

May 2024

Connecting the future

Seven urgent innovation priorities
for telecom CEOs

Hong Kong perspective



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1

Global telecom industry overview



The Future is on The Line: Global telecoms industry seeks growth in the face of rising demands

01 Driven largely by video traffic, global data consumption over telecoms' networks will nearly triple from 3.4mn petabytes (PB) in 2022 to 9.7mn PB in 2027

02 As Telecom companies maintain their long-standing focus on cutting costs, optimisation, and automation, companies can seek out the pockets of growth

03 Revenues from Internet access, our proxy for spending on broadband activity, will rise at a modest 4% CAGR to nearly \$922 billion through 2027

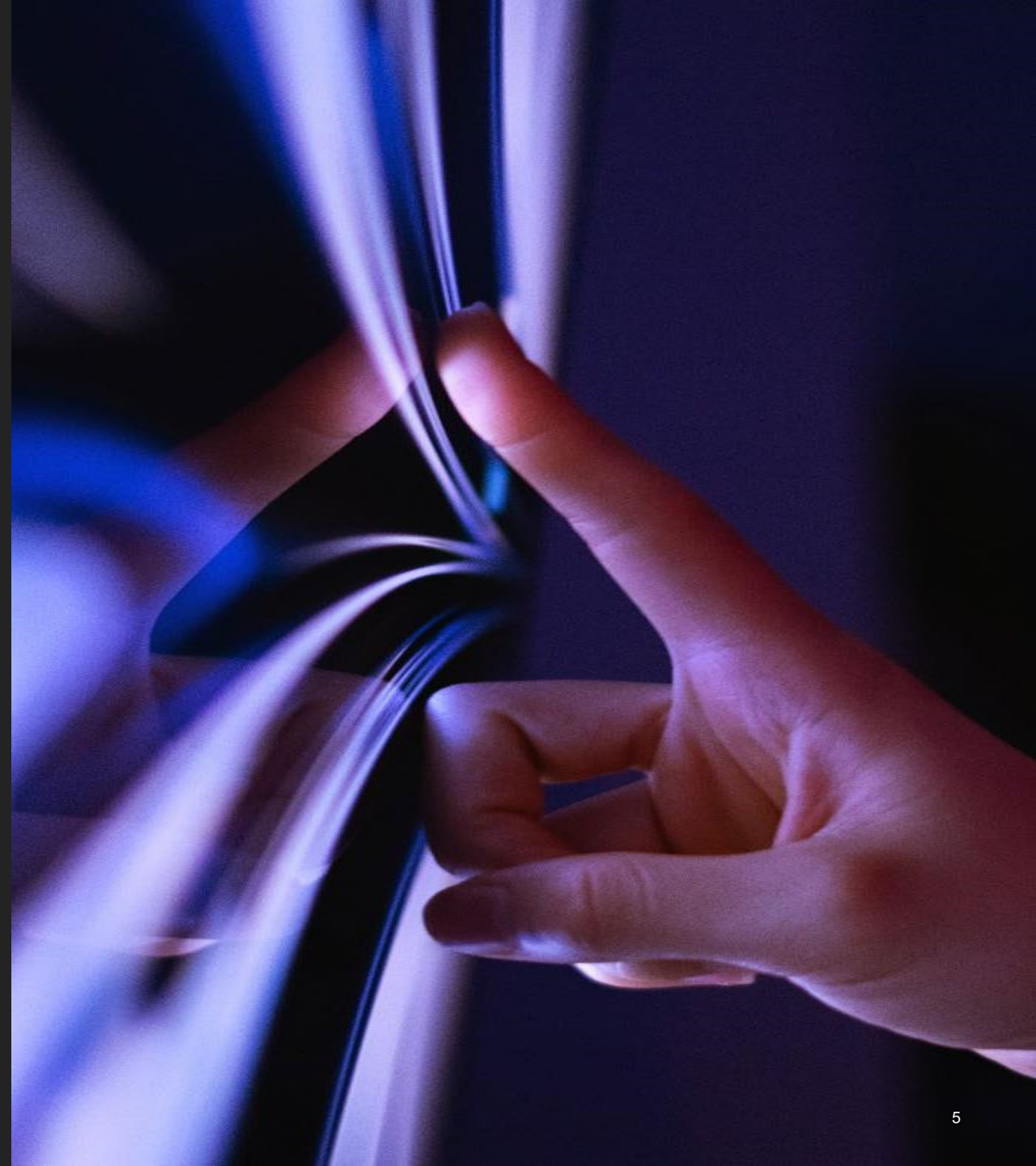
04 46% of Telecom CEOs said their current business model would be viable in 10 years. Telecoms don't have the strongest track record in terms of monetising new technology

- Creative about business models.
- Creative about using technology.
- Creative about how you distribute and monetise products and services.
- Creative about approaches to profits, customers, and markets.



2

Seven urgent innovation priorities for telecom CEOs



Connecting the future: Seven urgent innovation priorities for telecom CEOs



Until a few years ago, the definition of a telecom company was straightforward: a communications services provider with a business model that combined and integrated a wide variety of components, including network infrastructure and operations, proposition development, and sales and service aimed at B2C or B2B customer segments.

What telecom companies will look like in the future is less clear. The fundamental shifts in revenues and value pools identified in [PwC's inaugural Global Telecom Outlook](#) and its report [Perspectives from the Global Telecom Outlook 2023–2027](#) are forging a new ecosystem, posing threats, and creating new opportunities. As leaders face the [coincident challenges of industry reconfiguration and company reinvention](#), we've identified seven urgent priorities for telecom CEOs. Together, these priorities make up a comprehensive road map to higher value, competitiveness and growth.

Priority 1: Reinventing the telecom business model

In [PwC's 27th Annual Global CEO Survey](#), 52% of telecom CEOs said they believed their company would no longer be economically viable a decade from now if it continued on its current path, compared with 45% of all CEOs globally.

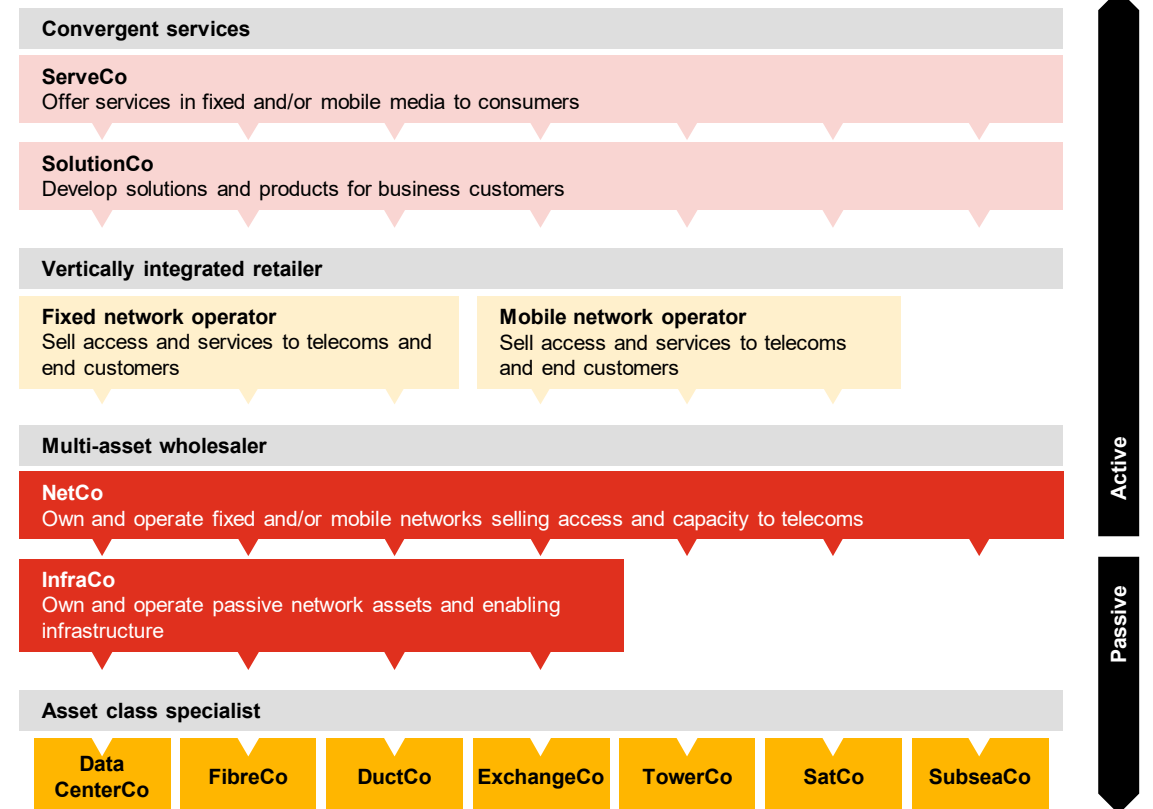
To ensure the continuation of telecoms' value-creating potential, leaders need to fundamentally rethink the utility of a vertically integrated carrier model, with a core focus on examining, optimising and potentially separating the distinct business layers or diversifying their business into other industry segments, such as FinTech and HealthTech, and exploring more strategic business opportunities across different technology platforms and geographical locations. Leaders also need to expand the product offerings to address the varying needs of different target audiences with the power and implication of 5G network.

The traditional telecom bundles together an array of very different businesses and activities. Some, such as building the network infrastructure, are capital-intensive and have

long-term, utility-style payback profiles. Others, such as innovating products and services, are higher-value and higher-risk but offer a faster payback. Still others, such as operating commerce and service channels, require skills and capabilities that have more in common with retail businesses. Each business requires different management skills, has different capital needs and operates on different planning horizons. Running them together creates inefficiencies and dilutes leadership focus—factors that cause investors to apply a “conglomerate discount” to their valuation.

As the chart shows, the business can be disaggregated, or delayed, into distinct components, such as “InfraCos” focused on operating passive infrastructure; “NetCos” designed to deliver network utility services; and “ServeCos” offering services to consumers. Doing so can sharpen leadership focus on the primary sources of value, provide greater clarity on strategy, and offer optionality to investors and strategic partners to contribute the necessary capital or capabilities.

A landscape filled with diverse business models

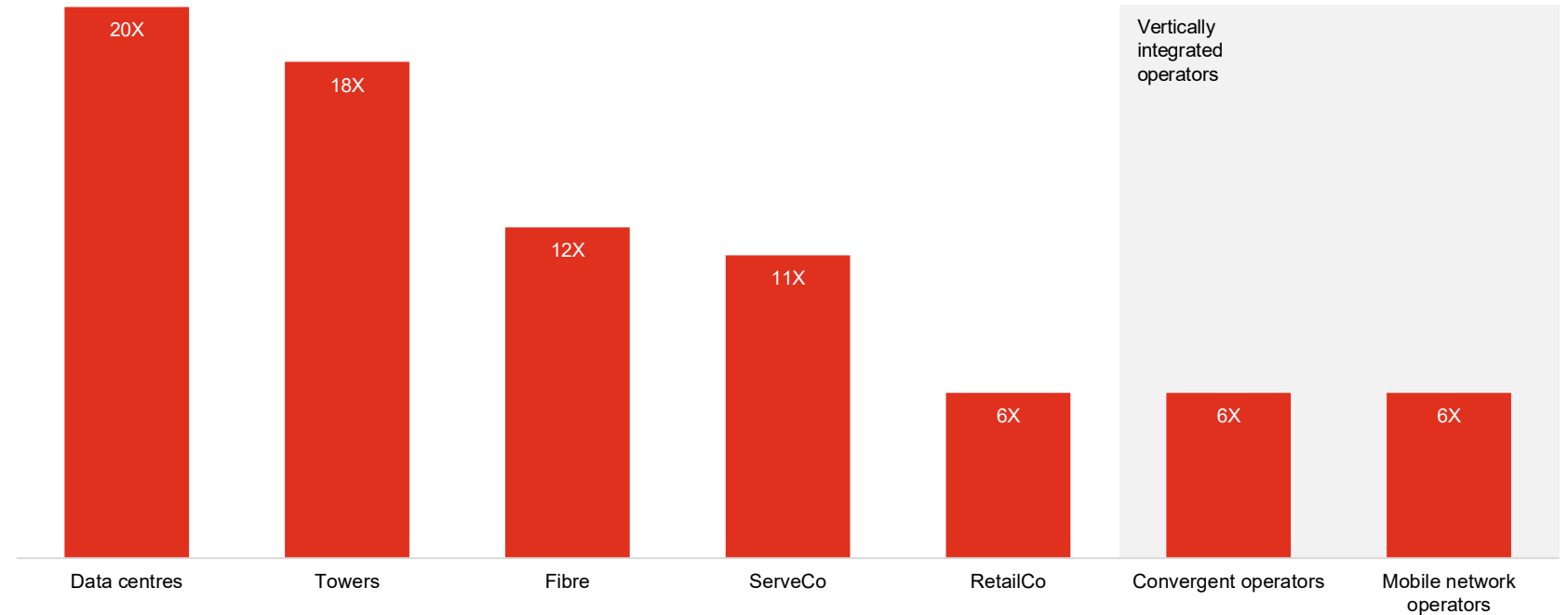


Source: PwC

Priority 1: Reinventing the telecom business model

Valuation multiples for vertically integrated carriers are typically skewed towards the retail (or “asset-light”) end of the spectrum, even though many of them own and operate significant fixed-asset infrastructure. The chart below illustrates this skewing effect—and also shows the much higher multiples that would likely be applied to the entities owning those fixed assets, if they were to be spun out.

Typical EBITDA multiple by business model type



Note: EBITDA is earnings before interest, taxes, depreciation and amortisation.
Source: PwC

Priority 1: Reinventing the telecom business model

Priority 1 CEO imperatives

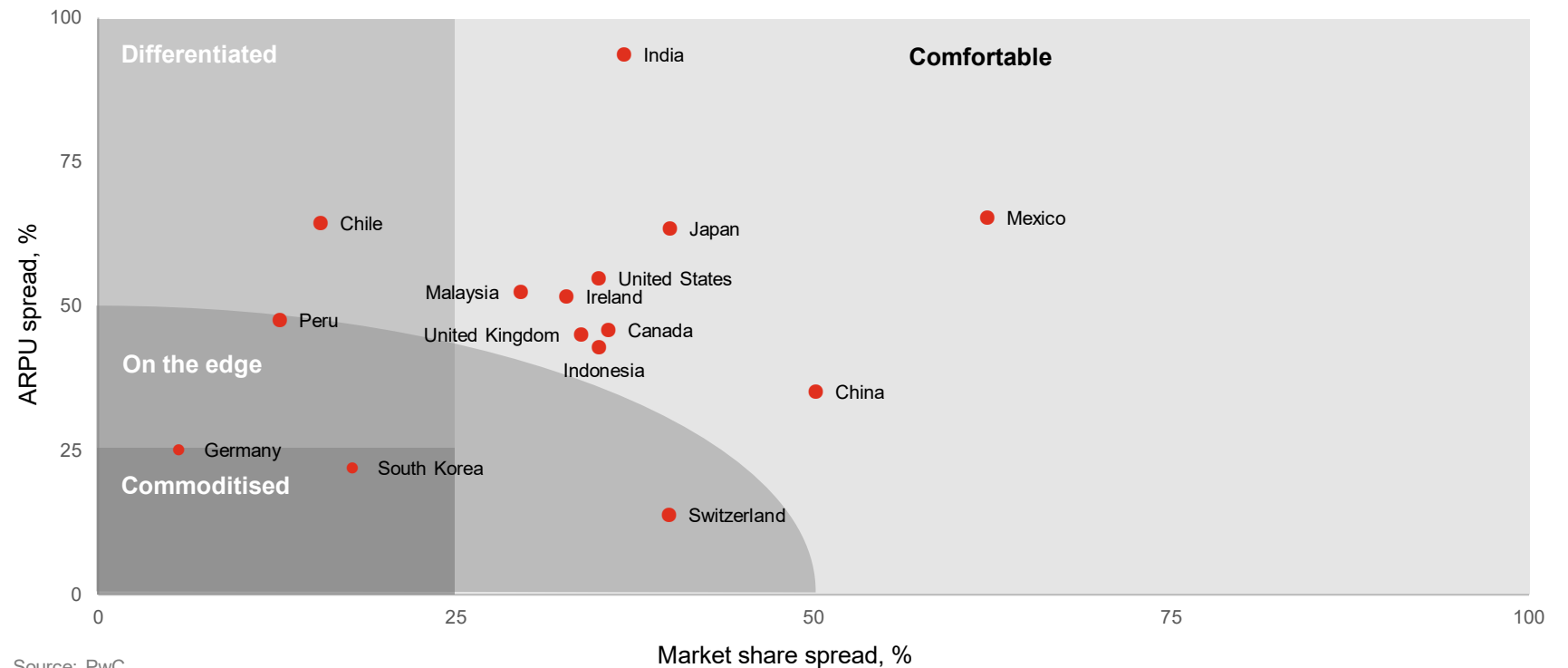
- **Create a business architecture.** Develop a view of the businesses you are engaged in, and sketch out their boundaries, objectives, resources and assets, and market and transformation priorities.
- **Diversification of the business.** Diversify the business into other industry segments, such as FinTech and HealthTech, and explore more strategic business opportunities across different technology platforms and geographical locations. Or, expand the product offerings to address the varying needs of different target audiences with the power and implication of 5G network.
- **Align corporate and business unit structures.** Create self-sufficient units around a clear business purpose. The units should rely on a few coherently aligned metrics to manage performance.
- **Execute deals.** M&A, carve-outs and other deal-making strategies can monetise value, optimise capitalisation, bring units to best-owner/next-level scale, and position the organisation for growth and value creation.

Priority 2: Strengthening competitive fortitude and commercial innovation

As we've noted in [Perspectives from the Global Telecom Outlook 2023–2027](#), the continuing rise in data usage, a lack of pricing power and the need to make heavy investments in networks are all pressuring margins. Simply put, in both mobile and fixed telecommunications, the data shows that telecom companies are becoming increasingly indistinguishable commodity service utilities (see chart below). To break out of this trend, leaders need to develop and apply competitive fortitude, solidifying their core by repositioning the cost basis, and providing opportunities for growth by earning and exercising pricing power.

Mobile commoditisation by market in 2022

Average revenue per user (ARPU) and market share spread by selected markets



Source: PwC

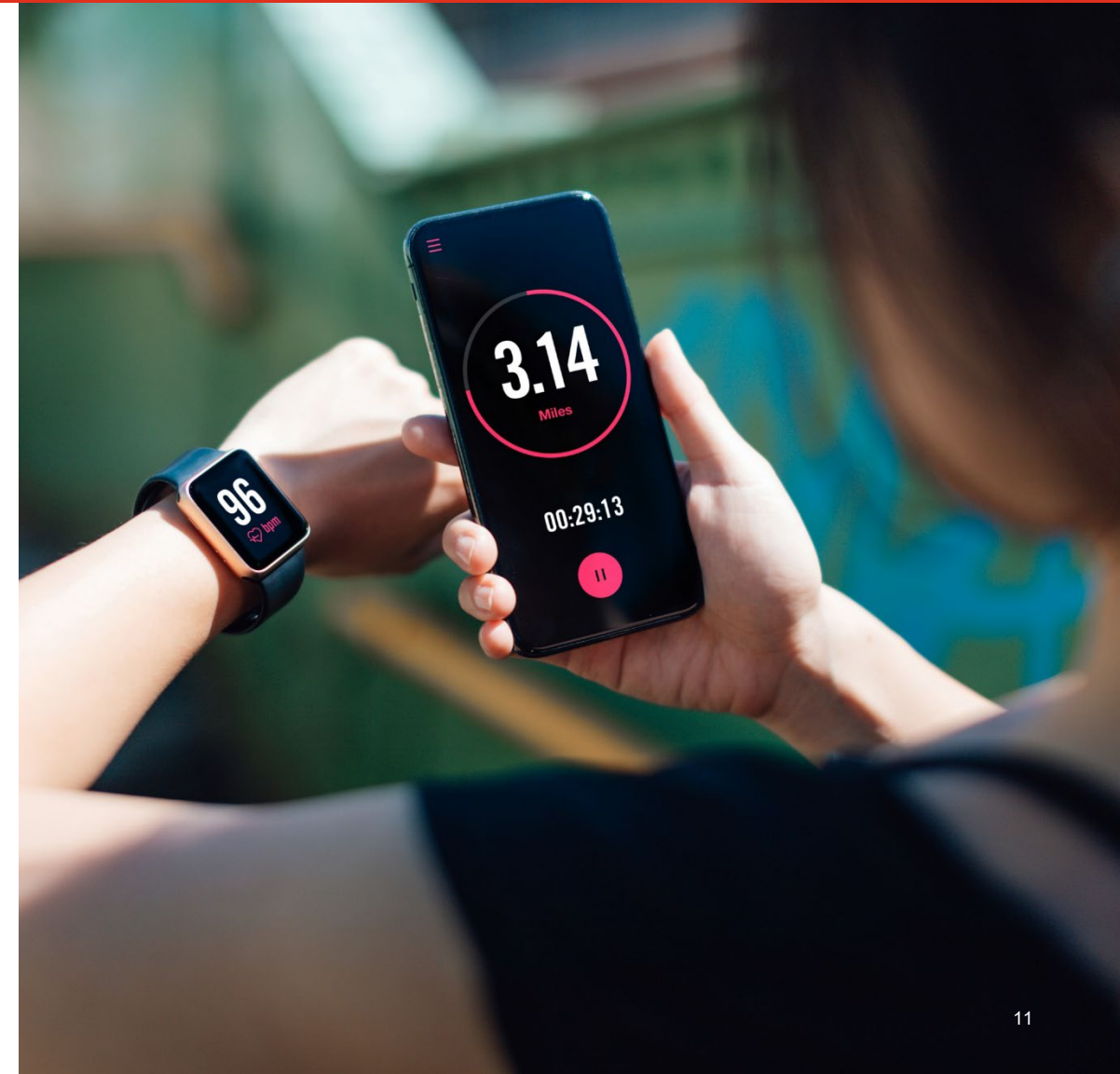
Priority 2: Strengthening competitive fortitude and commercial innovation

The evolving environment offers new tools and imperatives for action. Artificial intelligence (see “Priority 4” section below) promises a step change in productivity and cost-effectiveness in everything from rightsizing customer acquisition and retention spending to driving efficiency in high-volume processes such as supplier/customer contract management. The other big megatrend (after AI) influencing corporate strategy—climate concern—is also a catalyst. Product and network rationalisation is a key contributor to reducing carbon costs and meeting net-zero commitments, while also reducing operating expenditure.

Leaders can use this stronger base to summon the courage to raise prices. Connectivity services are essential to digital life and work, so the likelihood of price increases translating into reduction of

demand is low. The risk of competitor churn, although real, is typically limited by the low number of credible alternative providers. The impact of higher prices can be softened when accompanied by attributes that create value.

The customer experience is the fundamental and necessary condition for pricing power. Companies have to rethink the entire customer experience: the network, the device, sales and service, and the potential to provide value-added products and services. Although providing both mobile and fixed broadband is already common, the addition of fixed wireless access is gaining traction and should add momentum to converged customer relationships. And the more that service relationships are established across devices, lines, subscriptions and household members, the lower the propensity is for churn.



Priority 2: Strengthening competitive fortitude and commercial innovation



- **Lead with transparency.** On pricing, be clear about which factors are out of your control, such as energy and inflation, and pass those costs through unapologetically to customers as most other industries do.
- **Create richer bundles.** Look beyond converged offers that combine fixed and mobile services. Start with unmet customer needs, and provide additional value-added services and experiences that leverage on the existing network (e.g. enterprise solutions and total home solutions). These richer bundles will amplify value to customers and provide flexibility to pricing.
- **Rationalise portfolios.** Take an agile, continuous improvement approach to product and technology portfolio rationalisation. Each quarter that passes without addressing the mounting technical debt compounds the cost.

Priority 3: Embracing the cloud

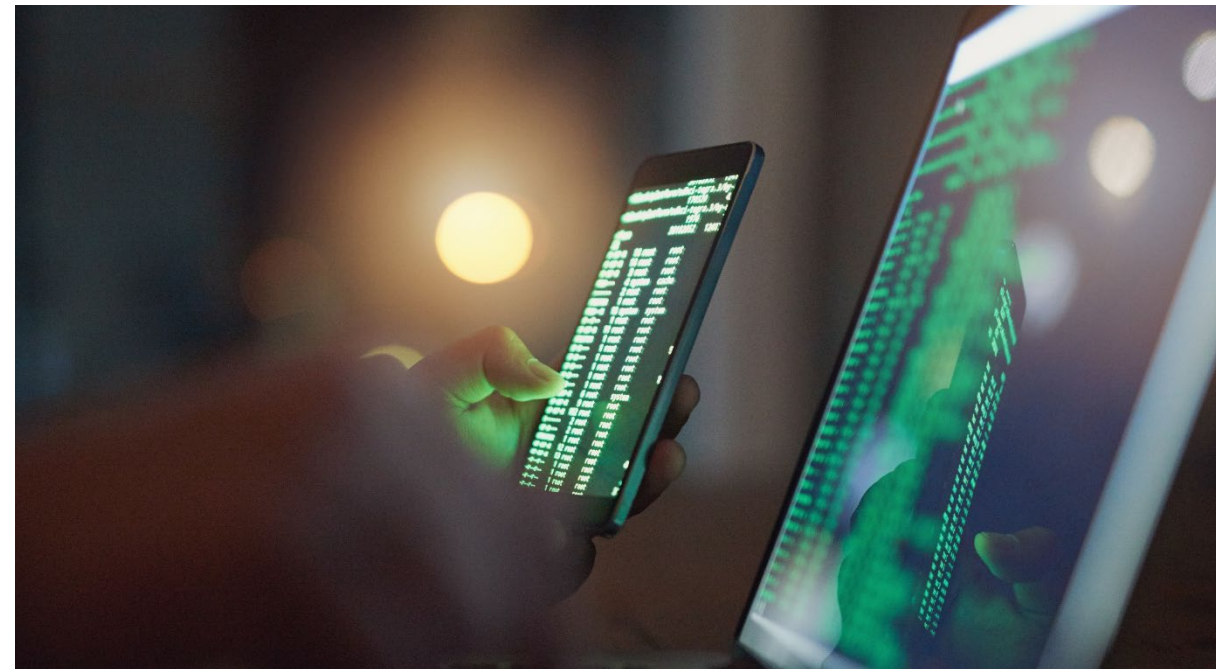
In many industries, the cloud has passed the tipping point to near-universal adoption. It is rapidly progressing from an option to a business imperative, offering simplified, more scalable infrastructure and faster innovation to meet the ever-growing demands of the digital era. In [PwC's 2023 Cloud Business Survey](#) in the US, 78% of executives across sectors said their organisation had adopted cloud computing in most or all parts of its business. In PwC's parallel [EMEA Cloud Business Survey 2023](#), 73% of the respondent businesses that were not yet all in on the cloud told us they would have all their operations in the cloud within two years.

Many telecom companies are well on their way to “cloudifying” their IT services and internal enterprise processes, although it will take years for legacy data warehouses, business support systems applications and enterprise resource planning (ERP) environments to complete the move. One key challenge—and opportunity—is to reassess

the traditional definition of where application architecture domains start and end. Cloud-native providers have expanded up and down the value chain. For telecom companies, cloud transformation offers broader benefits and scope because it extends beyond the IT systems to their main customer offering: the core network services. The next wave of value creation lies in cloudification of the network, the largest area of spending from the standpoint of both capital and operating expenditures.

Although the first wave of cloud-native players—including CITIC Telecom, SmarTone and Hong Kong Broadband Network—have yet to fully prove and scale their case, the technical, operational, and economic benefits of cloud-centric operations are undeniable. The PwC [EMEA Cloud Business Survey 2023](#) found that only 47% of telecoms are ‘cloud-mature’, compared with 54% of all companies. For incumbents sitting on large network estates, which often

have a fragmented, federated structure involving multiple national operating companies, building an enterprise-wide cloud is a major commercial and technical challenge.



Priority 3: Embracing the cloud



Priority 3 CEO imperatives

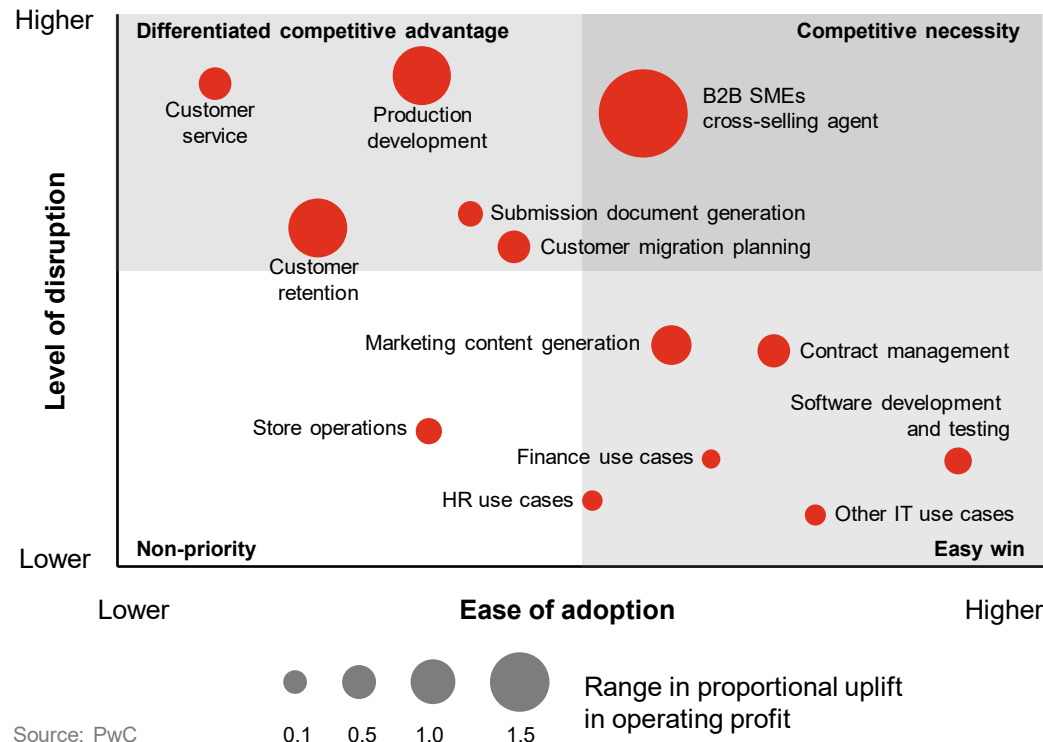
- **Shape a cloud vision for the end-to-end value chain.** Consider how best to align cloud technology with key business objectives, create exceptional customer experiences; embrace cloud-native infrastructure to revolutionise AI adoption; drive comprehensive digitisation and automation; build operational agility to respond to changing market dynamics; or harness the cloud's robust infrastructure to fortify business resilience.
- **Take a full-stack view.** Assess technology options and partnerships with a view across cloud-based infrastructure, containers, platforms, functions and applications to create a coherent yet modular cloud framework with interoperability and flexibility at its heart.
- **Understand the legal regulatory implications.** In different markets, laws and regulations vary widely on key matters, including data sovereignty, physical redundancy of core networks, local network ownership and control, and law enforcement interception rights. In many areas, quality-of-service regulations govern what service levels are considered adequate and dictate the time frames for restoring services after an outage.

Priority 4: Building the GenAI-driven carrier

AI technology—and especially the emerging class of **generative AI (GenAI)** tools and capabilities—has tremendous potential in all aspects of a telecom company’s business (see the chart). Operating in AI-enabled ways will become the industry norm in areas including network management, device interfaces, and customer and employee experience. Those players who move early to lead this transformation stand to gain a significant competitive edge. However, although GenAI has captured the attention of executives across and beyond the telecom sector, many have yet to grasp how fundamentally it will change their business, and how quickly that will happen. According to [PwC’s 2023 Emerging Technology Survey](#), 73% of US companies have already adopted AI in at least some areas of their business. And in [PwC’s 27th Annual Global CEO Survey](#), 69% of telecom CEOs said that in the next three years, generative AI would significantly change the way their company creates, delivers and captures value.

GenAI-driven margin expansion potential

Technology can provide operating leverage for a range of core business activities



If they want to realise gains, telecom companies will use both GenAI platforms and embedded GenAI capabilities in enterprise apps to reinvent how their business operates. Industry CEOs must set guiding principles, accountabilities, and governance to advance from initial experimentation and excitement around use cases to a programmatic effort—one that can scale GenAI across functions and markets; ensure the right choices on large language model architectures and technology; and safeguard data integrity, privacy and ethical use of this powerful technology. To do so, leaders will have to focus on the **six key leadership priorities** that build into a road map for an effective “early days” GenAI strategy. Given the technology’s disruptive potential, it is particularly important to collaborate within ecosystems to enable imaginative rethinking of value chains and business models.

Priority 4: Building the GenAI-driven carrier



- **Manage the risk/reward tug of war.** Navigate tensions between the importance of moving quickly to grab emerging opportunities and the need for prudence and risk mitigation.
- **Experiment with an eye to scaling.** Think big. Encourage experimentation throughout the organisation, with an emphasis on identifying small but impactful use cases that can scale.
- **Put humans at the heart of your strategy.** Consider the impact of AI on your stakeholders—including regulators, customers and workforce—from the start. Stay focused on the effective governance of AI systems and processes, including applying **responsible AI**, adhering ethical standards and incorporating the principle of trust by design, which means embedding best practices throughout AI development and deployment processes.

Priority 5: Orchestrating workforce renewal



The business challenges facing telecom companies today are inextricably linked with talent challenges. [PwC's Global Workforce Hopes and Fears Survey 2023](#) shows that 46% of telecom employees don't think their company will be in business in ten years (compared with 31% for employees of all companies), and 32% of telecom employees plan to change jobs within the next 12 months (compared with 26% of employees for all companies).

The result is a series of coincident workforce challenges. As the large population of industry workers age 55 or older are set to retire, there is a significant generational shift and concomitant brain drain. As telecom companies lean more into the cloud, AI, private networks and IOT solutions, new skills will be required throughout the labour force. At the same time, there is a cyclical surge to build fibre networks. The continued worldwide 5G network deployments—and the 6G

networks that will follow—require telecom engineers and tech talent, and are also driving demand for construction and civil workers. But there are labour supply shortages in many of these markets.

The telecom companies need to launch initiatives to attract and retain highly skilled and innovative talent (e.g. forming partnerships with educational institutions and governmental bodies, implementing talent development programmes, etc.).

Priority 5: Orchestrating workforce renewal



- **Link workforce planning to strategy.** The current backwards-looking and top-down approach to staffing decisions should be replaced with a smarter bottom-up approach centred on differentiating capabilities and skills. Look ahead to see how digital and AI will factor into the strategy over the next ten years, and come up with a plan to close any future capability gaps.
- **Expand talent pools.** Widen the recruiting net to include a greater range of schools and backgrounds. Forge a closer relationship with educational institutions to secure a regular influx of bright new graduates.
- **Build your own pipeline.** Telecom companies can develop their own training academies to teach their people vital skills for the future. Industrial players create their own vocational training programmes, which not only provide employees with fundamental knowledge, but also keep them abreast of industry trends and advancements.

Priority 6: Building resilience to risk and quickly responding to regulatory changes

In today's uncertain and fast-changing environment, no telecom CEO can afford to underestimate the importance of identifying and addressing emerging risks—and of responding proactively to changes in regulation.

Cyberattacks are escalating in telecommunication, encouraged by ongoing digitisation of business functions and expansion into adjacent digital areas. PwC's

[2024 Global Digital Trust Insights survey](#) found that the biggest worries of senior executives are cloud-related threats—cited by 47% of respondents—followed by attacks on connected devices.

Regulatory scrutiny of deals is intensifying: [PwC research](#) reveals a 50% rise since 2020 in the number of deals reviewed by US national security watchdog CFIUS (Committee on Foreign Investment in the

United States) and a seven-month increase in average EU deal duration since 2016. The scope of deals being reviewed on competition grounds has also widened, expanding beyond the traditional focus on horizontal deals to include challenges to several vertical deals around the globe.

As telecom companies increasingly seek growth through [geographical expansion and diversification into non-core](#)

[industries](#), they will engage with unfamiliar regulatory frameworks outside the telecommunication space. And, as we've noted, the rise of AI and GenAI is imposing a sense of urgency for leaders to ensure responsible use of these new technologies. These circumstances compel leaders to engage proactively with policy-makers in order to help shape regulatory frameworks and ensure compliance.



Priority 6: Building resilience to risk and quickly responding to regulatory changes



- **Engage with complex regulatory ecosystems.** Telecom CEOs need to think like regulators—and act accordingly. Reinforce and update guiding principles to align with evolving laws and regulations, cultivate a culture of compliance, and deliver continuous compliance training to employees.
- **Manage cyber risks holistically and aggressively.** Instead of implementing fragmented initiatives on a reactive basis, anticipate future cyber risks, proactively engage regulators to shape new rules and allocate a cyber budget to deal with the organisation’s top risks. Develop threat detection and response capabilities, and implement a cyber risk management culture throughout the business.
- **Protect data privacy.** The PRC Data Security Law in China and The Personal Data (Privacy) Ordinance in Hong Kong establish the mechanism of personal information protection in Chinese mainland and Hong Kong respectively. CEOs should put in place **a comprehensive data privacy programme** that includes a dedicated data protection function, a personal data register, timely responses to customer requests for personal data, open communication of data breaches and rigorous management of exposures to third parties.

Priority 7: Building the sustainable carrier

Sustainability is now a crucial element for companies to operate effectively. Recently, transparent reporting on ESG (environmental, social, and governance) performance has shifted from a mere goal to a necessary requirement for regulatory compliance, societal expectations, and maintaining reputation.

In March 2024, the Hong Kong Government's Financial Services and the Treasury Bureau published a statement setting out the vision and approach of the Government and financial regulators towards developing a comprehensive ecosystem for sustainability disclosure in Hong Kong. In particular, the Government will work with financial regulators and stakeholders to develop a roadmap on the appropriate adoption of the International Sustainability Standards Board's (ISSB) Standards, and the Hong Kong Institute of Certified Public Accountants (HKICPA) will assume the role of the sustainability reporting standard setter in Hong Kong to develop local sustainability

reporting standards aligned with the ISSB Standards.

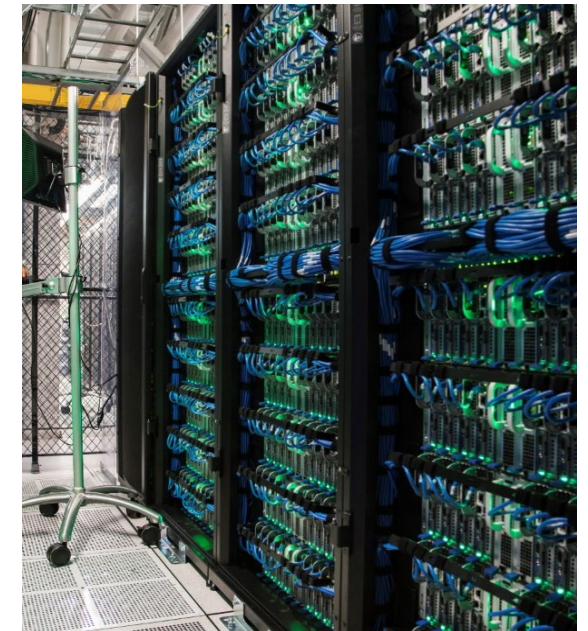
In April 2024, the Stock Exchange of Hong Kong (The Exchange) published conclusions to its consultation on the enhancement of climate-related disclosures under its ESG framework. The Exchange noted broad-based market support for this enhancement but agreed to modify its proposals to reflect IFRS S2 more closely. The new climate requirements will be phased in from 2025. The Exchange has also published implementation guidance that includes references to the relevant principles in IFRS S1 to assist issuers' compliance with the new climate requirements.

While the regulatory environment continues to evolve, the overall direction is established and irreversible. The call for achieving net-zero emissions is clear and has garnered public commitments from most telecom operators. However, the specific path to achieve net zero remains less certain.

Addressing Scope 1 and Scope 2 emissions is relatively straightforward; and power purchase agreements, fleet electrification and real estate footprint transformation initiatives are underway across the industry.

The challenge is that a large majority of the carbon footprint of the typical telecom company is driven by Scope 3 emissions. And that means telecom CEOs must begin to address the questions that will arise as they strive to extend their emissions reporting along their supply chains. In addition to influencing and orchestrating action among suppliers and customers, companies must build circular-by-design device and network life-cycle management practices into operations and networks from end to end. And they must prepare for the surge in connectivity and computer demand triggered by GenAI and other computing-intensive applications. These trends will drive the densification of networks, the proliferation of new types of end-user devices and a dramatic increase in data centre capacity—all

of which will place greater stress on net-zero ambitions. Telecom companies that move decisively to get a grip on their emissions today will be best placed to handle whatever climate regulations might emerge tomorrow, and whatever expectations investors and civil society might bring to bear.



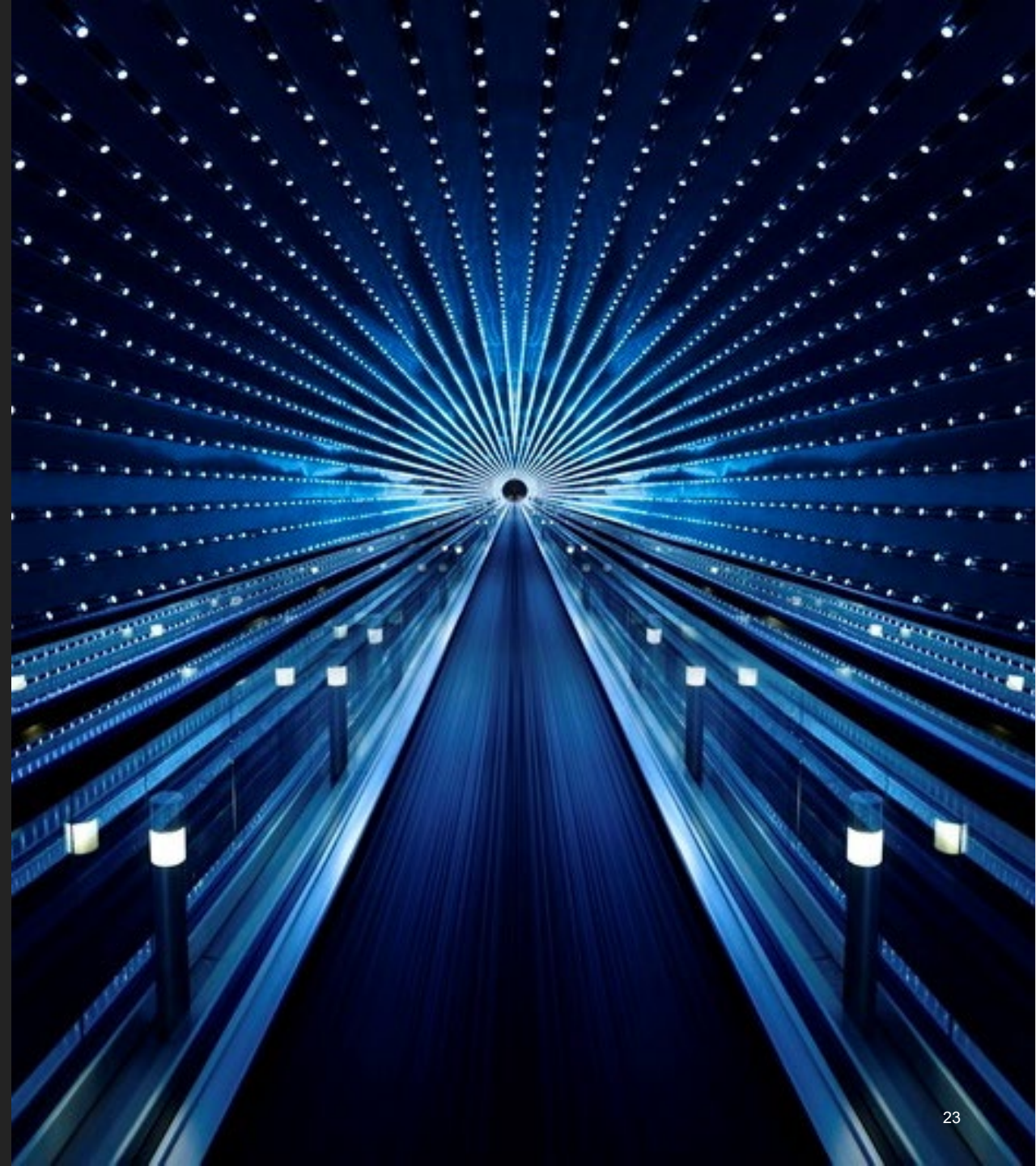
Priority 7: Building the sustainable carrier



- **Take a proactive approach.** Implement and, in conjunction with regulators, shape The Task Force on Climate-related Financial Disclosures (TCFD) and other reporting and compliance requirements. Collaborate with peers to drive standardisation and share best practices.
- **Integrate ESG into your strategy.** Build an environmental, social and governance strategy that can cascade into operations and translate into a transformation agenda for every business unit and function.
- **Empower a sustainability transformation office.** A transformation office can both guide and support operation line leaders with a programme management office and provide leaders with a cockpit view of gaps, risks and exposures on the path to net zero.

3

Conclusion



The age of reconfiguration



As is evident, the agenda of telecom CEOs is remarkably full. It is filled with both complex challenges and compelling opportunities. Taking them on and embracing them is the work not just of a single leader, but of the full senior leadership team. And, as our colleagues note, the industry is not alone in facing **the reconfiguration imperative**.

But what's needed is not just far-reaching strategies and flawless execution. Rather, an important shift in mindset is required. Leaders need to be both radically audacious and incredibly practical: radically audacious in questioning previous assumptions and established products, and in scaling solutions at high speed. And they need to be incredibly practical in developing realistic plans and overcoming the powerful forces of inertia. The future is on the line.

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A close-up photograph of a person's hand pointing towards a screen. The screen displays a grid of small, bright white dots on a dark background, creating a digital or data-like aesthetic. The lighting is soft, highlighting the texture of the hand and the individual dots on the screen.

Thank you.

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