-fibre-broadband-network/> and <https://onivia.net/en/onivia-doubles-in-size-and-expands-its-coverage-over-two-million-homes-nationwide/> (last accessed on 23.11.2023).

<sup>353</sup> See <https://onivia.net/en/our-company> and <https://www.macquarie.com/au/en/about/news/2022/arjun-infrastructure-partners-invests-alongside-macquarie-capital-in-spanish-fibre-network-onivia-as-part-of-continued-growth-plan.html> (last accessed on 23.11.2023).

<sup>354</sup> See <https://onivia.net/en/onivia-doubles-in-size-and-expands-its-coverage-over-two-million-homes-nationwide/> (last accessed on 23.11.2023).

<sup>355</sup> See <https://www.macquarie.com/au/en/about/news/2022/spanish-fibre-business-onivia-expands-coverage-of-its-rural-fibre-network-with-support-from-macquarie-capital.html> (last accessed on 23.11.2023).

#### 9.5.4.1.2 Business model, assets under control and future plans / opportunities

The company's main asset is its fibre access network: After the gradual expansion of its FTTH network, Onivia's network coverage extends to around 3.5 million households in more than 1000 municipalities (10,900 km) at the end of 2022.<sup>356</sup> The company maintains an open network for all operators who want to connect: There is no exclusivity for any operators and Onivia notes that it does not engage in competition with its clients by marketing retail products.

Onivia is deploying its network with private investor money and without public funding. However, a notable exception is the roll out in areas where MasMovil previously received public funds for PEBA projects. PEBA focuses on NGA roll out in historically disadvantaged areas (due to geographic relocation from urban areas or lower socioeconomic development) or areas where no operator has plans to deploy its own network. The projects were co-financed by the Spanish Ministry of Economic Affairs and Digital Transformation and the European Regional Development Fund (ERDF).<sup>357</sup> In these areas Onivia had to fulfil the requirements from PEBA, e.g., open access obligations, that were originally applied to the MasMovil's network.

For the near future, Onivia intends to increase footprint through own deployment, rather than through mergers or acquisitions. The company plans to reach 4.1 million homes via its roll out of 500,000 premises until the end of 2023. In the medium term the goal is to reach 7-8 million homes passed.

#### 9.5.4.1.3 Main customers, wholesale access products & terms and conditions

Onivia has a wide range of customers that include small and medium operators (ISPs, MNOs, resellers, and retailers) as well as verticals.

Some major telco operators are Onivia's customers: Masmovil remains an anchor tenant due to its legacy network and has signed a long-term agreement as part of the sale of the network, which includes a minimum volume commitment for the new network.<sup>358</sup> Orange is another major client in the network.<sup>359</sup> Vodafone Spain also makes use of access from Onivia, particularly in rural areas.

Onivia wholesales bitstream services in the main Spanish cities and their metropolitan areas, as well as in many smaller municipalities in rural areas all over the country. Onivia has launched two major bitstream products: Integra and Impulsa. Integra is aimed at large

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<sup>356</sup> See <https://onivia.net/en/coverage/> (last accessed on 23.11.2023).

<sup>357</sup> See <https://onivia.net/en/coverage/> (last accessed on 23.11.2023).

<sup>358</sup> See <https://onivia.net/en/macquarie-capital-to-acquire-fibre-broadband-network/> (last accessed on 23.11.2023).

<sup>359</sup> See <https://onivia.net/en/onivia-doubles-in-size-and-expands-its-coverage-over-two-million-homes-nationwide/> (last accessed on 23.11.2023).

and medium telco operators whereas Impulsa addresses local and regional operators. Both are flexible with interconnection points etc. depending on the operator.

The company does not provide passive access (via dark fibre).

#### 9.5.4.2 Lyntia

##### 9.5.4.2.1 Shareholding / control

Lyntia is/was a neutral operator providing fibre wholesale services mainly to operators and utility companies in the Spanish telecom sector.

The company resulted from the merger of two companies: Ufinet and Desarrollo del Cable, created in 1998 by Unión Fenosa and Gas Natural that joined forces to provide services to other telco operators.<sup>360</sup> In 2015, the company (under its previous name) first entered the FTTH business in Spain in small and medium sized cities.<sup>361</sup>

Until 2022, Lyntia was owned by French private equity firm Antin Infrastructure Partners: In July 2018, Antin Infrastructure acquired Ufinet Group's Spanish business.<sup>362</sup> After the acquisition, the company was renamed Lyntia in 2019 and operated two distinct units, Lyntia Access (wholesale FTTH operator) and Lyntia Networks (dark fibre and enterprise fibre provider).<sup>363</sup>

In 2022, AXA IM Alts, Swiss Life Asset Managers, and Morrison & Co purchased Lyntia Networks. The acquisition was cleared by the European Commission in late 2022.<sup>364</sup> Lyntia Access remains a standalone company.<sup>365</sup>

##### 9.5.4.2.2 Business model, assets under control and future plans / opportunities

The Lyntia network comprises of a fibre network of about 44,000 km that runs along the electrical lines of utility companies.<sup>366</sup>

<sup>360</sup> See <https://www.lyntia.com/en/about-us/> (last accessed on 23.11.2023).

<sup>361</sup> See <https://www.lyntia.com/en/about-us/history/> (last accessed on 23.11.2023).

<sup>362</sup> See <https://www.antin-ip.com/media/our-news/antin-infrastructure-partners-closes-acquisition-ufinet-spain-and-appoints-eduardo> (last accessed on 23.11.2023).

<sup>363</sup> See <https://dgtlinfra.com/lyntia-antin-infrastructure-fiber-spain/> (last accessed on 23.11.2023).

<sup>364</sup> See [https://ec.europa.eu/commission/presscorner/detail/en/MEX\\_22\\_6943](https://ec.europa.eu/commission/presscorner/detail/en/MEX_22_6943) (last accessed on 23.11.2023).

<sup>365</sup> See <https://www.lyntia.com/en/press/axa-im-altswiss-life-asset-managers-and-morrison-co-purchase-lyntia-networks/> (last accessed on 23.11.2023).

<sup>366</sup> See <https://www.lyntia.com/en/fiber-optic-network/> (last accessed on 23.11.2023).

As of 2021, Lyntia Access' wholesale FTTH network extended to 2.5 million homes, mainly in small towns and rural areas in Spain.<sup>367</sup> The company's homepage states, that the current FTTH networks cover 267,000 building units in over 30 localities.<sup>368</sup>

This number was achieved by Lyntia acquiring the fibre networks of several internet service providers (Avatel, TVHoradada, Axartel, Gartel and Universal Fibra) until late 2019, mainly in Valencia and Andalusia. Lyntia agreed to provide wholesale FTTH services to these operators as part of these transactions.

Lyntia Networks has received about 145,187 € in 2018 from Ministry of Economic Affairs and Digital Transformation for deploying FTTH in rural areas. In addition, Lyntia Networks has also been a beneficiary of the public aid package (€142 M) for the development of 5G - which has already presented its provisional list - of the 'UNICO Redes backhaul Programme', which has awarded €448 M.

#### 9.5.4.2.3 Main customers, wholesale access products & terms and conditions

Lyntia provides a wholesale access service to its FTTH network with the possibility of including the backhaul (with the option of delivery at any neutral node). This last-mile service is provided for residential and business customers.

According to CNMC, the company also offers capacity circuits for large fibre optic bandwidths. These circuits provide capacity, connectivity, and network access services with speeds that range from 2 Mbps to 100 Gbps, both nationally and internationally.

Lyntia's wholesale products encompass passive access to fibre in the access network (FTTP-dark fibre), passive access to fibre backhaul, VULA, fibre bitstream and leased lines.

#### 9.5.5 Challenges linked to the deployment of VHCN infrastructure

Multinational operators mention that while the current laws and permit procedures in Spain are good in theory, they are less so in practice. Although the deadlines provided are regarded as good practice and are shorter than in other countries, one operator noted that problems with local authorities in Spain occur regularly: entities such as municipalities frequently fail to meet those deadlines imposed by law, resulting in significant delays in deployment timelines and increased roll out costs.

Several companies noted that in general the permitting procedures are also challenging due to the fragmentation of legal frameworks and the necessity to receive permits from different entities (local, regional, national). Mobile as well as fixed infrastructure

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<sup>367</sup> See <https://www.pressreader.com/spain/expansion-c-valenciana/20220808/281595244301130> (last accessed on 23.11.2023).

<sup>368</sup> See <https://dgtlinfra.com/lyntia-antin-infrastructure-fiber-spain/> (last accessed on 23.11.2023).

companies note that there are in some cases 4-5 permits necessary for building procedures.

Historical monument protection is one further challenge the companies face. Access to both private and public land is also reported as difficult. Access to poles is perceived as being more challenging than access to ducts in Spain.

#### *Feedback regarding the terms of access to infrastructure companies*

One access seeker rates the availability and prices of mobile assets and fixed assets from infrastructure companies as above average: In general, commercial relationships with infrastructure companies (both tower and fibre) have led to an increased dynamic to the sector, providing a wider range of products and options and enhanced competition according to telco operators' needs. The emergence of such players has allowed operators to focus on providing better services to their clients.

For the respondent, the burdens and limitations experienced when accessing third parties' infrastructure are linked to the type of holder of the infrastructure in each region/area: In general, it could be stated that in those areas where infrastructure from third parties is available under commercial terms (operated by infrastructure wholesale-only operators), it is easier to reach long-term commercial agreements. However, in areas where telco operators need to rely on network operators other than infrastructure operators (mainly utilities), often neither information about available infrastructure nor an agreement on reasonable price and terms for accessing this infrastructure are feasible. Therefore, in the latter areas it becomes more and more complex and difficult to reach agreements due to high price surcharges compared to the commercial prices, thus making the network deployment economic inviable in most of the cases (e.g., railways, highways).

#### 9.5.6 Regulatory conditions

The infrastructure companies Spain are subject to some rights or obligations under the symmetric provisions of the EECC and/or BCRD: In general, the application of the BCRD and symmetric rules under the EECC to infrastructure companies does not normally depend on the nature of the undertaking (i.e., companies that provide wholesale services and are not present in the retail market) but on whether the wholesale services that are being provided can qualify as a public electronic communications network or service. If that is the case, the rights and obligations listed below will normally apply to infrastructure companies only offering passive access according to CNMC.

It should also be noted that under the BCRD as transposed in Spain, it is not only electronic communications operators that have to comply with these rights and obligations, but also infrastructure companies in general (towers, gas, electricity etc.) and public administrations.

*Article 43 EECC (Rights of Way)* are in general granted under Spanish law to undertakings acting as an “operator”, that is a person or an undertaking providing a public electronic communications network or a publicly available electronic communications service, and which has notified its activity to CNMC’s Registry of Operators. During the period that infrastructure companies provide electronic communications networks and services, they would be entitled to the granting of rights of way. However, this would not apply in instances where, for example, a tower company merely leases its tower space to ECS operators and provides no public electronic communication networks or services of its own.

*Article 44 EECC (co-location and sharing of network elements and associated facilities)* can generally be imposed on operators providing public electronic communications networks (and thus infrastructure companies only offering passive access).

The provisions in *Article 57 EECC (deployment and operation of small area wireless access points)* generally apply to operators providing public electronic communications networks (including infrastructure companies only offering passive access).

Access to wiring, cables and associated facilities inside buildings under *Article 61(3) EECC (symmetric access to wiring, cables, and associated facilities inside buildings or up to the first concentration point)* is regulated in Spain through a decision adopted by CNMC in 2009. On this basis, any operator deploying fibre access networks inside buildings must grant access to its fibre network elements and equipment in the building to other operators. If infrastructure operators deploy fibre access lines inside buildings, they would be covered by the 2009 decision as well and would thus have to ensure access to its network to other operators.

*Article 3 BCRD (Access to existing physical infrastructure), Article 4 BCRD (provision of information regarding existing physical infrastructure), Article 5 BCRD (co-ordination of civil works), and Article 6 BCRD (information regarding civil works co-ordination):* According to Spanish law, undertakings providing public communications networks must ensure access to its existing physical infrastructure and may likewise benefit from access rights for the purposes of deploying high or very high-capacity networks. During the period that infrastructure companies provide public communications networks, they would be subject to the provisions under Spanish law that transpose Article 3 BCRD (analogous to the discussion on Article 43 EECC regarding infrastructure companies.).

For information regarding existing physical infrastructure, a Single Point of Information was implemented by Ministry for Energy, Tourism and Digital Agenda in 2016, which lists information of owners and managers of the infrastructure. Interested parties can request information on or access to physical infrastructure. Some information about civil works (in process or planned) is also available in the SIP.

*Article 7 BCRD (rights regarding permit granting):* Rights regarding permit granting are usually linked to operators installing or deploying public communications networks and



associated facilities, including infrastructure companies only offering passive access. During the period that infrastructure companies install or deploy public communication networks and associated facilities, they would be entitled to the rights foreseen under Article 7 BCRD.

Cellnex is currently designated as SMP under (former) Market No. 18 (2003): Broadcasting transmission services, to deliver broadcast content to end users in electronic communication networks. Beyond that, currently only Telefónica has been designated as SMP in several telecommunications markets. In general, divested companies have inherited the same regulatory consideration/assessment and obligations as the parent company from which they were divested. Thus, BlueVia's<sup>369</sup> assets have the same regulatory assessment as when they were operated by Telefónica España, which holds SMP designation in the access market for fixed broadband.

CNMC has already approved some M&A in which infrastructure companies were involved. For instance, CNMC has authorised Lyntia Networks to acquire the rights of use for Iberdrola's dark fibre excess capacity. The operation is conditional on Lyntia fulfilling the commitments it has entered into, e.g., maintaining the contractual conditions for the clients of the entity that results from the transaction and not unreasonably terminate existing contracts and offer to extend existing contracts that expire in 10 years, while offering access, under reasonable conditions and via the different existing commercial methods, to its entire dark fibre network in Spain for 5 years.<sup>370</sup> In addition, CNMC has approved in first phase the sale of the telecommunications towers in Europe of Telxius Telecom, a Telefónica Group company in which KKR and Pontegadea hold a minority stake, directly or indirectly, to American Tower Corporation (ATC).<sup>371</sup>

#### 9.5.7 Stakeholder perspectives

Access seekers noted that access to ducts and poles of the incumbent due to SMP regulation is beneficial.

Regarding the proposed GIA, all surveyed infrastructure companies that are active in Spain hold the view that infrastructure companies should be subject to the same symmetric rights and obligations regarding Rights of Way, permit granting procedures, and civil works co-ordination as apply to electronic communications providers. However, they oppose being covered by the access provisions to physical infrastructure under the EECC and BCRD that apply to electronic communications providers.

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<sup>369</sup> See <https://www.bluevia.es/en/> (last accessed on 23.11.2023).

<sup>370</sup> See <https://www.cnmc.es/la-cnmc-aprueba-con-compromisos-la-compra-por-lyntia-de-derechos-de-uso-del-excedente-de-red-de> (last accessed on 23.11.2023).

<sup>371</sup> See <https://www.europapress.es/economia/noticia-cnmc-aprueba-primera-fase-venta-torres-europa-telxius-telefonica-atc-20210325172425.html> (last accessed on 23.11.2023).



Access obligations to infrastructures of infrastructure companies are not seen as necessary by the companies as they see sharing of infrastructure and facilitating as many clients as possible as their business anyway. Rather the light touch regulation in Art. 80 EECC as well as competition law are seen as sufficient by these companies. The tower companies also note that regulation should not harm the dynamic new market of towercos and that obligations may deter market entry of new players. On the other hand, one access seeker believes that infrastructure companies should be subject to the same rights and obligations regarding access to infrastructure, access to information, permit management or coordination of civil works as any other network operator subject to GIA regulation. These are elements in the value chain that at certain times can become bottlenecks in VHCN deployment and therefore the same rights and obligations that apply to network operators should apply to any of these companies. Indeed, they believe that the GIA might be the right regulatory approach combining proportionality while ensuring the creation of a truly competitive infrastructure market, where there is effective competition and which favours commercial agreement between the parties.

## 9.6 Country fiche: United Kingdom

### 9.6.1 Overview of coverage and service providers

As of mid-2023, the UK had 52.8 percent of premises with FTTP access, a figure that has increased markedly since the 23.3 percent recorded in mid-2021 and less than 4% coverage 3 years earlier. The infrastructure operator Openreach, a subsidiary of incumbent BT, (and the vertically integrated incumbent in the small area in and around the city of Hull, KCOM) cover 34.8 percent of the premises, while altnets reach 24 percent, leaving an overlap of full fibre infrastructure of six percent.<sup>372</sup> Alternative investors in fixed infrastructure include the wholesale-only operator CityFibre and the vertically integrated Hyperoptic and CommunityFibre as well as a multitude of smaller companies. The largest access seekers on fixed networks are BT, Sky, TalkTalk, and Vodafone. Cable networks operated by vertically integrated Virgin Media cover around 50 percent of households, and as of mid-2021, almost half of the cable households had been upgraded to the DOCSIS 3.1 standard.<sup>373</sup>

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<sup>372</sup> See <https://www.ispreview.co.uk/index.php/2023/07/2023-h1-uk-full-fibre-broadband-coverage-rises-to-53-percent.html> based on data from <https://labs.thinkbroadband.com/local/> (last accessed on 23.11.2023).

<sup>373</sup> IHS Markit, OMDIA, Point Topic (2022), Broadband Coverage in Europe 2021, study for the European Commission, <https://digital-strategy.ec.europa.eu/en/library/broadband-coverage-europe-2021> (last accessed on 25.07.23).

The rollout of 5G started in 2021 with the deployment of non-standalone 5G networks with a 4G core. As of 2021, 38 percent of households were covered with 5G.<sup>374</sup> By January 2023, coverage had increased to between 73 and 82 percent of households.<sup>375</sup>

The mobile market is served by the four MNOs (The BT subsidiary EE, O2, Vodafone and Three) and several smaller MVNOs, including Tesco Mobile. According to survey data, the MVNOs have a market share of 9 percent, not including secondary brands of MNOs.<sup>376</sup>

There are two (planned) mergers in recent years that have changed or could change market dynamics to a degree. The first was the merger of Liberty Global owned cable operator Virgin Media with Telefónica owned MNO O2 in 2021 into the 50:50 joint venture Virgin Media O2<sup>377</sup>, thereby creating a fixed mobile integrated player. Another merger is planned between Vodafone UK and Three UK, which would reduce the number of MNOs to three and create the largest mobile operator in the country.<sup>378</sup> This proposal, which would give Vodafone 51 percent control of the merged company and Three 49 percent, is currently under examination by the UK's competition watchdog, the Competition and Markets Authority (CMA).

### 9.6.2 Significant infrastructure companies present

The United Kingdom has one large (Openreach) and one smaller (CityFibre) fibre infrastructure company that play a role in the market without offering any retail services themselves. A focus point for this case study will be the incumbent subsidiary Openreach.

In the mobile market, towers are controlled mainly by two infrastructure sharing joint ventures: MBNL, a joint venture between Three and EE (BT) and Cornerstone, also called CTIL, a joint venture between Vodafone and O2. Among the other, independent towercos active in the UK are Cellnex and smaller, more local players such as Wireless Infrastructure Group and FreshWave.

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**374** IHS Markit, OMDIA, Point Topic (2022), Broadband Coverage in Europe 2021, study for the European Commission, <https://digital-strategy.ec.europa.eu/en/library/broadband-coverage-europe-2021> (last accessed on 25.07.23).

**375** Ofcom (2023): Connected Nations update – Spring 2023, [https://www.ofcom.org.uk/data/assets/pdf\\_file/0026/261548/spring-2023-connected-nations-update.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0026/261548/spring-2023-connected-nations-update.pdf) (last accessed on 25.07.23).

**376** WIK-Consult calculation based on Ofcom survey data, see [https://www.ofcom.org.uk/data/assets/pdf\\_file/0026/239435/Tech-Tracker-2022-Subset-Data-Tables.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0026/239435/Tech-Tracker-2022-Subset-Data-Tables.pdf) (last accessed on 23.11.2023).

**377** <https://www.gov.uk/cma-cases/liberty-global-plc-telefonica-s-a-merger-inquiry> (last accessed on 23.11.2023).

**378** <https://www.bbc.com/news/business-65842845> (last accessed on 23.11.2023).

## 9.6.2.1 Openreach

### 9.6.2.1.1 Shareholding / control

Openreach was founded in 2006 in accordance with the Undertakings given by BT to Ofcom pursuant of the Enterprise Act 2002. It was created as a subsidiary of BT with its own management.<sup>379</sup> Following Ofcom's Strategic Review of Digital Communications in 2016, BT committed to legally separate Openreach from its other business.<sup>380</sup> This separation process, including an independent board (i.e. with the majority of board members not from BT) was confirmed and initiated by BT in March 2017.<sup>381</sup> Currently only one board member is directly nominated by BT Group, although the main executive officers of Openreach held management positions at BT group before joining the infrastructure subsidiary. The activities of Openreach are continuously monitored by the regulator Ofcom.<sup>382</sup>

Although legally separate, Openreach is still fully owned by BT Group and therefore not listed separately on any stock exchange. There have been rumours regarding potential plans for a (partial) sale of the company in recent years but no formal steps have been taken in this regard.<sup>383</sup> Openreach itself sees no evidence that attracting external investors, e.g. through such a partial sale, would have led to more investment in the network and a quicker full fibre rollout as the construction activity was already at a maximum without external funding.

According to the 2023 annual report<sup>384</sup> of BT, the adjusted revenue of Openreach was 5.675 bln GBP, ~27 percent of the total BT revenue. The (adjusted) EBITDA margin of Openreach was 61 percent, and the operating profit margin 24 percent. This contrasts with other segments of BT (Consumer, Enterprise and Global), which reported a total EBITDA margin of 31 percent and an operating profit margin of 11 percent.<sup>385</sup>

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**379** See <http://stakeholders.ofcom.org.uk/binaries/telecoms/policy/bt/overview.pdf> (not available, archived at: <https://web.archive.org/web/20160304052930/http://stakeholders.ofcom.org.uk/binaries/telecoms/policy/bt/overview.pdf>). (last accessed on 23.11.2023).

**380** <https://www.bbc.com/news/business-38141510> (last accessed on 23.11.2023).

**381** <https://www.bbc.com/news/business-39228115> (last accessed on 23.11.2023).

**382** See Ofcom (2023): Openreach monitoring report [https://www.ofcom.org.uk/data/assets/pdf\\_file/0017/263303/2023-openreach-monitoring-report.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0017/263303/2023-openreach-monitoring-report.pdf) (last accessed on 25.07.23).

**383** E.g. in 2020: <https://www.reuters.com/article/us-tmt-conference-bt-group-idUSKBN27Y2RD> and 2021: <https://www.theguardian.com/technology/2021/nov/04/bt-scraps-hunt-for-openreach-partner-as-fibre-rollout-costs-fall> (last accessed on 23.11.2023).

**384** This report encompasses the financial year 2022/2023 of BT from April 2022 to March 2023.

**385** These values are all adjusted according to the annual report of BT. See <https://www.bt.com/bt-plc/assets/documents/investors/financial-reporting-and-news/annual-reports/2023/2023-bt-group-plc-annual-report.pdf> (last accessed on 23.11.2023).

### 9.6.2.1.2 Business model, assets under control and future plans / opportunities

The assets controlled by Openreach include not only fibre but also the legacy copper infrastructure and the underlying physical infrastructure including ducts and poles. Openreach also manages the backhaul and active equipment necessary to offer wholesale products falling within its remit including those needed to offer VULA and leased line terminating segments. While Openreach manages these assets, they are owned by mother company BT Group.<sup>386</sup>

In total, Openreach operates 254 million kilometres of cables (fibre and copper). The physical access infrastructure includes 4.1 million poles, 478,000 kilometres of ducts and 5,600 exchanges.<sup>387</sup>

The full fibre footprint of Openreach (fibre to the building/home) reached 10 mln in March of 2023 of which 9 mln are private homes.<sup>388</sup> Openreach reports that take-up of wholesale full fibre-based products stands at 3.2 mln and around half of the buildings it serves with full fibre are in areas where cable or fibre (i.e. gigabit services) are also available through other providers. 28.6 mln homes and businesses can use the Openreach network to utilize at least 30 Mbit/s download speed (i.e. via FTTC/VDSL or FTTH).

Openreach plans to reach 25 mln homes and businesses across the UK by the end of 2026, including 6.4 mln in harder to reach (rural) areas. This is consistent with the UK government plan to reach 85 percent of homes with “gigabit capable broadband” by 2025.<sup>389</sup>

### 9.6.2.1.3 Main customers, wholesale access products & terms and conditions

The largest tenant on the Openreach network is BT but virtually all retail ISPs are customers of the company. The largest of the alternatives to the incumbent is Sky, and other larger retailers include TalkTalk, Vodafone and Zen. In total, Openreach serves more than 650 access seekers.<sup>390</sup> The cable operator Virgin Media and vertically integrated fibre altnets such as Hyperoptic are not to any significant degree reliant on Openreach’s access network, but may still access physical infrastructure such as ducts and poles.

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<sup>386</sup> [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0020/104474/delivering-independent-openreach.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0020/104474/delivering-independent-openreach.pdf). (last accessed on 23.11.2023).

<sup>387</sup> [https://www.openreach.com/content/dam/openreach/openreach-dam-files/new-dam-\(not-in-use-yet\)/documents/regulatory-compliance/Openreach-Annual-Review-2023%20online.pdf](https://www.openreach.com/content/dam/openreach/openreach-dam-files/new-dam-(not-in-use-yet)/documents/regulatory-compliance/Openreach-Annual-Review-2023%20online.pdf) (last accessed on 23.11.2023).

<sup>388</sup> <https://www.openreach.com/news/openreach-hits-10-million-full-fibre-milestone/> (last accessed on 23.11.2023).

<sup>389</sup> <https://www.openreach.com/fibre-broadband/where-when-building-ultrafast-full-fibre-broadband> (last accessed on 23.11.2023).

<sup>390</sup> <https://www.openreach.com/> (last accessed on 23.11.2023).

On fibre networks, Openreach mainly offers active wholesale products (FTTH VULA, Ethernet and optical leased lines). On copper networks, Openreach also offers active products (FTTC VULA) as well as copper unbundling. Duct and pole access and associated services are also offered via Openreach.

The standard fibre wholesale offer of Openreach has been adapted twice in recent years, via the so-called “Equinox 1” and “Equinox 2” offers. Ofcom investigated these offers to assess whether they might deter fibre investment by altnets, but concluded that they could be placed on the market.<sup>391</sup> In general, all changes to Openreach’s fibre wholesale offers need to be declared 90 days in advance to facilitate a review by Ofcom.

A key aspect of the Equinox offers is a discount mechanism for ISPs that stop promoting legacy (copper/FTTC) connections and focus on selling FTTP connections instead. The Equinox 1 offer came into effect in October 2021. The discount begins for ISPs when 80 percent of their new connections are sold as FTTP with the maximum discount reached when 90 percent of new connections are FTTP.<sup>392</sup> Altnets criticized this scheme as they claimed that it could incentivize ISPs to favour the use of Openreach’s fibre network in cases where there is more than one network available in order to reach the necessary fibre quota to receive the maximum discounts.

Equinox 2, which is the standard wholesale offer that has been in place since April 2023, introduced steeper discounts for those relying more on FTTP wholesale products (except for the entry-level product with 40 Mbps download speed) as described in Figure 9-20 below.

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<sup>391</sup> See [https://www.ofcom.org.uk/data/assets/pdf\\_file/0021/226092/statement-openreach-proposed-ftp-offer.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0021/226092/statement-openreach-proposed-ftp-offer.pdf) and [https://www.ofcom.org.uk/data/assets/pdf\\_file/0023/261932/statement-equinox-2-offer.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0023/261932/statement-equinox-2-offer.pdf) (last accessed on 23.11.2023).

<sup>392</sup> [https://www.ofcom.org.uk/data/assets/pdf\\_file/0021/226092/statement-openreach-proposed-ftp-offer.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0021/226092/statement-openreach-proposed-ftp-offer.pdf) (last accessed on 23.11.2023).

Figure 9-20: List prices of FTTP products and Equinox offer prices

FTTP speed	Standard list price	Equinox 1 Offer price	Equinox 2 Offer price	Equinox 2 vs. list price	Equinox 2 vs. Equinox 1
40/10	£16.09	£16.09	£16.09	0%	0%
55/10	£19.62	£16.91	£15.50	-21%	-8%
80/20	£20.19	£16.91	£15.50	-23%	-8%
115/20	£20.19	£17.66	£15.80	-22%	-11%
160/30	£24.71	£18.32	£16.20	-34%	-12%
220/30	£24.86	£20.36	£17.30	-30%	-15%
330/50	£28.37	£21.49	£18.30	-35%	-15%
550/75	£31.87	£22.62	£19.30	-39%	-15%
1000/115	£36.55	£24.88	£21.30	-42%	-14%
1200/120*	£34.90	N/A	£22.30	-36%	N/A
1800/120*	£39.90	N/A	£29.30	-27%	N/A

Source: Openreach FTTP standard price list, Equinox 1 Offer price list and Equinox 2 Offer price list.

\*Openreach is currently piloting speeds 1200/120M and 1800/120M. Openreach intends for list pricing to be identical to the current pilot pricing. Openreach response dated 2 March 2023 to Ofcom notice dated 22 February 2023, question 17.

Source: Ofcom<sup>393</sup>

The prices in the Equinox 2 case, i.e. the pricing scheme likely used by the major ISPs by today, is indexed, the wholesale rates rise by the consumer price inflation rate every year.<sup>394</sup>

The newest pricing scheme also included a “failsafe mechanism”, which, according to Openreach and Ofcom's evaluation, should make it less likely to deter investment from altnets. ISPs can designate an area with more than one fibre infrastructure as an “Overbuild Area”. These areas do not count for the fibre quota to receive maximum discounts, i.e. the ISP should not have an incentive to prioritize the usage of Openreach fibre there compared with altnet fibre.<sup>395</sup>

<sup>393</sup> [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0022/261931/annexes-statement-equinox-2-offer.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0022/261931/annexes-statement-equinox-2-offer.pdf) p.5.

<sup>394</sup> The higher bandwidths (550/75 and upwards) only rise by inflation minus 1.25 percent. The prices cannot decrease even in case of deflation. See [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0022/261931/annexes-statement-equinox-2-offer.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0022/261931/annexes-statement-equinox-2-offer.pdf) p.6.

<sup>395</sup> This failsafe mechanism is reviewed by a third party (“independent verifier”) and there are measures in place to prevent abuse of the mechanism (so called “legacy cross-check”). See [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0022/261931/annexes-statement-equinox-2-offer.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0022/261931/annexes-statement-equinox-2-offer.pdf) and Openreach (2022): Equinox Failsafe Mechanism – Overview.



## 9.6.2.2 CityFibre

### 9.6.2.2.1 Shareholding / control

There are a multitude of fibre altnets besides the incumbent active in the UK. 38 companies (+ BT/Openreach) provided information to Ofcom about fibre rollout plans for the Connected Nations report in November 2022.<sup>396</sup> By far the biggest alternative wholesale-only fibreco is CityFibre with 2.2 to 2.5 million premises covered. The vertically integrated operators Virgin Media, Hyperoptic and CommunityFibre follow with around one million premises each.<sup>397</sup>

CityFibre was founded in 2011 and has received funding from several investment firms over the years, all of which became (partial) owners in the company. In mid-2018 the company was sold for 538 mln GBP (610 mln Euro at that time) to a consortium of Goldman Sachs and Antin Infrastructure Partners.<sup>398</sup> In 2021 they received an 825 mln GBP (968 mln Euro) funding from Mubadala Investment Co and Interogo Holding.<sup>399</sup> In March 2022, Mubadala injected a further 300 mln GBP (359 mln Euro) into the company.<sup>400</sup>

The company value in March 2023 was rumoured to be at around 3 bln GBP (3.4 bln Euro), as this was the value at which Virgin Media O2 may have wanted to purchase CityFibre.<sup>401</sup>

### 9.6.2.2.2 Business model, assets under control and future plans / opportunities

As stated in the previous section, CityFibre currently covers more than two million premises in the UK with full fibre. The rollout goal is 8 million homes, 800,000 businesses, 400,000 public sector sites and 200,000 mobile sites.<sup>402</sup> According to news reports, this goal is targeted to be reached by 2025.<sup>403</sup>

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<sup>396</sup> Ofcom (2022): Connected Nations – Supplementary report on Planned Network Deployments 2022, [https://www.ofcom.org.uk/\\_data/assets/pdf\\_file/0028/248248/Connected-Nations-Planned-Network-Deployments-2022.pdf](https://www.ofcom.org.uk/_data/assets/pdf_file/0028/248248/Connected-Nations-Planned-Network-Deployments-2022.pdf) (last accessed on 23.11.2023).

<sup>397</sup> <https://www.ispreview.co.uk/index.php/2023/03/the-top-10-full-fibre-alternative-networks-by-estimated-uk-coverage.html> (last accessed on 23.11.2023).

<sup>398</sup> <https://www.lightwaveonline.com/business/article/16675875/goldman-sachs-antin-consortium-finalizes-acquisition-of-cityfibre> (last accessed on 23.11.2023).

<sup>399</sup> <https://cityfibre.com/news/cityfibre-completes-a-1-125bn-financing-in-the-largest-ever-capital-raise-for-uk-full-fibre-deployment> (last accessed on 23.11.2023).

<sup>400</sup> <https://news.sky.com/story/cityfibre-rollout-bolstered-by-new-300m-abu-dhabi-investment-12571197> (last accessed on 23.11.2023).

<sup>401</sup> <https://telecoms.com/520732/vmo2-reportedly-eyeing-3-billion-cityfibre-swoop/> (last accessed on 23.11.2023).

<sup>402</sup> <https://cityfibre.com/about-us/rollout> (last accessed on 23.11.2023).

<sup>403</sup> <https://www.ispreview.co.uk/index.php/2020/01/cityfibre-buy-fibre-ration-and-set-8-million-uk-ftth-homes-goal.html> (last accessed on 23.11.2023).



They act as a wholesale-only operator and claim to be open for all kinds of ISPs. Besides the passive lines, they also operate active equipment on the network.

CityFibre has also been awarded grants under the Project Gigabit programme of the UK government for harder to reach areas in 2023.<sup>404</sup> Currently there are four projects underway with 263,000 premises and 387 million GBP in public funding. CityFibre is itself investing an additional 224 million GBP into these projects.

#### 9.6.2.2.3 Main customers, wholesale access products & terms and conditions

Retail services on CityFibre's network are offered through a multitude of service providers. 38 partners are currently listed on their website, a mix of national and regional partners.<sup>405</sup> The larger ISPs TalkTalk, Vodafone and Zen are access seekers on the network, but notably absent are BT and Sky who currently do not use CityFibre access infrastructure.

In addition to retail focussed operators and mobile network operators for backhaul<sup>406</sup> there are also so called "Channel Partners" and "Carrier and National Partners" which address business customers through CityFibre. 33 companies are listed as either one of these business connectivity providers categories.

CityFibre uses an active symmetrical wholesale access product for consumers.<sup>407</sup> They recently started offering 2.5 Gbps bandwidth in addition to a 160 Mbps and a 1 Gbps product.<sup>408</sup> Local access with interconnection at the exchange is offered as well as national interconnection points. They offer a similar product for (smaller) businesses<sup>409</sup> as well as non-FTTP residential access through other carriers, i.e. not through their own network.<sup>410</sup> For larger businesses, Ethernet products are offered as well.<sup>411</sup>

CityFibre also offers dark fibre for mobile network (and other) backhaul but also for access connections. The unlit fibre for end customer use appears to be focussed on businesses rather than consumers.<sup>412</sup>

There are no standard conditions available for CityFibre. All terms and conditions are negotiated bilaterally and on a confidential basis between ISPs and the infrastructure company. There is also no information about volume discounts or other terms. On the

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<sup>404</sup> <https://cityfibre.com/about-us/rollout/projectgigabit> (last accessed on 23.11.2023).

<sup>405</sup> <https://cityfibre.com/homes/broadband-providers> (last accessed on 23.11.2023).

<sup>406</sup> There is no list available on which MNOs use the network for their backhaul, according to the customer testimonials on the website, at least Three is a customer of CityFibre, see <https://cityfibre.com/partners/mobile> (last accessed on 23.11.2023).

<sup>407</sup> <https://cityfibre.com/partners/products/broadband/consumer-ftth> (last accessed on 23.11.2023).

<sup>408</sup> <https://cityfibre.com/news/cityfibre-announces-nationwide-launch-of-the-uks-fastest-wholesale-consumer-broadband-services> (last accessed on 23.11.2023).

<sup>409</sup> <https://cityfibre.com/partners/products/broadband/business-ftp> (last accessed on 23.11.2023).

<sup>410</sup> <https://cityfibre.com/partners/products/broadband/offnet-broadband> (last accessed on 23.11.2023).

<sup>411</sup> <https://cityfibre.com/partners/products/ethernet-services> (last accessed on 23.11.2023).

<sup>412</sup> <https://cityfibre.com/partners/products/dark-fibre> (last accessed on 23.11.2023).

retail side, CityFibre argues that, particularly for gigabit bandwidths, national carriers are offering their CityFibre-based services more cheaply than through Openreach, which indicates a lower level of wholesale prices.<sup>413</sup>

### 9.6.2.3 MBNL and Cornerstone

The mobile infrastructure landscape in the UK is defined by two network sharing arrangements, each involving two of the four mobile network operators. Due to the (temporary) exchange listing of Vantage Towers, financial data is only available for its joint venture Cornerstone. For the competitor MBNL, no financial data is public.

#### 9.6.2.3.1 Shareholding / control

The Mobile Broadband Network Limited (MBNL) is a network sharing joint venture of BT's mobile branch EE and Three UK. It was established in 2007 as a joint undertaking by T-Mobile, Orange and Three to operate the 3G network(s).<sup>414</sup> After the merger of T-Mobile and Orange, EE was founded in 2010. In 2012/13 the two MNOs launched their 4G rollout making use of shared infrastructure. In 2016 EE joined BT Group. In 2019/20, both operators started 5G services.<sup>415</sup> In 2022, the CMA approved the acquisition of the towers of Three (CK Hutchison) by Cellnex. Since then, while MBNL is still partly owned by Three, Cellnex is entitled to the economic benefits from Three's part of the joint venture. Currently, the operations of MBNL are guaranteed until 2031, but if there is no extension of the joint venture, Three's portion of the MBNL sites would fall into direct control of Cellnex.<sup>416</sup>

Cornerstone (also known as Cornerstone Telecommunications Infrastructure Limited, CTIL) is a 50:50 joint venture between Vantage Towers, the towerco that was spun off by Vodafone, and Virgin Media O2, the successor of Telefónica UK. It was first formed in 2012, network sharing agreements between the two companies were already in place beforehand.<sup>417</sup> In 2023, Virgin Media O2 started the process to look for a buyer for half of their stake in the company, which would reduce their share to 25 percent, analysts estimate a total valuation of the company of about three billion Euros.<sup>418</sup>

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<sup>413</sup> <https://cityfibre.com/news/millions-of-homes-could-beat-broadband-price-rises-saving-hundreds-of-pounds-by-upgrading-to-faster-more-reliable-full-fibre-broadband> (last accessed on 23.11.2023).

<sup>414</sup> <https://mbnl.co.uk/about-us/> (last accessed on 23.11.2023).

<sup>415</sup> <https://mbnl.co.uk/history/> (last accessed on 23.11.2023).

<sup>416</sup> [https://assets.publishing.service.gov.uk/media/62221304d3bf7f4f0ec9b75e/Cellnex\\_CK\\_Hutchison\\_-\\_Final\\_Report.pdf](https://assets.publishing.service.gov.uk/media/62221304d3bf7f4f0ec9b75e/Cellnex_CK_Hutchison_-_Final_Report.pdf) (last accessed on 23.11.2023).

<sup>417</sup> <https://www.kirkbydiamond.co.uk/News/vodafone-O2-create-new-company-CTIL> (last accessed on 23.11.2023).

<sup>418</sup> <https://www.reuters.com/markets/deals/cornerstone-owners-plan-sell-25-mobile-mast-firm-sources-2023-02-10/> (last accessed on 23.11.2023).

### 9.6.2.3.2 Business model, assets under control and future plans / opportunities

MBNL operates a shared site portfolio for EE and Three, focused primarily on passive infrastructure. Active infrastructure sharing is mainly used for 3G in lower traffic areas.<sup>419</sup> Considering that EE<sup>420</sup> and Three<sup>421</sup> both plan to phase out 3G in 2024, the active part of the sharing through MBNL will become less relevant.

MBNL itself operates 7,500 to 8,000 macro sites.<sup>422</sup> They provide passive access to the sites to host the anchor tenants EE and Three, but legally the sites are still owned by the mother companies. In April 2023, EE and Three announced that they would not jointly upgrade their sites through MBNL anymore, which would make them free to differentiate where they would offer 5G and in what way.<sup>423</sup>

Cornerstone owns and operates 14,200 macro and 1,200 micro sites.<sup>424</sup> They give passive access to their anchor tenants Virgin Media O2 and Vodafone. Cornerstone also offers managed services for the infrastructure of their anchor tenants on 3<sup>rd</sup> party sites.<sup>425</sup> The company revenue was at 475 mln Euros in the financial year 2022/2023. They recorded an EBIT of 48 mln, Euro, i.e. an EBIT margin of around 10 percent.<sup>426</sup>

There is also active network sharing between Vodafone and Virgin Media O2 in the UK, including 5G.<sup>427</sup> While related to the passive site sharing through Cornerstone, this is not included in Cornerstone but in a separate agreement between the two MNOs called "Beacon". Virgin Media O2 operates the active network in the East of England, Northern Ireland, and Scotland; Vodafone in the West of England and in Wales (there is no active sharing in London).<sup>428</sup>

Due to its potential dissolution in 2031 and the influence of independent towerco Cellnex, it is unlikely that MBNL will become more involved in the market and build or acquire

<sup>419</sup> [https://www.ofcom.org.uk/data/assets/pdf\\_file/0027/231876/mobile-strategy-discussion.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0027/231876/mobile-strategy-discussion.pdf) (last accessed on 23.11.2023).

<sup>420</sup> <https://ee.co.uk/3g-switch-off> (last accessed on 23.11.2023).

<sup>421</sup> <https://www.three.co.uk/support/network-and-coverage/our-plans-to-switch-off-3g> (last accessed on 23.11.2023).

<sup>422</sup> [https://assets.publishing.service.gov.uk/media/62221304d3bf7f4f0ec9b75e/Cellnex\\_CK\\_Hutchison\\_Final\\_Report.pdf](https://assets.publishing.service.gov.uk/media/62221304d3bf7f4f0ec9b75e/Cellnex_CK_Hutchison_Final_Report.pdf) (last accessed on 23.11.2023).

<sup>423</sup> <https://www.ispreview.co.uk/index.php/2023/04/three-uk-and-ee-unshackle-mast-upgrades-to-boost-5g-rollout.html> (last accessed on 23.11.2023).

<sup>424</sup> <https://www.vantagetowers.com/sites/tower-co-v2/files/media/cornerstone-announcement.pdf> (last accessed on 23.11.2023).

<sup>425</sup> <https://www.vantagetowers.com/sites/tower-co-v2/files/media/cornerstone-announcement.pdf> (last accessed on 23.11.2023).

<sup>426</sup> <https://www.vantagetowers.com/sites/tower-co-v2/files/2023-06/vt-fy23-annual-report.pdf> (last accessed on 23.11.2023).

<sup>427</sup> <https://www.reuters.com/article/us-vodafone-telefonica-britain-idUSKCN1PH0ID> (last accessed on 23.11.2023).

<sup>428</sup> [https://www.ofcom.org.uk/data/assets/pdf\\_file/0027/231876/mobile-strategy-discussion.pdf](https://www.ofcom.org.uk/data/assets/pdf_file/0027/231876/mobile-strategy-discussion.pdf) (last accessed on 23.11.2023).

towers on a larger scale. Cornerstone has the goal of establishing 1,200 new macro sites with 1,950 tenancies by 2025<sup>429</sup>

#### 9.6.2.3.3 Main customers, wholesale access products & terms and conditions

As described, both towercos are joint ventures of MNOs and have their respective mother companies as their main tenants. For Cornerstone it is known that they made 96 percent of their revenue with the two anchor tenants in 2021.<sup>430</sup> The tenancy rate of Cornerstone stands at 1.92 tenants per site.<sup>431</sup> Both companies offer passive access to tower infrastructure.

There is no information about the wholesale terms and conditions of MBNL, it can be expected that they have deals with EE and Three in place that make use of the company until 2031 but not over a longer period due to its uncertain future.

Cornerstone operates with eight-year initial contract terms for their two tenants and three eight-year renewals. The contracts are inflation linked with a floor of 0 and a cap of three percent.<sup>432</sup> There are discounts in place for the anchor tenants when a site is joined by a new MNO, i.e. existing tenants pay less when sites become shared. Additionally, the anchor tenants can declare up to 500 sites as “strategic sites”<sup>433</sup> for a premium.<sup>434</sup>

#### 9.6.2.4 Cellnex UK

This section focusses on the activities of Cellnex in the United Kingdom, where they are the biggest independent mobile infrastructure provider with a market share of more than 80 percent.<sup>435</sup>

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<sup>429</sup> <https://www.vantagetowers.com/sites/tower-co-v2/files/media/cornerstone-presentation.pdf> (last accessed on 23.11.2023).

<sup>430</sup> <https://www.vantagetowers.com/sites/tower-co-v2/files/media/cornerstone-presentation.pdf> (last accessed on 23.11.2023).

<sup>431</sup> <https://www.vantagetowers.com/sites/tower-co-v2/files/2023-06/vt-fy23-annual-report.pdf> (last accessed on 23.11.2023).

<sup>432</sup> This yields wholesale rate growth below inflation in times of high inflation such as 2022.

<sup>433</sup> Assuming that Cornerstone uses the term in line with Vantage Towers' terminology, a strategic site is a site where the anchor tenant has consent rights over co-location from other MNOs, see <https://www.vantagetowers.com/sites/tower-co-v2/files/2023-06/vt-fy23-annual-report.pdf> (last accessed on 23.11.2023).

<sup>434</sup> <https://www.vantagetowers.com/sites/tower-co-v2/files/media/cornerstone-presentation.pdf> (last accessed on 23.11.2023).

<sup>435</sup> Market share of the independent providers, not counting MBNL and Cornerstone, see [https://assets.publishing.service.gov.uk/media/62221938d3bf7f4f0c65c332/Cellnex\\_CK\\_Hutchison\\_A\\_pendices\\_and\\_Glossary.pdf](https://assets.publishing.service.gov.uk/media/62221938d3bf7f4f0c65c332/Cellnex_CK_Hutchison_A_pendices_and_Glossary.pdf) (last accessed on 23.11.2023).

#### 9.6.2.4.1 Shareholding / control, business model, assets under control and future plans / opportunities

In 2016, Cellnex entered the UK market by acquiring Shere Group, a smaller towerco with around 1,000 sites, of which 540 were in the UK, for 393 million Euro.<sup>436</sup> A far bigger investment was made in April 2020, when Cellnex acquired 7,113 mobile sites from Arqiva for 2 bln GBP (2.3 bln EUR).<sup>437</sup>

In 2022, Cellnex purchased the European tower business of CK Hutchison (Three) for around 10 bln Euro. For the UK, this included the economic benefits of Three's stake in MBNL until the potential dissolution of MBNL in 2031. When this happens, Cellnex will receive at least 3,000 and at most half of the MBNL towers (3,833).<sup>438</sup> Additionally, Cellnex received 100-200 mobile towers which belonged to Three but were not included in MBNL as well as 2,600 monopoles.<sup>439</sup>

The CMA decided as a remedy that Cellnex would have to divest 1,100 to 1,300 of its towers in areas where newly acquired Cellnex sites overlap with existing Cellnex sites.<sup>440</sup> These sites were sold to its competitor, the Wireless Infrastructure Group (WIG).<sup>441</sup>

Cellnex itself operates as a neutral host and gives passive access to its tower infrastructure. Their portfolio consists of 14,411 towers in the UK by July 2023.<sup>442</sup> They also operate 1,000 small cells and nodes in the UK.<sup>443</sup> A LoRaWAN IoT network is provided in cooperation with Everynet.<sup>444</sup>

#### 9.6.2.4.2 Main customers, wholesale access products & terms and conditions

Cellnex' main customer in the UK is Three UK. The contracts with Three run for 15 years with possible extension for another 15 and then another 5 years. They are inflation-linked with a floor of 0 and a cap at 2.25 percent.<sup>445</sup> This agreement is in place for all countries, where Cellnex bought CK Hutchison's (Three's) towers.<sup>446</sup>

<sup>436</sup> <https://www.cellnex.com/news/noticia-43/> (last accessed on 23.11.2023).

<sup>437</sup> [https://assets.publishing.service.gov.uk/media/5ec246ffe90e071e29d537f6/Cellnex\\_Arqiva\\_full\\_text\\_decision\\_PDFaa.pdf](https://assets.publishing.service.gov.uk/media/5ec246ffe90e071e29d537f6/Cellnex_Arqiva_full_text_decision_PDFaa.pdf) (last accessed on 23.11.2023).

<sup>438</sup> [https://assets.publishing.service.gov.uk/media/62221304d3bf7f4f0ec9b75e/Cellnex\\_CK\\_Hutchison\\_-\\_Final\\_Report.pdf](https://assets.publishing.service.gov.uk/media/62221304d3bf7f4f0ec9b75e/Cellnex_CK_Hutchison_-_Final_Report.pdf) (last accessed on 23.11.2023).

<sup>439</sup> [https://assets.publishing.service.gov.uk/media/62221304d3bf7f4f0ec9b75e/Cellnex\\_CK\\_Hutchison\\_-\\_Final\\_Report.pdf](https://assets.publishing.service.gov.uk/media/62221304d3bf7f4f0ec9b75e/Cellnex_CK_Hutchison_-_Final_Report.pdf) (last accessed on 23.11.2023).

<sup>440</sup> [https://assets.publishing.service.gov.uk/media/62221304d3bf7f4f0ec9b75e/Cellnex\\_CK\\_Hutchison\\_-\\_Final\\_Report.pdf](https://assets.publishing.service.gov.uk/media/62221304d3bf7f4f0ec9b75e/Cellnex_CK_Hutchison_-_Final_Report.pdf) (last accessed on 23.11.2023).

<sup>441</sup> <https://www.cellnex.com/news/cellnex-dispose-1100-sites-uk/> (last accessed on 23.11.2023).

<sup>442</sup> <https://www.cellnex.com/gb-en/about-cellnex/> (last accessed on 23.11.2023).

<sup>443</sup> <https://www.cellnex.com/gb-en/technology/small-cells/> (last accessed on 23.11.2023).

<sup>444</sup> <https://www.cellnex.com/gb-en/technology/smart-iot/> (last accessed on 23.11.2023).

<sup>445</sup> This yields wholesale rate growth below inflation in times of high inflation such as 2022.

<sup>446</sup> <https://annualreport.cellnex.com/2022/assets/documentos/doc-integrated-annual-report.pdf> (last accessed on 23.11.2023).

The tenancy rate for Cellnex in the UK stood at 1.27 in 2022, which is a decrease from 1.47 in 2021, before the acquisition of new sites.<sup>447</sup>

Reference offers or master service agreements are not available for Cellnex. The company offers passive access to its wholesale customers.

### 9.6.3 Challenges

As regards the deployment of infrastructure, Openreach highlights challenges regarding access to MDUs and wayleaves (Rights of Way). They also note that while alternative infrastructure providers use their/BTs ducts and poles, the terms to access other (utility and telecom infrastructure) are less attractive as other operators do not publish their prices and commercial negotiations need to occur. Openreach notes that it has demand for some infrastructure from utilities and other telecom infrastructure providers (e.g. Virgin Media), particularly for areas where they lack their own infrastructure and there is limited space, e.g. bridges or river crossings. They consider that the current regulatory regime does not adequately support access of this kind. Similar challenges regarding rights of way were mentioned in the past by investors into altnets <sup>448</sup>

Regarding the wholesale access conditions for infrastructure, as previously noted, some stakeholders expressed concerns that the discounts offered for FTTP in connection with Openreach's Equinox offer could deter access seekers from making use of alternative fibre infrastructure providers, thereby undermining their business case. This was addressed through the potential to identify "Overbuild Areas", where lines would not count towards the quota needed to achieve discounts.

### 9.6.4 Regulatory conditions

#### 9.6.4.1 Ex ante regulation

Infrastructure companies in the UK can benefit from the same advantageous conditions for deployment as electronic communication providers if they register under the Electronic Communications Code of 2003. This allows them to undertake of the construction work on public land and streets without certain licences and explicit permissions.<sup>449</sup> The

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<sup>447</sup> <https://www.cellnex.com/investor-relations/financial-information/> (last accessed on 23.11.2023).

<sup>448</sup> [https://www.ispa.org.uk/wp-content/uploads/What\\_Lies\\_Ahead\\_ISPA\\_Gigabit\\_Investment\\_Report.pdf](https://www.ispa.org.uk/wp-content/uploads/What_Lies_Ahead_ISPA_Gigabit_Investment_Report.pdf) (last accessed on 23.11.2023).

<sup>449</sup> <https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/policy/electronic-comm-code> (last accessed on 23.11.2023).



register of companies is publicly available.<sup>450</sup> The specific rights of companies listed there are also known as “Code Powers”.

The ATI regulation<sup>451</sup> (derived from the BCRD) establishes that all infrastructure operators that manage physical infrastructure which could be used for electronic communications (e.g. ducts, masts, towers, manholes, poles) need to provide access to this infrastructure on reasonable request. Comparable conditions regarding access on fair and non-discriminatory terms are in place for in-building infrastructure.<sup>452</sup> However, there is limited use of this measure. A contributing factor may be the minimal implementation<sup>453</sup> of the BCRD via ATI Regulation in the UK.

SMP regulation of BT/Openreach’s ducts and poles remains the primary mechanism to access physical infrastructure for the deployment of FTTH. The SMP based Physical Infrastructure Access (PIA) for ducts and poles access (DPA) was first established in 2010,<sup>454</sup> But the remedy was improved and operationalised in the WLA market review by Ofcom in 2018.<sup>455</sup> This market review involved the establishment of a separate market for PIA, expanded the potential use cases (for example to enable its use for business connectivity and backhaul) and reduced wholesale access charges. Openreach was also mandated to give every access seeker the same possibilities to use the infrastructure as BT (e.g. in regard to maps/tools).<sup>456</sup>

Other features of the UK regulatory regime aimed at protecting infrastructure competition inter alia from alternative infrastructure companies include the requirement for a 90 day prenotification of wholesale price changes for fibre offers and the introduction of a “failsafe mechanism” to limit incentives for alternative operators to rely on Openreach for FTTP access in “overbuild areas”.

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**450** The companies discussed in the previous sections are listed, most with their own name but Openreach through BT and MBNL through CK Hutchison (Three) and Telefónica UK due to the ownership of the infrastructure. (last accessed on 23.11.2023).

**451** <https://www.legislation.gov.uk/ukxi/2016/700/contents> (last accessed on 23.11.2023).

**452** See Godlovitch, I.; Kroon, P.; Strube Martins, S.; Steffen, N.; Ockenfels, M.; Schäfer, S.; Lucidi, S.; Plückebaum, T.; Schwarz-Schilling, C.; Herrera, F.; Juskevicius, R. (2022): Support Study for the Review of the Broadband Cost Reduction Directive: Annexes 5-6, <https://op.europa.eu/en/publication-detail/-/publication/24fe18ad-b71d-11ed-8912-01aa75ed71a1/language-en> (last accessed on 23.11.2023).

**453** For example, a single information point (SIP) for existing infrastructure has not been established by the government/regulator.

**454** <https://www.ofcom.org.uk/phones-telecoms-and-internet/information-for-industry/telecoms-competition-regulation/narrowband-broadband-fixed/fixed-access-market-reviews-2014/statement> (last accessed on 23.11.2023).

**455** <https://www.ofcom.org.uk/consultations-and-statements/category-1/wholesale-local-access-market-review> (last accessed on 23.11.2023).

**456** See Godlovitch, I.; Kroon, P.; Strube Martins, S.; Steffen, N.; Ockenfels, M.; Schäfer, S.; Lucidi, S.; Plückebaum, T.; Schwarz-Schilling, C.; Herrera, F.; Juskevicius, R. (2022): Support Study for the Review of the Broadband Cost Reduction Directive: Annexes 5-6, <https://op.europa.eu/en/publication-detail/-/publication/24fe18ad-b71d-11ed-8912-01aa75ed71a1/language-en> (last accessed on 23.11.2023).



## 9.7 Country fiche: USA

### 9.7.1 Overview of coverage and service providers

Around 206.4 million Americans can receive high-speed 5G coverage at home, which represents around 62% of Americans.<sup>457</sup> As of the beginning of 2022, The Fiber Broadband Association (FBA) found that the number of households in the US connected by fibre exceeded 60 million.<sup>458</sup> A year later, an FBA survey found a total of 68 million fiber broadband premises in the U.S.<sup>459</sup>

There are three large mobile network operators: AT&T Mobility, Verizon, and T-Mobile US, each one with more than 100 million subscribers. These companies are also active in providing broadband services.

### 9.7.2 Significant infrastructure companies present

TowerCos first emerged in the USA, as Steve Bernstein Associates (later: SBA Communications), Castle Towers (later: Crown Castle) and American Radio (later: American Tower) founded their first companies in the late 1990s. These three companies marketed rental space on their telecommunications towers so that other broadcasters could benefit from their infrastructures without having to build any themselves.

The US features many independent towercos: American Tower and Crown Castle each own more than 40,000 towers. The next largest company is SBA Communications with 17,000 towers, followed by Vertical Bridge (about 11,000<sup>460</sup>), United States Cellular Co. (about 4,300), Diamond Communications (nearly 3,000) and Harmoni Towers (more than 2,000). Further details of the two largest companies are provided below.<sup>461</sup>

#### 9.7.2.1 American Tower

##### 9.7.2.1.1 Shareholding / control

American Tower was launched in 1995 as a subsidiary of American Radio and became independent in 1998. The company was founded with the goal of owning, operating, and developing wireless communications infrastructure, primarily focusing on tower sites.

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<sup>457</sup> See <https://broadbandnow.com/national-5g-coverage-map> (last accessed on 23.11.2023).

<sup>458</sup> See <https://www.fiercetelecom.com/broadband/fba-report-43-us-households-now-have-access-fiber> (last accessed on 23.11.2023).

<sup>459</sup> See <https://www.broadbandtechreport.com/fiber/article/14287651/fiber-broadband-association-releases-2022-fiber-provider-survey-highlights> (last accessed on 23.11.2023).

<sup>460</sup> See <https://verticalbridge.com/network-infrastructure/towers/> (last accessed on 23.11.2023).

<sup>461</sup> See <https://wirelessestimator.com/top-100-us-tower-companies-list/> and <https://www.steelintheair.com/cell-tower-companies/> (last accessed on 23.11.2023).

American Tower has a presence in Europe (France, Germany, and Spain) as well as US and the rest of North America, most of South America, several African countries and India (25 countries altogether).<sup>462</sup> Their global footprint encompasses approximately 226,000 tower sites.

In addition to the USA, American Tower derives a high proportion of its revenues from India (17 % of revenues) and Brazil (8 % of revenues).

The presence in Europe (American Tower Europe) started with investment of around 2,000 sites in Germany from KPN in 2012.<sup>463</sup> In 2021, American Tower acquired the towerco of Telefónica (Telxius) and established a presence in Spain.

Verizon sold more than 11,000 towers to American Tower in 2015.<sup>464</sup>

American Tower is an independent and publicly listed towerco with no major telco shareholders: The free float amounts to about 55 %; other investors include the Vanguard Group, Inc. (12,76 %), BlackRock Fund Advisors (4,80 %), SSgA Funds Management, Inc. (4,36 %), Wellington Management Co. LLP (2,89 %) and Geode Capital Management LLC (2,09 %).<sup>465</sup>

#### 9.7.2.1.2 Business model, assets under control and future plans / opportunities

Their business model is based on passive sharing of its infrastructure as a “neutral host” for broadcasters, telecommunications companies, service providers and other clients: Ground and rooftop towers as well as distributed antenna systems (DAS).

American Tower has nearly 43.000 towers in the US alone and most of these have capacity for 4 to 5 tenants.<sup>466</sup> Towers are ubiquitous alongside US highways. Since 2005, American Tower has acquired approximately 30,000 towers in US locations nationwide.

The company not only operates the existing tower sites but also provides built to suit solutions: Based on the specifications of their customers, new sites are erected and there is no waiting period for potential additional tenants.

<sup>462</sup> See <https://americantower.com/de/de/company/our-global-presence/index.html> (last accessed on 23.11.2023).

<sup>463</sup> See <https://www.businesswire.com/news/home/20121114007276/en/American-Tower-Corporation-Announces-Acquisition-of-Tower-Sites-from-KPN-in-Germany> (last accessed on 23.11.2023).

<sup>464</sup> See [https://www.phonearena.com/news/Verizon-unloads-more-than-11000-towers-to-American-Tower-for-5-billion-cash\\_id65727](https://www.phonearena.com/news/Verizon-unloads-more-than-11000-towers-to-American-Tower-for-5-billion-cash_id65727) (last accessed on 23.11.2023).

<sup>465</sup> See <https://www.onvista.de/aktien/unternehmensprofil/AMERICAN-TOWER-CORP-Aktie-US03027X1000> (last accessed on 23.11.2023).

<sup>466</sup> See [https://go.pardot.com/l/25692/2020-12-17/71kyxk/25692/1608219931qz5ZQfj7/atc\\_investor\\_relations\\_american\\_tower\\_corporation\\_overview\\_q3\\_2020.pdf](https://go.pardot.com/l/25692/2020-12-17/71kyxk/25692/1608219931qz5ZQfj7/atc_investor_relations_american_tower_corporation_overview_q3_2020.pdf) (last accessed on 23.11.2023).

American Tower typically operates the tower structure and owns or operates the land parcels pursuant to a long-term lease by American Tower. In some cases, the company also owns generators to help facilitate back-up power for the site's tenants.

The tenants typically own the antenna equipment and the tenants' shelter containing base station equipment and HVAC (Heating, Ventilation, and Air Conditioning).<sup>467</sup>

In dense urban areas, the company also operates rooftops and other tall structure sites where American Tower has arranged lease agreements with the rooftop and structure owners.

Moreover, as some municipalities may require concealment options to minimize the visual impact of wireless infrastructure, the company builds concealed solutions like artificial trees and smart light poles that integrate mobile network equipment.

The company also offers power backup solutions (e.g., in cases in the event of storms, disasters, or an unreliable power grid) and provides a fully managed on-site backup generator. In addition, American Tower also offers wireless infrastructure solutions for buildings (indoor connectivity) and venues, e.g., in outdoor large public venues.<sup>468</sup>

American Tower is not a recipient of state aid in the US.

#### 9.7.2.1.3 Main customers, wholesale access products & terms and conditions

ATC provides passive access to its towers and its DAS. In the USA, its biggest customers include all MNOs as well as smaller wireless providers, cable MSOs, fixed wireless internet service providers, and other tenants.<sup>469</sup> In 2019, the company's largest US clients by revenue were AT&T (16%), Verizon (15%), Sprint (9%), and T-Mobile (9%).<sup>470</sup>

The leases on the tower sites generally last 6 to 10 years (initial term) with multiple renewal terms at the option of the tenant. Rental charges are typically based on the property location, leased vertical square footage on the tower and the weight placed on tower from transmission equipment and backhaul solutions. In addition, charges may contain volume and the contract length.<sup>471</sup>

The company does not have any reference offers listed on their website.

<sup>467</sup> See <https://www.simplysafedividends.com/world-of-dividends/posts/120-american-tower-an-attractive-and-fast-growing-reit> (last accessed on 23.11.2023).

<sup>468</sup> See <https://www.americantower.com/us/solutions/> (last accessed on 23.11.2023).

<sup>469</sup> See <https://www.americantower.com/us/industries/> (last accessed on 23.11.2023).

<sup>470</sup> See <https://www.simplysafedividends.com/world-of-dividends/posts/120-american-tower-an-attractive-and-fast-growing-reit> (last accessed on 23.11.2023).

<sup>471</sup> [https://go.pardot.com/l/25692/2020-12-17/71kyw1/25692/1608219428Tkp1cPjD/atc\\_investor\\_relations\\_introduction\\_to\\_tower\\_industry\\_american\\_tower\\_q2.pdf](https://go.pardot.com/l/25692/2020-12-17/71kyw1/25692/1608219428Tkp1cPjD/atc_investor_relations_introduction_to_tower_industry_american_tower_q2.pdf) (last accessed on 23.11.2023).

## 9.7.2.2 Crown Castle

### 9.7.2.2.1 Shareholding / control

Crown Castle International Corp. is one of the largest US providers of shared communications infrastructure. It was founded in 1994 beginning with a portfolio of 133 cell towers. Since 1998, Crown Castle is publicly listed.<sup>472</sup>

Crown Castle mainly operates in the US and focuses on building and operating shared communications infrastructure to meet the growing demand for connectivity and building solutions for customers and communities.<sup>473</sup>

In 2012, T-Mobile US sold lease and operation rights to approximately 7,200 towers to Crown Castle. After a period of average term of approximately 28 years, Crown Castle has the option to purchase these towers.<sup>474</sup> One year later, Crown Castle negotiated a similar deal with AT&T which sold lease and operation rights to ca. 9,700 AT&T towers to Crown Castle. After the same period as the T-Mobile deal (average term of approximately 28 years), Crown Castle maintains the option to purchase these towers as well.<sup>475</sup>

Crown Castle is an independent and publicly listed towerco with no major telco shareholders: The free float amounts to about 48 %; other investors include the Vanguard Group, Inc. (16,19%), Blackrock Inc. (8,48%), State Street Corporation (4,37%), Cohen & Steers Inc. (3,96%), Price (T.Rowe) Associates Inc (2,86%), Principal Financial Group, Inc. (2,53%), Deutsche Bank AG (2,51%), JP Morgan Chase & Company (2,34%) and Geode Capital Management, LLC (2,34%).<sup>476</sup>

### 9.7.2.2.2 Business model, assets under control and future plans / opportunities

The business model of Crown Castle is similar to American Tower and is based upon passive sharing of its infrastructure to its customers that include telecommunications companies, service providers, and others.

In the USA, the company maintains 40,000 towers, 120,000 small cells (on air or under contract), 85,000 miles of fiber routes as well as 37,000 on-net buildings.<sup>477</sup>

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<sup>472</sup> See <https://www.zippia.com/crown-castle-usa-careers-468351/history/> (last accessed on 23.11.2023).

<sup>473</sup> See <https://www.crowncastle.com/about-us> (last accessed on 23.11.2023).

<sup>474</sup> See <https://investor.crowncastle.com/news-releases/news-release-details/crown-castle-and-t-mobile-usa-announce-24-billion-tower> (last accessed on 23.11.2023).

<sup>475</sup> See <https://investor.crowncastle.com/news-releases/news-release-details/crown-castle-announces-485-billion-att-tower-transaction> (last accessed on 23.11.2023).

<sup>476</sup> See <https://www.onvista.de/aktien/unternehmensprofil/CROWN-CASTLE-INTERNATIONAL-CORP-Aktie-US22822V1017> (last accessed on 23.11.2023).

<sup>477</sup> See <https://www.crowncastle.com/infrastructure-solutions/> (last accessed on 23.11.2023).

Crown Castle owns or has rights for the land on which their towers are located. In dense areas, where towers are not feasible, the clients can access more than 10,000 rooftop sites.<sup>478</sup> The company is the US market leader for small cells having installed outdoor small cells and in-building solutions (including DAS) since 2003,<sup>479</sup> e.g., streetlight and utility pole solutions.<sup>480</sup>

In addition, Crown Castle provides a variety of “fiber solutions” including dark fiber, ethernet, wavelength, managed SD-WAN, private networks, and colocation.<sup>481</sup> The fiber network of Crown Castle has been continuously expanded in recent years, among other things, by buying up the fibre networks of Sunesys and Wilcon.<sup>482</sup>

Crown Castle is not a recipient of state aid.

#### 9.7.2.2.3 Main customers, wholesale access products & terms and conditions

In the USA, Crown Castle’s largest clients include mobile networks companies and other tenants such as governments and utilities. In March 2023, the three largest MNOs T-Mobile, AT&T, and Verizon accounted for around three-fourths of its site rental revenues.

The leases on the tower sites are generally long term (typically 5-15 years).<sup>483</sup> The company does not have any reference offers listed on their website.

#### 9.7.3 Challenges and regulatory conditions

For the USA, companies deploying mobile infrastructure see access to public land as more difficult to obtain than for private land. Those challenges do however vary e.g. by the specific jurisdiction as local governments are often responsible for the permits and may have different rules or interpretations of federal provisions.

Access seekers in the US market report that typically access to at least 2 infrastructure companies is available. However, the conditions and price depend on location and density, and are not always considered optimal.

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<sup>478</sup> See <https://www.crowncastle.com/infrastructure-solutions/towers> (last accessed on 23.11.2023).

<sup>479</sup> See <https://www.crowncastle.com/infrastructure-solutions/small-cells> (last accessed on 23.11.2023).

<sup>480</sup> See <https://investor.crowncastle.com/static-files/e2d9530c-7a09-4247-8e63-449ea2bc3926> (last accessed on 23.11.2023).

<sup>481</sup> See <https://www.crowncastle.com/infrastructure-solutions/> (last accessed on 23.11.2023).

<sup>482</sup> See <https://www.crowncastle.com/about-us> (last accessed on 23.11.2023).

<sup>483</sup> See <https://finance.yahoo.com/news/heres-why-retain-crown-castle-164000688.html> (last accessed on 23.11.2023).

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