



Facultad de Ciencias Económicas y Empresariales

VALUATION OF CELLNEX TELECOM

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VOCABULARY

MNO	Mobile Network Operator
BTS	Build to Suit
DAS	Distributed Antenna System
PoP	Point of Presence
TowerCos	Tower Companies
Tenancy	The right to use land or live in a building in exchange for rent
MSA	Master Service Agreement
CAGR	Compound Annual Growth Rate
WACC	Weighted Average Cost of Capital
Capex	Capital Expenditure
FCF	Free Cash Flow
EBITDA	Earnings Before Interest Taxes Depreciation and Amortization

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ABSTRACT

The present investigation seeks to perform a fundamental analysis about Cellnex Telecom, a Spanish listed company which operates as Europe's leading operator of wireless telecommunications and broadcasting infrastructures. This analysis will be conducted in order to conclude if Cellnex current market value is overvalued or undervalued by comparing it with the implied value. In order to do so, a literature review about the telecommunication sector and the theoretical framework of the company has been assessed. Furthermore, a review of the main methods of valuation of companies has been carried out, such as the discounted cash flow or comparable trading companies' valuation. In addition, the main financials of the company have been analyzed, as well as its strategic expansion plans and its growth opportunities in the European market. The aim of the investigation is to issue a recommendation on whether or not to maintain, buy or sell the stock of Cellnex Telecom in a given portfolio.

Key words: Company valuation, Telecommunications, DCF, Multiple, Value, Share Price

1. INTRODUCTION

In order to carry out the valuation of a company as accurate as possible, there are several steps that must be taken during the process. It is necessary to make an in-depth analysis both of the theoretical framework of the company and of the best indicators for determining the growth and the future expansion strategy expectations. This should be done through an adequate monitoring of the company performance and its macroeconomic environment, which will have a direct influence on the expectations mentioned above. This will be very important when making assumptions for the valuation analysis.

When making assumptions to project the future cash flows of a company, a deep understanding of the sector in which your company is operating and of the company's evolution during the past years in terms of growth, strategy and financials and the growth opportunities within the market is needed.

In addition, it will be easier to achieve a more accurate result if more than one method is used by comparing all of them at the end. The analysis includes a review of the different valuation methods, especially focusing on three of them: Precedent Transactions, Comparable Trading Companies, and Discounted Cash Flow as these have been used to reach Cellnex Telecom's implied value. However, the most accurate method and the one on which my conclusion mainly relies is the Discounted Cash Flow.

In this valuation assessment, I have tried to go through all the possible aspects that need to be taken into consideration to make the most precise assumptions and estimates. First of all, I have done a telecommunications sector analysis to gain knowledge of the key elements that drive this sector such as the current market trends. However, I wanted to go deeper into Cellnex main operating field, which is the tower industry. Therefore, a more detailed explanation of Cellnex's growth drivers and its infrastructure functioning have been included.

Cellnex Telecom is Europe's leading operator of wireless telecommunications and broadcasting infrastructures with a portfolio of 58,000 sites including forecast roll-outs up to 2027. Cellnex operates in multiple countries across Europe, specifically in Spain,

Italy, Netherlands, France, Switzerland, the United Kingdom, Ireland and Portugal. It provides Telecom Infrastructure Services and Broadcasting Services, in addition to other Network services. It is listed on the IBEX 35 index and trades at 50.05 euros as of April 22nd, 2020.

2. TELECOMMUNICATIONS SECTOR ANALYSIS

2.1 Telecommunications sector in Spain

Spain's telecommunication market is one of the largest in Europe, but it has taken time to achieve this position. Until the 80s there was a predominance of traditional services such as the telegraphy and the basic telephony. Some experts place in 1979, with the celebration of the World Telecommunications Exhibitions (TELECOM'79), the turning point for the establishment of this new technology.

Deloitte's report "*Impacto de 20 años de liberalización de las telecomunicaciones en España 1998-2018*" considers that for the last two decades, the Spanish telecom sector has undergone an important transformation due to the technology development and due to its clients' consumption evolution. This evolution is caused by the change of fixed telephony to mobile telephony, the high increase in the use of smartphones and the growth in the consumption of mobile data.

At the beginnings of this new era, there was a monopoly of the sector in Spain led by 'Compañía Telefónica Nacional de España', founded in 1924. Telefónica was the responsible for the development and operation of the telephone service in Spain, and it was not until 1945, when Telefónica converted into a public company as Franco's government nationalized it by taking control of the company with the 79,6% of the shares. However, the biggest change was in the 90s decade with the privatizations. In 1996, it started the liberalization process of the telecommunications sector with companies such as Airtel or Orange entering the scene.

2.2 Market trends in the sector

The main market trends within the telecommunication sector in 2019 which are driving the companies' strategy are: Artificial Intelligence (AI), implementation of 5G, Cloud

computing, Internet of Things (IoT) and its applications and, Edge Computing among others.

Nowadays, telecommunication companies are using AI to analyze and process the vast amounts of data collected over the years through their customer bases. They use all the Big Data to provide better services, improve operations and increase revenue through new products and services.

TechSee/Liad Churchill publication on “*4 areas where AI is Transforming the Telecom Industry in 2019*” mentions the following statements about AI. Communication service providers (CSPs) are using Artificial Intelligence to optimize network quality based on traffic information by region and time zone. It helps them to find patterns within the data in order to detect and predict network anomalies and future results based on historical data. To conclude, TechSee states “*International Data Corporation (IDC)* indicates that 63.5% of operators are investing in AI systems to improve their infrastructure”. (Churchill, 2020)

This is one of the most important factors that is determining the strategy of the telecommunication companies. It will imply changes in the use of networks and the new services’ forms for clients and companies.

Andalucia Es Digital provides some data we should take into account to understand the changes that 5G will bring to this sector and the world are: 5G will reduce the latency period (the time from when its transmitted by a mobile terminal to when it arrives at its destination). It will allow the interconnexion of 50,000 million of connected objects (Internet of Things). Moreover, 5G will generate energy savings of 90% on the current consumption according to the EU.

Cloud Computing allows the remote access to software, storage and processing of the cloud data. It is the alternative to the physic storage. *Masvoz* identifies the following benefits from Cloud Computing. The advantages of this trend are the cost savings, higher efficiency, agility, growth opportunities and innovation among others. Some data information that reinforces the relevance of this trend within this industry is: 83% of Enterprise workloads will be in the cloud in 2020. In 2019, the public cloud services

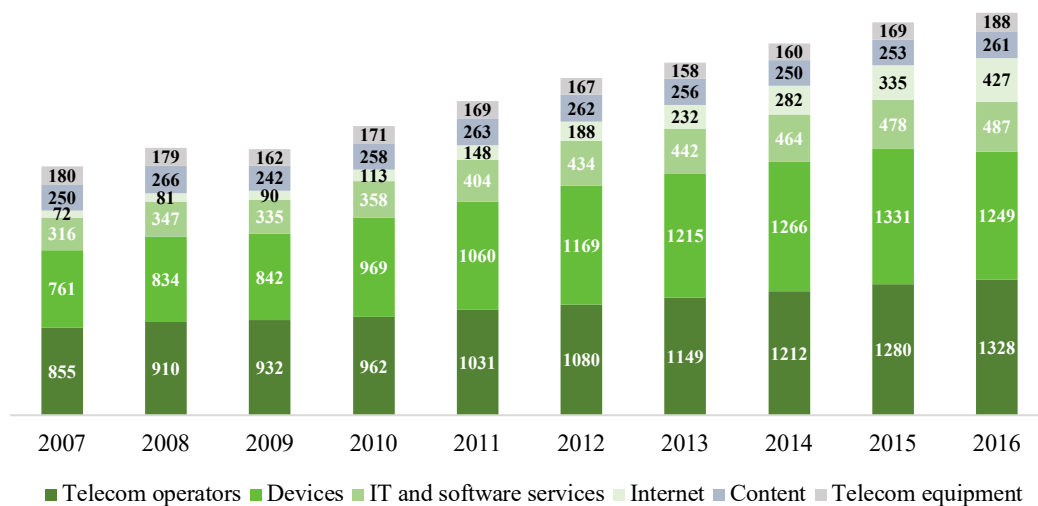
have grown 18% accounting for more than 215 billion dollars in comparison with the 180 billion dollars of 2018 in the world.

Furthermore, the *World Economic Forum* foresees an annual investment in IoT, at a worldwide level, of billions of dollars in the following two years. Therefore, the implementation of this technology is one of the main trends in telecommunications in 2020.

2.3 Key growth drivers

Telecom operators, device manufacturers, and internet players have driven the world ecosystem's growth over 2011-2016. In the graph below, we can appreciate the evolution of revenues from the Digital Ecosystem during the 2007-2016 period. These revenues are generated by the following divisions: Telecom operators, Devices, Information Technology and Software, Telecom equipment, Internet and Content. They are ordered in terms of contribution to revenues, the former representing 34% of total revenues in 2016. Furthermore, Internet division is the one which represents the highest Compound Annual Growth Rate with a 22% during the period.

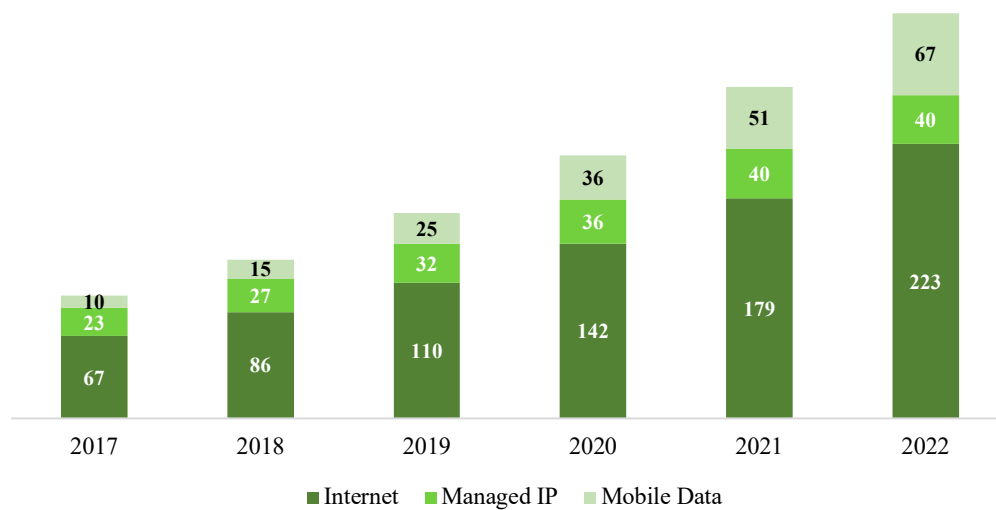
Graph 1: Revenue from the Digital Ecosystem (in billion euros)



Source: Own development with Statista data

Regarding global consumer traffic, it is expected to grow at a 27.2% CAGR during the 2017-2022 period. Mobile Data and Internet will experience an important growth in the coming years, driving Global Consumer IP Traffic. The following graph shows the consumer traffic tendency during this period as well as its growth. It is measured in exabytes per month.

Graph 2: Global Consumer IP Traffic (EB/month)



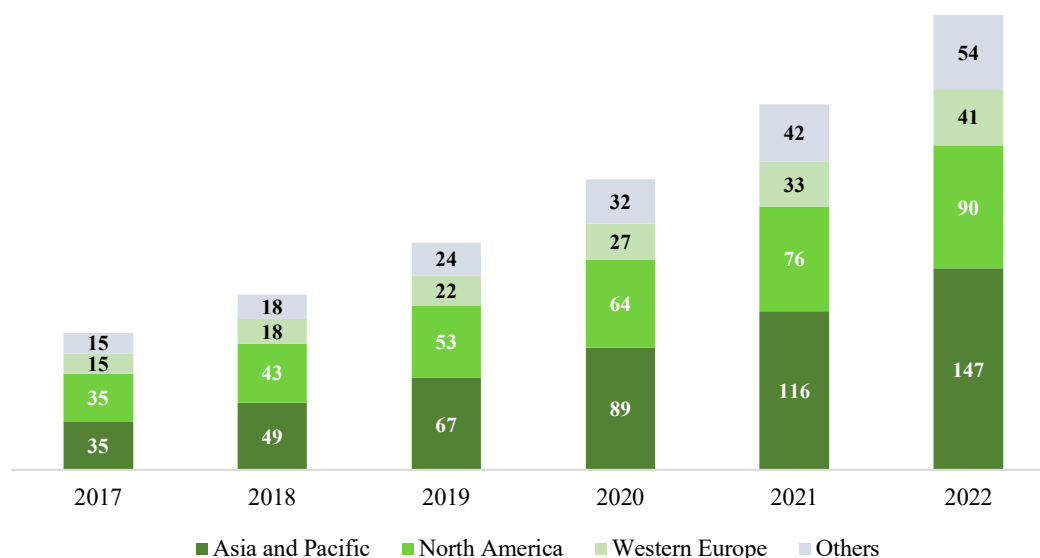
Source: Own development with Statista data

According to Cisco, globally, consumer IP traffic will reach 332.7 exabytes per month by 2022. An exabyte is a measurement unit of data storage. In 2017, global consumer IP traffics grew 31%.

Internet Traffic, both fixed and mobile, are expected to increase in all continents, with an expected CAGR of 27.1%, and 22.3% in Western Europe during the 2017-2022 period. Global consumer internet traffic was 63% of total IP traffic in 2017 and it will be 74% of total IP traffic by 2022. Moreover, Asia Pacific is the region that consumes most Internet, covering 44% of the total global Internet consumption by 2022 and growing at a CAGR of 33.24%. North America will follow Asia with the 27% of the consumption, however, by looking at the graph below we can notice that it will lose coverage throughout the years. Moreover, Western Europe is expected to consume 12% of the total Internet. The rest of the Internet consumption, the 16%, will be consumed by

other regions which include Central and Eastern Europe, Middle East and Africa, and Latin America.

Graph 3: Global Consumer Internet Traffic



Source: Own development with Statista data

Once the main telecommunication sector trends and the drivers of this industry expansion and growth have been explained, we need to understand in greater depth the industry in which Cellnex is specialized. Indeed, it generates 67% of its revenues from this business. Therefore, it is necessary to understand the main elements that build this subsector. In addition, the telecommunications sector comprises a wide range of services and companies such as Telefonica, MásMóvil or Cellnex. Therefore, mobile network operators would not be considered as comparable companies to Cellnex.

3. TOWER INDUSTRY. SUBSECTOR

3.1. Introduction

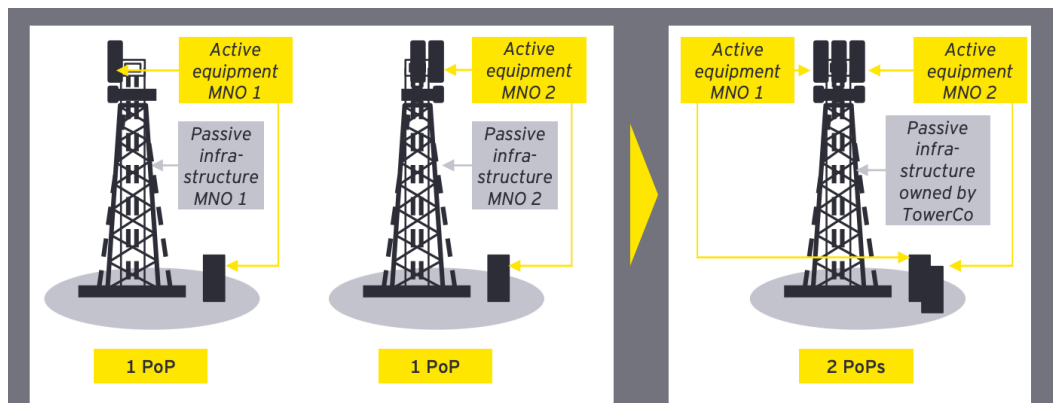
In order to later understand Cellnex valuation, including its process and how figures have been projected, we should firstly understand the functioning of this subsector, along with the following concepts:

- Build-to-suit (BTS): Towers that are built to meet the need of the customer. It is like a customized building, an investment option specially adjusted to a company's needs and its productive process. You can find it in two ways:
 - Sale-leaseback: In this process, a tenant will acquire the land, assume the liability of financing, and hire a general contractor to plan and construct the building. The tenant may then sell the property to an investor and lease the property back.
 - Using a Developer: Based on the company specifications, a tenant will hire a commercial developer. The developer will acquire, take ownership, and manage the risk of construction of the property. The tenant will then lease the property from the developer/owner.

The property is typically leased for a predetermined length of time and typically longer term, due to the fact the building is designed specifically for the tenant.

- Distributed Antenna System (DAS): “DAS is a network of spatially distributed antennas connected to a common source, thus providing wireless service within a specific geographic area”.
- Point of Presence (PoP): “An artificial demarcation point, access point, or physical location at which two or more networks or communication devices share a connection”. (Isberto, 2019). Each tenant on a given site is considered a PoP. It is a site where a mobile network operator 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. Therefore, one tower can have multiple PoPs

Figure 1: TowerCo's role in infrastructure sharing



Source: Ersnt & Young

- **Tenancy ratio:** It refers to the number of tenants, or operators, who have put up their antenna and other active infrastructure on the towers. It is expressed as a fraction of total number of operators sharing towers over the total number of towers present. For the company, in this case Cellnex, it represents to how many operators does it rent each of its towers. They are usually rented to MNOs. We could also define it as the number of PoPs hosted on that tower. This ratio is also known as co-location ratio.
- **Mobile Network Operator (MNO):** It is a wireless communications services provider. In Spain, some examples of MNOs would be Vodafone, Movistar or Orange.

During the last 20 years, the tower industry has boosted thanks to the creation of independent telecom tower companies (TowerCos). This new industry delivers a number of benefits both to MNOs and consumers as a result of outsourcing wireless network infrastructure to independent TowerCos. Reduced overall cost for mobile operators, improvement of coverage and reduction of consumer prices are some of the benefits caused by sharing towers with multiple tenants. According to *Ernst & Young* “a point of presence managed by a TowerCo is circa 40% more efficient than one managed by a mobile operator, resulting in economic savings of 31 billion euros across Europe by 2029”. Moreover, independent TowerCos are playing a key role in enabling 5G rollouts as MNOs are reinvesting in their networks, which involves an improvement of mobile network coverage and the acceleration of 5G rollouts.

Ernst & Young claims that there is a difference between owning a tower when you are a mobile network operator and when you are an independent telecom tower. On the former's balance sheet, a tower, is a depreciating asset built to serve the needs of a single owner. Whereas a tower on a TowerCo's balance sheet is a potential source of long-term, recurring revenue from multiple credit worthy tenants. As a result, investors consider that TowerCos have long-term cash flows. Hence, MNOs typically trade at 4-7x, while towercos typically trade at 10-25x.

There is a great diversity in TowerCo's business models. On one hand we can find pureplay businesses who own and operate towers such as American Tower, Crown Castle, SBA Communications and Cellnex. The "pureplay independent TowerCos" trace their origins back to the phenomenon where privately-owned tower builders started retaining and acquiring assets in the U.S. in the mid-1990s. They are public or privately owned TowerCos with little or no residual equity retained by MNOs. TowerCos typically either build the infrastructure or acquire it from a mobile operator in sale and lease back transactions.

On the other hand, there are operator-led TowerCos. They are independent tower companies in which 51% or more of the equity is retained by parent MNOs such as China Tower Corporation, Vodafone's TowerCo, Deutsche Funkturm, Telxius and Inwit.

Furthermore, there is another variant known as JV infracos (joint venture infrastructure companies). These are entities in which the towers of two or more mobile operator networks have been grouped, this encompasses firms which have their own separate balance sheet and those on which the towers remain on MNO balance sheets. For instance, CTIL is a British company created between Telefónica and Vodafone.

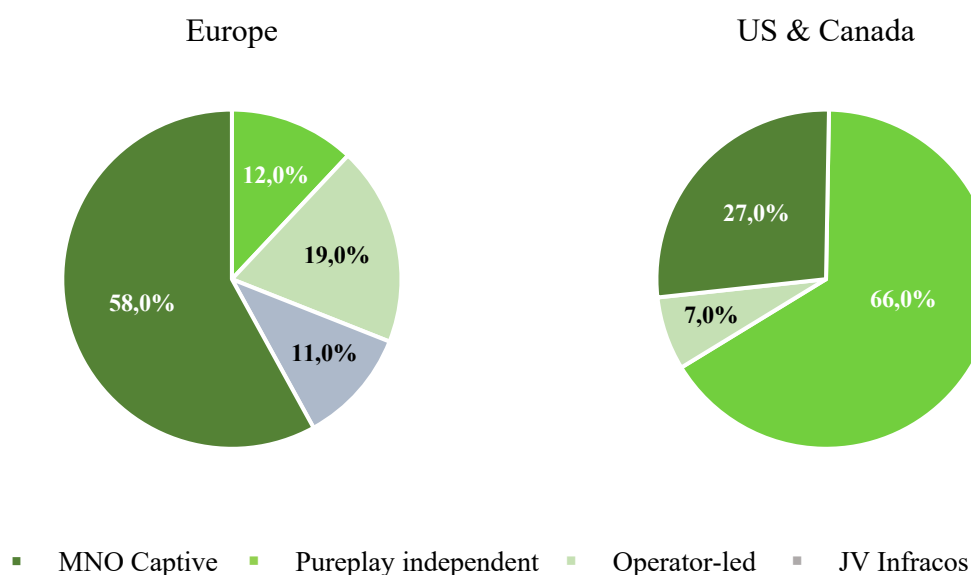
Nevertheless, in Europe is taking longer for TowerCos to dominate the market as the outsourcing of telecom operators' infrastructure to independent tower companies is still in its infancy. In the following section, Europe's tower market will be analyzed.

3.2. Tower Industry in Europe.

An increase in the demand for tower infrastructure is directly linked to the increase of consumer appetite for mobile data capacity. In Europe, mobile network operators consider passive infrastructure as a key competitive differentiator, and this is why many MNOs have been hesitant to outsource their mobile towers to TowerCos. Consequently, Joint Venture infrastructure companies and operator led TowerCos by MNOs have been created.

North America market is far more advanced on this industry than Europe. According to TowerXchange, 11% of Europe's towers are owned or operated by JV infracos. In addition, the pureplay independent TowerCo sector has been experiencing growth, mostly caused by Cellnex and American Tower expansion, representing 12% of Europe's towers. Moreover, the operator led TowerCo sector represents 19% with Telxius and Inwit boosting its growth. This leaves Mobile Network Operators with around 58% of Europe's towers. TowerXchange forecasts that 64.9% of Europe's towers will be owned by independent telecom tower companies by the fourth quarter of 2021. Contrarily, American independent TowerCos have been able to take over the majority of U.S. and Canadian towers owning 66% of these infrastructures. The rest is owned by MNOs with 27% of these towers and 7% by operator led TowerCos.

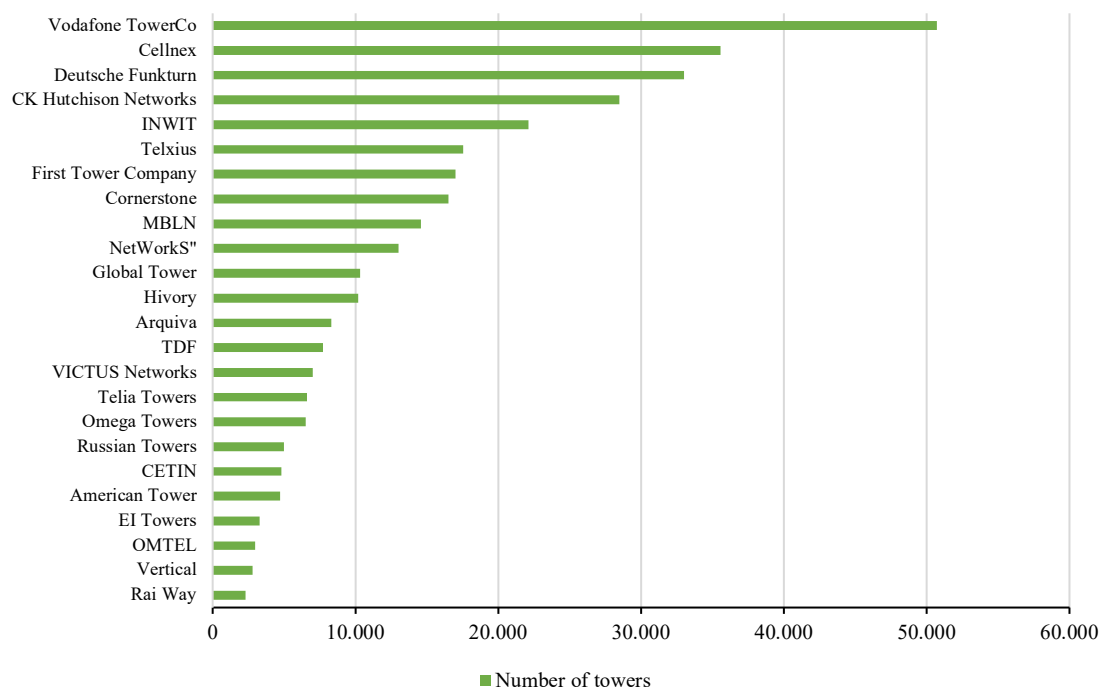
Graph 4: Telecom Tower Ownership



Source: Own development with TowerXchange data

Furthermore, the following graph shows the main telecom and broadcast TowerCos in Europe ranked by number of sites. Vodafone TowerCo leads this ranking with a total of 50,700 sites in Europe, 70% of which are located across Germany, Spain and UK with a 38%, 19% and 13% of the total number of sites respectively. Moreover, Cellnex have its sites distributed all over Europe. However, Italy, Spain and France are the countries in which it has the greatest market share.

Graph 5: Europe's main telecom and broadcast TowerCos



Source: Own development with TowerXchange data

3.3. Business Model

Within the mobile site rental business, the TowerCo operators manage the passive infrastructure and lease the capacity to mobile network operators. These leasing contracts usually last for 10 to 15 years initially with the first MNO – which is the anchor tenant – and around 5 years with additional tenants.

TowerCos develop, acquire and operate communication towers, providing the passive infrastructure needed for telecoms and media services to be provided to consumers. According to *Ernst & Young's* report on the economic contribution of the European tower sector, TowerCos can provide services to MNOs in two ways: out-tasking and

out-sourcing. When they out-task, network operators outsource the operation of towers to TowerCos while retaining ownership for the infrastructure.

On the other hand, network operators can transfer functional responsibilities to TowerCos. Then, they use their own resources to develop, operate, maintain and optimize the network or its elements. Ownership of the tower can either be retained with the MNO or transfer to the TowerCo (with leaseback agreements). Either way, the management of the tower is assigned to the TowerCo, which can then share the infrastructure with multiple network customers.

The provision of tower infrastructure by TowerCos provides an alternative to Network Operators from managing their own passive infrastructure. Among the multiple economic benefits, it is an effective way to gain access to liquidity as outsourcing infrastructure means a source of cash for MNOs which they could use to invest in network upgrades and expansion. *Ernst & Young* estimated that, if Europe outsourced to the same level as the US, an additional 27 billion euros of capital would be released in the European tower sector, as well as a discounted net benefit of 23 billion euros to the European economy over the next decade.

A further potential benefit to consumers from outsourcing infrastructure is that it can improve the quality of service for customers. As a result of having higher infrastructure sharing rates, the numbers of available points of presence for MNOs would be increased because of the more efficient use of existing infrastructure.

In terms of regulation, IFRS 16 forces TowerCos to capitalize leasings, increasing its Debt. The IFRS 16 has the effect of increasing the company's net debt (as future lease obligations are now recognized as a liability) but also increases EBITDA as annual lease costs are expensed as interest and depreciation.

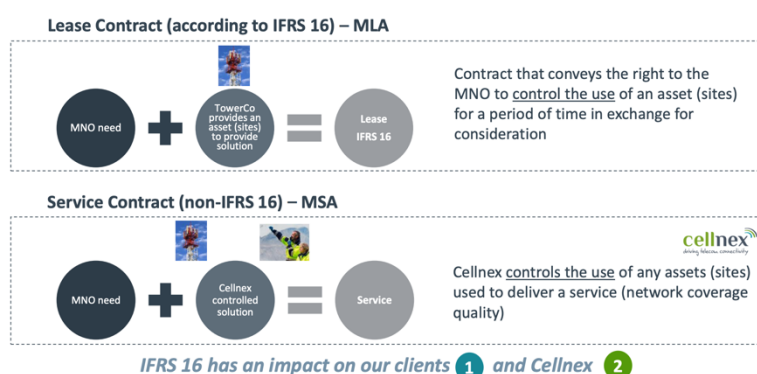
IFRS 16 is a new accounting standard that defines the differences between a lease and a service agreement and requires the lessee to recognize an asset and a liability for all leases. Regarding the implications for its clients, we should know what a Master Service Agreement (MSA) is. It is a contract reached between parties, in which the parties agree to most of the terms that will govern future transactions or future agreements.

Cellnex's MSA does not fall under IFRS 16 due to the following industrial reasons:

- The Network is considered Cellnex's "unit of account", not individual sites
- Their MSA consists of the reservation of a technical footprint
- Cellnex has the right to relocate equipment within the site and to another site (Network Optimisation)
- Their clients (MNOs) can control Cellnex's quality of service through Service Level Agreements (SLAs) and extensive Key Performance Indicators (KPIs)

Cellnex has validated with Ernst & Young and Price Waterhouse Coopers that their MSA contracts are pure service contracts and therefore no liability appears in the Balance Sheet of their customers. Cellnex explains the impact with the following examples:

Figure 2: IFRS 16 impact



Source: Cellnex

Figure 3: IFRS implications for clients

1 IFRS 16

Implications for Our Clients: The MSA

Cellnex's MSA has a credit-positive impact for MNOs in comparison to an MLA

	MLA ⁽¹⁾ (lease) IFRS 16	MSA ⁽²⁾ (service) Non-IFRS 16
P&L		
Revenues	€100Mn	€100Mn
Opex	(€0Mn)	(€10Mn)
EBITDA	€100Mn	€90Mn
Cash		
EBITDA	€100Mn	€90Mn
Payment of principal (cash outflow)	(€10Mn)	(€0Mn)
Net Cash Flow	€90Mn	€90Mn
Balance Sheet		
Net debt	€100Mn ⁽³⁾	€0Mn
Leverage ⁽⁴⁾	1.0x	0.0x

Illustrative example:

- Assume an MNO with revenues of €100Mn and no Net Debt before the lease or service contract
- Our service is priced at €10Mn per year

(1) Master Lease Agreement. Under this contract there is an impact on the level of Net Debt to EBITDA as leases are capitalized and accounted for as assets and liabilities
(2) Master Service Agreement. Please see previous page for further detail
(3) Assuming capitalisation of €10Mn instalments during 10 years
(4) Net debt / EBITDA

Cellnex – Capital Markets Day 14 November 2017

Source: Cellnex

Figure 4: IFRS 16 implications for Cellnex

IFRS 16

2

Implications for Cellnex

Cellnex has lease contracts with landlords and the payments will be capitalized as liabilities

Illustrative example:

	Pre IFRS 16 ⁽¹⁾	Post IFRS 16
P&L		
Revenues	€707Mn	€707Mn
Opex	(€417Mn)	(€257Mn) ⁽²⁾
EBITDA	€290Mn	€450Mn
Cash		
EBITDA	€290Mn	€450Mn
Payment of principal (cash outflow)	(€0Mn)	(€160Mn)
Adjusted EBITDA (net cash flow)	€290Mn	€290Mn
Balance Sheet		
Net debt	€1,499Mn	€2,011Mn ⁽³⁾
Leverage ⁽⁴⁾	4.6x	4.4x

Cellnex's leverage ratio will improve under IFRS 16 with no impact on RLFCF ⁽⁵⁾

Cellnex is to adopt IFRS 16 in 2018

⁽¹⁾ Full Year 2016 figures

⁽²⁾ €160Mn leases as per Cellnex estimates for this illustrative example

⁽³⁾ Leases capitalization

⁽⁴⁾ Net debt / EBITDA

⁽⁵⁾ Please see Adjusted EBITDA calculation

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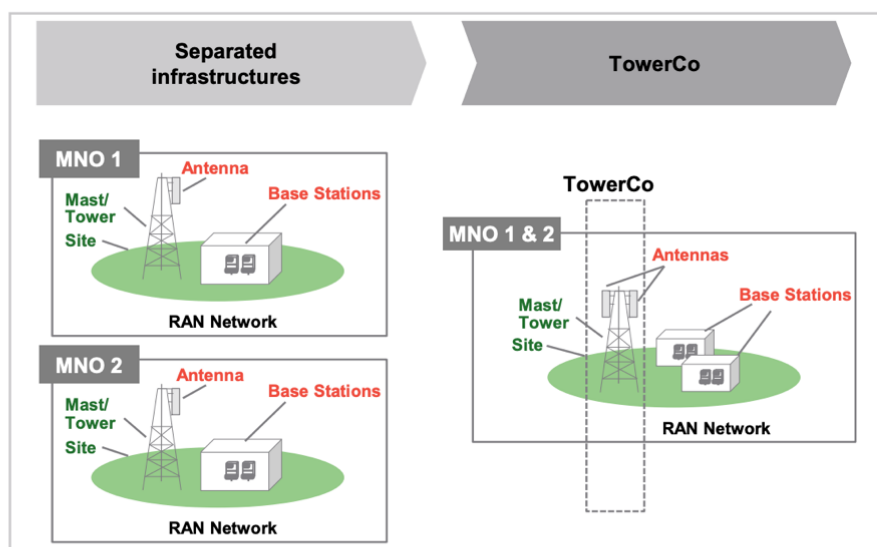
Source: Cellnex

Ernst & Young identified the economic benefits of TowerCos result from driving cost efficiencies in three different ways. Operating expenditure can be reduced as TowerCos have a greater expertise in identifying efficiencies, so there will be a more efficient tower operation. They have greater skills and knowledge when negotiating contracts. In addition, with TowerCos, cost of capital can be reduced as they finance investments at a lower Cost of capital than MNOs. The main reason for this lower cost of capital is that TowerCos may be seen as operators with lower risk to manage towers because of the fact that its returns to their management of the tower is less dependent on the success of particular MNOs and its expertise. Finally, as explained before, TowerCos can achieve a greater share of its infrastructure than MNOs (as they use it as a competitive advantage against other MNOs while TowerCos want as many tenants as possible), and therefore, its tenancy ratio increases. This has a direct effect on reducing the cost per Point of Presence as the fixed costs per tower are shared between multiple network operators.

It is a fact that independent TowerCos achieve higher tenancy ratios than mobile operators. The main reason is that their business model focuses on building and operating neutral infrastructure and then attracting as many tenancies as possible.

Therefore, the use of passive infrastructure for TowerCos is central to their profitability and they see it as a core business activity. In contrast, MNOs focus on increasing their network differentiation against their direct competitors by prioritizing their sharing of active infrastructure. They see infrastructure as a competitive advantage as they compete on the quality of their service coverage with other MNOs. They aren't that incentivized in finding additional customers. Therefore, independent TowerCos management is more efficient than the management of points of presence by a mobile network operator as they can share among more operators and effectively give some of the discount back to consumers. The provision of tower infrastructure by TowerCos provides an alternative to the Network Operator managing their own passive infrastructure, as represented below:

Figure 5: How TowerCos facilitate infrastructure sharing

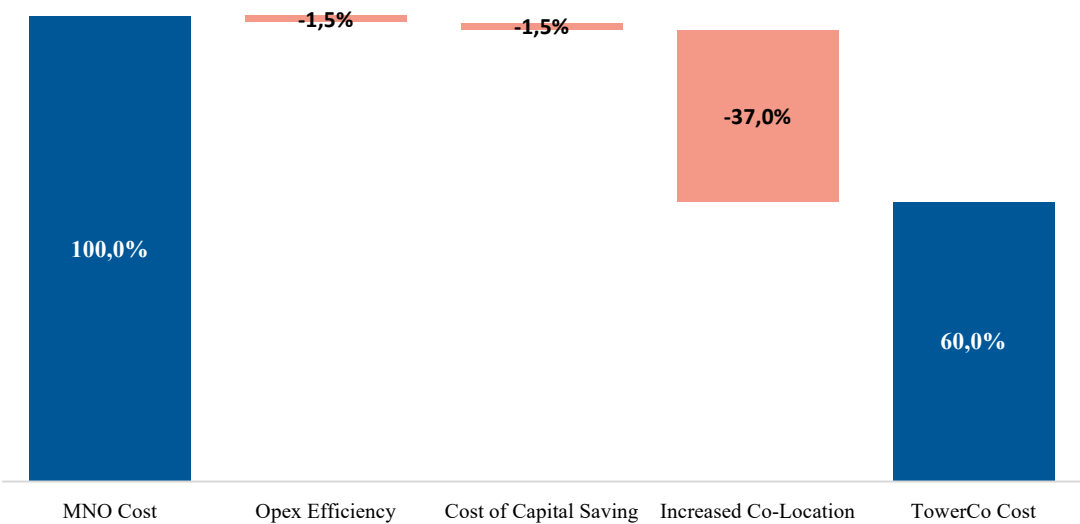


Source: Ernst & Young

Furthermore, *Ernst & Young* estimated the cost of providing a Point of Presence depending on who managed the tower, either the TowerCo or the MNO. In this analysis, they forecasted that when a TowerCo manages a typical Point of Presence it is 40% more efficient than one managed by an MNO. The differences in efficiency are driven by assumptions regarding co-location (tenancy) ratio, cost of capital and operating expenditure. Nevertheless, the main driver is the higher tenancy ratio that a TowerCo is able to achieve in comparison with an MNO, so the reduction comes basically from

spreading its fixed among many “customers”. The following graph provided by EY shows the differences.

Graph 6: Cost per Additional Point of Presence for MNOs vs. TowerCos



Source: Ernst & Young

In Europe tenancy ratios are growing. European mobile operators are seeking to share capex given the poor returns of the industry and the growing need for densification of networks. As reported by *Credit Suisse*, industry returns in European telecoms sector have been below the cost of capital for nearly a decade. As a result, telecommunication companies have reconsidered the need for owning their entire infrastructure.

3.4. Competitiveness in the European market

In Europe, the majority of challengers have sold towers now. The remaining towers are owned by Incumbents or Vodafone, who are pursuing paths to create value by increasing utilization and reducing cost themselves.

In recent years, Italy has become one of the most developed tower markets. The potential opportunities left in the Italian market include EI Towers’ telecom towers, wind Tre’s remaining towers and some smaller independent TowerCos.

Vodafone and Orange’s agreement has a major impact on the Spanish telecom sector as it will imply better financial conditions, therefore, greater speed for the roll out of 5G for both operators and it will put pressure on Telefónica and MásMóvil.

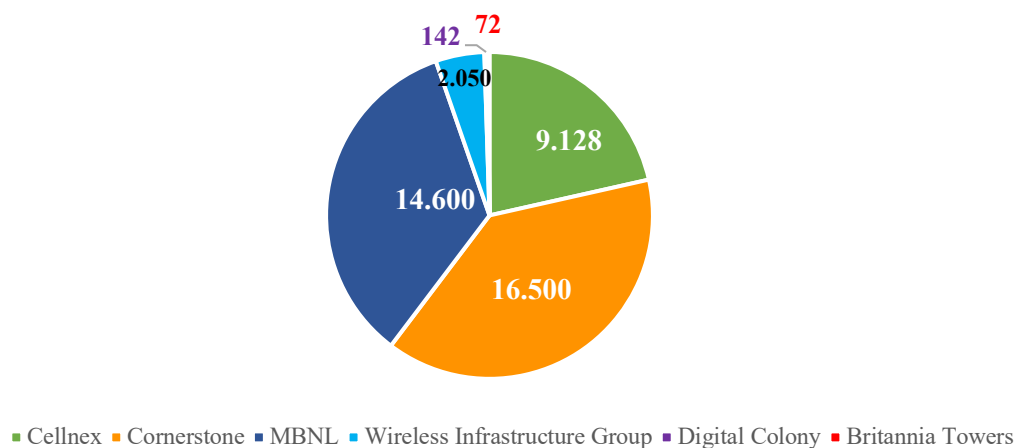
Table 1: Highlights in the European market

Country	Highlights
Italy	Vodafone and Inwit (Telecom Italia) merger → “Vodafone Towers” to deploy 5G in partnership
	Initial Public Offering (IPO) of Inwit in 2015
	Sale of Wind Tre’s 7,337 towers to Cellnex
Spain	Vodafone and Orange → Extension of network sharing agreement from 5.6k to 14.8k
UK	Vodafone and O2 (Telefónica) agreement → Building a 5G joint network.
	Cellnex acquisition of Arqiva → 7,400 towers
Portugal	Altice’s sale of €1.57bn stake of its wholesale fibre operation to Morgan Stanley. Vodafone owns 4k sites

Source: Own development

The UK is a unique market because of its two network Joint Ventures structure. Vodafone and Telefónica maintained a combined network in the UK – called Cornerstone Telecommunications Infrastructure Limited (CTIL) – which includes around 15.000 towers. However, there is a number of Independent TowerCos present as we can see in the graph below.

Graph 7: Tower ownership in the UK



Source: Own development with TowerXchange data

The German tower market is dominated by Deutsche Telekom and Vodafone. Independent TowerCo penetration is relatively limited. It is said that Deutsche Telekom has been considering an IPO or sale of its towers. In addition, Vodafone has 20,000 towers in Germany with a tenancy ratio of 1.3x and it is seeking new ways to increase the utilization on its assets and achieve higher returns. Vodafone has been announcing sharing agreements in other markets, so there is a high possibility of doing it in Germany.

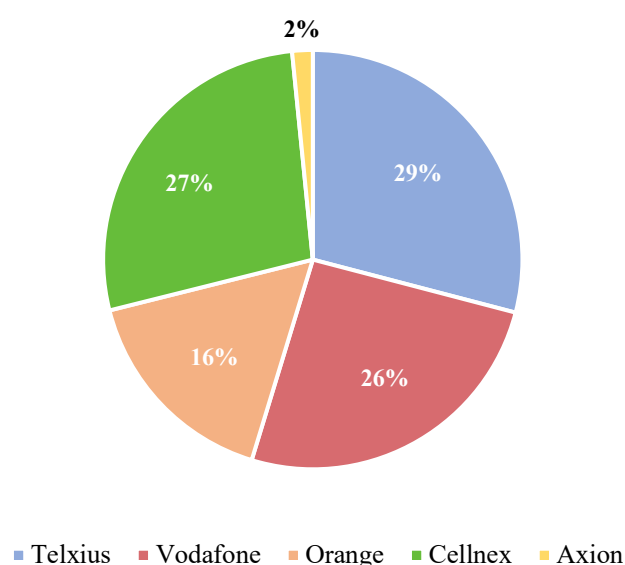
Figure 6: Presence of Deutsche Telekom in Europe



Source: TowerXchange

In Spain there are two TowerCos that stand out, Cellnex and Telxius, owned by Telefónica. There are other firms such as Vodafone and Orange and small regional players such as Axion, which still own their sites. Cellnex acquired the majority of its sites from Telefonica and MásMóvil. During 2019, Vodafone and Orange have increased their active sharing partnership in order to roll out 5G together and be more efficient. The following graph represents the Spanish tower market share in terms of total number of towers.

Graph 8: Tower Ownership in Spain



Source: TowerXchange

Moreover, the Netherlands has a mature independent TowerCo market with tenancy ratios typically high. It could be the next market with activity regarding the telecom sector.

Cellnex stands out in France, Italy and Switzerland with multiple agreements in each of these countries which will be mentioned when analyzing Cellnex. In addition, Cellnex plans to increase the number of sites through a BTS program running between 2020-2027.

4. CELLNEX

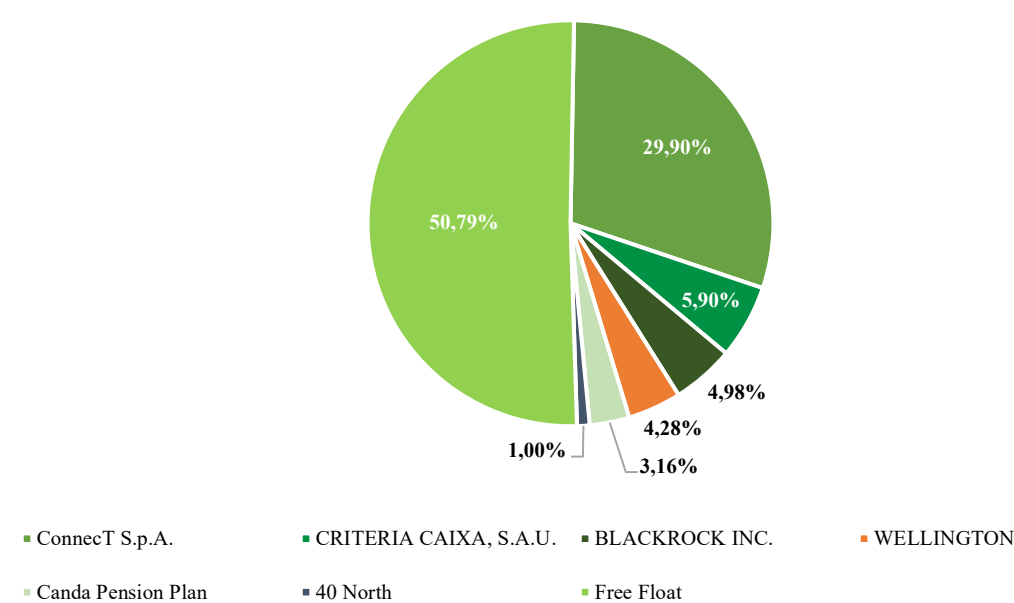
4.1. Introduction

Cellnex Telecom is the leading infrastructure operator for wireless telecommunication in Europe. It was founded in 2000 as Abertis Telecom and renamed Cellnex in 2015, the same year it became a publicly listed company. It is part of the IBEX35, Eurostoxx 600 and MSCI Europe index, being one of the listed companies with more liquidity in the Spanish Stock Exchange Interconnection System (SIBE). Cellnex's CEO is Tobías Marínez Gimeno who joined the Abertis Group in 2000, and it is headquartered in Madrid.

It provides services in Italy, Netherlands, United Kingdom, France, Switzerland, Ireland, Portugal and Spain as a result of its investment effort to boost its transformation and internationalization. Cellnex offers to its customers a range of services to guarantee the conditions for reliable and high-quality transmission of voice, data and audiovisual contents. Moreover, it develops solutions in the field of “Smart City” projects that optimize services to the citizen via networks and services that facilitate municipal management.

Cellnex shareholder structure is as follows:

Graph 9: Shareholder Structure

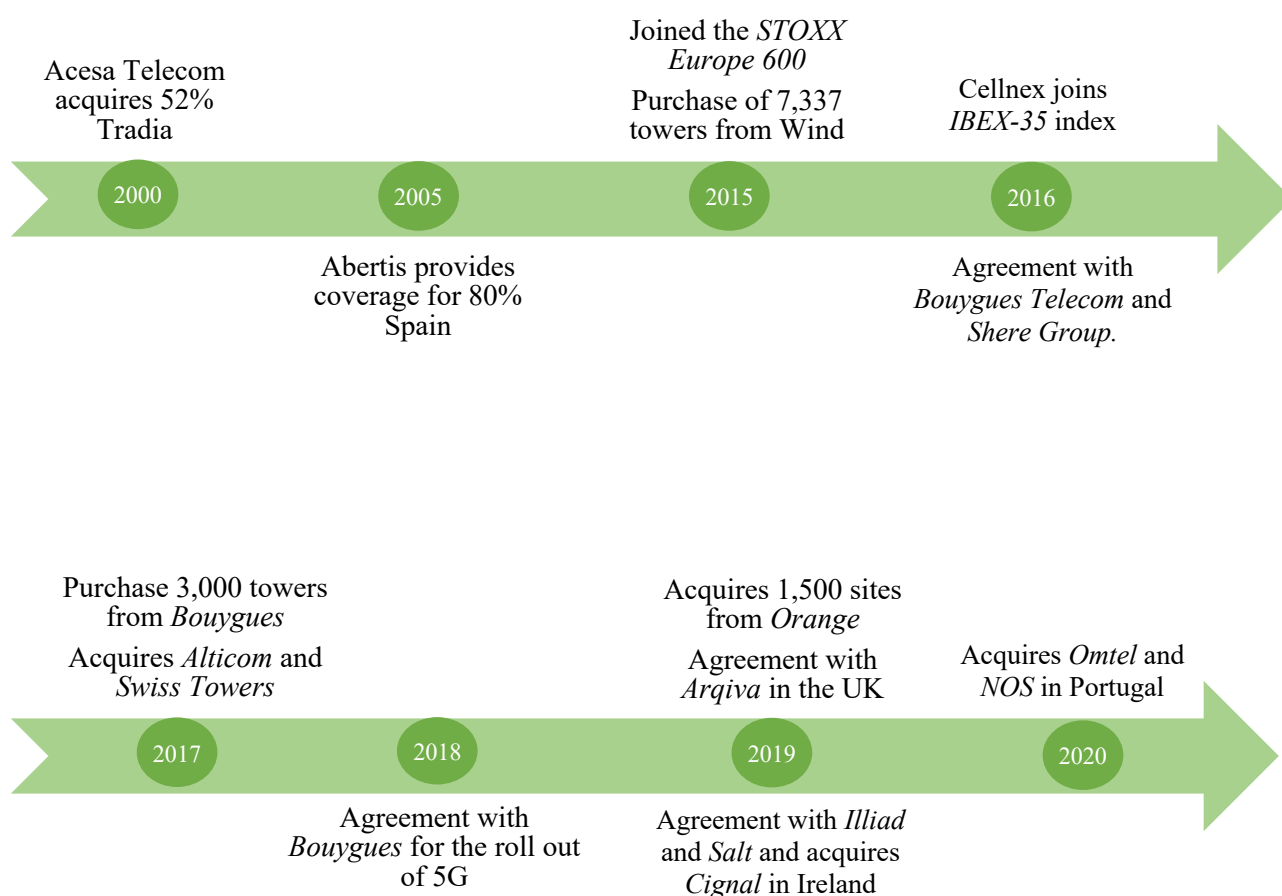


Source: Own development with Cellnex data

4.2. Main milestones

The timeline below shows Cellnex’s main milestones since 2000.

Graph 10: Cellnex's main milestones



Source: Own development

In 2016 it starts Cellnex relationship with Bouygues Telecom with the acquisition of 270 towers in France and with Shere Group by acquiring 261 towers in the Netherlands consolidating presence in Netherlands and starting activity in France. However, the most outstanding event in 2016 was its entrance to the IBEX 35 index.

In 2017, three strategic and very important decisions for Cellnex enlargement were made. Firstly, it strengthened its position in the Netherlands by acquiring Alticom, a company which operates high capacity telecommunications towers and sites for broadcasting services. Moreover, it acquired 100% of Swiss Towers AG which operated 2,239 sites in Switzerland. Lastly, it reached an agreement with Bouygues Telecom adding 3,000 sites to its current French portfolio of 500. The relationship between

Cellnex and Bouygues continued in 2018, rolling out up to 88 new strategic telecommunications centers.

2019 has been a very active year in terms of acquisitions for Cellnex. Among all operations carried out, the following ones are particularly worthy of mention. It acquired 1,500 sites from Orange Spain for 260 million euros and the telecommunications division of English company Arquiva which involved the purchase of 7,400 sites in the United Kingdom. Moreover, it acquired the Irish towers and telecommunications operator Cignal for 210 million euros. Finally, it executed a Europe-wide agreement with Illiad – in France and Italy – and with Salt in Switzerland.

So far this year, Cellnex has equipped Manchester City's Etihad Stadium with a multi-operator Distributed Antenna System (DAS) and it has focused on increasing its market share in Portugal with the acquisition of Omtel (3,000 sites), the main telecommunications infrastructure operator in the country, and the Portuguese mobile operator NOS (2,000 sites).

Besides all the high-quality services and successful management performance Cellnex has proved to have, there are other aspects that have boosted Cellnex's businesses and have led them to be the leading wireless telecommunications infrastructure company in Europe.

Cellnex identified at the right time the major problems that mobile network operators were facing and knew how to take advantage of them by looking at them as opportunities. These issues encompass the high amount of debt on the MNOs' balance sheet (along with a lot of pressure to get rid of towers in order to reduce debt), the need of reinventing themselves, and the burning of cash flow. The tower business is a business which requires the burning of cash flow on the part of the MNOs mainly due to the maintenance Capex they have to pay each year, worsening debt problems.

Finally, Cellnex has shown to have a great management team who has taken advantage of the expansion opportunities within the market. It has been able to change the tower business model within the European market, following that of the American tower companies. It had the business models of its American peers, such as Crown Castle and

American Tower, and used them as a reference to build its own business plan following their approaches.

4.3. Business Lines

Cellnex has three main business lines in which they are specialized and through which they provide services. If we take a look at Cellnex revenues breakdown we can see the three divisions which bring revenues to the company, which are: Telecom Infrastructure (67%), Broadcasting (23%) and Network Services & Others (11%).

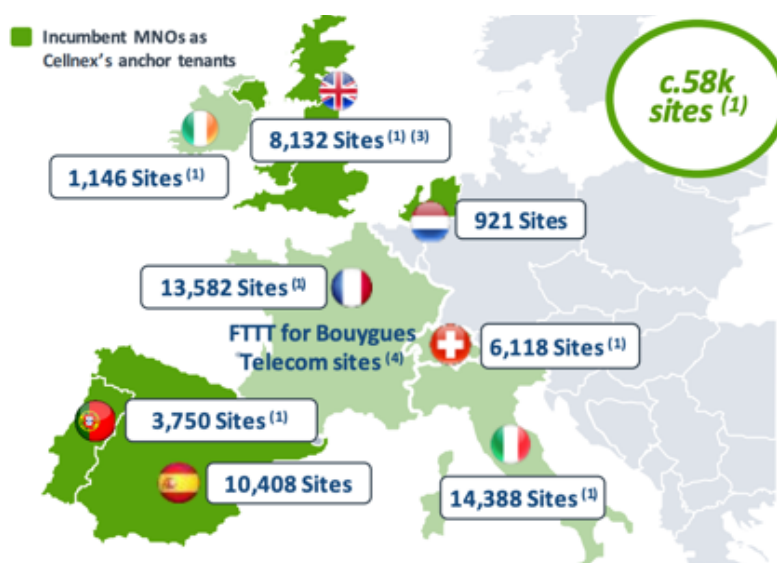
4.3.1. Telecom Infrastructure Services

First of all, they offer telecom infrastructure services to its customers. The objective of this division relies on making sure the transmission of voice, data and audiovisual contents are reliable and high-quality services. It has more than 8,000 sites in Spain which contribute to Cellnex's commitment of the development of 5G.

They allow mobile carriers to install their telecommunications and wireless radio broadcast equipment in their infrastructure offering co-location services. Multiple infrastructure's properties such as an appropriate climate control, assisted power supply systems and automatic alarm detection systems are some of the outstanding features that allow Cellnex to provide a service with a high level of quality, availability and network stability.

Regarding Cellnex's total number of sites, its network comprises currently more than thirty-six thousand sites. The following figure shows the total number of sites including those which haven't been transferred or build yet (but the M&A contract has already been signed and closed), that is to say assuming that all sites to be transferred or built under our M&A contracts are actually transferred or built by each relevant date.

Figure 7: Total number of sites



Source: Cellnex

4.3.2. Broadcasting networks

The aim of this service is to ensure distribution and broadcasting of digital television, radio or multi-screen environment content. They achieve this thanks to the more than 3000 emitter centers they own and its lengthy experience in network operation and radio-electric spectrum management.

Regarding the part that contributes to the broadcasting of television, Cellnex spearheaded the implementation of DTT (digital terrestrial television) in Spain. It has a network of installations which broadcast at more than 3200 sites.

Broadcasting services also include internet media. It provides innovative content distribution and management services via the Internet through online multi-screen solutions, online business support solutions and content delivery network (CDN) which reduces latency and increase bandwidth.

4.3.3. DAS & Small Cells

In addition to towers, Cellnex also develops Distributed antenna solutions (DAS) which provide wireless service within a geographic area or structure. The DAS and Small

Cells systems are one of the core infrastructures from which the new 5G communication standard will be deployed.

By using the Distributed Antenna System, Cellnex ensures good mobile connectivity in crowded and difficult-to-reach places such as stadiums and airports. Cellnex manages approximately 1,500 multi-system and multi-operator nodes in the main high-traffic areas. Some of these establishments stand out among Cellnex's portfolio such as The Wanda Metropolitan and the Juventus Stadium, the Milan Subway or the Malpensa Airport. Cellnex's services also include the provision of the infrastructure required to build and develop Smart Cities, Internet of Things and Security.

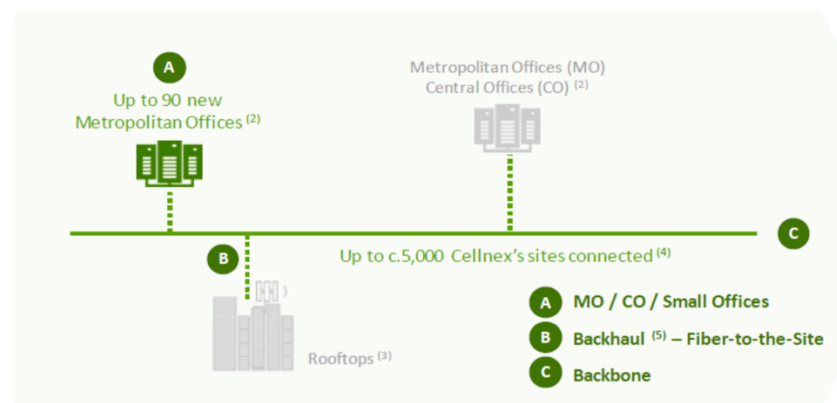
4.3.4. Fibre Optic

Cellnex strives to continue growing and it is open for other opportunities the market may present. Its investment policy is based on reinvesting as long as there are growth opportunities. Today, Cellnex is a diversified company which operates in multiple countries such as Italy, France, Netherlands and Ireland and in which 51% of its revenues are generated outside Spain.

Furthermore, Cellnex's latest investment is on fibre. It has decided to enter the fibre optic market and it has already started to negotiate and sign long-term agreements to deploy this new network which adds to its vast amount of installations and services. Cellnex provides the following schematic of its fibre plans:

Figure 8: Fixed and Mobile Transport Fiber Network

Fixed and Mobile Transport Fiber Network ⁽¹⁾



Source: Cellnex FY 2019 Results presentation

On February 2020, it announced a new agreement with Bouygues Telecom which involves investing a thousand million euros during the following seven years and creating a new company controlled by the Spanish firm that aims deploying a national fibre optic network in France.

The new joint subsidiary Cellnex-Bouygues will deploy from scratch a network of up to 31,500 kilometers, interconnecting the towers used by Bouygues – 5000 of which are Cellnex property – with the network called metropolitan offices, that is to say, the centers that receive the servers of the Edge Computing systems, and with the small cells, in other words, the small size antennas that will be indispensable to use high frequencies used by a part of 5G.

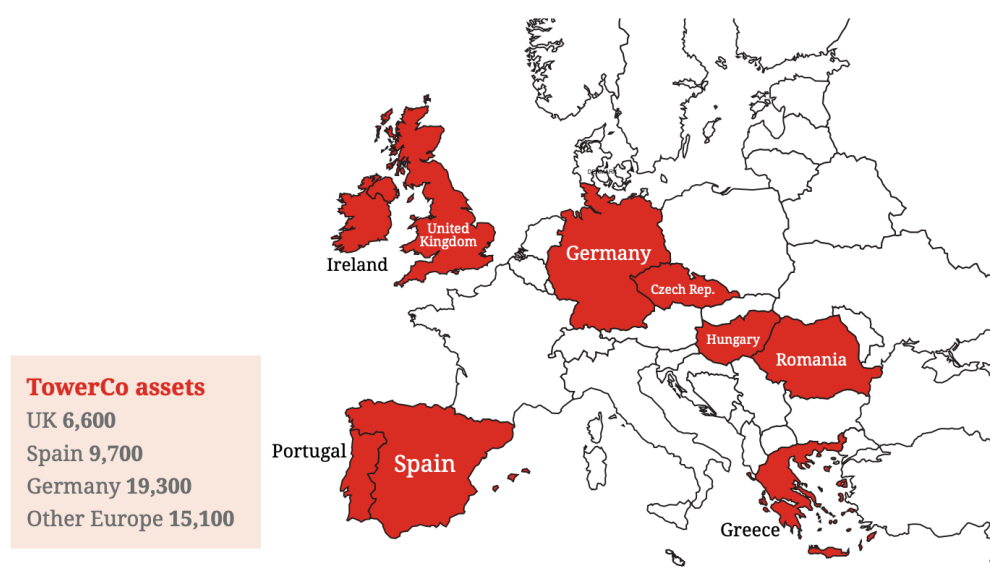
Cellnex's growth within this market contributes to its "Network Services & Others" revenues, which will be helpful for the assumptions taken when projecting these revenues.

4.4. Growth Opportunities

Cellnex has not finished its consolidation goal in Europe and it is still interest on carrying out M&A Activity across Europe, especially in those countries with higher growth opportunities. Although during the last couple of years there has been various transactions involving towers, there are still towers which could potentially be sold in the future.

Cellnex is very keen on acquiring more assets from the big European MNO players. TowerXchange says that, recently, Vodafone has been examining the idea of selling many of their approximately 55,000 European towers. Vodafone's increased willingness to share and monetize their towers is already reflected in an agreement to merge Vodafone Italy's 11,000 towers with TIM's TowerCo INWIT. Additionally, The MNOs Orange and Telenor could be interest on selling too.

Figure 9: Vodafone TowerCo footprint



Source: TowerXchange

Cellnex has signed a number of BTS (build-to-suit) agreements with operators. These agreements offer a way to drive further growth and even a route to enter underpenetrated markets. This could be one way to enter markets such as Germany that have material roll out obligations coming up. Moreover, network densification will support continued tenancy ratio growth.

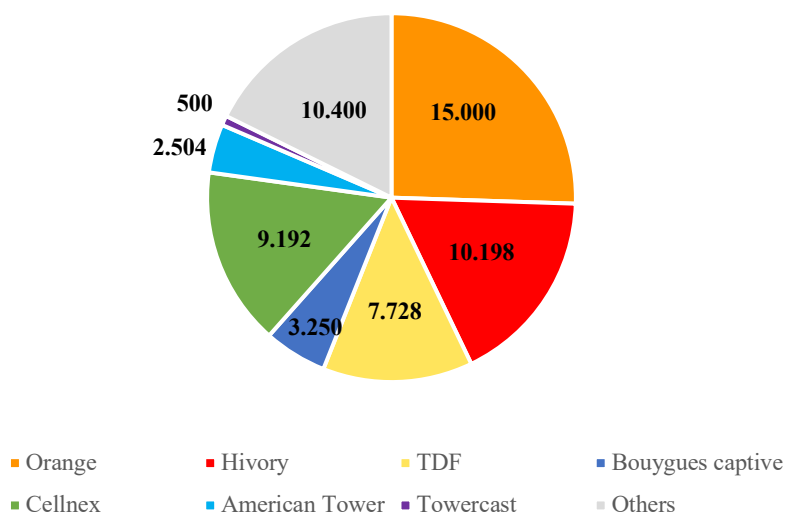
Additionally, *TowerXchange* has identified a further 65,900 towers that could be transferred to independent TowerCos in Europe in the following two and a half years, plus a further 33,000 new towers they estimate TowerCos could build over a similar period. However, this doesn't mean that Cellnex will capture all that growth, but it is still a great acquisition opportunity for Cellnex.

Tobías Martínez has claimed that “Central and Eastern Europe is our second priority. Our first priority is to explore and consolidate in Western Europe: we don't have enough scale in the UK yet, the second largest market in Europe; we'd like to do more in the Netherlands; we will have to track how potential prospects in our core markets evolve, like TDF” (Martínez, 2019).

- In the Netherlands, Vodafone's strategy has shifted towards the sale of its towers and it could get rid of 600 towers (VodafoneZiggo)

- In the UK, Vodafone and Telefónica are exploring options to monetize part of its stake in Cornerstone (CTIL) which owns around 16,000 towers.
- In Italy, WindTre is willing to put 7,000 towers on the market.
- In France, the market is dominated by Orange, who remains France's largest tower owner with around 15,000 sites. However, Cellnex has been consolidating its business during the past years carrying out important and high-scale deals such as the acquisition of 5,700 Iliad towers and all its past agreements with Bouygues, thus building up its status as the largest independent tower operator in France, with around 9,000 sites. France is one of the more developed tower markets in Europe.

Graph 11: Tower ownership in France



Source: Own development with TowerXchange data

- In Switzerland, Cellnex has more than doubled its size in terms of towers going from 2,327 towers in 2018 to 5,270 towers in 2019. In addition to the 2,339 towers coming from its deal with Sunrise in 2017, Cellnex has signed an agreement with Salt in 2019 aggregating 2,900 towers, representing 46.6% of the country's current tower stock, with the balance retained by market leaders Swisscom, which is the only operator that owns any towers in Switzerland, and they haven't considered the sale of its assets.

- Finally, Cellnex has entered Portugal with the acquisition of 3k sites of Omtel and has continued with the acquisition of 2k sites of NOS, carrying out both transactions in 2020. In addition, it stands out over Portugal Telecom as a long-term strategic partner.

As a conclusion, I would say the markets where Cellnex have the highest opportunities to expand and buy more towers are the UK and Portugal.

4.5. Financial Analysis

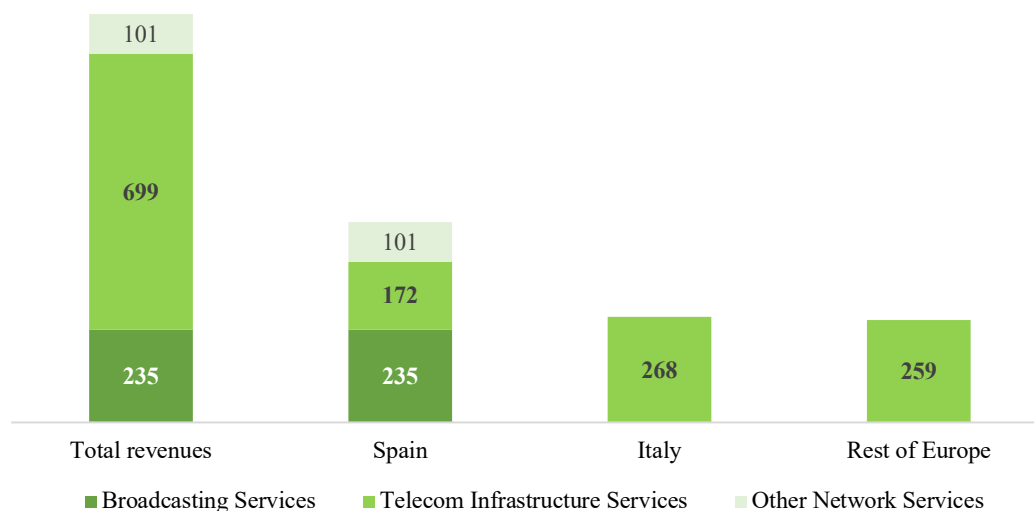
Looking at Cellnex's balance (included in the Appendix) over the last 5 years, we can appreciate an average annual increase in assets of 36.55%. Its net worth has increased at an average annual rate of 38.84%. This could be an indicator of value created for the shareholder; however, we should contrast it with its share book value. Finally, regarding Cellnex's debt level, there is an increase of 30.82%. This figure should be monitor as it would cause a problem if its increase is made at a higher rate than the increase in the assets. An increase in debt often includes a decrease in the company's solvency and an increase in the financial risk.

Cellnex has increased the number of sites in all countries, with an important consolidation in some countries across Europe. Apart from the strong position in Spain and Italy – especially in the latter country where the number of sites has gone from 321 to 10,121 since 2014 – Cellnex has been able to consolidate in France, from 0 to 9,192 sites, and in Switzerland, from 0 to 5,277 sites. Moreover, tenancy ratios have remained stable in terms of Cellnex Group Figures. Cellnex's average tenancy ratio from 2015 to 2019 is 1.54.

Furthermore, points of presence have increased at a CAGR of 24.6% mainly due to inorganic growth, meaning all the M&A activity. In 2015 there were 20,740 PoPs and it has increased to 50,057 PoPs in 2019.

Cellnex invoiced €1,035 MM in 2019, approximately 15% more than in 2018. Its business segments are divided in Telecom Infrastructure services, Broadcasting and other services, which amount to 67%, 23% and 10%, respectively, of the total business.

Graph 12: Revenues by Country and Business Line in 2019



Source: Own development with Cellnex data

Recurring Levered Free Cash Flow has increased to a total of 350 million euros in 2019 mainly due to the increase in EBITDA, with a CAGR of 15.9% during the 2015-2019 period. Its average RLFCF during the last five years is of 267 million euros, which indicates that Cellnex is not able to generate cash yet. However, this situation is reasonable as it is within its growth period. As mentioned before, Cellnex is constantly looking for new opportunities to continue expanding all around Europe and buying more towers. The recurring levered free cash flow is one of the most important indicators of its ability to generate stable and growing cash flows which allows it to guarantee the creation of value, sustained over time, for its shareholders.

The following figure shows how to get to the recurring levered free cash flow above.

Table 2: Recurring Levered FCF

€Mn	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Adj. EBITDA	235	290	355	591	686
Payments of lease				-166	-192
Maintenance Capex	-18	-21	-25	-31	-41
Recurring OFCF	217	268	329	394	453
Changes in CA/CL	1	93%	3	2	0
Net payments of Interest	-10	18	-41	-65	-77
Income Tax Payment	-14	-23	-13	-20	-25
Net Dividends to Non-Controlling Interests		-11	-1	-6	-1
Recurring Levered FCF	194	251	278	305	350

Source: Own development with Cellnex data

Cellnex has improved its **Adjusted EBITDA** growing at a 30.7% CAGR during the 2015-2019 period. EBITDA margin has also increased from 38% in 2015 to 68% in 2019. In the graph below we can see this increasing tendency. This growth is mainly due to the increase in revenues the last five years. The adjusted EBITDA is the profit from operations before D&A and after adding back certain non-recurring items, such as costs related to acquisitions and redundancy provisions, and certain non-cash items such as advances to customers and LTIP (Long-Term Incentive Plan) remuneration payable in shares.

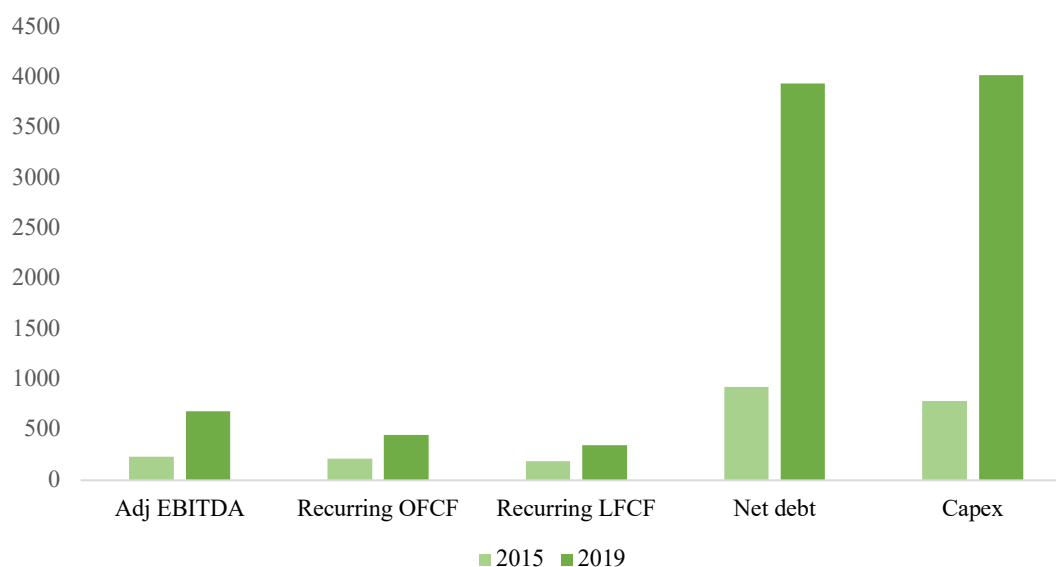
I consider this EBITDA an appropriate operating performance indicator as it is considered a measure that best represents the cash generation of its business units and which is widely used as an evaluation metric among analysts, investors, rating agencies and other stakeholders. For instance, the major contribution to this adjustment is made by M&A costs, activity which has been very relevant for Cellnex's growth and expansion during the last years, so it reflects better Cellnex's business.

Furthermore, Cellnex **Net Debt** has increased at a CAGR of 43.57% during the 2015-2019 period as a result of the intensive M&A activity during the last years. In addition, its Net debt/ EBITDA multiple has increased from 1.8 in 2014 to 5.7 in 2019, registering its peak in 2017 with a 7.5 ratio, having a very levered capital structure.

Its **capital expenditure** has increased at a CAGR of 50.4% with an M&A capex of 1,258 million euros, on average, during the 2015-2019 period. Taking a deeper look at this figure, we realize that the average capital expenditure during the 2014-2018 period was 590 million euros versus a 1,444 during the 2015-2019 period. The main reason of this huge difference from one period to another is 2019's M&A Capex figure, which amounts to 3,659 million euros.

Additionally, Cellnex's revenues growth is not perfectly in line with asset expansion (as seen within its financial statements in the appendix) specially because Cellnex's Capex fluctuates every year.

Graph 13: Financials evolution



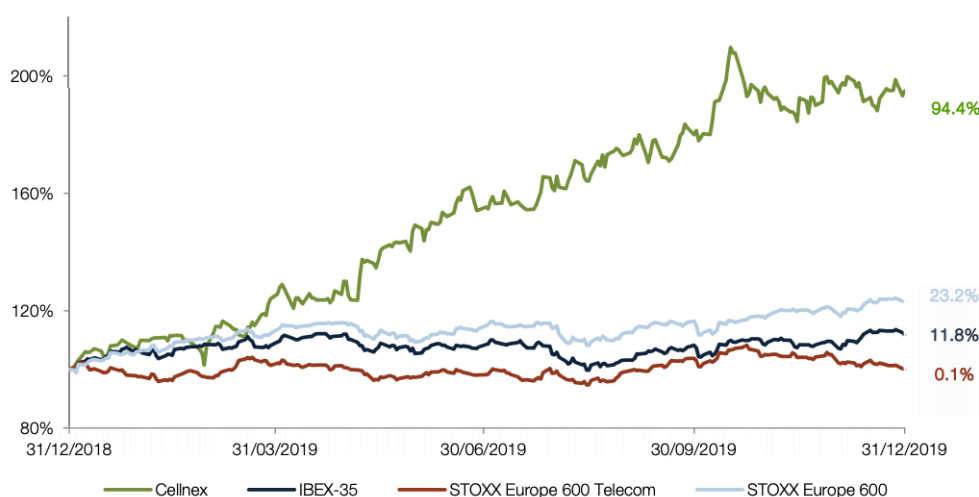
Source: Own development with Cellnex data.

As of 31 December 2019, Cellnex's **share capital** increased by 38,411 thousand euros to 96,332 thousand euros. Cellnex's share price experienced a 94% increase during 2019, closing at 30.2 euros per share. One of the most outstanding aspects has been Cellnex's increase regarding its market capitalization, which stood at 14,784 million

euros at the year ended on 31 December 2019, 356% higher than at start of trading on 7 May 2015.

The evolution of Cellnex shares during 2019, compared to the evolution of IBEX 35, SOTXX Europe 600 and STOXX Europe 600 Telecom, is as follows:

Figure 10: Evolution of Cellnex shares during 2019



Source: Cellnex

4.6. Coronavirus Impact

I consider that COVID-19 will have little effect in the group's main business. This opinion relies on the fact that mobile network operators have not stopped from providing services to its customers. MNOs still need Cellnex's towers for its clients to have mobile data. Indeed, I would say citizens have increased its use of mobile devices, so Internet traffic has increased as well. Cellnex has more than tripled its value in comparison to the 5,000 million euros in January 2019, closing with market cap of 17,350 million euros as of April 6th, in spite of coronavirus crisis, thus, maintaining a revaluation of 17%, the largest within the IBEX 35.

In addition, Cellnex's CEO has claimed during an interview with Expansion, that the company's recurring business should not be affected at all by the COVID-19. He stated that because of Cellnex's business essence, it must be a company prepared at all times to constantly provide service to its clients. He believes that a short-term slowdown in its

business organic growth could be expected, but not in its provision of services growth, which are not subject to the supply and demand fluctuations in the short term and it has a recurring nature. Furthermore, he still expects an EBITDA increase of more than 40% for 2020, but lower than the 55% that was previously estimated.

As a matter of fact, I would say that coronavirus might even be an opportunity for Cellnex. The reason for this is that if mobile operators were to become more financially stretched from the recessionary environment, they would be more inclined to sell towers to TowerCos such as Cellnex to protect their balance sheets.

5. VALUATION METHODS

There are many methods to value a company. The type of method used for each company depends on many factors such as the type of company, whether if the company is an early-stage company or a mature company, its sector/ industry, main core business, etc.

In addition, we should take into account which process and in which moment we want to value the company as throughout its life there exists different occasions to value the processes. These include: the merger and acquisition operations of the company, an initial public offering (IPO), liquidation of the company, taxes imposed, assets and intangibles, identify the best sources of added value and leverages.

In this case, I will only explain the methods used within my analysis which are: Precedent transactions, Comparable Trading Companies, and the Discounted Cash Flow. However, there are many more valuation methods such as the book value, the leveraged buy-out, or the dividend discount model.

5.1. Precedent Transactions

This method consists on looking at past transactions that your company or similar companies have made and do the average of these transactions. This way you can see what price a company paid for another one, so it is based on real data.

As with the multiples method, you should look for transactions within the same sector, geography, size and you should also take into consideration time, meaning that the transactions you look for should be one or two years ago. The main difference with Comparable Public Companies method is that the calculation of valuation multiples is based on what acquirers have paid to acquire other companies. Then, an average price, which will represent the company's value, is calculated.

However, this data tends to be less consistent because companies get acquired for very different reasons. Often, the multiples produced by Precedent Transactions are higher than those from Public Comps because of the control premium built into M&A deals.

5.2. Comparable Trading Companies

This method is based on using multiples to value your company. It is a shorthand for valuation, and it is based on finding similar listed companies to the one you are evaluating. After finding the most adequate comparable companies, a calculation of their multiples is needed. There are different factors you should take into account to choose these comparable companies such as industry, size, geography, growth rates or stage of the company. Among all the multiples, the most common ones are: AV/Sales, AV/EBITDA, AV/EBIT, P/E, Net Debt/EBITDA, P/BV and LFCF yield.

The multiples used during this method vary depending on the company's industry and the company itself as there are some multiples which are useless for specific sectors.

Once all the multiples have been gathered, an average of each multiple is calculated. This figure will be the one used to value the company concerned. In addition, depending on the type of multiple used, you can arrive to the Enterprise or the Equity value.

5.3. Discounted Cash Flow

This method estimates the value of a company or investment based on its future cash flows generated. It is the value of a company today, based on projections of how much money it will generate in the future. In order to know its present value, it uses a discount rate that varies depending on the risk associated to those future cash flows. It takes into account the time value of money assuming, for instance, that a dollar today is worth

more than a dollar tomorrow. It consists of two periods: the explicit forecast period and the terminal period or mature stage.

Firstly, we have to understand the difference between Enterprise Value and Equity Value. The former one is the value of the company's core business operations (i.e., only the assets related to its core business), but to all investors (equity, debt, preferred, and possibly others). On the other hand, the equity value represents the value of everything a company has (all its assets), but only to equity investors (i.e., common shareholders). If the company is publicly traded, then its Current Equity Value is its Market Capitalization.

To calculate this value, we need to project a company's cash flows with much detail as possible in the near term, the next 5, 10 or 15 years. These projections belong to the explicit forecast period. Then, within the Terminal Period or growing perpetuity stage we assume that its Cash Flow Growth Rate and Discount rate remain constant.

The items we should project to obtain the future cash flows are: Revenue, COGS and Operating Expenses, Taxes, Depreciation and Amortization, the Change in Working Capital and Capital Expenditures. For all these projections we need to make assumptions for the growth rates that each item will follow. In addition, we should consider that a company's FCF growth eventually slows down and starts growing at about the same rate – the Terminal Growth Rate – into perpetuity. The FCF is calculated the following way:

$$FCF = EBIT \times (1 - Tax) + Non\ Cash\ Expenses - Capex \\ \pm Change\ in\ Net\ Working\ Capital$$

The assumptions made depend on the type of company which is being assessed. For this reason, a detailed sector and company analysis must be carried out. For instance, a software and services company would be far less dependent on CapEx than an asset-intensive company.

Regarding the growth rate assumption, it will vary by company's operating stage. For example, small firms grow faster than the mature firms so you will use a higher growth

rate. Another aspect to take into consideration is historical revenue growth, growth rate of the industry and GDP.

The Discount Rate is the rate of return used to discount future cash flows back to their present value. A higher Discount Rate means the risk and potential returns are both higher whereas a lower Discount Rate implies lower risk and potential returns.

Furthermore, there are two different discount rates we can use that are Weighted Average Cost of Capital (WACC) and Cost of Equity, the former being the most common one. Nevertheless, it depends on what value you want to obtain. If the final value you want to get is the Enterprise Value, you will use Unlevered Free Cash Flows discounting them at the WACC. Because they both represent all the investors in a company. On the other hand, if you want to get the Equity value you will use Levered Free Cash Flows using Cost of Equity as the discount rate.

WACC is the cost of capital, the return that equity and debt holders expect the company to deliver on their investment on the company. For the company, it is the cost of funding with all its resources (both equity and debt). The following formula represents the cost of capital for a company (without taking into account preferred shares):

$$WACC = \left(\text{Cost of equity} \times \frac{\text{Equity}}{\text{Equity} + \text{Debt}} \right) + \left(\text{Cost of debt} \times \frac{\text{Debt}}{\text{Equity} + \text{Debt}} \times (1 - \text{Tax}) \right)$$

Moreover, the cost of equity reflects the return that shareholders expect the company to deliver on their investment in the company. It tells you how much a company's stock "should" return, on average, over the long term, also factoring in dividends and stock repurchases. There are different approaches for calculating it, including un-levering and re-levering Beta from peer companies or using the company's historical Beta. The most common method to calculate cost of equity is Capital Asset Pricing Model (CAPM) which is defined by the following formula:

$$\text{Cost of equity} = R_f + \beta_{\text{levered}} \times (R_m - R_f)$$

R_f stands for risk free rate. The coupon rate on government bonds in the country. It is what you could earn on “safe” government bonds denominated in the same currency as this company’s cash flows.

Beta is the volatility of the company’s shares over volatility of the market index.

Levered beta tells you how volatile the company’s stock is relative to the market as a whole, factoring in both the intrinsic business risk and the risk introduced by leverage.

$(R_m - R_f)$ represents the risk premium. The Equity Risk Premium represents the percentage the stock market will return each year, on average, above and beyond the rate on “safe” government bonds. No one agrees on the appropriate Equity Risk Premium.

The Cost of Debt represent the rate the company would pay if it issued additional debt. You don’t know in advance what this rate will be, but you could make a rough approximation by using the current coupon rates on the company’s Debt. Another option would be to take a look at the Yield to Maturity on the Debt or take the risk-free rate and add a “default spread” based on the company’s credit rating.

With regards to the capital structure, you may use the company’s current capital structure or the targeted capital structure. Once you have calculated the Discount Rate, you discount the Cash Flows.

To calculate the Terminal Value, you can use two different methods, Gordon Growth Model and Multiples. The most common method is Gordon Growth Model, which assumes a constant growth rate for this period, and we calculate the Terminal Value with the following formula:

$$TV = \frac{FCF_n \times (1 + g)}{WACC - g}$$

The Terminal FCF Growth Rate should be low – below the GDP growth rate of the country, and in-line with the rate of inflation. Even if a company grows at a higher rate initially, growth always slows down over time.

On the other hand, you can also calculate the Terminal Value using Multiples Method. You might base the Terminal Multiple on multiples of publicly traded peer companies. However, if there are no truly comparable peer companies, the Multiples Method is useless. But if the country concerned long-term GDP growth is highly uncertain, or its government is unstable, the Gordon Growth Method might not work so well. Therefore, the best solution is to use each method to cross-check your work.

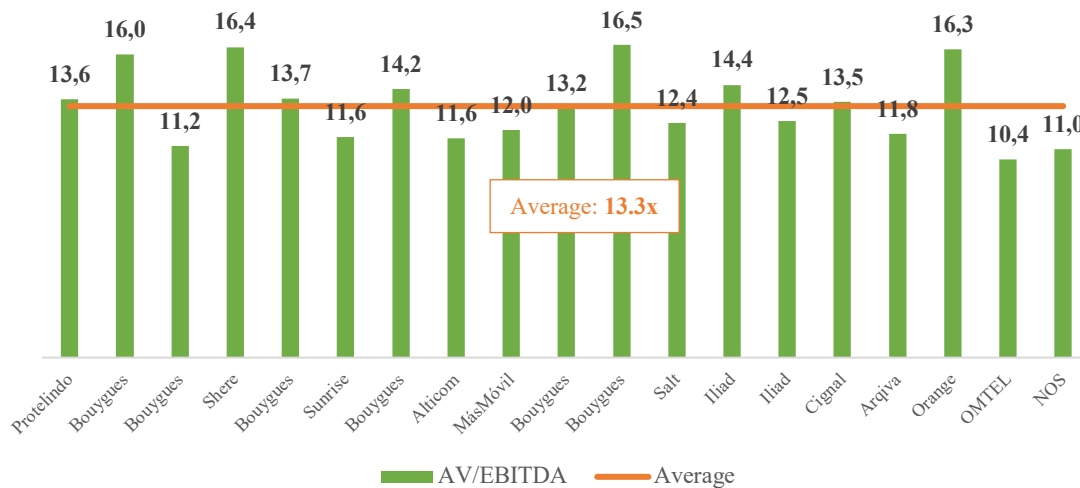
Then, we have to discount this Terminal Value to get the Present Value. We sum this value to the present value of the future cash flows of the explicit forecast period and we will get the Enterprise Value/ Equity Value of the company. In an Unlevered DCF, adding these two terms together gives you the company's implied Enterprise Value. Often, if the company is public, you move from this value to Equity Value and divide it by the company's diluted share count to calculate its Implied Share Price which you compare it to its Current Share Price and conclude by analyzing it and seeing if your company is overvalued or undervalued.

6. CELLNEX VALUATION

6.1. Precedent Transactions

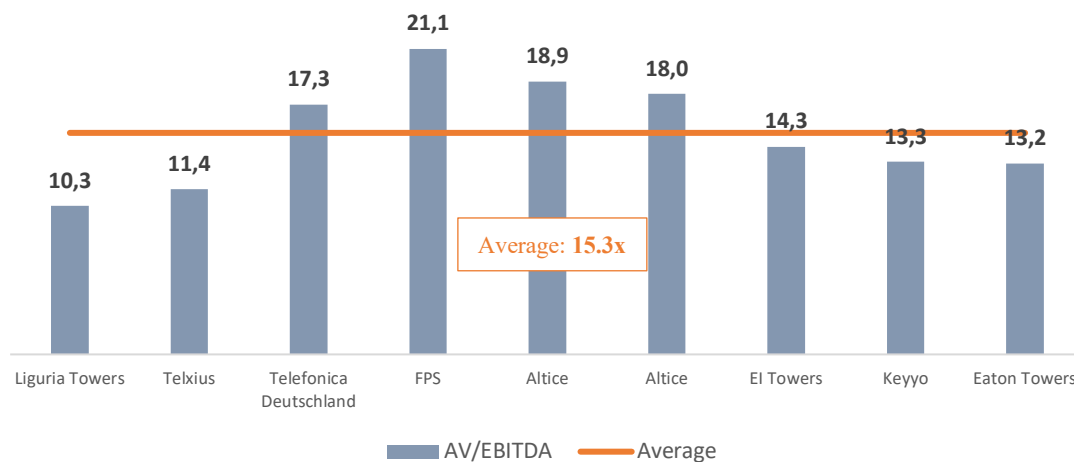
The aim of this method is to find the price of acquisition paid by companies in order to make a rough estimate of Cellnex value. This way we get a more realistic view of how much is a company willing to pay for other companies in the telecom sector. However, it is not a very useful method within the tower industry field. The implied share price doesn't represent Cellnex's real value as it only takes into account the purchase of towers (asset acquisition) but not a company's acquisition, resulting in a price much lower than the reality.

Graph 14: Cellnex's precedent transactions



Source: Own development

Graph 15: Other players' precedent transactions



Source: Own development

The precedent transactions method is not a valuation method with applicability for tower industry's companies because of the following reasons. Firstly, it does not represent the valuation of a TowerCo company as the transactions within this market are acquisitions of towers, that is to say, assets and not the whole company. Moreover, TowerCos make "multiple arbitrage" as they purchase towers at a low multiple due to the fact of being assets, and then they make this assets trade at higher multiples. Along with the pressure on the part of the MNOs of selling their towers.

Although not being useful for Cellnex's valuation, I have used it when projecting the M&A Capex as I had to take into account the company's past deals to assume a purchase price for the future sites.

6.2. Comparables

Rai Way

It is one of the leading providers of network infrastructure and services for broadcasters, telecommunications operations, private companies and public administrative bodies in Italy. They provide the following services: broadcasting, transmission, tower rental and network services. It offers terrestrial radio-television broadcasting through a network capable of achieving a 99% coverage of the population.

Inwit

It is the main tower operator in Italy, it works in the field of passive infrastructure for mobile phone technology, broadcasting, radio, other wireless services and private mobile networks. Currently, it is Italy's major Tower Operator providing widespread coverage throughout the country. It plays an important role in delivering wireless mobile coverage within Italy's territory and it is adding new infrastructure to its portfolio as technology evolves such as 5G. It owns approximately eleven thousand sites.

American Tower

It was founded in 1995 and it is one of the largest global Real Estate Investment Trusts (REITs). Currently, it is a leading independent owner, operator and developer of wireless and broadcast communications real estate. They provide the real estate necessary for today's wireless communications networks. American Tower's portfolio includes approximately 180,000 communications sites. ATC's segments include U.S. property, Asia property, EMEA property, Latin America property, Services and Other.

Crown Castle

It is a real estate investment trust (REIT) and the largest provider of shared communications infrastructure in the United States. Crown Castle's clients in the United States are considered the top mobile operators. Some of their tenants are AT&T, T-

Mobile and Verizon. It has more than 40,000 towers and 80,000 route miles of fiber supporting small cells and fiber solutions.

SBA Communications

SBA Communications Corporation is a leading independent owner and operator of wireless communications infrastructure including towers, buildings, rooftops, distributed antenna systems (DAS) and small cells. It was founded in 1989 and headquartered in Florida and it has operations and offices in fourteen markets throughout the Americas and South Africa. SBA generates revenue from two primary businesses: Site leasing and site development.

Table 3: Comparables financial data

Expressed in million euros (€MM)					
Comparable	Country	Market cap (17/06/2020)	EBITDA 19	FCF 19	Net debt/ EBITDA 19
Rai Way	Italy	1,545	131.2	77.8	0.1x
Inwit	Italy	8,671	349.8	157	2.0x
AMT	USA	104,180	4,000	719	4.7x
Crown Castle	USA	62,871	2,788	641	5.1x
SBA	USA	29,601	1,186	387	7.1x

Source: Own development

With that being said, I have considered these companies to be the most adequate when comparing their results and multiples with Cellnex's results. Then, I have decided to use the AV/EBITDA multiple as I believe it is the one that will represent better Cellnex's value. I have used equity research reports from brokers such as Barclays, Credit Suisse and JPMorgan to collect Cellnex's comparables multiples estimates for the following two years. With each multiple estimate gathered from each broker, I have calculated the average multiple and the median multiple in case there are outliers and created the table below:

Table 4: Comparable Companies multiple

Comparable	Country	2020 E	2021 E
Rai Way	Italy	19.4x	10.9x
Inwit	Italy	19.4x	17.7x
American Tower	United States	24.1x	22.4x
Crown Castle	United States	22.8x	22.2x
SBA Communic.	United States	25.6x	23.8x
Cellnex	Spain	24.2x	20.4x
Average multiple		21.2x	19.6x
Median		23.5x	21.3x

Source: Own development

As we can see, American companies and Cellnex trade at higher multiples than the Italian TowerCos. This is probably because in Italy there are lower tenancy ratios (1.5x in Italy vs 2.0x in Spain at year ended 2019), and they still have room to grow more.

The process to get to the equity value is the same as with the Precedent Transactions multiples except for the EBITDA. This time, the EBITDA I have used is the estimated EBITDA for 2020 and for 2021. However, the net debt and minorities used to get the Equity Value is the one corresponding to 2019.

Table 5: Share Price with Multiples

	Average 2020 E	Average 2021 E	Median 2020 E	Median 2021 E
AV/EBITDA	21.2	19.6	23.5	21.3
EBITDA	775	979	775	979
AV	16,439	19,145	18,167	20,820
Net Debt	3,938	3,938	3,938	3,938
Minorities	890	890	890	890
Equity value	11,599	14,305	13,327	15,980
# Shares	385			
Share Price	30.16	37.19	34.65	41.54

Source: Own development

As we can see, I have obtained greater values (and more similar to the current value) using the median AV/EBITDA multiple. Most of the times, the average includes outliers which don't represent the true value and can affect our conclusions and results.

Nevertheless, all of Cellnex's share prices calculated through the comparable method are below its current value (52.94€ as of 19/06/2020). Therefore, I would say that Cellnex's market value is overpriced and the recommendation would be selling Cellnex's shares. However, I will give my final recommendation once the discounted cash flow method is done. The DCF is a more accurate method and could tell us a different thing, or at least, be closer to the current market value.

6.3. Discounted Cash Flow

Finally, I have carried out a Discount Cash Flow Analysis to get a more accurate valuation of Cellnex. Indeed, it is the most precise method and my conclusions will be in major part influenced by this analysis. As mentioned before, it is based on projecting future cash flows of the company. To do so, it is necessary to make estimates of multiple items included on a company's financial statements.

The following is a more detailed explanation of how I got to the enterprise value going through each of the steps and projections I have taken. The aim of this method is the same as the one of the two methods explained above, get an Implied Share price and compare it with the market value.

6.3.1. Projections

Revenues

First and foremost, I have started this financial analysis by analyzing revenues, which have been broken-down by type of business, and in the case of the Telecom division, by country. Each division requires to make different assumptions depending on the business. As explained before, Cellnex's revenues come from Telecom Infrastructure Services, Broadcasting Services and, Network and other services, which account for 67%, 23% and 10% of Cellnex's total revenues respectively. Therefore, the projection of the former one needs a deeper and more detailed analysis.

Figure 11: Revenues projection

Expressed in million euros (€MM)

REVENUES		€ MM							
	FY 2019	2020 E	2021 E	2022 E	2023 E	2024 E	2025 E	2026 E	2027 E
Broadcast Infrastructure	235	238	243	247	252	257	262	268	273
growth rate		1,27%	1,91%	1,99%	1,99%	1,99%	1,99%	1,99%	1,99%
Telecom Infrast. Services	699	808	1053	1135	1237	1327	1477	1567	1648
growth rate		15,50%	30,33%	7,85%	8,97%	7,27%	11,32%	6,06%	5,17%
Spain	172	178	186	194	203	213	222	231	240
growth rate		3,70%	4,52%	4,06%	4,57%	5,08%	4,04%	4,04%	4,04%
Italy	268	291	334	375	419	458	537	576	614
growth rate		8,45%	14,99%	12,21%	11,81%	9,23%	17,28%	7,16%	6,60%
Rest of Europe	259	339	532	566	615	656	718	760	794
growth rate		30,63%	57,08%	6,44%	8,60%	6,66%	9,52%	5,85%	4,43%
Netherlands	37	37	38	40	41	44	46	48	50
growth rate		1,51%	3,02%	3,63%	4,14%	6,68%	5,37%	4,14%	3,63%
France	105	112	122	133	152	167	183	196	210
growth rate		6,62%	8,92%	9,14%	14,42%	9,98%	9,50%	7,39%	6,85%
UK	15	14	186	190	201	205	215	225	231
growth rate		-2,52%	1192,73%	2,00%	5,63%	2,00%	5,15%	4,56%	2,51%
Switzerland	85	89	90	97	99	106	121	128	134
growth rate		4,23%	2,04%	6,91%	2,57%	7,22%	14,18%	5,09%	5,18%
Ireland	18	20	24	28	34	40	48	53	57
growth rate		12,45%	17,42%	18,09%	20,47%	17,82%	17,92%	12,46%	5,72%
Portugal	0	66	71	79	88	93	105	109	113
growth rate		0,00%	7,34%	10,40%	11,31%	6,57%	12,15%	4,47%	2,91%
Network Services & Other	101	104	118	151	196	254	279	293	308
growth rate		2,97%	13,46%	27,97%	29,80%	29,59%	10,00%	5,00%	5,00%
TOTAL	1035	1150	1413	1534	1685	1838	2019	2128	2229
Growth rate		11,05%	22,92%	8,52%	9,90%	9,08%	9,83%	5,38%	4,75%

Source: Own development

As mentioned above, Cellnex has started to be interested in the fibre business, and it has already carried out some deals. The revenues generated from this service corresponds to the “**Network services and others**” revenues division. I have decided to assume similar growth rates to those of Barclay’s equity research as of February 27th. I consider these growth rates to be the most accurate ones since it includes Cellnex’s latest deal on the fibre market with Bouygues, which was announced on February 26th.

The projections for **Broadcasting and Telecom revenues** are made under similar assumptions, although the latter is more complicated. These assumptions are based on the fact that both divisions generate revenue from what they charge to their clients for using Cellnex’s sites. Therefore, I have calculated a fee per Point of Presence (PoP). The steps I have taken are the following:

1. Calculate the total number of PoPs in 2019 by multiplying Cellnex’s sites (telecom or broadcast) by its corresponding tenancy ratio for the next 7 years.

In order to forecast the number of Telecom sites, I have assumed a growth which is driven by two activities: M&A activity and Build-To-Suits agreements

Figure 12: M&A growth assumption

M&A growth		2019 E	2020 E	2021 E	2022 E	2023 E	2024 E	2025E	2026E	2027E
Spain		8144	8225	8349	8474	8644	8860	8993	9127	9264
Additional #sites			81	123	125	169	216	133	135	137
% growth			1,00%	1,50%	1,50%	2,00%	2,50%	1,50%	1,50%	1,50%
Italy		10121	10374	10633	10899	11172	11451	11737	12089	12452
Additional #sites			253	259	266	272	279	286	352	363
% growth			2,50%	2,50%	2,50%	2,50%	2,50%	2,50%	3,00%	3,00%
Rest of Europe		16556								
% growth										
Netherlands		921	926	939	958	982	1031	1067	1094	1116
Additional #sites			5	14	19	24	49	36	27	22
% growth			0,50%	1,50%	2,00%	2,50%	5,00%	3,50%	2,50%	2,00%
France		9192	9284	9377	9471	9565	9680	9825	9923	10023
Additional #sites			92	93	94	95	115	145	98	99
% growth			1,00%	1,00%	1,00%	1,00%	1,20%	1,50%	1,00%	1,00%
UK		608	608	8007	8007	8007	8007	8007	8168	8168
Additional #sites			0	7399	0	0	0	0	160	0
% growth			0,00%	1217,00%	0,00%	0,00%	0,00%	0,00%	2,00%	0,00%
Switzerland		5270	5283	5296	5310	5323	5336	5363	5390	5417
Additional #sites			13	13	13	13	13	27	27	27
% growth			0,25%	0,25%	0,25%	0,25%	0,25%	0,50%	0,50%	0,50%
Ireland		565	593	653	718	826	925	1026	1129	1208
Additional #sites			28	59	65	108	99	102	103	79
% growth			5,00%	10,00%	10,00%	15,00%	12,00%	11,00%	10,00%	7,00%
Portugal		0	5000	5125	5381	5489	5571	5655	5711	5768
Additional #sites			5000	125	256	108	82	84	57	57
% growth			100,00%	2,50%	5,00%	2,00%	1,50%	1,50%	1,00%	1,00%
Total Sites			5472	8086	838	789	854	812	958	784

Source: Own development

The most remarkable figure is that of United Kingdom in 2021 as I have assumed a 1,217% growth rate. This is because of Cellnex's deal with Arqiva which involves the acquisition of 7,400 sites which I assumed to be integrated in 2021. Another thing to be highlighted is the entry in the Portuguese market in the last months in 2020. We can appreciate these events in the difference in the total number of sites between the years 2020 and 2021 and the rest of the years.

On the other hand, we have to add the BTS programs that may appear on Cellnex's contracts. So far, Cellnex has a total of 9,050 towers which will be built between 2020 and 2027 across Europe. This 9,050 towers figure is provided by Cellnex within its 2019 results presentation. However, I got to this figure by myself as when I was carrying out the precedent transactions' method, I had to go through each deal where you can find this information (how many BTS included the agreement). In addition, the sum of the total number of BTS that comes from each deal is 9,050 as we can see in the figure below. To distribute the sites coming from BTS programs for each country, I have assumed different percentages of sites build each year.

Figure 13: Build to Suit assumption

Build to Suit (BTS)			2020	2021	2022	2023	2024	2025	2026	2027
# BTS	Deadline BTS									
Spain										
Italy	2150		330	215	322,5	330	430	322,5	100	100
Illiad	1000	2027	100	100	150	100	200	150	100	100
			0,1	0,1	0,15	0,1	0,2	0,15	0,1	0,1
Wind Tre	1150	2025	230	115	172,5	230	230	172,5	0	0
			0,2	0,1	0,15	0,2	0,2	0,15		
Rest of Europe	6900		795	981	1007,5	864,5	1002,5	1105	652	492,5
Netherlands										
France	4300		430	680	680	520	645	735	305	305
Bouygues	1800	2027	180	180	180	270	270	360	180	180
			0,1	0,1	0,1	0,15	0,15	0,2	0,1	0,1
Illiad	2500	2027	250	500	500	250	375	375	125	125
			0,1	0,2	0,2	0,1	0,15	0,15	0,05	0,05
UK										
Switzerland	850		75	80	85	90	115	115	140	150
Sunrise	350	2027	35	35	35	35	35	35	70	70
			0,1	0,1	0,1	0,1	0,1	0,1	0,2	0,2
Salt	500	2027	40	45	50	55	80	80	70	80
			0,08	0,09	0,1	0,11	0,16	0,16	0,14	0,16
Ireland	600		60	66	90	102	90	120	72	
Cignal	600	2026	60	66	90	102	90	120	72	
			0,1	0,11	0,15	0,17	0,15	0,2	0,12	
Portugal	1150		230	155	152,5	152,5	152,5	135	135	37,5
OMTEL	750	2027	150	75	112,5	112,5	112,5	75	75	37,5
			0,2	0,1	0,15	0,15	0,15	0,1	0,1	0,05
NOS	400	2026	80	80	40	40	40	60	60	
			0,2	0,2	0,1	0,1	0,1	0,15	0,15	
BTS TOTAL	9050		1125	1196	1330	1194,5	1432,5	1427,5	752	592,5

Source: Own development

Finally, for the tenancy ratio estimates I have used the average of the brokers estimates.

Figure 14: Tenancy ratio estimates

Tenancy Ratio	2019 E	2020 E	2021 E	2022 E	2023 E	2024 E	2025E	2026E	2027E
Spain	1,88	1,91	1,93	1,94	1,95	1,96	1,97	1,98	1,99
Italy	1,47	1,50	1,63	1,71	1,79	1,82	2,00	2,04	2,07
Rest of Europe	1,2								
Netherlands	2,49	2,50	2,50	2,50	2,50	2,50	2,50	2,50	2,50
France	1,03	1,03	1,03	1,04	1,12	1,14	1,16	1,20	1,23
UK	1,52	1,46	1,41	1,41	1,46	1,46	1,50	1,51	1,52
Switzerland	1,13	1,17	1,17	1,22	1,22	1,27	1,40	1,42	1,44
Ireland	2,02	1,96	1,91	1,86	1,81	1,81	1,81	1,81	1,81
Portugal	0		1,29	1,31	1,38	1,40	1,50	1,50	1,50

Source: Own development

- Calculate the fee per PoP by dividing the total revenues in 2019 (telecom or broadcast) by the corresponding number of PoPs.
- Project the fee per PoP at the inflation (CPI) using the estimates Bloomberg for the following 7 years (until 2027) and for each country where Cellnex operates. I have assumed that pricing will only be influenced by inflation.

Figure 15: Fee per PoP estimates

Expressed in euros

Fee per PoP Telecom	FY 2019	2020 E	2021 E	2022 E	2023 E	2024 E	2025 E	2026 E	2027 E
Spain	11,21	11,35	11,57	11,80	12,04	12,27	12,52	12,77	13,02
growth rate		1,3%	1,9%	2,0%	2,0%	2,0%	2,0%	2,0%	2,0%
Italy	18,00	18,16	18,40	18,69	18,99	19,30	19,62	19,96	20,30
growth rate		0,9%	1,3%	1,6%	1,6%	1,6%	1,7%	1,7%	1,7%
Rest of Europe									
growth rate									
Netherlands	15,95	16,07	16,31	16,57	16,83	17,10	17,38	17,65	17,94
growth rate		0,7%	1,5%	1,6%	1,6%	1,6%	1,6%	1,6%	1,6%
France	11,01	11,15	11,23	11,33	11,47	11,59	11,66	11,75	11,91
growth rate		1,3%	0,7%	0,9%	1,2%	1,1%	0,6%	0,8%	1,3%
UK	15,95	16,24	16,57	16,90	17,24	17,58	17,93	18,29	18,66
growth rate		1,8%	2,0%	2,0%	2,0%	2,0%	2,0%	2,0%	2,0%
Switzerland	14,26	14,19	14,23	14,33	14,43	14,54	14,64	14,74	14,84
growth rate		-0,5%	0,3%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%
Ireland	15,95	16,00	16,18	16,36	16,54	16,72	16,90	17,09	17,28
growth rate		0,3%	1,1%	1,1%	1,1%	1,1%	1,1%	1,1%	1,1%
Portugal		10,00	10,07	10,19	10,31	10,44	10,56	10,69	10,82
growth rate			0,01	0,01	0,01	0,01	0,01	0,01	0,01

Fee per PoP Broadcast	FY 2019	2020 E	2021 E	2022 E	2023 E	2024 E	2025 E	2026 E	2027 E
	74,96	75,92	77,36	78,90	80,48	82,08	83,71	85,38	87,08
		1,3%	1,9%	2,0%	2,0%	2,0%	2,0%	2,0%	2,0%

Source: Own development

- Calculate the revenues' estimates by multiplying the fee per PoP by the total number of PoPs for each year.

Operating Expenses

The next item that needs to be projected are operating expenses. Depending on its nature – fixed or variable - I have used two different rates to project them. The variable expenses are those that change depending on sales, therefore, they have been estimated at the sales growth; while the fixed expenses have been projected at the inflation rate. Therefore, I have considered variable the expenses coming from Staff Costs, Leases, and Utilities, and fixed the expenses originated by Repair and Maintenance, and General and other services.

These projections haven't been broken down by country, thus representing the total amount of operating costs for Cellnex. Therefore, the inflation used as a growth rate for the fixed expenses is a weighted inflation.

Figure 16: Weighted inflation assumption

Revenues in million euros (€MM)

Expenses - weighted inflation									
	2019 E	2020 E	2021 E	2022 E	2023 E	2024 E	2025E	2026E	2027E
Revenues TIS									
Spain	172	178	186	194	203	213	222	231	240
Italy	268	291	334	375	419	458	537	576	614
Netherlands	37	37	38	40	41	44	46	48	50
France	105	112	122	133	152	167	183	196	210
UK	15	14	186	190	201	205	215	225	231
Switzerland	85	89	90	97	99	106	121	128	134
Ireland	18	20	24	28	34	40	48	53	57
Portugal	0	66	71	79	88	93	105	109	113
Inflation									
Spain		1,3%	1,9%	2,0%	2,0%	2,0%	2,0%	2,0%	2,0%
Italy		0,9%	1,3%	1,6%	1,6%	1,6%	1,7%	1,7%	1,7%
Netherlands		0,7%	1,5%	1,6%	1,6%	1,6%	1,6%	1,6%	1,6%
France		1,3%	0,7%	0,9%	1,2%	1,1%	0,6%	0,8%	1,3%
UK		1,8%	2,0%	2,0%	2,0%	2,0%	2,0%	2,0%	2,0%
Switzerland		-0,5%	0,3%	0,7%	0,7%	0,7%	0,7%	0,7%	0,7%
Ireland		0,3%	1,1%	1,1%	1,1%	1,1%	1,1%	1,1%	1,1%
Portugal		0,3%	0,7%	1,2%	1,2%	1,2%	1,2%	1,2%	1,2%
Weighted average		0,83%	1,34%	1,53%	1,57%	1,55%	1,51%	1,53%	1,59%

Source: Own development

Therefore, the weighted inflation that appears in the above table is the one I have used to project Cellnex's fixed expenses. These assumptions have resulted in the following operating expenses' estimates (which are expressed in millions of euros):

Figure 17: Operating Expenses projection

Expressed in million euros (€MM)

OPEX		(€MM)								
	Revenues growth	11,05%	22,92%	8,52%	9,90%	9,08%	9,83%	5,38%	4,75%	Variable
	Weighted Inflation	0,83%	1,34%	1,53%	1,57%	1,55%	1,51%	1,53%	1,59%	Fixed

Source: Own development

Capital Expenditure

Capital expenditure is the investment made by the company on fixed assets. In this case, it represents how much money does Cellnex spend on each tower. To make the projections as accurate as possible, it is broken down in 4 parts: M&A Capex, BTS Capex, Maintenance Capex and Expansion Capex.

Figure 18: Capital Expenditure projection

Expressed in million euros (€MM)

Capex		€MM							
		2020 E	2021 E	2022 E	2023 E	2024 E	2025 E	2026 E	2027 E
Expansion	5%	57	71	77	84	92	101	106	111
Maintenance	2%	23	28	31	34	37	40	43	45
BTS	230	328	480	477	338	430	456	225	188
Italy		100	178	182	100	143	139	43	43
<i>Illiad</i>		86	171	171	86	129	129	43	43
<i>Wind Tre</i>		14	7	11	14	14	11	0	0
France		137	223	223	163	206	231	94	94
<i>Bouygues</i>		51	51	51	77	77	103	51	51
<i>Illiad</i>		86	171	171	86	129	129	43	43
Switzerland		22	23	25	26	34	34	41	44
<i>Sunrise</i>		10	10	10	10	10	10	20	20
<i>Salt</i>		12	14	15	17	24	24	21	24
Ireland		6	7	9	10	9	12	7	0
<i>Signal</i>		6	7	9	10	9	12	7	0
Portugal		63	49	39	39	39	40	40	7
<i>OMTEL</i>		28	14	21	21	21	14	14	7
<i>NOS</i>		35	35	18	18	18	26	26	0
M&A	3659	1448	2140	222	209	226	215	254	207
CAPEX	3889	1857	2719	806	664	784	813	628	551
CAPEX		1857	2719	806	664	784	813	695	621

Source: Own development

To calculate the capital expenditure that belongs to the **merger and acquisition** activity I have assumed an average cost per tower using the data of the last M&A deals made by Cellnex which were carried out either in 2020 or 2019. This cost, calculated through the precedent transactions' method, has been used for all the towers I assumed to be created through M&A Activity.

As may be seen in the figure above, the estimates for 2020 and 2021 are much higher in comparison with those of the following years due to the M&A growth assumptions. In the figure that shows my assumptions on inorganic growth, we can observe that the total number of sites created in 2020 and 2021 are 5,472 and 8,086 respectively. As mentioned before, in 2020 Cellnex has acquired 5,000 towers from two Portuguese companies, and 2021 is the year assumed for the transfer of Arqiva's sites which amounts to 7,400 sites (an increase of 1,217%). Nevertheless, the estimates between 2022 and 2027 are around 800 towers. Therefore, when multiplying the average cost per tower by the total amount of towers created through M&A it will result on the difference seen above.

Then, I calculated the cost per tower of each specific BTS deal and allocate it to their corresponding towers (they are comparable as they are the same type of tower).

Figure 19: BTS assumption

BTS	
Italy	
Illiad	342.857,14 €
Wind Tre	60.869,57 €
France	
Bouygues	284.980,16 €
Illiad	342.857,14 €
Switzerland	
Sunrise	284.980,16 €
Salt	300.000,00 €
Ireland	
Cignal	100.000,00 €
Portugal	
Omtel	186.666,67 €
NOS	437.500,00 €
Average	284.980,16 €

Source: Own development

Finally, both maintenance and expansion Capex have been calculated as a percentage of Cellnex's revenues. I have assumed a 2% and 5%, respectively, of total revenues in line with its historical evolution as the maintenance Capex has been around 2% for the last 5 years and the expansion Capex has been between 5% and 10%, stabilizing around 5% during the last years.

Depreciation and Amortization

Total depreciation and amortization have been calculated by depreciating three different assets. The first one corresponds to the depreciation of the property, plant and equipment account, the second one corresponds to the amortization of intangible assets, and the last one has been calculated by amortizing the capex estimated for the following years. For each of them I have assumed that they amortize in 22 years as Cellnex, within its annual accounts, includes a range of years between 15 and 25 of useful life for depreciation.

When depreciating the PPE, I have used the Gross PPE:

$$\text{Gross PPE} = \text{Net PPE} - \text{Capex} + \text{Accumulated Depreciation}$$

The Net PPE account is shown within Cellnex's balance sheet, the Capex within the Cash Flow statement and the accumulated depreciation within the annual accounts.

For the capex I have projected the depreciation corresponding to each year, therefore adding each year a new depreciation item. This being said, the depreciation and amortization estimates look like within the following table:

Figure 20: Depreciation and Amortization projection

Expressed in million euros (€MM)

D&A €MM										
		Years to amortize		22						
		2019 A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
PPE										
NBV		9.005								
Property, Plant & Equipment (BoP)		9.005,0	8.595,7	8.186,4	7.777,0	7.367,7	6.958,4	6.549,1	6.139,8	
D&APPE			(409,3)	(409,3)	(409,3)	(409,3)	(409,3)	(409,3)	(409,3)	(409,3)
Property, Plant & Equipment (EoP)		9.005,0	8.595,7	8.186,4	7.777,0	7.367,7	6.958,4	6.549,1	6.139,8	5.730,5
Intangible (excluding Goodwill)										
NBV		5.155,8								
Intangible (BoP)		5.155,8	4.921,4	4.687,1	4.452,7	4.218,4	3.984,0	3.749,7	3.515,3	
D&AIntangible			(234,4)	(234,4)	(234,4)	(234,4)	(234,4)	(234,4)	(234,4)	(234,4)
Intangible (EoP)		5.155,8	4.921,4	4.687,1	4.452,7	4.218,4	3.984,0	3.749,7	3.515,3	3.281,0
Year		Capex								
2020		1.857	(42)	(84)	(84)	(84)	(84)	(84)	(84)	(84)
2021		2.719	-	(62)	(124)	(124)	(124)	(124)	(124)	(124)
2022		806	-	-	(18)	(37)	(37)	(37)	(37)	(37)
2023		664	-	-	-	(15)	(30)	(30)	(30)	(30)
2024		784	-	-	-	-	(18)	(36)	(36)	(36)
2025		813	-	-	-	-	-	(18)	(37)	(37)
2026		628	-	-	-	-	-	-	(14)	(29)
2027		551	-	-	-	-	-	-	-	(13)
D&A Capex			(42,2)	(146,2)	(226,3)	(259,8)	(292,7)	(329,0)	(361,7)	(388,5)
Total D&A			(685,9)	(789,9)	(870,0)	(903,4)	(936,4)	(972,6)	(1.005,4)	(1.032,2)

Source: Own development

Change in Net Working Capital

In this case, the variation in net working capital could be assumed to be 0 as it is low and not very relevant. To calculate the working capital, I have used the figures from Cellnex's balance sheet which are: current assets without taking into account the cash and short-term deposits (trade and other receivables) and on the liability side the trade and other payables figure. Then I have increased the change in working capital at the revenues growth rate. When calculating the free cash flow, I have added this variation as it has a negative sign.

Free Cash Flow

Having forecasted all these P&L items, I have continued the analysis with the calculation of Cellnex's future free cash flows. As mentioned in the Valuation Methods topic, the formula to calculate the free cash flow is:

$$FCF = EBIT (1 - Tax) + Non\ Cash\ Expenses - Capex \pm \Delta\ net\ working\ capital$$

All the items above have been projected and explained except for the EBIT, which has been calculated by subtracting the depreciation and amortization to the EBITDA. This EBITDA has been calculated with my revenues and operating expenses projections.

6.3.2. Weighted Average Cost of Capital (WACC)

The next step is calculating the appropriate Weighted Average Cost of Capital used to discount the future cash flows. As previously indicated, the WACC consists of two parts: Cost of equity and cost of debt.

In order to calculate the cost of equity, I have used the Capital Asset Pricing Model. For the risk-free rate, I have used a weighted risk-free rate with the 30-year bond yields of the countries where Cellnex operates, and I have got a 1.54% rate. Moreover, I assumed a weighted Equity Risk Premium of 6.01% provided by *Damodaran* for a mature equity market. Although I first calculated a weighted equity risk premium, the results was very high for Cellnex (8.62%). Finally, the 5-year 0.49 Beta has been obtained from *Yahoo Finance* which indicates that Cellnex shares are less volatile than the market. The cost of equity which resulted from introducing this data into de CAPM formula is 4.49%.

For the cost of debt, I have used the weighted risk-free rate (1.54%) used for the cost of equity and a spread of 5.33%. This spread is provided by *Factset* as of June 17, 2020 and represents a 10-year spread over the risk-free rate for a company which is rated with a *BB⁺* as Cellnex's case.

Figure 21: Spread

	1 Month	3 Months	6 Months	1 Year	2 Years	3 Years	5 Years	7 Years	10 Years	20 Years	30 Years
Commercial Services											
AAA	-	-	-	-	-	-	-	-	-	-	-
AA	60.778	60.778	60.778	60.778	60.778	69.260	77.760	113.841	129.390	133.490	151.560
A	47.019	47.019	47.019	47.019	47.019	47.019	63.280	114.910	192.370	239.560	215.230
BBB	111.090	111.360	107.480	102.380	83.010	117.600	92.210	116.130	280.220	343.280	235.347
BB	235.933	235.933	235.933	365.350	494.783	291.272	327.100	362.947	466.271	466.271	466.271
B	754.097	754.097	754.097	754.097	754.097	754.097	754.097	754.097	754.097	754.097	754.097
Communications											
AAA	-	-	-	-	-	-	-	-	-	-	-
AA	-	-	-	-	-	-	-	-	-	-	-
A	-	-	-	-	-	-	-	-	-	-	-
BBB	40.994	40.994	38.230	37.990	53.210	55.350	93.190	115.130	158.280	246.970	199.710
BB	225.466	225.466	225.466	225.466	225.466	225.466	389.144	389.144	533.242	533.242	533.242
B	192.910	192.916	325.029	299.240	262.030	264.510	282.320	412.100	567.260	605.420	614.279

Source: Factset

Then I applied a weighted tax rate (24%) to obtain the after-tax cost of debt which is 5.19%. The weighted tax rate has been calculated the same way as the weighted risk-free rate, with Damodaran's data which tell us the spread and the corporate tax for each country.

Figure 22: Weighted Tax Rate

Tax Rate		
	Tax rate	Revenues
<i>Spain</i>	25,00%	508
<i>Italy</i>	24,00%	268
<i>Netherlands</i>	25,00%	37
<i>UK</i>	19,00%	15
<i>France</i>	31,00%	105
<i>Switzerland</i>	18,00%	85
<i>Ireland</i>	12,50%	18
Tax Rate- Weighted	24,47%	

Source: Own development with Damodaran's data.

One more step needs to be taken before calculating the WACC, which is to determine the capital structure required for this formula. I have decided to use Cellnex's market values for the capital structure, being 83% of the total capital equity versus the 17% of

capital from debt. The equity is the market capital, and the debt is Cellnex's net financial debt. Finally, the WACC I got with all these assumptions and figures is 5.67%.

Figure 23: Weighted Average Cost of Capital

WACC	4,61%
-------------	--------------

<i>(EUR millions)</i>	
Equity	19.135
Net financial debt	3.938
Capital employed	23.073

Rf	1,5%
Spread	5,3%
Cost of debt	6,9%
Tax	24%

E/CE	83%
D/CE	17%

Risk free rate	1,54%
Equity Risk premium	6,01%

Beta (5Y)	0,49
-----------	------

After tax cost of debt	5,19%
-------------------------------	--------------

Cost of equity	4,49%
-----------------------	--------------

Source: Own development

For the calculation of the perpetuity growth rate, I have used the brokers' average which was between 1,5% and 3%, obtaining an average growth rate of 1.96%. I think this growth rate is very appropriated as it is assumed from 2027. In this year, I expect Cellnex to be very consolidated across Europe, but still carrying out some acquisitions to still grow and expand.

6.3.3. Valuation with DCF

With all this information, I have performed a discounted cash flow analysis to estimate the value of Cellnex. I have arrived at an enterprise value of €23,341 MM, which after deducting net debt and minorities, results in an equity value of €18,500 MM. The share price obtained is 51.00€ which implies a potential downside of 3.8% with respect to the current price of 52.94€ (as of 19/06/2020).

Table 6: Share Price with Discounted Cash Flow

	Expressed in million euros (€MM)							
	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
EBIT	89	189	202	285	370	473	523	573
D&A	686	790	870	903	936	973	1,005	1,032
EBITDA	775	979	1,072	1,188	1,306	1,445	1,528	1,605
CAPEX	1,857	2,719	806	664	784	813	628	551
Δ NWC	-4	-9	-4	-5	-5	-6	-4	-4
Tax rate	24%	24%	24%	24%	24%	24%	24%	24%
FOCF	-1,100	-1,777	220	460	437	523	776	917
TV								35,311

TOTAL PV	24,480
-------------	--------

Enterprise Value	24,480
Net financial Debt	3,938
Minorities	890
Equity Value	19,652
Number of Shares	385
Share Price	51.00

Source: Own development

6.3.4. Sensitivity Analysis

“A sensitivity analysis determines how different values of an independent variable affect a particular dependent variable under a given set of assumptions. In other words, sensitivity analyses study how various sources of uncertainty in a mathematical model contribute to the model's overall uncertainty. This technique is used within specific boundaries that depend on one or more input variables” (Kenton, 2020).

The figure below represents the multiple options we can get depending on the WACC or growth rate used. As we can see, 1% of variation in both rates involves a huge decrease or increase in the share price. The growth rate affects the terminal value, which

in this case represents more than 90% of the total value. On the other hand, the WACC represents the cost of opportunity, therefore, a higher WACC means that you can find better opportunities at other company within the market. In addition, all the cash flows are discounted at this rate, therefore the total value would be very affected by any change in this rate too.

Figure 24: Sensitivity Analysis

SENSITIVITY ANALYSIS

		Growth Rate				
		0,96%	1,46%	1,96%	2,46%	2,96%
WACC	3,61%	55,72	72,04	98,25	147,29	271,90
	4,11%	42,55	53,31	69,09	94,44	141,85
	4,61%	33,03	40,59	51,00	66,26	90,77
	5,11%	25,85	31,40	38,71	48,78	63,54
	5,61%	20,25	24,46	29,83	36,90	46,64

Source: Own development

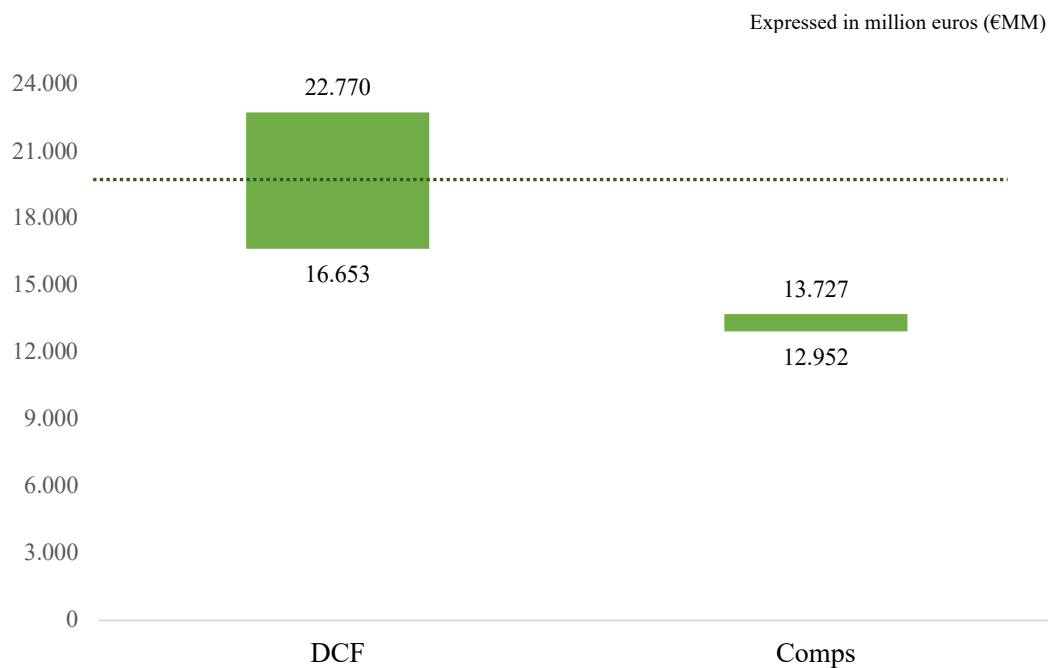
Depending on the growth rate to perpetuity and the WACC, we get a different share price of Cellnex. As it is shown in the figure above, the share price ranges between 20.25€ and 271.90€ depending on the rates. Therefore, a minimum change in the WACC or in the growth rate estimations can lead to a completely different result. In any case, the price reached under the first assumption is 51.00€ per share. Taking a deeper look at this analysis, for 52% of the cases the recommendation would be to sell as the implied value is below the market value of 52.94€ as of June 19th.

6.3.5. Football Field

A football field chart is used to display a range of values for a business, based on different valuation methods. As mentioned before, I haven't included the precedent transactions as it is not an useful valuation method within this particular sector.

METHODOLOGY	SCENARIO
Discounted Cash Flow	- Projections from 2020 to 2027 - WACC at 4.61%. Range +/- 0.25% - TV with normalized UFCF - Gordon Growth (1.96%)
Trading Comparables	- Median AV/EBITDA 2020 23.5x - Based on trading multiples of the 5 selected companies - Range: +/- 0.5x

Graph 16: Football Field (Equity Value)



Source: Own development

7. CONCLUSION

The aim of this study was to deeply analyze Cellnex and reach a conclusion in which I express my recommendation regarding the purchase, sale or maintenance of Cellnex's shares. This recommendation requires to gain knowledge of all the fields related to Cellnex, going from the business plan of the company and its growth opportunities to the telecommunication sector evolution and situation in Spain and across the countries within Europe where Cellnex operates. Therefore, the valuation of a company does not only rely on a single figure calculated from a valuation method, but also on all the context and situation that surrounds Cellnex.

The conclusions that I drew from the company and the sector analysis are the followings.

- The main market trends are gaining many relevance and importance across the world, with the 5G revolutionizing the IT services world. Cellnex has showed a tremendous growth during the last year reaching the top 3 within the Ibex 35 in terms of appreciation of the share price.
- The merger and acquisition transactions has driven Cellnex's strategy during the last years achieving a strong consolidation in countries such as Italy or Spain. Additionally, its CEO has stated more than once its willingness to continue with the enlargement of the company.
- They are diversifying its portfolio by banking on the fibre market with multiple transactions such as the most recent one with Bouygues in France.

Regarding the type of valuation method used, we can see how each of them has arrived at different values.

- The precedent transactions couldn't be used in this case as the implied share price is very low due to the fact of being asset (towers) acquisitions and not company acquisitions.
- Although the share price resulting from the multiples method may be low due to the comparability with some of the peer companies, we should take into account that Cellnex's share price has increased by approximately 63% since last year's

share price of 29.5€ as of June 10th, 2019. Therefore, the share price resulting from the multiples method is also reasonable given that at year ended 2019 Cellnex's share price was 38.37€, and some assumptions and figures of these methodologies weren't taking into account Cellnex improvement since 2020.

- The DCF has involved a much more detailed work and I consider this method to have a smaller error range.

Furthermore, I would focus on the DCF result to conclude this report. Cellnex's closing stock price on the last days, June 18th and June 19th, has been 52.04€ and 52.94€ respectively, and as of today (June 25th) it has already reached 54€. Therefore, having arrived at a 51.00€ per share, strengthens my determination to sell Cellnex's shares. The main reason for this is Cellnex's recent statements regarding its future growth published in *El Confidencial*. Cellnex has warned its investors that the expansion process is increasingly difficult due to the growing competition within the sector posing a risk to fulfilment of its return objectives. Additionally, Cellnex has claimed that "some competitors are larger, and they could have greater financial sources (as KKR), while others can apply investment criteria with lower return" than Cellnex's investors required return. Furthermore, Cellnex faces competition from its American peers such as American Tower or Crown Castle which have much more expertise. For all these potential difficulties on its future growth, in addition to having arrived at an undervalued price, **I recommend selling Cellnex's shares.**

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9. APPENDIX

9.1. Balance Sheet 2015-2019



Audited figures

€ Mn	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Assets					
Property, Plant and Equipment	936	1.048	1.507	1.904	2.986
Goodwill and Other Intangible Assets	799	1.415	1.921	1.904	5.738
Right-of-use Assets				574	1.251
Financial Investments & Other Fin. Assets ¹	73	81	105	98	305
Non-Current Assets	1.807	2.545	3.533	4.479	10.280
Inventories	3	2	1	4	2
Trade and Other Receivables ²	165	156	227	194	367
Cash and short term deposits	51	193	295	456	2.352
Current Assets	219	351	524	654	2.721
Total Assets	2.027	2.895	4.056	5.133	13.001
Equity & Liabilities					
Share Capital and Others	479	475	537	504	4.868
Share Capital	58	58	58	58	96
Treasury Shares	0	-3	-2	-6	-4
Share Premium	339	339	339	315	3.886
Non-Controlling Interests	83	81	142	137	890
Reserves	58	76	108	111	183
Reserves	10	36	75	126	192
Profit for the Period	47	40	33	-15	-9
Shareholders' Equity	538	551	645	615	5.051
Borrowings	377	279	631	2.993	5.091
Lease Liabilities	593	1.398	1.869	424	945
Provisions and Other Liabilities ³	320	476	580	591	1.254
Non-Current Liabilities	1.290	2.152	3.080	4.008	7.289
Borrowings and Bond issues	8	16	32		
Borrowings				103	47
Lease Liabilities				102	207
Trade and Other Payables ⁴	191	175	299	305	406
Current Liabilities	199	191	331	510	661
Total Equity and Liabilities	2.027	2.895	4.056	5.133	13.001

9.2. Profit & Loss account 2015-2019



Audited figures

€ Mn	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Broadcasting Infrastructure	225	235	237	233	235
Telecom Infrastructure Services	303	385	474	586	699
Other Network Services	85	87	81	82	101
Operating Income	613	707	792	901	1.035
Staff Costs	-89	-97	-105	-114	-127
Repair and Maintenance	-27	-27	-28	-32	-36
Leases	-142	-160	-167	-11	-12
Utilities	-57	-70	-74	-73	-86
General and Other Services	-63	-63	-63	-80	-88
Operating Expenses	-378	-418	-438	-311	-349
Adjusted EBITDA	235	290	355	591	686
% margin ⁽¹⁾	38%	43%	47%	68%	68%
Non-Recurring Expenses	-18	-26	-31	-75	-42
Depreciation & Amortization	-154	-177	-225	-403	-501
Operating Profit	63	87	98	113	142
Net Financial Profit	-20	-41	-68	-149	-197
Bond Issue Costs	-7	-5	0		
Profit of Companies Accounted for Using the Equity Method	0	0	0	0	0
Income Tax	-7	-1	0	18	36
Impact Tax Rate Change - Italy	20		0		
Attributable to Non-Controlling Interests	-1	-1	2	3	9
Net Profit Attributable to the Parent Company	48	40	33	-15	-9

9.3. Cash Flow Statement 2015-2019



Audited figures					
€ Mn	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Adjusted EBITDA ¹	235	290	355	591	686
Payments of Lease Instalments in the Ordinary Course of Business and Interest				-166	-192
Maintenance Capex ³	-18	-21	-25	-31	-41
Recurring Operating FCF	217	268	329	394	453
Changes in Current Assets/Current Liabilities ⁴	1	93%	3	2	0
Net Payment of Interest ⁵	-10	18	-41	-65	-77
Income Tax Payment ⁶	-14	-23	-13	-20	-25
Net Dividends to Non-Controlling Interests ⁷		-11	-1	-6	-1
Recurring Levered FCF	194	251	278	305	350
Expansion Capex ⁸	-30	-57	-88	-94	-97
Expansion Capex (Build-to-Suit programs) ⁹			-52	-147	-230
M&A Capex ¹⁰	-739	-670	-830	-392	-3.659
Non-Recurring Items (Cash Only) ¹¹	-18	-10	-15	-45	-31
Net Cash Flow from Financing Activities ¹²	541	659	807	553	5.598
Other Net Cash Out Flows ¹³	20	-32	2	-19	-36
Dividends	-8				
Net Increase of Cash ¹⁴	-40	142	102	161	1.896