A high-angle photograph of a rock climber on a steep, light-colored rock face. The climber is wearing a dark shirt, shorts, and a white helmet with a red stripe. They are secured by ropes and carabiners. The background shows a deep, dark crevice in the rock.

How can risk foresight lead to fresh insight?

Mitigating the top 10 risks
in telecommunications 2021

■ ■ ■
The better the question.
The better the answer.
The better the world works.

EY

Building a better
working world

An industry in recovery mode

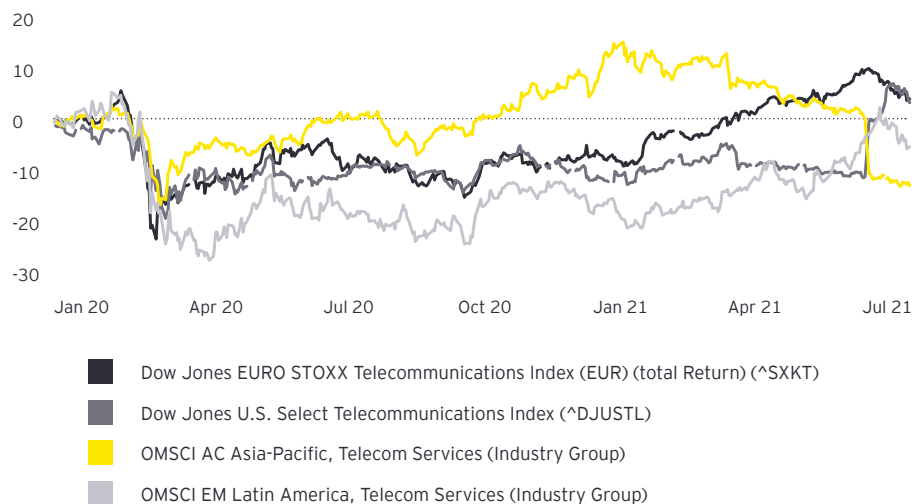
A year ago, when we published our *Top Ten Telecoms Risks 2020*, the global telecoms industry was facing two-sided impacts from the COVID-19 pandemic. On the one hand, operators had taken center stage in responding to the crisis, gaining positive mindshare with customers by providing critical - and resilient - connectivity to households and businesses. On the other, the industry was suffering revenue declines across most product categories, especially the mobile and enterprise segments most exposed to travel restrictions and business closures. These conditions exerted heavy downward pressure on telcos' market valuations.

What a difference a year makes

Share prices across the industry have recovered in all regions, with Europe in particular staging a strong recovery from the low point of Q2 2020. And in the US, the S&P 500 communications services' segment significantly outperformed the all-stock average in the year to August 2021.

Telecom share performance by region¹

(performance share by percentage)



It is true that the industry is still facing significant challenges. The reverberations from COVID-19 are continuing, not least in the form of greater government and regulatory intervention; geopolitical tensions and rising protectionism are creating risks, while putting 5G at the heart of an ongoing-technology cold war; and far-reaching network modernization means the CAPEX burden is mounting. But the recovery in share prices means telcos are generally much better placed to address their challenges at a time when demand for connectivity has never been higher.



Regional themes are diverging

North America:

North America is seeing operators face significant headwinds in mobile services, with high spectrum costs and rising competition from new entrants, such as 5G fixed wireless access (FWA) providers and mobile virtual network operators (MVNOs). Meanwhile, fixed telcos are increasing their focus on core connectivity and reducing their exposure to media and content assets. And policy is increasingly prioritizing low-income households, with initiatives, such as the Emergency Broadband Benefit (EBB) program in the US and the Canadian Radio-television and Telecommunications Commission (CRTC) Broadband Fund in Canada.

Latin America:

Latin America is beset by ongoing macroeconomic pressures and currency exchange rate volatility. More positively, the gradual 5G migration in the region is making capital intensity more manageable, as infrastructure carve-outs support the fiber-to-the-home (FTTH) growth opportunity.

Europe:

Europe has seen the sharpest rebound, progressing in 2021 from the status of “problem child” beset by fragmentation to global top performer in terms of share prices. Mobile revenues in most European markets exhibited year-on-year growth Q2 2021, and mergers & acquisitions (M&A) activity is powering ahead, with the current transaction flow including tower deals and infrastructure carve-outs.

Asia-Pacific:

In Asia-Pacific, the environment for telcos varies by sub-region. China offers strong prospects for growth, supported by telco listings, while India is seeing revenues recover but growth rates remain below pre-crisis levels as corporate restructurings continue. Operators in the Association of Southeast Asian Nations (ASEAN) are experiencing rising capital intensity and lower return on invested capital (ROIC), as the mobile revenue mix shifts heavily toward data. In Oceania, restructurings and tower sales are helping to unlock value, but there's growing potential for FWA to compete with fiber networks.

Mapping out the industry's risks

It's against this global and regional background that we've conducted our analysis of the telecoms' risk universe for telcos in 2021. As in previous years, we have combined insights from our industry, consumer and enterprise surveys with the evolving perspectives of our sector practitioners, to pinpoint the most critical risks facing telcos today. As the "risk radar" shows, we have organized the sector's risk factors into four categories - compliance, operational, strategic and financial. Subsequently, we have ranked each risk on its importance and impact.

- | | |
|--|---|
| 1 Failure to ensure infrastructure reach and resilience | 6 Inability to scale internal digitization initiatives |
| 2 Underestimating changing imperatives in privacy, security and trust | 7 Ineffective engagement with external ecosystems |
| 3 Failure to redesign workforce structure and skillsets | 8 Failure to maximize the value of infrastructure assets |
| 4 Failure to mitigate supply chain disruption | 9 Failure to take advantage of new business models |
| 5 Poor management of the sustainability agenda | 10 Inability to adapt to changing regulatory landscape |





The top 10 risks for telecommunications in 2021

At a high level, our risk analysis suggests that telcos will struggle to take full advantage of the post-COVID-19 pandemic recovery unless they focus on ensuring network reach and resilience. They also need to consider changing customer priorities while adapting to new risks and opportunities in areas like workforce, supply chain, cyber, portfolio management, ecosystem relationships, sustainability and business model innovation

Over the following pages, we have identified the top 10 risks impacting the sector.

1

Failure to ensure infrastructure reach and resilience

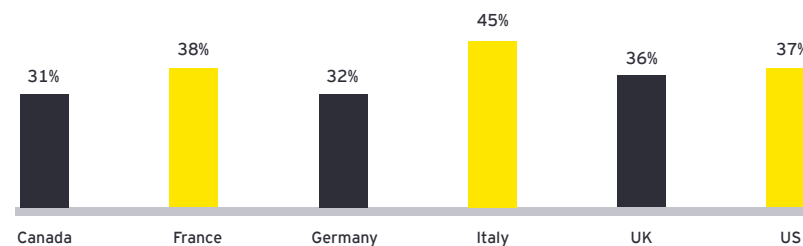
While telecoms' networks have withstood higher usage during the pandemic, telcos remain under pressure to improve network performance and coverage.

Customer expectations have risen in tandem with demand, with many users now feeling frustrated at being unable to access the latest speeds being promised to the market. And there's a widening gap between network reach and service adoption, particularly in emerging markets, where low affordability and digital literacy can undermine take-up.

Extending network coverage into rural areas is more pressing than ever, particularly as policymakers increase their focus on the digital society. Yet the economics of network rollout in remote areas remain challenging. Meanwhile, new technologies are acting as disruptive forces, with the potential to both substitute and complement existing high-speed networks. 5G FWA is emerging as a broadband alternative in both rural and urban areas, and satellite is no longer a technology of "last resort," as low earth orbit (LEO) concepts come of age.

Consumer frustrations with fiber broadband availability²

(Percentage of consumers frustrated that broadband packages offering the fastest speeds are unavailable in their area)



2

Underestimating changing imperatives in privacy, security and trust

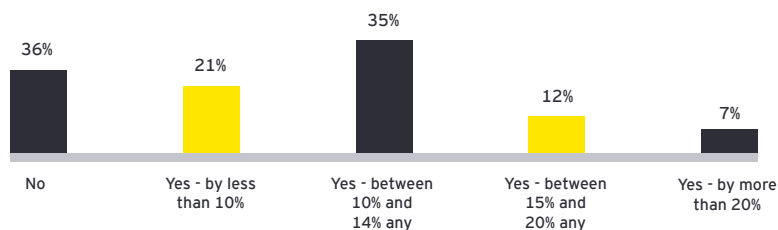
The pandemic has intensified customers' concerns over data security and digital well-being.

EY research finds that 4 in 10 households are now more concerned about the privacy and security of their personal data since the health crisis began.³ Rising time spent online and fears over harmful content are fueling growing worries over well-being. Yet nearly 3 in 10 people are willing to exchange their data for tailored services – indicating a monetization opportunity for well-managed and protected customer insights.

Operators are facing these shifting customer sentiments amid rising cyber attacks. Worryingly, 47% of telcos have never been more concerned about their own ability to manage cyber threats. And “security by design” principles are under pressure: 21% of telecoms' CISOs believe that their business's rollout of new technologies is too fast to allow for proper cyber assessment, and 39% say that their cybersecurity function is underfunded.

Telcos' rising level of cyber attacks⁴

(Percentage of consumers who have seen an increase in the number of disruptive attacks (like ransomware) over the last 12 months?)



3 in 10

people are willing to exchange their data for tailored services



3

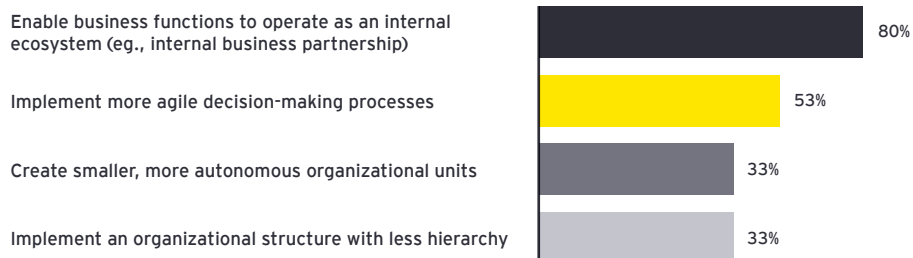
Failure to improve workforce structure and skillsets

Last year, the rising importance of diversity and inclusion (D&I) was strongly to the fore. While D&I remains pivotal, we are seeing the focus extend to building organizational structures that enable internal ecosystems and cross-department collaboration.

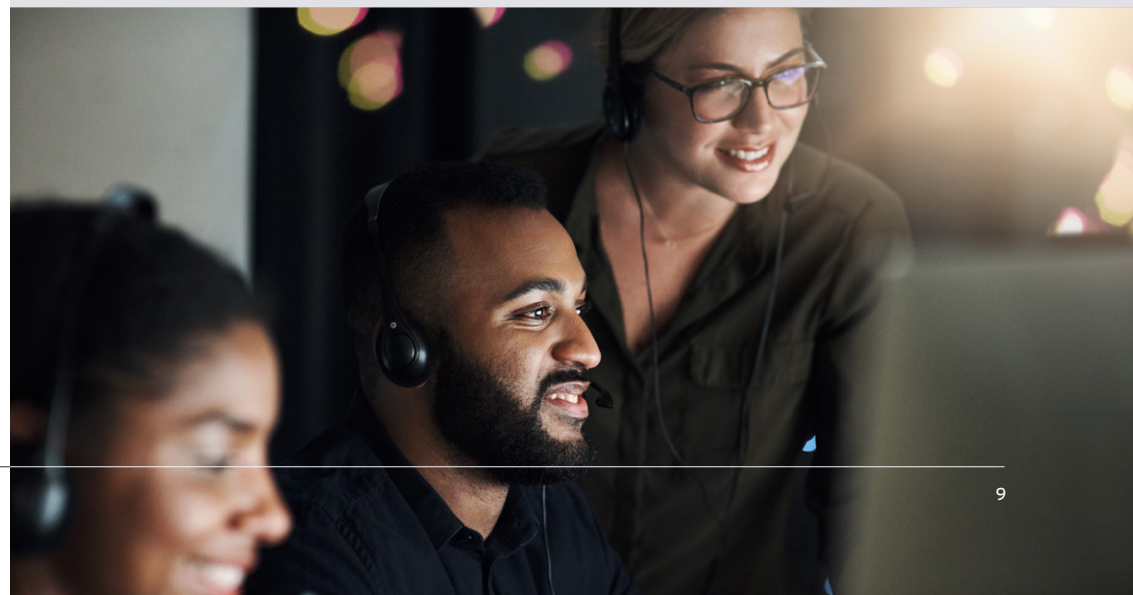
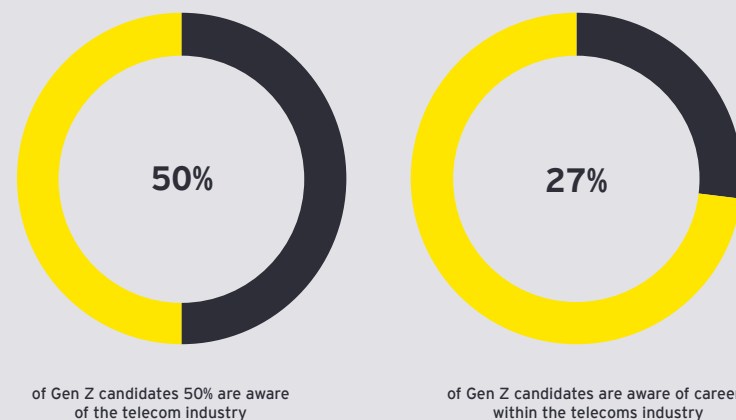
While telcos historically located innovation units outside the main organization, partnerships between internal functions and customer-facing teams are now increasingly vital, enabling telcos to maximize internal synergies to boost innovation and create a unified organizational purpose.

Telcos' organizational structure priorities⁵

(Telco's top priorities in terms of organization structure as percentages)



However, as telcos address these structural changes, talent attraction remains challenging. Awareness of the telecoms industry among graduates is low - and awareness of career types within telecoms even lower. Access to more diverse skillsets is another pain point. Network modernization needs are exacerbating a shortage in qualified engineers. In addition, reskilling programs require regular reviews to keep pace with new technology cycles as software skills become a core competency.

Graduates' awareness of careers in telecoms⁶

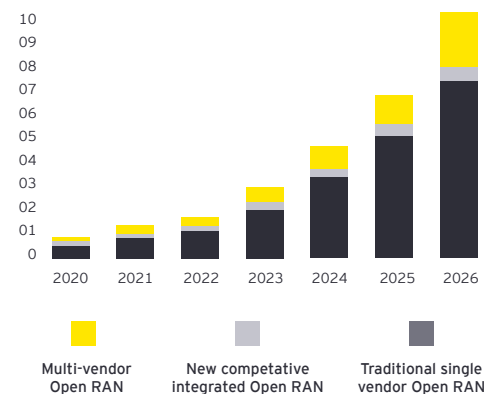
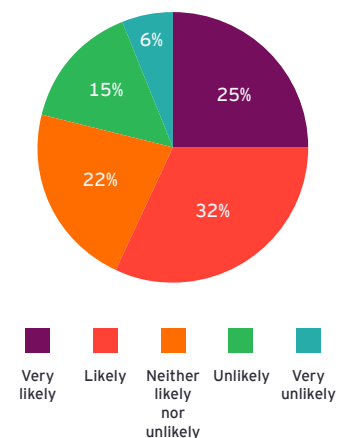
4

Failure to mitigate supply chain disruption

The pandemic has put network and customer premise equipment (CPE) supply chains under unprecedented strain, with remote working and lockdowns limiting the availability of engineers, and higher demand for consumer electronics contributing to the chipset crunch.

Furthermore, government restrictions on “high-risk vendors” are disrupting long-term 5G deployment plans, as unpredictable and idiosyncratic approaches at national level create added complexity.

National industrial strategies aside, new technology cycles are disaggregating established operator-vendor supply chains, with telcos increasingly considering “Open radio access network (RAN)” solutions to help diversify their supplier relationships. More generally, the shift to software-centric networks is creating a larger and more fluid supplier universe - and means long-term network strategies need as much focus and consideration as tactical moves to counter current supply chain disruption.

Open RAN adoption indicators⁷Global Open RAN spending forecast (US\$b)²Operator plans to introduce new 5G vendors³ (as percentages)

5

Poor management of the sustainability agenda



As climate change disclosure requirements evolve worldwide, EY research suggests telcos are relatively well-positioned to adapt to them.⁸

But climate scoring may become harder as regulators push for more detailed and broader disclosures – and investors are increasingly pressing companies to report on physical and financial risks from climate change, while also setting out plans to protect value in an energy transition.

Changing stakeholder expectations are also putting sustainability at the heart of the corporate agenda. For operators, this means both tackling energy inefficiencies along their value chains and incorporating circular economy principles into their business models and service offerings. Meanwhile, customer attitudes are creating risks and opportunities; while 56% of UK consumers say they would pay more for a sustainable product or service, 79% think companies should do more to ensure their suppliers follow sustainable or ethical practices.⁹

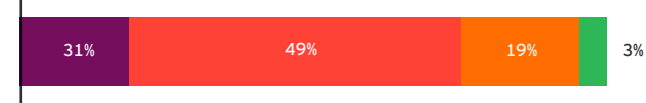
TMT company CEOs' attitudes to sustainability¹⁰

(as percentages)

Business models will increasingly incorporate circular economy dimensions



Companies will take significant new steps to take responsibility for the social and environmental impacts of their operations



6

Inability to scale
internal digitization
initiatives

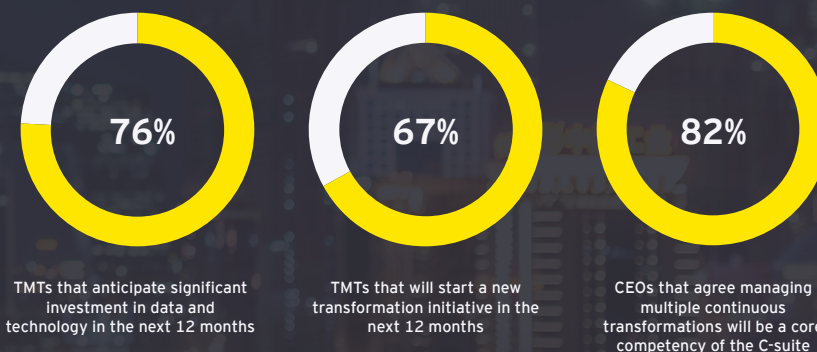
The COVID-19 pandemic forced many telcos to accelerate their transformation plans to support customers and employees through lockdowns.

But these successes have bred new ambitions; over the next 12 months, most technology, media and telecom CEOs are planning to engage in new transformation initiatives and increase their investments in data and technology. The big challenge is limited boardroom bandwidth: managing multiple ongoing digitization initiatives could work against successful scaling of individual projects.

A further danger is that low customer acceptance could undermine the benefits of digitization. While telcos are continuing to offer more digital support tools, EY research suggests many consumers still prefer to use traditional call centers - 45% believe that instant messaging cannot handle complex queries. Telcos should educate their customers and build greater confidence in digital tools to ensure that their digitization programs deliver on their promise.

CEOs' attitudes to digital transformation plans and execution¹²

(as percentages)



7

Ineffective engagement with external ecosystems

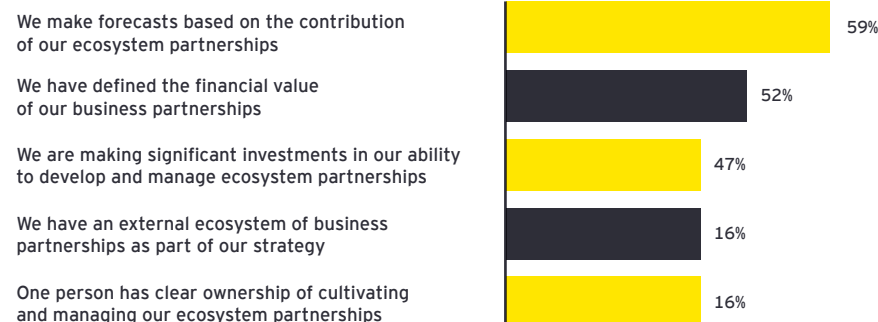
Ecosystems are becoming increasingly important to enterprise customers across industries.

EY research¹³ shows that 69% of large enterprises already innovate through collaborative ecosystems, and 43% will prioritize telecoms and technology suppliers that can articulate their role in the changing industry ecosystems. The domains where industry verticals are seeking cross-sector expertise include enterprise 5G, internet of things (IoT) and edge cloud, and telcos are at the heart of many trials.

However, telcos' ecosystem relationships often lack leadership, while their ecosystem activities are under-prioritized relative to enterprise customers' view of their importance. While around half of operators assess the value of ecosystems and partnerships to their business, only a handful incorporate partnership ecosystems into their overall strategy or allocate clear management ownership. More focus is needed on the benefits of ecosystems, including the substantial advantages conferred by lower innovation costs and a shorter time to revenue for new products.

Telcos' execution of ecosystem initiatives¹⁴

Q. Which of the following statements apply to your organization?
(as percentages)



8

Failure to maximize value of infrastructure assets

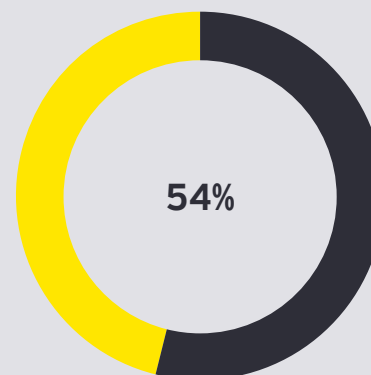
To unlock hidden value, telcos are undertaking divestments, carve-outs and joint ventures involving their infrastructure assets, realizing benefits such as an improved financial profile, reduced business complexity and greater strategic clarity.

These deals are occurring amid rising capital intensity and increasing specialization along the value chain, with investor interest in telecoms infrastructure assets – including from specialist funds – extending across towers, fiber, data centers and subsea cables.

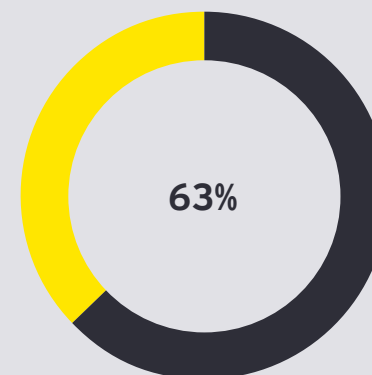
The rationale is compelling but realizing the resulting opportunities can be challenging. EY research suggests that delineating core and non-core assets is difficult for telcos, with the timing of divestments also problematic. Furthermore, staying integrated can deliver benefits in areas such as aligning network planning and service marketing. Ultimately, local market and regulatory factors determine the carve-out opportunities, and successful execution requires careful assessment of many options – from asset scoping and the degree of separation or ownership, through to tenant rights and commitments involving the separated entity.

Telcos' attitudes to non-core asset evaluation and divestment¹⁵

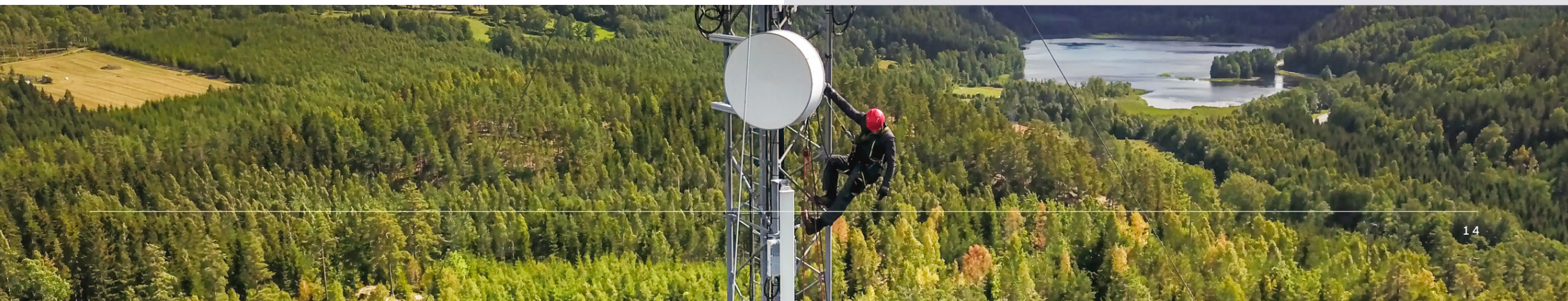
(as percentages)



Telecommunications companies that struggle to define which business in their portfolio are core and non-core



Telecommunications companies that believe they have held onto assets for too long when they should have divested them



9

Inability to take advantage of new business models

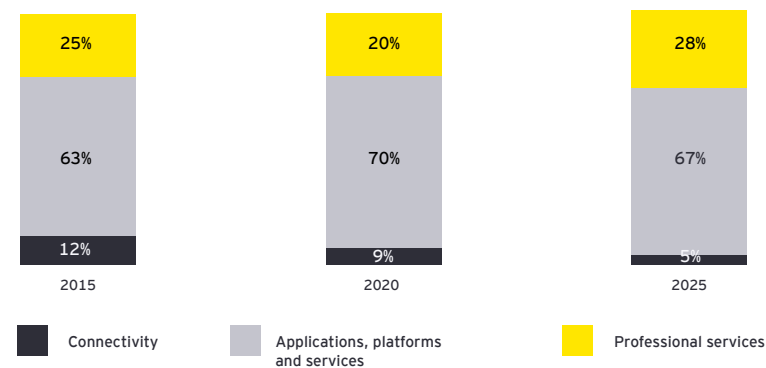
Connectivity represents a declining share of IoT revenues and cellular IoT average revenue per user (ARPU) remains low.

While 5G technology can support the development of more sophisticated IoT services, effective monetization requires new business models that combine connectivity with apps and services. This means working with ecosystem partners to deliver business-to-business-to-anyone (B2B2X) solutions, where operators serve a range of downstream customers through a more composite value chain.

The growth in private 5G networks customized for enterprises – where technology suppliers and enterprises themselves deploy solutions – is another catalyst for business model innovation. Unless operators take action, this trend presents a risk of disintermediation. Retail and wholesale business models – including “network as a service” offerings – that leverage their technical expertise and spectrum assets are becoming more important.

Global IoT revenue mix¹⁶

(as percentages)



10

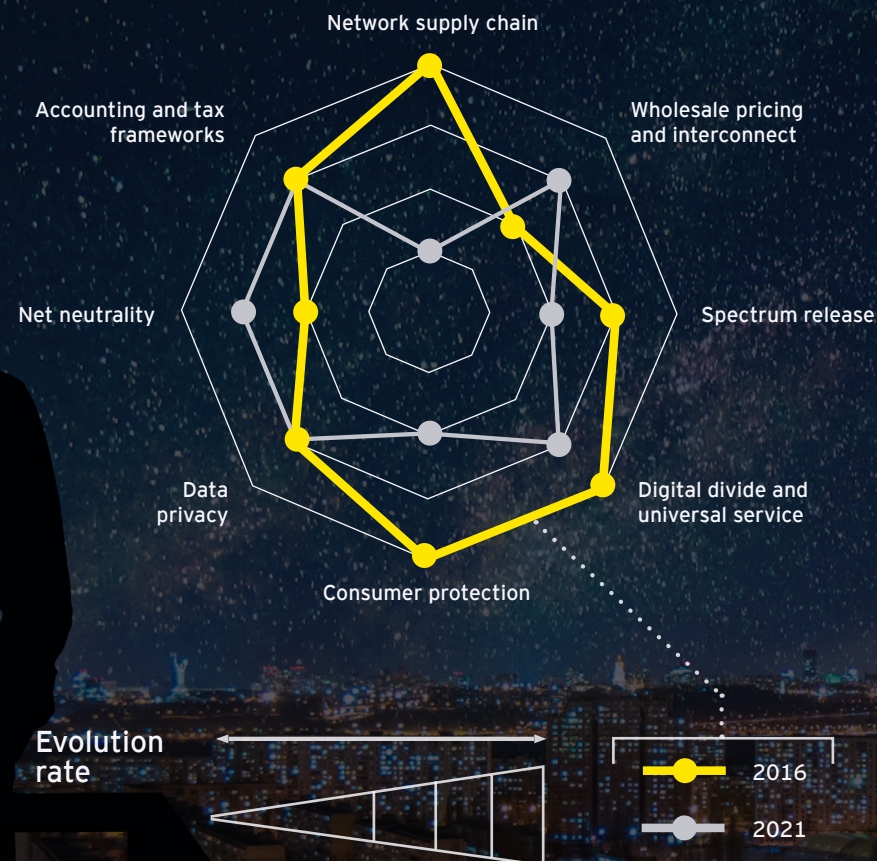
Inability to adapt to changing regulatory landscape

Regulatory and policy priorities are shifting, as the pandemic and geopolitical factors intensify the focus on consumer protection, the digital divide and the network equipment supply chain.

But the emphasis varies by region, with the net neutrality debate resurfacing in the US and Europe, and countries like Brazil, China, South Africa and the UK reshaping their data privacy regimes. The maturity of sector regulation is also patchy: only one in three countries have regulatory frameworks informed by integrated principles focused on economic and social gains.¹⁷

Nowhere is the lack of certainty greater than around spectrum, which is being released faster than ever to support 5G rollouts. The cost and availability of spectrum is being undermined by a lack of clarity around auction timings and reserve prices – a situation often compounded by postponements during the pandemic. Meanwhile, newer concepts, such as spectrum sharing and “set-asides” for private networks remain contentious.

Regulatory domains impacting operators¹⁸





How EY can help

The telecoms sector is at the heart of the digital disruption and convergence agenda. Given this positioning, are you embracing the right opportunities and mitigating the right risks?

EY is one of the world's leading and most trusted professional services organizations, which serves most leading telcos worldwide. We can help you to find the right answers and prioritize your transformation needs across a range of dimensions.

Whether your focus is on scaling and accelerating returns from digitization initiatives, achieving the right level of infrastructure resilience and reach in the most efficient way, or ensuring that your customers and stakeholders trust you as much as possible, we offer a range of solutions that can deliver positive outcomes.

EY solutions

Our digitization solutions include:

- Digitally integrated customer experience
- Intelligent automation
- IoT platforms
- Data and analytics

Our network and IT effectiveness solutions include:

- Agile business transformation
- Capex allocation and operations
- Network engineering, deployment and operations
- Business support system (BSS), operational support system (OSS) and IT transformation
- Convergence post-merger integration

Our enterprise trust solutions include:

- Cybersecurity
- Legal managed services
- Tax finance operate
- Climate change and sustainability

In all these areas and more, EY teams can help you to develop the right long-term strategy. As major events – from the COVID-19 pandemic to geopolitical tensions – continue to unfold, the ability to adapt and respond with energy and purpose has become crucial.

Although the risks landscape is more challenging than ever, taking advantage of the right opportunities can help you thrive in the now, next and beyond.

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Working across assurance, consulting, law, strategy, tax and transactions, EY teams ask better questions to find new answers for the complex issues facing our world today.

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