Telecoms outlook 2021
The need for speed

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# Telecoms outlook 2021

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Covid-19 has had limited impact on most telecom companies' operational performances and balance sheet strength thus far. Areas affected include lower roaming fees due to travel restrictions and a decline in handset sales due to store closures.

We expect 2021 will be another year of slow growth. Service revenues are expected to show some recovery during the year as travel recovers. Our base case scenario for the sector is a flat full-year revenue performance. Ongoing cost-saving programs further support the EBITDA result, and we expect low-single-digit growth for the sector.

In this report, we identify key themes to watch in 2021 and beyond.

Accelerated fibre rollout to make fixed networks future proof will continue to be an essential topic as there is still a large difference in coverage between European countries. We believe companies will adopt the best practices learned during the pandemic, including working more structurally from home, supporting demand for reliable high-speed internet, including fibre-to-the-home and DOCSIS 3.1 from cable companies.

Telecom companies will continue to explore the possibilities of mobile tower and network monetisation to unlock value. The IPO of Vodafone’s Vantage Towers is planned for early 2021.

We expect M&A to continue to be a theme this year following the General Court of the European Union’s decision to annul the E.C.’s decision to block Telefónica’s acquisition of O2 U.K. by Hutchison and we could see renewed attempts for in-market consolidation in highly competitive markets.

After the commercial launch of 5G for consumers, the focus will shift to 5G for industrial purposes (IoT). The resulting expected strong data growth requires telecom operators to expand coverage, and further densify their mobile networks. In this transition to a connected Gigabit society, cybersecurity will become increasingly important.
More fibre-to-the-home rollout needed to support a Gigabit society

There is still a large dispersion between European countries concerning fibre-to-the-home (FTTH) coverage, and some operators still need to invest significantly to make their fixed networks future proof. Both Belgium and the U.K. are lagging in FTTH coverage, while in Germany, Deutsche Telekom mainly used super vectoring to offer high-speed internet. Countries with high FTTH coverage are Latvia, Spain, Portugal and Sweden.

Capex plans have not been structurally affected during the pandemic, and this includes the FTTH rollout plans, but some investments have been delayed into 2021 due to lockdown measures.

Several operators announced to accelerate the fibre rollout. Next to the expected higher demand, fibre networks have significantly lower maintenance costs than copper, and fibre customers are more loyal, resulting in a reduction in churn and a significant uplift in the consumer ARPU. Furthermore, legacy copper networks can be decommissioned in the future, resulting in further costs savings.

Proximus, B.T. Group and KPN have decided to accelerate their respective fibre rollout plans versus their initial plans and also Deutsche Telekom is stepping up its pace.

FTTH coverage in Germany is still relatively low. Deutsche Telekom has mainly been offering fast internet via vectoring and is now stepping up its FTTH rollout. In 2020 Deutsche Telekom connected c.600,000 homes to its FTTH network, compared to 270,000 in 2019. This results in c.2m of German households having access to a fibre-optic connection, which compares to c.33m households for Deutsche Telekom’s VDSL network. The limited coverage in Germany also leaves room for other players to build their FTTH networks.
Telefónica Deutschland and Allianz announced the creation of a joint venture in Germany. The joint venture, named Unsere Grüne Glasfaser, will focus on underserved, but affluent, (semi) rural areas and offers wholesale access. The target is to cover 2.2m households in six years. Furthermore, Deutsche Glasfaser, owned by EQT and Omers, is becoming an increasingly important player and is growing strongly. At the end of 2019, the company passed 630k homes and targets 6m homes passed with total planned investments of €7bn by 2030. The company has wholesale agreements with Vodafone and Deutsche Telekom in certain areas.

Although Belgium has good overall fixed broadband coverage, FTTH is still limited at this stage. The prevailing technologies are still DSL and VDSL based for the incumbent operator, while cable coverage is high and operators, including Telenet, are rolling out Docsis3.1 to offer speeds up to 1Gbps. Proximus has decided to accelerate FTTH coverage and has teamed up with EQT and Eurofiber. These partnerships allow for a significant acceleration versus the initial plans. The 2025 coverage target of 2.4m is increased to 3.2m, benefitting from additional operational efficiency and additional expertise from the respective experienced FTTH investors. Proximus targets to reach 4.2m homes, and businesses past by the end of 2028 (was 2.8m in the old plan), resulting in a coverage ratio of at least 70%.

Proximus will roll out fibre in dense areas itself, consisting of 2.2m premises passed. Fibre will be rolled with its J.V. partners in medium dense areas. The partnership with EQT is to connect at least 1.5m homes and businesses in Flanders. The agreement with EuroFiber will focus on Wallonia, and the target is to pass a minimum of 500,000 homes and businesses. Of the €5bn FTTH capex envelope over the period 2017-2028, 40% is attributable to Proximus and 60% to the joint ventures.

In the Netherlands, FTTH coverage is roughly at the European average. KPN is the market leader and the incumbent recently also announced to accelerate its fibre rollout. The company is targeting passing 50% coverage in 2023 and c.65% in 2025, and the ultimate goal is more than 80% without the company having specified the timeframe.

Fibre capex as a percentage of sales amounted to 2.3% in 2019, c.5-6% in 2020 and 8-10% in 2021. The total capex/sales ratios are 20.5%, 21-23% and 22-24% for the respective years. After the peak in capex in 2021, the total capex/sales ratio is expected to decline over time to c.15%.
Infrastructure monetisation to continue

Tower monetisation will continue to be an essential topic in the sector for this year.

Infrastructure assets trade at significantly higher earnings multiples than the integrated telecom operators. For example, an IPO of a tower portfolio will make the valuation of these assets more transparent, thereby unlocking value for the telecom operator. Proceeds could be used to reduce debt, fund their capex requirements and/or for shareholder remuneration.

Financial markets reward infrastructure companies with significantly higher valuations than integrated telecom operators. For example, Telefónica trades at 2021 EV/EBITDA of 5.3x and Cellnex Telecom at 19.1x. A highly predictable revenue stream characterises mobile infrastructure assets, supporting the long-term contracts and high margins due to the scalable business model resulting in strong (free) cash flow generation.

For example, as part of Vodafone and Telefónica’s intention to commercialise their 50/50 passive U.K. tower joint venture Cornerstone, the companies signed Master Services Agreements with initial terms of eight years starting and have three eight-year renewal periods. This financial profile allows for a higher leverage profile than an integrated telecom operator.

The launch of 5G is an important driver for further growth for tower companies. The expected strong increase in data usage requires telecom operators to increase their mobile network coverage further and further densify their mobile networks.

Fig 2 Mobile towers in selected European countries 2020F (x1,000)

Source: The economic contribution of the European tower sector* by EY-Parthenon and EWIA

In Europe, Germany has the most towers, and there is still a need for further densification. The German towers are still primarily owned by mobile network operators or by an operator-controlled entity.

Deutsche Telekom has c.28k towers in its home market. Management has not yet announced concrete plans to monetise its portfolio and has indicated to keep all strategic options open. Deutsche Telekom recently announced to combine its mobile infrastructure in the Netherlands with Cellnex Telecom’s Dutch operations. These operations will be part of Digital Infrastructure Vehicle, an independently managed newly created

“Germany is Europe’s largest mobile tower market, with IPO of Vantage Towers expected in early 2021”
infrastructure fund that will focus on investments across Europe in towers, fibre, and data centres. Germany is also the largest market for Vantage Towers, accounting for 39% of FY20 pro-forma EBITDA. The IPO of Vodafone’s tower unit is expected in early 2021.

Thus far, the largest transaction this year was the sale by Telefónica’s infrastructure unit Telxius’ of its mobile towers unit to American Tower for €7.7bn. Corrected for the full impact of the acquisition of Telefónica Deutschland’s towers in June 2020, the multiple paid by American Tower was 30.5x the OIBDA result after leases. This is significantly higher than the recent transactions in the sector. For example, the German deal done by Telxius when it acquired towers from Telefónica Deutschland, was valued at an EV/EBITDA multiple of c.23x. The number of towers sold by Telxius is 30,722 and are located in Spain (c.11.3k), Germany (c.12.5k), Brazil, Peru, Chile and Argentina (7k in total) and have an average tenancy ratio of c.1.3x. American Tower’s presence was relatively limited in Europe (3Q20: 5k), mainly in France and Germany. Note that Telefónica still owns a substantial number of towers which were not part of Telxius.

Orange will release the long-awaited details of its network monetisation plans at the release of its 2020 results in February. The company is currently working on the carve-out of its passive mobile infrastructure in France and Spain. The European towerco will be run on independent basis to capture growth opportunities in the market, but management has emphasised it wants to keep control of the assets. However, Orange is prepared to use the flexibility of the tower unit’s capital structure to grow the business as an independent tower company.

This includes a potential IPO, but a listing is not a goal in itself.

Furthermore, in the so-called PIN rural areas in France (c.4.5m lines), Orange has recently signed an agreement with a consortium of La Banque des Territoires (Caisse des Dépôts), CNP Assurances and EDF Invest to acquire a 50% co-controlling stake in Orange Concessions to rollout fibre. The lines operated by Orange Concessions will be available on a wholesale basis.
M&A expected to continue, but no cross-border mergers foreseen

The annulment by the General Court of the European Union of the E.C.’s decision to block the acquisition of Telefónica’s O2 U.K. by Hutchison in May 2020 has created expectations of more M&A in the European telecom sector. The General Court concluded that the analysis of the E.C. contained errors.

In 2016, the E.C. did not approve Telefónica’s £10.25bn disposal of O2 U.K. to Hutchison, which would have consolidated the U.K. market from four to three mobile players. At the time, the E.C. feared that the acquisition would result in higher prices and less choice for consumers and would negatively impact the future development of mobile networks in the U.K.

Telefónica’s CEO José María Álvarez-Pallete indicated that he expects a boom in deals for European telecom operators and he believes that the ruling by the General Court was against the core argument by the European Commission that consolidation from four to three (mobile) players would reduce competition. He pointed out that it is not logical that there are hundreds of operators in Europe, compared to three large players in the U.S. and China, and with telecom companies also competing against WhatsApp, Facebook and FaceTime.

We don’t expect large cross border mergers or takeovers in the short term as we still see limited potential for high cost and revenue synergies to justify a significant premium.

Furthermore, many governments still have shareholdings in the former incumbent operators, and the sector has been earmarked as critical keeping the economy and society at large going during these testing times.

For example, a potential merger between Deutsche Telekom and Orange would politically be highly sensitive, with Orange 23% owned by the French government and D.T. for 32% held by the German government.

The rationale for in-market consolidation remains intact. Significant cost and revenue synergies can be realised and a consolidation from four to three mobile players will make a market more rationale. In market consolidation could gain more traction after the annulment by the General Court of the European Union. For example, Sweden and Denmark have four mobile operators. In 2015, the merger of Telenor and Telia in Denmark was abandoned after the remedies demanded by the E.C. were deemed too stringent.
Spain could also see an attempt to consolidate the market. A potential combination of Vodafone Spain and Masmovil would make strategic sense. After Masmovil was recently taken over by a private equity company, an outright acquisition of the company by Vodafone is unlikely. The creation of a joint venture would be a more likely option.

Low valuations of telecom operators could attract the interest of private equity parties. (Re-) Financing conditions in the high yield market are attractive at this stage, given the high investor demand for higher-yielding paper and low-interest rates and attractive spread levels for an issuer.

However, we expect that the potential deals by private equity will not be focused on incumbent operators, also given the fact that many governments still have a stake or can block a takeover given the critical status of telecom infrastructure. They are more likely to focus on the on the challengers in a market (like the Masmovil transaction recently and the potential sale by Deutsche Telekom of its T-Mobile NL unit) and on infrastructure assets that are being monetised.

### Select overview of mobile operators in Europe and the UK

<table>
<thead>
<tr>
<th>Country</th>
<th>Operators</th>
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<td>Germany</td>
<td>Deutsche Telekom, Vodafone, Telefónica Deutschland (O2), 1&amp;1 Drillisch</td>
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<tr>
<td>France</td>
<td>Orange, SFR (Altice), Bouygues Telecom, Free (Iliad)</td>
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<tr>
<td>Spain</td>
<td>Telefónica, Vodafone, Orange, Masmovil</td>
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<tr>
<td>UK</td>
<td>BT, Vodafone, Telefónica (O2), Three UK (Hutchison)</td>
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<tr>
<td>Italy</td>
<td>TIM, Vodafone, Wind Tre (Hutchison), Iliad</td>
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<tr>
<td>Sweden</td>
<td>Telia, Telenor, Tele2, Three (Hutchison)</td>
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<tr>
<td>Norway</td>
<td>Telenor, Telia, Ice</td>
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<tr>
<td>Denmark</td>
<td>TDC, Telenor, Telia, Three (Hutchison)</td>
</tr>
<tr>
<td>Finland</td>
<td>Elisa, Telia, DNA (Telenor)</td>
</tr>
<tr>
<td>The Netherlands</td>
<td>KPN, VodafoneZiggo, T-Mobile (DT)</td>
</tr>
<tr>
<td>Belgium</td>
<td>Proximus, Telenet, Orange Belgium</td>
</tr>
</tbody>
</table>

Source: ING, company data
Will 5G roll out spur industrial use of 5G in 2021?

2021 sees the further rollout of 5G infrastructure in Europe.

With more networks launched and expanded, consumers are seduced to buy new 5G compatible phones and tablets to benefit from higher speeds. In 2020, lockdown spending already spurred growth in the number of connected consumer devices like tablets and smartwatches. But will the rollout of 5G networks in 2021 also drive industrial use of the next generation in mobile connectivity for connected machines?

**Covid-19 as a catalyst for the internet of things**

In the short term, economic conditions continue to be dominated by Covid-19, and national lockdowns have meant many employees have been working from home. As they continue to do so in 2021 (and beyond), it’s not only cloud and network demand that will increase but also demand for connected assets and internet of things (IoT) applications.

The two main drivers for this can be identified:

- **Organisations increasingly rely on remote monitoring and remote command and control of systems and assets to continue operations while their own staff or service teams are restricted in their movements.** For example, without continuous physical access to machines, sensors can pinpoint break down problems such as oil spills or broken components. Mainly in manufacturing, logistics, utilities and pharma more and more assets and machines become connected, enabling remote operations.

- **Organisations will increasingly look to IoT applications for efficient and safe use of buildings, once workers return to offices and other work spaces.** At least initially occupancy will be lower as more employees work from home than before the pandemic, propelling the use of things like smart lighting and space utilisation monitoring.

**Fig 4 Market for IoT continues to grow in 2021**

*Number of IoT connections worldwide*, billions

* Includes e.g. connected cars, smart home devices, connected industrial equipment excludes mobile phones, tablets, P.C.’s, laptops and fixed line phones.

Source: IoT Analytics
The economic impact of the pandemic limits investments
Countering the positive effects of Covid-19 on IoT uptake are weak economic conditions.
Projects that were postponed in 2020 are likely to remain on hold in the first half of 2021, especially in strongly affected verticals such as the airline industry and hospitality. However, a strong economic recovery is expected in 1H21. And even in the current environment business spending on IoT overall still grows albeit at a slower pace, with healthcare and logistics expected to show the most robust growth.

“A return to double-digit growth is expected once the economic effects of Covid-19 subside”

monitoring and predictive systems have proved to be of great value during the pandemic and will keep momentum.

5G roll out: stimulus for complex connectivity IoT projects but not a dominant driver yet
While starting out with consumers, mobile network operators also require businesses to start using 5G services for financial success. Connecting devices, machines and sensors to the internet doesn't always require 5G services though. A lot of IoT projects can make use of existing connectivity options.

In fact of the 101 private LTE and 5G networks worldwide, used for things like smart factories and transport hubs, only 17 use 5G. Especially projects that require gigabit data rates, millisecond latencies and that have massive numbers of connected devices (connection density) moving about will benefit most from 5G.

Examples of these are controlling remote driverless vehicles, mobile production robots and mobile and temporary video surveillance. This year should also see the launch of second phase 5G network equipment by vendors, aimed at the needs of industrial IoT and vehicles directly communicating with other connected vehicles, devices and sensors.

We expect the rollout of 5G in Europe to stimulate not strongly drive industrial use as the rollout is focused on dense urban areas in 2021. This means that projects that require widespread 5G coverage, such as connected ambulances that can access patient medical records or using augmented reality for ship engine maintenance, will be slow to materialise.
Fig 5  Finland and Germany have most private LTE and 5G networks within Europe
Private LTE and 5G networks in Europe as per 3Q20

Source: Analysys Mason, ING Research

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1 Analysys Mason, https://www.analysismason.com/research/content/comments/private-lte-5g-networks-rdme0/
Increased network coverage and densification to support expected data growth

The expected strong growth in data usage following the launch of 5G and the introduction of new (industrial) services require telecom operators to expand their coverage further and densify their mobile network infrastructure. For example, 5G can reach download speeds of 10Gbps with ultra-low latency (5G 1.0ms, compared to 10-28ms with LTE) and reliable transmission with a target of 0ms interruption during mobility.

Also, telecom companies need to meet their network rollout obligations under the 5G licenses acquired. Looking for example at the 5G coverage obligations in Germany, they include amongst others minimum data rates of 100 Mbps available by the end of 2022 in 98% of households in each state, all federal highways, all main roads and along the major railway routes. Also, each existing carrier must install 1,000 5G base stations and 500 other base stations in defined areas by the end of 2022. At the end of 2024, 5G coverage should be extended to seaports, main waterways and all other road and rail routes in the country. Vodafone’s Vantage Towers expects data usage in Germany to rise 43% on a CAGR basis over the period 2019-2024.

As an illustration of the expected growth in Vantage Tower’s coverage and densification requirements in the markets it is active in, Analysys Mason forecasts the number of Points of Presence (PoPs) to grow 26% over the period 2020-2025 and by 41% over the period 2020-2030. Mobile operators can do the network expansion themselves, share locations with other operators or lease sites from mobile infrastructure companies. In general, independent tower companies, either completely independent or still controlled by an MNO, can do this in a more cost-efficient manner.

The business models of tower companies are very scalable. When commercially managed, they increase the number of tenants, while there is only a minimal increase in direct costs. Better indoor coverage can also be realised by small cells and DAS (distributed antenna solutions). Still small, but growing rapidly, these networks can be used to increase (indoor) coverage in for example crowded rural areas, hotels, conference centres and sports arenas.
Cybersecurity efforts increase as the complexity of telecom networks grows

During the pandemic, the number of cyberattacks is on the rise. Now that more people work from home, routers and devices, for example, are attacked more often to gain access to company networks. As the complexity of telecom networks increases, cybersecurity also becomes more complex. The extra speed and additional potential points of attack in the internet of things fuel cyberthreats in 5G. Therefore, the roll-out of 5G should go hand in hand with extra efforts to secure networks and data in 2021. Monetising these security investments can complement existing business models.

Fig 7  Publicly disclosed cybersecurity incidents rise in 2020

<table>
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<th>Quarter</th>
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<tr>
<td>4Q19</td>
<td>324</td>
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<tr>
<td>1Q20</td>
<td>458</td>
</tr>
<tr>
<td>2Q20</td>
<td>561</td>
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</tbody>
</table>

Source: McAfee Labs

Three reasons why surging complexity of networks increases vulnerability
The past few years have seen telecom networks move from being mostly physical with things like switches and routers to be more software-driven. This means networks become more vulnerable to software-based attacks. Networks also consist of a lot of different technologies nowadays coming from multiple vendors. Integrating these technologies creates vulnerabilities if not done seamlessly. Also, network connectivity increases (e.g. to the cloud) to further complicate security efforts.

5G offers a mixed bag in security terms
5G networks bring both security improvements and additional threats. On the one hand, as with every new generation in mobile technology, 5G comes with new built-in security controls, like mandatory data encryption. 5G is also a much more software and cloud-based system that allows for better monitoring of cyberthreats. But at the same time, this makes it more susceptible to attacks. Furthermore, attackers will want to take advantage of the extra bandwidth 5G offers and the many connected devices that form potential points of attack. The internet of things (IoT) is considered to be a big target for cybercriminals.

The growth of the IoT makes it an irresistible target for cybercriminals
The continuing growth of the IoT means that cybercriminals shift their focus towards IoT devices. During 2020, IoT devices made up almost a third of the infected devices in mobile networks (Nokia, 2020), double that of 2019. Also, the consequences of damage done are enormous for connected machines. Cybercriminals targeting cars and trucks,
medical equipment, smart grids and production lines can inflict much more physical damage than in traditional cyberattacks.

**Fig 8   IoT devices now second biggest category of infected devices in mobile networks**

*Share of infected devices in mobile networks*

Source: Nokia

**Majority of IoT devices vulnerable to attack**

IoT malware attacks were up by 30% in the first nine months of 2020 compared to the same period in 2019. Increases in attacks are not only driven by the growth in connected devices.

A lot of IoT devices suffer from an inherent vulnerability. They have little computational power and hardware restrictions that limit room for built-in security features. Furthermore, a single vulnerable component, such as the case recently in networking software, can have a ripple effect to impact on a wide range of applications and industries. IoT are the low-hanging fruit for attackers, with 57% of IoT devices vulnerable to medium- or high-severity attacks. (Palo Alto, 2020).

**Fig 9   More IoT malware attacks in 2020**

*Number of IoT malware attacks worldwide, millions*

Source: Sonic Wall

**Monetising increased security efforts**

The IoT market is expected to develop into a trillion-dollar business, of which connectivity is only a minor part. Estimates range from 5% (GSMA) to 10% (Mobile Ecosystem Forum report). The telecom industry can only benefit from the growth of the IoT if services and products are secure. Attacks on networks can cause great reputational damage to operators if vulnerabilities are exploited. The increasing complexity of telecoms networks and growing cyber threats forces the telecom sector to intensify spending on security in networks and services if...
they want to benefit from non-commoditised IoT services such as asset tracking software or predictive analytics services.

At the same time, operators try to monetise security investments by charging clients for cybersecurity services. At B.T., for instance, some 3,000 staff secure B.T. against attacks and provide services like intrusion prevention and identity management to clients. Demand for cybersecurity services, in general, continues to expand in 2021. Therefore, cybersecurity remains an exciting area for additional services, with a higher added value than capacity or per megabyte business models.
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