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2023 telecom
industry outlook

Contents

The bundle battle: Add more value for cost-conscious consumers	4
Fixed wireless access surges, but will it endure?	5
What enterprises want from 5G edge	7
Joint ventures accelerate deployment of fiber networks	9
Increase the focus on sustainability	10
Signposts for the future	12

About Deloitte's outlooks

Deloitte's 2023 telecom industry outlook seeks to identify the strategic issues that telecom organizations should consider in the coming year, including their impacts, key actions to take, and critical questions to ask. The goal is to help equip telecommunication organizations with the information needed to position themselves for a strong, resilient future.

Executive summary

Demand for connectivity continues to grow, bringing both opportunities and challenges for communications service providers (CSPs). In this year's telecom outlook, we explore how CSPs are delivering value to consumer and enterprise customers with bundled services and connectivity options like 5G fixed wireless access (FWA) and fiber, as well as their role in meeting the growing demand for edge computing. We'll also consider how CSPs may want to balance pricing decisions with the need to accelerate deployment of infrastructure like fiber networks while attending to the growing urgency to reduce resources, waste, and emissions from network operations, upgrades, and deployments. As connectivity works its way into more of the world, it may be more imperative than ever to balance costs with the needs of households, businesses, communities, and the environment.

For individuals and families, connectivity is important. Many rely on it for information, entertainment, and meaning.¹ Many now require it for education, employment, and health care. Yet, consumers often have cost constraints that can limit their options or drive them to seek the best service at the lowest price. This factor can present a challenge for CSPs that need profits to drive growth and reinvest in their businesses. To offer more value to consumers, many CSPs are bundling mobile and home internet access, offering connectivity options like fiber and 5G FWA, and partnering with entertainment services to include subsidized or free subscriptions. As we'll see, bundles—with the risk of diluted revenues—should be carefully considered.

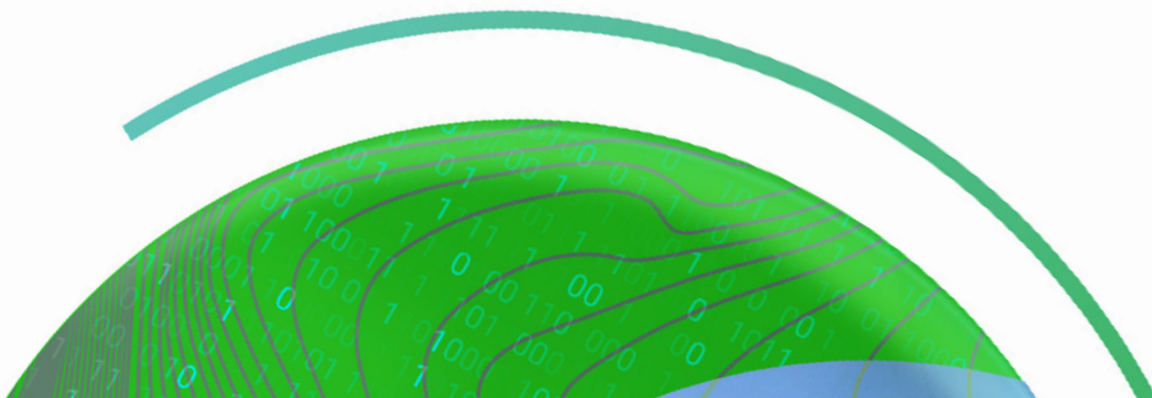
As part of this "bundle battle," 5G FWA has enjoyed substantial growth. This type of connectivity can provide strong reliability, but some questions remain about how much it can scale. As more people use 5G services, and if more bandwidth-intensive "killer apps" emerge, the limits of 5G FWA could be exposed. However, market dynamics and next-gen technology solutions could overcome these challenges.

For enterprise customers, the need to cut costs, automate capabilities, and support innovation is driving interest and adoption of edge computing. Deloitte has interviewed decision-makers from across industries to understand what capabilities they're unlocking with edge computing and the providers they look to for support. Companies using edge computing show what's working; where they need more help; and whom they turn to for local area networks, service layers, and integrated cloud-to-edge business solutions. The key takeaway is that CSPs will likely need partners to develop and deploy edge solutions, requiring more cooperation with erstwhile competitors.

Many of the connectivity solutions we cover rely on fiber networks. With high demand, strong competition, and the need to optimize costs and risk, more CSPs are partnering with private investors to accelerate deployment of fiber networks.² These partnerships can be mutually beneficial—and reinforced with government funding that can further incentivize build-out.

In doing so, these partnerships can support existing customers while extending further into underserved communities, helping to narrow the digital divide—the gap between those who have access to modern information and communication technologies and those who don't. This aspect tugs at the broader economic imperative of connectivity: more bandwidth, more equally distributed, enabling greater access to education and opportunity.

As climate crises mount, a looming question is how to reduce waste and emissions from so much infrastructure, its operations, and supply chains. For CSPs, lowering their own energy usage, increasing clean energy purchases, and helping their suppliers develop their own net-zero roadmaps can help mitigate emissions and avoid reputational damage when more people are weighing the larger costs of economic growth.



The bundle battle: Add more value for cost-conscious consumers

The idea of CSPs offering product and service bundles is nothing new: In the United States and Canada, 3G and 4G wireless services reached rapid adoption by bundling monthly connection services with new smartphone contracts. Over time, CSPs have offered all kinds of bundles, ranging from device and service bundles to content bundles, cloud, and gaming services, and smart home product offerings ranging from security to managed Wi-Fi.

Some companies that have lots of fixed connections but no facilities-based mobile offering (mainly cable companies) are partnering to be able to provide both. At the same time, some companies with lots of mobile connections but no (or not enough) fixed connections (mainly wireless telcos) are using new business models and technology to offer their own bundles.

In 2023 and beyond there may be ample room to grow fixed-mobile convergence bundles in the United States: Only about 8% of consumers in the United States subscribed to a converged service in 2022.³ Further, recent research shows that every additional service added to a bundle increases customer satisfaction. A single service resulted in having a slightly negative net promoter score (NPS) of -10, but a single additional value-added service increased NPS to +20, and adding another two services brought it to +40. Bundles with five or more services see an NPS of +60, likely having an impact on customer retention and reducing customer acquisition cost through word of mouth.⁴

Deloitte's 2022 Connectivity and Mobile Trends survey found that US consumers are strongly interested in bundles, with 68% of those who were not currently on a mobile and home internet bundle saying they would consider it.⁵ For those who currently bundle mobile and home internet, cost is not the main driver: Of the respondents who said they had a mobile and home internet bundle, almost half (45%) said that one of their top two reasons for having the bundle was billing convenience, well ahead of the 38% who mentioned lower price. However, for those who don't yet have a bundle, 45% said lower price was a top main reason they would switch, with only 22% citing more convenient billing as the inducement.⁶ Among those who would not consider bundling their mobile and home internet, 29% said they didn't think bundling would lower their costs, and 28% said they feel they get better services through separate providers. To win these customers, CSPs should show their bundles offer substantial cost savings without sacrificing speed and coverage. Finally, from the same survey, no one provider category dominated: Although 41% of those considering a bundle said they'd prefer to get it from their home internet provider, 32% said they opt for their mobile service provider, and 27% had no preference.⁷

Historically, cable broadband providers in the United States have been facilities-based, go-it-alone network providers for delivering broadband and cable signals over a wireline infrastructure. But they are increasingly partnering with wireless providers and becoming Mobile Virtual Network Operators (MVNOs). MVNOs have been around for decades, but recent growth—driven largely by cable company offerings—has brought them to a new level in the United States, with MVNOs accounting for 31% of all post-paid net wireless additions in Q3 2022, up from 25% in 2021, and the two largest cable companies now have more than 10 million mobile customers.⁸

Meanwhile, 5G technology, especially in mid-band, has taken FWA to a new level. FWA at 4G captured a relatively minor share of broadband connectivity prior to 2020, but 5G FWA has been rapidly capturing broadband share since then and represented 90% of all broadband net adds in 2022. FWA net adds from the two largest providers were 3.17 million new subs, up from 0.73 million in 2021 and compared to only 350,000 net adds from the largest wireline providers.⁹

MVNOs and FWA are important new parts of the bundle boom, but the next big driver of growth could be video content. Video-on-demand (VOD) streaming revenues, either subscription, ad supported, or a hybrid, are likely to be over \$30 billion in the United States in 2023.¹⁰ Video represents about 65% of network traffic globally in 2022, and many of the biggest consumers of bandwidth are the VOD providers.¹¹

Many CSPs already offer bundles that include VOD services but may wish to capture added revenue and profits and perhaps even share in some of the advertising dollars, as the ad-supported part of the market is predicted to grow in the US market.¹² Carriers have explored opportunities for revenue growth in the past beyond bundling VOD services (i.e., revenue sharing or ad revenue). Given the headwinds in the VOD market today, with slower growth, higher churn, and rising content costs, there may be new opportunities for VOD providers and CSPs to partner.

Strategic questions for CSPs to consider:

- Has FWA passed its peak, or are we seeing the start of something even bigger?¹³
- By bundling, are CSPs trading off subscriber numbers and revenues for profits? The pricing of mobile service by cable companies and FWA by wireless companies has been aggressive; does it need to continue to be aggressive to attract new bundle buyers?
- Is bundling something CSPs must do to maintain competitive parity? How can bundles be more effective in attracting and retaining subscribers?

Fixed wireless access surges, but will it endure?

FWA technology surged in the United States in 2022 and on 5G, with 90% of broadband net adds among the largest providers coming from FWA.¹⁴ But in Q4, numbers slowed, leading some to ask if FWA in the United States is going to sustain quite that high a pace. Is providing broadband over 5G sustainable in terms of performance (compared to wired alternatives such as fiber optic or Data Over Cable Service Interface Specification [DOCSIS]), and is it sustainable in terms of the economics, or is it only an economically viable solution in the early days of the 5G rollout?

Mobile network operators (MNOs) in the United States have spent collectively more than \$100 billion on spectrum and networks to build out 5G.¹⁵ Although consumers are embracing 5G speeds, they largely aren't paying for it. Enterprise use cases such as private 5G networks look like an interesting opportunity over time but may take years beyond 2023 to materialize. Other 5G applications, such as gaming in the cloud, ubiquitous VR goggles, or the metaverse, are also interesting but longer term. If history is a predictor, they are likely to favor app and device companies rather than CSPs. For now, FWA appears to be the largest source of incremental consumer 5G revenue, both in the United States and globally.

The two largest MNOs offering FWA added almost 4 million FWA subscribers in the United States in 2021 and 2022.¹⁶ That's only 3.6% of the roughly 110 million US broadband subscribers,¹⁷ suggesting that there's plenty of room for growth—after all, in Finland, 30% of consumers access the internet via FWA.¹⁸ As of 2021, 15% of Americans did not have broadband at home but relied on their smartphones.¹⁹

That said, Q4 2022 FWA net adds and projected H1 2023 net adds suggest a flattening in growth: Many Americans will likely subscribe to FWA in 2023, but the number may be about the same as in 2022. But are there any reasons to think that FWA could decline? Could it become the eight-track tape of home broadband, wildly popular for a while but soon abandoned?

The first concern is around performance. Although 90% of current FWA users in the United States say their broadband is at least “good enough,”²⁰ will that change soon?

In 2023, that looks unlikely. According to a November 2022 analysis by Opensignal, in 25 US markets and across six indicators of performance, FWA services were characterized as “typically middle of the pack” compared to cable and telco wireline alternatives, and minimum download speeds (even at peak times) were consistently 50—80 Mbps.²¹ Although there are US services that offer higher peak-time data rates, there are few consumer applications (aside from little-used 4K and 8K video streaming) that require more than 10 Mbps speeds, suggesting that even multiple-user households will find FWA speeds good enough for 2023.

But what about longer term? First, there are few signs that consumers are shifting from HD to 4K and 8K any time soon: as an example, 8K TVs were only 0.15% of global TV set sales in 2021 and even by 2026 are predicted to have an installed base of only 2.5 million households.²² Second, although 5G FWA at present is slower than cable or fiber solutions, it is also a much younger technology. It is likely to improve and have a strong performance trajectory over the next few years, keeping it a legitimate alternative. Finally, as more and more 5G FWA transitions from mid-band frequencies to mmWave bands, speeds should rise much faster and could even be competitive with cable or fiber. Already, although in limited deployment, real-world speeds of 1–1.6 Gbps are being seen at 26, 28, and 39 Mhz.²³

The second concern about the sustainability of 5G FWA is the economics dictated by spectrum availability. In the early days of 5G, with relatively few mobile users on 5G at the average \$50–\$55 postpaid monthly average revenue per user (ARPU) in the United States, it makes a lot of sense for MNOs to fill up unused capacity with \$20–\$30 monthly ARPU FWA customers, especially those who are bundling with mobile service. But as the relatively scarce mid-band spectrum begins to fill up with mobile users, is FWA still sustainable? This question was prominently featured at MWC 2023 in Barcelona, with one analyst cautioning that “operators ought to be thinking incredibly carefully about what to do with capacity” and warning that they could see an issue in five to 10 years’ time.²⁴

In good news, MNOs are likely to solve this capacity crunch via technological advancement. Although almost all current 5G FWA subscribers are on mid-band frequencies, over time MNOs should be able to take advantage of improvements to 5G spectral efficiencies even at those bands. Carrier aggregation and Wi-Fi offload could be deployed to enhance performance and share traffic with other networks or parts of the spectrum. Perhaps most importantly, MNOs could shift many of the current users to mmWave bands with their very wide channels and capacity (500–800 MHz).

Strategic questions for MNOs to consider:

- Will MNOs be able to move significant numbers of current mid-band 5G FWA users to mmWave over time?
- Will consumers find a killer app that needs 50–100 Mbps per stream download and exceeds the near-term ability of non-mmWave 5G to provide? How will upload requirements change for consumers? Will FWA meet those needs?
- Was the surge in 5G FWA in 2021 and 2022 a spike resulting from harvesting low-hanging-fruit subscribers in certain areas with the right densities? Or will 5G FWA be able to keep adding 2 million to 4 million subs per year in the future?

What enterprises want from 5G edge

Edge computing is a multibillion-dollar market growing at more than 20% annually, and CSPs, hyperscalers, and equipment companies are all battling for share.²⁵ It is important for enterprises interested in reducing latency, improving performance, reducing costs, and greater control over their data.

To better understand how CSPs can compete in the enterprise edge computing market, in late 2022 Deloitte interviewed 13 decision-makers from enterprises across a range of industries that are implementing or testing edge computing. All companies have at least \$500 million in annual revenue, and most were more than \$5 billion.²⁶

While the technologies enabling enterprise edge computing—such as 5G connectivity, compact and powerful servers, and new processors—are innovative, many decision-makers see edge computing as an extension of their existing network, storage, and compute environment rather than something totally new. They want to upgrade, rather than replace, their infrastructure.

Decision-makers expressed four main goals for their enterprise edge network investments:

- Reduce the total cost of enterprise cloud and network ownership.
- Improve access to data and applications, especially for remote locations, users, and devices.
- Improve business KPIs through better decisions made possible by more frequent and accurate data.
- Unlock productivity gains through more efficient processes and automation.

Companies that have already implemented edge computing have achieved many of these goals. The main benefits realized from edge vs. “pre-edge” infrastructure include:

- Improved balance of network costs, data management, and compute needs.
- The ability to analyze data in real time without lags on the system. Data can be processed on site, with less data being “shipped” to the cloud and stored.
- More stable endpoint connections.
- Reduced latency. (This was a top issue in the interviews.)

Where do decision-makers turn when considering and selecting edge computing solutions? According to our interviews, hyperscale cloud providers have the most influence, especially if they are incumbent providers, largely because companies want to ensure they can connect edge data to their cloud platforms. According to respondents, telecom companies and system integrators also have influence but less than cloud providers do. In general, decision-makers seek advice from existing providers since many see edge computing as an extension and enhancement of their current data capabilities.

Enhancing networks and data capabilities for the enterprise edge often requires strong partnerships with a reliable ecosystem of providers. At least for now, no single vendor or class of vendor can provide the complete edge solution, which requires both an ecosystem of providers as well as a need to coordinate them. Decision-makers typically consider three main types of companies when looking to implement edge:

- Telecom companies that deliver access and local area networks
- Integrators and tech companies that help to implement services and solutions
- Hyperscale cloud providers that offer business practice approaches across a wide range of business solutions



When considering edge investments, decision-makers want to know which innovations are coming next so they can “future-proof” their IT and network environments as much as possible and avoid complete overhauls. They want to understand how their edge architecture will scale and what additional infrastructure investments will be needed. To answer these questions and steer them through uncertainty, decision-makers often look for partners with strong technical capabilities that can scale their solutions and will be there for the long haul.

When considering whether to invest in edge computing, several challenges have the potential to hold companies back, including:

- **Data questions:** How will data from new edge data sources, such as devices and sensors, be captured, analyzed, and integrated? Will it be consumable, and by whom? Can they process all the data they'll get and gain valuable insights?
- **Networking skills:** Companies are comfortable with their network capabilities in terms of LAN, WAN, and cloud connections, but connecting multiple devices and edge appliances to networking tools for analytics is an unknown and a potential challenge.
- **Implementation concerns:** Many companies want a phased implementation rather than a single rollout to help ensure key processes and data sources are captured in the new process flow and overall infrastructure.
- **Pricing transparency:** Organizations want to fully understand price points and operational cost projection models.

By answering these questions, decision-makers can feel more comfortable about the amount they'll invest in edge computing and the benefits they can expect.

Strategic questions for CSPs to consider:

- How much of the “solution stack” can CSPs deliver or orchestrate for companies looking for 5G and edge computing solutions? Or do they want to focus on providing the network and/or edge real estate/data centers?
- Many decision-makers need assurance that they can connect the devices they need and analyze data effectively. What role can CSPs play in helping them understand how an integrated solution will work?
- Can CSPs make the pricing and implementation road map transparent?
- Can the CSPs act as integrators, presenting an attractive “bundle” with ease of purchase and potential pricing discounts, or consider being a part of someone else's integrated bundle?

Joint ventures accelerate deployment of fiber networks

Consumers and businesses alike require robust connectivity. The more bandwidth that telecoms and cable companies offer, the more use cases emerge to take advantage of it all. Fiber optic networks are especially good at moving more data at faster speeds over longer distances, connecting directly to homes and businesses, and providing the backhaul for wireless networks. Fiber connectivity can add value for customers and is often a competitive differentiator for providers, but it's very expensive to build and manage the infrastructure. In 2022, US telecoms spent billions of dollars to build out fiber.²⁷

CSPs and private investors are increasingly forming joint ventures that can accelerate deployment and offer long-term returns to investors and customers.²⁸

For CSPs, joint ventures can lower the financial burden to fund fiber and enable them to invest in other parts of their businesses. Rising interest rates can also make debt financing more cumbersome, so CSPs are looking to private funds to take a stake to reduce their cost of capital. Ultimately, joint ventures can enable CSPs to accelerate deployment and expand service areas more rapidly and efficiently. They may offer CSPs a competitive advantage not only to reinforce their broadband offerings with fiber but also to support new access technologies like FWA and DOCSIS 4.0 that rely on fiber.

For investors like private equity, fiber networks can deliver stable and reliable returns over decades of operation.²⁹ Demand for high-speed internet shows no sign of slowing, and fiber will likely become more valuable as traffic grows. Similar partnerships helped fund the build-out of cellular towers that have delivered strong multiples on those investments. Investors looking to diversify their portfolios with assets in the stable and growing telecommunication sector could find the value of investing in CSPs is their infrastructure. Faster networks and more reliable services can support work, education, and entertainment for businesses and consumers. More broadband connectivity can enable new waves of innovation for internet services and deliver better experiences and next-generation features for connected devices.

Accelerating fiber rollout can help narrow the digital divide. Improving access to technology can deliver greater opportunities to underserved communities, helping to reduce the disparities in education, health care, and job opportunities while supporting overall economic productivity.³⁰ Indeed, fiber networks can be seen as a national imperative. Looking back, Deloitte estimates that "a 10-percentage-point increase of broadband access in 2014 would have resulted in more than 875,000 additional US jobs and \$186 billion more in economic output by 2019."³¹

Governments understand the value of greater connectivity and are further incentivizing CSPs. The US government's \$42.5 billion Broadband, Equity, Access, and Deployment grant program's aim is for every American to have access to affordable high-speed internet.³² Funding will prioritize extending fiber connectivity to end users, support for unserved locations with limited access, and improving affordability to ensure access. In these public-private partnerships, the government entity provides funding, accelerated permits, and tax incentives, while the CSP co-funds, deploys, and operates the network.

Investors, CSPs, customers, governments, and society all have a stake in enabling greater connectivity. Joint ventures and alliances can accelerate deployment of fiber networks that are critical to advanced connectivity. With more alliances, incentives, and shared investments, connectivity could expand more quickly, ultimately supporting greater productivity, innovations, and opportunities.

Strategic questions for CSPs to consider:

- What are the best ways to structure and monetize joint venture partnerships?
- How should CSPs think about balancing wholesale and retail business models for fiber networks built by joint ventures?
- What investments would help CSPs build fiber infrastructure to reach underserved areas and form the basis of broader networks to potentially monetize?



Increase the focus on sustainability

Building and upgrading networks is not only capital intensive but also includes other embedded costs for resources, emissions, and waste. Achieving net-zero³³ is an increasingly urgent priority for businesses. According to Deloitte's 2022 CxO sustainability survey of more than 2,000 C-suite executives worldwide, TMT³⁴ leaders appear more concerned about climate change than do their counterparts in other industries: 70% reported their company is "very worried" (vs. 61% of leaders in other industries).³⁵ But they also appear more optimistic: 54% of TMT leaders strongly agreed that, by taking immediate action, their companies can help limit the worst impacts of climate change and move toward an improved future (vs. 46% of leaders in other industries).³⁶

The telecommunications industry, in particular, is increasingly focused on carbon reduction. Industry associations such as the GSMA and the International Telecommunication Union (ITU) have set sustainability guidelines and advocated best practices for the industry.³⁷ These include setting science-based emissions targets, increasing the use of renewable energy, and tackling e-waste—the world's fastest-growing waste stream.³⁸ Both global and US-based telecom companies are making sustainability progress on several fronts:

- **Committing to science-based targets:** According to the GSMA, as of January 2023, 62 global mobile network operators—representing 61% of industry revenue and 46% of global connections—had committed to science-based net-zero targets.³⁹ This finding is up from 50 operators the prior year.
- **Increasing renewable power use:** Globally, 24% of the energy used by the mobile sector derives from renewable sources—up 10 points from 2020.⁴⁰ In the United States, the telecommunications sector is already the third largest corporate buyer of renewable energy (contracting for 8% of all wind and solar power) and plans to further increase its clean energy use.⁴¹
- **Building more energy-efficient equipment and networks:** In part because 5G cell sites have the ability to "sleep" when network traffic is low, 5G technology has the potential to be more energy-efficient than 3G or 4G.⁴² As operators upgrade networks to 5G, incorporate power-saving features, and introduce edge appliances, they have an opportunity to improve performance, ease maintenance, and increase energy efficiency.⁴³ With network operators spending as much as 6% of their operating expenses on energy costs, there's a financial incentive as well.⁴⁴

These initiatives largely focus on reducing "Scope 1" and "Scope 2" emissions. Scope 1 refers to emissions a company makes directly from its own operations, such as using truck fleets for network maintenance or using generators to operate remote base stations, while Scope 2 refers to emissions a company makes indirectly, such as when buying electricity for powering its operations.⁴⁵ Together, these initiatives have helped to decouple increased mobile network traffic from Scope 1 and 2 emissions: While global data traffic increased 31% from 2020 to 2021, Scope 1 and 2 emissions per connection and electricity usage increased by only 2% and 5%, respectively.⁴⁶

In the United States, regulators have proposed a new environmental, social, and governance (ESG) rule that would mandate more rigorous disclosures on greenhouse gas emissions, environmental risks, and mitigation actions.⁴⁷ Although the new regulations have not yet been announced, CSPs can look to the European ESG regulatory framework for guidance on what direction they may potentially take. According to Deloitte's 2022 sustainability action survey, many US TMT leaders have been anticipating new regulations by prioritizing ESG governance and reporting:⁴⁸

- Ninety-one percent of TMT leaders surveyed said their company is preparing for increased ESG disclosure requirements—with 61% preparing extensively. Another 7% said they're already prepared.
- Most TMT executives surveyed said their companies are prepared to disclose Scope 1 (69%) and Scope 2 (83%) emissions—outpacing other industries.⁴⁹

Scopes 1 and 2 aren't enough to quantify a company's environmental impact, however. Scope 3 represents emissions that a company is indirectly responsible for across its value chain—for example, emissions from network equipment produced and shipped by suppliers and emissions by businesses and consumers when they use telecommunications services—and they are estimated to account for 60% of telecommunications companies' carbon footprints.⁵⁰ However, only 44% of global mobile network operators provided reliable Scope 3 data in 2021.⁵¹ Challenges to Scope 3 reporting include lack of confidence in the data received from vendors; lack of consistent industry standards, methodologies, and estimation approaches; and lack of data availability.⁵² Scope 3 reporting and emissions reduction represent a large opportunity to improve sustainability.

Another area for improvement involves tackling the e-waste problem by promoting a circular economy for electronics.⁵³ This could include trade-in and recycling initiatives and partnering with mobile handset makers to make devices easier to process and safely dispose of at their end of use. Some telecom companies, especially in Europe, have made significant improvements through recycling and re-use initiatives.⁵⁴ Achieving net-zero may involve collaborating with others in a comprehensive systems approach, recognizing that today's industries will likely transform into complex, interconnected net-zero systems.⁵⁵

Strategic questions for CSPs to consider:

- How can CSPs further minimize their Scope 1 and Scope 2 emissions (for example, increasing clean energy purchases and using lower-emission fleets)?
- How can new network protocols (such as 5G) and new equipment reduce emissions? What are the potential upsides in terms of increased network efficiency and lower operating costs?
- How prepared are CSPs to comply with new ESG regulations? What steps are they taking to ensure accurate, thorough reporting from external vendors?⁵⁶
- Have CSPs assessed whether they have full access to all the various data sources they will need to efficiently and completely respond to emerging regulatory expectations?
- Have CSPs defined sustainability KPIs and benchmarks for their own data and supplier data?⁵⁷ Do CSPs know which suppliers are responsible for most of their Scope 3 emissions?
- Have CSPs considered helping their suppliers develop their own net-zero road maps and reporting strategies?⁵⁸

Signposts for the future

In 2023, CSPs have many opportunities to deliver advanced connectivity and higher performance for customers while reinforcing their own value and competitiveness. They will likely also face challenges to manage costs while scaling capital-intensive infrastructure like 5G FWA and fiber networks and to evolve their networks to provide greater low-latency capabilities with edge computing. Ultimately, these efforts will likely require more collaboration and coordination across an ecosystem of CSPs, hyperscale cloud providers, governments, investors, and an array of equipment manufacturers.

In 2023, CSPs will likely partner with other service providers for compelling consumer bundles, with private investors to share costs and risk and accelerate deployments, with communities and underserved areas to extend broadband access and enable the many opportunities it brings, and with providers across their supply chains to lower energy use and associated operational costs and to reduce the amount of waste and emissions generated by their footprints.

Such partnerships should make for a stronger industry that is well positioned to deliver value to its consumer and enterprise customers. Still, CSPs face uncertainty with macroeconomic factors around inflation, interest rates, cost of capital, and consumer belt-tightening, as well as the impact of emerging and maturing technologies on their business models.

In 2023, we expect certain signposts to emerge. The number of FWA and MVNO bundle subs will likely grow again, but all eyes will be on overall net subscriber additions. Edge computing will also likely grow at double digits, but how much of the “solution stack” will CSPs choose to develop themselves? These are just a few of the many factors that CSPs will navigate in 2023.



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About the TMT Center

Deloitte's Center for Technology, Media & Telecommunications (TMT Center) conducts research and develops insights to help business leaders see their options more clearly. Beneath the surface of new technologies and trends, the TMT Center's research can help executives simplify complex business issues and frame smart questions. The TMT Center can help executives better discern risk and reward, capture opportunities, and solve tough challenges amid the rapidly evolving TMT landscape.

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