



Report for APWireless

Land providers in the context of the European Commission's planned Gigabit Infrastructure Act

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Key terminology used in this paper

- **Access provider** – a party that owns land (e.g. a landowner or building owner).
- **Access seeker** – a towerco or MNO.
- **GLBO or ground-lease buy-out** – transaction in which a company buys the rights to the leasing rent from an access provider, usually in exchange for an up-front payment.
- **Land** – the area where a mobile radio site is located, which may include ground (for ground-based towers), rooftops (for rooftop sites), buildings (other than rooftops) and street furniture (lampposts, bus stops, etc.).
- **MNO or mobile network operator** – a company that owns and operates a mobile network through the installation of transmission equipment on towers and/or other infrastructure that it owns or leases from a towerco for the purpose of providing end users with mobile services.
- **Mobile site lease aggregator or lease aggregator** – a company which acquires a portfolio of site leases often through GLBOs, and makes sites available to access seekers.
- **PoP or point of presence** – one set of active equipment through which an MNO can radiate spectrum and provide mobile services.
- **Site** – a physical location where one or more PoPs can be installed.
- **Towerco or tower company** – a company that leases land for the purpose of installing and operating towers and/or other infrastructure and which, in turn, leases space on such towers and/or infrastructure to MNOs for the installation of one or more PoPs.

1 Executive summary

The European Parliament is proposing to extend the GIA to include access to land...

The draft Gigabit Infrastructure Act (GIA) intends to regulate, for the purpose of facilitating the roll-out of fixed and mobile very high capacity networks (VHCNs) for electronic communications, the following entities and elements:

- network operators: electronic communications networks but also networks of gas, electricity, heating and water, as well as transport services, including railways, roads, ports and airports
- physical infrastructure hosting network equipment, such as “pipes, masts, ducts, inspection chambers, manholes, cabinets, antenna installations, towers and poles, [...] buildings [and] street furniture”.

The European Parliament is proposing amendments to Articles 3 and 11 of the text of the European Commission to extend the GIA to access to land.

...but blanket regulation would not be targeted at the dynamics and issues associated with access to land

Five types of access to land can be requested by access seekers. They each have their own specificities, and we consider that a blanket regulation applying to all five types would not be a targeted solution to the issues that may exist for access to land:

- for some types of access, historical evidence and the incentives of the parties suggest that regulation of access is not necessary
- for outdoor small cells, facilitating access agreements with local authorities or other local parties appears to be what is needed
- in situations where there is evidence of unfair practices from access providers or access seekers, demonstrated by relevant indicators and failure to reach commercial agreement, fair and reasonable terms and pricing of access to land could be applied to tackle such practices.

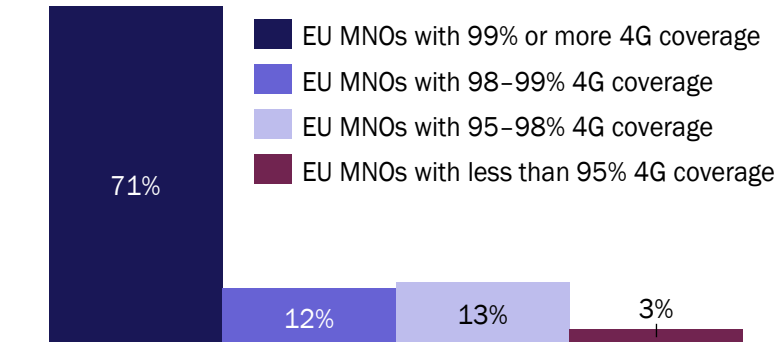
We conclude the proposed amendments to the regulation would lead to some negative effects:

- they are likely to create significant uncertainty and litigations within the land market, which may disrupt access to land
- they would lead to negative impacts on the sector due to the proportion of land access (re)negotiations that would be sent to the dispute settlement body
- they could make landowners unwilling to agree access to land for mobile towers.

Five key points underpin our conclusions

(1) Mobile operators have been able to access land to deploy near-ubiquitous networks

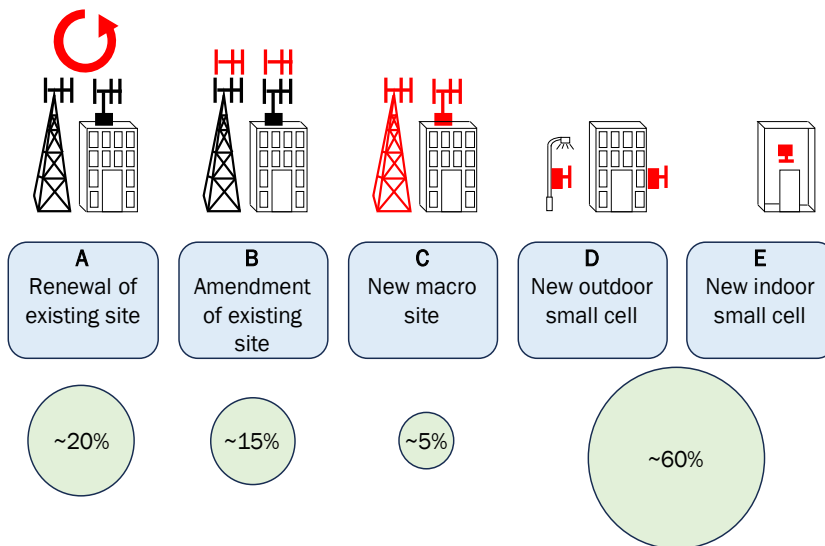
Almost three quarters of EU mobile network operators (MNOs) have deployed a network with 99% or more 4G population coverage, showing they have been able to access the land they needed to deploy macro sites and reach these high coverage levels.



Source: © GSMA Intelligence 2023

(2) Based on our analysis, access to land falls into five categories (see A to E opposite), with new small cells forecast to account for the majority of land interactions

Existing macro sites will address the vast majority of the need for 5G macro sites, as 5G roll-out continues across the EU. Our estimate of negotiations for access to land up to 2030 by category shows that the majority of land interactions are likely to be related to new small cells, which cover a much smaller area than a macro site and do not require access to land in the conventional sense.



Note: Red colour is used to indicate the nature of the access to land negotiations.

Source: Analysys Mason 2023

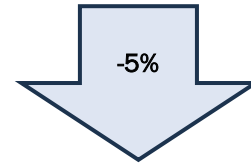
(3) The cost of land is a small component of mobile operators’ total cost base and has been, on average, decreasing in real terms

The cost of land is a small component of mobile operators’ total cost base and there is no evidence of excessive price increases across the market. We observe prices on average declining or evolving roughly in line with inflation.

Cost of land as a proportion of an MNO’s network costs:¹



Average annual evolution of the cost of land per mobile macro site in real terms:²



(4) Savings on land rents may not be passed on to MNOs

With towercos’ increasing role between landowners and MNOs, savings on land rents may not be passed on to MNOs, and therefore not to end users of electronic communications either.

(5) The market for towers is significantly more concentrated than the market for providing access to land...

Concentration benefits access seekers in terms of negotiating power.

On average across the four largest EU markets, three or four towercos hold a combined **90–100%** share of the tower market, with the largest supplier holding **31–50%** market share, giving them negotiating strength.

By contrast, the three or four largest landowners hold a total of **~30%** market share of land. Thousands of (much) smaller landowners account for the remaining **~70%** supply of land.

...and their relationship depends on the type of access to land needed

Both access providers (i.e. landowners) and access seekers (i.e. towercos or MNOs) have strong incentives to reach beneficial lease agreements, whether for renewals, amendments or new sites leases, although in some specific instances, either party may act unfairly in the negotiation.

¹ See Figure 5.1 for details.

² See Figure 5.2 for details.

For renewals, updates or new leases, we see the following dynamics and potential issues

In some of the categories of access to land, historical evidence and the incentives of the parties suggest that regulation of access is not necessary

A	B	C – new macro site	D	E – new indoor small cell
		Hundreds of thousands of successful land access agreements all over Europe over the past 30 years show that agreements should be possible on a purely commercial basis.		Building owners have an incentive to facilitate the deployment of small cells as improved indoor mobile coverage can be expected to increase the attractiveness of their buildings.

In relation to outdoor small cells, facilitating access agreements with local authorities or other local parties appears to be what is needed

A	B	C	D – new outdoor small cell	E
			The land, building or object (bus shelter, lamppost, etc.) owner is likely to be a municipal body or local enterprise, and it should be in its interest to agree commercially on the price of access, given the benefits which are brought to the local area from dense coverage from 4G and 5G small cells. Here, the issues around effective access are more to do with obtaining local authority planning permissions, or the non-price terms of access (e.g. power supplies, scheduling engineering, not disrupting municipal activities). The price negotiated for access should not be problematic, as parties have incentives to agree.	

In situations where there is evidence of unfair practices from access providers or access seekers, demonstrated by relevant indicators and failure to reach commercial agreement, fair and reasonable terms and pricing of access to land could be applied

A – renewal of existing	B – amendment of existing	C	D	E
Evidence does not suggest there is a need to regulate the overall land market. However, in situations where there is evidence of unfair practices, demonstrated by relevant indicators from analysis of the specific market providers or negotiations, and a failure to reach a commercial agreement, fair and reasonable terms and/or pricing for access to land could be appropriately applied. Such regulation would be targeted to tackle unfair practices, which could include:				
<ul style="list-style-type: none"> the landowner demanding an unfair excessive price (i.e. significantly above the existing price) from the access seeker because it has a captive user of the land (ground or rooftop) which would incur high costs if it needed to find and move to an alternative nearby location the access seeker, which is often a much larger party with greater resources (towerco or MNO), using the threat of legal action to dispute the rent and to force the landowner to settle for less than what is fair for the landowner. 				

What could the impacts be of the proposed regulation of access to land?

The proposed regulation is likely to create significant uncertainty and litigations within the land market, which may disrupt access to land

Applying fair and reasonable terms and conditions, for the access to land, including for price as proposed by the amendments of the Parliament, means that neither the access providers (i.e. the landowners) nor the access seekers (i.e. the towercos or MNOs) in practice know how this will be interpreted by the dispute settlement body or potentially by the courts of law in case of further litigation. It may also be interpreted very differently from one country to another. This will create market uncertainty until that body and/or the courts has formalised in guidance or in case law how it interprets fair and reasonable terms and fair and reasonable prices. This will likely take some years to be resolved, disrupting effective and efficient access-to-land market dynamics in the meantime.

The proposed regulation would lead to negative impacts on the sector due to the proportion of land access (re)negotiations that would be sent to the dispute settlement body

Each land dispute referred to the dispute settlement body will have specific localised issues and we anticipate will likely take more than one month – the timeframe allowed for this body to issue a binding decision – to resolve. It seems highly likely that cases, especially those with more complex issues, will quickly accumulate, rendering the dispute settlement body unproductive, and leading to delays on access to land as soon as the proposed regulation is in place.

The proposed regulation could make landowners unwilling to agree access to land for mobile towers

A mobile site, and particularly a ground-based tower, has a significant visual impact on the area where it is located, and generates access intrusion from the towerco and/or MNO(s) that own and/or use the site. Landowners are currently being financially remunerated for these inconveniences, and may be unwilling to agree access to land for mobile towers if they consider a regulated price insufficient.

Other parties have concluded that regulating access to land is not appropriate

Support study associated with the review of the Broadband Cost Reduction Directive, commissioned by the European Commission³

“To include access to private land under the BCRD does not seem to be a viable option since the BCRD then conflicts with national laws which protect private property. Under this circumstances access seekers would need a judge to determine whether access is justified or not. Such court cases on private land access might take 1-2 years. These timescales are not compatible with mobile network roll-outs even if they might work for other utility sectors. To sum up, there are sometime issues with private land owners, but in general the commercially negotiated terms are fair. More regulation of private land under BCRD does not seem appropriate

³ See documents available from the Publications office of the European Union (emphasis added), available at <https://op.europa.eu/en/publication-detail/-/publication/410af620-b71f-11ed-8912-01aa75ed71a1>

and is unlikely to work in practice due to conflicting points with law on private property.”

BEREC Opinion on the Revision of the Broadband Cost Reduction Directive⁴

*“In conclusion, BEREC considers that – safe for possible, well defined and justified exceptions – **the provision of access to non-network private facilities should normally be left to commercial agreements.**”*

Market survey of antenna installation points by the Dutch Authority for Consumers and Markets (ACM, the electronic communications regulator)⁵

*“In its research, the ACM does not see any direct indications that the risks mentioned by market parties [of concentration of supply of antenna sites such as by aggregators having an upward effect on prices] occur in practice in a broad sense. **The examples of significant market price increases provided by market parties appear to be more incidental in nature.**”*

⁴ BEREC Opinion on the Revision of the Broadband Cost Reduction Directive, BoR (21) 30, Body of European Regulators for Electronic Communications (BEREC), 11 March 2021, Section 5 (emphasis added), available at <https://www.berec.europa.eu/en/document-categories/berec/opinions/berec-opinion-on-the-revision-of-the-broadband-cost-reduction-directive>

⁵ Marktverkenning Antenne-opstelpunten, Autoriteit Consument & Markt (ACM), 14 July 2022, Summary section (*Samenvatting*) (emphasis added), available at <https://www.acm.nl/nl/publicaties/marktverkenning-antenne-opstelpunten-nu-geen-grote-knelpunten-markt-als-geheel>

2 Introduction

This white paper has been prepared by Analysys Mason and sponsored by APWireless. It examines various aspects of the provision and aggregation of land to the downstream telecoms industry in the context of the amendments proposed by the European Parliament (see https://www.europarl.europa.eu/doceo/document/ITRE-PR-749242_EN.html)⁶ to the legislative text of the European Commission (EC) to add access to land to the Gigabit Infrastructure Act (GIA) regulation.⁷

2.1 Background to the study

On 23 February 2023, the EC published the draft GIA, a regulation meant to replace the Broadband Cost Reduction Directive (BCRD) of 2014, with the aim of enabling faster, cheaper and more effective roll-out of Gigabit networks across the European Union (EU). Being a regulation (i.e. a binding legislative act that must be applied in its entirety across the EU),⁸ rather than a directive, it also aims to harmonise the framework applicable to Gigabit networks across the EU. An impact assessment has also been published together with the draft GIA, in which four policy options were assessed.

On 15 June 2023, the European Parliament published its proposed amendments to the draft GIA. Two amendments are particularly relevant for land providers and lease aggregators:

- Amendment 33 adds the following text to Article 3:
“1a. Where required to ensure the continuity of electronic communication service, owners of land where associated facilities have been or will be installed with the view to deploying element of very high capacity networks, shall negotiate with undertakings providing or authorised to provide those associated facilities at fair and reasonable terms and conditions, for the access to land, including price, in accordance with national contract law.”
- Amendment 54 adds the following text to Article 11 which sets out the circumstances under which disputes can be raised:
“(ba) where agreement on specific terms and conditions, including price, has not been reached within one month from the date of the receipt of the request for access to land, made by an undertaking providing or authorised to provide associated facilities under Article 3(1a);”

⁶ *DRAFT REPORT on the proposal for a regulation of the European Parliament and of the Council on measures to reduce the cost of deploying gigabit electronic communications networks and repealing Directive 2014/61/EU (Gigabit Infrastructure Act), (COM(2023)0094 - C9-0028/2023 - 2023/0046(COD)), Amendment 33, European Parliament, 15 June 2023, available at https://www.europarl.europa.eu/doceo/document/ITRE-PR-749242_EN.html*

Referred to as “Draft report COM(2023)0094 - C9-0028/2023 - 2023/0046(COD)” in subsequent footnotes.

⁷ Proposal for a REGULATION OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL on measures to reduce the cost of deploying gigabit electronic communications networks and repealing Directive 2014/61/EU, 2023/0046 (COD), European Commission, 23 February 2023, available at <https://digital-strategy.ec.europa.eu/en/library/gigabit-infrastructure-act-proposal-and-impact-assessment>

⁸ See https://european-union.europa.eu/institutions-law-budget/law/types-legislation_en

In Article 3, of the draft Act, 'fair and reasonable' is defined as follows:

“2. When determining prices as part of fair and reasonable terms and conditions for granting access, network operators and public sector bodies owning or controlling physical infrastructure shall take into account the following:

- (a) the need to ensure that the access provider has a fair opportunity to recover the costs it incurs in order to provide access to its physical infrastructure, taking into account specific national conditions and any tariff structures put in place to provide a fair opportunity for cost recovery; in the case of electronic communications networks, any remedies imposed by a national regulatory authority shall also be taken into account.
- (b) the impact of the requested access on the access provider's business plan, including investments in the physical infrastructure to which the access has been requested;
- (c) in the specific case of access to physical infrastructure of operators, the economic viability of those investments based on their risk profile, any time schedule for the return on investment, any impact of access on downstream competition and consequently on prices and return on investment, any depreciation of the network assets at the time of the access request, any business case underpinning the investment at the time it was made, in particular in the physical infrastructures used for the provision of connectivity, and any possibility previously offered to the access seeker to co-invest in the deployment of the physical infrastructure, notably pursuant to Article 76 of Directive (EU) 2018/1972, or to co-deploy alongside it.”

In this context, APWireless has commissioned Analysys Mason to prepare a report on the proposed inclusion of the regulation of access to land in the final version of the GIA.

2.2 Structure of this report

The remainder of this document is laid out as follows:

- Section 3 provides an overview of the mobile electronic communications industry
- Section 4 describes the access to land by mobile operators
- Section 5 analyses the cost of land for mobile operators
- Section 6 discusses the relationship between towercos and landowners
- Section 7 explains the role of mobile site lease aggregators in the value chain
- Section 8 details the impacts of the regulation of access to land introduced by the proposed amendments.

3 Industry overview

Meeting coverage targets for mobile networks will require mobile network operators (MNOs) to deploy equipment (points of presence, or PoPs) across many thousands of sites in Europe in the remainder of this decade. This in turn will require ground-based and rooftop towers, and ultimately the land and buildings upon which they are installed, to provide access for new/additional network infrastructure, either at existing locations or new locations. During the same period, many of the land and building leases granted for existing sites will come to an end, if an agreement cannot be reached regarding their renewal, then existing sites will have to be decommissioned (and potentially moved to an alternative nearby location), although, in practice, this is very uncommon.

As a result, there will be many thousands of negotiations between access providers (landowners, building owners) and access seekers (MNOs and towercos) – the majority individually, some in bulk – on the terms and prices of access to land.

3.1 EU coverage targets

Coverage targets have been defined as part of the wider digital targets included in the EU's Digital Decade Policy Programme 2030,⁹ as follows:

“all end users at a fixed location are covered by a gigabit network up to the network termination point, and all populated areas are covered by next-generation wireless high-speed networks with performance at least equivalent to that of 5G, in accordance with the principle of technological neutrality;”

Other targets refer to the digital skills of the EU population, the environmental sustainability of networks, the digital transformation of businesses and the digitalisation of public services.

3.2 Overview of mobile networks

Mobile networks for the provision of voice and data services to consumers, businesses and machine-to-machine (M2M) applications typically comprise two key radio access layers, known as the macro layer and small cells:

- The macro layer was historically, and remains, the primary method of network deployment. It consists of large antennas mounted on passive infrastructure, typically a tall ground-based tower or rooftop structure. These ‘macro’ sites operate at a relatively high power that allows them to broadcast widely a range of data signals carrying radio frequencies, known as spectrum, in order to maximise network coverage and capacity.

⁹ Decision (EU) 2022/2481 of the European Parliament and of the Council of 14 December 2022 establishing the Digital Decade Policy Programme 2030 (Text with EEA relevance), Article 4, (2)(a), available at <https://eur-lex.europa.eu/eli/dec/2022/2481/oj>

Figure 3.1: Example of a macro site with various sets of antennas from different operators [Source: Analysys Mason, 2023]

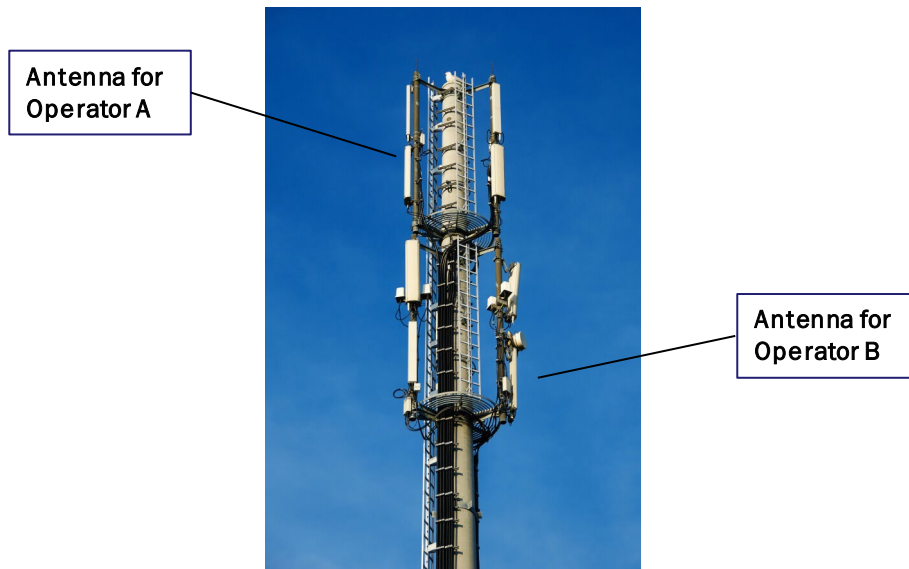
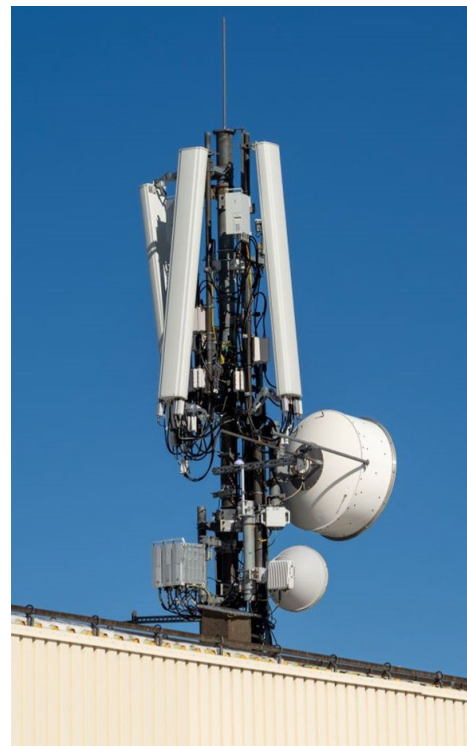


Figure 3.2: Example of a ground-based tower [Source: Analysys Mason, 2023]



Figure 3.3: Example of a rooftop tower [Source: Analysys Mason, 2023]



- Small cells are a relatively new introduction to mobile networks, with significant further deployment expected in the coming years. They are designed to address challenges in terms of capacity, where certain localised areas experience large volumes of mobile data traffic. They also help provide better coverage in indoor environments, where the signal from macro sites may be blocked by the structure of buildings. Small cells are significantly smaller than those in

the macro layer and are typically deployed either within large indoor facilities, such as stadiums or shopping centres, or outdoors on street furniture such as lampposts or advertising hoardings and on the facade of buildings. As these sites are operated at much lower power than macro sites, their coverage area is smaller than that of macro sites, and a large number of them is required to meet the high demand for data and voice services in high-density areas, such as shopping precincts, where many users congregate or pass through.

Figure 3.4: Examples of macro site vs. small cell [Source: Analysys Mason, 2023]



In recent years, network deployment by MNOs has been focused on three key areas:

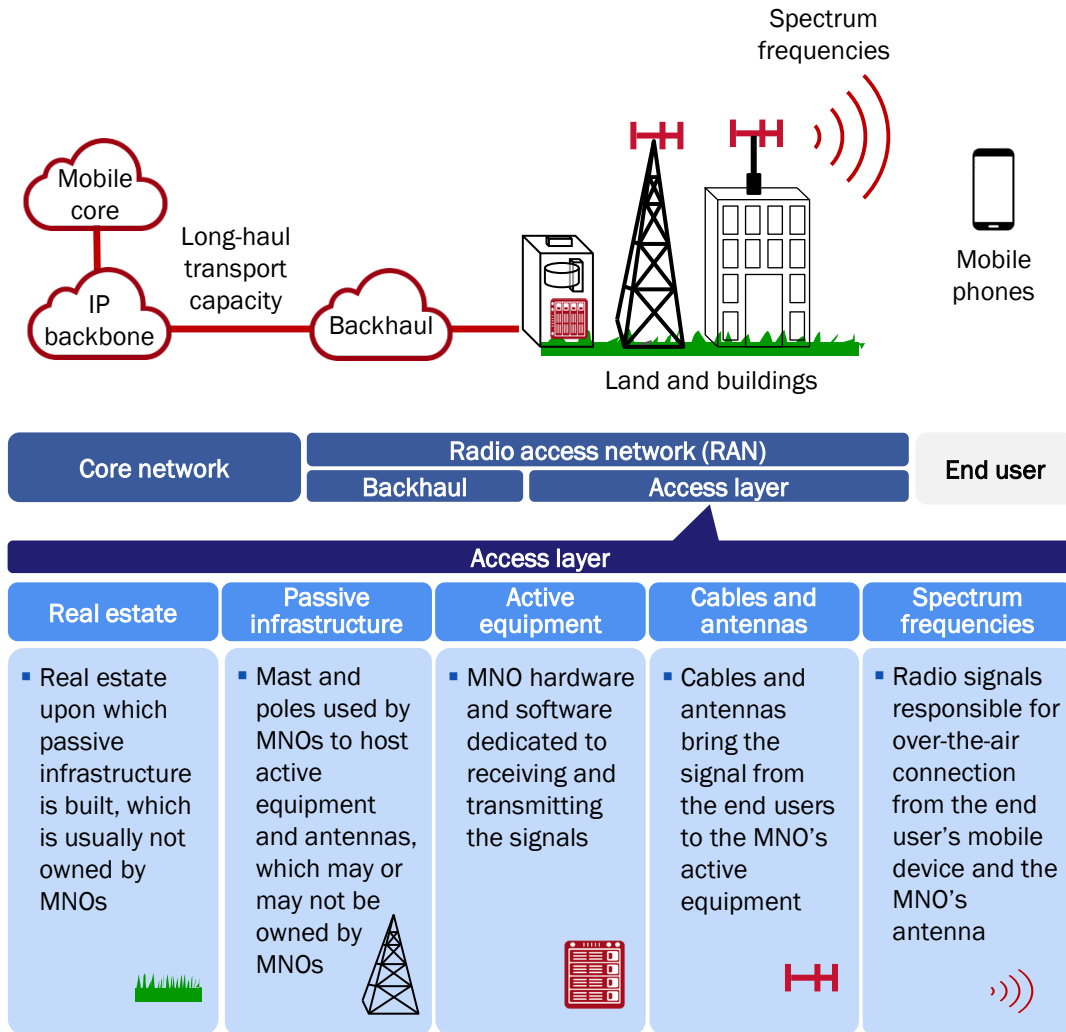
- **Technology upgrades, such as upgrading from 4G to 5G.** Initially, upgrades are completed in ‘overlay’, meaning MNOs upgrade their existing PoPs, which may include deployment of new antennas or base stations at an existing location that already offers 2G, 3G and/or 4G services.¹⁰ Depending on the technical characteristics of the new technology, such as the propagation of the spectrum bands used or the additional traffic demand it must serve, it may then be necessary for the MNO to deploy additional PoPs to complete the next-generation network (see coverage and capacity improvement drivers below).
- **Coverage improvement, such as in rural areas.** This requires the deployment of a new PoP near underserved areas. MNOs have continued to expand coverage in recent years, with most established MNOs having now reached high levels of population coverage (see Section 4.1).
- **Capacity improvement, to address demand for greater data usage.** This requires the deployment of a new PoP within the area of high traffic, which then shares local traffic with the existing PoP. As mobile data traffic continues to increase, capacity improvement is expected to be a significant driver of future network deployment.

¹⁰ For example, Telefónica Spain announced that the initial deployment of 5G networks would be using the existing sites and infrastructure which had been serving previous technologies (e.g. 4G). See <https://www.telefonica.com/en/communication-room/press-room/telefonica-switches-on-5g-and-75-of-the-spanish-population-will-obtain-a-signal-this-year/>

3.3 The mobile value chain and the emergence of the towerco and lease aggregator models

The mobile network architecture can be broadly divided into five key pillars within the access layer (see Figure 3.5), with MNOs traditionally maintaining ownership over the last four pillars (passive infrastructure, active equipment, cables and antenna, and spectrum frequencies). Conversely, the ownership of real estate remains largely fragmented amongst local landowners securing rental contracts with MNOs, although lease aggregators have begun to build a share in the land market.

Figure 3.5: Overview of mobile network architecture [Source: Analysys Mason, 2023]



In recent years, Europe has witnessed the emergence of the towerco model, in which MNOs carve out their passive infrastructure into separate companies that take on the functions related to the ownership and management of passive infrastructure that were previously the responsibility of the MNOs. Many of these separate towercos have then been partially or fully divested by the MNOs as part of long-term sale-and-leaseback agreements, creating an intermediary party in the relationship between MNOs and landowners. Tower holdings by ownership in Europe are shown in Figure 3.6.

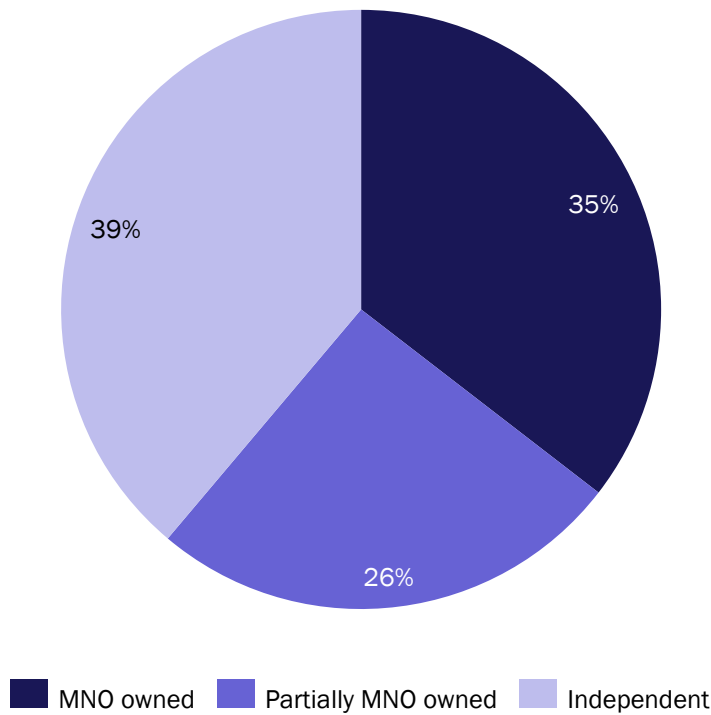


Figure 3.6: Tower holdings in Europe by ownership [Source: Analysys Mason, 2023]

In recent years, many of the EU’s largest MNOs have created towerco subsidiaries with varying levels of divestment (see Figure 3.7), many of which have been acquired by a relatively small number of investors. This has resulted in the development of several pan-European towercos with high market shares (see Figure 3.8).

Figure 3.7: Overview of the tower strategies of the five largest MNOs by number of SIMs, in Europe [Source: Analysys Mason, operator reports, press search, 2023]

MNO	EU market share (% of SIMs)	EU markets of operation	Tower strategy
Vodafone	15%		Vodafone carved out its tower infrastructure assets into Vantage Towers in 2019–21 before launching an IPO for ~20% ownership. In 2022, Vodafone further reduced its stake in Vantage Towers, entering into a co-control partnership with a consortium comprising KKR and GPI
Orange	12%		Orange carved out its tower infrastructure into a separate entity, TOTEM, in 2021. It is fully owned and operated by Orange, with no sale plans announced as of September 2023









MNO	EU market share (% of SIMs)	EU markets of operation	Tower strategy
Deutsche Telekom	11%		Deutsche Telekom carved out its towers in Germany and Austria into GD towers, in which it sold a majority stake in 2023. It may go on to carve out its towers in other markets in a similar way
Iliad	7%		Iliad sold its towers in Italy and France to Cellnex in 2019, and in Poland in 2020, also to Cellnex
Telefónica	7%		Telefónica sold its Telxius Towers division to ATC in 2021

Figure 3.8: Overview of main European towercos [Source: Analysys Mason, towerco reports, press search, 2023]

Towerco	Number of sites in the EU	EU market share (% of total sites)	EU markets of operation	Ownership	Key anchor tenants
Cellnex	~91 000	21%		Cellnex is a publicly listed company	Cellnex has anchor tenancies from a range of major MNOs including Iliad, Telefónica Bouygues Telecom, and H3G
Vantage Towers	~46 000 ¹¹	11%		Vantage Towers is 89% owned by the co-control partnership known as 'Oak' between Vodafone and the KKR-GIP consortium, with KKR and GIP owning 40% of Oak as of July 2023, with targets to increase this to 50% by end of 2023	Vodafone
GD Towers	~40 000	9%		51% owned by Brookfield and DigitalBridge, whilst Deutsche Telekom retains a 49% stake	Deutsche Telekom
ATC	~30 000	7%		ATC Europe is 60% owned by American Tower, with minority	Telefónica

¹¹ Excluding sites from INWIT in Italy in which Vantage Towers does not hold a majority stake.

Towerco	Number of sites in the EU	EU market share (% of total sites)	EU markets of operation	Ownership	Key anchor tenants
				stakes held by CDPQ and Allianz	
TOTEM	~27 000	6%		TOTEM is owned and operated by Orange	Orange

A number of MNOs operating in smaller EU markets, such as T-Mobile Romania, currently retain ownership of their passive infrastructure. However, these markets are expected to experience a further wave of tower asset sales. Some MNOs, such as A1 Group, are already announcing plans to spin off infrastructure¹² following the recent sale of United Group's tower assets in Bulgaria, Croatia and Slovenia to Saudi Arabia-based investor TAWAL.¹³

Once structurally separated, the relationship between MNOs and towercos is governed by long-term master service agreements (MSAs), which include commercial terms such as pricing and allowances for space on the towers as well as obligations and restrictions applying to both MNO and towerco. Although the terms included vary between agreements, common topics include:

- length of contract and renewal terms
- pricing, price indexation and space allowances (on the site), and terms for exceeding such allowances
- renewal options, which are typically on or close to an 'all or nothing' basis, limiting the ability of the MNO to churn selectively at renewal
- restrictions related to additional tenants such as 'golden sites', which are strategically important for the anchor tenant and cannot be offered for co-location
- churn for convenience allowances, which permit tenants to churn from a limited number of sites within a given timeframe, for example 0.5% of total sites per annum, with financial penalties for churn beyond these allowances
- service level agreements (SLAs) to be upheld by the towerco, including site access requirements and permissible site relocation
- discount/profit sharing clauses, such as a form of reduction of MSA fees if the towerco's lease-up rate (the average number of tenants per site) exceeds certain thresholds.

Most MSAs between anchor tenants (the lead tenant and often the MNO that originally constructed and sold the mobile site) and towercos are similar in that they are long term in nature and have strict terms that prevent either party from deviating significantly from the operating model constructed at the time of the original sale-and-leaseback agreement.

¹² See <https://newsroom.a1.group/news-a1-welcomes-decision-to-establish-radio-tower-company?id=173352&menueid=14594&l=english>

¹³ See <https://united.group/united-group-bv-completes-the-sale-of-mobile-tower-infrastructure-to-tawal/>

Tower owners may also have contracts in place with other MNO or non-MNO tenants, other than the anchor tenant; however, these are typically shorter term in nature and provide more flexibility for both parties.

Lease aggregators, such as APWireless, have also begun to build a presence in the European MNO/towerco market. These aggregators acquire the rights to land which is currently used or planned for use to host a mobile site, typically by making an up-front payment based on a multiple of the site's annual rent, and then continue to lease this land to MNOs and towercos (see Section 7.2.2).

4 Access to land by mobile operators

4.1 Mobile operators have been able to access land to deploy near-ubiquitous networks

Since the early 1980s, European MNOs have deployed a new generation of mobile technologies approximately every ten years (i.e. 1G to 4G) and are now in the process of rolling out 5G. Despite having to roll out new technologies regularly, the three or four MNOs present in each EU country have, to a very large degree, managed to access land to deploy their networks and offer near-ubiquitous population coverage, as illustrated in Figure 4.1. They have been able to do so without regulated access to land of the form now being proposed by the European Parliament throughout this period.

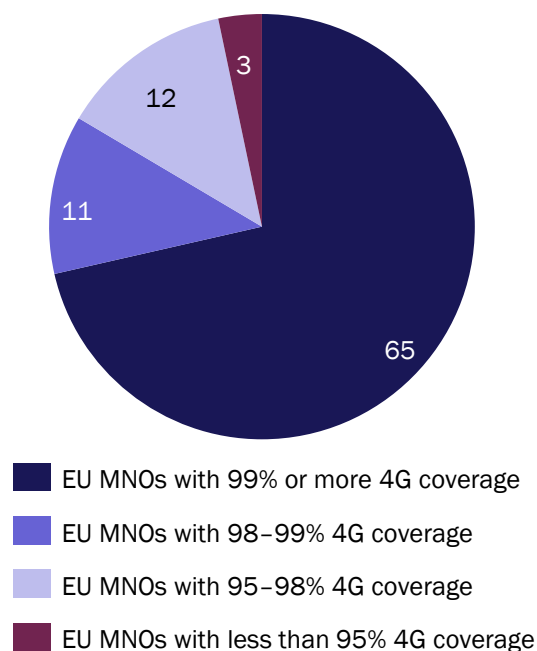


Figure 4.1: EU MNOs by 4G population coverage (Q2 2023)
[Source: © GSMA Intelligence 2023]

Four factors have contributed to these extensive coverage levels, the latter three also making roll-out more cost efficient:

- additional macro sites (e.g. site deployed by one major European towerco, see Figure 4.2).
- an operator co-locating its different technologies on the same tower (*internal co-location* or *overlay*).
- different operators co-locating their active equipment (using the same or different technologies) on the same tower, owned by one of the MNOs or by a towerco (*external co-location* or *passive sharing*), thus increasing access to land for additional parties. This effect is illustrated in Figure 4.3.
- different operators using their own spectrum (or sometimes sharing their spectrum) on the same active equipment on a tower, owned by one of the MNOs or by a towerco (*active sharing*), which requires significant co-operation between network operators but further increases access to land for additional parties.

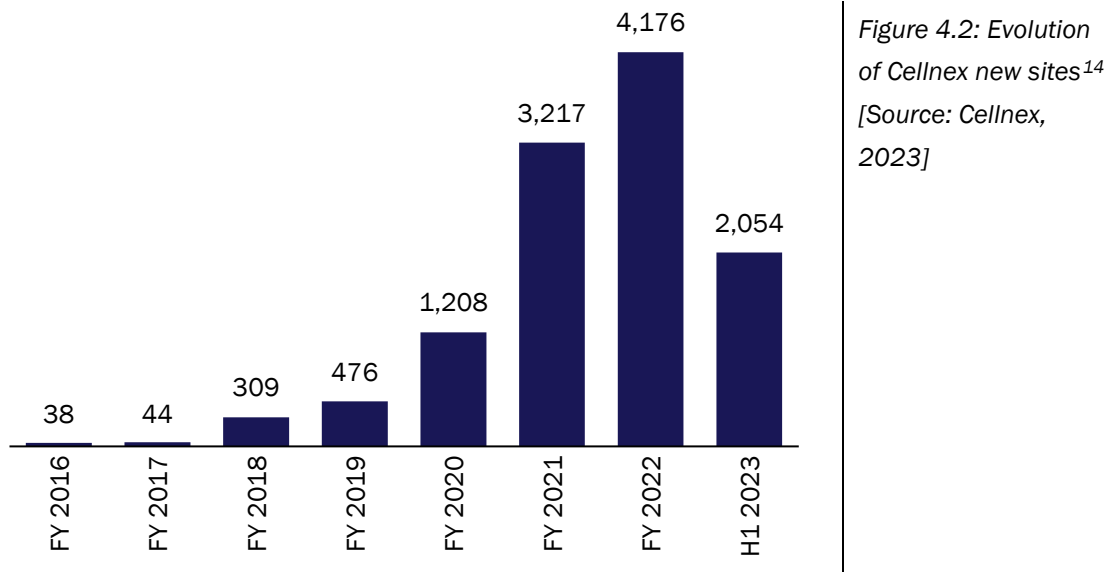
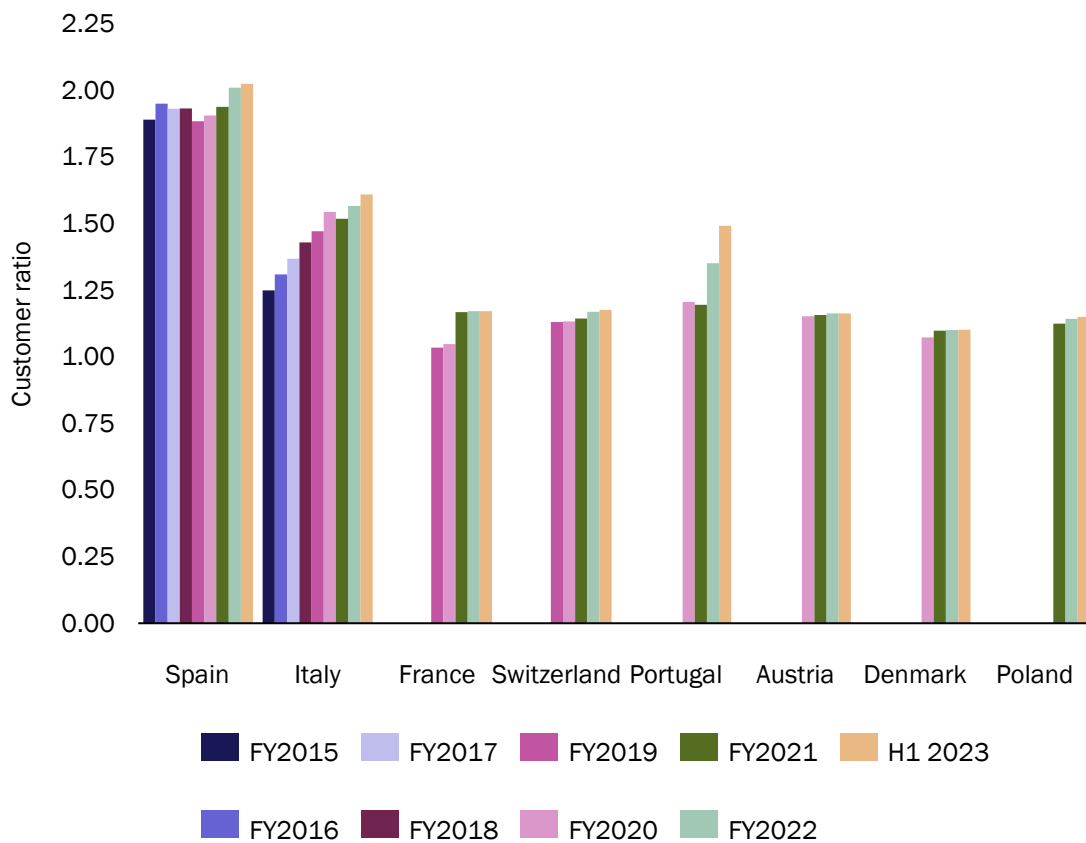


Figure 4.2: Evolution of Cellnex new sites¹⁴
[Source: Cellnex, 2023]

Figure 4.3: Evolution of customer ratio (i.e. tenancies per tower) for the towers owned by Cellnex in various countries¹⁵ [Source: Cellnex,¹⁶ 2023]



¹⁴ New sites refers to the net of new build-to-suit sites, site decommissioning and other. Includes macro and small cells. See <https://www.cellnex.com/gb-en/investor-relations/financial-information/>

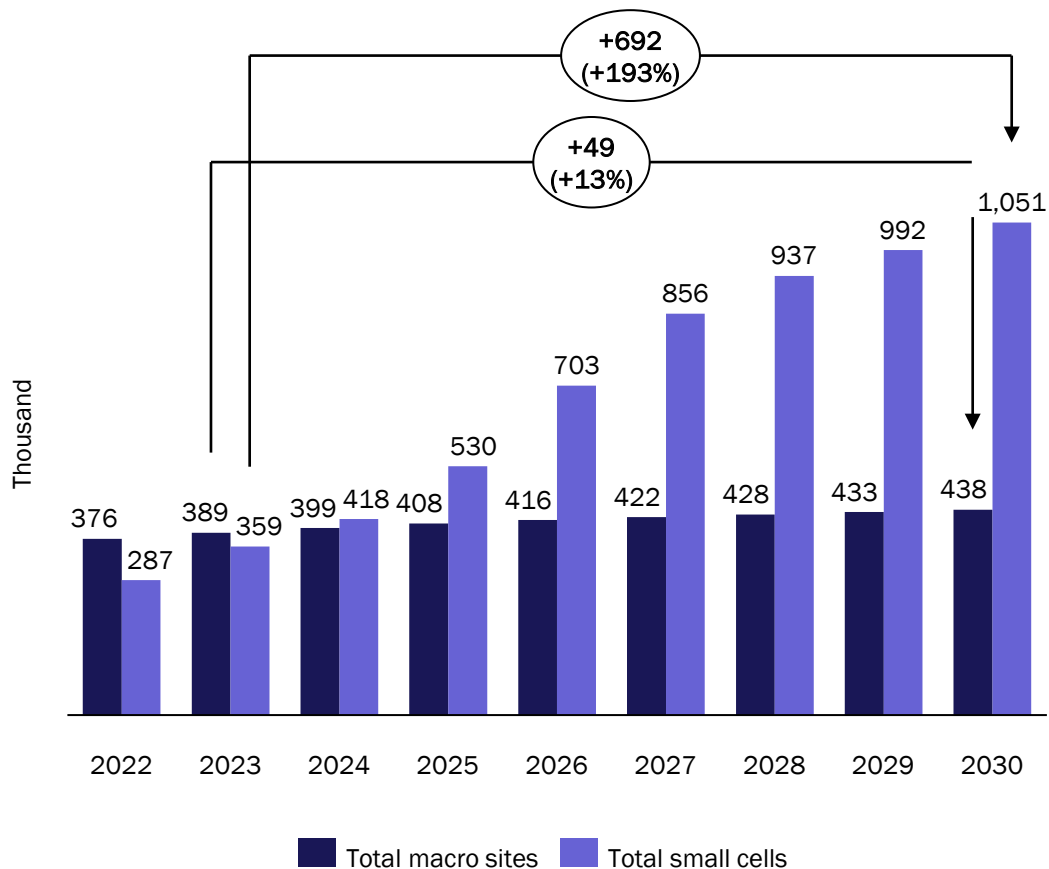
¹⁵ Cellnex acquired 1500 sites from Orange Spain in 2019, which resulted in a dilution of customer ratio in FY2019. See <https://www.cellnex.com/gb-en/news/noticia-129/>

¹⁶ See <https://www.cellnex.com/investor-relations/financial-information/#shareholders-investors-quarterly-results>

4.2 Existing sites address the vast majority of the need for 5G macro sites

Due to the two types of co-location described in Section 4.1, which put additional equipment on existing sites, the need for *new* macro sites for completing the roll-out of 5G will be relatively limited. There will be an estimated increase of 49 000 new sites across selected European markets¹⁷ (13% in total, about 2% a year), from 2023 to 2030. On the other hand, during the same period, we forecast the number of small cells to triple, increasing by 692 000, as shown in Figure 4.4.

Figure 4.4: Evolution of the total number of macro sites and small cells in selected European markets,¹⁸ representing ~75% of total sites within the EU [Source: Analysys Mason, 2023]



Although internal co-location has always been pursued by MNOs for their own benefit, external co-location can be seen as mainly benefiting a direct competitor. As a result, when towers were largely owned by MNOs, external co-location remained limited. As tower ownership is increasingly transferred to towercos, this barrier to external co-location is reduced because, unlike MNOs, the towerco business model aims to increase the number of tenants on the towerco's towers (see Figure 4.3). This reduces the need for additional macro sites, as it further increases the possibility of

¹⁷ The selected European markets are (in descending order according to size of tower market): Germany, France, Italy, Spain, Poland, Austria, Finland, Sweden, Romania, Czech Republic, Greece, Netherlands, Denmark, Portugal and Belgium, representing ~75% of total sites within the EU.

¹⁸ See footnote 17.

deploying new equipment such as 5G antennas, on existing macro sites. Active sharing between MNOs also reduces the need for additional macro sites, and in turn the need for land.

4.3 Small cells do not require access to land in the conventional sense

The number of small cells is forecast to significantly increase in the coming years (see Figure 4.4), but, unlike macro sites, these installations do not occupy land and do not need access to land in the same way as a ground-based tower or rooftop tower.

Small cells can be split into three types: enterprise, (public) indoor and outdoor, each with its own characteristics:

- **Enterprise** small cells: are deployed in and on the facilities of a company, for internal use by its employees (although they can be part of a private 5G network or an MNO-owned network). The company is therefore willing to provide the required access and find the space necessary to install such small cells on office facades, factory interiors, car park lampposts, etc.
- **Indoor** small cells: are deployed within large buildings, such as airports, train stations, shopping centres, stadiums, etc. to increase the capacity of local indoor coverage and to be able to accommodate the significant demand for data in these indoor areas with high footfall. The owner of the venue/building is usually keen to give access for the installation of these small cells, as they improve the experience of visitors (mobile users) and therefore directly benefit the owner of the venue/building.
- **Outdoor** small cells: are mounted on street furniture such as lampposts, billboards and bus stops, to increase local outdoor capacity. For example, as early as 2014, JCDecaux, the international outdoor advertising company, signed a deal with Vodafone to deploy small cells on its street furniture.¹⁹

All three types of small cells only need access to land in the sense of some space on a piece of street furniture or on the facade of a building. Therefore, the strong growth in their deployment does not create additional need for unused space by electronic communication networks (ECNs) in the same way as new macro sites do. While some of these deployments do need access to parts of buildings (but not the rooftop where macro sites might be placed), as discussed above, the building owner is usually willing to facilitate access.

¹⁹ See <https://www.jcdecaux.com/press-releases/jcdecaux-and-vodafone-sign-global-contract-roll-out-small-cells> and <https://www.jcdecaux.com/partners/improving-connectivity>

4.4 The needs of the mobile industry for access to land in the future

4.4.1 The need for access to land is driven by the existing and future requirements of the different types of site infrastructure

The need for access to land, via a lease agreement that grants the right to install network infrastructure on the land, falls into five types of land interaction, as presented in Figure 4.5 (further details on these categories are provided in Section 6).

Figure 4.5: ECNs' potential needs for accessing land [Source: Analysys Mason, 2023]

Type	Description	Share of total land lease interactions ²⁰ (see Section 4.4.2)
Renewal	Renegotiation of existing site leases due to their expiry, but not linked to an upgrade of the site.	~20%
Amendment of existing macro sites	Overlay of existing sites with new equipment, especially for 5G or to support new co-location, which in some cases may trigger a need to update the lease (rather than being an upgrade under the existing lease)	~15%
New macro site	New physical sites, known as build to suit (BTS), for 4G and/or 5G	~5%
New outdoor small cell	New outdoor small cells mainly deployed on street furniture (see Section 4.3)	~60%
New indoor small cell	New public or enterprise indoor small cells deployed with the agreement of, if not facilitated by, the building owner (see Section 4.3)	

The meaning of 'access to land' is different for each type, and so is the impact on the landowner:

- The owner of a shopping centre would welcome indoor sites, and is unlikely to charge for access; potentially, it may bear some of the cost of facilitating access to deploy small cells (e.g. installing empty ducts in the building), without charging these costs to the access seeker deploying the small cells.
- On the other hand, the owner of a rural field might not be particularly interested in the connectivity that an outdoor site can provide to the local area, and potentially considers the site as having a detrimental visual impact, but is willing to accept the site in return for financial benefit.

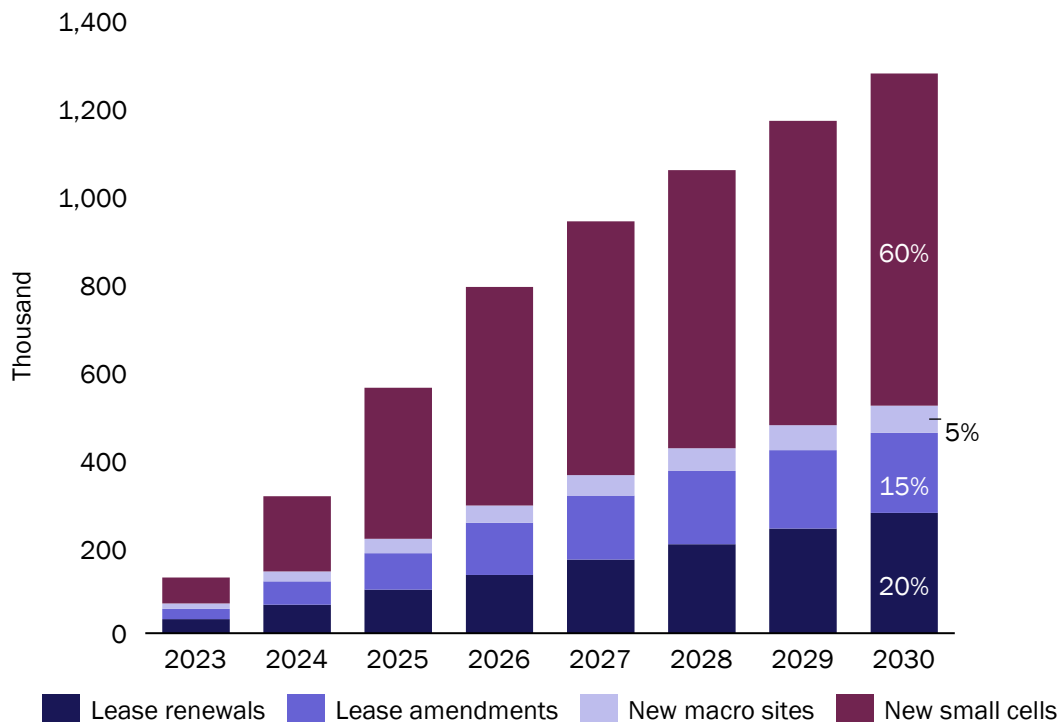
As such, we believe that each of these five categories has its own requirements, stakeholders and market dynamics, and what is suitable for one category (for instance the access provider not charging the access seeker for access to deploy an indoor site) is not necessarily suitable for the others.

²⁰ Land lease interaction refers to the need to renew, amend or agree the lease for the land for one mobile site (macro site or small cell).

4.4.2 Forecasts show that land interactions for new small cells will be the most prevalent in coming years

Forecasts of the different types of land interactions demonstrate that within the remaining years of the Digital Decade’s ambitions, access for new small cells will be the most prevalent whilst new macro sites will make up a small share of overall activity. Average lease renewal timeframes mean the majority of sites will only undergo a single renewal within the forecast timeframe; however, a very small number of sites will require a second renewal which is captured in our forecasts.

Figure 4.6: Forecast evolution of land interactions in selected European markets²¹ (cumulative interactions from 2023; indoor small cells and outdoor small cells grouped together) [Source: Analysys Mason, 2023]



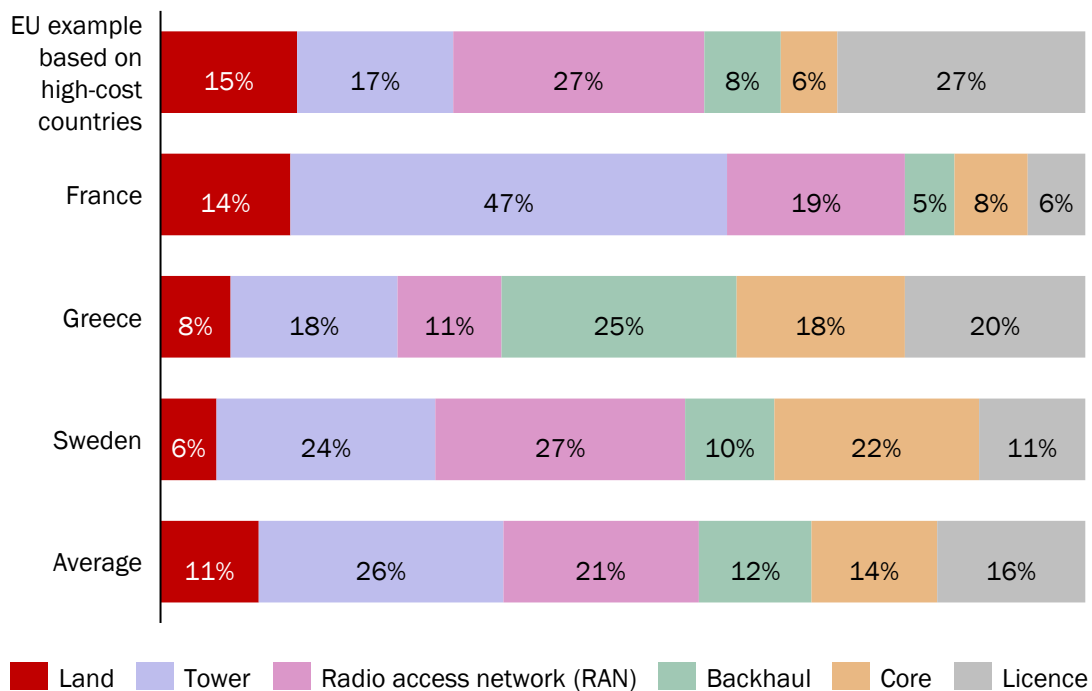
²¹ See footnote 17.

5 The cost of land for mobile operators

5.1 The cost of land is a small component of mobile operators' total cost base

Depending on the country and the average level of prevailing land rents, the cost of land amounts to 6–15% of an MNO's total network costs, and a significantly smaller percentage of its total costs once retail costs are also included. The cost of land and other items as a proportion of network costs for a selection of countries is presented in Figure 5.1. On average, the cost of land is equivalent to about 40% of the cost of a tower.

Figure 5.1: Cost of land and other items as a proportion of an MNO's network costs (annualised capex and opex in 2023 from regulators' LRIC models and benchmarks of land rents) [Source: European Commission,²² Arcep,²³ EETT,²⁴ PTS,²⁵ Analysys Mason,²⁶ 2023]



²² See <https://digital-strategy.ec.europa.eu/en/library/finalisation-mobile-cost-model-roaming-and-delegated-act-single-eu-wide-mobile-voice-call>

²³ See www.arcep.fr/uploads/tx_gspublication/modele-TA-mobile-consultation_publicue-avril17.rar

²⁴ See <https://www.eett.gr/anakinesis/diexagogi-dimosias-diavoyleysis-anaforika-me-tin-epikairopoiisi-toy-technooikonomikoy-monteloy-bottom-up-pure-lric-gia-ton-kathorismo-ton-anotaton-timon-ton-y-po-rythmisi-telon-termatismoy-kliseon-se-k/>

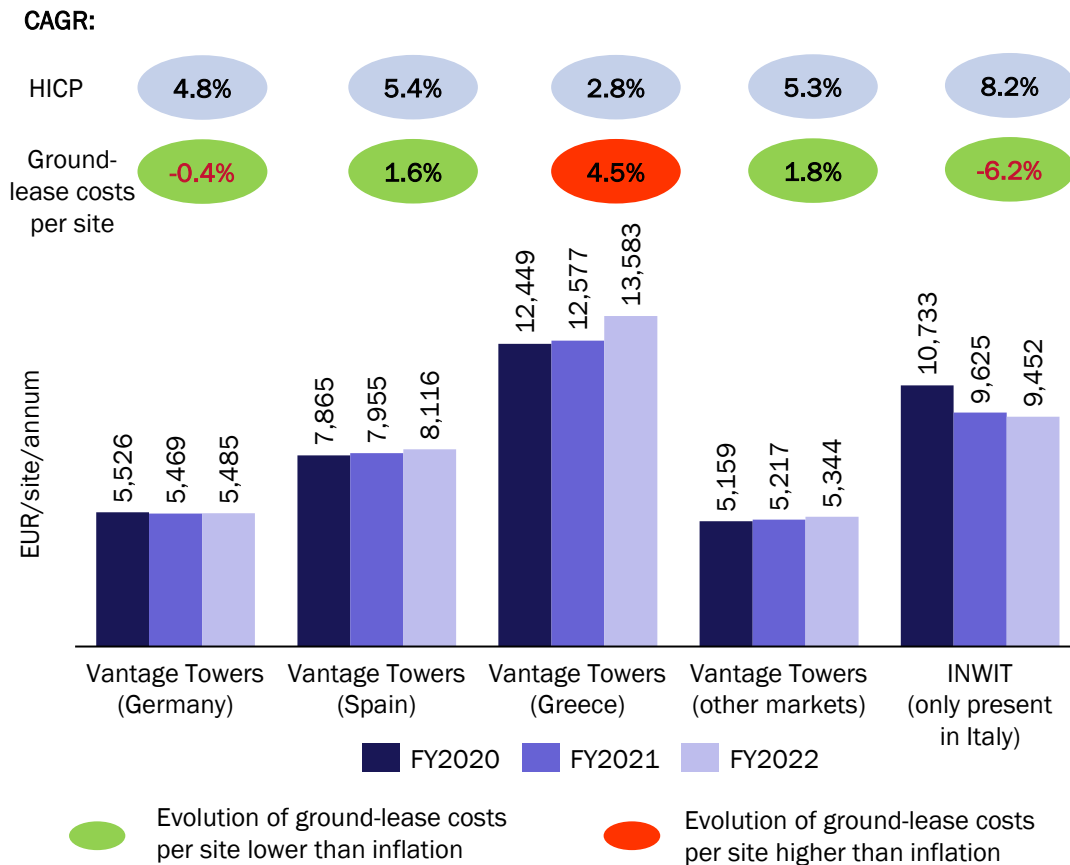
²⁵ See <https://pts.se/sv/bransch/telefoni/konkurrensreglering-smp/prisreglering/kalkylarbete-mobilnat/gallande-prisreglering/>

²⁶ In each of the four LRIC models, we subtracted the cost of land, based on benchmarks in various European countries collected by Analysys Mason from public sources and confidential datapoints, from the annualised cost of towers.

5.2 The cost of land does not appear to be increasing excessively

Financial reports of towercos suggest ground-lease costs per site are either decreasing, or increasing below, or broadly in line with, inflation across the EU, when considering single markets²⁷ with limited change to the share of sites by type in recent years (see Figure 5.2). On average, this reflects a reasonable and not excessive price evolution.

Figure 5.2: Evolution of ground-lease costs per tower by towerco^{28,29} [Source: Vantage Towers,³⁰ INWIT,³¹ Eurostat,³² 2023]



²⁷ Except where indicated. Considering single markets with limited change to the share of sites by type is more relevant than situations in which any increase (or decrease) in average lease pricing may be as a result of a changing mix of site types (e.g. ground-based tower vs. rooftop) and a changing mix of markets for multi-market tower owners.

²⁸ Ground-lease costs for Vantage Towers include depreciation of costs related to right-of-use assets, and interest on lease liabilities, while ground-lease costs for INWIT were estimated by Analysys Mason by dividing reported recurring lease payments by the estimated number of sites for which INWIT does not own the land, itself based on reported land ownership figures.

²⁹ HICP: harmonised index of consumer prices. In the Euro area, HICP is used to measure consumer price inflation. The word “harmonised” means that all the countries in the EU follow the same methodology. See [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Harmonised_index_of_consumer_prices_\(HICP\)](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Harmonised_index_of_consumer_prices_(HICP))

³⁰ See <https://www.vantagetowers.com/en/investors/results-report-and-presentation>

³¹ See <https://www.inwit.it/en/investors/presentations-and-webcasts/>

³² See https://ec.europa.eu/eurostat/databrowser/view/EI_CPHI_M__custom_7381723/default/table

5.3 Tower owners are willing to secure long-term access to land

In recent years, tower owners, and in particular towercos, have increasingly used the ground-lease buy-out (GLBO) model, i.e. the long-term or permanent acquisition of the land in exchange for an up-front payment to the current landowner (see Section 7.2.1) in locations where they own mobile sites. The acquisition of these locations provides security to the tower owner as it removes, or at least delays into the very long term, any risks related to renegotiation of ground-lease contracts including potential cost increases or cancellation of the agreement resulting in a forced site relocation. Entering into a GLBO also reduces barriers to 5G upgrades and co-location, provided such upgrades can be performed within the land acquired. These aspects support MNOs in achieving timely network deployments and maintaining network quality, whilst limiting network disruption and costs from the relocation of active equipment.

Many major EU towercos have announced widespread GLBO ambitions and these are typically considered as a key value driver in towercos' business models. This demonstrates that the board in these companies support the use of GLBOs and consider deployment of the required capex as sufficiently value creative at current level of ground-lease prices.

Figure 5.3: Evolution of Cellnex site actions³³

[Source: Cellnex, 2023]

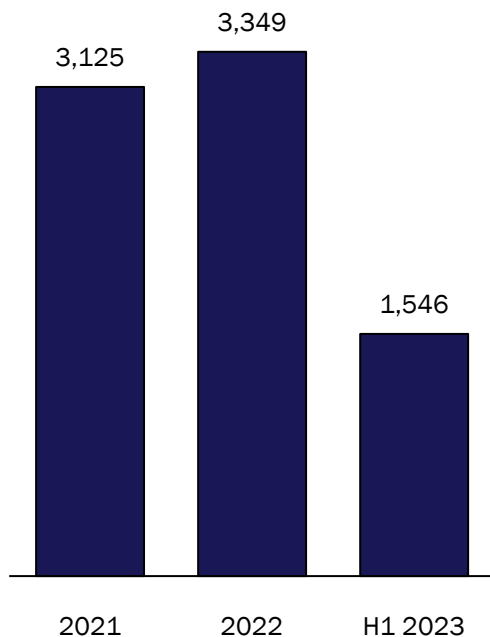
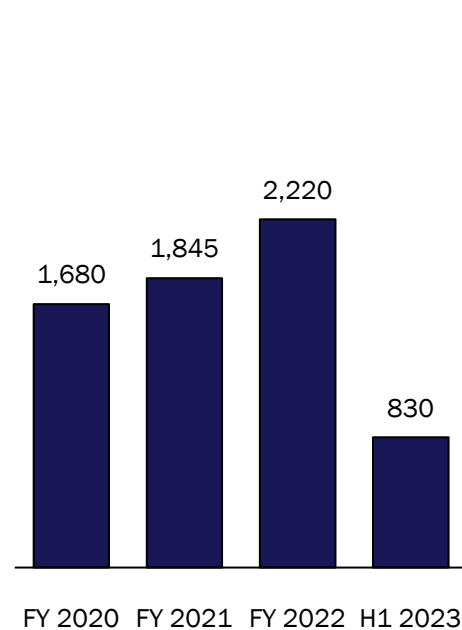


Figure 5.4: Evolution of INWIT renegotiations/buy-outs [Source: INWIT, 2023]

[Source: INWIT, 2023]



³³ Site actions refers to rent renegotiations, cash advances and land acquisitions, the proportion of which is not released. Please see <https://www.cellnex.com/app/uploads/2023/07/Cellnex-Results-Q2-2023.pdf>

Figure 5.5: Publicly available GLBO targets and achievements to date, by towerco [Source: Towerco reports, 2023]

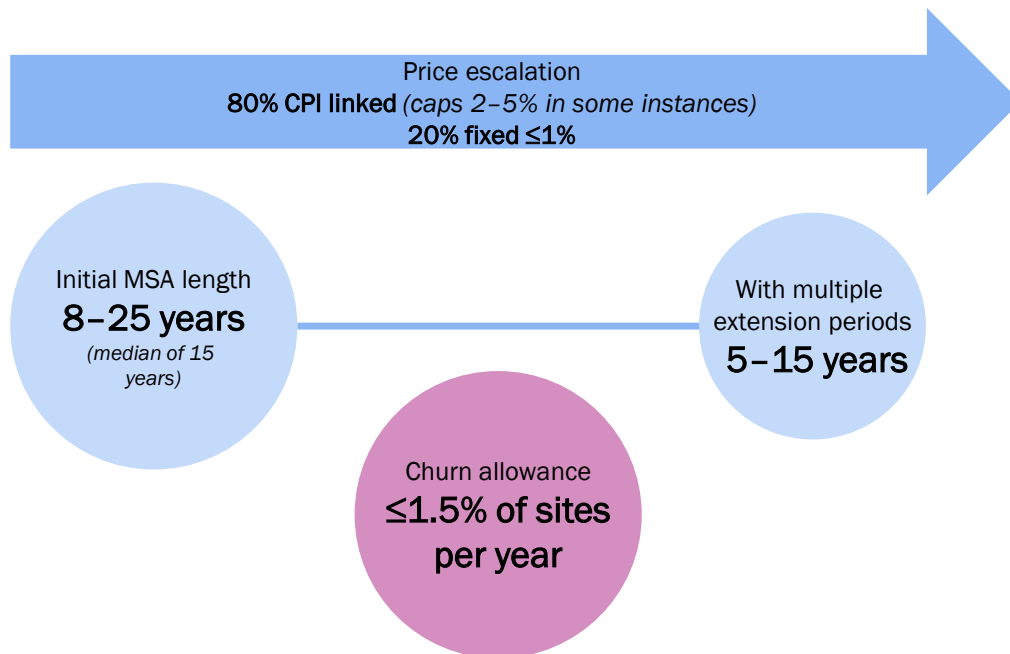
Towerco	GLBO target	Land sites owned within portfolio
INWIT ³⁴	20% of its portfolio by 2026	9% of its portfolio
Vantage Towers ³⁵	10% of its European portfolio of macro sites	1800 sites (~6% of its European portfolio)

5.4 If land rental costs decline, savings may not be passed on to MNOs and end users

With towercos' increasing role between landowners and MNOs, savings on land rents may not be passed on to MNOs, and therefore not to end users of electronic communications either, but instead captured by towercos in the form of higher profits.

MSAs between towercos and MNOs are long-term agreements that typically include annual price escalation terms (e.g. in line with inflation; see Figure 5.6). As a result, cost savings (and cost increases) that may arise during the validity period of an MSA are typically kept (or have to be borne) by towercos, rather than passed on to MNOs. A limited number of towerco MSAs have contractual sharing mechanisms requiring a proportion of savings to be passed through to tenants. Cost savings on land would therefore primarily benefit only MNOs which still wholly own their towers, although as shown in Figure 3.6, less than half of all sites are now fully owned by MNOs.

Figure 5.6: Benchmarks of ten MSAs proposed or signed since 2016 [Source: Analysys Mason, 2023]



³⁴ See <https://www.inwit.it/wp-content/uploads/2023/07/INWIT-Q2-2023-Results-Presentation-vPRINT.pdf>

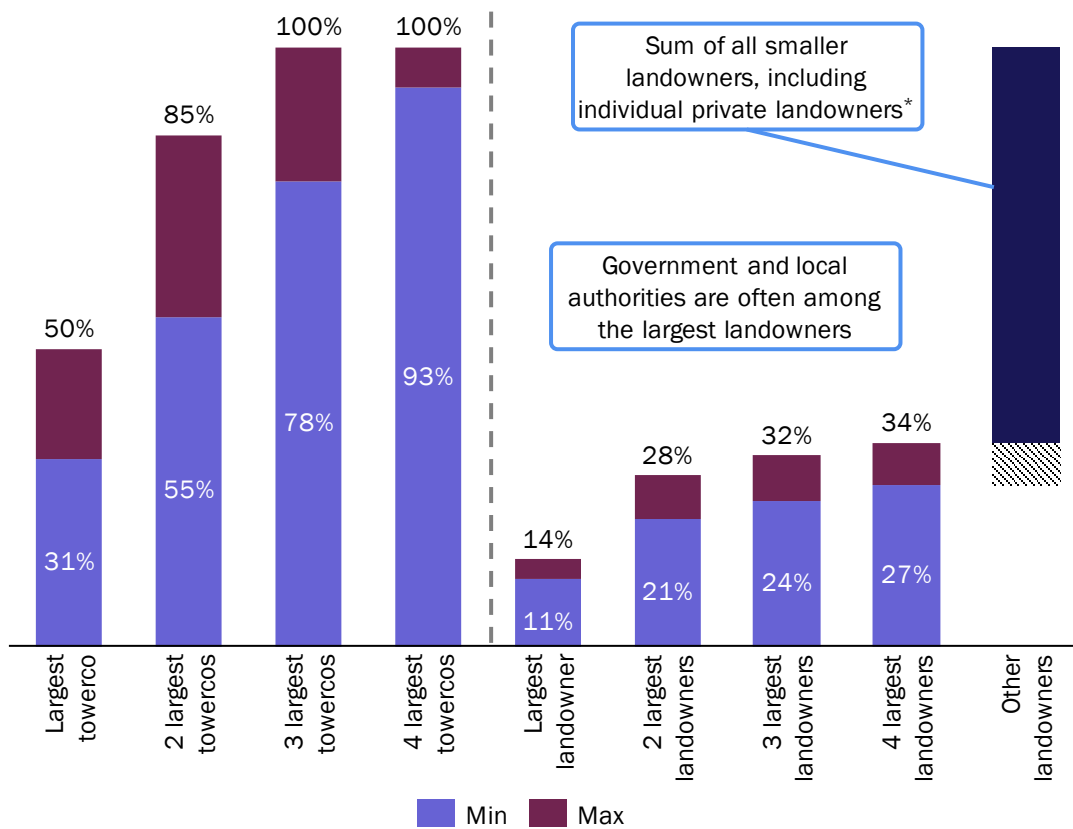
³⁵ European portfolio excludes tower holdings in the UK. See https://www.vantagetowers.com/sites/tower-co-v2/files/2023-01/20230131_VantageTowers_Q3FY23_EN_release.pdf

6 Relationship between towercos and landowners

6.1 Concentration of access seekers is typically higher than that of access providers

There is a relatively small number of access seekers within each EU market, with many of them present across multiple markets. By comparison, the market for access providers is highly fragmented with any given access provider representing a very small share of overall lease contracts. Figure 6.1 shows both the concentration of tower ownership in the four largest EU markets (France, Germany, Italy and Spain), and the concentration of land ownership in two European countries, based on detailed network ownership data. This highlights that the market share of towers of the single largest towerco in these four large European markets ranges between 31% and 50%; and that the three largest towercos collectively hold 78% to 100% of the towers. Conversely, the largest landowner holds a market share of land ranging between 11% and 14%, and the top four landowners collectively hold between 27% and 34% of the land. To reach the equivalent market share held by the top four towercos (i.e. 93% to 100%), the number of landowners would have to encompass many thousands of smaller landowners in each country.

Figure 6.1: Benchmark of tower and land ownership in EU countries [Source: Analysys Mason, 2023]



* There are thousands of individual private landowners in each country.

As a result, in most cases, there is a significant difference in terms of the financial, legal and time resources that access providers and access seekers can deploy during contractual negotiations, as well as an asymmetry of knowledge and information. Towercos and MNOs typically have large dedicated land management teams and significant legal resources to raise disputes if necessary. In contrast, access providers that may offer one or a small number of leases to access seekers do so often outside of their normal scope of business (e.g. the main business of a farmland owner is not mobile site leasing). As a result, small-scale access providers may be unable to negotiate on a level playing field and may not have the resources to defend against legal challenges if raised. Concentration therefore benefits access seekers in terms of negotiating power, further tilting the scale in their favour to the detriment of landowners.

In a limited number of instances, access providers are commercial land ownership organisations with a level of market knowledge and negotiation resources. However, many are private individuals or local public entities that are most likely to suffer from disadvantages in negotiations against large organisations.

6.2 The relationship between towercos and landowners depends on the type of access and generally leads to desirable outcomes for the deployment of mobile infrastructure

6.2.1 Renewal

Upon expiration of an existing ground-lease contract between the two parties (i.e. the access seeker and the access provider), both parties must enter into negotiations to renew the contract on terms that are acceptable to them both, or else terminate the agreement. The access seeker, having already reached an agreement with an MNO to provide a site on this location and having already invested in the construction of a mobile site on the land, is highly incentivised to renew the contract. The access provider is also incentivised to renew the lease to preserve the income they have derived from the previous lease agreement, but they have not invested in the provision of such services or entered into an agreement with a third party to provide services, so their incentive for renewal is lower. Separately, they may have found the mobile site to be an inconvenience or form of visual pollution which may act as a disincentive to the renewal of the ground-lease contract.

Although the access provider may have lower incentives for renewal than the access seeker, the access provider is still incentivised by the ongoing receipt of lease payments. At the renewal of a lease agreement, there is the possibility for the access provider to request higher rents for continued access, which would create a cost-benefit scenario for the access seeker in which it must consider the increased rental cost versus the significant cost of relocating the tower. The tower owner may also be constrained by SLA terms with the MNOs it hosts on its sites, which limit the number of sites that can be relocated within a given time period without incurring financial penalties to compensate MNO tenants for the inconvenience of relocation. In some cases, the tower owner may need to factor such compensation payments into its cost-benefit assessment, hence increasing its barriers to churn. Conversely, the land lease market is highly fragmented, with a large number of small landlords (see Figure 6.1). Many individual landlords may not have the commercial

knowledge to leverage these barriers to churn to increase rents, or instead prefer to maintain a strong relationship with the access seeker in order to preserve future income.

In some instances, where barriers to churn may be relatively lower in the case of failure to renew the lease, access seekers may also have sufficient incentives to raise a negotiation or dispute against access providers in an attempt to obtain lower rental fees, even if the landowner is requesting reasonable rents. Towercos and other tower owners typically operate at scale and as such have large legal and financial resources that can be deployed against the fragmented landowners that may not have the resources or knowledge to oppose such actions. This approach poses a risk to the access seeker as it may lose access to the site if unsuccessful, but, if successful, any savings are typically translated directly into profit.

In practice, non-renewal of ground-lease contracts due to undesirable behaviour from either party leading to relocation of mobile sites is very limited, with access seekers typically relocating less than 0.5% of sites per annum on this basis. Cancellation of ground-lease contracts can also be driven by access seekers that no longer require a mobile site in a given location (see Figure 7.2). In future, with the towerco model leading to more sharing of towers between MNOs, the decommissioning of some towers that are no longer needed is going to be the prevailing reason for cancellation.

6.2.2 Amendment of existing macro sites for upgrades or co-location

In certain circumstances, if a tower owner wishes to upgrade an existing MNO tenancy, in particular by making it larger through the addition of more equipment, or add an MNO tenancy through co-location, it may need to seek the permission of the access provider in order to obtain the appropriate rights. Ground-based sites are not always affected by these requirements as they often include sufficient spare capacity for amendments to be made without requiring additional leased ground space (i.e. the ground space at the site is large enough to accommodate additional ground equipment, while the tower will hold the antennas); however, ground-based sites in public areas are more likely to involve a renegotiation to increase the tower height or add ground space for cabinets. Rooftop sites are more likely to be affected as tower owners typically rent the minimum space required for a site and so, if more space is required, they must extend their lease with access providers to accommodate this space, even if the rooftop has space available. Figure 6.2 illustrates the variety of macro-site amendments which typically arise.

As with renegotiations, in these instances tower owners have already made significant investment in these sites and so are heavily incentivised to find an acceptable extension to the original ground-lease agreements. Access providers are also incentivised to maintain the lease agreement and relationship to ensure future cashflows, but are likely to request additional lease fees when additional space is needed. Similarly to renegotiation, there are significant barriers to churn for a tower owner, which is something access providers may leverage in order to request higher lease fees. However, this opportunity is only open to a sub-set of macro sites for which the site type and existing lease agreement do not permit sufficient freedom from the tower owner to perform amendments without seeking permission from the access provider. Therefore, access providers to rooftops are potentially more likely to be in a situation

to request higher fees during renegotiation. Beyond this, the same asymmetry of information and long-term incentives may apply to access providers as in the case of renegotiation.

In practice, this does not appear to represent a material blocker to network deployment as the limited number of amendments required are typically approved and rarely require a renegotiation of the lease. Out of ~3500 leases, and over a period of slightly more than four years, APWireless has experienced ~200 terminations and notices to quit (i.e. notices of future termination), representing approximately 1.5% of leases per annum. Over the same period, APWireless also received ~120 requests for modifications, all approved, and of which only 8 led to a renegotiation of the lease, i.e. representing less than 1% and ~0.05% of leases per annum, respectively (see Figure 6.3).

Figure 6.2: Examples of macro-site amendments for co-location and upgrade [Source: Analysys Mason, 2023]



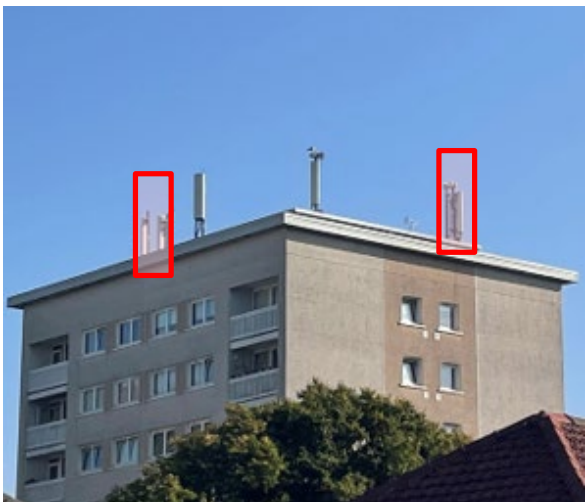
Additional cabinets within footprint



Additional cabinets with footprint extension

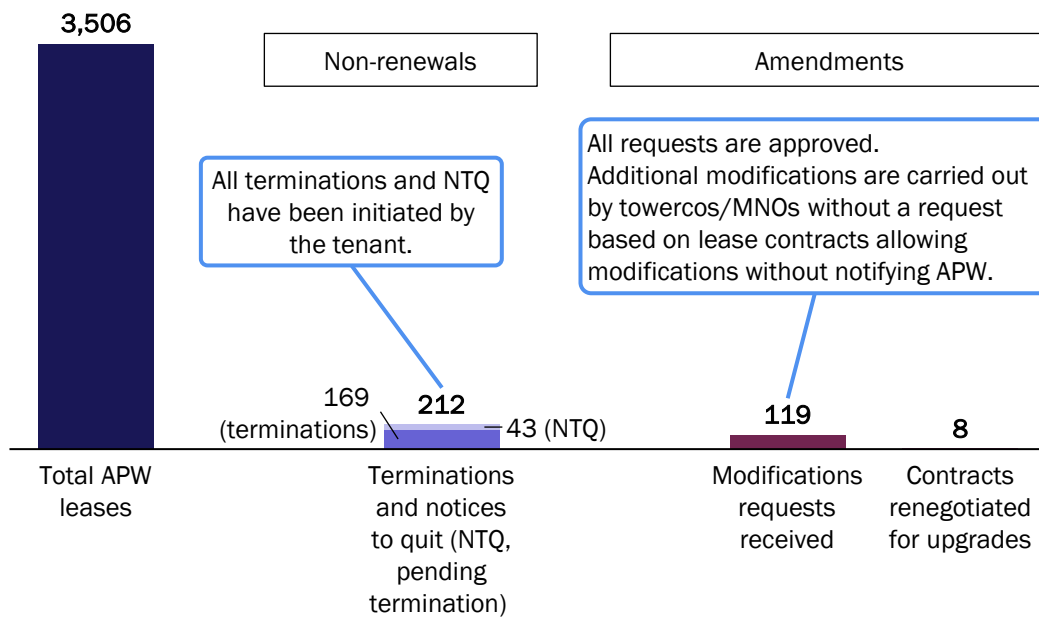


Additional antennas, increasing the tower height



Additional antennas on a rooftop

Figure 6.3: APWireless (APW) ground-lease contracts terminated, with a request for modification, and renegotiated (June 2019–August 2023) [Source: Analysys Mason, 2023]



6.2.3 New macro sites

When seeking a location for a new macro site, tower owners typically use a ‘search ring’ which is an area within which a new site could be located to meet the MNOs’ radio planning requirements. At this stage, the access seeker has made limited investment in the site and is unlikely to have made a firm commitment for the provision of a particular site. At the same time, the access seeker has the flexibility and resources to enter into negotiations with any number of potential access providers within the search ring and often has a wealth of land management resources that can identify potential access providers.

On the other hand, access providers with appropriate land plots can also freely choose whether to enter into negotiations with no risk of loss, beyond negotiation costs, if they do not reach an agreement with the access seeker. Given the limited investment by either party and the flexibility of the access seeker to find a location within the search ring, access providers typically have limited leverage and risk sacrificing all future cashflows if they do not negotiate in a reasonable manner. As a result, access seekers could leverage this balance of power in their favour to reduce lease fees payable. However, this risks damaging the relationship between access seeker and access provider, which could have detrimental effects at later renegotiation or amendment stages that affect the stability of the tower owner’s presence at a location. As a result, the access seeker may be incentivised to focus on building a long-term relationship with access providers based on mutual benefit.

In practice, access providers and access seekers have been finding agreeable terms to provide access to the required land since mobile networks began deployment more than 30 years ago, as demonstrated by the ability of MNOs to reach near-ubiquitous population coverage (see Figure 4.1).

Beyond this type of site-by-site negotiation, many access seekers also have portfolios of 'land banks', which are pre-agreed locations at which access seekers have the right to deploy sites if required. Often these can be with local government authorities or part of owned land portfolios, which can also be leveraged to deploy sites without the need to enter into new negotiations for land access.

6.2.4 New outdoor small cells

New outdoor small cells are much smaller in size than macro cells and need to be deployed closer to end users. As a result, they are typically deployed on street furniture such as lampposts, bus shelters, public telephone boxes, advertising hoardings and the facades of buildings. These assets are generally controlled by a mix of organisations including local government municipalities, transport authorities, advertising providers and telecoms operators themselves. Given the limited incremental costs for providing access, public entities such as municipalities and transport authorities are incentivised to provide citizens with improved mobile service. Other potential access providers, such as advertising providers, may also welcome additional revenue for access to existing infrastructure and telecoms operators themselves do not require incentives given that providing access is aligned with their network improvement objectives.

The deployment of outdoor small cells remains in its early stages; however, there is evidence within Europe to suggest that access seekers are reaching agreements with access providers for the use of relevant street furniture. Relevant examples include: JCDecaux's pan-European agreement with Vodafone³⁶ and German incumbent Deutsche Telekom's announced plans to deploy 5G small cells in around 3000 old public payphones by 2025.³⁷

6.2.5 New indoor small cells

New indoor sites must be located within the building they are designed to cover and therefore the access provider must be the owner of the building. In this instance, the building owner is typically the most incentivised party to reach an agreement as improved mobile coverage can be expected to increase the attractiveness of its building. For example, shoppers may spend more time in a shopping centre with good mobile service, or people may be more encouraged to live in a premium residential building with high-quality mobile connectivity. This is demonstrated by the 'landowner pays' model, in which the access provider considers the provision of mobile connectivity as a service and pays a provider an annual fee, rather than charging rental fees for access. It is worth noting, however, that not all indoor access providers will be interested in taking up this model and some will require lease payments.

The deployment of enterprise small cells is well progressed (hundreds of thousands in Europe to date), suggesting support of this alignment of interests between access seekers and access providers.

³⁶ See <https://www.jcdecaux.com/press-releases/jcdecaux-and-vodafone-sign-global-contract-roll-out-small-cells>

³⁷ See <https://techblog.comsoc.org/2023/01/06/deutsche-telekom-to-deploy-more-small-cells-to-solidify-its-5g-network/>

The deployment of public indoor small cells, however, is at a relatively early stage, but there is generally alignment of interests between access providers and access seekers in this case, which can be expected to lead to straightforward lease agreements

7 The role of mobile site lease aggregators in the value chain

7.1 What do lease aggregators do?

Mobile site lease aggregators, also known as lease aggregators, acquire and consolidate mobile site leases and in doing so become access providers with the rights to future cashflows. They have been operating in global mobile markets for over 20 years and are present in many markets across the EU. The majority of lease aggregators are risk-adverse long-term investors seeking to obtain the rights to stable cashflows from reliable tenants at rational multiples, by building long-term and mutually beneficial landowner–tenant relationships.

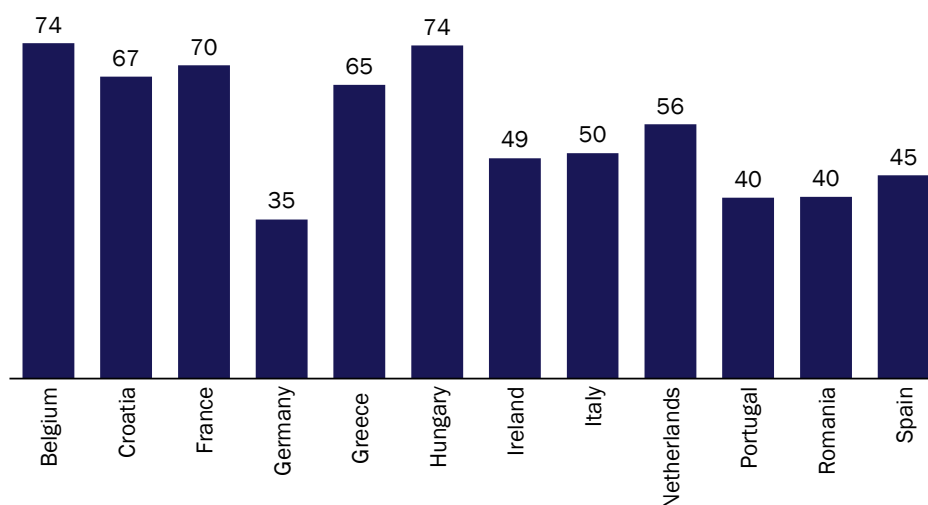
7.2 The GLBO model

7.2.1 Overview of the GLBO model

GLBOs are a form of investment related to the long-term or permanent acquisition of the land on which a mobile site is currently, or is planned to be, located. This usually takes the form of an up-front payment to the current landowner (to 'buy out the lease') based on a multiple of rental fees paid by the tower owner.

The type of GLBO undertaken, long-term rights of use or complete acquisition, is dependent on local regulations and the type of site under acquisition. For example, it can be challenging to acquire outright a rooftop only given that it is a part of the underlying building that would not be acquired; however, rights can be acquired for a significant period of time (often more than 25 years and, up to 99 years or more; see Figure 7.1).

Figure 7.1: APWireless average length of property use rights per market (in years) [Source: APWireless, 2023]

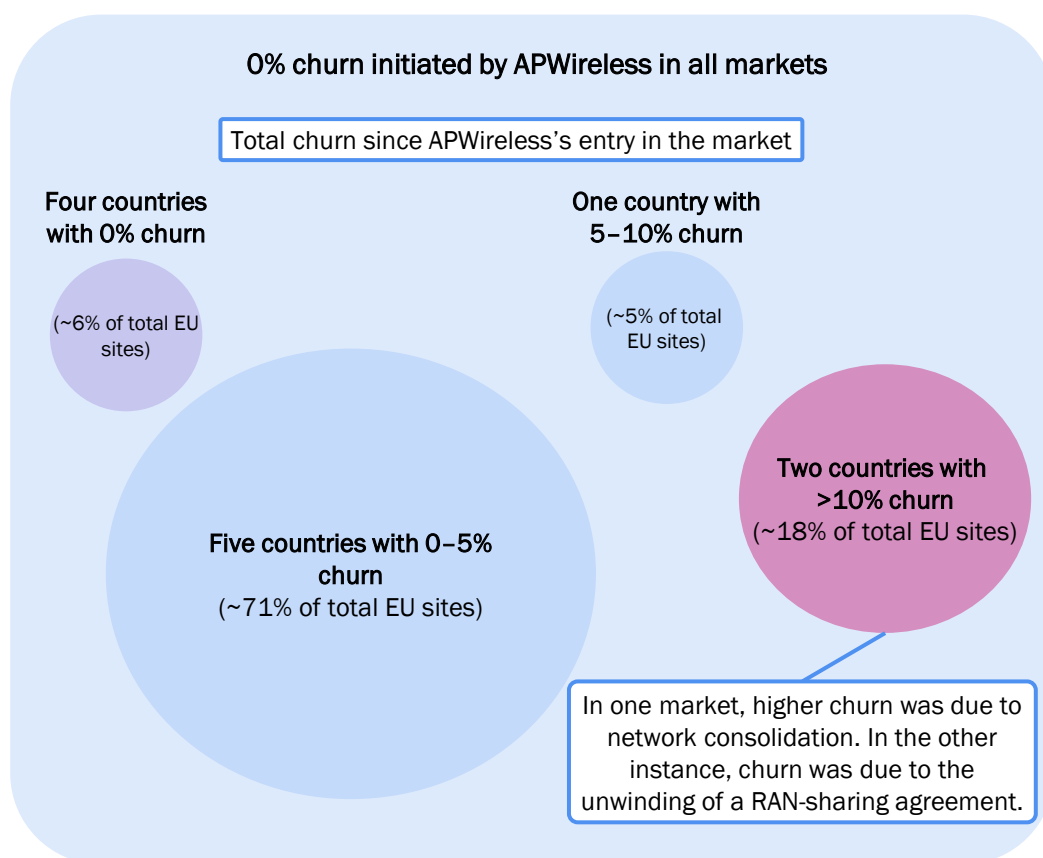


This type of investment is undertaken by mobile site aggregators, but also other market players.

7.2.2 The role of lease aggregators in GLBOs

Lease aggregators undertake GLBOs in a similar manner to towercos, acting as an intermediary party between the original landowners and access seekers. In this case, lease aggregators expend the up-front capital in order to acquire the rights to the land and continue to collect lease fees from the access seeker thereafter. Given the long-term investment in the site, the lease aggregator is then strongly incentivised to maintain lease cashflows from the site and, indeed, lease aggregators typically churn zero or very few leases on their own initiative. Figure 7.2 illustrates this low churn for APWireless across its EU portfolio of land leases, notably none of which was initiated by APWireless.

Figure 7.2: APWireless churn statistics in EU markets (total churn since APWireless's entry in the market) [Source: APWireless, 2023]



7.3 The role of lease aggregators in market efficiency

7.3.1 Shared benefits of GLBOs between lease aggregators and access seekers

Under this model, the benefits of the GLBO are divided between the lease aggregator and the tower owner. The lease aggregator retains the direct economic benefit of payback of the up-front buy-out payment with the ongoing lease payments, whilst the access seeker is able to benefit from the long-term security of the site and associated economic benefits given the lease aggregator has no incentive to evict its tenant. On top of this, access seekers are able to gain this security without the requirement

to deploy capital themselves in order to perform their own GLBOs, providing the opportunity for this capital to instead be used in the deployment of future network infrastructure.

7.3.2 Simplification and efficiency of land management

As previously discussed, the market for land access is highly fragmented with the majority of mobile leases being with private owners that may have only a single or small number of lease agreements with a given access seeker. As a result, even in instances where no dispute is raised, tower owners must expend significant efforts in managing and renewing these contracts on a rolling basis. By comparison, lease aggregators offer the opportunity for framework agreements between access seekers and access providers, covering all the leases within an aggregator's portfolio. Once in place, these agreements can serve as a standard set of terms for access terms, renewals, amendments and pricing, providing future visibility and reducing requirements for future negotiations for tower owners, which may positively affect the speed of future network infrastructure deployment. Some lease aggregators have begun to employ this model globally.

7.3.3 Alignment of incentives between access seeker and access provider

The interests of lease aggregators are closely aligned with those of tower owners and MNOs. The GLBO model requires up-front payment of many years' worth of lease fees (typically in excess of 10 years), which therefore requires lease aggregators to maintain lease payments for a number of years beyond this period to earn a return on investment. This provides greater incentive to build long-term relationships and long-term leases with access seekers as any churn will negatively affect return on investment. This is in alignment with tower owners' objectives to maintain mobile sites in the long term and avoid disruption and costs associated with relocation in addition to future pricing uncertainty. By comparison, private landlords will typically have made little or no up-front investment in providing access and may also have non-financial motivations such as visual pollution caused by the mobile site or inconvenience in providing access to tower owners and tenants.

Lease aggregators also provide other benefits to access seekers, such as facilitating access 24/7 and facilitating sites upgrades and sharing, which are aligned with the objective of making ECNs more environmentally sustainable (compared to deploying new sites). They may even in some cases take on the responsibility of addressing maintenance issues such as access roads and perimeter fences (on behalf of the towercos or MNOs).

In recent years, a small number of players in the market for the supply of land have emerged that act as speculative lease aggregators. These players follow a different business model in which, once they have acquired the rights to a site, they attempt to increase rent payable by tower owners by above inflation rates in order to increase return on investment. Such activity is typically challenged by tower owners but, in some cases, these increases may effectively be enforced as the alternative (i.e. the towerco or MNO relocating the entire site) would be substantially more costly than higher rent payments, or in certain constrained localities, could be practically impossible. This speculative behaviour also damages the relationships between these types of lease aggregators and tower owners, and so it is unclear if this business model will be sustainable in the long term. If rental

increases are too excessive, tower owners may prefer to relocate sites (once) to avoid such relationships (forever). Available data suggests that this speculative behaviour is not currently creating any significant pricing disruption in the market, with the Netherlands Competitions and Markets Authority (ACM, the electronic communications regulator) finding “no direct indications that the risks mentioned by market parties [of concentration of supply of antenna sites such as by aggregators having an upward effect on prices] occur in practice in a broad sense” and “examples of significant market price increases [...] appear to be more incidental in nature”.³⁸

³⁸ See <https://www.acm.nl/nl/publicaties/marktverkenning-antenne-opstelpunten-nu-geen-grote-knelpunten-markt-als-geheel>, Summary section (*Samenvatting*)

8 Impacts of the regulation of access to land

8.1 Applying blanket regulation to all categories of access to land is not targeted at the dynamics and issues for access to land in different situations

As described in Section 6, five types of access to land can be requested by access seekers. They each have their own specific differences, and we consider that a blanket regulation applying to all five types would not be a targeted solution to the issues that may exist for access to land.

In Figure 8.1, we list the types of access, estimate the proportion related to each type over the period 2023–2030 and summarise our views of potential regulation in each case. Further explanation is provided below.

Figure 8.1: Our views of potential regulation by type of access to land [Source: Analysys Mason, 2023]

Type of access to land	Proportion of land lease interactions over the period 2023–2030	Our views of potential regulation ³⁹
Renewal of existing leases on expiry	~20%	Evidence does not suggest there is a need to regulate the overall land market. However, in situations where there is evidence of unfair practices, demonstrated by relevant indicators and a failure to reach a commercial agreement, fair and reasonable terms and/or pricing for access to land could be appropriately applied to tackle such practices.
Amendment of existing macro sites	~15%	
New macro sites	~5%	No regulation for access to land appears necessary.
New outdoor small cells	~60%	Facilitating planning permissions and localised access agreements with local authorities and urban infrastructure owners.
New indoor small cells		No regulation for access to land appears necessary.

For renewals, updates or new leases, we see the following dynamics and potential issues:

- Renewal of existing leases on expiry:** on expiry/renegotiation, the landowner may demand an unfair excessive price from the access seeker because it has a captive user of the land (ground or rooftop) that would incur high costs if it were to move and find an alternative location. On the other hand, the access seeker, which is often a much larger party (towerco or MNO) could potentially use the threat of legal action to dispute the rent and to force the landowner to settle for less than what is fair for the landowner. As a result, in situations (e.g. in a specific country, or from a specific market player) where there is evidence of unfair pricing practices by the access

³⁹ From a GIA perspective. Other applicable regulation, such as urban planning rules, would continue to apply.

provider or the access seeker of the lease being renewed, demonstrated by indicators such as high/inefficient churn levels, or prices rising above a fair escalator (e.g. inflation), and a failure to reach a commercial agreement, then fair and reasonable terms and/or pricing for access to land could be appropriately applied to tackle such practices. However, towercos/MNOs are very rarely forced to leave a piece of land (churn is very low, and largely due to decommissioning, see Section 6.2.1) and there is no evidence of excessive price increases across the market, with prices on average declining or evolving roughly in line with inflation (see Section 5.2). This suggests that a blanket regulation of access to land would not be justified. In its “Opinion on the Revision of the Broadband Cost Reduction Directive”, BEREC supports such a targeted approach, indicating that “In conclusion, BEREC considers that – safe for possible, well defined and justified exceptions – the provision of access to non-network private facilities should normally be left to commercial agreements.”⁴⁰

- **Amendment of existing macro sites:** if the existing land access contract does not permit the amendment of an existing site, there will be the need for renegotiation between the access seeker and the access provider. It is widely accepted that it is efficient and beneficial for the mobile industry to deploy additional mobile equipment on existing sites, especially for 4G and 5G (for additional coverage and capacity purposes). If the original lease does not allow overlay, then a similar problem to that of the renewal of a lease on expiry could occur. The landowner could demand an unfair excessive price for access for the overlay of the existing site. In this case, as for renewals, in situations where there is evidence of unfair pricing practices, demonstrated by relevant indicators, and a failure to reach a commercial agreement, fair and reasonable terms and/or pricing for access to land could be appropriately applied to tackle such practices. This can be the case particularly if, for example, the overlay does not involve extensive additions to the site but still requires an agreement for that limited expansion, such as adding a new antenna or cabinet to facilitate 5G. In practice, few amendments need a renegotiation and very few are blocked (and when they are blocked it is largely due to technical constraints, such as the lack of additional space or weight constraints on the roof of a building; see Section 6.2.2). This suggests again that a blanket regulation of access to land would not be justified.
- **New macro sites:** as there is no existing infrastructure in place in this situation, both the land access provider and the land access seeker should be willing to pursue negotiation and reach a settlement on an agreed rent, for both price and non-price terms. There might be some cases where the negotiation is not balanced, but these are likely to be special cases, e.g. when there is no suitable alternative in the vicinity for the new macro site to be located. However, the evidence of history, with hundreds of thousands of successful land access agreements all over Europe for both ground-based and rooftop towers, shows that agreements should be possible on a purely commercial basis.
- **New outdoor small cells:** the land, building or object (bus shelter, lamppost) owner is likely to be a municipal body or local enterprise, and it should be in its interest to agree commercially on

⁴⁰ BEREC Opinion on the Revision of the Broadband Cost Reduction Directive, BoR (21) 30, Body of European Regulators for Electronic Communications (BEREC), 11 March 2021, Section 5 (emphasis added), available at <https://www.berec.europa.eu/en/document-categories/berec/opinions/berec-opinion-on-the-revision-of-the-broadband-cost-reduction-directive>

the price of access, given the benefits which are brought to the local area from dense coverage from 4G and 5G small cells. Here, the issues around access are more to do with obtaining local authority planning permissions, or the non-price terms of access (such as installation of power feeds, maintenance scheduling, etc.). Barriers to achieving access to land in this category are therefore likely to relate to facilitating access agreements with local authorities or other local parties, rather than excessive prices being demanded by owners of localised urban infrastructure.

- **New indoor small cells:** as indicated in Section 6, it should be in the interests of premises owners to have such sites installed, as it improves customer experience inside the facility (shopping centre, stadium, etc.). As a result, the access provider is likely to willingly offer access to the access seeker, on favourable or fair terms for the access seeker.

8.2 Regulation is likely to create uncertainty, litigation and disruption for access to land

The proposed amendments from the European Parliament to the draft GIA regulation regarding access to land introduce significant uncertainty in reaching agreements for necessary access to land across all five categories of access, and particularly the first two (i.e. renewal of existing leases on expiry and amendment of existing sites, see Figure 8.1).

“[F]air and reasonable terms and conditions, for the access to land, including price” means that neither the access providers (i.e. the landowners) nor the access seekers (i.e. the towercos or MNOs) in practice know how this will be interpreted by the dispute settlement body to be established in each EU country (see Section 8.3), or potentially by the courts of law in case of further litigation (as envisaged by the draft GIA⁴¹). Fair and reasonable may also be interpreted very differently from one country to another, and it is worth noting that although the draft GIA provides some guidance as to what constitutes fair and reasonable access to physical infrastructure,⁴² the amendments proposed by the European Parliament do not provide guidance on what this phrase means in the context of access to land. In situations where a commercial agreement is possible, as has largely been the case in the market until now, introducing “fair and reasonable” regulation will interfere with the normal functioning of the market and undermine a freely competitive outcome for access to land for the purpose of deploying mobile network infrastructure.

The introduction of regulation of access to land, and the creation of a dispute resolution body, means that there will be uncertainty until that body has formalised in guidance how it interprets fair and reasonable terms and fair and reasonable prices, which will likely take some years, hampering the access-to-land market in the meantime. This uncertainty and delay will only be exacerbated in the scenarios where such disputes are escalated to the courts and are required to be resolved through legal process. In the UK, where legislation related to access to land by towercos or MNOs was introduced in the Electronic Communications Code (ECC) as part of the Digital Economy Act 2017, there have been approximately 700 cases brought in front of the courts (excluding cases brought under the Landlord and Tenant Act 1954 and cases in Scotland and Northern Ireland, likely to push the total number of cases higher). Some cases have reached the Court of Appeal and three have progressed all the way to the Supreme Court. Such a high level of litigation was unheard of prior to

⁴¹ GIA, Article 12, paragraph 10.

⁴² GIA, Article 3, paragraph 2.

the enactment of the ECC. In the preceding 30 years, there had only been a handful of cases which had needed court resolution.

The lease for the land hosting any mobile site is likely to be a small amount in comparison to the cost of bringing a matter in front of a court, especially a case which goes to further court levels to set a precedent, which may be needed if there is uncertainty in the legislation. This puts landowners at a disadvantage because, as the much smaller party (see Section 6.1), they have smaller financial resources to hire legal counsel in order to robustly test the law.

8.3 The proportion of land access (re)negotiations directed at the dispute settlement body would lead to negative impacts on the sector

The GIA for other types of disputes⁴³ and the proposed amendment from the European Parliament for disputes related to access to land⁴⁴ state that disputes can be referred to the dispute settlement body if an agreement has not been reached within one month. Such a short timeframe does not leave time for practical negotiations between the parties and means rapid escalation of disputes to the dispute resolution body. The dispute settlement body would then only have one month to “issue a binding decision to resolve the dispute”.⁴⁵ This is (significantly) shorter than the example of the UK where:

- for a renewal, parties have six months to negotiate before a party can issue proceedings for a court-imposed agreement. There is no definitive timeframe within which the court must make a determination. The level of complexity of the claim will determine the timeframe for a decision.
- for a new agreement relating to an installation at a new site, parties have 28 days to negotiate before proceedings can be issued. The court must then reach a determination within six months.

Each dispute will have specific localised issues and we anticipate will likely take more than one month to resolve, as it will involve submissions and representations from both parties, and the need to develop a balanced understanding of the localised aspects. It would seem likely that cases, especially those with more complex issues, will quickly accumulate, rendering the dispute settlement body unproductive. This would likely lead to delays on access to land as soon as the proposed regulation for access to land is in place, thus defeating the stated purpose of the GIA to expedite network deployment. The longer timeframe in the UK for negotiation between parties has itself not stopped the number of court cases regarding access to land reaching in excess of 700 (see Section 8.2).

Decisions of the dispute resolution body (and/or the courts, if the parties decide to go for further litigation) will become benchmarks (or case law, respectively), which then cascade onto all other current disputes. This in turn creates a risk of inconsistency in application to individual cases which each have their own specificities, due to the heterogeneous nature of land (i.e. no two locations are exactly the same) and the very large number of landowners (see Section 6).

⁴³ GIA, Article 11, paragraph 1.

⁴⁴ Draft report COM(2023)0094 - C9-0028/2023 - 2023/0046(COD), amendment 54.

⁴⁵ GIA, Article 11, paragraph 2, and Draft report COM(2023)0094 - C9-0028/2023 - 2023/0046(COD), amendment 56.

8.4 Landowners could be unwilling to agree access to land for mobile towers

A mobile site, and particularly a ground-based tower, has a significant visual impact on the area where it is located. In this situation, the 'cost' or 'opportunity cost' of access to land does not capture the perspective of the landowner. This is because the 'cost' to the landowner is not just the opportunity cost of the piece of land being put into alternative use (e.g. agriculture, parking in a vehicle compound, etc.), but also the visual impact and access intrusion from the towerco and/or MNO(s) that own and/or use the site. These inconveniences are site specific and cannot easily be generalised by a cost-based economic rule, which may be how "fair and reasonable" is interpreted by the dispute resolution body to be created in each country and/or the courts of law.

Landowners are currently being financially remunerated for these inconveniences, and this payment has historically been the outcome of market-based commercial negotiations, especially when new sites are established. Landowners may be unwilling to agree access to land for mobile towers if they consider the reward insufficient. Such reluctance would hinder the further expansion of 5G networks, which is one of the objectives of the Digital Decade Policy Programme 2030 (see Section 3.1), and other roll-out targets, such as within the spectrum licences of MNOs. Intervening in the landowners' decisions around providing access to new land for mobile sites may also impede roll-out targets which exist at the national level, such as to cover notspots and underserved areas.

8.5 Other parties that looked into this topic concluded that regulating access to land was not appropriate

Support study associated with the review of the Broadband Cost Reduction Directive, commissioned by the European Commission:⁴⁶

In *Annex 3: Interview synopsis* of the study, presenting the "**Perspectives of tower companies**" on the proposed new measures of what then became the draft GIA related to the "Extension of the scope of access obligations to cover non-network operators and non-network facilities e.g. for wireless deployment", the study indicates that:

"To include access to private land under the BCRD does not seem to be a viable option since the BCRD then conflicts with national laws which protect private property. Under this circumstances access seekers would need a judge to determine whether access is justified or not. Such court cases on private land access might take 1-2 years. These timescales are not compatible with mobile network roll-outs even if they might work for other utility sectors. To sum up, there are sometime issues with private land owners, but in general the commercially negotiated terms are fair. More regulation of private land under BCRD does not seem appropriate and is unlikely to work in practice due to conflicting points with law on private property."

⁴⁶ See documents available from the Publications office of the European Union, <https://op.europa.eu/en/publication-detail/-/publication/410af620-b71f-11ed-8912-01aa75ed71a1>

Emphasis added.

BEREC Opinion on the Revision of the Broadband Cost Reduction Directive:⁴⁷

“In conclusion, BEREC considers that – safe for possible, well defined and justified exceptions – **the provision of access to non-network private facilities should normally be left to commercial agreements.**”

Market survey of antenna installation points by the Dutch Competitions and Markets Authority (ACM, the electronic communications regulator):⁴⁸

“In its research, the ACM does not see any direct indications that the risks mentioned by market parties [of concentration of supply of antenna sites such as by aggregators having an upward effect on prices] occur in practice in a broad sense. **The examples of significant market price increases provided by market parties appear to be more incidental in nature.**”

⁴⁷ BEREC Opinion on the Revision of the Broadband Cost Reduction Directive, BoR (21) 30, Body of European Regulators for Electronic Communications (BEREC), 11 March 2021, Section 5 (emphasis added), available at <https://www.berec.europa.eu/en/document-categories/berec/opinions/berec-opinion-on-the-revision-of-the-broadband-cost-reduction-directive>

Emphasis added.

⁴⁸ Marktverkenning Antenne-opstelpunten, Autoriteit Consument & Markt (ACM), 14 July 2022, Summary section (*Samenvatting*) (emphasis added), available at <https://www.acm.nl/nl/publicaties/marktverkenning-antenne-opstelpunten-nu-geen-grote-knelpunten-markt-als-geheel>

Emphasis added.