The economic contribution of the European wireless infrastructure sector

A report for the European Wireless Infrastructure Association

May 2024

EY Parthenon

Building a better working world

Contents

Images source: Images sourced from EWIA member companies and their employees

Context

EY-Parthenon teams and the European Wireless Infrastructure Association (EWIA) have published regular reports, including a March 2023 report on the sustainability contribution of the European independent wireless infrastructure sector, typically shortened to "TowerCo". This report updates the topic of the economic contribution of the European wireless infrastructure sector, a version of which was last published in February 2022.

The sector has continued to attract interest from policymakers and investors as mobile network operators (MNOs) have outsourced more mobile infrastructure, and 5G network rollouts are well progressed.

EY-Parthenon teams and EWIA have refreshed the data provided in the study in February 2022 to reflect developments in the market up to December 2023 (e.g., developments in market share based on acquisitions and associated capital release facilitated by independent TowerCos).

The overall objective of the study remains the same: to foster a better understanding of the benefits that independent TowerCos can provide in generating investment and promoting efficient use of communication infrastructure, and the role they can play in delivering the European Gigabit Society by 2025, the Digital Decade vision by 2030, and other government targets.

The report is based on a combination of publicly available data, information that has been provided by EWIA members and interviews with market participants, as well as EY teams' extensive experience in advising the wider mobile infrastructure sector.

In this report, Europe is defined as EU-27, the United Kingdom and the European Free Trade Association (EFTA) unless stated otherwise.

About the EWIA

The European Wireless Infrastructure Association (EWIA) is a European trade association of wholesale wireless infrastructure providers. EWIA has nine TowerCo members operating in 16 countries (Austria, Cyprus, Denmark, Finland, France, Germany, Ireland, Italy, Malta, the Netherlands, Poland, Portugal, Spain, Sweden, Switzerland and the United Kingdom). EWIA members invest in and operate wireless infrastructure essential to the delivery of mobile voice, wireless broadband, and other wireless networks.

EWIA advocates for policies that encourage the network infrastructure investment and deployment necessary to make advanced wireless broadband available everywhere for consumers, businesses, health care organizations, public safety agencies and the countless other sectors that rely on always-on wireless connections.

About EY-Parthenon and EY teams

EY member firms provide professional services to the telecom sector — EY teams serve all the top 20 telecom operators ranked by market capitalization. EY-Parthenon teams' strategy and transaction services are based on deep tower infrastructure and telecommunications sector experience. The organization has a large pool of tower infrastructure knowledge derived from its presence across the globe with offices in over 90 countries and the extensive range of telecommunication assurance, consulting, and strategy and transactions clients in the sector.

Executive summary

Outsourcing of wireless infrastructure to independent TowerCos is a global trend in which Europe has been catching up with the model prevailing globally. It provides eight benefits to MNOs, the wider wireless sector and, ultimately, the consumer:

1. Independent TowerCos specialize in operating neutral host "passive" wireless network infrastructure, such as mobile towers. Sharing towers with multiple tenants reduces overall cost for mobile operators, helps improve coverage and reduces consumer prices.

2. Long-term international investors in European infrastructure value the benefits of the TowerCo model, resulting in an active mergers and acquisitions (M&A) market with more than €51b in tower deals (since 2019).

3. The average number of wireless network operators sharing an independent tower is 2.1, compared with 1.3 for MNO-controlled towers. Independent TowerCos make it easier and cheaper to roll out new networks.

4. A typical location of a wireless network operator ("point of presence") managed by a TowerCo is c. 40% more efficient than one managed by an MNO, resulting in projected economic savings of €31b across Europe between 2019 and 2029.

5. Greater outsourcing to independent TowerCos was estimated to release €28b of capital, which MNOs can reinvest in their networks, such as to improve coverage and accelerate 5G rollouts. Since 2019, independent TowerCos have helped release c. €26b in capital via the acquisition of various tower portfolios from MNOs, with more expected.

6. Independent TowerCos are playing a key role in enabling 5G rollouts and the continued expansion of mobile network coverage. In addition to tower acquisitions, EWIA members alone have invested €2.0b p.a. CapEx in new deployments, site reinforcement and maintenance since 2021.

7. The share of independent TowerCos in Europe has increased in recent years (from 13% in 2014 and 17% in 2018 to 35% in 2021 and 39% in 2023), and is expected to continue to trend toward the global level of c. 54%.

8. Independent TowerCos have enabled infrastructure sharing and efficient deployments, key principles of the anticipated Gigabit Infrastructure Act.

Introduction

Wireless infrastructure provides an important element for the operations of wireless network services, including mobile networks, fixed wireless access broadband, emergency services, TV and radio broadcast, and Internet of Things (IoT). The largest user segment of wireless infrastructure (towers) are the mobile network operators (MNOs).

Over the last few decades, tower ownership has increasingly been transferred from MNOs to separate tower companies (TowerCos). These TowerCos can take the form of an internal division within an MNO, a separate entity controlled by an MNO, a minority owned by an MNO or a wholly independent entity.

TowerCos have developed robust business models around the building and management of ground-based towers (GBTs) and rooftop towers (RTTs), on which space is offered to multiple customers.

To understand the economic benefits that TowerCos provide, it is important to understand the provisioning of wireless networks. The value chain consists of three key segments: passive infrastructure, active networks and retail services. Towers are part of passive infrastructure, and access to them is traded on the wholesale wireless infrastructure market.

MNOs, for instance, install radio access network (RAN) equipment such as antennas, radio, and baseband units on towers to transmit mobile signals. The active networks and passive infrastructure together enable an MNO to provide voice and data services to retail customers. This mobile network service value chain is illustrated below.

Figure 1: Value chain for wireless network services

Passive infrastructure

MNOs and TowerCos construct and manage passive infrastructure, i.e., towers/sites for mobile and other wireless networks. These include a large variety of other existing infrastructure such as electricity pylons, water towers or motorway gantries.

Active networks

MNOs install and use active equipment to transmit data. MNOs also sell airtime to MVNOs. Other wireless networks enable fixed wireless access, emergency services, broadcast, IoT, etc.

Retail services

MNOs and Mobile Virtual Network Operators (MVNOs) provide voice and data services to retail customers, combined with handset sales. Other networks provide wireless internet, police radios, TV signals, IoT connectivity, etc.

Towers can be split into two main types – ground-based towers (GBTs) and rooftop towers (RTTs)

There are two main types of towers – ground-based and rooftop. Ground-based towers are typically freestanding structures and are more prevalent in less densely populated areas. Rooftop towers are (usually) set up on pre-existing buildings or structures and are typically located on the roof, roofing pavement or high windows (e.g., in the case of a church bell tower being used as a rooftop tower). All statements, numbers and figures in this report refer to both tower types, unless stated otherwise.

In addition to macro towers, TowerCos also develop wholesale small cell platforms for high-density outdoor capacity or distributed antenna solutions (DAS) for indoor coverage. These small cells also use existing structures, such as lamp posts, CCTV poles or building facades, but the antenna units are much smaller than on rooftop tower installations. In such cases, the wholesaler retains ownership and responsibility for the operation of the active infrastructure and can facilitate multiple operators collocating on a single active infrastructure site. The TowerCo provides the design of the solution, develops, and maintains the network, and manages the relationship with the real estate owner and with any other site users. This report primarily focuses on macro mobile telecoms towers.

> “Our core business is to find the land, finance, build and maintain infrastructure, and offer multi-operator infrastructure to MNOs and other wireless operators.

Roland Chedlivili
Co Managing Director, TowerCo, TDF

Figure 2: Typical tower types

Ground-based towers

Rooftop towers

Small cells

TowerCos operate "passive" infrastructure enabling wireless networks to provide services

TowerCos develop, acquire and operate mobile network towers. They invest in mobile network towers, small cell networks, and associated utility and real estate rights for the purpose of providing wholesale access to MNOs and other network operators on a shared basis. This provides an alternative to MNOs managing their own passive infrastructure.

For MNOs, outsourcing passive wireless infrastructure to TowerCos helps to free up capital. The economic benefits of outsourcing passive infrastructure to independent TowerCos are discussed in greater detail in the "economic assessment" section of this report.

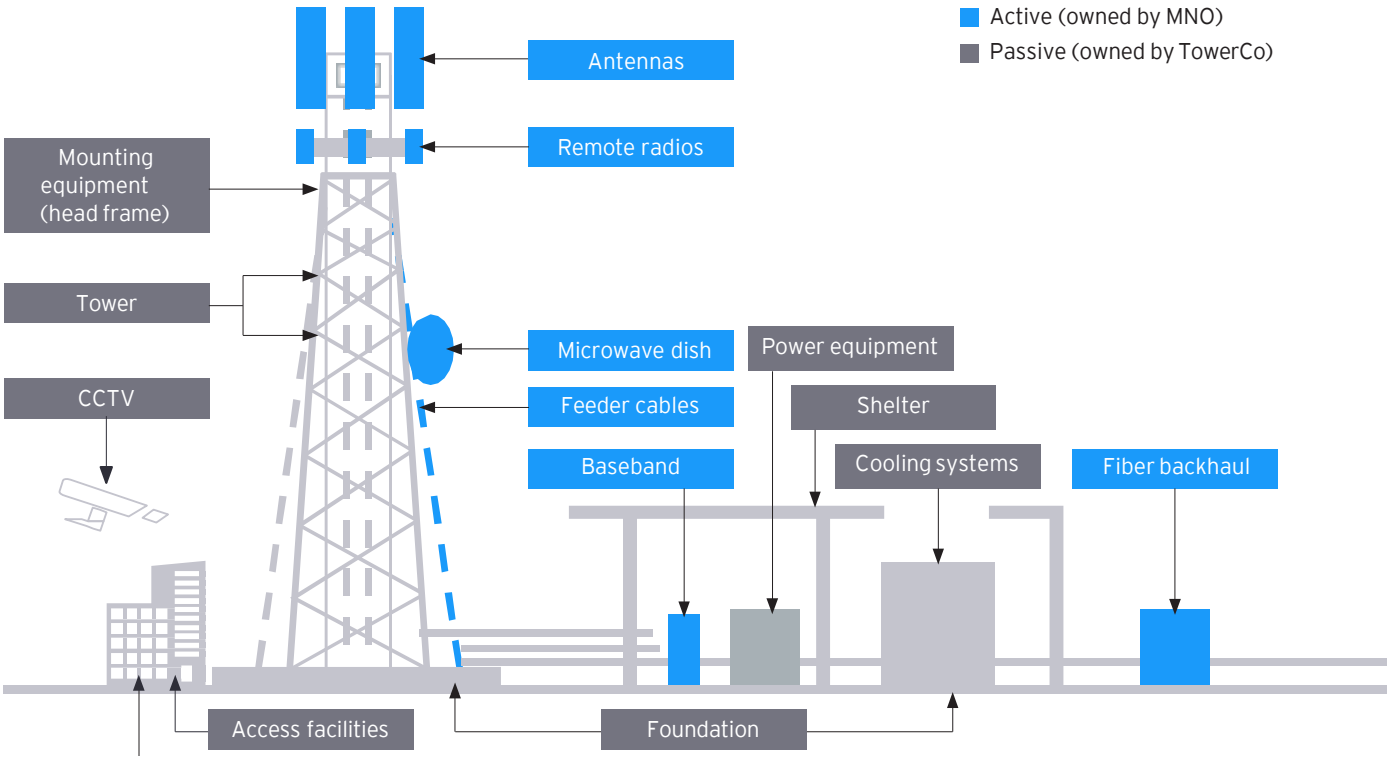
When offering passive infrastructure services to MNOs, TowerCos' responsibilities typically include:

- Provision of the physical site/rooftop and maintenance of related real estate contracts
- Installation and management of the passive infrastructure, including tower structure, civil works, fences, shelters, and possibly power supply and cooling systems
- Health and safety compliance at the site
- Access to infrastructure space and provision of services to MNOs and other network operators

Meanwhile, MNOs and other network operators' responsibilities include:

- Rental of passive infrastructure from TowerCos to install active equipment, including radio units, baseband units and other equipment
- Ownership of the feeder cables connecting antennas with radio equipment, and the fiber connection to the backhaul/core network, although dark fiber backhaul access is increasingly provided by TowerCos as a value-added service (among other things)

Figure 3: Illustration of active and passive equipment on a typical ground-based tower site

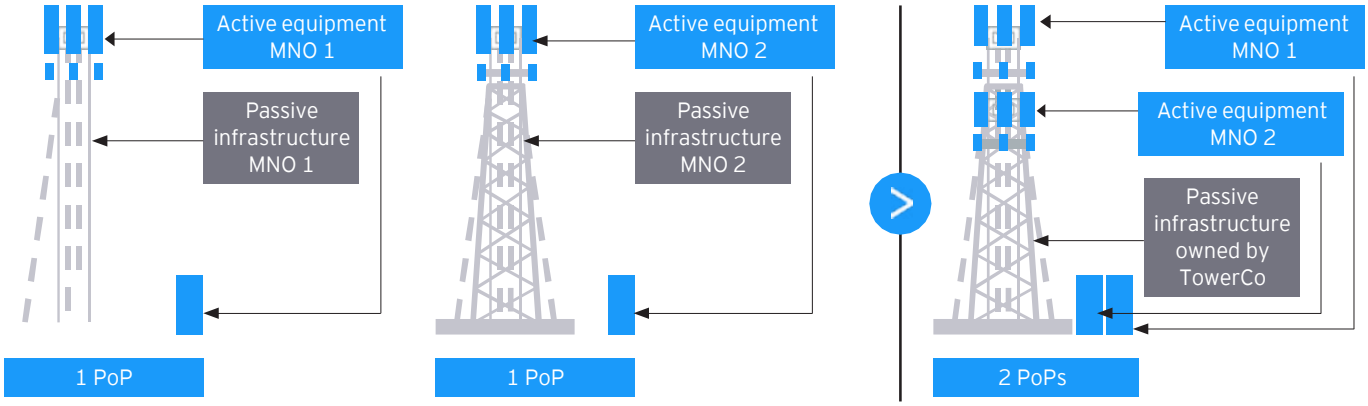


Legal rights to occupy the area of the site with passive infrastructure

TowerCos add value by reducing the duplication of infrastructure

Where MNOs can share passive infrastructure, there is less need to build multiple towers at the same geographical location. TowerCos operate the passive infrastructure and can accommodate multiple MNOs, which then focus on operating the active equipment at the site.

Figure 4: TowerCo role in infrastructure sharing (conceptual)



A point of presence (PoP) is defined as a site where an MNO is "present" and provides a network signal. If an MNO provides multiple networks (e.g., 2G, 3G and 4G) from the same site, this presence is still counted as one PoP. The co-location (or tenancy) ratio for a single tower is defined as the number of PoPs hosted on that tower.

For instance, in the left-hand part of the above figure, each MNO operates one site that hosts its own active equipment. A typical macro-PoP entails three panel antennas and three radios. In this case, each tower is defined as having one PoP (and a co-location ratio of 1).

However, a tower can have multiple PoPs – e.g., in the right-hand part of the above figure, the TowerCo hosts two MNOs on its infrastructure. In this case, the tower is defined as having two PoPs (and a co-location ratio of 2). When looking at the overall portfolio of an MNO or a TowerCo, the co-location ratio is a key performance metric – e.g., if a TowerCo operates 1,000 towers and hosts 2,100 PoPs, it has a co-location ratio of 2.1.

Independent TowerCos will also often have a presence of "other" PoPs located on their towers. These other PoPs include PoPs of fixed wireless access providers, emergency services networks, IoT providers, broadcast antennas, etc.

Independent TowerCos are the most mature model of wireless infrastructure sharing

The original TowerCos business model blueprint originated in the US in the mid-1990s as an alternative to captive MNO tower ownership. Since then, the tower industry has become more diverse and mature. Today, TowerCo business models differ by region but generally fall under three categories.

MNO captive towers including MNO joint venture TowerCo

- This category includes towers directly held by MNOs (i.e., not held in a separate operating company)
- MNOs forming JVs to pool their passive infrastructure, usually into a third-party company that either manages or owns the assets without outside investment
- JVs offer an alternative model by which MNOs can increase the utilisation of their passive infrastructure
- Under some circumstances, challenges exist, such as disincentives to share infrastructure with rival MNOs to maintain a competitive advantage in network quality

TowerCo with MNO interest which can be further split into two sub-categories

- TowerCo with controlling MNO interest: TowerCos, typically with 51–100% of equity owned by the parent MNO — usually the result of MNOs carving out and retaining ownership and control of their towers' infrastructure
- TowerCo with MNO influence without control: TowerCos with <50% of equity owned by an MNO, usually the result of a majority stake carve-out or subsequent stake sale

Independent TowerCo

- Independent TowerCos own passive infrastructure and lease space on it to MNOs to host their active equipment
- TowerCos typically either build the infrastructure or acquire it from an MNO in sale and lease-back transactions
- EWIA members are "pure-play" independent TowerCos providing wireless infrastructure on a fully neutral basis without MNO ownership

Market analysis

There are currently c.500k tower sites in Europe, including rooftops and other larger structures that are used for wireless communication (but excluding small cells and DAS). This number has grown by c. 6% CAGR since 2021, of which 4% is an organic increase in new site deployments and 2% is attributable to improved accuracy in the underlying data definition and collection. In countries such as France, Spain, the UK and Germany, MNOs are increasing coverage in rural areas, resulting in new tower build programs that are often linked to coverage obligations in 5G licenses. Continued 5G rollouts are expected to drive further densification, in turn driving tower growth estimated forecast at approximately 1% to 3% annually for the next five years.

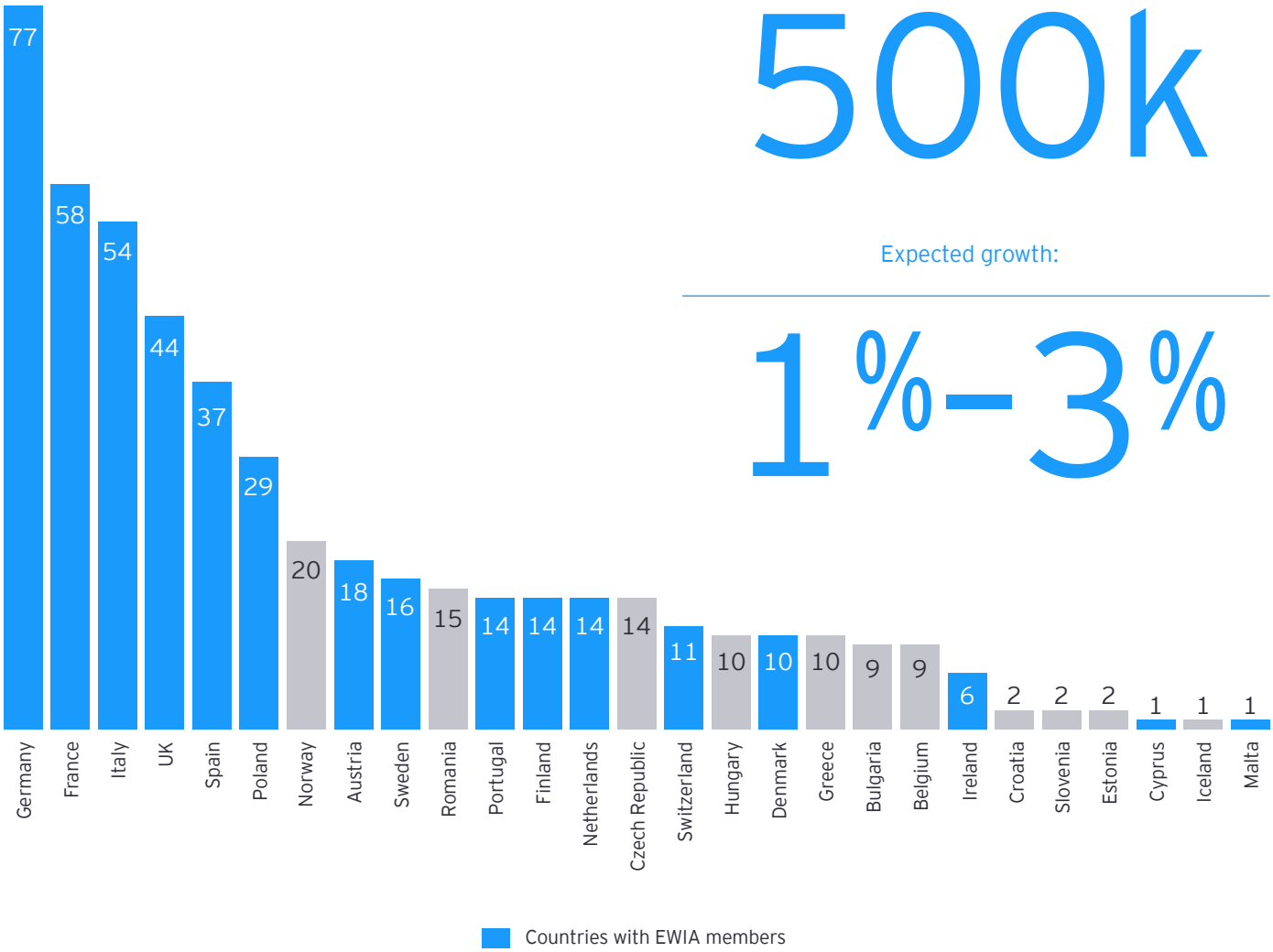
Figure 5: European tower counts

Towers in Europe:

500k

Expected growth:

1%–3%



Source: EWIA member companies, analyst reports, TowerXchange, Ofcom, EY professional interviews as of March 2024, research and analysis

Table 1: Key players in the European TowerCo sector, 2023

Market	Tower sites	% sites controlled by independent TowerCos	Key wireless infrastructure owners	MNOs
Germany	~77k	20%	**Independent TowerCos:** ATC, Phoenix Tower International **MNO interest:** DFMG, Vantage Towers	Deutsche Telekom, Vodafone, Telefonica, 1&1 Drillisch
France	~58k	66%	**Independent TowerCos:** ATC, Cellnex, Phoenix Tower International, TDF **MNO interest:** TOTEM	SFR, Bouygues, Free, Orange
Italy	~54k	57%	**Independent TowerCos:** Cellnex, EI Towers, Phoenix Tower International **MNO interest:** INWIT	TIM, Vodafone, WindTre, Illiad
UK	~44k	37%	**Independent TowerCos:** Cellnex, Wireless Infrastructure Group **MNO interest:** Cornerstone, MBNL	VMO2, Vodafone, EE, Three
Spain	~37k	57%	**Independent TowerCos:** ATC, Cellnex **MNO interest:** TOTEM, Vantage Towers	Masmovil[1], Orange[1], Telefonica, Vodafone
Poland	~29k	58%	**Independent TowerCos:** Cellnex **MNO captive:** NetWorks!	Orange, Play, Plus, T-Mobile
Austria	~18k	26%	**Independent TowerCos:** Cellnex **MNO interest:** EuroTeleSites, GD Towers	A1, Magenta, Drei
Sweden	~16k	19%	**Independent TowerCos:** Cellnex **MNO interest:** Telia Towers **MNO captive:** Net4Mobility	Telia, Telenor, Tele2, Tre
Portugal	~14k	77%	**Independent TowerCos:** Cellnex **MNO interest:** Vantage Towers	Meo, Vodafone, NOS
Netherlands	~14k	79%	**Independent TowerCos:** Cellnex, NOVEC, Wireless Infrastructure Group	VodafoneZiggo, T-Mobile, KPN
Finland	~14k	5%	**Independent TowerCos:** Digita **MNO interest:** DNA Tower, Telia Towers	Elisa, DNA, Telia
Switzerland	~11k	47%	**Independent TowerCos:** Cellnex	Swisscom, Sunrise, Salt Mobile
Denmark	~10k	19%	**Independent TowerCos:** Cellnex **MNO interest:** TT-Network	TDC, Telenor, Telia, Tre
Ireland	~6k	78%	**Independent TowerCos:** Cellnex, Phoenix Tower International, Towercom, Wireless Infrastructure Group **MNO interest:** Vantage Towers	Eir, Vodafone, Three
Others	~100k	30%		
Europe	~500k	39%		

Source: EWIA member companies, analyst reports, TowerXchange, EY-Parthenon analysis, March 2024

[1] As of March 2024, the merger of Orange and MasMovil had been authorised by the Spanish government and received EU competition clearance

The share of independent TowerCos has increased to 39%

The past few years have seen a decline in the share of towers directly owned by MNOs, while the share of towers controlled by independent TowerCos has grown significantly, from 13% in 2014 to 35% in 2021 to 39% in 2023.

Key drivers are:

- MNOs carving out their tower portfolios in separate MNO-controlled TowerCos (e.g., TIM carving out Inwit in Italy (2015), Altice carving out SFR TowerCo in France (2018)). This trend has continued the past two years (e.g., A1 and EuroTeleSites (2023)) – which is seen as an interim step toward full independence of their tower portfolios
- MNOs setting up JVs to pool passive infrastructure resources (e.g., MWingz in Belgium (2021))
- Tower portfolio divestments from MNOs to reduce debt and raise cash for investment in core business activities, while independent TowerCos actively pursue inorganic growth strategies (e.g., Bouygues selling towers to Cellnex in France (2020))
- TowerCos (independent and MNO-influenced) growing organically and/or building towers in build-to-suit programs for MNOs (e.g., DFMG building towers for Deutsche Telekom (2022))

Case study

Independent TowerCos support 5G infrastructure rollout and European digital transition

Digi and Cellnex Portugal reached a nationwide strategic long-term agreement covering the rollout of 2,000 PoPs to the end of 2023. In line with the significant investments the TowerCo industry is making in Europe to allow for the swift and efficient introduction of 5G, Cellnex Portugal is investing significantly in supporting both incumbents and new entrants to the market in providing the best possible mobile communications' coverage and quality of service throughout Portugal. This partnership is a testament to the pro-competitive nature of the TowerCo wholesale, neutral and independent industrial positioning, allowing Portugal to enjoy a more economically rational utilization of its telecom infrastructure.

Outsourcing to independent TowerCos in Europe has been catching up with the prevailing global model

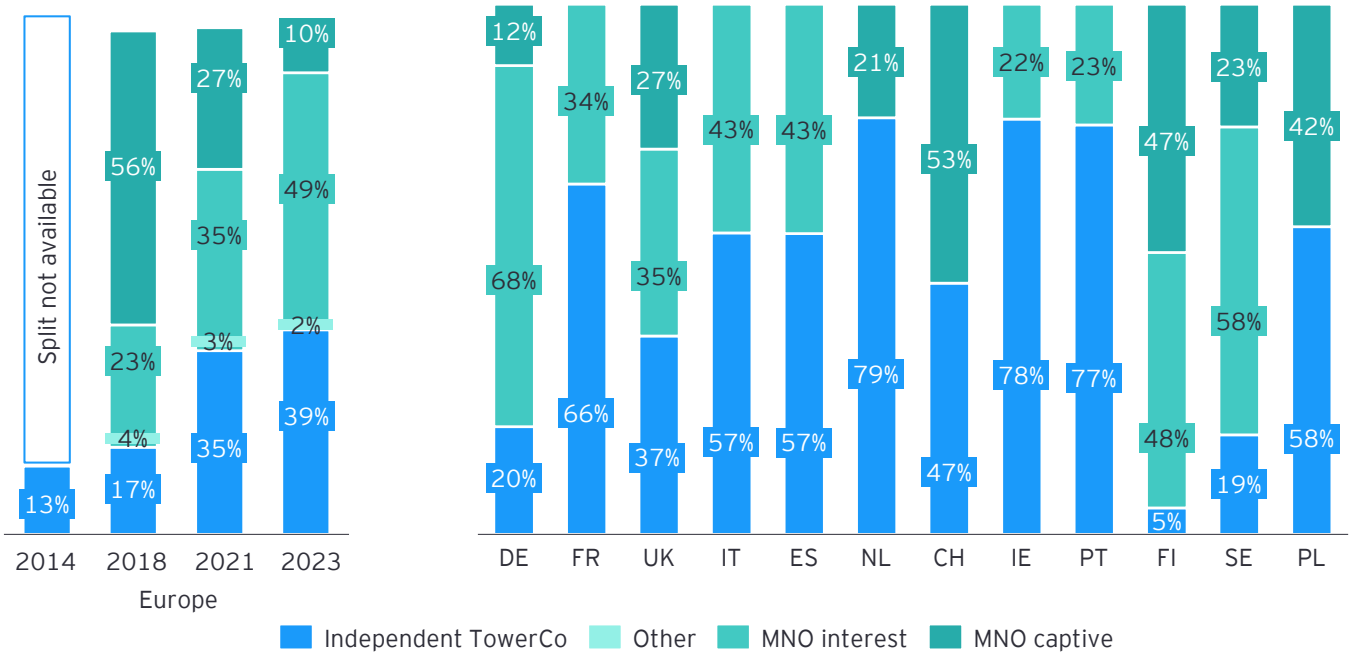
In Europe, outsourcing to independent TowerCos historically lagged other regions. This has been due in part to:

- MNOs' strategies to differentiate in network capillarity
- Early formation of MNOs sharing JVs, with varying degrees of active and passive sharing
- Limited policy incentives for infrastructure sharing (compared with the real estate investment trust (REIT) model in the US)

MNOs in Europe perceive network quality — and by extension access to proprietary passive infrastructure — to be a key competitive differentiator. As a result, many MNOs historically have been hesitant to outsource their entire passive infrastructure to independent TowerCos. Alternatively, some MNOs have set up MNO-controlled TowerCos, TowerCo JVs, or retained ownership in TowerCo vehicles.

Passive RAN sharing has also been a feature in many European markets. This might have reduced the initial need for tower infrastructure expansion, and in turn the growth of independent TowerCos. Overall, outsourcing to independent TowerCos is now catching up. As shown in Figure 6, the MNO captive model is rapidly declining in Europe and progressively replaced in most national markets by outsourcing to independent TowerCos and/or carving out MNO interest TowerCos.

Figure 6: Share of towers held by TowerCos, by country, 2023 (%)



Source: EWIA member companies, analyst reports, TowerXchange, EY-Parthenon analysis, March 2024

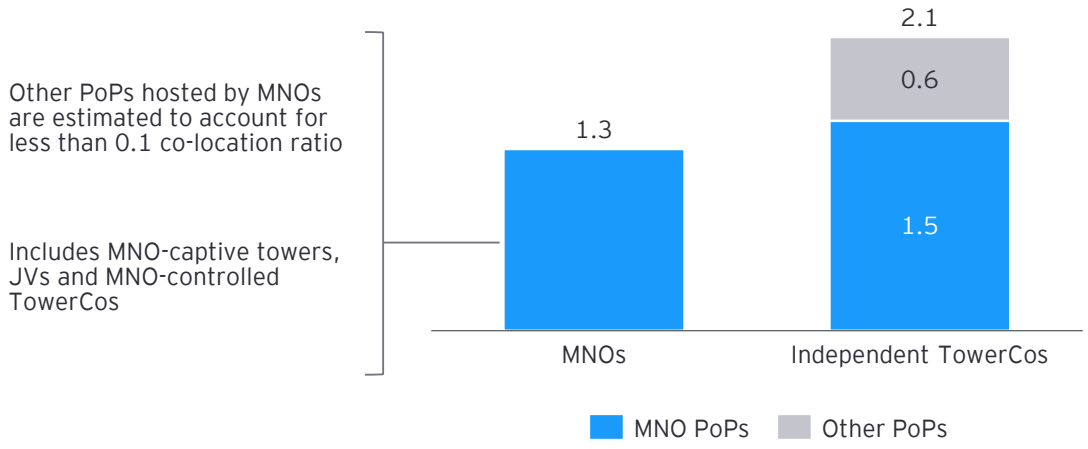
There is still room for growth in Europe

There is still a gap in independent TowerCo ownership between Europe (39%) and other parts of the world (on average c. 54%). Countries such as the US have a substantially higher share of towers (c. 90%) owned by independent TowerCos.

Independent TowerCos achieve higher co-location ratios than MNOs

Independent TowerCo co-location ratios, an indication of the efficiency of passive wireless infrastructure utilization, are higher than MNO captive/controlled/JV co-location ratios, driven by MNO PoPs as well as other PoPs — including PoPs of emergency services networks (also known as public protection and disaster relief (PPDR)), fixed wireless access providers, IoT networks, broadcasters on mobile network towers. Independent TowerCos typically achieve higher co-location ratios than MNOs. The main reason for that is the TowerCo business model, which fully focuses on building and operating neutral infrastructure and then attracting as many tenancies as possible. MNOs, in contrast, prioritize their active network and weigh tower sharing with their direct competitors against a potential decrease of network differentiation and increased operational complexity. The average MNO co-location ratio for independent TowerCos has decreased from 1.7x to 1.5x since 2021 due to independent TowerCos having acquired more towers with low tenancy ratios and will require more time to be actively leased up again.

Figure 7: Average co-location ratio, Europe, 2023



Source: EWIA member companies, analyst reports, TowerXchange, Ofcom, EY professional interviews, research and analysis, March 2024

Tower typology is another factor influencing the co-location ratio. Rooftop towers are typically less shared, while ground-based towers host more operators on average. This is driven by factors such as structure size, local legislation, and the fact that ground-based towers are more frequently used in rural areas, where infrastructure sharing is an economic imperative.

On average, TowerCos have co-location ratios of 2.6 on ground-based towers and 1.5 on rooftop towers, with an overall co-location ratio of 2.1. In contrast, MNOs have average co-location ratio of 1.5 on ground-based towers and 1.1 on rooftop towers, with an overall co-location ratio of 1.3.

MNO tower portfolios tend to have more rooftops, while independent TowerCos typically own more ground-based towers. The ratios vary by country. Due to their neutral host nature and focus on infrastructure sharing, independent TowerCos still achieve higher co-location ratios on rooftops compared with MNO rooftops.

Investors value the benefits of the TowerCo model

Recent tower deals show continued strong M&A activity in the space, with more than €51b in tower deals (since 2019), driven both by MNO tower carve-outs and strong acquisition-led growth pursued by independent tower companies. In total, the targets of M&A activity between 2019 and 2023 have had a combined count of more than 250,000 towers.

Table 2: Selected European TowerCo deals, 2019–2023

Year	Seller	Buyer/investor	Entity/target	Key country	Number of towers	Purchase price (€m)	Price per tower (€k)
MNO tower sales to independent TowerCos							
2023	Go	BMIT Technologies		Malta	280	47	168
2023	United Group	TAWAL		Bulgaria, Croatia, Slovenia	4,800	1,220	254
2021	Telefonica/ Telxius	ATC		Germany, Spain, Latam	31,000	7,700	248
2021	Polkomtel	Cellnex		Poland	7,000	1,570	224
2021	Deutsche Telekom	Cellnex	T-Mobile Infra	Netherlands	4,300	N/A	N/A
2021	Monaco Telecom	Phoenix Tower International		Malta/Cyprus	815	N/A	N/A
2020	CK Hutchison	Cellnex	European tower assets	Italy, Austria, Denmark, Sweden, Ireland, UK	29,100	10,000	344
2020	Play/Illiad	Cellnex	Play	Poland	7,000	800	114
2020	NOS	Cellnex		Portugal	2,000	375	188
2020	OMTEL	Cellnex		Portugal	3,019	800	267
2020	Eir	Phoenix Tower International		Ireland	650	300	461
2019	Aggregated transaction values from 2019				12,200	2,960	
Total					**102,164**	**25,772**	

Source: TowerXchange, EWIA members, broker reports, EY-Parthenon analysis, March 2024

MNO tower sale to investors

2023	Telenor Communications	Cordiant Capital	Norkring Belgie NV	Belgium	25	5	210
2023	Liberty Global	GLIL Infrastructure	Cornerstone	UK	N/A	413	N/A
2022	Vodafone	KKR & GIP, PIF	Vantage Towers	Pan-European	45,900	3,200	70
2022	Deutsche Telekom	Brookfield & DigitalBridge	GD Towers	Germany, Austria	40,500	8,925	247
2022	Telenet	DigitalBridge		Belgium	3,322	745	224
2021	Síminn	Ardian	Míla	Iceland	500	520	1,040
2021	Syn and Nova	DigitalBridge		Iceland	367	91	248
2021	Telia	Brookfield/Alecta	Telia Towers	Norway and Finland	4,700	1,524	324
			Total		**95,314**	**15,423**	

Trade deals

2023	Cellnex	Stonepeak	Cellnex	Denmark, Sweden	4,600	730	159
2023	WHP Estates	Cellnex		UK	55	15	273
2023	NOVEC	Phoenix Tower International		Germany	220	N/A	N/A
2023	Infrabridge	John Laing Group	Towercom	Ireland	409	N/A	N/A
2023	ATC	Emitel		Poland	65	N/A	N/A
2022	Cellnex	Phoenix Tower International		France	3,226	N/A	N/A
2021	PPF Group	GIC	CETIN	Czech Republic, Bulgaria, Hungary, Serbia	10,223	N/A	N/A
2021	Macquire	Cordiant Capital	České Radiokomunikace	Czech Republic	800	N/A	N/A
2021	ATC	Allianz & CDPQ	ATC Europe	Spain, France, Germany	25,274	530	N/A
2021	KKR/Altice	Cellnex	Hivory	France	10,500	5,200	495
2021	EI Towers	Phoenix Tower International	TowerTel	Italy	2,400	N/A	N/A
2020	AMP Capital	Asterion Industrial Partners	Axion	Spain	635	200	315
2019	Aggregated transaction values from 2019				9,992	2,964	
			Total		**68,399**	**9,639**	

Phoenix Tower International's acquisition of Cellnex Ireland sites in early 2024 was still subject to approval at the time of publishing this report.

TowerCos have attracted a wide range of investor types (trade, private equity, infrastructure, pension funds). MNO tower sales to investors of €15b (2019-2023) and €10b of trade deals (between 2019 and 2023) between investors and/or TowerCos illustrates the active M&A market.

Quicker rollouts of new networks ultimately benefit end customers

Case study

1&1 Drillisch enters Germany

American Tower Company entered Germany in 2012 and has been supporting mobile network rollout of its networks. Most recently ATC has been supporting 1&1 Drillisch, a subsidiary of United Internet, which made its debut in the German mobile operator market in 2017 and acquired spectrum in the 2019 5G auction – 50 MHz of spectrum in the 3500 MHz band and 2x10 MHz in the 2100 MHz FDD band. The spectrum obligations required 1,000 base stations to be deployed by the end of 2022, 25% household coverage by 2025 and 50% household coverage by 2030.

1&1 deployed a full virtualized 5G network based on Open RAN technology with c. 1,000 base stations. 1&1 relies on roaming through Telefonica and Vodafone to support 4G and 5G services coverage as it continues to expand and densify its network. 1&1 leveraged the expertise of ATC to support its initial rollout ambitions.

“

With ATC, we have a strong partner for passive network infrastructure, which ideally complements our mast portfolio. We are looking forward to the cooperation and to jointly driving the rollout of Europe’s first newly built virtual Open RAN.

Ralph Dommermuth
CEO of 1&1 AG

Economic assessment

The market for towers has developed such that rural areas tend to see less investment in high-quality communications services. In this context, independent TowerCos play an important role in enabling a more efficient use of infrastructure.

There are high fixed costs associated with building towers, with differing cost structures in rural areas vs. urban areas. The revenue opportunities are also different in rural and urban areas; the business case for a cell site can be more challenging in rural areas due to lower population density and potentially lower average incomes. Revenue projections for MNOs indicate muted growth.

Most MNOs operate a mix of profitable and unprofitable cell sites so that they can provide adequate coverage to their customers. However, there is still a link between population density, the cost of rollout and potential revenues for MNOs.

As a result, the market has developed in a way such that there are multiple overlapping communications networks, with multiple operators and networks present in economic areas and an undersupply in uneconomic (usually rural) areas.

Rural areas therefore tend to see less investment in communications infrastructure and can lack the coverage and service quality seen in urban areas. Digital connectivity in rural areas in Europe is one of the key aspects included in the European Union long-term vision.

Independent TowerCos play an important role in enabling the telecom industry to make most efficient use of its passive infrastructure. The higher utilization rates of independent TowerCos reduce the cost per user, lowering the threshold at which it becomes profitable to improve service coverage. Public-private cooperation in infrastructure deployment in rural areas that includes not only the MNOs but also the independent TowerCos is essential to the success of the universalization of European connectivity.

Independent TowerCos deliver a range of economic benefits

Greater outsourcing to independent TowerCos lowers the costs of infrastructure, which enables faster and cheaper rollout, delivering a range of socioeconomic benefits for consumers and the wider market. Outsourcing also benefits MNOs by freeing up more capital for investment in coverage and capacity. EWIA members alone have invested c. €2.0b p.a in new deployments, site reinforcement and other maintenance since 2021. Benefits include:

More efficient market structure

Infrastructure can be delivered at a lower cost, and unnecessary duplication of infrastructure is reduced

Capital released for MNOs

Sales of towers to independent TowerCos release capital for investment in existing network and new services

Investment in capacity and coverage

Cheaper and faster rollout to rural areas helps to address the digital divide

Facilitating market entry

Non-MNO tenants have more choice, lowering barriers to entry, and may benefit from a neutral host

Environmental benefits

Due to co-location, fewer towers are needed to meet demand, reducing the carbon emissions and visual impact of new towers

(Please refer to the March 2023 report on the sustainability contribution of the European independent TowerCo sector for a more detailed assessment)

Outsourcing is advantageous both for consumers and the wider market

Outsourcing to independent TowerCos can improve coverage in rural areas and capacity in congested areas. At the same time, the wider market benefits from diversity in tower ownership and supply.

Bridging the digital divide

The economics of network rollout mean that urban areas tend to benefit from the best coverage, while rural areas can be left behind. This is particularly relevant to the rollout of new technologies, which starts in the most densely populated areas before extending to other parts of the country. EWIA welcomes rollout obligations on 5G licenses concerning rural areas, to achieve the proper quality service even if it is not economical to serve the area.

Independent TowerCos can reduce the cost of delivering infrastructure, which enables faster and cheaper rollout to areas and households that otherwise could miss out.

Outsourcing can also release capital to MNOs to invest in improving coverage and services.

Improving service quality

Upgrading towers to provide more capacity also involves high fixed costs. By lowering the costs of infrastructure, outsourcing to independent TowerCos can make upgrades more economic, improving service quality for consumers.

Other wireless networks

Diversity in the of supply of communications towers supports more use cases for other wireless network operators, such as FWA and IoT providers, facilitating market entry. In turn, this can drive innovation in the services offered to consumers.

Case study

Filling coverage gaps

Established through a 2018 government initiative, the "New Deal for Mobile" was inaugurated in France. At the time France had over 10,000 rural villages in which 4G coverage was absent, while more than 500 villages had no network coverage at all. The New Deal for Mobile's mission was to bridge this gap by supporting the opening of over 5,000 4G cell sites in France by 2027. By the end of Q3 2024, c. 2,600 of the 5,000 sites were in operation.

The New Deal for Mobile is supported by other regional network deployment. ATC deployed 2,875 sites in rural areas since 2020, all of which use at least one frequency band associated with 5G (700MHz, 2.1 GHz and 3.5 GHz). TDF built more than 200 towers along transportation axis, in rural areas, and in other network white spots in 2018. This included setting up 50 new macro sites in 2021 along the Rennes Le Mans trainline to facilitate the provision of 3G and 4G service to commuters. These sites also have the potential to be upgraded to provide 5G coverage. In 2019, more than 300 additional masts were erected.

"The New Deal for Mobile is an example of trust-based cooperation between local authorities, telecoms operators and the state, designed to satisfy the day-to-day needs of people in France. We committed to putting 5,000 cell towers in service by 2027 to eradicate white areas." – Jean-Noël Barrot, Minister of State for Digital Transition and Telecommunications.

Source: EWIA member companies

Independent TowerCos can realize efficiencies that result in a lower cost per point of presence

Opex efficiencies

Independent TowerCos, whose core business is the management of the passive elements of towers, typically have more expertise in identifying efficiencies and reducing operating expenditure – for instance, in contract negotiations for the site and in minimizing maintenance costs.

EY teams assume, based on experience of working with MNOs and TowerCos, the opex efficiencies delivered by independent TowerCos compared with MNOs to be 10%. The impact of this efficiency on overall cost per user for independent TowerCos compared with MNOs is minus-3%, as illustrated in Figure 8.

Cost of capital savings

Independent TowerCos are typically able to attain financing at slightly lower cost of capital than MNOs. MNOs in the US and Europe typically have a weighted average cost of capital (WACC) that is 1.1% higher than that of equivalent European TowerCos.

The difference in WACC could reflect a range of factors. TowerCos may be seen as a lower risk, given their greater experience in operating towers. While a tower may be a depreciating asset for an MNO, it is a potential source of long-term revenue from multiple sources for a TowerCo. Additionally, TowerCos supply a higher number of MNOs, so their returns are less dependent on the success of individual MNOs at the retail level.

Higher rates of co-location

Independent TowerCos tend to have a higher number of users sharing towers (co-location ratios).

On average, independent TowerCos have a co-location ratio of 2.1. In contrast, MNOs have an average co-location ratio of 1.3.

Increased co-location has a major impact on reducing the cost per user, as it means the significant fixed costs per tower are shared among multiple network operators.

A typical point of presence managed by an independent TowerCo is 46% more efficient

The cost of tower use for a single network is referred to as the cost of providing a "point of presence."

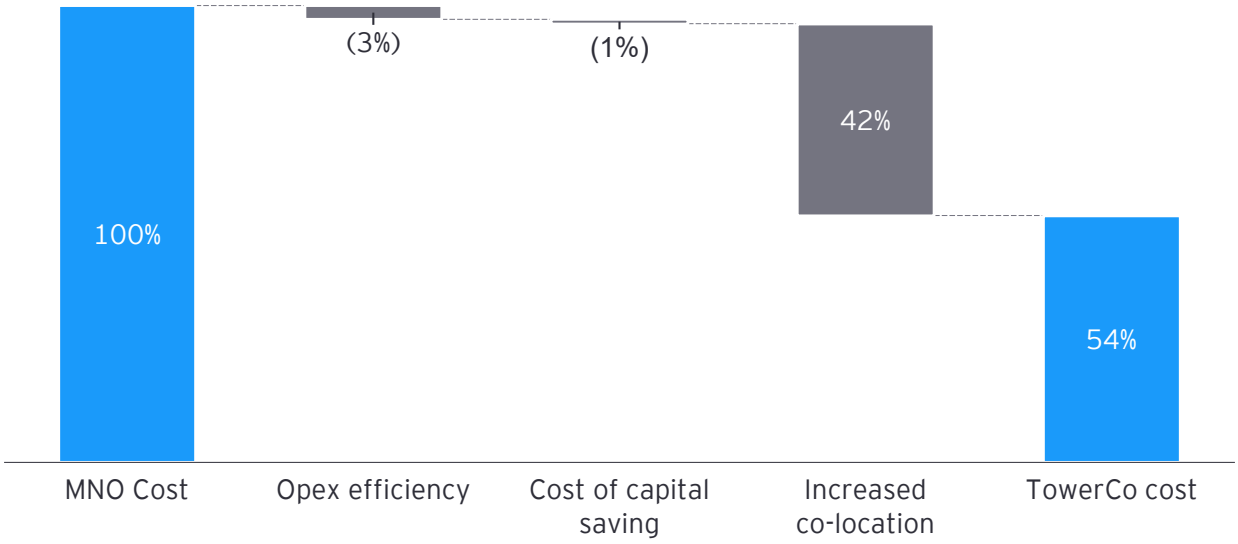
Due to a combination of opex efficiencies, cost of capital savings and higher rates of co-location, a typical point of presence managed by an independent TowerCo is 46% more efficient than one managed by an MNO. The ability of independent TowerCos to achieve higher rates of co-location is the primary driver of the differences in efficiency between independent TowerCos and MNOs, as seen in the chart below.

This analysis considers the cost of construction of a tower (including financing over a 10-year period), with the cost discounted back to a present value and shared between the users of a given tower.

The distribution of the cost savings from independent TowerCos may depend on the pricing strategies of the MNOs and the independent TowerCos. Either the MNOs or the independent TowerCos could benefit, depending on the level of markup that the independent TowerCos are able to charge on their costs.

The scope for excessive markups will be constrained by continued competition between TowerCos (MNO-controlled and independent), and the need for independent TowerCos to maintain a price advantage compared with own-built infrastructure. With continued retail competition between MNOs, economic theory suggests that the benefits from the use of TowerCos should ultimately be passed through to retail consumers, either through lower retail prices or higher-quality services.

Figure 8: TowerCo cost saving as a percentage of MNO cost per PoP (%)



Note: We have included MNO captive towers, April 2019, JVs and MNO-controlled TowerCos in the category "MNOs" for this calculation
Source: EY-Parthenon analysis

Greater tower outsourcing could result in savings of €31b between 2019 and 2029

Our analysis and assumptions

Our analysis assumes 3% annual net growth in points of presence over the next 10 years. We have assessed the below two scenarios to understand the economic savings of greater outsourcing to TowerCos.

MNO-led scenario

Proportion of towers owned by independent TowerCos: 17% – assumes that the proportion of towers owned by independent TowerCos remains the same as in 2018.

New towers required to meet predicted demand: c. 220,000.

Total lifetime cost per new point of presence: €106,567.

TowerCo-led scenario

Proportion of towers owned by independent TowerCos: 50% – assumes that a large proportion of towers that are controlled by MNOs today are outsourced to TowerCos but that those towers that are part of a joint venture are more difficult for MNOs to outsource. Also assumes that MNOs sell more of their ground-based towers – 70% of the towers acquired from the MNOs by the independent TowerCos are assumed to be ground-based.

New towers required to meet predicted demand: c.107,000.

Total lifetime cost per new point of presence: €70,500.

Economic savings

Based on the above analysis and assumptions, the aggregate benefit to the economy of the increase in outsourcing to TowerCos has a present value of €31b over the next decade.

€31b

Greater outsourcing would release significant levels of capital to the MNOs for investment in new technologies like 5G

Capital release

The amount of capital that could be released if independent TowerCo ownership of towers in Europe grew from 17% to 50%

€28b

In addition to the economic savings, the outsourcing of towers to independent TowerCos can help MNOs release a significant amount of capital: An additional €28b of capital could be released if the rate of outsourcing in Europe grew from 17% (2018) to 50% in the future. We consider an outsourcing rate of 50% to be an upper estimate of the level of outsourcing possible in Europe, recognizing that existing joint ventures between MNOs limit the level of outsourcing to an extent. Recent transactions provide support for this – since 2018, as their share of sites grew from 17% to 39%, independent TowerCos have helped release c. €26b in capital via acquisition of various tower portfolios from MNOs. In addition, significant amounts are invested by independent TowerCos in "Build to Suit" programs, thereby helping MNOs avoid the corresponding capital.

MNOs could use this capital to invest in their networks to meet coverage obligations and to help address the digital divide, and to invest in high-quality networks, as required by society and industry.

The capital released by increased outsourcing of towers could also help to drive forward increased investment in the infrastructure needed to deliver new technologies. MNO capital expenditure is expected to have to increase to support the roll out of 5G networks; costs will include upgrading the capacity of existing 4G networks, investing in new small cell networks, and acquiring spectrum.

Since 2018, the share of independent TowerCos in Europe has increased from 17% to 39%, helping to release c. €26b of capital in the process via acquisitions of tower portfolios from MNOs.

> The Independent TowerCo sector has reached critical mass in Europe, becoming an essential source of investment to support the roll-out of 5G and advanced wireless networks. The TowerCo business model is playing a key role in improving connectivity with its clear commercial incentive to enable as many networks as possible to use its neutral host infrastructure.

Scott Coates
CEO Wireless Infrastructure Group

Outlook

Radio technology

Successive technological developments have driven mobile usage and data consumption. The rollout of 5G (fifth-generation mobile network) is still underway but has already driven data demand growth by providing new use cases for mobile services. The main benefits of 5G include faster speeds, lower latency and higher network capacity.
The industry is starting to consider the role that satellite communications (also called Non-Terrestrial Networks – NTN) can play in augmenting rural mobile coverage, and the shape 6G networks will take.

The key differentiator for 5G (vs. 4G) is that it enables deployment of more spectrum for mobile, while making mobile networks more adaptive thanks to a high degree of software and virtualization. 6G is expected to continue this trend with massively more spectrum and new approaches such as dynamic digital twins of the surrounding environment and AI-generated waveform optimization.

Quantum radio technology is being defined and experimented with. It is anticipated to enhance signal reception capability with several potential benefits, including lower energy consumption and expanded mobile network coverage.

Whatever new radio technologies are emerging in the future, it is expected that terrestrial networks using large antennas on ground based and rooftop towers will prevail as the backbone of mobile connectivity.

Table 3: Mobile technology overview

Metric	4G/LTE at launch	4G "LTE advanced"	5G at release	5G "Advanced"	6G expectations
Year	2010	2018/2019	2019/2020	2022 onward	2030 onward
Downlink speed	100 Mbps	1 Gbps	10 Gbps	20 Gbps	1,000 Gbps
Latency	100 ms	10 ms	1–10 ms	1–10 ms	<1 ms
Spectrum range	800 MHz to 2.6 GHz	800 MHz to 2.6 GHz	700 MHz to 3.5 GHz	2.1GHz to 3.6GHz, and 26/42GHz	7–16 GHz; 100 GHz– 300 GHz

Source: Ericsson, 3GPP, GSMA, Qorvo, EY professional interviews and analysis, March 2024

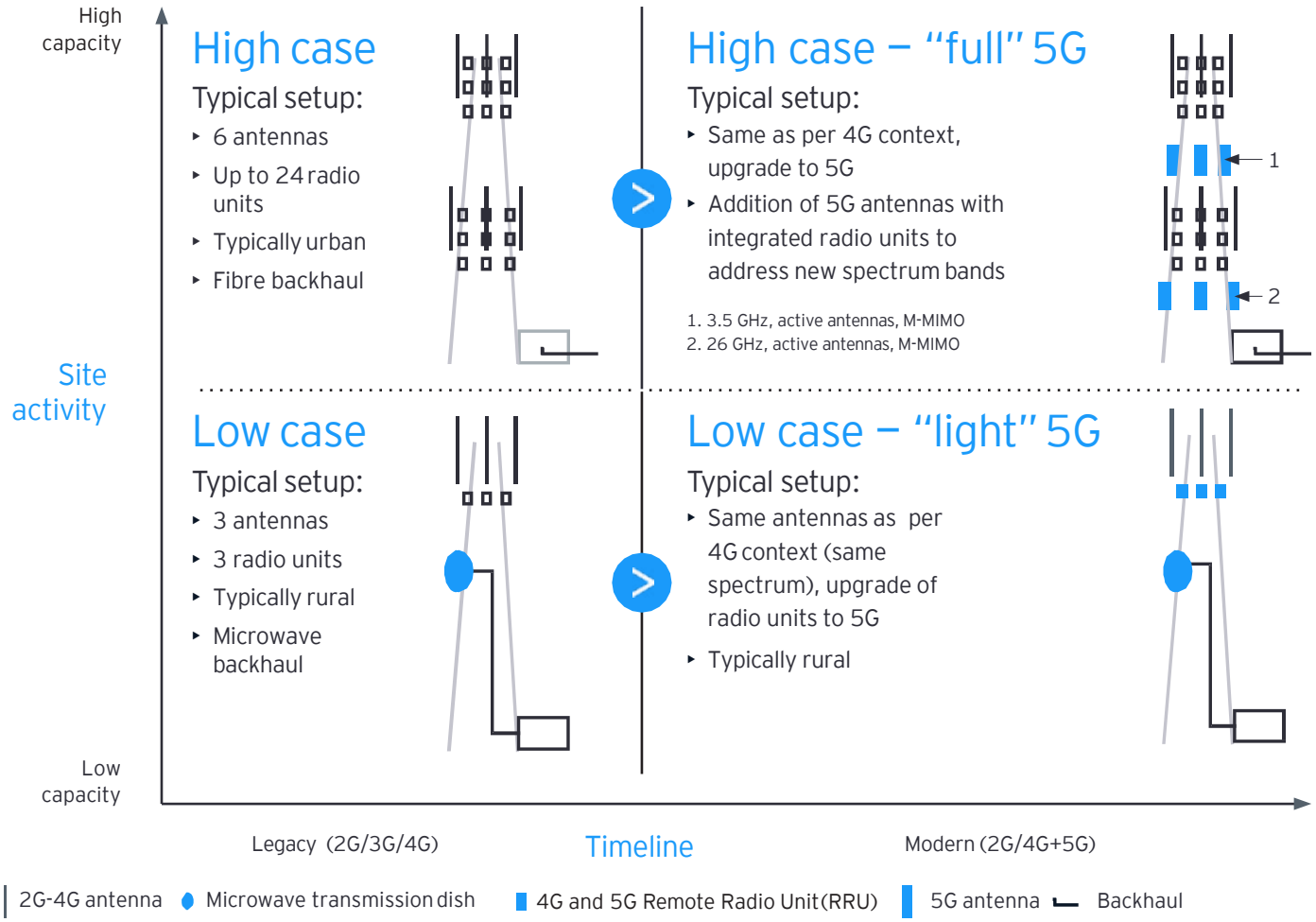
Independent TowerCos' towers are well suited to accommodate additional 5G active equipment

The impact of the transition to 5G will depend on the activity at a given site. In most cases, MNOs will need to install new 5G equipment, except where they deploy "light" 5G – independent TowerCos' towers are better suited than MNOs to accommodate this additional active equipment.

At low-capacity sites (which are typically located in rural areas), an upgrade of radios to the 5G New Radio standard may suffice, leading to limited increases in equipment. However, high-capacity sites (which are typically located in urban areas) already have a significantly higher density of active equipment hosted (antennas and remote radio units); this density is expected to increase further going forward, as additional 5G antennas and radios will need to be installed.

Independent TowerCos' towers are typically built to accommodate multiple MNOs with multiple antennas, whereas MNOs' towers are typically not built to host many antennas and radios. Hence independent TowerCos will be able speed up the rollout of 5G (and lower the rollout cost), particularly in dense areas, as MNOs will likely not be able to deploy the number of additional antennas and radios needed on their own towers without fortifying them.

Figure 9: Indicative 5G antenna upgrades, by site activity

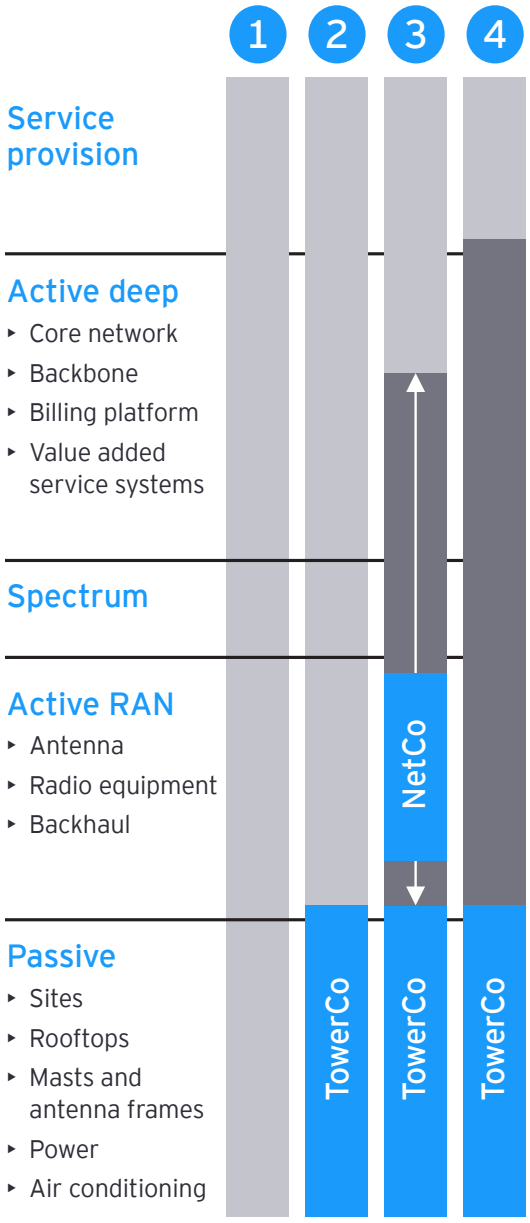


Source: EY experienced interviews and analysis

Active sharing opens new opportunities for TowerCos to operate active equipment

MNOs utilize two principal operating models for infrastructure sharing: passive and active. In passive sharing, MNOs share "passive" infrastructure elements such as tower masts, civil works, fences, shelters, power supply and cooling systems. In active sharing, MNOs share "active" elements such as RAN equipment. TowerCos can play a role on all sharing models.

Figure 10: Types of MNO infrastructure sharing (conceptual)



1 Fully integrated MNO

- In the "traditional" fully integrated model, each MNO owns and operates all infrastructure and service layers in-house

2 Passive infrastructure sharing

- The simplest form of infrastructure sharing
- Operators agree to share available infrastructure, including sites and rooftops, masts and antenna frames, power and air conditioning

3 Active sharing

- In addition to sharing passive assets, operators typically share all radio access network (RAN) equipment, which is incorporated into a single network and then split into separate core networks (MORAN – Multi-Operator RAN)
- Further, operators can also share spectrum but not active RAN equipment (MOCN – Multi-Operator Core Network)
- An even deeper level of active sharing includes the sharing of core networks, backbone, billing platforms and Value Added Services (VAS) systems
- Outsourcing of active sharing networks is the opportunity for TowerCos to evolve into NetCos and deliver further economic savings – DAS and Small Cells are a step towards this

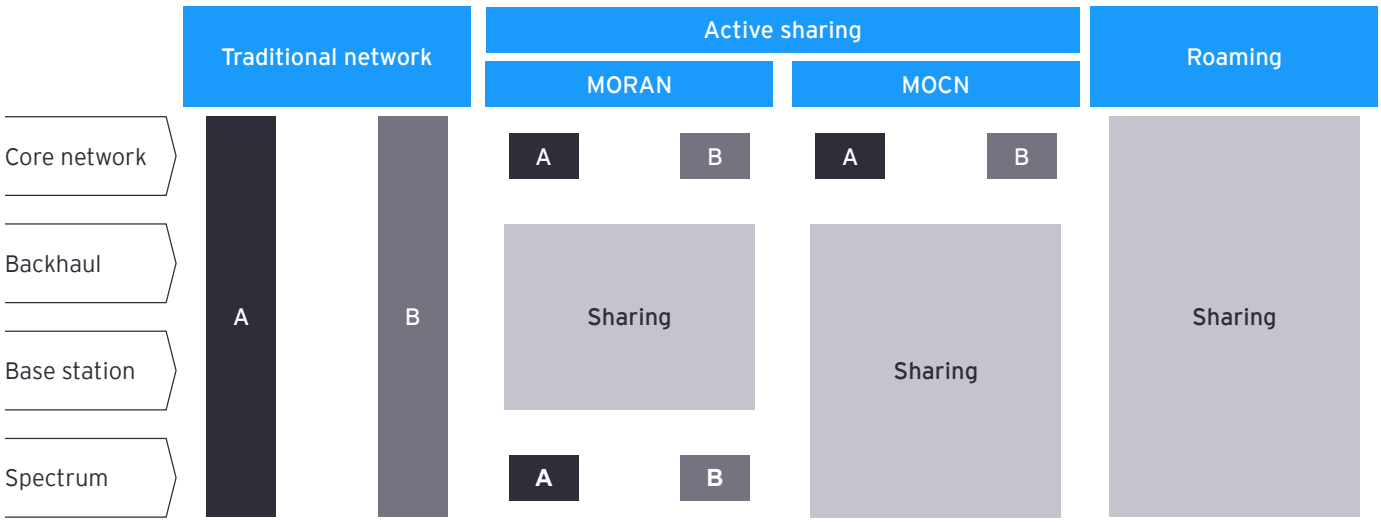
4 Wholesale

- A single wholesale network involves a single entity building and operating a network to sell wireless access to mobile service providers
- The wholesaler owns the spectrum and infrastructure, combining passive and active network sharing and sells access capacity to all market operators. All operators in the market effectively act as Mobile Virtual Network Operators (MVNOs) under this model
- This could be the ultimate target for TowerCos evolving into full NetCos, potentially in rural areas first, where economics are most challenging

Active sharing has three forms:

- MORAN where some infrastructure RAN equipment and passive infrastructure is shared, but separate core network and spectrum are used
- MOCN where in addition to sharing the same infrastructure as MORAN, operators pool and share their spectrum. Regulations around spectrum sharing must be considered
- National roaming where the hosting operator provides its own spectrum and capacity to a visiting operator in specific areas

Figure 11: Methods of increasing sharing



Source: GSMA

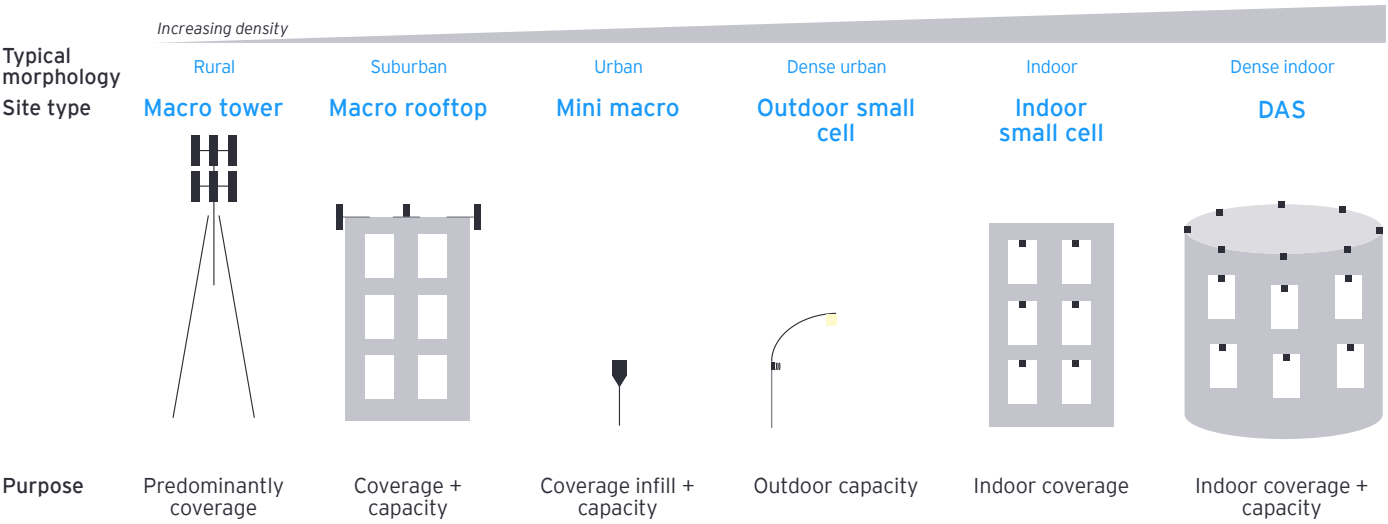
Some benefits of active sharing include minimizing network duplication and cost of operation and maintenance services, especially beneficial in hard-to-reach rural areas. It can help increase network deployment by operators.

Distributed Antenna Systems (DAS) and small cells are opportunities for TowerCos to offer neutral host active networks

Small cells and DAS technologies are used by MNOs to supplement macro networks where additional macro sites would be inadequate or cost-prohibitive to maintain reliable coverage in buildings, on campus-type settings or dense urban areas.

In essence, small cells and DAS are smaller antennas used to augment and densify existing networks.

Figure 12: Site types and their role in network architecture



Source: EY-Parthenon

Small cells differ from DAS in both the operating model and use case

Small cells are independent, low-power radio elements and typically serve a single MNO but can serve more under a neutral host model. The indoor variant is typically used in small and midsize buildings – commercial venues with limited footprint but still significant usage volume (e.g., branch offices, restaurants, retail stores).

DAS serve multiple MNOs and are typically suited to high-profile, multi-operator environments characterized by high user density subscribed to several different operators (e.g., airports, stadia, convention centres, shopping malls).

DAS are provided by multiple players, including TowerCos, and specialist neutral host operators.

Case study

Mobile Coverage on metro lines 15-18 of Grand Paris Express for the Olympic Games

The Société du Grand Paris (SGP) is working with Cellnex, TDF, TOTEM and other industry players in the deployment of an indoor radio network DAS on new lines of the Grand Paris Express metro. This infrastructure will offer continuous and optimal connectivity – voice and data – regardless of the mobile operator, in all stations and tunnels. This coverage is made available to Grand Paris Express travelers from 2024 for the Olympic Games, via thousands of new antennas and repeaters.

Source: EWIA member companies

Edge infrastructure and cloud RAN are emerging concepts in mobile network architecture

Edge computing involves processing data closer to end-user devices or local networks. Unlike traditional centralized computing models, where data is sent to distant data centers, edge computing brings computational resources nearer to end users. This approach reduces latency and bandwidth use.

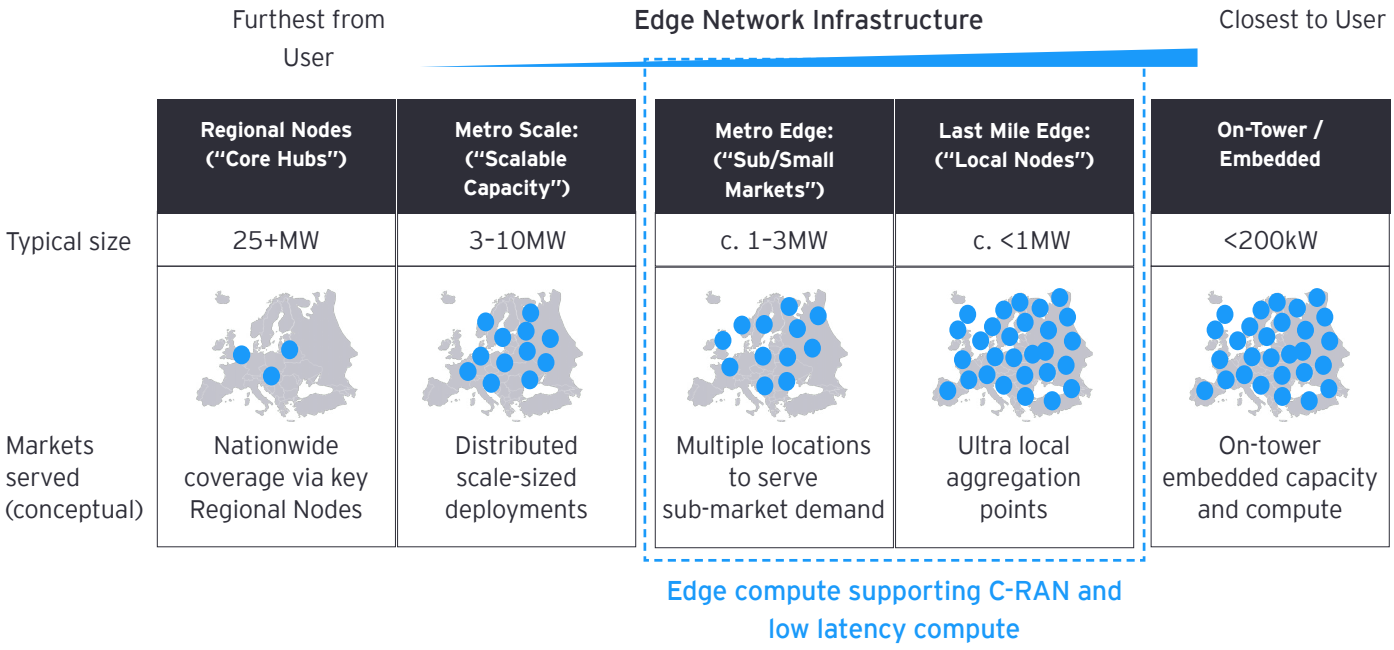
Artificial intelligence (AI) is also expected to have an impact on the need for edge infrastructure across multiple dimensions. Most notably, AI inference (i.e., AI models that are run in production) will fall along a spectrum of performance and latency requirements similar to traditional workloads. Some of these AI inference workloads will need to be hosted closer to end users and devices. Additionally, AI relies upon the constant feedback loop of new data and end-user feedback to improve over time. As more data will be collected from end users and devices, there will be an increased need for data processing at the edge.

Other applications, such as autonomous vehicles, real-time video analytics, augmented reality (AR), virtual reality (VR) and smart city technologies, also benefit from edge computing. These applications rely on rapid processing to function effectively, necessitating the use of edge computing for real-time data analysis and output.

Traditionally, mobile sites have been equipped with computers that manage signal modulation, while more substantial computing tasks are performed in centralized data centers.

Edge compute and Cloud RAN (C-RAN) are complementary concepts in the evolution of mobile networks. C-RAN centralizes the radio access network's processing at a local node that supports multiple towers, which optimizes resource allocation and efficiency. Edge computing decentralizes data processing and compute, bringing it closer to end users from regional nodes and metro scale data center facilities. Together, they represent a dual approach to enhancing network performance and efficiency, with C-RAN focusing on the optimization of radio network operations and edge computing on reducing latency and bandwidth for data-intensive applications. TowerCos frequently implement shelters and small offices close to the tower as part of the infrastructure solution that could become a natural place to host computing equipment needed for both Edge Compute and C-RAN.

Figure 13: Edge architecture



Source: EY publication "The Edge: Are you ready for a new age of edge infrastructure?"

Digital TowerCo

Artificial intelligence, improved imaging and computational technologies are already driving the rise of "Digital TowerCos" leveraging the powerful use cases of digital twins.

Artificial intelligence, like in most businesses, stands to have far-reaching impacts on the TowerCo sector within Europe. Three areas where this influence could be most noticeably felt are:

1. Back office related operational efficiency could be impacted. AI could be leveraged to automate many day-to day activities freeing up human resources for tasks requiring higher cognitive skills and strategic decision making.
2. AI can be leveraged for real-time monitoring and adjustment of TowerCo operations and execution, leading to lower operational costs.
3. Predictive maintenance powered by AI could enhance infrastructure management. With AI's ability to process and analyse large amounts of data, potential operational issues and faults can be identified before they occur. Timely maintenance actions can prevent faults from escalating into major problems, potentially preventing the disruption of services, lowering overall maintenance and repair costs.

However, the specific impact of AI on the TowerCo sector will depend heavily on the nature and extent of AI deployment across the industry, which may vary widely. Digital twins are virtual replicas of physical objects, systems or processes, designed to simulate, monitor and analyze their real-world counterparts in real time. This is done through the re-creation of 3D computerized "living models" through advanced imaging, and integration of data from databases, sensors, cameras, IoT devices, and others.

Digital twins of physical tower assets provide numerous benefits to tower operators:

1. Digital TowerCos can unlock new revenue streams through improved, more accurate and more accessible understanding and analysis of physical space and usage on tower assets.
2. Digital twins can improve infrastructure stability through predictive maintenance, reducing the costs of unexpected downtime.
3. Organizations can become more efficient by optimizing their operations leveraging real-time data.

Figure 14: Digital TowerCo comparison

	Traditional TowerCo		Digital TowerCo
Go to market	Reliant on MNO planning	→	Proactive site proposals, reflecting alternative infrastructure
Lease-up	Physical engineering team required to assess space availbility	→	Accurate tenancy and space availability, proactive site reinforcement
Maintenance	Reactive maintenance	→	Proactive maintenance
Finance	Billing based on historic contracts and site drawings	→	Billing based on live space utilisation

All the new traffic generated by these new services such as AI or digital twins are estimated to multiply the data volume that the MNO networks will have to manage. TowerCos have a fundamental role in the construction of robust infrastructure that can support the increased traffic.

“

In the realm of Digital TowerCos, AI emerges as the architect of efficiency, transforming data into strategic foresight and operational agility, paving the way for a future where digital twins and predictive intelligence redefine the landscape of infrastructure management.

Leonardo Torres
VP Chief Commercial Officer Europe at ATC

Regulatory environment

The European Electronic Communications Code (EECC) reflects the pro-competitive nature of independent TowerCos

The European Electronic Communications Code (EECC) reflects the pro-competitive nature of independent TowerCos	In 2010, as part of the Digital Single Market policy, the Digital Agenda for Europe defined objectives for connectivity by 2020: basic broadband to all EU households by 2013, 30 Mbps available to all households by 2020 and subscriptions of at least 100 Mbps by at least 50% of households. In 2016, the EU revised the strategic connectivity targets as part of the Gigabit Society Vision for 2025 to include (a) Gigabit connectivity for all main socioeconomic drivers, such as schools, transport hubs and main providers of public services, and digitally intensive enterprises; and (b) all urban areas and all major terrestrial transport paths to have uninterrupted 5G coverage.
5G is a catalyst for fulfilling the Gigabit society aspiration of the European Union	As an intermediate objective for 2020, 5G connectivity is to be available as a commercial service in at least one major city in each Member State, building on commercial introduction in 2018. All European households, rural or urban, are to have access to Internet connectivity offering a downlink of at least 100 Mbps, upgradable to gigabit speed. The required investment is estimated at c. €500b over a decade, c. €155b above the current run rate. c. €148b are required for the necessary wireless infrastructure. A share of this additional investment will flow to independent TowerCos in the form of demand for new towers, additional PoPs, small cells, and fiber-to-the-tower.
The EU established the new EECC as a framework to expedite access to and take-up of high speed connectivity	Recognizing the magnitude of the investment required and that the prevailing regulatory framework from 2002 is no longer appropriate, the EU set out to revise the entire European telecoms regulation, encapsulated in the new EECC. It adds access to and take-up of very high-capacity connectivity as a regulatory objective (alongside existing ones such as promoting competition). The benefits to the market brought by wholesale-only operators are recognized in Article 80 EECC.
Other important objectives in the EECC relevant for TowerCos are spectrum harmonization, a consistent approach to coverage obligations and the establishment of predictable regulatory conditions	The EECC's objectives include: ▸ Establish key principles for spectrum assignment in the Union, new Union-level instruments to establish assignment deadlines and license periods (minimum 25 years), and a peer review among national regulators to establish consistent assignment practices – this would result in increased certainty regarding spectrum licenses and cost for MNOs, enabling more investment in radio access networks ▸ Promote a consistent approach to coverage obligations, to small cell deployment and to network sharing, thereby stimulating 5G deployment and rural connectivity – enabling pan-European scale effects and driving demand for PoPs, towers, and small cells ▸ Establish predictable regulatory conditions to promote co-investment, JVs, and wholesale-only business models, facilitating deployment of very high-capacity networks deeper into suburban and rural areas – increasing certainty for independent TowerCos (and other independent infrastructure providers such as open fiber networks) and enabling investments at more predictable returns

Source: European Commission, EY experienced interviews and analysis, April 2019

The GIA updates and extends the EU's 2014 Broadband Cost Reduction Directive (BCRD), granting TowerCos new rights of access while reflecting the independent sector's natural business practices

A political compromise was reached on GIA in February 2024, following the conclusion of the trilogue negotiations between the European Commission, the European Parliament, and the European Council.

The text as of April 2024 is undergoing its final legal/linguistic review before being formally adopted, published in the EU's official journal, and entering into force 20 days after publication.

Rapid advances in technology over the last 10 years mean the BCRD is no longer sufficient, with targets that are out of step with the EECC's ambition for the widespread availability of very high-capacity networks.	Following a consultation on the success of the BCRD in 2018, the European Commission proposed that it be renewed and replaced by the Gigabit Infrastructure Act. While the BCRD has contributed to a growth in broadband adoption across the EU, its application has been patchy, with continued issues of inefficient and costly network deployment hampering progress. Furthermore, while the share of households with access to 30 Mbps connections increased from 58% in 2013 to over 90% in 2021, increasing bandwidth needs have meant this can no longer be considered future-proof. The GIA seeks to address the BCRD's main shortcomings by extending the physical infrastructure access provisions, streamlining and accelerating the granting of permits and focusing on the roll-out of the fibre and 5G services needed to meet the EECC's goals of enabling a gigabit economy.
While the access rights granted by the BCRD applied only to communications providers, the GIA is clear that TowerCos may also benefit from the terms of the new regulation.	Article 3(2) of the BCRD specifies that public communications network providers can request access to the physical infrastructure of another communications network or utilities network, with a view to rolling-out high-speed networks. The GIA extends this to allow both public communications network providers and associated facilities providers (including TowerCos) to request access to existing infrastructure (such as buildings, rooftops, ducts and poles) on fair and reasonable terms. If the physical infrastructure is owned by a public body, the terms of access must also be non-discriminatory (although this is not required of privately owned infrastructure, subject to compliance with existing telecoms regulation, competition rules, and all other Union laws).
The GIA removes barriers to the deployment of wireless infrastructure by streamlining local permitting and permissions.	A persistent complaint among network operators and associated facilities providers—such as TowerCos—was the continued difficulty and cost of obtaining permits and coordinating public works. The GIA simplifies the licensing/authorisation procedures for network operators and associated facilities providers by: 1. Ensuring consistent rules for the granting of permits and rights of way within each Member State. 2. Providing the required civic works information and accepting applications through an electronic portal. 3. Introducing strict timelines for the acceptance and review of applications, with tacit acceptance of completeness after 15 days; and tacit authorisation for works after 4 months.

	In addition, the fees public authorities charge for permits are to be capped at their administrative cost, while compensation is to be awarded to network operators for damages caused if public authorities fail to meet the deadlines the GIA sets out.
The access obligations imposed by the GIA are consistent with independent TowerCos' natural way of working	Article 3(1) of the GIA specifies that network operators (including associated facilities providers, such as TowerCos) must meet any reasonable request for access to their physical infrastructure on fair and reasonable terms and conditions (including pricing). Article 3(2) explains that, when it comes to setting fair and reasonable prices, access providers must be given a fair opportunity to recover their costs (including their investments), while consideration must also be given to depreciation, competition, relevant market conditions, and the impact on the access provider's business plans. These terms are in natural alignment with the incentives of an independent TowerCo, which seek to maximize co-location by providing MNOs with access to physical infrastructure at prices that beat self-supply. With no downstream commercial impacts to consider, the need for regulatory intervention on pricing is unlikely as it would require bilateral negotiation to fail, a formal regulatory complaint, and a breakdown of the mandatory arbitration process. There is no evidence in Europe of commercial negotiation failures between independent TowerCos and prospective tenants.

Source: European Commission, European Parliament, EY analysis, April 2024

> “Cutting red tape and providing fast and reliable connectivity is fundamental for our digital transition. And essential to both us as citizens and business too. These new rules, together with the Gigabit Recommendation, will help us address the increasing demand for state-of-the-art connectivity.
>
> **Margrethe Vestager**
> Executive Vice-President for a Europe Fit for the Digital Age

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