



Telecom, media and technology – COVID-19 implications and medium-term recovery

*Bouncing back with strength and leveraging
opportunities opened up by the crisis*

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Executive summary

Overall, the telecom, media and technology sectors have been able to absorb the first shockwaves of COVID-19 with relative resilience. However, medium-term (2020–2021) implications are unclear as macroeconomics threaten industries highly dependent on consumers' confidence and government favors. Although some sectors stand to benefit from their utility-like roles, the picture is contrasted by scenarios in which others are more adversely impacted and their medium-term recovery more onerous.

We expect the **consumer electronics** sector to be the worst hit. Situational short-term demand in leisure and home-office equipment will fade with worsening macroeconomic conditions, which will impact consumers' spending power and sentiment. Suffering from cuts in their clients' budgets, **media companies** are to expect significant advertising revenue losses, in addition to content production and distribution delays. Positive uptake in consumption and related subscription and transactional revenues will have a compensating effect but can only partially outweigh the advertising revenue loss. **Telecom operators**, under renewed spotlight for their role in bringing people through the crisis, will suffer from increased operational complexity and losses in B2B revenues, but can leverage the crisis to leapfrog to novel business models. **Equipment vendors** will have to deal with deferred orders in the medium term; however, as their value proposition looks stronger than ever, they have opportunities to strengthen their long-term positioning. **Internet services** have been the stars of lockdown economies and lifestyles and will benefit from permanently altered behaviors. The extent of their medium- to long-term prosperity, however, remains to be determined, especially as increased scrutiny and competition threaten producers' surpluses.

We argue that immediate action, combining no-regret moves and potential strategic bets, is key for these players to stage their intended recovery. Additionally, given that players in the telecom, media and technology sectors have been relatively less adversely impacted compared to other industries, such as travel & transportation and hospitality, we believe they are better positioned to capitalize on the opportunities that times of crisis tend to present, towards preparation for the "new normal".

Introduction

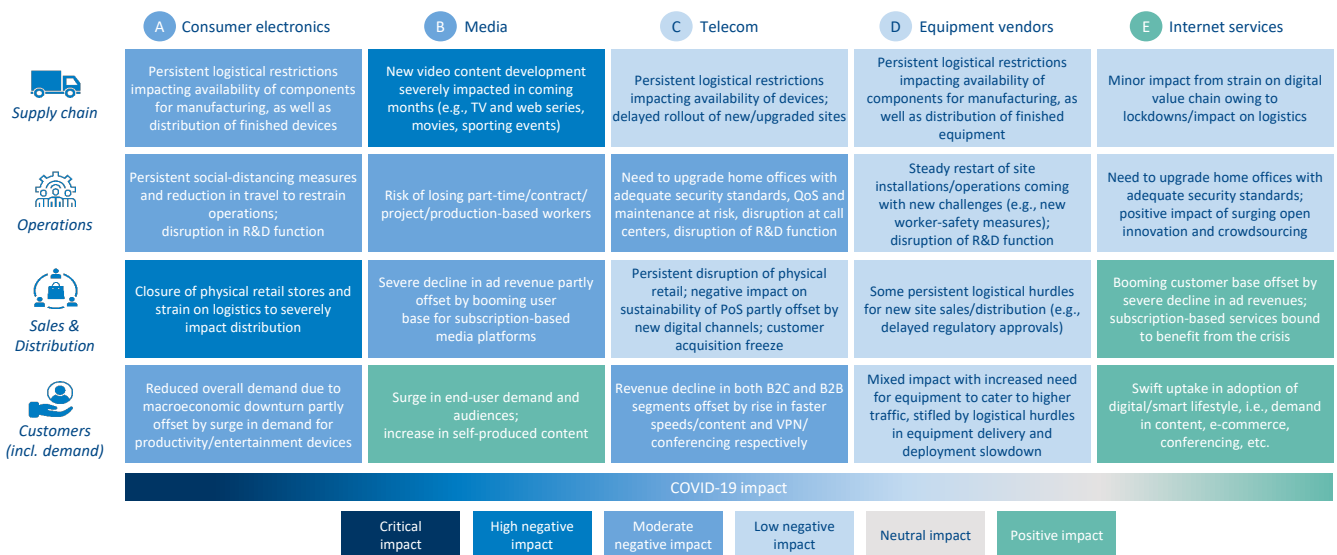
The COVID-19 outbreak has led to sizable disruptions in international economic activity, which has impacted all industries, although at different magnitudes. It is now time for decision-makers to expand their focus beyond immediate crisis management to actions that will strengthen their competitive play in the medium and long term.

On average, each of the telecom, media and technology sectors showed relatively strong resilience to the adverse impact from COVID-19. However, in the medium term (2020 and 2021 financials), we expect certain sectors to fare better while others are more deeply impacted.

sold now that it has filed for bankruptcy, could reveal synergies and diversification opportunities for telecom operators at bargain prices.

Players in the **consumer electronics** sector need to take prompt actions to alleviate the short-term adverse impact, leveraging growth categories coming from the crisis, such as in-home entertainment, more aggressively to ride the momentum and potentially even make these trends outlast the crisis. While bracing for difficult months ahead due to reduced ad spending, **media companies** need to rethink their business models towards virtualized content creation and audience development,

Figure 1: COVID-19's medium-term impact on the telecom, media and technology sectors



Source: Arthur D. Little analysis

Some moves that leaders in these sectors can make will clearly be dependent on the duration (the number of months they last) and intensity (the extent and severity) of lockdowns. However, a full wait-and-watch strategy will not serve them well overall. CXOs must leverage the disruptive nature of this crisis, which can, in fact, lead to transformation, even elimination, of not only individual companies, but also overall industries, creating new playing fields and changing rules for existing ones. The previous competitive advantages might not hold in the “new-normal” world. This is the time to start preparing for it, given that market conditions are conducive to acquisition of some such advantages – for example, assets available at distressed valuations or talented resources let go by employers. For example, the satellite firm OneWeb, whose assets are being

leveraging “distributed” production. For **telecom operators**, responsiveness to new demand trends will make or break their commercial success in the post-COVID-19 world. Continuing to push digitalization and 5G should remain high on their agendas. **Equipment vendors** will see medium-term setbacks, but their receptiveness to partners’ needs and ecosystem opportunities, such as supporting telecom operators with flexible financing terms where required, can reinforce the catalyzing effect of COVID-19 for long term demand. In addition to being the relatively least-hit sector, **Internet services players** will remain stronger in the medium term as they can expect some of their new users and digital habits to outlast the crisis. However, they need to remain prepared for increased public scrutiny and higher operational complexity as they expand in scale.

A. Consumer electronics: Brace for turbulence and prepare for recovery

Consumer electronics are to see different directional impact based on product types; a medium-term economic downturn will take a heavy toll

There has been clear short-term impact on this sector in the form of reduced sales, given disruption in supply chains and closure of physical channels. For example, a sharp drop is expected in smartphone shipments in India during Q2 2020 due to the lockdown, which will reverse an 11.5 percent year-on-year rise during Q1 2020.¹ Sales in China showed a 22 percent year-on-year decline in Q1 2020 that pertained to social-distancing measures.² However, this adverse impact will be offset, to some extent, by the surge in e-commerce sales just before and during the lockdown.

Both demand and supply have been impacted

In the medium term, consumer electronics will be impacted by the crisis on both the demand and supply sides. Demand for consumer electronics in 2020 is expected to decrease, as this demand has historically been sensitive to the overall macro environment. Retail-store closures also further this impact – for example, all Apple stores outside mainland China and 70 percent of all Verizon stores were closed for several weeks. Consumers' financial instability is also expected to impact the sales of mobile phones in both volume and price, as consumers are expected to turn their preferences towards cheaper handsets. 5G smartphone demand remains relatively firm and is expected to represent a larger part of the mix in the future, growing from approximately 17 percent of total smartphones in 2020 to roughly 34 percent by 2021, with an even stronger mix in China standing at about 54 percent of total smartphones in 2021. However, delays in 5G rollouts will slow down this demand in certain countries, for example, Austria, Czechia, France, Poland, Portugal and Spain.

The supply chain has also been heavily disturbed by lockdowns, which have involved temporary factory closures, travel restrictions, logistical limitations and retail-store closures. For

instance, transportation fees have increased significantly, with Huawei reporting a 3 - 5x increase owing to limitations on cargo shipments. Global smartphone production has been halted temporarily. Smartphone shipments declined by 30 percent year on year in Q1 2020,³ representing the worst year-on-year decline ever suffered by the market. Mobile phone production has been under pressure from the supply side due to raw-material shortages, labor mobility restrictions, and logistical challenges in shipping both raw materials and end-product mobile phones. For some components, the supply shock has been partially absorbed by the existing stock. Some players had already been relying on automation, which eased the labor shortage in production. Ensuring proper supply for H2 2020 and beyond will, however, remain a challenge as existing stocks have been considerably trimmed and cross-border mobility restrictions are likely to remain. China's demand is expected to recover earlier than that of other countries because it has already been initiated. Players such as Samsung expect fierce competition among smartphone vendors in H2 2020 as they seek to recover from declines in H1.

No consensus on long term decline and impact on the broader value chain

There is no consensus on the extent of the decline in the long term, or its impact on players within the broader value chain. Projected revenues from smartphone sales in 2020 have degraded significantly over the past few months; they are estimated to have dropped 11 percent year on year.⁴ Telecom operators that rely on equipment sales will be adversely impacted, although uncertainty hampers forecasts and has led Verizon to withdraw its previous guidance. Equipment manufacturers are even more exposed, which has led Samsung to warn about a "sharp" decline in demand for its mobile products. It is likely that customers will shift their preferences towards affordable devices, especially as some premium brands have or are planning to release lower-priced smartphones, such as Apple's iPhone SE and Samsung's plans for affordable 5G-enabled devices.

1 Canalsys
2 Counterpoint Research
3 Qualcomm
4 IDC



Although immediate spikes in notebook orders have followed shelter-in-place policies, overall PC demand is to be negatively impacted by the COVID-19 outbreak in the medium term. Similar to the mobile-phones challenges, both supply-chain disruption and poor macro environments are worsening already-fragile PC growth. Shipment volumes fell by 12.3 percent in Q1 2020 compared to Q1 2019⁵ and PC sales volumes are likely to reach a 9 percent⁶ decrease in the year. A surge in laptop sales related to work-from-home policies will have offsetting effects but be limited in time. Companies such as chip maker Intel, despite being more exposed to laptops than to desktops, warned about macro weaknesses impacting the sector throughout the remaining quarters of 2020.

Even though in-home entertainment electronics have been impacted by supply-chain issues in Q1 2020 – for example, 10 percent year-on-year growth in global shipments of video-game consoles and a 12 percent drop for smart speakers⁷ – a surge in demand relative to stay-at-home orders has more than offset these issues in some markets, such as 34 percent year-on-year growth in video-game console sales in North America and 12 percent for smart speakers.⁸ However, medium-term prospects are negative for in-home entertainment electronics as the ease in restrictions will correspond to a decline in purchasing

power. Customers will have even less incentive to buy TVs as major events, such as the Tokyo Olympics and Expo 2020, are postponed or cancelled. With a lack of key demand drivers, persisting supply problems, and unfavorable macroeconomic conditions, in-home entertainment electronics will be severely impacted in the medium term.

In summary, consumer electronics, the most adversely hit sector, has been subjected to two opposite forces during the COVID-19 crisis. On one hand, consumers usually allocate their discretionary income to electronics purchases for entertainment, so there will be adverse pressure given the deteriorated macro environment. On the other hand, increased time at home is likely to accelerate the adoption of the existing in-home work and entertainment trend. Recovery should be the key focus.

Action prompts are required to alleviate short-term adverse impact, with potential leveraging of growth categories to minimize medium-term aftershocks

 <p><i>No-regret moves towards speedier recovery</i></p>	 <p><i>Strategic bets to leverage opportunities from the crisis</i></p>
<ul style="list-style-type: none"> ■ Continue the transition towards digital channels: Further push digital sales channels and decrease reliance on physical retail stores. ■ Optimize inventory management: Ensure a buffer to absorb supply shocks while keeping inventory costs under control. ■ Reassess the supply chain: Rethink the overall supply-chain strategy to enhance the level of localization to whatever extent possible. ■ Invest in warehouse and factory automation: Reduce the sanitary risk to human labor and increase the robustness of production and warehousing through increased automation. 	<ul style="list-style-type: none"> ■ Leverage growing product categories: Promote the in-home entertainment electronics category more aggressively to ride the momentum and potentially even make the trend outlast the crisis. ■ Develop innovative products for risk control: Leverage new market opportunities created by the COVID-19 crisis for both electronics and OTT, such as rapid testing and pedestrian monitoring. ■ Identify M&A opportunities: Become aggressive in the lookout for attractive targets for M&A, especially ones that are aligned with competitive advantages in the “new-normal” world – for example, opportunistic plays for innovative start-ups.

5 Gartner
 6 IDC
 7 Solon
 8 Omdia

B. Media: Provision for advertising revenue losses while locking in consumption gains

Demand for media will benefit from a persistent boost, although severely impacted ad revenues will not recover overnight

The “stay home” imperative created a surge in content demand for media players. They responded with equal enthusiasm by expanding their content libraries rapidly (e.g., leveraging old popular content and short/at-home productions) and encouraging more users to access content by selectively bringing down paywalls on premium content. In North America, media consumption has grown 60 percent since the start of the outbreak, with all growth observed in digital channels.

Digital content platforms have experienced growth

Digital content platforms such as a Netflix have more than doubled their numbers of new subscribers expected in the last three months. Disney’s new streaming service has almost doubled its global subscriber base to 50 million since the virus outbreak. Other content platforms, such as video-game streaming, have also demonstrated record growth in numbers, such as an estimated 60 percent jump in viewership on Twitch in March 2020. Content categories such as e-sport, already on a fast-growing trend, could become mainstream entertainment faster than expected, with lasting positive implications. Additionally, owing to the increased availability of time at hand for consumers, there was a surge in user-generated content across social platforms such as Facebook, Instagram and TikTok. TikTok saw a 58 percent quarter-on-quarter increase in its downloads, which hit 315 million in Q1 2020, to cross the 2 billion global downloads milestone.⁹

In the newspapers and magazines subsector, there has been growing demand for trusted news content, which resulted in an immediate surge in uptake of online subscriptions, although consumer focus currently is on health news that that can be accessed without paywalls, such as editorial content. In the long term, there is potential for more rapid structural change in this subsector, in line with retailers’ strategies to push digital over

traditional channels and consumers losing regular buying habits to become increasingly dependent on digital channels.

On the other hand, the crisis has disrupted content creation supply chains, notably through postponing sports events, live concerts, new movie production and releases, and market launches, which has induced financial difficulties and risked bankruptcy for some players. In the longer term, there is a risk that, as soon as social-distancing restrictions ease, users will cancel subscriptions to paid digital platforms due to over-utilization and slower content renewal.

Strong negative hit on advertising revenues

Advertising revenues have taken a strong negative hit globally. As a case in point, a strong majority (approximately 75 percent) of buy-side decision-makers in the US anticipate this crisis to have a heavier impact on US ad spend than the 2008–09 financial crisis, with 70 percent of buyers quickly adjusting or pausing their planned ad spend over March–June 2020.¹⁰ Entire segments have come out of the advertising space; for example, car makers, typically leaders in media ad spend, have shied away from marketing expenditures as their sales came to a sudden stop (e.g., a 97 percent drop in April for car makers in the UK).¹¹ Consequently, digital ad spending is down 33 percent over March–June 2020,¹² although it is less exposed than traditional media (a drop of 39 percent) owing to higher efficiency, given its more targeted approach. Despite relative resilience, even growing search revenues took a hit (e.g., 7 percent growth instead of the expected 15 percent for Google in Q1 2020).¹³ The trend is expected to remain negative in the mid-term for all advertising revenues (a 10–25 percent fall in H2 2020) because the global slowdown will impact advertising budgets and media planning will be delayed. At the same time, media players can expect a durable disruption in TV advertising as buyers look for more efficiency and transition more quickly to techniques such as audience targeting and programmatic buying. Some media telecom operators’ media divisions will also

⁹ Sensor Tower Store Intelligence

¹⁰ IAB Research

¹¹ Society of Motor Manufacturers and Traders

¹² IAB Research



¹³ Trefis

suffer from cancellations of major entertainment and sporting events, especially players such as Telefonica, BT, and Altice, which won exclusive package rights for the Champions League, La Liga and the Premier League. Overall, telecom operators with significant TV & Media units, such as AT&T and Telia, are bracing for material negative impact in 2020.

In summary, media players are growing their user bases in response to social-distancing measures but suffering severe cuts in advertising revenues at the same time.

Several subscription and transactional services are showing upward trends, with medium-term implications unclear as original content can be delayed and customer purchasing power can decline in an economic slowdown. Digital media players making revenues from ads must brace for difficult months ahead as marketing expenditures will recover slowly. Leveraging the surge in consumption to evolve business models should be the key focus.

Securing long-term gains requires transformative business-model evolution, insulated from temporary revenue losses

 <p><i>No-regret moves towards speedier recovery</i></p>	 <p><i>Strategic bets to leverage opportunities from the crisis</i></p>
<ul style="list-style-type: none"> ■ Continue the transition towards digital channels: Further push digital sales channels and decrease reliance on physical retail stores. ■ Buy attractive content: Make a quick enhancement in the available content through acquisition of old, yet popular, movies and TV series to offset delays in content production. ■ Offer temporary free content: Provide free access to a partial or full content portfolio during the crisis, and design attractive campaigns to retain new customers. ■ Forecast real demand: Step up the analysis of customer data to forecast the real demand – that is, assess the extent to which current demand will outlast the crisis. 	<ul style="list-style-type: none"> ■ Keep track of new entrants: Track and prepare to combat non-direct competitors such as TikTok, which have acquired massive subscriber bases during COVID-19 lockdowns, and engage consumers not just through content consumption, but also generation. ■ Innovate the business model: Rethink the business model towards virtualized content creation and audience development, leveraging “distributed” production, distribution, and audience experience technologies.

C. Telecom: Ride the momentum while safeguarding against adverse trends

Although more prominent than before, telecom operators will have to deal with decreasing B2B revenues and increased operational complexity

COVID-19 has further demonstrated the critical role that communication and connectivity providers play in general for governments, communities, businesses and individuals. With entire countries in lockdown and people everywhere being asked to stop or minimize their physical (social) interactions, mobile and fixed connections are becoming lifelines, as demonstrated by increases in customer engagement across segments.

Networks broadly able to cope with demand, with only certain weaknesses

Network traffic has rapidly grown 40-50 percent since the beginning of the outbreak, driven by a surge in demand for fixed subscriptions, higher bandwidth and content offerings. This also reflects the expansion of the daily traffic peak from two hours to anywhere from six to 10 hours, which tests the resilience of existing telecom networks. Vodafone UK, for example, experienced a 30 percent increase in mobile Internet traffic and a 42 percent increase in mobile voice traffic due to the crisis.¹⁴

Although telecom networks almost everywhere have been able to meet this increased demand, regulators have stepped in with stipulations such as reduction in streaming quality in some countries. This is to ensure network availability for essential basic communication, in particular to avoid overload at network interconnection peering and transit points. Additionally, the crisis has exposed the weaknesses of legacy technologies such as xDSL in their ability to deliver the required performance, as the use cases moved from “nice to have,” such as video, chat and gaming during the evening, to must-haves, such as work and education, for which higher quality of experience (QoE) is required.

Developments more favorable to incumbents than to challengers

Despite the increased demand for bandwidth, closure of physical channels had a negative revenue impact owing to lower

gross additions partially offset by lower churn to competitors. This development, in fact, is positive for the sector overall, especially in saturated markets, given that it leads to lower customer acquisition and retention costs, and players that were growing at the expense of others are mostly the ones negatively impacted.

A reduction in roaming and advertising revenues, coupled with a shortage in SIMs, devices and network equipment and existing inventory running out, also created some adverse short-term impact. Contact-center and network field operations were immediately impacted, given mobility disruptions and the need to adhere to enhanced social-distancing and disinfection guidelines.

Telecom top line to see early single-digit year-on-year decline

In the medium term, the impact of COVID-19 on the telecom sector will vary significantly by country, in line with the scale of the country's health and economic crises. Overall, the telecom sector is expected to demonstrate resilience and perform better than overall GDP trends in all markets, due to the weak correlation of its utility-like core services with macroeconomic conditions, as was observed during the global downturn in 2008-09. Moreover, social-distancing measures will act as a catalyst for broader and better connectivity, possibly convertible into new revenues through upgraded offers. Despite relative insulation of core services and offsetting opportunities, the top-line impact is unlikely to be positive for most telecom activities until global recovery.

The B2C segment, which accounts for the majority (roughly 55-70 percent) of a telecom operator's revenues, is expected to mostly remain stable, balancing the impact from reduced prepaid and roaming revenues with uptake of faster broadband and bigger mobile bundles, increased post-paid usage and reduced churn. Some challenger telecom players might be more impacted than established leaders, based on their business models. For example, Greece's OTE, which mostly relies on tourism hotspots, is expected to take a heavier hit from roaming revenue reduction. A reduction in travel is expected to lead

¹⁴ Omdia

to a projected USD 25 billion roaming revenue loss in 2020,¹⁵ although this will only modestly impact the top lines of most telecom operators, given that roaming typically accounts for 5-8 percent of revenues. However, as roaming is often a pure margin service, stronger impact is expected on the net profits of exposed players.

Despite the upside from governments and large corporates seeking higher bandwidth for VPN and conferencing facilities, the B2B segment is more adversely impacted owing to potential bad debts, which have primarily arisen from inability of SOHOs and SMEs to pay their bills. Additionally, increased unemployment, business closures and the overall decline in economic activity implies reduced spend by businesses on telecom services. Some operators have been proactive in addressing this and already taken precautionary measures – for example, Verizon has set aside a USD 228 million extra reserve. Overall, revenues from the B2B segment are expected to show a lower-single-digit contraction year on year in 2020, bouncing back to growth in 2021 as the global economy recovers.

Overall, global mobile communications services revenues are expected to decline 2-4 percent year on year in 2020. European players could see a decline within a broad range of 2-9 percent year on year and be the worst hit. Asia and Oceania could see a roughly 2 percent year-on-year decline and be the least-hit region. The Middle East & Africa and Americas can be more moderately placed, with revenue declines of approximately 4 and 2-4 percent year on year, respectively. These estimates assume that the relative geographic impact of the pandemic remains the same as of April 2020.

OPEX to also witness a decline, though limited

A similar evolution can be expected for OPEX. Reduced spending on marketing activities, subscriber acquisition and retention, and store closures is expected to generate OPEX savings of 1-3 percent year on year in 2020. Although competition has moderated as customers' willingness to churn or port has declined, this trend is expected to reverse as soon as movement restrictions are lifted and retail operations are restored, which implies the need to spend commercial OPEX allocated for customer acquisition and retention that was saved during the lockdown. For example, AT&T closed 40 percent of its retail stores in the United States.¹⁶ Overall labor costs should remain stable as societal and governmental pressures mount to prevent furloughing staff, especially in light of moderate commercial downsides of the telecom sector. For example, Orange has pledged to protect its 87,000 French workers without governmental help as part of an agreement with the

economy minister. This can lead to persistent loss in flexibility, even as automation increases, making some areas less labor-intensive. Generalized pay cuts also look out of the question as many companies, such as AT&T and British Telecom (BT), have already made announcements about raising compensation of front-line workers, which often represent significant parts of their staff. In the medium term, the crisis will also reinforce some of the OPEX trends before COVID-19, such as network sharing, which is expected to accelerate. Regulators might adopt more lenient views on mobile network-sharing agreements, shifting part of their scrutiny from competition to robustness and the economic health of the ICT sector overall.

Mixed guidance on CAPEX

Postponements of network equipment delivery and deployment could lead to CAPEX reductions of 2-4 percent year on year in 2020. CAPEX will rebound quickly in 2021 as most telecom operators, in the midst of significant capital expenditures on 5G network infrastructure, have decided to stay the course with their plans or even raise their ambitions. Fixed networks, in particular FTTP¹⁷ spend, will also grow to ensure enough capacity to allow delivery of all services with high performance under the increased traffic demand, which COVID-19 has pushed forward. Heavy expenditure on fixed telecoms infrastructure in a downturn was a strategy that several operators adopted during the 2008 financial crisis.

However, the COVID-19 crisis has so far been a mixed bag for 2020 CAPEX guidance, with, for instance, Verizon announcing an upward revision (+USD 1 billion) to support its network activity, and AT&T warning of "downward proclivity" due to logistics issues such as tougher cell-site acquisitions. The COVID-19 crisis will create situations in which companies will want to invest but not be able to. This risk will be amplified in Europe, where plans for 5G infrastructure are likely to be delayed. Additionally, propensity to spend might be hampered by heightened volatility in capital markets, with corresponding implications on cost of capital.

In summary, the telecom sector will continue to show resilience, but adverse impact on B2B and roaming revenues will be felt stronger by more exposed players. New consumption patterns will partly outlast the crisis, generating positive commercial opportunities. However, challengers will find it harder to compete with churn rates remaining low. Telecom players should focus on preventing disruptions in their strategic agendas in the medium term as 5G rollout is postponed.



¹⁵ Juniper Research

¹⁶ Omdia

¹⁷ Fiber-to-the-premises

Responsiveness to new demand trends will make or break telecoms' commercial success post-COVID-19; digitalization and 5G should be high on agendas

 <p><i>No-regret moves towards speedier recovery</i></p>	 <p><i>Strategic bets to leverage opportunities from the crisis</i></p>
<ul style="list-style-type: none"> ■ Transform into a technology provider: Leverage the crisis opportunity to transform self-perception from a telecom services provider to a technology provider. ■ Enhance access to content: Enhance partnerships with content providers, such as gaming and streaming services, to capture more of the freed-up time available with customers on telcos' own platforms. ■ Support digitalization and recovery of SMEs: Play a more active role in digitalization of SMEs by providing them with cybersecurity support, cloud and business development services, and access to training, tools and capabilities, in addition to connectivity. B2B customers also value responsiveness and flexibility that, for example, regional telecom operators can offer in such situations. ■ Enhance cybersecurity: Ramp up teams with security professionals who are experienced in both attacking and defending telecom operators' defences to minimize cyber vulnerabilities. ■ Anticipate payment-default risks: Devise creative ways to see how the risk of bad debts from SOHO and SME segments can be mitigated. ■ Explore and exploit digital channels and social media: Continue with the broader push towards digitalization of sales, distribution and customer services – for example, leveraging use cases and functionalities offered by social media platforms more extensively. ■ Develop digital capabilities to ensure network quality: Reassess network deployment and maintenance capability and optimize the number of field staff members by shifting some workload to online solutions. For example, develop capabilities for remote diagnostics and push for self-install and self-repair – that is, support through video calls and instruction videos. ■ Refresh business continuity plans: Update current disaster recovery and business continuity management plans to more effectively address any potential future pandemics after COVID-19. Telco players that had strong business continuity management plans in place report having been better off than their peers in the current crisis. 	<ul style="list-style-type: none"> ■ Continue to enhance social and community brand positioning: Leverage the crisis opportunity to further strengthen the brand's care about community perception. For example, Telekom Malaysia deployed 5G base stations at two quarantine centers to deliver free Wi-Fi to patients and medical staff. It also provided 50 5G fixed wireless access terminals. ■ Provide offers and services to impacted customers: Provide offers and services that can help customers impacted by COVID-19 further strengthen their emotional connections with own customer bases. For example, zero-rating of health and news websites, removal of data caps, speed upgrades, free calls in affected areas (especially to the elderly), and free access to content, with special focus on children's content. These serve the twin objectives of caring for customers while also installing new habits that continue beyond lockdowns. For example, Turkcell outlined a number of domestic initiatives it was taking to help fight the pandemic, including making an additional 6GB of data available to students and teachers, 24/7 remote support for business customers; working-from-home capabilities for 5,000 employees; and plans to provide 5GB of free data and 500-minute voice packages for healthcare staff. ■ Offer flexible work solutions: Develop solutions that enable customers to work from home, covering conferencing hardware, unified communication packages and partnerships, and VPN elements, potentially bundled with free or paid support for setting up and troubleshooting. ■ Diversify into new business lines: Develop solutions for key trends emerging out of the COVID-19 pandemic, for example, e-learning and telemedicine. ■ Advance spectrum acquisition: Lobby the regulator to acquire additional spectrum to maintain service quality. Operators in South Africa, for example, were invited to claim additional spectrum being released by regulator ICASA, as the government aimed to match heightened demand during the nationwide lockdown. ■ Lobby for favorable regulation: Leverage the crisis to lobby regulators for policy updates towards declaring telecom networks critical infrastructure and providing them with incentives such as easier access to rights of way and private infrastructure, innovative financing solutions, and reduced spectrum charges.

 <p><i>No-regret moves towards speedier recovery</i></p>	 <p><i>Strategic bets to leverage opportunities from the crisis</i></p>
<ul style="list-style-type: none"> ■ Underpin critical infrastructure: Assess and enhance core and transmission network capacity to cater for increased traffic, especially international bandwidth, owing to increased two-way traffic for video-conferencing and heavy streaming outside of the typical peak-traffic hours. 	<ul style="list-style-type: none"> ■ Support stakeholders across the value chain: Support relatively weaker links within operational value chains to minimize disruptions – for example, supply monetary aid to sales network and business partners. ■ Identify M&A opportunities: Become aggressive in looking for attractive targets for M&A, especially those that are aligned with competitive advantages in the “new normal” world, such as opportunistic plays through innovative start-ups. A case in point is Verizon’s acquisition of videoconferencing company BlueJeans in April 2020, given that the new work-from-home trend is expected to outlast the COVID-19 crisis.

D. Equipment vendors: Make the best of a mixed bag

Equipment vendors will benefit from the acceleration in long-term trends for connectivity and content uptake, but hurdles remain in the medium term

In the short term, these players saw an immediate slowdown in demand, owing to both global supply-chain disruptions impacting equipment availability and local lockdowns making it difficult to deploy and upgrade sites. Additionally, with the 40-50 percent immediate unplanned surge in traffic, networks could reach their peak capacities much earlier than expected, but this potential demand for upgrades was delayed due to constraints imposed by several regulators that required operators to reduce video-streaming quality to prevent Internet-capacity saturation.

Long-term investment plans to hold with delays in medium term

In the medium term, the impact of COVID-19 will be a mixed bag. Most telecom operators are in the midst of multi-year 5G network deployments, which imply a consistent revenue stream for equipment vendors, and the push towards increased reliance on connectivity networks for education (such as e-learning) and remote working (such as virtual collaboration) is a positive driver for this sector. However, logistical hurdles will result in equipment delivery and deployment slowdown. Although the crisis has reinforced investments in 4G and 5G that had been announced in China, it is directly slowing down the transition towards 5G in several European countries.¹⁸ Equipment vendors such as Ericsson are already warning Europe that 5G deployment will fall behind because of the strong hit by COVID-19 and are urging governments to encourage 5G investment as a way to relaunch their economies. Despite these uncertainties, Ericsson reiterated its financial targets for 2020, 2021 and 2022, with the expectation of telecom operators' CAPEX-spending plans to remain, which illustrates the resilience of the sector. Similarly, ZTE, despite reporting a decline in both revenues and profits for Q1 2020 due to the crisis, confirmed that its 5G equipment activity had proven successful. Some players, such as AT&T, are expecting logistics hurdles to result in investment slowdown. For instance, government approval and permission for cell-site investments are expected to be slowed



by shelter-in-place orders in the short term and crisis recovery issues in the longer term.

Nonetheless, some other aspects, such as availability of needed on-the-ground workforces, and efficiency of remote working for key functions, such as R&D, appear to be under control. For example, Nokia's key software updates, despite initial fears, proceeded, even ahead of schedule. Also, in North America, the merger of T-Mobile and Sprint is likely to create momentum and further accelerate 5G investment in H2 2020.

In summary, equipment vendors will suffer from delays in medium-term network rollout, owing mostly to postponement of orders, along with some new complexities on the supply side. Issues are likely to be temporary hurdles, as inherent demand for network equipment remains stable, if not enhanced, in most markets. Maintaining patience in the current situation, and then accelerating equipment production and deployment upon recovery, is the optimal way forward.

¹⁸ See section 1. Countries concerned: Austria, Czechia, France, Poland, Portugal and Spain.

Medium-term setbacks are inevitable, but receptiveness to partners' needs and ecosystem opportunities can cause COVID-19 to be a catalyst for long-term demand

 <p><i>No-regret moves towards speedier recovery</i></p>	 <p><i>Strategic bets to leverage opportunities from the crisis</i></p>
<ul style="list-style-type: none"> ■ Enhance intimacy with telecom players: Deepen intimacy with telecom players by understanding their refreshed priorities in the wake of the crisis and offering flexibility with equipment delivery contracts that have already been signed or agreed upon. ■ Provide financing for customers: Provide flexible financing terms to telco players wherever possible. For example, Cisco announced a new financing program for customers that would allow them to defer 95 percent of the cost of new hardware, software and services until January 2021, in a bid to make it easier for businesses to buy the technology they needed to keep running during the pandemic. 	<ul style="list-style-type: none"> ■ Identify M&A opportunities: Become aggressive in looking for attractive targets for M&A, especially those that are aligned with competitive advantages in the “new normal” world, such as opportunistic plays through innovative start-ups.

E. Internet services: Perpetuate peak consumption trends

Booming Internet services are to retain their appeal in the medium term as a proportion of situational adopters turn into long-term users

Internet services players saw an immediate increase in adoption across multiple internet services, such as e-commerce for both essentials and non-essentials, as well as videoconferencing for virtual collaboration and online work. However, network-capacity constraints stipulated by regulation and inadequacy of security protocols within home-office solutions caused some setbacks.

Surge in growth of e-commerce

The challenges resulting from movement restrictions owing to COVID-19 have accelerated the growth of digital businesses, as well as digital transformation of more traditional business models and ways of working. Although a few categories, such as e-travel, have been adversely impacted and led to dramatic outcomes, overall e-commerce has observed significant growth since the start of the outbreak, with a global increase of approximately 47 percent of sales volume. It has been particularly strong in categories such as pharmaceutical products (which, in France, rose by 15 percent in less than 10 days) and groceries. Significantly, stay-at-home orders are driving adoption of e-commerce by new audiences, such as the elderly. This change in customer behavior will be a challenge for e-retailers, which should strive to consolidate customers' behavioral shift during lockdowns into their normal lifestyles, including services such as telemedicine and fitness apps. E-commerce companies can be inspired in this endeavor by how Alibaba grew exponentially in the wake of the SARS crisis in 2003.

Although demand for products and services through online channels has demonstrated the growing potential of e-commerce, it has also brought up certain challenges. Health concerns around e-commerce logistics and delivery workers have been raised, which has demonstrated the need for investment into safety protocols.

Teleworking and gaming seeing new highs

The current pandemic has also been an unprecedented teleworking experiment. Usage of video-conferencing platforms

such as Zoom has exploded. Verizon reported a peak increase of 982 percent of network usage on these tools,¹⁹ which has enabled the addition of more users since the outbreak of COVID-19 than in all of 2019. It is expected that some part of the current flexible, virtual working practices will transition into the "new normal," sustaining part of this observed growth.

Internet entertainment services, such as online gaming, have also seen steep increases in numbers of users. The leading digital platform, Steam, recorded an all-time record of 24.5 million concurrent users in April 2020, exceeding the 2019 peak by more than 30 percent. This impressive growth could lead to accelerated user acceptance and adoption of these new entertainment services, which were already growing steadily before the crisis.



Long-term impact tough to assess with potential competitive landscape refresh

Overall, Internet services are benefiting from rapid uptake in new users and average intensity of usage. Although these upsides are expected to be entrenched in consumers' lives in the medium term, the extent is unclear yet. On the downside, Internet services players have to deal with advertising-revenue losses, consumer preferences for cheaper products, increased costs for their products and services, and supply-chain issues. More pervasively, incumbent Internet players risk being unsettled by new competitors coming from traditional firms that have moved most of their operations online to navigate the crisis and might find new equilibrium in that position even after the crisis.

In summary, Internet services players, the least-hit sector, will remain stronger in the medium term as they can expect a portion of their new users and digital habits to outlast the COVID-19 crisis. However, as they expand in scale, such players could undergo increased public scrutiny, which could result in higher operational complexity. The entry of traditional service providers and retailers will intensify competition. Striving to maintain consumption patterns beyond lockdowns should be the priority.

¹⁹ Verizon Q1 earnings transcript

Critical initiatives are to be taken by Internet services providers if they want to sustain the industry’s new heights

 <p><i>No-regret moves towards speedier recovery</i></p>	 <p><i>Strategic bets to leverage opportunities from the crisis</i></p>
<ul style="list-style-type: none"> ■ Enhance customer retention: Innovate ways around retaining customers on paid subscriptions through means such as promotions, loyalty rewards or personalized customer experience, to ensure sustenance of demand after the crisis. ■ Embrace open innovation: Contribute to the increased momentum for open innovation and crowdsourcing to develop new tools and applications for the COVID-19 crisis and beyond. 	<ul style="list-style-type: none"> ■ Invest in new tools: Invest in developing new, innovative telecommuting, enterprise collaboration, and virtual workplace solutions to enable seamless virtual collaboration in line with the “new normal” trend of virtual working. ■ Identify M&A opportunities: Become aggressive in looking for attractive targets for M&A, especially those that are aligned with competitive advantages in the “new normal” world, for example, opportunistic plays through innovative start-ups.

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**Telecom, media and technology –
COVID-19 implications and medium-term
recovery**

Bouncing back with strength and leveraging
opportunities opened up by the crisis

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