

Q1 2024 UPDATE

TowerXchange's European guide

A country-by-country guide to the
European tower industry



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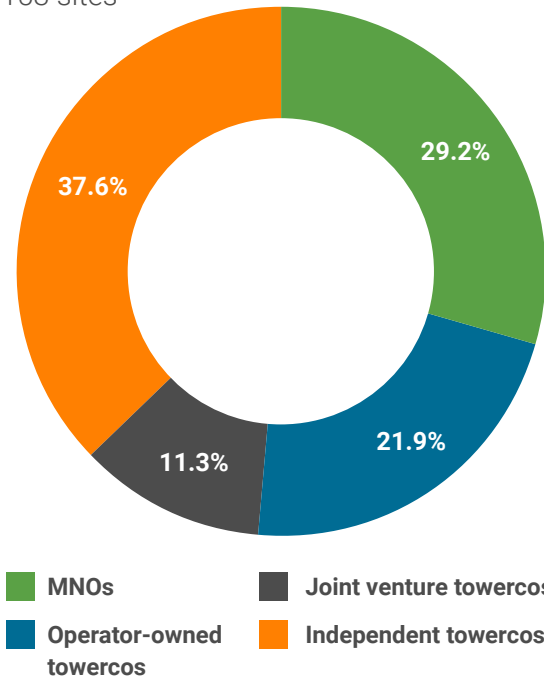
Introduction

This quarter's big headline is [Cellnex' exit from the Irish market](#). The recently announced sale of 100% of its business in Ireland to Phoenix Tower International (PTI) for EUR 971mn, an equivalent to a multiple of approximately 24x EBITDAaL, comes as no surprise. In order to improve its credit rating and reduce its leverage, the towerco has started to sell assets. Cellnex' Irish portfolio comprises of just under 2,000 towers and Cellnex will use the proceeds of this deal to reduce its debt. Once completed, the deal will make Phoenix Tower the biggest towerco in the country, should Ireland's regulators approve the deal. The company is already present there since 2020 and at present owns 913 towers. The transaction signifies a significant step forward in PTI's expansion in Europe.

Staying west, the transaction of Italian MNO Wind Tre's RAN, mobile core network and fixed network to EQT Infrastructure for an enterprise value of EUR3.4bn has been cancelled. 5G-related third-party agreements with Wind Tre's competitors Iliad and Fastweb with whom the MNO has existing network sharing agreements have made it impossible to complete.

To the north, Cellnex sale of its private networks unit which largely includes Edzcom, Cellnex's Finnish subsidiary, to Boldyn for an undisclosed amount has completed. Cellnex' strategy to improve its credit rating which includes sale of assets, has turned the attention

Figure 1: Ownership of Europe's estimated 735,153 sites*



*Figures include deals that have closed only

Source: TowerXchange

to its Austrian business and if the towerco will announce monetisation of full or a partial stake of its assets in the country later in 2024.

To the east, UAE's e& purchase of a majority stake (50%+

one share) in PPF Group's MNO and towerco assets in Bulgaria, Hungary and Serbia (CETIN) and in Slovakia (O2 Networks) has received the green light from the Bulgarian authorities. The regulatory approvals in the three other markets are still pending. Under the proposed deal, e& would pay EUR2.2 bn (US\$2.34bn) up front and would also pay additional earn-out payments of up to EUR350mn (US\$372.6mn) within three years after the closing pending PPF Telecom achieving certain financial targets.

Greek OTE which owns MNO Cosmote, and is majority-owned by Deutsche Telekom, has announced it's exploring spinning off its passive infrastructure into a 100% subsidiary. Once completed the carve out of approximately 4,200 towers is expected to "support the optimisation and efficiency of the Group's operations. No plans have been announced publicly if the towers can go under the GD Towers umbrella which currently manages DT's carved out Austrian and German infrastructure.

The movement of the towerco model East in Europe is an interesting development. To the west of the continent, many countries are starting to see 100% of towers in towerco hands, but as shown in figure 5, much of Central and Eastern Europe remains relatively untapped by the towerco model.

As well as inorganic growth, 5G rollout continues to present significant co-location and new build opportunities

INTRODUCTION

for Europe’s towercos. Fibre to the tower is becoming increasingly important to deliver on the low latency of the technology. Street works are however showing a lot of promise, delivering macro-cell like capabilities with small cell like footprints, and outside of the urban centres more joint ventures are being formed to address rural coverage.

Alongside more traditional revenue streams, 5G is further accelerating towercos’ focus into new service lines. The provision of in-building solutions is now commonplace for many towercos. The outdoor small cell coverage requirements spurred by the densification needs of MNOs are creating new revenue streams. In addition, public transport network coverage has seen particular growth

as EU initiatives are channelling more focus into transport networks presenting monetisation opportunities. Whilst not for all towercos due to the departure from their conventional skill sets, mobile private networks are moving into the commercialisation phase, with the MPN space being tipped as the money-making opportunity in 5G.

Plus, whilst traditionally associated with towercos operating in developing markets rather than those in a good grid market such as Europe, the provision of energy and energy services is starting to feature more significantly in towercos’ service offerings. Escalating energy consumption by networks, increased electricity costs and a heightened focus on ESG are all driving

further emphasis on power and power security. Exploring clean energy solutions has become a strategic direction for European towercos with some already reporting onsite renewable energy generation.

TowerXchange will publish our annual tower industry energy report which delves into the issue and opportunities further. And at [TowerXchange Meetup Europe 2024](#), we’ll explore the changing roles of towercos managing power in Europe at several sessions across the agenda. Join us in London to meet established and new European towercos, hear the latest M&A trends and expected developments , and to meet with key players to understand their business priorities or just to get inspiration.

Figure 2: Estimated tower and rooftop counts for select markets in Europe

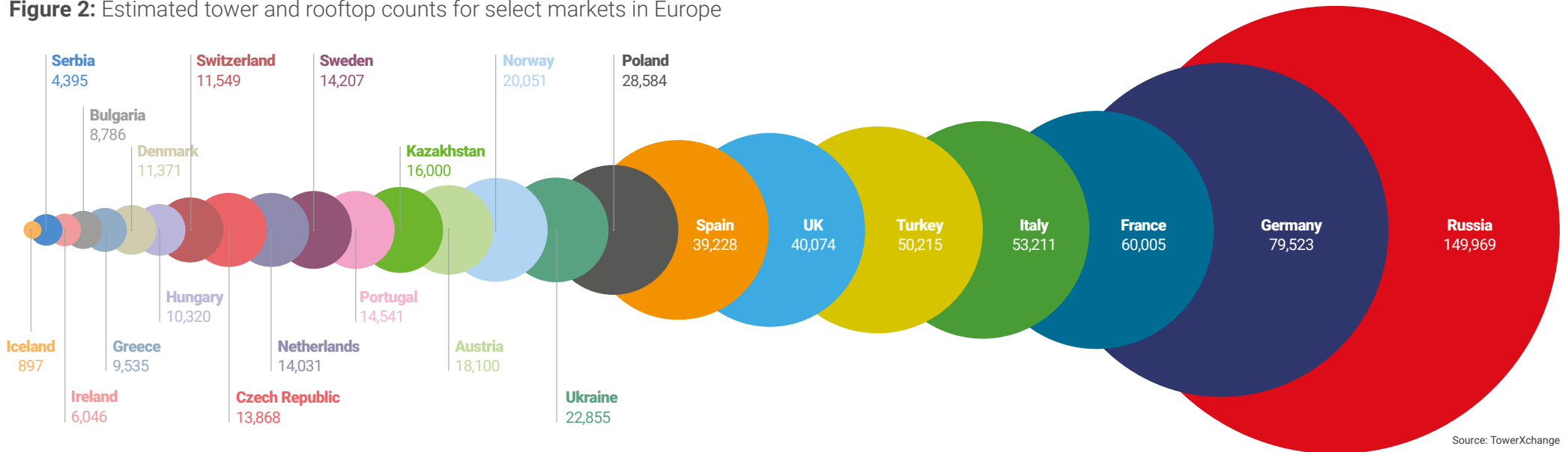


Figure 3: Tower counts of Europe's towercos



* Arqiva 900 / České Radiokomunikace 800 / El Towers 700 / Towercom (Slovakia) 700 / Emitel 667 / Axion 600 / HighTel Towers 600 / Mila 500

[i] Vantage Towers' site count includes their stakes in INWIT and Cornerstone. INWIT and Cornerstone are also separately listed.

[ii] Telenor Tower Holding's site count excludes their stakes in 3GIS, Net4Mobility & TT-Network

[iii] Representing all Telia's towerco operations combined

**Figure 4:** Tower strategies of Europe’s major MNOs

Company	Other alias'	European countries of operation	Tower strategy
A1 Group (Telekom Austria)	A1, vip	Austria, Belarus, Bulgaria, Croatia, North Macedonia, Serbia, Slovenia	Telekom Austria Group have carved out their towers in Austria. The Group’s assets there, together with the ones in Bulgaria, Croatia, North Macedonia, Slovenia and Serbia will be managed under the EuroTeleSites towerco which has been headquartered in Vienna and listed on the Vienna Stock Exchange. The Belarus assets are out of scope.
Altice	SFR	France; Portugal	In France, carved out their towers into a captive towerco, Hivory, in which they sold a 49.99% stake to KKR. Hivory has subsequently been sold to Cellnex. In Portugal, carved their towers into OMTEL, with OMTEL since 100% acquired by Cellnex
Deutsche Telekom	Telekom Deutschland; T-Mobile; Magenta Telekom	Austria, Czech Republic, Germany, Netherlands, Poland, Slovakia (Plus direct and indirect investments in Croatia, Greece, Hungary, Montenegro and North Macedonia, Romania	<p>German towers carved into Deutsche Funkturm in 2002; Austrian towers carved into Magenta T-Infra in 2021. Both are held under the GD Towers business unit. In July 2022, Deutsche Telekom agreed the sale of a 51% stake in GD Towers to DigitalBridge and Brookfield.</p> <p>Dutch towers have been merged with Cellnex’ Netherlands’ portfolio, with Cellnex and Deutsche Telekom creating a new investment fund, Digital Infrastructure Vehicle which holds a 38% stake of Cellnex Netherlands as its seed asset. DIV plans to seek third party investment and invest in other digital infrastructure.</p> <p>In Poland, T-Mobile’s towers are managed through a JV with Orange (NetWorks!)</p> <p>Deutsche Telekom has carved out its towers (macros and rooftops) in the Czech Republic into T-Mobile Infra CZ – and has announced it has started the process to spin off its Slovak assets.</p>
Hutchison	3; Hi3G; Wind Tre	Austria, Denmark, Ireland, Italy, Sweden, UK	<p>Towers sold to Cellnex for €8.6bn in cash and €1.4bn in Cellnex shares (c. 5% Cellnex’ capital). Hutchison’s UK towers are managed by the JV MBNL, with Cellnex set to acquire only the economic risks and rewards of the towers. In Sweden, a portion of Hutchison’s towers are managed by the JV, 3GIS. The UK portion of Hutchison’s deal closed in Q4 2022 with the acquisition of 1,100 towers by Wireless Infrastructure Group from Cellnex.</p> <p>In June 2023 Vodafone and Three announced their long-anticipated merger. Pending regulatory approval, Vodafone will own 51% of the combined business (Mergeco) with Three’s parent company CK Hutchinson owning the remaining 49%.</p> <p>In Italy, the sale of Hutchison-owned Wind Tre’s carved out fixed and mobile network assets to EQT Infrastructure has been cancelled due to 5G agreements with third parties.</p>
Iliad (and other MNOs owned by Xavier Niel’s NJJ)	eir, Epic, Free, Iliad, Monaco Telecom, Salt	Cyprus, France, Ireland, Italy, Malta, Monaco, Poland	Xavier Niel owned companies have sold their towers to Cellnex in four markets. In 2019, Iliad sold their towers in France and Italy to Cellnex, retaining a 30% stake in the former (Cellnex having since acquired the remaining stake). At the same time, Salt sold their towers to the towerco, retaining a 10% stake. In Poland Cellnex has bought out Iliad’s 30% stake in the JV OnTower Poland. In Ireland, eir has sold their tower portfolio to Phoenix Tower International and the towerco has also acquired Monaco Telecom’s towers in Malta and Cyprus. In France Iliad has signed a further network sharing deal with TOTEM.

**Figure 4:** Tower strategies of Europe’s major MNOs

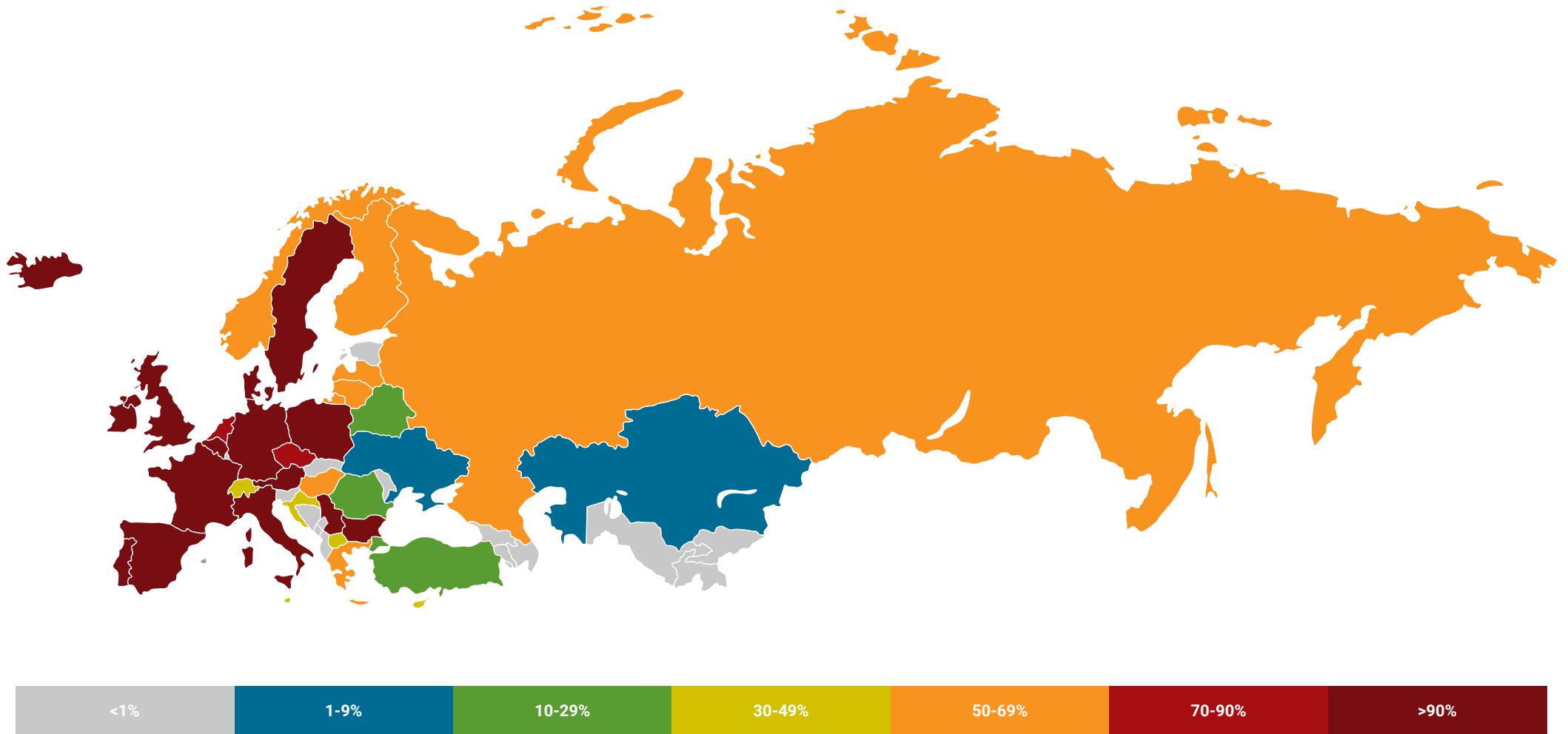
Company	Other alias'	European countries of operation	Tower strategy
Liberty Global	Sunrise, Telenet, Virgin Media O2, VodafoneZiggo	Belgium, Netherlands, Switzerland, UK	Liberty Global has stated that it is exploring options regarding monetisation of its assets. In Belgium, Liberty Global's opco, Telenet, sold its towers to DigitalBridge's Belgium Tower Partners. In Switzerland, Sunrise sold its towers to Cellnex prior to the opco's takeover by Liberty Global. In the UK, Virgin Media O2 (Liberty Global's JV with Telefónica) sold a 16.67% stake in Cornerstone to GLIL Infrastructure for GBP360mn (US\$459mn).
Orange		Belgium, France, Luxembourg, Moldova, Poland, Romania, Slovakia, Spain	<p>Orange has carved out its French and Spanish towers into TOTEM which launched in October 2021. The operator is widely expected to bring tower portfolios from its other markets into TOTEM's perimeter and is undertaking a strategic review at present. Orange wants to remain majority control of TOTEM. TOTEM has an appetite for M&A including the potential formation of JVs with other MNO owned towercos.</p> <p>In Poland and Romania, Orange's towers are managed by the joint ventures NetWorks! (with T-Mobile) and Netgrid Telecoms (with Vodafone) respectively, although the towers remain on the balance sheets of the MNOs. Outside of this, Orange has completed one sale and leaseback transaction in Europe, selling 1,500 non-strategic sites to Cellnex in Spain.</p>
PPF Telecom Group	O2 Czech Republic, Yettel	Bulgaria, Czech Republic, Hungary, Serbia	PPF has separated out its infrastructure and retail businesses in the Czech Republic, Bulgaria, Hungary and Serbia with the infrastructure managed under CETIN Group and in Slovakia under O2 Networks. CETIN manages both passive and active infrastructure. In Q4 2021, PPF announced the sale of a 30% stake in CETIN to Singapore's GIC investment fund. It also sold its 100% stake in Montenegro to Hungary's 4IG. In 2023 it announced the sale of 50% +one share in its MNO ad towerco units only in Bulgaria, Hungary, Serbia and Slovakia.
Tele2		Estonia, Kazakhstan, Latvia, Lithuania, Sweden	<p>Has yet to reveal any significant plans for their passive infrastructure but Tele2 told analysts in their Q320 results call that "there is an opportunity to do more in terms of sharing and separating out some of our infrastructure assets". In their Q4 results they stated that more information would become available on their Capital Markets Day in May.</p> <p>In Sweden, Tele2 is involved in two active sharing joint ventures; SUNAB (with Telia, covering 3G which is in the process of being wound down) and Net4Mobility (with Telenor – whose remit has just been extended to include 5G as well as 2G and 4G). In Latvia and Lithuania, Tele2 had formed Centuria, a network sharing joint venture with Bite but the joint venture was wound down and did not become operational after local opposition.</p>
Telefónica	Movistar, Virgin Media O2	Germany, Spain, UK	<p>Telefónica carved their infrastructure assets (both towers and subsea cabling) into infraco Telxius before selling a 40% stake to KKR and an effective 9.99% stake to Pontegadea. Telefónica subsequently sold Telxius' tower business to American Tower.</p> <p>In the UK, Telefónica's towers are owned by Cornerstone, Telefónica's 50:50 joint venture with Vodafone. Telefónica and Vodafone recently announced the commercialisation of Cornerstone, with Vodafone transferring its stake to Vantage Towers. Virgin Media O2 (Liberty Global's JV with Telefónica) sold a 16.67% stake in Cornerstone to GLIL Infrastructure for GBP360mn (US\$459mn).</p>

Figure 4: Tower strategies of Europe’s major MNOs

Company	Other alias'	European countries of operation	Tower strategy
Telenor		Denmark, Finland, Norway, Sweden	Telenor has carved out their Nordic tower assets into Telenor Tower Holdings, focussing on increasing the external revenue and improving operational efficiencies. From Q1 2022, Telenor been reporting financials for the assets, although their stakes in various joint ventures have been excluded from this reporting. In Sweden, Telenor is involved in two active sharing joint ventures: 3GIS (with Hi3G which covers 3G and is being wound down) and Net4Mobility (with Tele2 – whose remit has just been extended to include 5G as well as 2G and 4G). In Denmark, Telenor’s towers are held by TT-Network, the joint venture with Telia. Telenor plans to monetise a minority stake in one or more of its national towercos in the next 12-24 months.
Telia	Moldcell	Denmark, Estonia, Finland, Latvia, Lithuania, Moldova, Norway, Sweden	<p>Telia’s tower assets in Sweden, Norway and Finland have been carved into separate towerco units and sit under the Telia Asset Management business unit. In June 2021, Telia agreed the sale of a 49% stake in its Finnish and Norwegian assets to infrastructure investor Brookfield and Swedish pension fund, Alecta. In January 2022, a similar deal was agreed in Sweden.</p> <p>The operator is involved in a number of infrastructure sharing joint ventures. In Denmark Telia has announced it’s sold its business to energy-telco group Norlys for an enterprise value of DKK 6.25bn (USD\$882.48mn) including its joint venture with Telenor, TT-Network. In Sweden, Telia’s infrastructure sharing joint venture with Tele2 covers just 3G and is set to be unwound as the technology is sunsetted</p>
Turkcell	BEST; Lifecell	Belarus, Turkey, Turkish Republic of Northern Cyprus, Ukraine	Turkcell has carved out its towers across its operations into Global Tower. Turkcell launched and then pulled plans to IPO Global Tower, a further monetisation attempt is expected.
United Group	Wind Hellas, Telemach, Vivacom	Bulgaria, Croatia, Greece, Slovenia	In August 2023 United Group completed the sale of its assets in Bulgaria, Croatia and Slovenia to Saudi towerco TAWAL. . In Greece, Wind’s previous owners sold its tower portfolio to Vantage Towers prior to the opco’s takeover by United Group. In addition to sharing passive infrastructure through Vantage Towers, Vodafone and Wind Hellas have an active sharing agreement in place.
VEON	Beeline; Kyivstar;	Kazakhstan, Kirgizstan, Russia, Ukraine, Uzbekistan	In Pakistan, the operator had already carved out its towers into Deodar and their sale to UAE-based TASC is currently on hold. In Bangladesh, carve out proceedings are well underway, with a sale process widely expected to be announced soon. Prior to the war erupting in Ukraine, VEON had also begun tower carve out proceedings in the country. VEON (then VimpelCom) had previously sold its Italian towers to Cellnex, prior to divesting its Italian operations. Veon exited Russia in Oct 2023 by closing the sale of its Russian operations to a group of senior members of the PJSC VimpelCom management team, led by VimpelCom CEO Alexander Torbakhov.
Vodafone		Albania, Czech Republic, Germany, Greece, Hungary, Ireland, Italy, Malta, Netherlands, Portugal, Romania, Spain, Turkey, UK	Vodafone sold its 81.7% stake in its pan-European towerco Vantage Towers and taken the publicly trading company private. Vantage Towers has an appetite for M&A and the formation of joint ventures. In Greece, Vodafone has acquired the towers of Wind Hellas; In Italy Vodafone has merged its towers with TIM’s INWIT, with Vantage Towers owning a 33.2% stake in INWIT; In the UK, Vodafone has transferred its 50% interest in JV Cornerstone to Vantage Towers, whilst simultaneously announcing the commercialisation of Cornerstone. In Romania, Vantage Towers’ sites are managed (but not owned) by Netgrid Telecoms, their joint venture with Orange.



Figure 5: Towerco penetration across the European continent



Austria



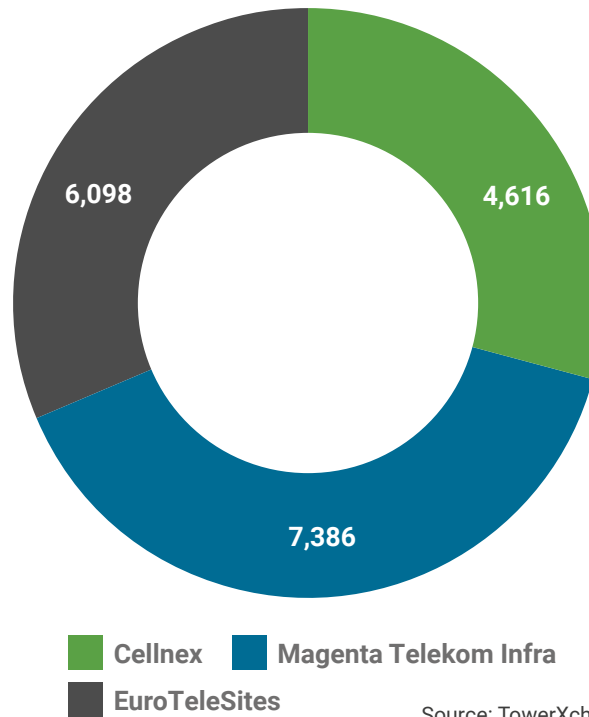
		
Towers: 18,100	Population: 8.9mn	Subscribers: 10.7mn
MNOs: 3 (Hutchison), A1 (A1 Telekom Austria), Magenta Telekom (Deutsche Telekom)		
Towercos: EuroTeleSites, Cellnex, Magenta Telekom Infra (MTI)		

Figure 6: Austria – estimated tower ownership



Source: TowerXchange

which was held alongside Deutsche Telekom’s German towerco, Deutsche Funkturm, under the GD Towers brand. In July 2022, Deutsche Telekom reached a deal to sell a 51% stake in GD Towers to DigitalBridge and Brookfield.

Deutsche Telekom retains a 49% stake in the entity along with significant majority protection rights, including the ability to appoint two of GD Towers’ five shareholder committee members, including the Chairman.

A1 Telekom Austria Group has completed the carve out of its Austrian towers. The move follows the group’s carve out of towers in Bulgaria, Serbia, Croatia, Slovenia and North Macedonia into separate legal entities (A1 Towers) between 2021 and 2022. The assets in the six countries will be managed by the EuroTeleSites towerco which is headquartered in Vienna and was listed on the Vienna Stock Exchange at the end of September 2023.

América Móvil, Telekom Austria’s majority shareholder, had earlier formed operator-owned towercos in the Americas, and has followed the same strategy for its European operations.

The new towerco has announced A1 will be the anchor tenant in its geographies and has set forth plans to focus on MNO 5G upgrades and network densification in the short term, and on DAS, IBS and 5G rollout of new entrants and IoT businesses in the medium term. Shareholders América Móvil and Austrian-government backed ÖBAG have announced they would receive one share in EuroTeleSites for every four shares they held in A1 Telekom Austria.

Belgium




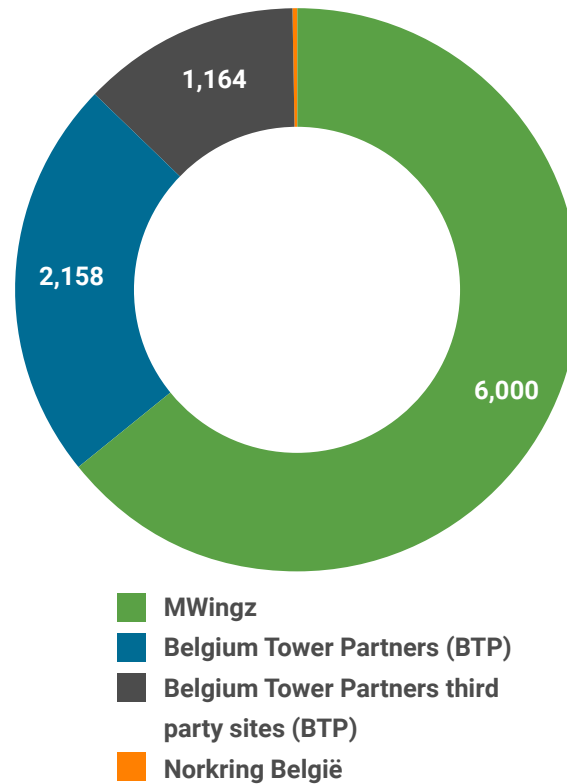
		
Towers: 9,347	Population: 11,592,000	Subscribers: 11,740,000
MNOs: Proximus, Orange Belgium, Telenet		
Towercos: Belgium Tower Partners (BTP), MWingz, Norkring België		

Figure 7: Belgium – estimated tower ownership



Source: TowerXchange

Proximus is the biggest MNO with an approximately 40% market share and 5.4mn subscribers. Proximus is investing €3 billion in its fibre network through 2027. Orange Belgium has 28% market share. It plans to continue building its own fibre network too. Brussels-based MWingz was set up in April 2020 as a joint venture between Proximus and Orange Belgium who share active and passive infrastructure. It plans, builds, operates and manages all sites on behalf of the two MNOs.


Belgium’s third MNO Telenet is a subsidiary of Liberty Global and has a 23% market share. Liberty Global increased its

stake in Telenet to 100% through a simplified “squeeze-out” (enabling it to complete a voluntary takeover) in October 2023 and delisted the company. It has been an active

player in Belgium’s mobile market through an MVNO since 2006 (several other MVNOs continue to serve the Belgium market). In April 2015, Telenet acquired a Belgium MNO called Base from Dutch KPN, strengthening its position on the market and migrating its mobile customers to BASE’s network. Belgium’ first independent towerco was created in March 2022 when DigitalBridge acquired 3,322 sites from Telenet for €745mn. The towerco has a nation-wide footprint. Following the completion of the transaction DigitalBridge renamed the company Belgium Tower Partners (BTP). The deal includes 2,158 sites owned outright, as well as 1,164 third party sites over which BTP has less ability to lease up. The agreement includes a build-to-suit (BTS) commitment to deploy a minimum of 475 additional new sites, with Telenet acting as a subcontractor taking the lead on construction.

Romania-based multi-play service provider Digi entered the Belgium market in 2022 by setting up a joint venture with B2B telecom player Citymesh, which has announced the commercial launch of Belgium’s fourth MNO for 2024. Digi/Citymesh have scheduled a major nationwide 5G mobile network deployment programme for 2024 and set up a joint venture called Insky to build the new infrastructure. Dense Air’s Belgian subsidiary, Dense Air Belgium has announced it will deploy 5G small cells for the new MNO. Belgium’s new MNO plans to offer services for both residential and business users.

Bulgaria



Towers:
8,786



Population:
7.0mn

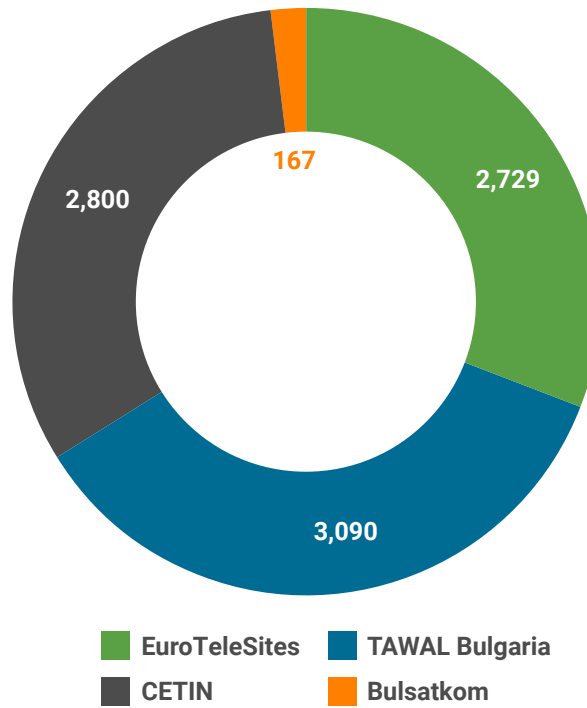


Subscribers:
8.1mn

MNOs: A1 (Telekom Austria), Yettel (PPF Group), Vivacom (United Group)

Towercos: EuroTeleSites, CETIN, TAWAL Bulgaria

Figure 8: Bulgaria – estimated tower ownership



Source: TowerXchange

A1, owned by Telekom Austria Group, has the largest mobile market share in Bulgaria. In 2019, Telekom Austria began the process to carve out its tower assets in multiple countries (including Bulgaria) into separate towerco units in a bid to improve efficiencies and drive tenancy ratios.

Bulgaria was the first country to complete in 2021. Now the towers are managed by the Vienna-based EuroTeleSites. Owned by ÖBAG and América Móvil, it

was set up following the completion of Telekom Austria Group's tower spin off in Austria in 2023.

In July 2020, Yettel (owned by PPF Group and rebranded

from Telenor Bulgaria) followed in the footsteps of PPF's Czech opco (O2 Czech Republic) and separated out their retail and infrastructure divisions, with their infrastructure carved out into CETIN.

CETIN's remit extends much beyond towers, it takes ownership of the operator's metallic cable pairs, fibre and indoor and outdoor base stations. In Q4 2021, PPF announced the sale of a 30% stake in CETIN to Singapore's GIC investment fund. In Q3 2023, the PPF Group announced it has agreed a sale of a 50% plus one share in the CETIN as well as its MNO units in Bulgaria, Hungary, and Serbia to UAE-based e&. The deal is pending regulatory approvals.

Vivacom (owned by United Group) is Bulgaria's final operator, and sits behind A1 but ahead of Yettel in terms of market share. In April 2023, United Group announced the sale of its sites in Bulgaria, Slovenia and Croatia to Saudi towerco TAWAL (originally carved out from stc) for EUR1.22bn.

The deal also includes a 20-year Master Service Agreement and additional 2,000 build-to-suit sites. The deal closed in August 2023 and the sites in the three countries are now owned and managed by TAWAL Europe. United Group's MNO subsidiaries in the countries will remain anchor tenants.



Cyprus




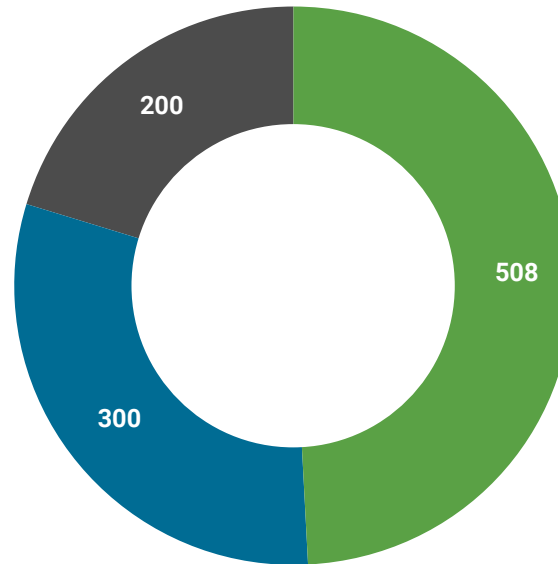
		
Towers: 1,008	Population: 0.8mn	Subscribers: 1.3mn
MNOs: Cytamobile-Vodafone, Epic (Monaco Telecom), PrimeTel (Signal Capital Partners)		
Towercos: Phoenix Tower International		

Figure 9: Cyprus – estimated tower count



- Phoenix Tower International
- PrimeTel
- Cytamobile-Vodafone

Source: TowerXchange

In mid-2022, Cytamobile-Vodafone announced the completion of the deployment phase of its 5G mobile network claiming Cyprus to be the first country in the

EU to have reached 100% 5G population coverage. Epic is the second largest operator with a 38.8% market share. Formerly MTN Cyprus, it rebranded to Epic after it was acquired by Monaco Telecom in mid-2018 for EUR260mn (USD\$284mn). Monaco Telecom is owned by the Principality of Monaco and French billionaire Xavier Niel's firm NJJ Holdings.

In March 2021, Phoenix Tower International announced its acquisition of Epic's passive infrastructure in the country which was part of a sale and leaseback deal covering the countries of Malta and Cyprus.

It included a 20-year leaseback agreement for the MNO as well as a build-to-suit programme for an undisclosed number of sites.

PrimeTel which launched as the third MNO in 2015 following several years of operating as an MVNO, has the smallest market share, standing at approximately 11%.

It was placed under administration in July 2023, after it defaulted on a loan it secured from London-based private equity fund Signal Capital Partners. Cablenet, a subsidiary of Maltese MNO GO, operates as the only MVNO in the country using the network of Cytamobile-Vodafone.

Czech Republic




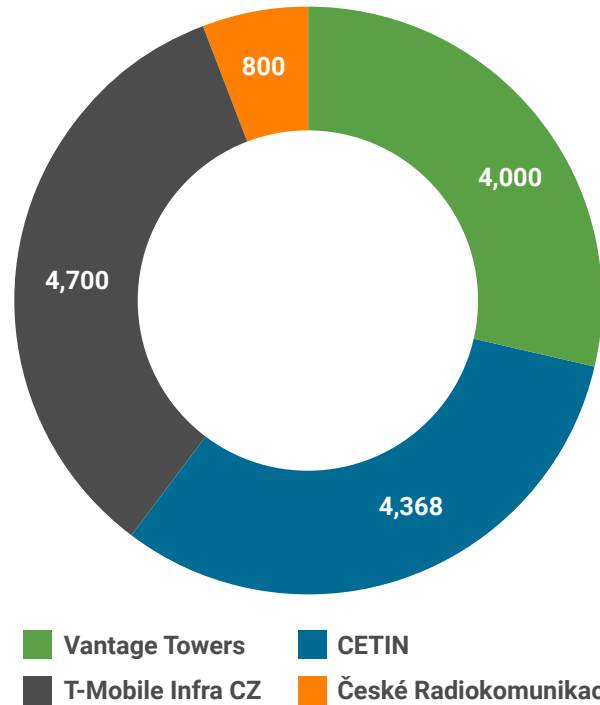
		
Towers: 13,868	Population: 10.7mn	Subscribers: 13.2mn
MNOs: O2 (PPF Group), T-Mobile (Deutsche Telekom), Vodafone		
Towercos: České Radiokomunikace, CETIN, T-Mobile Infra CZ, Vantage Towers		

Figure 10: Czech Republic – estimated tower count



Source: TowerXchange

O2 is the Czech Republic’s leading MNO. When PPF acquired O2 Czech Republic from Telefónica in 2014, they immediately set about separating out the retail assets from the infrastructure, in the latter case creating CETIN. CETIN’s remit extends beyond towers, with CETIN owning O2’s metallic cable pairs, fibre and indoor and outdoor base stations. PPF has since separated out its infrastructure in Bulgaria, Hungary and Serbia combining the assets with those in the Czech Republic to form CETIN Group and in Slovakia into O2 Networks. In Q3 it

announced the sale of a 50% plus one share of its MNO and infrastructure units only in Bulgaria, Hungary, Serbia and Slovakia to UAE-based e&. Singapore’s GIC investment fund owns a 30% stake in CETIN. CETIN and T-Mobile

CZ have a network sharing agreement including 2,300 sites and parts of the active radio equipment with CETIN owning and operating the network in the eastern part of the country, and T-Mobile serving the western part. The agreement excludes the two major cities – Prague and Brno. Vodafone has carved out their tower portfolio into their pan-European towerco, Vantage Towers. Vantage Towers became operational in summer 2020 and has a portfolio of 4,000 sites in Czech Republic.

T-Mobile CZ, owned by Deutsche Telekom, has carved out its passive infrastructure assets in the country (towers and rooftops) which are managed by T-Mobile Infra CZ. At group level, Deutsche Telekom has formed a towerco business unit – GD Towers - under which its German towerco, Deutsche Funkturm, and its Austrian towerco, Magenta T-Infra, are held. Telekom has kicked off sale proceedings for GD Towers. In the Netherlands, Deutsche Telekom’s opco, T-Mobile has merged their towers with Cellnex Netherlands, forming a new infra fund, DIV, which holds a 38% stake in Cellnex Netherlands as a seed asset. DIV plans to invest in further digital infrastructure portfolios.

In addition to Vantage Towers, CETIN and T-Mobile, broadcast towerco, České Radiokomunikace (acquired by Cordiant Digital Infrastructure) owns around 800 towers in the Czech market and leases some of them to CETIN and T-Mobile Infra CZ.

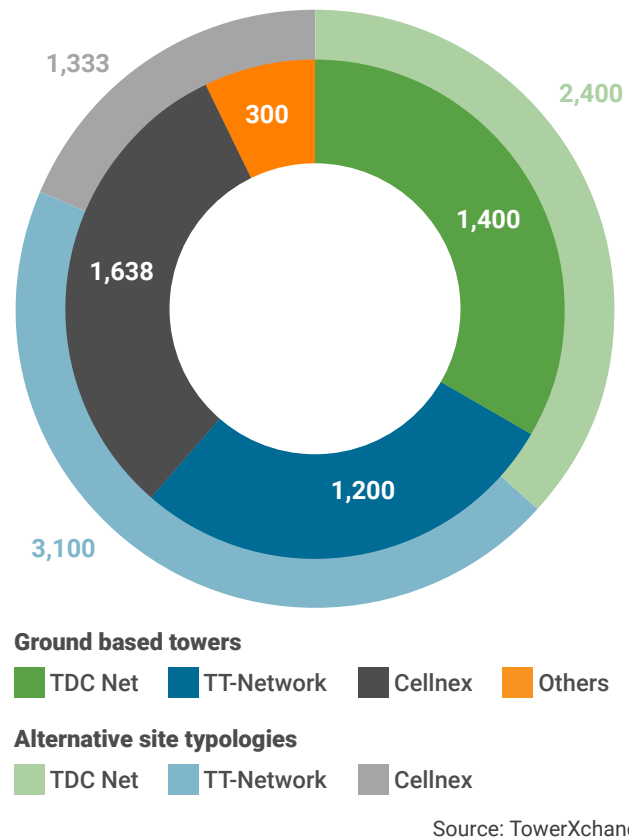
Denmark

 Towers: 11,371	 Population: 5.8mn	 Subscribers: 7.2mn
MNOs: 3 (Hutchison), TDC, Telenor, Telia		
Towercos: Cellnex, TT-Netork		

There are four MNOs in the Danish market. Market leaders, TDC, have separated out their service and infrastructure divisions, with TDC Net now managing the operator's infrastructure for fixed and mobile networks (and Nuuday managing the service side). TDC Net have around 1,400 towers and a further c. 2,400 sites of other typologies (rooftops, chimneys, windmills etc). It is understood that rooftop and other such sites are generally not shareable in the Danish market, with each operator having to sign their own agreement with the landlord and as such, those 2,400 sites are single tenanted.

3, owned by Hutchison, have sold their towers to Cellnex as part of a [pan-European deal](#). Cellnex has around

Figure 11: Denmark – estimated tower count



1,600 towers in the market, Cellnex has a build to suit pipeline of 500 further sites. Telenor and Telia share their networks and spectrum through the 50:50 joint

venture infraco, TT-Netorks which was established back in 2012. Telia has announced it's sold its Denmark business to energy-telco group Norlys for an enterprise value of DKK 6.25bn (USD\$882.48mn) including the infraco. TT-Netorks has a portfolio of around 1,200 towers in the country as well as around 3,100 sites of alternative typologies. TT-Netork is also involved in IBS and provides back-up power on towers.

Whilst Telia has carved out its towers in Sweden, Norway and Finland into towerco business units held under a new entity, Telia Asset Management (having sold a 49% stake in each to Brookfield and Alecta), TT-Netork was excluded from Telia Asset Management's perimeter. [Telenor has similarly created towerco business units](#) across its Nordic operations, grouping these together under Telenor Tower Holdings.

Whilst TT-Netork was initially included in Telenor Tower Holdings' perimeter, it is not included in financial reporting around the tower business. With TT-Netork's remit having been recently extended to 5G, there is no indication that these developments will impact the future of the joint venture.

In addition to the sites owned by Cellnex, TT-Netork and TDC Net, there are around 300 further towers in the Danish market.

Estonia




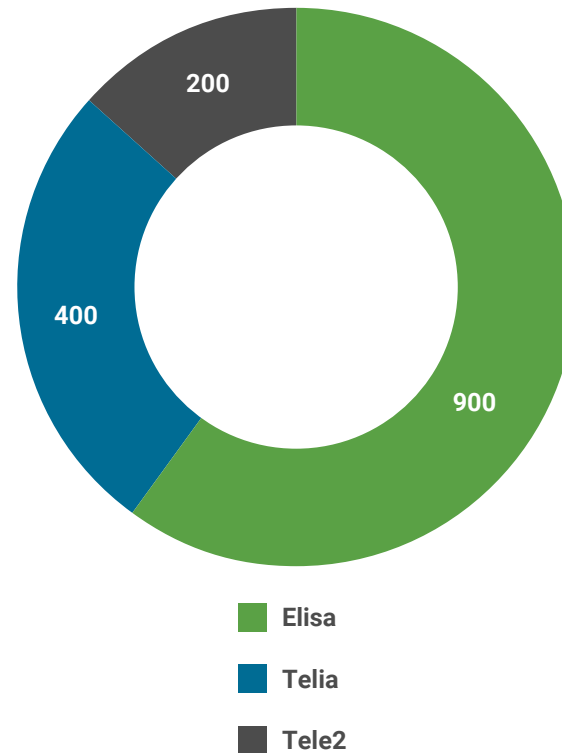
 <p>Towers: 1,500</p>	 <p>Population: 1.3mn</p>	 <p>Subscribers: 2.1mn</p>
<p>MNOs: Elisa Estonia, Telia Estonia, Tele2 Estonia</p>		
<p>Towercos: None</p>		

Figure 12: Estonia – estimated tower count



Source: TowerXchange

Telia Estonia is the second MNO with approximately 35% share. Its fixed broadband network, a mix of fibre and copper, reaches over 550,000 households. It's

announced further plans to work on fibre development projects in 2023 in big cities, including the capital. Tele2 has an approximately 23% market share. It also provides broadband services over the fibre network of power supplier Elektrilevi.

All three 5G spectrum pioneer bands have been assigned with the most recent one being in the 26GHz band in May 2023. The country's MNOs have confirmed they're working on expansion of their 5G infrastructure.

A growing trend related to reaching certain ESG goals among Estonian telecoms providers is the use of renewable energy. Elisa and Telia have started a long-term partnership with local renewable energy solutions developer, Sunly City to install solar panels next to their towers to increase green energy consumption.

Towers in the country are shared without any legal requirement or a clear pattern - sharing happens where possible and reasonable.

The parent companies of all three Estonian MNOs have not announced any carve out plans for their assets in the country. Telia Estonia's parent company has carved their tower assets in Sweden, Finland and Norway into separate towerco units.

Finland




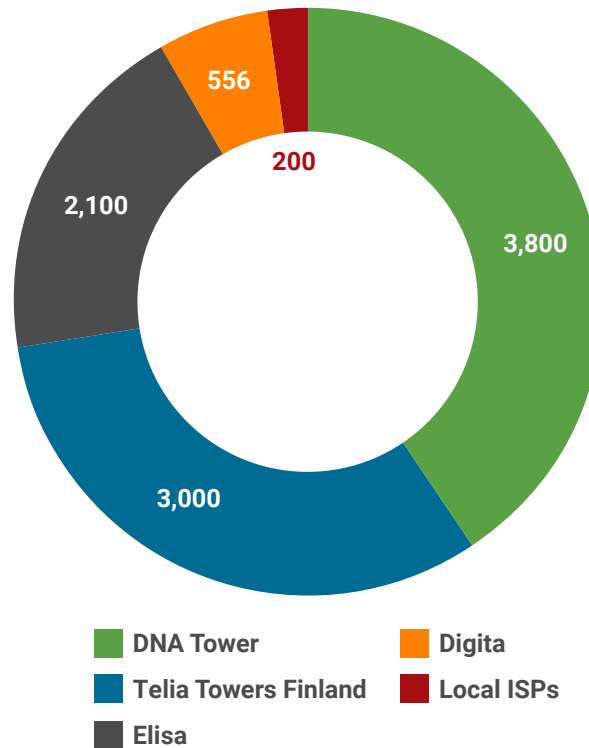
		
Towers: 9,656	Population: 5,541,020	Subscribers: 7,150,000
MNOs: Elisa, Telia Finland, DNA		
Towercos: Digita, Telia Towers Finland, DNA Tower		

Figure 13: Finland – estimated tower count



Source: TowerXchange

There are three MNOs in one of the most sparsely populated countries in Europe - DNA, Elisa and Telia Finland. Elisa has the highest market share, sitting at around 39%. Telia Finland is the second MNO in the market with approximately 31% share, but it has seen its share decline from 34% as DNA adds customers. In addition to expanding 5G coverage, Telia and Elisa are working with Eltel on the construction of FTTH infrastructure.

DNA, which is wholly owned by Telenor, is the country's third mobile operator with approximately 30% market

share. Telenor acquired a majority stake of 54% in the MNO in April 2019 for €1.9bn and later in the year increased its share to 94.3%.

DNA and Telia have a JV called Suomen Yhteisverkko (Finnish shared network) which manages, designs and maintains the mobile network Northern and Eastern Finland. DNA owns 49% in Suomen Yhteisverkko and Telia Finland owns 51%, with both sharing spectrum as well as sites.

Digita is Finland's "oldest" towerco which also owns and operates a digital terrestrial television and radio broadcasting tower network. Founded in 1999 as a spin-off from national broadcaster Yle, it was acquired by DigitalBridge in 2019 alongside 556 towers for an undisclosed amount.

Telia Towers Finland was carved out just after Sweden-headquartered Telia announced it was exploring the potential monetisation of its tower portfolio back in their Q4 2020 results. Telia Towers Finland manages only macro towers with single tenanted rooftop sites and stakes in joint ventures remaining outside of the towerco's perimeter.

DNA Tower, the youngest towerco in Finland, was formed in 2022 and is wholly owned by DNA.



France



Towers:
60,005



Population:
67.1mn



Subscribers:
72.0mn

MNOs: Bouygues Telecom, Free Mobile (Iliad), Orange, SFR

Towercos: ATC Europe, Cellnex, TOTEM, Phoenix Tower International, TDF, Towercast

estimated 17,000 towers to Antin Infrastructure Partners' FPS Towers in 2012 for €185mn (originally retaining 15% equity, which Antin subsequently bought in 2015). FPS Towers expanded their portfolio to over 2,400 sites and secured the rights to 20,000 rooftops and 76,000 electricity pylons.

In 2016, Antin subsequently [sold FPS Towers to ATC Europe](#) (American Tower's European arm) for a total of €697mn. As of Q2 2023, ATC Europe has a portfolio of 4,281 sites in the country. A contract with Orange to rollout up to 2,000 new sites, primarily in rural areas and along transport routes, gives ATC Europe strong growth potential in the market.

Bouygues Telecom has also completed several tower transactions with Cellnex. In 2016 they sold 500 towers ([an initial tranche of 230 towers](#), followed by a second tranche of 270) to Cellnex for a total of €147mn; in February 2017 they [signed a third deal](#) with the aforementioned governing the transfer of 1,800 urban (primarily rooftop) sites and 1,200 new build towers for a total of €854mn; later the same year they signed a further deal with Cellnex transferring a further 600 sites for €170mn.

In December 2018, the operator deepened their relationship with Cellnex, signing an agreement for the

towerco to provide distributed processing capabilities (edge computing) at 88 strategic telecom centres, a deal since extended to cover 150 centres. In February 2020, [Cellnex and Bouygues' relationship deepened even further](#) with the two parties announcing the formation of a joint venture to deploy a nationwide fibre network, with plans to invest up to €1bn to rollout up to 30,000 km of fibre, with the new agreement also including the rollout of a further 90 strategic telecom centres.

In March 2020, Bouygues Telecom announced a second joint venture, this time with [Phoenix Tower International \(PTI\)](#), with the PTI controlled joint venture set to rollout up to 4,000 new sites outside Very Dense Areas as part of Bouygues' New Deal Mobile obligations.

In 2018, MNO SFR (owned by Altice) [carved out their towers into a new towerco](#), SFR Towerco, in which they subsequently sold a 49.99% stake to investment firm, KKR and rebranded the unit to "Hivory". In February 2021, Cellnex announced that it had reached a deal to acquire Hivory and its 10,500 sites, with plans to deploy a further 2,500 sites over the next eight years.

The deal closed in Q4 2021, with one of the conditions of the French Competition Authorities approval being that Cellnex must divest 3,200 sites. Cellnex has reached a deal

Three of France's four MNOs have completed tower sales in the country, whilst Orange has carved out their portfolio into their own towerco, TOTEM. TOTEM's perimeter is initially confined to France and Spain (with a view to explore the integration of further assets at a later date). TOTEM currently has 19,500 towers in France, of which 58% are ground based towers, 30% flat rooftops and 12% other locations.

Bouygues Telecom was one of Europe's first MNOs to sell towers to an independent towerco, selling 2,166 of their

FRANCE

to sell the towers to Phoenix Tower. The asset transfer is currently underway with 2,353 sites now sold to PTI for EUR 631mn and is expected to complete in 2024.

Altice is expected to explore a stake sale in SFR to reduce its EUR23 bn debt of its French unit. The move will be in parallel to the sale of its datacentre unit.

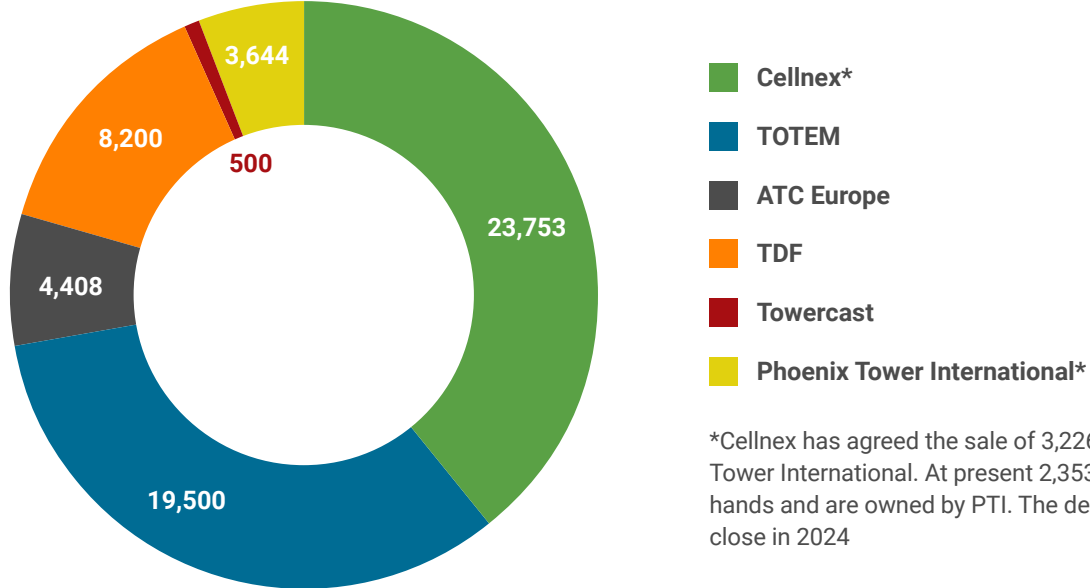
In mid-2019 France’s newest MNO, Free Mobile (owned by Iliad) also agreed a tower sale in the country, [reaching a deal with Cellnex](#) for the sale of its 5,700 sites, retaining a 30% stake in the assets (Cellnex has since exercised the right to acquire the Iliad’s 30% stake in the assets). The transaction also involves a build to suit component with Cellnex to add up to 2,500 new sites for the operator.

Broadcast-telecom hybrid TDF has 8,200 telecom towers as well as an established broadcast business and growing fibre deployment. In 2016, TDF acquired the previously family owned, towerco, ITAS TIM and its 420 towers for a reported €100mn.

Brookfield, which owns a 45% stake in TDF has appointed advisors to oversee the sale of its shareholding – the investor having previously attempted a sale in 2019 and 2021.

Broadcast towerco, TowerCast (owned by NRJ Group) which owns around 500 sites also sell co-locations to telecom clients in the country. NRJ announced that

Figure 14: France – estimated tower count



*Cellnex has agreed the sale of 3,226 sites to Phoenix Tower International. At present 2,353 sites have changed hands and are owned by PTI. The deal is expected to close in 2024

Source: TowerXchange

TowerCast would come to market in 2017, but the deal has quietly slipped off the radar since.

Some reports suggest that France may need as many as 50,000 new points of presence, with the regulator, ARCEP, stipulating that the three most established operators (Orange, SFR and Bouygues) must add a further 15,000 points of presence between them.

The newest market entrant, Free Mobile, needs to add a further 10,000 points of presence to compete with its

peers. Co-location on existing structures will help hit the PoP targets but new build is still expected. Cellnex is committed to add up to 5,020 sites through its BTS agreements with Bouygues, Free and SFR. PTI plans to build up to 4,000 new sites for Bouygues in rural areas and ATC Europe building rural sites for Orange. Free Mobile signed a long-term agreement with TOTEM in Q4 2022 which gives the MNO access to TOTEM’s ground-based and roof top sites in France. The French government is also heavily incentivising MNOs to build towers in rural areas, which should further promote BTS.



Germany



Towers:
79,523



Population:
83.1mn



Subscribers:
107.2mn

MNOs: O2 (Telefónica), Telekom (Deutsche Telekom), Vodafone (4iG), 1&1

Towercos: ATC Europe, Deutsche Funkturm, Media Broadcast Group, Phoenix Tower International, Vantage Towers

2023. Deutsche Telekom retains a 49% stake in the entity along with significant majority protection rights, including the ability to appoint two of GD Towers' five shareholder committee members, including the Chairman. GD Towers has contracts in place to rollout 5,400 new sites for DT's opcos in Germany and Austria, with the bulk of such rollout set to take place in Germany.

In 2016, [Telefónica carved their 2,350 German ground based towers into a newly created infraco, Telxius](#), in a deal valued at €587mn (with the operator also transferring Spanish and CALA towers as well as 31,000km of subsea cabling into the infraco). Telefónica subsequently sold a 40% stake in Telxius to investment firm KKR, before selling an effective 9.99% stake to Pontegadea, leaving the operator with a controlling 50.01% stake in the infraco. In June 2020, [Telefónica announced the sale of a further 10,100 \(primarily rooftop\) sites to Telxius](#) for €1.5bn, with the deal also including a BTS commitment for Telxius to add up to 2,400 (primarily greenfield) new sites for the operator. In January 2021. American Tower announced that it had reached a deal to acquire Telxius' tower business. The deal has since closed adding a further 12,500 sites to American Tower's German portfolio as well as a build to suit pipeline of 2,400 sites.

American Tower entered the German market back in

2012 with the acquisition of KPN's 2,000 E-Plus towers for €393mn (KPN having since sold E-Plus to Telefónica). American Tower's German sites were transferred to ATC Europe, a joint venture formed with PGGM in which the towerco had a controlling 51% stake. Following the Telxius deal, American Tower sold a 48% non-controlling interest in the newly enlarged ATC Europe to CDPQ (30%) and Allianz (18%), with PGGM converting its prior holding in ATC Europe to minority stakes in the towerco's local German and Spanish operating companies.

Vodafone sold an 81.7% of its stake in its European toweco Vantage Towers to a consortium of investment firms KKR & Co., Global Infrastructure Partners (GIP) and The Public Investment Fund of Saudi Arabia (PIF). The co-control partnership of the MNO, GIP and KKR called Oak Holdings has bought out the minority shareholders in Vantage Towers and now holds a 89.3% stake. The towerco was delisted at the end of 2023.

In late 2021 Vantage signed an agreement with new MNO market entrant 1&1 to provide at least 3,800 (but up to 5,000) existing sites to 1&1 throughout the country for the next 20 years. 1&1 missed coverage targets claiming Vantage Towers has failed to activate 1&1 sites on its infrastructure, leaving the MNO with just five operational 5G sites at end-2022, behind the 1,000 it was required to

GERMANY

have under the terms of its spectrum licences. In August 2023 it announced a national roaming agreement with Vodafone’s 5G network in areas that are not yet covered by its own network starting from July 2024 ousting current network partner Telefonica and gradually reducing services. In December 2023 1&1 has announced the activation of its own mobile network and the start to offer services to customers on it.

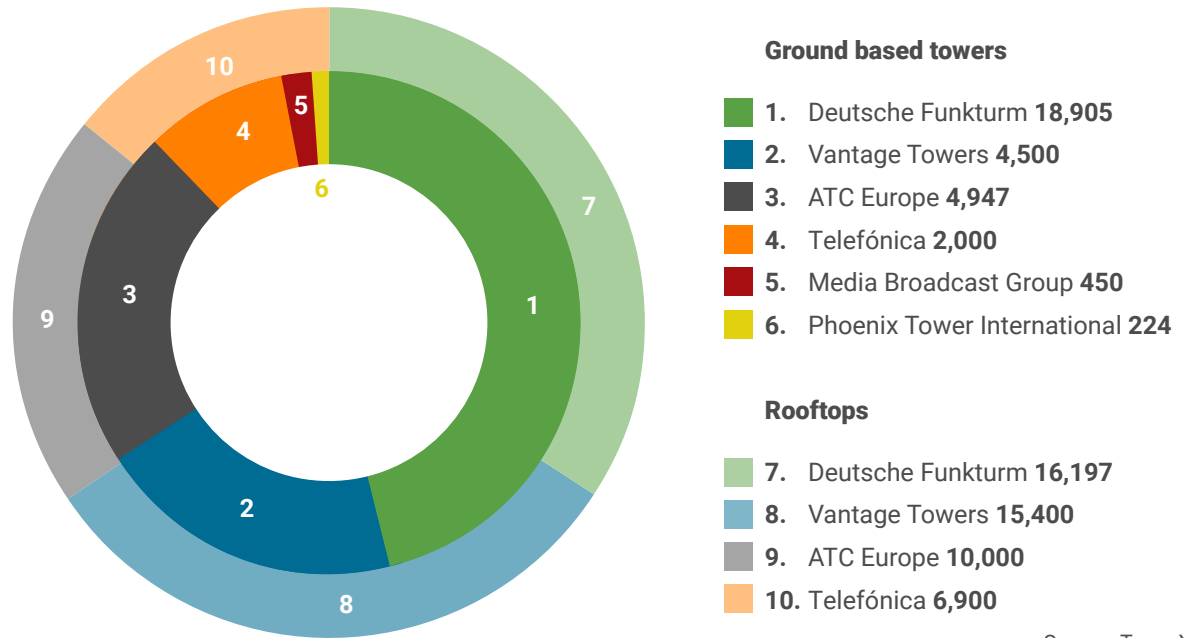
German broadcast towerco Media Broadcast Group owns a further 450 towers in Germany, and was acquired by Freenet in 2016 for €295mn (around 12x EV/EBITDA).

In October Phoenix Tower International entered the market announcing it’s buying 220 sites from Novec GmbH, a subsidiary of Netherlands-based Novec BV.

Whilst co-location potential remains strong on Germany’s ground-based towers (DFMG reports a 2.3x co-location ratio, more recently formed Vantage Towers 1.8x), unique conditions in the German market means that the tenancy ratio on rooftop sites sits at almost exactly one. Landlords in Germany typically agree rooftop leases on a per operator basis rather than per site basis and as such, the synergies available from passive sharing on rooftops are greatly reduced. Towercos are working on lease renegotiations to improve the economics.

In November 2019, Deutsche Telekom, Telefónica and Vodafone announced an initiative to jointly cover white spots (primarily in rural areas and along transport

Figure 15: Germany – estimated tower ownership



Source: TowerXchange

routes) which would otherwise be uneconomic to cover. Each operator will build 2,000 sites which will be made available for the other two players to use via passive sharing agreements.

Vodafone and Deutsche Telekom, and more recently Telefónica, have also teamed up to improve LTE coverage in rural areas and along traffic routes at so called “grey spots” – areas where LTE quality coverage is only available from a single operator. The operators will implement

active network sharing across antenna sites using a MOCN approach. Active network sharing agreements are unlikely to be expanded beyond this. New build in the German market remains significant. Vantage Towers has a commitment in place with Vodafone to add 5,500 towers (2,000 of which under the white spot programme) and reports demand outstripping this, Deutsche Telekom rolled out 1,400 new sites in 2021 and over the past four years have built 6,300 new sites. American Tower is set to add up to 2,400 new sites for Telefónica.



Greece




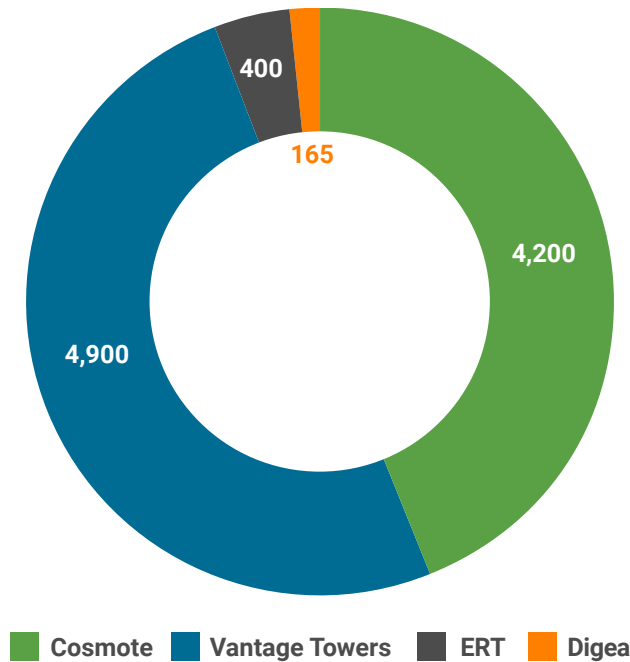
		
Towers: 9,535	Population: 10.7mn	Subscribers: 11.9mn
MNOs: Cosmote (OTE), Vodafone, NOVA (integrated with Wind Hellas)		
Towercos: Digea, ERT, Vantage Towers		

Figure 16: Greece – estimated tower ownership






Source: TowerXchange

In July 2019, Vodafone announced plans to carve out its European towers into a towerco, Vantage Towers. In Greece, Vodafone shared passive infrastructure with Wind Hellas via the joint venture, VICTUS Networks (although the towers remained on the balance sheets of the MNOs).

In July 2020 in an announcement surrounding the formal launch of Vantage Towers, Vodafone announced that it had reached a deal with Crystal Almond “(the former controlling shareholder of Wind Hellas) for the two operators to transfer their tower assets to Vantage Towers Greece. Whilst initially a joint venture between the two operators (with Vodafone having the majority share), the IPO of Vantage Towers triggered the automatic acquisition of Crystal Almond’s shareholding by Vodafone, with Vantage Towers Greece now wholly owned by Vodafone’s Vantage Towers.

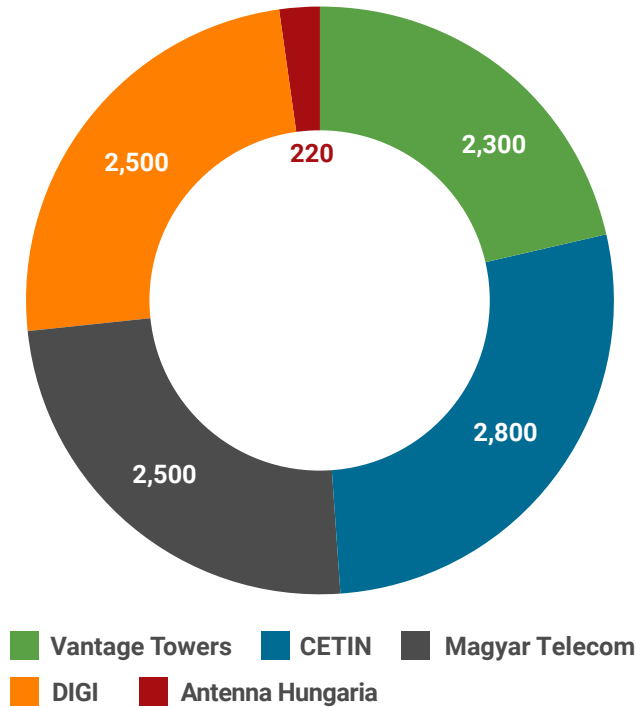
Vodafone’s sale of its 81.7% stake in Vantage Towers to a consortium of investment firms KKR & Co., Global Infrastructure Partners (GIP) and The Public Investment Fund of Saudi Arabia (PIF) completed in Q1 2023 with the new co-control partnership of the MNO and investment firms called Oak Holdings. Vantage Towers is the preferred supplier of towers to both Vodafone Greece and NOVA (former Wind Hellas), with the two parties having committed to being anchor tenant on 250 new sites (500 in total) to be built by Vantage Towers in the next five years. In addition to sharing passive infrastructure through Vantage Towers, Vodafone and NOVA (former Wind Hellas) have an active sharing agreement in place. Beyond Cosmote and Vantage Towers Greece, broadcast towerco, Digea owns 165 towers in the Greek market, with national broadcaster ERT owning 400 sites.

Hungary

		
Towers: 10,320	Population: 9.8mn	Subscribers: 10.3mn
MNOs: Digi (4iG), Magyar Telekom (Deutsche Telekom), Yettel (PPF Group), Vodafone		
Towercos: CETIN, Vantage Towers		

There are four MNOs in the Hungarian market, Magyar Telekom (59.3% owned by Deutsche Telekom), Yettel (owned by PPF Group and rebranded from Telenor), Vodafone (acquired by 4iG and the Hungarian state), and DIGI (which is also owned by 4iG and is Hungary's newest market entrant with the smallest market share). 4iG, via Antenna Hungaria, and in partnership with the Hungarian state, completed the acquisition of Vodafone Hungary earlier in 2023. Antenna Hungaria acquired 51% with the Hungarian state taking the other 49% via investment vehicle Corvinus. 4iG has announced it has sold Digi's 2,500 towers and active equipment alongside licensed 1800MHz

Figure 17: Hungary – estimated tower ownership



Source: TowerXchange

spectrum to state-owned Pro-M for HUF68 bn (US\$199mn) in line with its strategy for infrastructure separation. The deal is expected to complete by July 2024.

Vodafone has carved out their tower portfolio into their pan-

European towerco, Vantage Towers which has a portfolio of 2,100 sites in Hungary. In July 2020, Telenor Hungary (now Yettel) followed in the footsteps of PPF's Czech opco (O2 Czech Republic) and separated out their retail and infrastructure divisions, with their infrastructure carved out into CETIN. CETIN's remit extends much beyond towers, with CETIN taking ownership of the operator's metallic cable pairs, fibre and indoor and outdoor base stations. In Q4 2021, PPF agreed the sale of a 30% stake in CETIN to Singapore's GIC investment fund.

Magyar Telekom, the Hungarian incumbent, is 59.3% owned by Deutsche Telekom which has not yet announced carve out plans for its assets in the country. Romanian owned DIGI launched mobile operations in Hungary in 2019, although the operator was excluded from the country's 5G auctions. It sold its Hungarian business to 4iG and exited the market in early 2022. Broadcast towerco, Antenna Hungaria (which is also owned by 4iG) is understood to own around 220 towers in the country and also leases space to telecom operators. It owned a 25% stake in both Yettel and CETIN but in Q1 2023 Antenna Hungaria swapped its 25% stake in the Hungarian subsidiaries of PPF Telecom Group for 19.5% of Vodafone shares, increasing its stake in Vodafone Hungary to 70.5% and ceasing to have any shareholding in Hungarian Yettel and CETIN.

Iceland




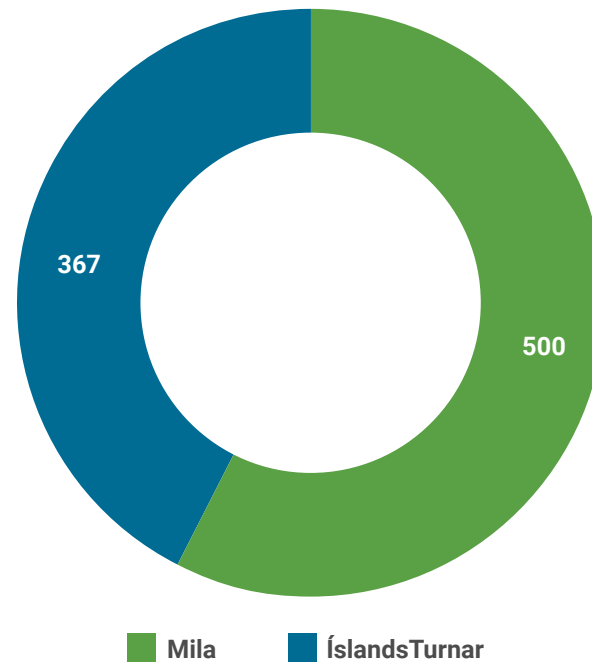
		
Towers: 897	Population: 366k	Subscribers: 421k
MNOs: Nova, Síminn, Sýn		
Towercos: ÍslandsTurnar (DigitalBridge), Míla		

Figure 18: Iceland – estimated tower ownership



Source: TowerXchange

Ardian, reached a deal to acquire 100% of Míla, although the deal is yet to receive regulatory approval with the Icelandic Competition Authority having voiced concerns. In late 2021, Sýn and Nova simultaneously announced the sale of their tower portfolios to ÍslandsTurnar, a new


towerco formed by DigitalBridge. The deal has since closed, making ÍslandsTurnar Iceland’s first independent towerco. ÍslandsTurnar’s site count stands at 367 sites and includes both ground based and rooftop sites. The deal also included a build to suit component for an undisclosed number of sites over a long-term period. Recently, Sýn agreed the sale of its core network to open access infrastructure provider, Ljosleidarinn.

Like much of the Nordics, active sharing is a feature of the Icelandic market with Sýn and Nova have an extensive national RANsharing agreement in place. As such, nearly all of ÍslandsTurnar’s 367 sites have both operators present on them. Whilst there are some tenancies from Síminn on the ÍslandsTurnar portfolio, Síminn has historically preferred to use its own infrastructure when rolling out its network.


As the incumbent, regulation has been applied to Síminn/ Míla requiring them to allow other operators access to their tower portfolio at a reasonable rate. As such, Míla has tenancies from both Sýn and Nova on their towers.

5G rollout is in the early stages in the country and whilst it is early days, there are very clear rollout and investment plans in place from the country’s operators providing significant growth opportunities for both ÍslandsTurnar and the soon to be independent, Míla.


Ireland



Towers:
6,046



Population:
4.9mn

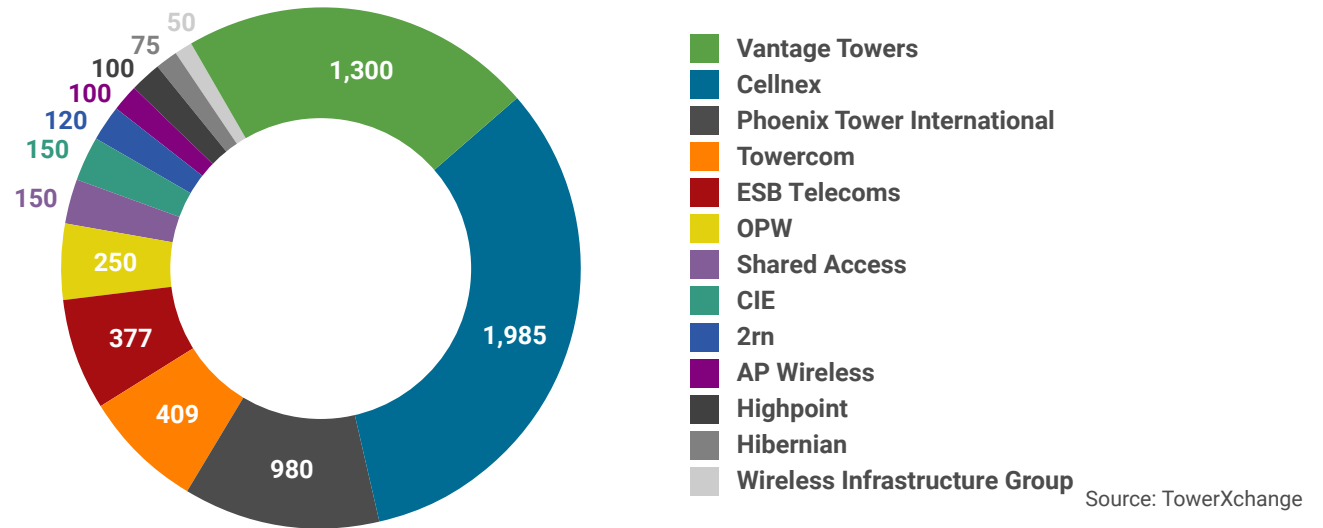


Subscribers:
5.1mn

MNOs: 3 (CK Hutchison), eir, Vodafone

Towercos: 2rn, Cellnex, Hibernian, Highpoint (Obelisk), Phoenix Tower International, Shared Access, Towercom, Wireless Infrastructure Group, Vantage Towers

Figure 19: Ireland – estimated tower ownership



There are three MNOs in the Irish market. Vodafone, 3 and eir. Vodafone carved out their towers into Vantage Towers, and in Q1 2023 completed the sale of its 81.7% stake to investment firms KKR and GIP, forming a co-control partnership with them called Oak Holdings. In May 2020, [eir signed a deal](#) to sell its portfolio of 650 sites to Phoenix Tower International for €300mn. The deal also included a BTS commitment with PTI expected to add up to 800 new sites for the operator. In early 2024 PTI acquired 100% of Cellnex' business in the country for EUR971mn.


Three (owned by CK Hutchison) has sold its towers to Cellnex as part of a [pan-European deal](#). Cellnex entered the Irish market back in 2019 with the [acquisition of Cignal](#) (Cignal having previously acquired the towers – and the land under third party towers – of state forestry company, Coillte back in 2015).

Its recent Irish market exit following the sale of all assets to PTI follows a strategy to deleverage. There have been a handful of other tower transactions in the Irish market, most


notably the acquisition of 340 masts from Eircom (owners of eir) by Towercom back in 2007. In July 2023 investment firm John Laing acquired Towercom for an undisclosed amount. Over half of Towercom's 409 sites are to be upgraded or redeveloped over the next 10 years.

There is a long tail of other independent towercos in the Irish market (notably Brookfield backed Wireless Infrastructure Group which, whilst just having a portfolio of 50 sites in Ireland, has a portfolio of 3,200 towers in the UK).


Italy



Towers:
53,211



Population:
60.3mn

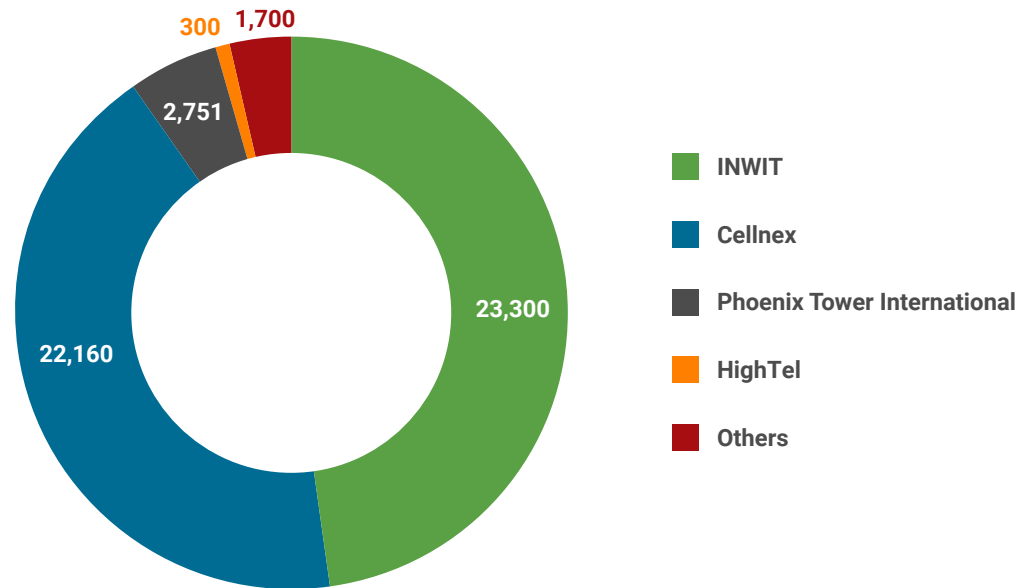


Subscribers:
80.6mn

MNOs: Iliad, TIM (Telecom Italia), Vodafone, Wind Tre (CK Hutchison)

Towercos: Cellnex, El Towers, INWIT, HighTel, Rai Way, Phoenix Tower International

Figure 20(a): Italy – estimated telecom tower ownership



Source: TowerXchange

The Italian market has seen a host of different tower monetisation strategies by its resident operators.

The first operator to monetise its portfolio was Wind (at the time owned by Vimpelcom) who carried out a sale and leaseback transaction of their portfolio of 7,377 towers (which it had carved into “Galata Towers”) to Cellnex back in 2015, originally retaining a 10% stake (with Cellnex taking over the operator’s 10% stake in 2017).

The same year, TIM, the mobile arm of Telecom Italia, carved out its tower portfolio into a dedicated infrastructure unit, [INWIT and listed a 40% stake on the Milan Stock Exchange](#), raising €875.3mn in the process.

In 2016, VimpelCom’s Wind and CK Hutchison’s 3 merged to form Wind Tre, with the merger being approved on the condition that spectrum and towers were provided to a new market entrant to ensure competition. This opened the

door to France’s Iliad who entered the market in 2018 with an aggressive low-cost strategy. In May 2019, Iliad became the second operator to carry out a sale and leaseback transaction in the country, [reaching a deal](#) to sell its 2,200 sites to Cellnex for €600mn (Iliad/Salt also agreed the sale of its French and Swiss tower portfolios to Cellnex at the same time). The deal also included a build to suit component for an extra cash consideration, with Cellnex to build up to 1,000 new towers for the operator.

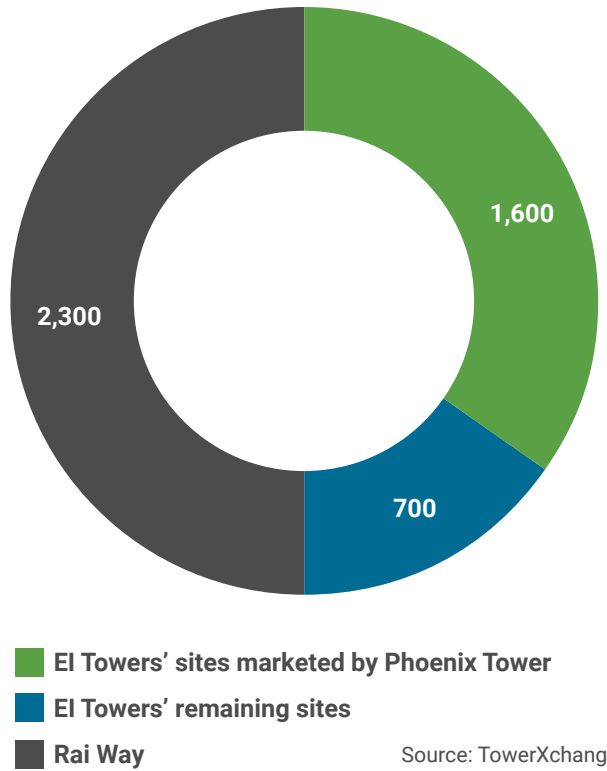
ITALY

In July 2019 Vodafone combined its 11,000 tower portfolio with TIM's INWIT (with the two operators also putting in place an active sharing agreement). Since the merger, Vodafone and TIM reduced their respective shareholdings in the towerco from 37.5% to 33.2% (with Vodafone's shareholding held by their towerco, Vantage Towers). TIM subsequently sold a 1.2% stake to Canson Capital partners and in two tranches sold a 90% stake to Ardian. INWIT stake sale finalised – Ardian now owns 90% of Daphne3 which in turn owns 30.2% of INWIT. TIM retains a 10% stake in Daphne3.

In July 2021, INWIT reached a €70mn deal to acquire from Vodafone Italia 700 antenna systems covering road and motorway tunnels as well as 40 DAS systems covering hotels, stadiums and offices. In addition to consolidating existing infrastructure from TIM and Vodafone, INWIT has first refusal on new build for the two operators with a target of building a total of 10,000 new macro sites and small cells in its initial scope. INWIT (in conjunction with TIM and Vodafone) has also just won a government tender to deploy 5G sites in 2,000 rural locations.

In August of 2019, Hutchison announced that it planned to carve its 28,500 European towers into its a towerco unit, CKH Networks. This news was then superseded by the announcement in November 2020 that Hutchison had [signed a deal](#) to sell their European tower portfolio to Cellnex. The Italian portion of the deal added 8,900 existing sites to Cellnex' portfolio, as well as a BTS pipeline of 1,100 sites.

Figure 20(b): Italy – estimated broadcast tower ownership



Cellnex entered the Italian market in 2014, buying TowerCo (the operator which managed towers along the Italian motorway network) and its 306 sites from Atlantia. In addition to acquiring the TowerCo, Wind, Iliad and Hutchison towers, [Cellnex also acquired Italian small cells and DAS player](#), CommsCon back in 2016 and has been highly active in the small cells and DAS space.




In addition to Cellnex, there is a long tail of smaller independent towercos active in Italy. Phoenix Tower International entered the Italian market with the acquisition of Towertel from EI Towers (in conjunction with F2i). As part of the deal, PTI secured the rights to market and lease 1,600 of EI Towers' 2,300 broadcast sites. After PTI, HighTel is the next largest towerco in the Italian market with a portfolio of around 300 sites.

In early 2023 Wind Tre and Iliad announced the set-up of their 5G network sharing JV Zefiro Net that will cover 26.8% of Italian population living in rural areas. The pair will share the cost and management of mobile networks in the country's rural areas. In May 2023 Wind Tre announced the carve out and sale of its mobile and fixed network to EQT Infrastructure for an enterprise value of EUR 3.4bn. EQT will own 60% in the new company while Wind Tre's current owner, CK Hutchison, will own a 40 percent stake. The closing of the deal is being delayed due to separate network agreements with "with relevant third parties" according to Hutchinson.

In addition to EI Towers having a portfolio of 2,300 broadcast sites, Rai Way too owns an almost identically sized portfolio of broadcast assets.

Vodafone has agreed to sell its Italian business to Swisscom for EUR8bn as part of plans to streamline European operations. Swisscom intends to merge Vodafone Italia with Fastweb, Swisscom's Milan-based subsidiary, a move aimed at strengthening its presence in the country.

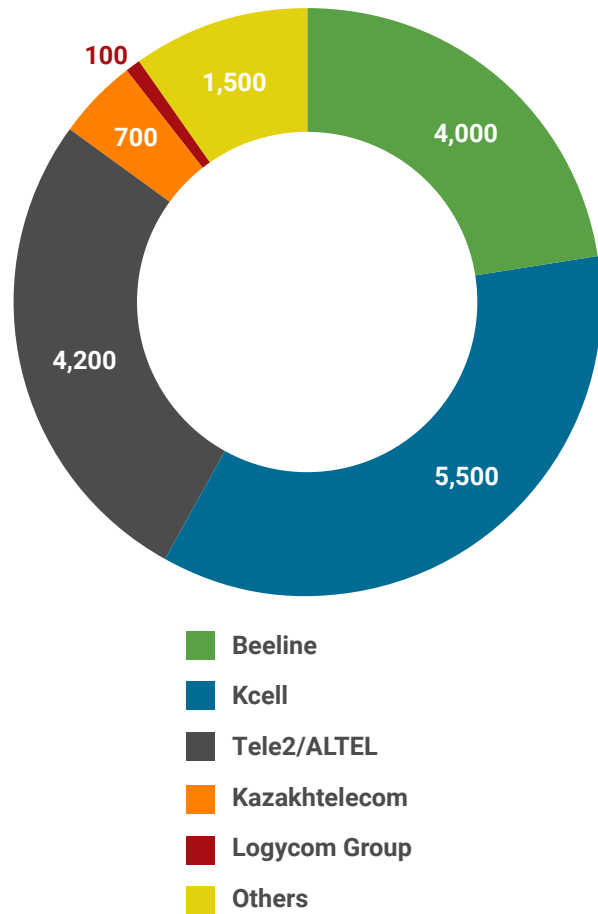
Kazakhstan

		
Towers: 16,000	Population: 18.5mn	Subscribers: 25.7mn
MNOs: Beeline (VEON), kCell (Kazakhtelecom), Tele2/ALTEL (Kazakhtelecom)		
Towercos: Logycom Group		

Two of Kazakhstan’s MNOs, KCell and Tele2/ALTEL, are now 100% owned by state-backed Kazakhtelecom (Kazakhtelecom having acquired Tele2’s shareholding in the latter, mid 2019). Market leaders, Beeline are owned by VEON’s new Russian-free parent group. Kazakhstan’s Ministry of Digital Development has announced following a Cabinet meeting that Kazakhtelecom (KT) is expected to sell one of its mobile operator subsidiaries – either Kcell or Mobile Telecom Service (Tele2-Altel) by the end of 2023.

VEON’s towers came to market temporarily in 2017 (along

Figure 21: Kazakhstan – estimated tower ownership



Source: TowerXchange




with towers in other CIS markets). In their Q4 2020 results, VEON announced that they were creating towerco business units in each of their nine markets, remaining open minded about with what they will do with their towerco units (rolling them up into a single towerco, forming larger JVs with other tower portfolios or monetising them).

In September 2021, VEON reached an agreement to sell its Russian tower portfolio to Service Telecom; plans in Kazakhstan are less advanced. VEON is thought to own around 4,000 towers in Kazakhstan of which around 1,600 are ground-based towers and set to be carved into a separate towerco unit.

Figures TowerXchange has had reported for site counts in Kazakhstan vary with best guesses suggesting Kcell has around 5,500 and Tele2/Altel 4,200. Third party structures make up around 30% of Kazakhstan’s mobile networks, and total at least 1,500, perhaps significantly more. Kazakhstan’s three MNOs recently announced plans to create a shared rural network as part of the government backed “250+” project (aimed at bringing mobile broadband services to around 1,000 settlements with more than 250 residents).

TowerXchange knows of one towerco operating in Kazakhstan, Logycom Group which has approximately 100 sites in the market.

Malta

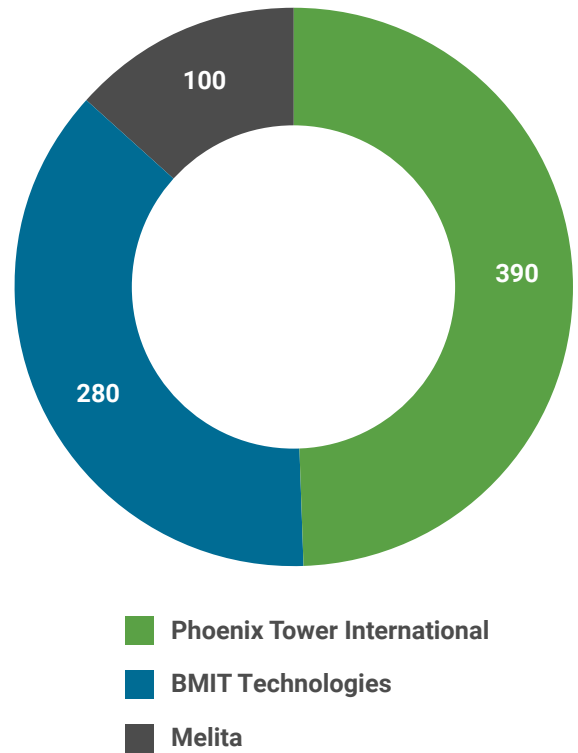
 <p>Towers: 990</p>	 <p>Population: 0.5mn</p>	 <p>Subscribers: 0.7mn</p>
<p>MNOs: GO, Epic (Monaco Telecom), Melita</p>		
<p>Towercos: Phoenix Tower International, BMIT</p>		

Three MNOs – GO, Epic and Melita provide connectivity across the Maltese islands of Gozo and Malta.

Epic leads by number of customers with approximately 42% market share.

Formerly Vodafone Malta, it rebranded to Epic after it was bought by Monaco Telecom. The company, which is owned by the Principality of Monaco and French billionaire Xavier Niel’s firm NJJ Holdings, purchased Vodafone’s operations in the country in 2020.

Figure 22: Malta – estimated tower ownership



Source: TowerXchange

In March 2021, Phoenix Tower International announced its acquisition of Epic’s passive infrastructure which was part of a sale and leaseback deal covering the countries

of Malta and Cyprus. It included a 20-year leaseback agreement for the MNO as well as a build-to-suit programme for an undisclosed number of sites.




Epic has received EUR20 mn funding from the European Investment Bank (EIB) to accelerate the roll-out of its 5G network to reach nationwide coverage by end 2024 and to expand its fibre optic network.

GO is the second largest mobile operator with around 34% market share. In September 2023 it sold its passive infrastructure to local IT firm BMIT Technologies. The deal valued the 280 sites at EUR47.1 million (USD49.8 million) and included the installation of 30 more sites by 2030 with GO as the anchor tenant.

Melita, which was sold to EQT Infrastructure in 2019 for an undisclosed amount, has the smallest market share and also offers fixed telephony and co-location services.

Malta is also home to mobile virtual network operators (MVNOs) including YOM and Smarty that lease network access from the main MNOs.

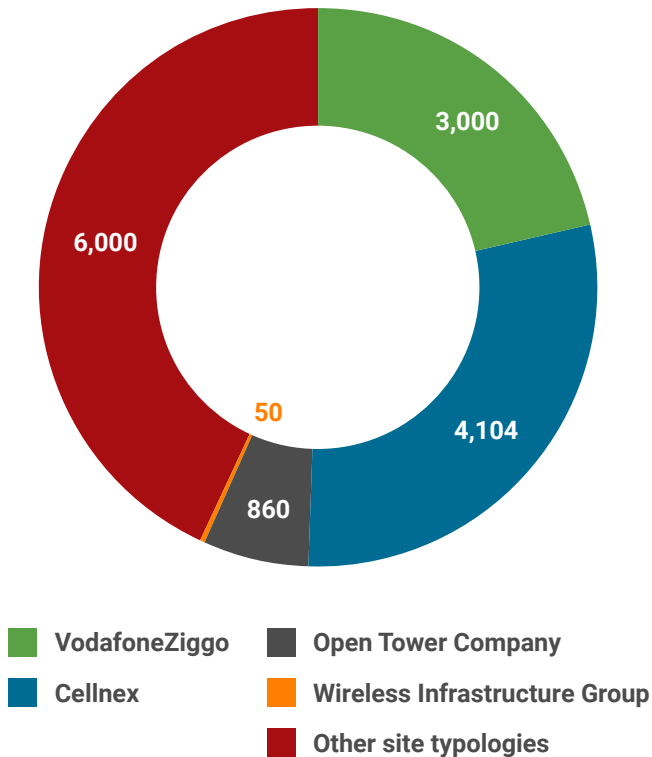
Netherlands

		
Towers: 14,031	Population: 17.3mn	Subscribers: 21.8mn
MNOs: KPN, T-Mobile, VodafoneZiggo (Vodafone/ Liberty Global)		
Towercos: Cellnex, Open Tower Company, Wireless Infrastructure Group		

There are three MNOs in the Dutch market; KPN, VodafoneZiggo (owned by Vodafone and Liberty Global), and T-Mobile (which Deutsche Telekom and Tele2 sold to a consortium of investors).

The Netherlands holds the accolade of having hosted one of the first sale and leaseback transaction in the European market, with KPN divesting towers in four tranches starting in 2008. KPN sold 601 towers across two deals to Open Tower Company, 460 sites to Shere Group and 261 sites to Protelindo.

Figure 23: Netherlands – estimated tower ownership



Source: TowerXchange

Open Tower Company (75% owned by Dutch pension fund, ABP) currently owns a portfolio of 860 sites in the country, whilst also having access to 1,000 electricity pylons.

[Protelindo's Dutch portfolio](#) and [Shere Group](#) have since been acquired by Cellnex, who entered the market in 2016 with both deals. Cellnex also acquired Alticom and their 30 long range sites (tall towers with large equipment capacity).

In January 2021, Deutsche Telekom and Cellnex [reached a deal](#) to merge their Dutch tower businesses into Cellnex Netherlands BV whilst both becoming anchor investors of a new investment fund - Digital Infrastructure Vehicle. Digital Infrastructure Vehicle holds a 38% stake in Cellnex Netherlands as a seed asset (with Cellnex holding the remaining 62% stake). Following closure of the deal, Cellnex now owns 4,075 sites in the country with a BTS pipeline of just over 200 sites.

VodafoneZiggo, the final operator in the Dutch market retains its portfolio of towers, understood to number around 3,000 sites. Whilst Vodafone has carved out the vast majority of its European towers into Vantage Towers, VodafoneZiggo is a joint venture with Liberty Global. Liberty Global, which owns a 50% stake in Telnet, sold their Belgian towers to DigitalBridge in 2022 and has recently launched a voluntary and conditional offer to take over the remaining Telenet shares.

Towerco Wireless Infrastructure Group owns a portfolio of 50 sites in the country. Additionally, there are a further c. 6,000 other locations owned by third parties that are in use as telecom sites.

Norway




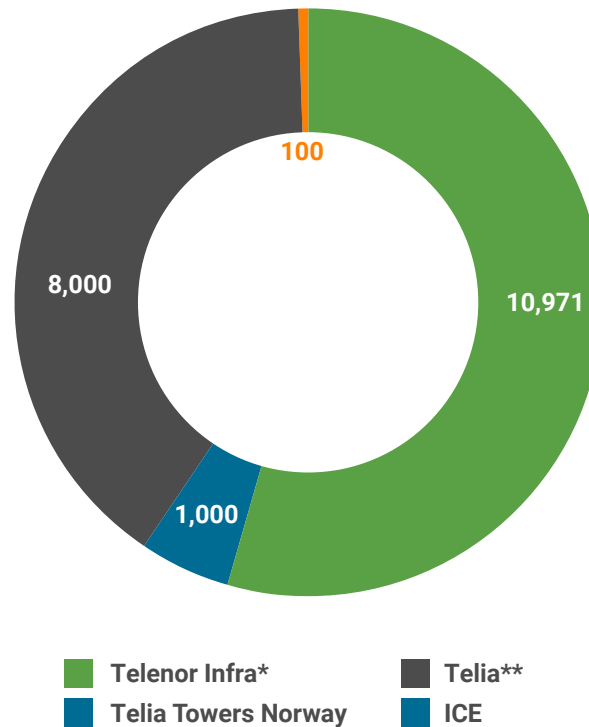
		
Towers: 20,051	Population: 5.3mn	Subscribers: 5.7mn
MNOs: ICE, Telenor, Telia		
Towercos: Telenor Infra, Telia Towers		

Figure 24: Norway – estimated tower ownership



*excludes Telenor Infra's c. 5,000 non-mobile sites

** Telia's ground based towers have been carved into Telia Towers Norway, they retain their rooftop sites

Source: TowerXchange

Telia had also followed in a similar strategy, carving out their tower assets in Sweden, Finland and Norway into separate towerco units. In the case of Telia, only the operator's ground based towers were carved into the towerco units, with rooftop sites remaining outside of the towerco perimeter.

In June 2021, Telia announced that [it had reached an agreement](#) to sell a 49% stake in its Norwegian and Finnish towerco units to infrastructure investor, Brookfield, and Swedish pension fund, Alecta. A similar deal shortly followed in Sweden. Telia Towers Norway is understood to own around 1,000 towers in the country, with Telia owning an estimated 8,000 further rooftop sites.

ICE is Norway's newest market entrant (having gained spectrum in 2013 and acquired Network Norway from Telia in 2015) and whilst registering just 10% of the country's subscriber base, is ambitious and poised to challenge the duopoly that has long existed in country, with the aim of reaching 25% in the longer term.

ICE has just a modest tower portfolio (estimated to be around 100 sites), with the operator relying on co-locations as well as a recently renewed roaming agreement with Telia (although continuing to build out Norway's third network).

Poland




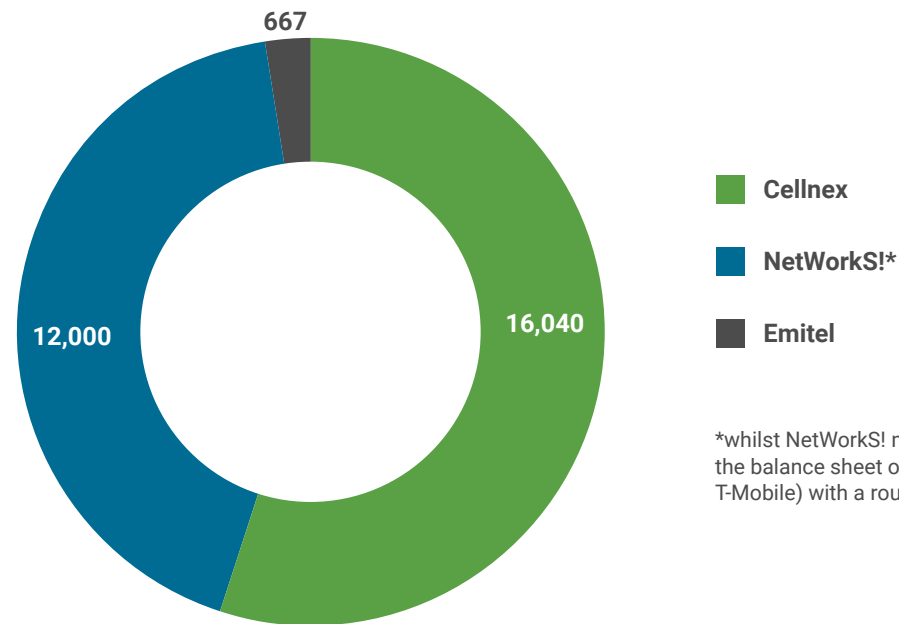
		
Towers: 28,707	Population: 37.9mn	Subscribers: 52.3mn
MNOs: Orange, Play (Iliad), Plus (Cyfrowy Polsat), T-Mobile		
Towercos: Cellnex, Emitel		

Figure 25: Poland – estimated tower ownership



*whilst NetWorkS! manages the portfolio, the towers remain on the balance sheet of their parent companies (Orange and T-Mobile) with a roughly 50/50 split

Source: TowerXchange

T-Mobile and Orange share passive and active infrastructure in Poland through 50-50 joint venture NetWorkS! While NetWorkS! operates around 12,000 towers, the assets are on T-Mobile and Orange's own balance sheets.

T-Mobile is 100% owned by Deutsche Telekom. In 2022, the operator agreed the sale of a 51% stake

in their GD Towers business covering Austria and Germany to DigitalBridge and Brookfield. Whilst the operator has sold towers to Cellnex in the Netherlands, and begun to carve out asserts in the Czech Republic, the Polish assets remain untouched.

Orange has carved out its French and Spanish towers

into its new towerco TOTEM which became operational in Q4 2021. Following the operational launch in France and Spain, Orange is looking to expand TOTEM's perimeter to other European markets, although the tie up of their Polish towers into a joint venture with Deutsche Telekom complicates carve out plans in the country. Orange's former CEO & Chairman Stéphane Richard had



POLAND

commented that TOTEM had an appetite for M&A, with the formation of JVs with Europe's other MNO-owned towercos one option under consideration. Perhaps this is a strategy the operator could explore in Poland?

Independent towercos also operate in the Polish market. In October 2020, Cellnex announced that it had [reached a deal with Play](#) to acquire a controlling 60% stake in the operator's 7,000 site tower portfolio (with Iliad, Play's new owners, retaining a 40% stake - this stake has

subsequently been reduced to 30%). In June 2023 Cellnex bought Iliad's 30% stake in the jointly held OnTower Poland towerco for EUR510mn reaching full ownership.

In February 2021, Cellnex announced a second deal in Poland, reaching an agreement to acquire the network assets from Polkomtel (which trades under the Plus brand). The deal not only includes 7,000 towers (and a BTS pipeline to roll out 1,500 new sites over the next 10 years) but also includes the acquisition of active

infrastructure (c. 37,000 radio carriers, c. 11,300km of fibre backbone and FTTH backhaul and a nationwide network of microwave radio links).

American Tower quietly entered the country in 2020 with a small-scale acquisition of just over 50 sites in the country. In June 2023 it announced its exit selling all towers to broadcast towerco Emitel for an undisclosed amount. Emitel which manages a portfolio of 677 sites, is now owned by Cordiant Digital Infrastructure.



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Portugal


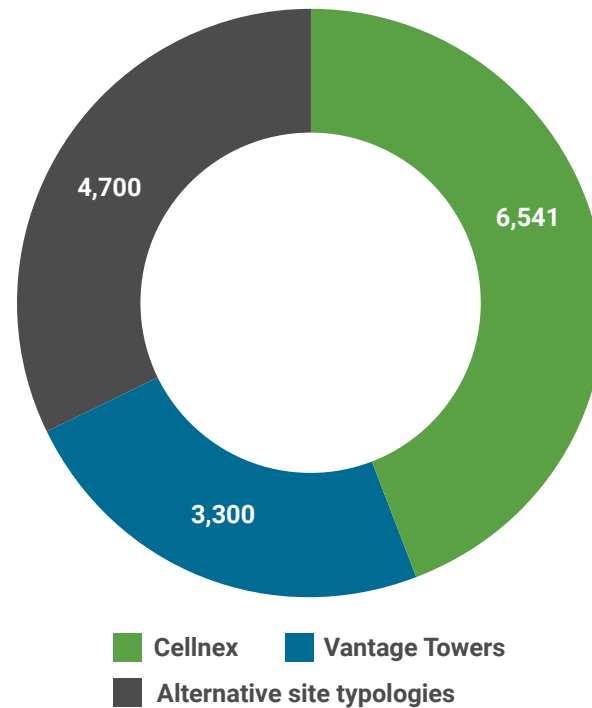
		
Towers: 14,541	Population: 10.3mn	Subscribers: 11.9mn
MNOs: MEO (Altice), NOS, Vodafone		
Towercos: Cellnex, Vantage Towers		

Figure 26: Portugal – estimated tower count



Source: TowerXchange

deal also includes a BTS commitment of up to 400 new sites over the next six years. Cellnex has subsequently signed a further deal in the Portuguese market, acquiring 223 macro-sites and 464 small cell sites from Altice..

Vodafone’s Pan-European towerco Vantage Towers became operational in summer 2020 and owns a portfolio of around 3,500 sites in the country. In October 2020, Vodafone and Nos reached a network sharing agreement governing both passive and active infrastructure, with the depth of sharing dependent on population density. In Q1 2023 Vodafone completed the sale of its 81.7% stake in Vantage Tower to investment firms KKR and GIP, forming a co-control partnership with them called Oak Holdings.

Spanish operator, MASMOVIL entered the Portuguese market in late 2019, and has secured spectrum in the much delayed 5G spectrum auction in 2021. Alongside Portugal’s three established MNOs, Dixarobil (later renamed to Digi) has also secured spectrum.

Following Digi’s entry into Portugal, MASMOVIL has hinted it may abandon its plans to launch a mobile network in the country. Digi has announced it’s on track to launch commercial services as the country’s fourth MNO in 2024. In end 2023 Digi entered into a framework agreement with Vodafone Portugal to receive spectrum usage rights and access to Vodafone’s optical fibre network.

Altice is reportedly looking for buyers for its Portuguese business. Telefonica, Orange and major private equity firms have reportedly been approached regarding the sale.

Romania


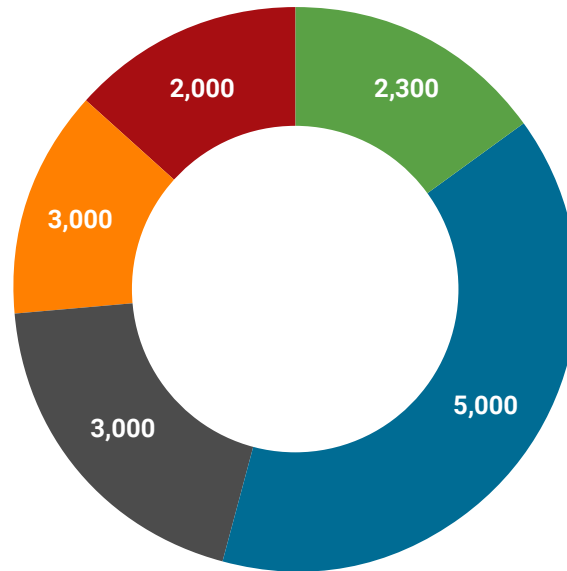
		
Towers: 15,300	Population: 19,112,000	Subscribers: 22,929,000
MNOs: Orange Romania, Vodafone Romania, Digi Mobil (RCS&RDS), Telekom Romania		
Towercos: Vantage Towers, TVR		

Figure 27: Romania – estimated tower count



- Vantage Towers
- Digi
- Orange
- Telekom Romania
- TVR state broadcast

Source: TowerXchange

Romania and Vodafone Romania agreeing a deal to last from 2014 to 2030.

Telekom Romania has four million subscribers and is wholly owned by the Greek OTE, which in turn is controlled by Deutsche Telekom. Deutsche Telekom is rumoured to be looking for buyers of its MNO unit in Romania to exit the market – Telekom was the only MNO that didn't take part in the November 2022 multi-band 5G spectrum auction.

Digi Mobil, part of Digi Communications, is the fourth MNO and leads the fixed broadband services market, supported by its strong foothold in fibre. Digi Mobil have their own passive infrastructure and own at least 6,000 towers in the country.

Digi Communications is also active in Spain and Italy (through local MVNOs Digi Mobil), and in Belgium and Portugal. Digi exited the Hungarian market in 2022, selling its subsidiary to 4iG for €625 million. In line with meeting 5G coverage obligations, Vantage Towers are building new sites slowly for Vodafone, but most construction in the market is being done in-house by Digi. All tower builders in the market have had issues with steel supply due to the shutdown or redirection of Ukrainian steel production.



Russia



Towers:
149,969



Population:
144.4mn



Subscribers:
239.8mn

MNOs: Beeline (VEON), MegaFon, MTS, Tele2 Russia (Rostelecom)

Towercos: First Tower Company, New Towers, Service Telecom, Tower Infrastructure Company (plus several hundred smaller players)

activity with the announcement that it had agreed the sale of its 15,400 site Russian tower portfolio to Service Telecom. The transaction included just the operator's ground-based towers and tall shareable rooftop sites. VEON's smaller, non-shareable ones were excluded from the deal. The transaction has given significant scale to Service Telecom which had previously amassed a portfolio of 3,000 sites through a combination of new build and a handful of towerco acquisitions (Link Development in 2018, Technoresource in 2019 and Neva Telecom in 2021). Service Telecom's site count now stands at 18,396 sites and the towerco is reportedly gearing up for an IPO (although macroeconomic developments are likely to push timelines on this).

The deal between VEON and Service Telecom set of something of a chain reaction. In October 2021, the shareholders of Russia's largest MNO, MTS, approved the spin-off of MTS tower assets into a separate wholly owned subsidiary, Tower Infrastructure Company. Of Russia's operators, MTS had always been the least keen to divest towers but a few years ago announced that they were taking steps to share their infrastructure, making around a third of their total tower portfolio available for co-location.

The extent to which this had got off the ground is unclear, but the formation of Tower Infrastructure Company

places a targeted focus on driving up co-locations of their portfolio of assets, signifying a major step for the operator. Whilst MTS had plans to monetise Tower Infrastructure Company (with negotiations having reportedly been underway with players including Service Telecom and Kismet Capital), such plans are now on hold indefinitely due to the political and macroeconomic situation.

Hot the heels of MTS' announcement came an announcement from MegaFon. MegaFon had previously carved out their 17,000 towers into a separate business unit, First Tower Company with the unit having been headed by the new Tower Infrastructure Company CEO Alexander Teremetsky. In late October MegaFon revealed new plans. The operator had reached an agreement with Kismet Capital Group, the main shareholders of Russian towerco Vertical. Under the terms of the agreement, Megafon will transfer ownership of its 17,000 towers to a new towerco venture, securing a 25% stake in the entity. Vertical will contribute its 5,000 sites to the joint venture, with Kismet Capital securing a 65% stake in the entity.

Just a couple of months later, news emerged that the new Kismet Capital owned towerco, New Towers, had reached a deal to acquire Russian Towers. One of Russia's most notable towercos, Russian Towers had built up a portfolio of 7,500 sites through both new

Sanctions imposed by the international community on Russia are a dominating factor in the market dynamics with mobile and tower activity recently focused on international entities exiting the market. Veon exited Russia in Oct 2023 by closing the sale of its Russian operations to a group of senior members of the PJSC VimpelCom management team, led by VimpelCom CEO Alexander Torbakhov.

In September 2021, VEON kicked off the wave of local

RUSSIA

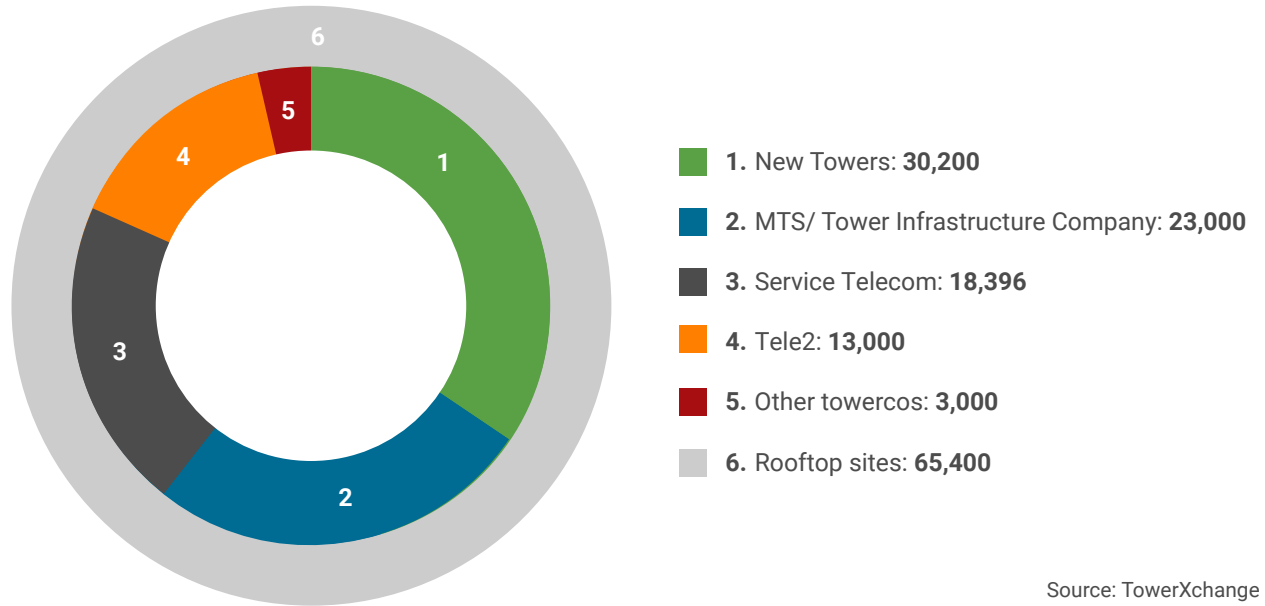
build and the rollup of smaller towercos in the market. The Russian Towers' team bring national towerco experience to New Towers, with Vertical's footprint having previously been confined to the Moscow region.

Tele2, Russia's newest mobile market entrant which was acquired by Rostelecom in 2020 is continuing to roll out its network and has a portfolio of around 13,000 sites. Prior to the takeover by Rostelecom, Tele2 had announced that it was exploring a sale of its assets. Whilst no further details have been announced since the takeover, it was widely expected that Tele2 would follow in the footsteps of its peers, carving out or selling its tower portfolio.

Beyond Service Telecom, New Towers and Tower Infrastructure Company, a fragmented ecosystem of smaller players collectively owns around 3,000 sites in the country. In addition to Russia's c. 85,000 ground based towers, there are a 65,400 rooftop sites in use across the Russian market. In terms of 4G coverage most work has been done, bar road and rail networks where coverage has been limited to date. Beyond extending coverage to such transport routes, the main driver of new site rollout is improved capacity in dense urban environments.

5G rollout will present further organic growth opportunities. A lack of suitable spectrum has been holding back the technology with President Putin having reserved the most popular 3.4-3.8GHz band for

Figure 28: Russia – estimated tower count



Source: TowerXchange

military and intelligence uses. In 2021, Russia's four MNOs announced the formation of a joint venture "New Digital Solutions" which aims at taking a collaborative approach in testing and pushing for the release of new frequency bands suitable for 5G networks. The government had previously proposed auctioning 5G spectrum to a single operator, thus creating a single 5G network but operators in the market had been sceptical.

Another feature of 5G discussions in the Russian market is the government's specification that

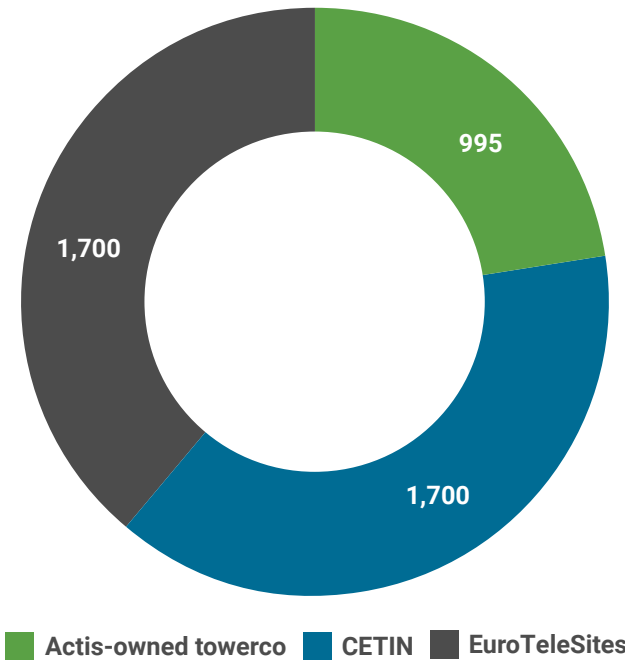
operators must use domestically manufactured equipment. As a result, Nokia, Ericsson and Huawei began setting up production facilities in the country, although sanctions have impacted further development. Local conglomerate, Ros Technologies is involved in the design and manufacture of their own equipment. In mid-2021, Russia's Deputy Prime Minister Dmitry Chernyshenko announced that 5G networks would be launched in the largest cities in the next three years suggesting a 2024 commercial launch of the technology.



Serbia

<p>Towers: 4,395</p>	<p>Population: 6.9mn</p>	<p>Subscribers: 8.5mn</p>
<p>MNOs: mts (Telekom Srbija), Yettel (PPF Group), A1 (Telekom Austria)</p>		
<p>Towercos: EuroTeleSites, CETIN</p>		

Figure 29: Serbia – estimated tower ownership



Source: TowerXchange

In July 2020, Yettel (owned by PPF Group, recently rebranded from Telenor Serbia) followed in the footsteps of PPF’s Czech opco (O2 Czech Republic) and separated out their retail and infrastructure divisions, with their infrastructure carved out into CETIN. CETIN’s remit extends much beyond towers, with CETIN taking ownership of the operator’s metallic cable pairs, fibre and indoor and outdoor base stations. In Q4 2021, PPF announced the sale of a 30% stake in CETIN to Singapore’s GIC investment fund. In Q3 2023, the PPF Group announced it has agreed the sale of a 50% plus one share in the CETIN as well as its MNO unites

in Bulgaria, Hungary, and Serbia to UAE-based e&. The deal is pending regulatory approvals.

MNO A1 which has rebranded from vip, is owned by Telekom Austria Group. A1 Telekom Austria Group have quietly carved out their tower portfolios in a number




of markets, including Serbia, into dedicated towerco units going under the A1 Towers brand. In mid-2023 it followed the model in the other CEE countries and carved out its Austrian towers. The existing towerco legal entity in the country will be managed by the recently formed and Vienna-based EuroTeleSites towerco. Owned by ÖBAG and América Móvil, it was set up following the completion of Telekom Austria Group’s tower spin off in Austria earlier in 2023.

mts (owned by Telekom Srbija has Serbia’s largest subscriber base with a 44% market share.

In May 2023, Serbia enacted its updated Electronic Communications Code which now aligns with the EU’s Electronic Communications Code and incentivises the deployment and use of new network technologies, and the development of electronic communications. Serbia is yet to start 5G license auctions which would present monetisation opportunities for local market players.

In January 2024 mts’s owner Telecom Srbija completed a tower sale process covering sites owned in Serbia, Bosnia and Herzegovina and Montenegro to a consortium led by infrastructure investor Actis. 995 of the assets are in Serbia, 725 are in Bosnia and Herzegovina and 107 are in Montenegro.

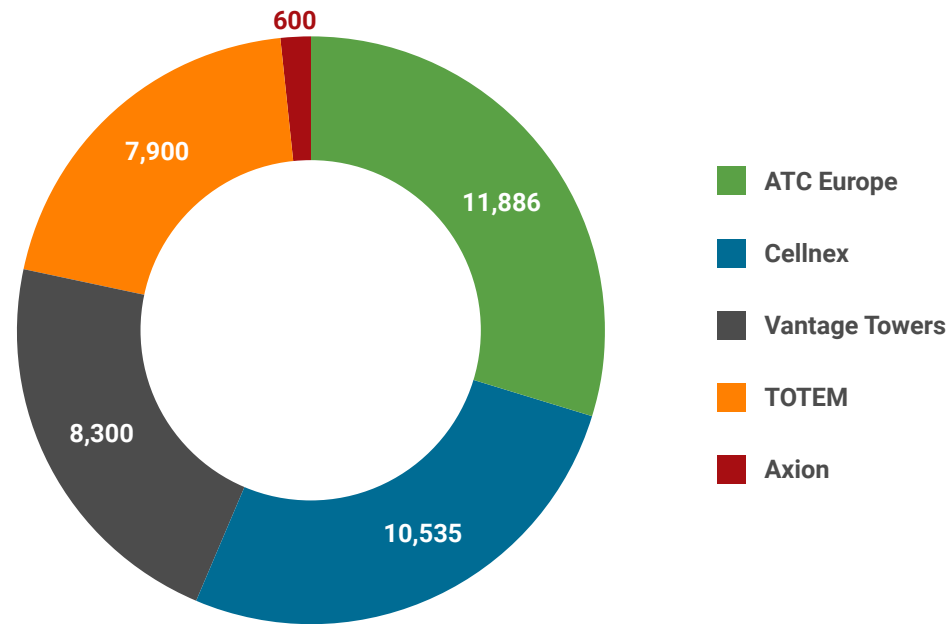
Spain

		
Towers: 39,228	Population: 47.1mn	Subscribers: 55.3mn

MNOs: Movistar (Telefónica), Orange, Vodafone, Yoigo (Masmovil)

Towercos: ATC Europe, Axion, Cellnex, TOTEM, Vantage Towers

Figure 30: Spain – estimated tower count



Source: TowerXchange

100% of Spain’s towers are now owned by towercos.. Spain is the headquarters of multinational towerco, Cellnex and is where the company began. Cellnex acquired the bulk of its Spanish telecom tower portfolio through a number of transactions with Telefónica and Yoigo across 2012-2014 (and also owns a portfolio of broadcast assets in the country).

Telefónica [carved out the majority of its Spanish towers](#) into infraco, Telxius, back in 2016 (transferring the remainder of its sites in Q3 2019). In January 2021, American Tower announced that it had [reached a deal](#) to acquire Telxius’ tower division, giving the towerco a new European market to its operations. The deal has now been closed with the towers being moved into ATC

Europe – American Tower’s European arm in which CDPQ and Allianz have acquired a 48% stake (PGGM, ATC Europe’s JV partner prior to the Telxius deal has restructured its stake in ATC Europe to a shareholding in the local German and French tower units).

Vodafone sold an 81.7% of its stake in its European



SPAIN

toweco Vantage Towers to a consortium of investment firms KKR & Co., Global Infrastructure Partners (GIP) and The Public Investment Fund of Saudi Arabia (PIF). The co-control partnership of the MNO, GIP and KKR called Oak Holdings has bought out the minority shareholders in Vantage Towers and now holds a 89.3% stake. The towerco was delisted in end 2023.

Orange announced the operational launch of TOTEM in October 2021, with the operator having carved out its French and Spanish assets into its towerco unit. In Spain, TOTEM's portfolio is roughly 50/50 split between ground-based towers and rooftops. TOTEM's perimeter is initially confined to France and Spain but the operator is undertaking a strategic review of its other markets. Orange has stated that it plans to retain control of TOTEM but is open to exploring the formation of joint ventures with other MNO owned towercos. Vantage Towers operates in the Spanish market and so could be one joint venture under consideration with Vantage Towers having combined its Italian towers with those of TIM in INWIT. Vodafone and Orange already have an active sharing agreement in place in Spain.

In 2019, Orange sold 1,500 non-strategic sites to Cellnex.

In terms of preparation for 5G, Spain's towercos have been proactive, with Cellnex announcing some high profile small cell and DAS partnerships with venues such as the new Wanda Metropolitano and partnering with JCDecaux, and Axion partnering with UK towerco Wireless

Infrastructure Group to form a joint venture called Iberia Small Cells Network, which will provide neutral host services to venues and municipalities in the region.

Both Cellnex and Axion have also entered the fibre space with Cellnex acquiring Xarxa Oberta de Catalunya (with 3,000km of fibre) and Axion partnering with Enagas to launch a new fibre operator Axent, with a national network of 5,000km across Spain. Vantage Towers recently signed an agreement with Movistar to carry out 5G upgrades at 1,500 sites

MNO consolidation is about to take place in Spain: Orange and MASMOVIL have inked a binding agreement to merge their operations. The competition authorities of the European Commission (EC) and Spain have given their approval to the proposed merger after undertaking an in-depth investigation throughout 2023.

MasMovil and Orange have been in contact with MVNO Digi (part of Romanian DIGI Communications Group) to discuss remedies, including a spectrum transfer agreement from MasMovil and a national roaming agreement with Orange as stipulated by EC. These present an opportunity for Digi to become Spain's next MNO.

UK-based investment company Zegona Communications has entered a binding agreement to buy Vodafone Spain for EUR 5bn (US\$5.3bn), representing a multiple of 3.9x EBITDAaL. Zegona will be able to use the Vodafone brand in Spain for up to 10 years post completion.



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Sweden




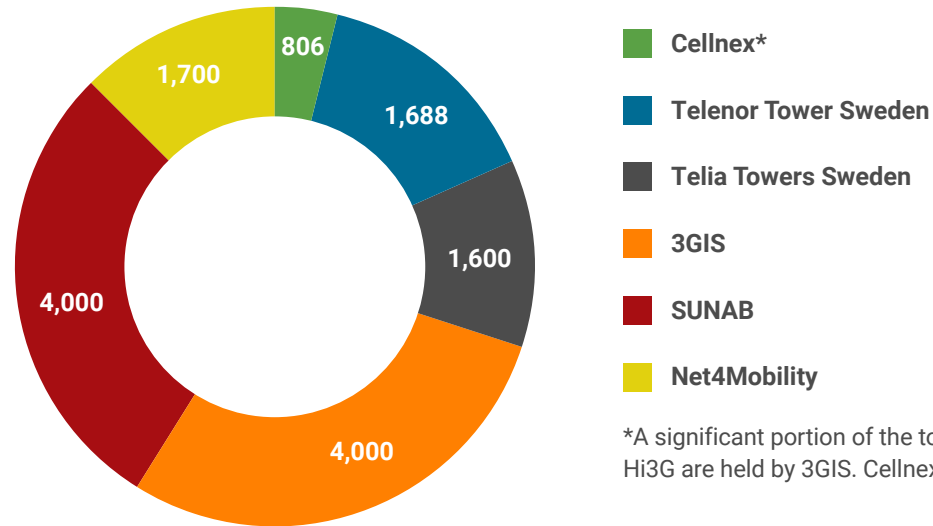
		
Towers: 14,207	Population: 8.6mn	Subscribers: 12.7mn
MNOs: Hi3G (Hutchison), Tele2, Telenor, Telia, Teracom		
Towercos: 3GIS, Cellnex, Net4Mobility, SUNAB, Telenor Towers Sweden, Telia Towers		

Figure 31: Sweden – estimated tower ownership



*A significant portion of the towers that Cellnex acquired from Hi3G are held by 3GIS. Cellnex' total site counts stands at 3,114

Source: TowerXchange

Sweden is the European market with the deepest and most complex level of network sharing, with sharing in place between all four of the country's main MNOs. When Telia, the incumbent at the time, failed to secure a 3G license back in 2001, an agreement was reached with Tele2 to build a joint 3G network using Tele2's license. The 50:50 joint venture company, Svenska UMTS-nät AB (SUNAB) was formed to build, own and operate that network and involves RANsharing and shared spectrum. SUNAB manages a network of 4,000

sites. Telenor and Hi3G also signed an agreement in 2001 to jointly deploy a 3G network, with the joint venture company, 3GIS, responsible for building, owning and operating the network. Whilst the joint venture involves RANsharing, it does not involve shared spectrum. 3GIS currently owns a portfolio of around 4,000 sites (of which c. 2,700 are ground based towers and 1,300 rooftops). With 3G networks set to be switched off by 2025, the two joint ventures are set to be wound down. As to the fate of the towers owned

by the joint ventures, this is not yet clear, with them being shared between their two parent companies one possible outcome.

In 2009, the level of network sharing further intensified when Tele2 and Telenor Sweden formed a joint venture, Net4Mobility, to build and operate a nationwide 2G and 4G network together. This collaboration has extended into the 5G era, with Net4Mobility obtaining spectrum in Sweden's 5G auctions for the rollout of a joint 5G network

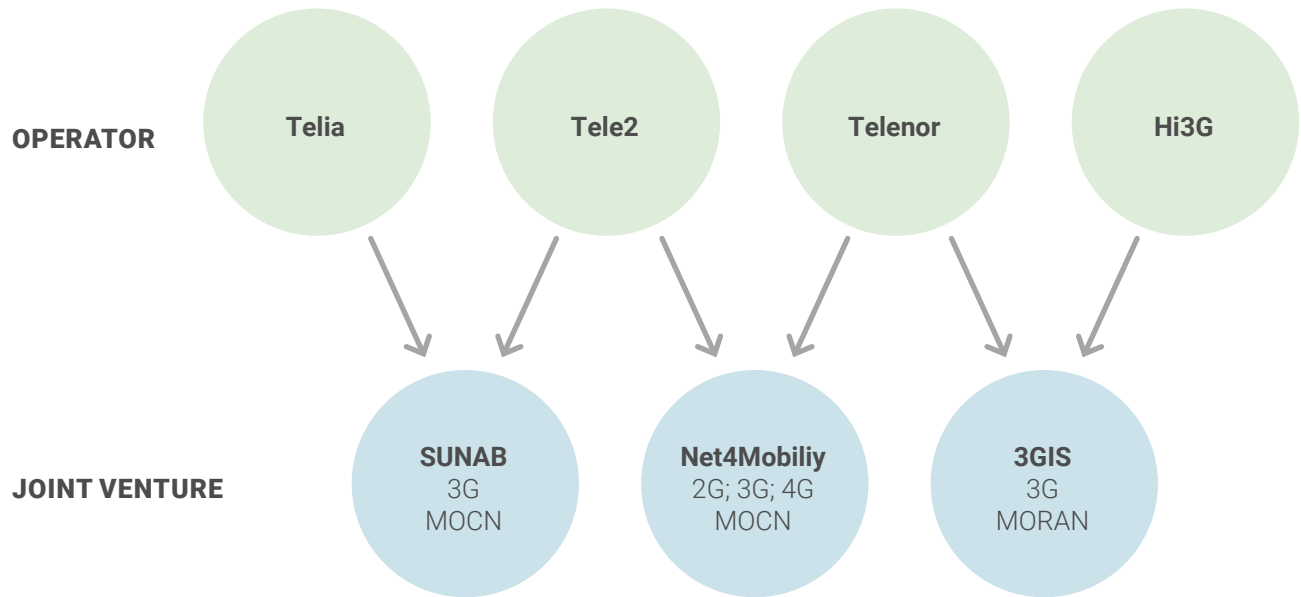
for their parent companies. The joint venture involves RANsharing and shared spectrum.

Whilst the joint venture between Tele2 and Telenor has extended its scope, Tele2 have also hinted that they may explore alternative strategies for their infrastructure (although not specifically referencing Sweden) with their CEO telling analysts "There is an opportunity to do more in terms of sharing and separating out some of our infrastructure assets" adding that they have a "very pragmatic approach to what they need to 100% ourselves and what we can share and where we can have partners." In their Q4 results they stated that more information would become available on their Capital Markets Day in May, although further details are yet to appear.

Telenor has carved out their Nordic assets into Telenor Tower Holdings. Whilst Telenor's joint ventures were initially included in Telenor Tower Holdings' perimeter, the towerco currently only reports financials for its wholly owned towers. Telenor Tower Sweden owns 1,688 towers in the market with a roughly 50/50 split between rooftops and ground based towers (and has a tenancy ratio of 2.3x thanks to the high levels of infrastructure sharing in the market). In their 2022 Capital Markets Day, Telenor announced that they plan to monetise a minority stake in one or more of their national towercos in the next 12-24 months.

Telia had also followed in a similar strategy to Telenor, carving out their tower assets in Sweden, Finland and

Figure 32: Sweden – network sharing joint ventures



Norway into separate towerco units. In the case of Telia, only the operator's directly owned shareable towers were carved into the towerco units, with single tenanted rooftop sites and stakes in joint ventures remaining outside of the towerco perimeter.

Following on from deals in Norway and Finland, Telia agreed the sale of a 49% stake in Telia Towers Sweden to infrastructure investor Brookfield and Swedish pension fund, Alecta. Telia Towers Sweden owns 1,600 towers in the country.

Hi3G, owned by Hutchison, have sold their towers to Cellnex as part of a pan-European deal.

Cellnex has acquired 2,650 towers from the operator in Sweden (with a certain portion held by 3GIS, Hi3G's JV with Telenor) and expects to add up to 2,550 sites over the next eight years.

In November 2023, investment firm Stonepeak completed the acquisition of a 49% stake in Cellnex Sweden and Cellnex Denmark for EUR 730mn.

Switzerland




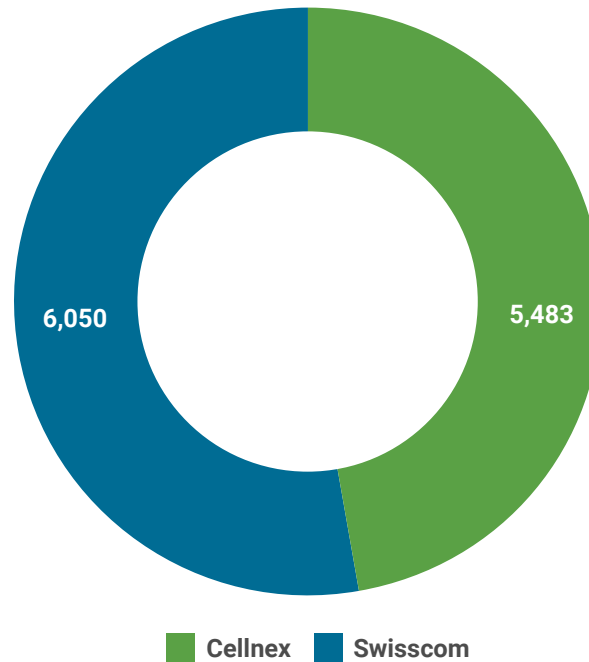
		
Towers: 11,549	Population: 8.6mn	Subscribers: 10.9mn
MNOs: Salt, Sunrise (Liberty Global), Swisscom		
Towercos: Cellnex		

Figure 33: Switzerland – estimated tower ownership



Source: TowerXchange

towers in the Swiss market, with this figure set to rise to 6,118 once all BTS commitments are realised. Swisscom is understood to have around 6,050 sites in the market.

Outside of the country, Swisscom has agreed to buy

Vodafone’s Italian business to for EUR8bn. The sale is part of Vodafone’s wider plans to streamline its European operations. Vodafone will continue to provide certain services to Swisscom for up to five years as part of the transaction.

Around two thirds of Switzerland’s cell sites are rooftops as opposed to ground based towers, although many of those rooftops have ‘stub’ towers on them, making them more readily co-locatable. New build (and co-location) dynamics in Switzerland are affected by EMF regulation, which are the strictest TowerXchange has encountered.

The Swiss regulator Ofcom has confirmed it is planning to make frequencies in the 3400MHz-3500MHz range available for private 5G mobile networks in 2024. At present it is working on finalising the regulatory and technical framework for the licensing of campus networks.

Turkey




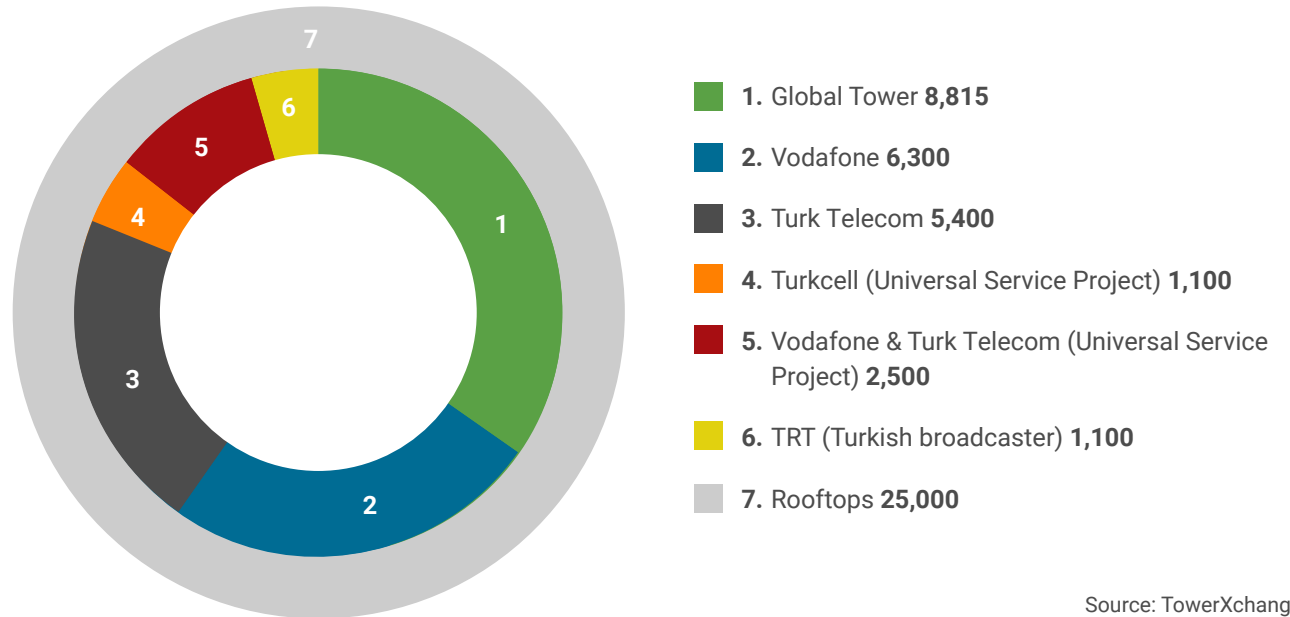
		
Towers: 50,215	Population: 83.4mn	Subscribers: 80.8mn
MNOs: Turk Telecom, Turkcell, Vodafone		
Towercos: Global Tower, PTT Kule, TRT		

Figure 34: Turkey – estimated tower ownership



Source: TowerXchange

The Turkish tower market is dominated by Global Tower, Turkey's biggest towerco, currently 100% owned by Turkey's #1 MNO, Turkcell. Of the 8,815 towers marketed by Global Tower, around half are on the towerco's balance sheet, the other half remain on Turkcell's balance sheet.

Global Tower initially struggled to be recognised as independent of its parent company: for several years Turk Telecom refused to co-locate on Global Towers' sites, although Vodafone did from the outset. Turkish MNOs remain reluctant to pay a commercial rate to lease a site, resulting in Global Towers' tenancy ratio

(~1.3) being lower than other towers (~1.5) which are shared on a barter basis.

In 2016 Global Tower attempted an IPO on the Istanbul Stock Exchange, which was postponed shortly before the planned flotation date. Since pulling the IPO

they have focussed on growth, offering fibre to their customers through Turkcell's fibre arm, SuperOnline, reselling satellite connectivity to both their tenants and aiming to acquire and consolidate the majority of the towers in Turkey before embarking on a large decommissioning regime. In end 2022 Global Tower's



TURKEY

parent company Turkcell announced it has started a preparation process for an IPO of a certain amount of the towerco's shares, which will be held in Turkey, and when required on international markets, depending on the market conditions.

Whilst Vodafone has carved out its European towers into Vantage Towers, their Turkish operations straddling Europe and Asia were not included in such plans. Vodafone is understood to own around 6,300 towers in the market.

Turkey's final operator, Turk Telecom is understood to own around 5,400 towers.

A quirk of the Turkish market is that the infrastructure rolled out for 2G in the early 2000s, a total of around 16,000 towers, will revert to the Ministry of Transport and Communications in 2023. As yet it is not clear what the government will do with these assets: it has been widely believed that the government would not have the appetite or resources to manage such a large portfolio of towers and would hand them back to the MNOs, but the current investibility of telecoms infrastructure means no option is currently off the table.

Turkey is home to one of the world's largest government-owned universal service networks, called 'Universal Services Project' and implemented by the Ministry of Communication and Transportation. Phase one of the project was auctioned in 2011, with Turkcell

implementing 1,100 rural sites following a successful bid. Phase two was awarded to a joint venture between Vodafone and Turk Telekom with plans to build a further 2,500-3,000 RANsharing sites in rural areas.

In addition, the Turkish government has launched a new towerco called PTT Kule Inc, which is focussed on very large scale tower structures for telecoms and broadcast as well as hosting data centres and other facilities. PTT Kule are planning as many as 40 high towers across Turkey in the next few years.



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Ukraine



Towers:
22,855



Population:
44.4mn

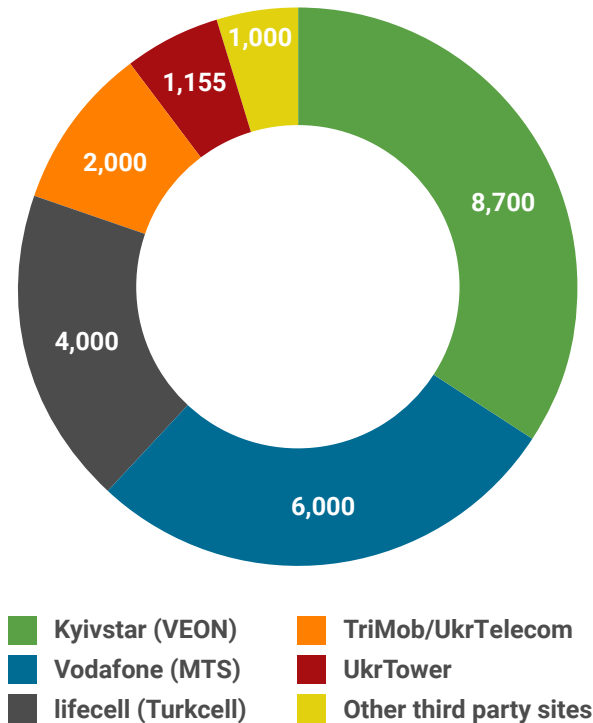


Subscribers:
54.8mn

MNOs: Kyivstar (VEON), lifecell (Turkcell)
Vodafone (MTS), TriMob (Ukrtelecom) plus
regional players and MVNOs

Towercos: UkrTOWER

Figure 35: Ukraine – pre-war tower estimates



Source: TowerXchange

towerco Global Tower. UkrTOWER's current site count is 1,155, including a number of in building solutions, and the company boasts a healthy tenancy ratio. Outside of

UkrTOWER, only 3-5% of towers and rooftops in Ukraine are shared, mostly at nominal prices or under barter arrangements.

In 2017 VEON decided to bring their Ukrainian towers to market (in conjunction with towers in Kazakhstan, Armenia and Georgia). The deal was quietly scrapped after the sale of VEON's Russian towers was cancelled in May 2017. In their Q4 2020 results, VEON announced that they were creating towerco business units in each of their nine markets, remaining open minded about with what they will do with their towerco units (rolling them up into a single towerco, forming larger JVs with other tower portfolios or monetising them). In September 2021, VEON announced that it had reached a deal to sell its Russian tower portfolio to independent towerco Service Telecom. The operator has ear marked Ukraine (alongside Bangladesh and Pakistan) as its next priority to monetise, although macroeconomic events have put any developments on hold in the Ukraine.

Vodafone's site count is thought to stand at 6,000, TriMob's at 2,000 and lifecell are understood to retain around 4,000 towers in the market. A further 1,000+ leased third party structures, such as smoke stacks and water towers, are utilised by Ukraine's MNOs, while the core site count includes around 60% ground based towers, 40% rooftops, bringing the total unique site count (excluding co-locations) to around 22,800.



United Kingdom



Towers:
40,074



Population:
66.8mn

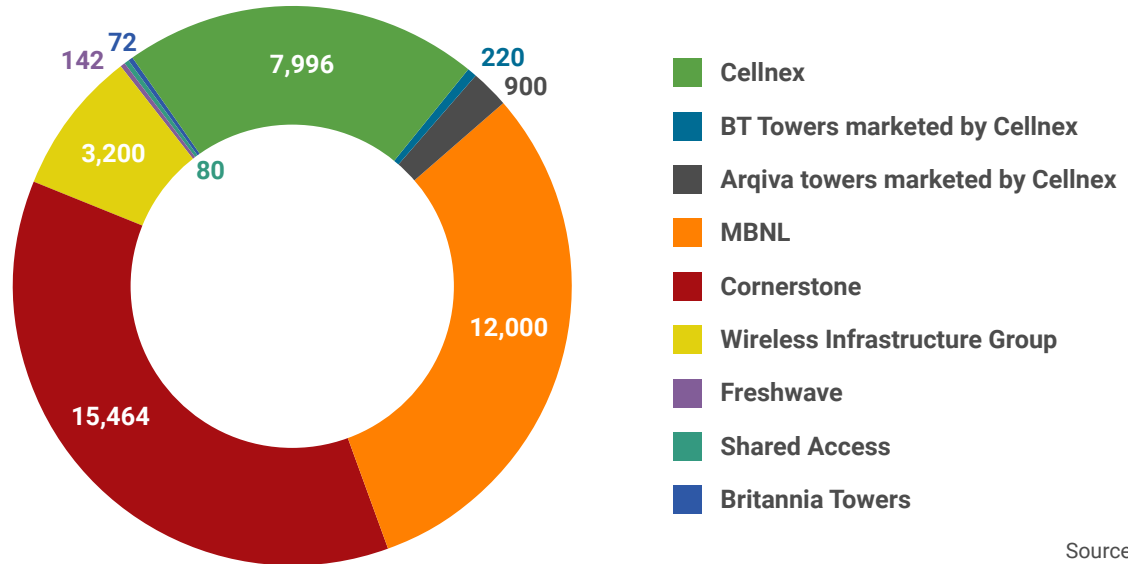


Subscribers:
79.5mn

MNOs: 3 (CK Hutchison), EE (BT), Virgin Media O2 (Telefónica/ Liberty Global), Vodafone

Towercos: Britannia Towers, Cellnex, Cornerstone, Freshwave, MBNL, Shared Access, Wireless Infrastructure Group

Figure 36: United Kingdom – estimated tower ownership



Source: TowerXchange

The UK market has a unique structure with two joint venture infracos, Cornerstone (between Vodafone and O2 (Telefónica)) and MBNL (between EE (BT) and 3 (Hutchison)) responsible for over 70% of the country's total stock of towers. Whilst infrastructure sharing businesses in their own right (MBNL covering both active and passive equipment, and Cornerstone just passive), Cornerstone and MBNL are the primary clients of UK's towercos managing leasing

arrangements on behalf of their own shareholders. Whilst Cornerstone has its own balance sheet, the towers managed by MBNL remain on the balance sheet of the parent MNOs. Of MBNL's 12,000 sites, around 7,500 are shared by both Hutchison and EE, with 4,500 used by EE only.

In early 2021, Vodafone and Telefónica announced the commercialisation of Cornerstone, entering into long term

MSAs with Cornerstone. Cornerstone will also become the preferred supplier of new sites for the two operators, with Telefónica and Vodafone committing to be anchor tenants on c. 1,200 new sites to be built by Cornerstone. The majority of such new site build is due to the unwinding of the active sharing in place between Vodafone and Telefónica in large urban centres (the two parties' active sharing agreement is to provide for network coverage



UNITED KINGDOM

outside of large urban centres). Vodafone has transferred its 50% interest in Cornerstone to its towerco, Vantage Towers, adding a further country to the towerco's portfolio.

Telefónica had carved out its tower portfolios in Europe (bar the UK) and CALA into its infraco, Telxius, prior to [agreeing the sale](#) of Telxius' tower business to American Tower in early 2021. Following the merger of O2 and Virgin Media, Telefónica and Liberty Global started a process to sell a stake in Cornerstone. After months of speculation, in the UK, Virgin Media sold a 16.67% stake in Cornerstone to GLIL Infrastructure for GBP360mn (US\$459mn).

In the case of MBNL, Hutchison has monetised its stake in the JV, with Cellnex set to acquire the economic risks and rewards of Hutchison's stake as part of their pan-European deal with the MNO. The UK portion of the deal has concluded in Q4 2022 and Wireless Infrastructure Group has acquired 1,100 towers from Cellnex UK. As part of the deal, Cellnex plans to build a further 600 new sites in the UK over the next eight years. In June 2023 Vodafone and Three announced their long-anticipated merger. Vodafone will own 51% of the combined business with Three's parent company CK Hutchinson owning 49%. The UK regulator has opened an in-depth investigation into deal.

Cellnex entered the UK market in 2016, with the [acquisition of Shere Group](#) and their portfolio 540 UK sites (whilst also acquiring their Dutch assets). The towerco then strengthened their position in the UK signing a [long-term strategic agreement](#) with BT for the management and

marketing of 220 high towers owned by the operator. In October 2019, Cellnex announced that it had [reached a deal](#) to acquire the telecoms division of Arqiva. In the £2bn deal, Cellnex took ownership of 7,400 sites whilst securing the rights to market a further 900 Arqiva sites, giving the towerco significant scale in the UK market.

DigitalBridge (formerly Digital Colony) has been similarly acquisitive in the UK market, albeit more focussed on the small cells and DAS market. In 2018, Digital Colony acquired two UK indoor coverage providers, [Stratto](#) and [OpenCell](#), then in 2019 acquired [iWireless Solutions](#) and [Spyder Facilities](#). DigitalBridge' has combined the four business into their digital infrastructure platform, [Freshwave](#).

In addition to Cellnex and Freshwave, there are a number of other independent towercos operating in the UK market, the largest of which is Wireless Infrastructure Group with over 3,200 sites. WIG also has a significant in-building portfolio of sites. In late 2019, Wireless Infrastructure Group was [acquired by Brookfield](#), giving them significant financial backing to participate in any European M&A on the horizon.

In a bid to address rural broadband coverage in the UK, the country's four MNOs have signed up to the Shared Rural Network where they will collectively invest £532mn, with the government investing £500mn, to address total not-spots and areas with poor coverage. Additionally, Vodafone, Hutchison and Telefónica have signed an agreement to address partial not-spots, sharing the new build between them (with Cornerstone adding sites for Vodafone and Telefónica).



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Figure 37(a): European MNO-towerco deals since 2007

Year	Country	Seller	Buyer	Tower count	Deal value (€)	Cost per tower (€)	Deal structure
2024	Bosnia and Herzegovina, Montenegro, Serbia	Telekom Srbija	Actis	1,800			SLB
2023	Malta	GO	BMIT Technologies	280	47100000	168,214	SLB
2023	Poland	Iliad	Cellnex		510000000		30% stake purchase from Iliad in OnTower JV
2023	Bulgaria, Croatia, Slovenia	United Group	TAWAL	4,800	1,220,000,000	254167	SLB
2022	Belgium	Telenet	Digital Bridge	3,322	745,000,000	224,262	SLB [1]
2021	Iceland	Sýn and Nova	ÍslandsTurnar	367	91,000,000	247956	SLB
2021	Portugal	MEO	Cellnex	223			SLB [2]
2021	Russia	MegaFon	Kismet Capital Group	17,000			Merger with Vertical [3]
2021	Russia	VEON	Service Telecom	15,400	847,800,000	55,052	SLB
2020	Portugal	Altice	Cellnex	223			SLB [4]
2021	Malta & Cyprus	Monaco Telecom	Phoenix Tower International	815			SLB
2021	Poland	Polkomtel	Cellnex	7,000	1,600,000,000		[5]
2020	Austria, Denmark, Ireland, Italy, Sweden, UK	Hutchison	Cellnex	24,600	10,000,000,000		SLB [6]
2020	Poland	Iliad	Cellnex	7,000	800,000,000	190,476	SLB with 40% equity
2020	Germany	Telefónica	Telxius	10,100	1,500,000,000	148,514	SLB
2020	Ireland	eir	Phoenix Tower International	650	300,000,000		SLB

**Figure 37(a) continued:** European MNO-towerco deals since 2007

Year	Country	Seller	Buyer	Tower count	Deal value (€)	Cost per tower (€)	Deal structure
2020	Portugal	Nos	Cellnex	2,000	375,000,000	187,500	
2019	Italy	Vodafone	INWIT	11,000	2,140,000,000		Merger INWIT & Vodafone Towers [7]
2019	UK	BT	Cellnex	220			Manage and market
2019	France	Iliad	Cellnex	5,700	1,400,000,000	245,614	SLB with 30% equity
2019	Italy	Iliad	Cellnex	2,200	600,000,000	272,727	SLB
2019	Switzerland	Salt	Cellnex	2,800	700,000,000	250,000	SLB with 10% equity [8]
2017	Italy	Wind (Veon)	Cellnex		77,000,000	104,054	SLB 10% stake out
2017	Spain	MasMovil	Cellnex	551	36,000,000	65,336	SLB
2017	Switzerland	Sunrise	Cellnex, Swiss Life and DTCP	2,339	430,000,000	183,839	SLB [9]
2017	France	Bouygues Telecom	Cellnex	600	170,000,000	283,333	SLB
2017	France	Bouygues Telecom	Cellnex	1800	500,000,000	277,778	SLB
2016	France	Bouygues Telecom	Cellnex	230	80,000,000	347,826	SLB
2016	France	Bouygues Telecom	Cellnex	270	67,000,000	248,148	SLB
2016	Spain	Telefónica	Telxius	11000			SLB
2016	Germany	Telefónica	Telxius	2350	587,000,000	249,787	SLB
2016	Ukraine	Lifecell	UkrTower	811	47,820,000	58,964	SLB
2015	Italy	Wind (Veon)	Cellnex	7,377	693,000,000	94,892	SLB with 10% equity [10]

Figure 37(a) continued: European MNO-towerco deals since 2007

Year	Country	Seller	Buyer	Tower count	Deal value (€)	Cost per tower (€)	Deal structure
2014	Spain	Telefónica/Yoigo	Cellnex	4,277	385,000,000	90,016	SLB
2012	France	Bouygues Telecom	FPS Towers	2,166	185,000,000	100,400	SLB with 15% equity
2012	Germany	KPN	American Tower	2,031	393,000,000	193,501	SLB
2012	Netherlands	KPN	Protelindo	261	75,000,000	287,356	SLB
2012	Netherlands	KPN	Shere Group	460	115,000,000	250,000	SLB
2012	Spain	Telefónica	Cellnex	500	45,000,000	90,000	SLB
2010	Netherlands	KPN	Open Tower Company	500			SLB
2008	Netherlands	KPN	Open Tower Company	101			SLB
2007	Ireland	Eircom	Towercom	338	155,000,000	399,988	SLB

[1] Site count includes 2,158 owned sites and 1,164 third-party sites

[2] Deal also includes 464 small cells

[3] MegaFon had previously carved out its assets into First Tower Company. First Tower Company is being acquired by Kismet Capital Group. Kismet Capital Group are also majority shareholders of Russian towerco Vertical which owns 5,000 sites. Vertical's sites will be combined with those of MegaFon under a new Kismet Capital Group owned towerco

[4] The deal also included 464 micro sites and had a total deal value of €209mn

[5] Acquisition also includes active equipment including c. 37,000 radio carriers, c. 11,000 km of fibre backbone and FTTT backhaul and a national network of microwave radiolinks

[6] Deal includes 8,900 sites in Italy, 1,150 in Ireland, 2,650 in Sweden, 1,400 in Denmark and 4,500 in Austria. In the UK, Cellnex acquired interests in or deriving from 6,000 sites. Deal value of €10bn consists of 8.6bn in cash and €1.4bn in shares in Cellnex, equivalent to a 5% stake in the company.

[7] INWIT paid €2.1bn to acquire 43% of Vodafone towers whilst Vodafone were issued €360mn INWIT shares to obtain a 37.5% stake in INWIT (equal to TIM's share)

[8] Cellnex has since acquired the remaining 30% stake that it did not own

[9] Cellnex has since acquired DTCP's stake

[10] Cellnex has since acquired the remaining 10% stake that it did not own



Figure 37(b): European towerco M&A since 2015

Year	Country	Entity/Seller	Buyer	Tower count	Deal value (EUR)	Cost per tower	Deal structure
2024	Ireland	Cellnex	Phoenix Tower International	1,900	971,000,000	511,000	Company acquisition
2023	UK	WHP Estates	Cellnex	55			Company acquisition
2023	Germany	NOVEC GmbH	Phoenix Tower International	220			Company acquisition
2023	Denmark & Sweden	Cellnex	Stonepeak		730,000,000		49% stake
2023	Poland	American Tower	Emitel	65			Portfolio acquisition
2022	France	Cellnex	Phoenix Tower	3,226			Portfolio acquisition [1]
2022	Russia	Russian Towers	New Towers	7,000			Company acquisition
2021	France	Hivory	Cellnex	10,500	5,200,000,000	495,238	Company acquisition
2021	Netherlands	T-Mobile Infra	Cellnex & DIV	3,150			Merger[1]
2021	Germany & Spain (plus Brazil, Peru, Chile & Argentina)	Telxius	American Tower	30,722	7,700,000,000	250,635	Company acquisition
2020	Italy	Towertel	Phoenix Tower International	1,000	NDC		Company acquisition [2]
2020	Portugal	OMTEL	Cellnex	3,000	800,000,000	266,666	Company acquisition
2019	UK	Arqiva	Cellnex	7400	2,300,000,000	310,811	Company acquisition[3]
2019	Ireland	Cignal	Cellnex	546	210,000,000	384,615	Company acquisition[4]
2019	UK	Spyder	Digital Colony				Company acquisition
2019	Finland	Digita	Digital Colony	556			Company acquisition[5]
2017	Netherlands	Mom and Pop	Cellnex	32	12,000,000	375,000	Company acquisition

Figure 37(b) continued: European towerco M&A since 2015

Year	Country	Entity/Seller	Buyer	Tower count	Deal value (EUR)	Cost per tower	Deal structure
2017	Russia	Link Development	Service Telecom	400			Company acquisition
2017	Netherlands	Alticom	Cellnex	30	133,000,000	443,333	Company acquisition
2016	France	ITAS TIM	TDF	420			Company acquisition
2016	Germany	WDR	American Tower				Company acquisition
2016	France	FPS Towers	American Tower	2,482	697,000,000	280,821	Company acquisition
2016	UK & Netherlands	Shere Group	Cellnex	1,004	393,000,000	391,434	Company acquisition
2016	Netherlands	Protelindo	Cellnex	261	109,000,000	417,624	Company acquisition
2015	Ireland	Coillte	Signal	113			Portfolio acquisition
2015	Italy	Tecnorad	EI Towers	134	17,000,000	126,866	Portfolio acquisition
2015	Italy	TowerCo	Cellnex	212	94,600,000	446,226	Company acquisition

[1] PTI will acquire 1,226 sites, whilst PTI with its JV partner, Bouygues Telecom will acquire 2,000 sites”

[2] Deutsche Telekom transferred T-Mobile Infra to a new investment fund, Digital Infrastructure Vehicle, receiving a €250mn cash payment and shareholding in DIV, equating to a capital commitment of €400mn in DIV. In parallel, Cellnex agreed to commit €200mn in capital to DIV. DIV then transferred T-Mobile Infra into Cellnex Netherlands, obtaining a 38% stake in Cellnex Netherlands. Cellnex retains a 62% stake in Cellnex Netherlands

[3] Deal also includes agreement for PTI to market 1,600 broadcast sites owned by EI Towers (Towertel’s previous owners

[4] Deal also includes the right to market 900 additional Arqiva sites

[5] Signal own the land but not the tower on a proportion of sites. Cellnex will also inherit a pipeline of 600 new sites to be build by 2020

[6] Deal also includes data centres and fibre

Figure 37(c): Major European towerco equity deals and listings since 2016

Year	Seller	Entity	Tower count	Buyer/stock exchange	Equity	Deal value	Implied EV
2023	Denmark & Sweden	Cellnex	Stonepeak		730,000,000	4,600	49% stake
2023	Telenor Communication II AS and Participatiemaatschappij Vlaanderen NV	Norkring België NV	25	Cordiant Capital	100%		5,250,000
2023	Liberty Global	Cornerstone	15,464	GLIL Infrastructure	16.67%	360,000,000	
2023	Infrabridge	Towercom	409	John Laing Group	100%		
2022	Vodafone	Vantage Towers	45,900	KKR & GIP, PIF	81.7%	3,200,000,000	16,200,000,000
2022	Deutsche Telekom	GD Towers	40,500	Brookfield & DigitalBridge	51%	8,925,000,000	17,500,000,000
2022	Telia	Telia Towers Sweden	1,600	Brookfield & Alecta	49%	225,000,000	458,000,000
2021	Síminn	Míla	500	Ardian	100%	520,000,000	520,000,000 [1]
2021	PPF Group	CETIN	10,223	GIC	30%		
2021	Telia	Telia Towers Finland & Norway	3,700	Brookfield & Alecta	49%	722,000,000	1,473,460,000
2021	Macquarie	České Radiokomunikace	800	Cordiant Digital Infrastructure	100%		[2]
2021	American Tower	ATC Europe	25,274	Allianz & CDPQ	48%	2,600,000,000	5,416,667,000
2021	Vodafone	Vantage Towers	82,000	Frankfurt Stock Exchange	18.30%	2,200,000,000	12,021,858,000
2020	AMP Capital	Axion	635	Asterion Industrial Partners	100%	NDC	-
2019	3i	Wireless Infrastructure Group	2,200	Brookfield			686,900,000
2018	Telefónica	Telxius	16,000	Pontegadea	10%	379,000,000	3790000000

Figure 37(c) continued: Major European towerco equity deals and listings since 2016

Year	Seller	Entity	Tower count	Buyer/stock exchange	Equity	Deal value	Implied EV
2018	Altice	Hivory/SFR Towerco	10,198	KKR	40%	1,799,000,000	4497500000
2018	Altice	OMTEL/ Towers of Portugal	2,961	Morgan Stanley & Horizon Equity Partners	75%	495,000,000	660000000
2017	Telefónica	Telxius	16,000	KKR	40%	1,300,000,000	3250000000
2016	American Tower	American Tower Germany	2,197	PGGM [3]	49%	NDC	-
2016	Antin Infrastructure Partners	Axion	584	AMP Capital	100%	NDC	-
2016	New equity investment	Wireless Infrastructure Group	2,000	3i	NDC	300,000,000	-
2015	Telecom Italia	INWIT	11,200	Milano Italia Borsa	40%	875,300,000	2188250000
2015	Abertis	Cellnex Telecom	15,091	Bolsa da Madrid	66%	2,138,000,000	3239393939
2015	Coillte	Telecom assets	300	InfraVia Capital Partners	100%	70,000,000	70,000,000

[1] Mila's assets also include fixed line infrastructure, backhaul and active equipment

[2] České Radiokomunikace's tower portfolio includes broadcast as well as telecommunications site. The infraco also owns fibre and offers colocation and cloud services from its Prague data centre

[3] American Tower's German assets were transferred to ATC Europe in which PGGM has a 49% stake

