A new recipe for growth

Perspectives from the Global Telecom Outlook 2024-2028

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pwc

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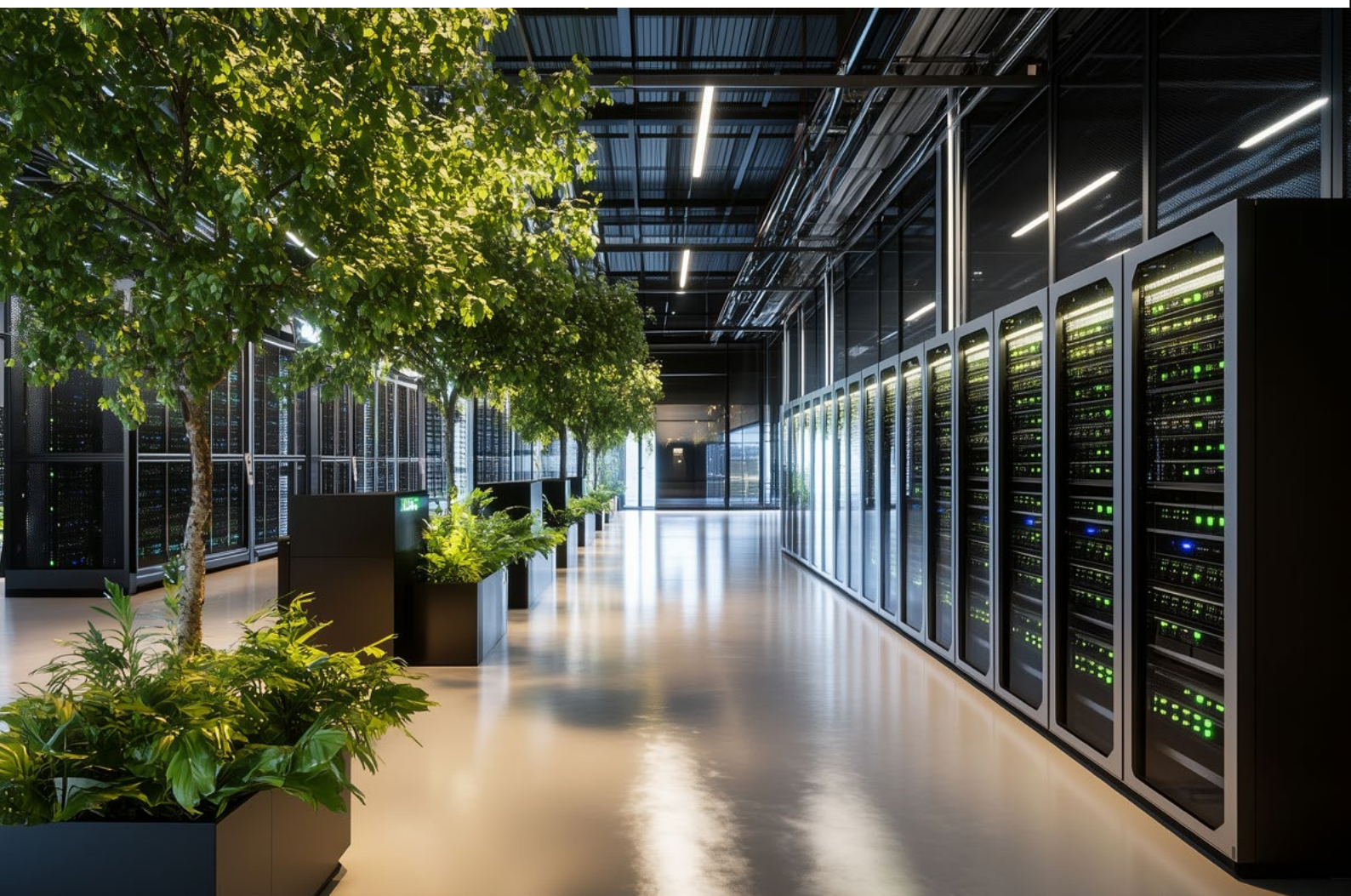


A new recipe for growth

Perspectives from the Global Telecom Outlook 2024-2028

The telecom industry can find new pockets of revenues and value creation amid challenging headwinds

The telecoms industry is growing—slowly.

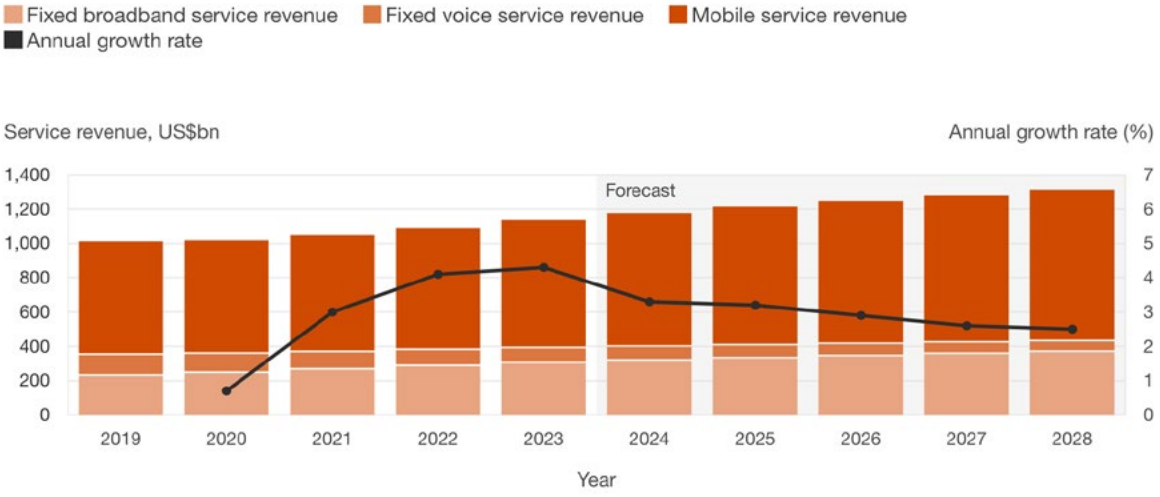
The Global Telecom Outlook 2024-2028 shows that the sector's total service revenue across fixed and mobile rose 4.3% in 2023 to US$1.14 trillion. As shown in the chart below, global industry revenues will rise at a compound annual growth rate (CAGR) of only 2.9% through 2028, below the projected of rate of inflation, at which point total revenues will edge up to US$1.3 trillion.

The telecoms industry continues to face a fundamental challenge: its core products and services are becoming commodities, meaning it has difficulty raising prices, while it faces a continual need to invest in infrastructure. But even in industries with relatively slow growth, there are always niches of expansion and opportunities for companies to improve their bottom lines. By 2028, there will be an additional US$200 billion in incremental revenue growth up for grabs across the sector. Nonetheless, the picture puts even more pressure on players in the telecommunications ecosystem to find new ways of creating value from existing revenue flows.

Slowing Pace

The rate of industry growth is declining

Service revenue by type, 2019-2028



Note: 2019-2023 are actual numbers.
Source: PwC's Global Telecoms Outlook 2024–2028, Omdia

We stand at the beginning of a sweeping reconfiguration of legacy industries. A combination of myriad immediate crises and five long-term megatrends is causing long-established industry structures to break down, and triggering the formation of new domains of growth centered around human needs: How we feed. How we move. How we build. How we make. How we fuel and power. And how we care. These diverse ecosystems share a key attribute: they'll be enabled, connected, and underpinned by technology—not least by digital connectivity. Telcos play a pivotal role, providing the glue that binds the participants together and enables them to drive their individual and collective growth.

These transformations will create a greater demand for connectivity and communications services in the coming years. Under the influence of key megatrends, the telco industry is itself undergoing a sweeping reconfiguration, which is opening up many new opportunities. The forecasts and insights of the Global Telecom Outlook provide a guide to the ingredients for growth. These include strategic investments in AI, fixed connectivity, and B2B service; working with investors and regulators to create opportunities to optimize market structure; and deploying deals to build scale.

Mapping growth

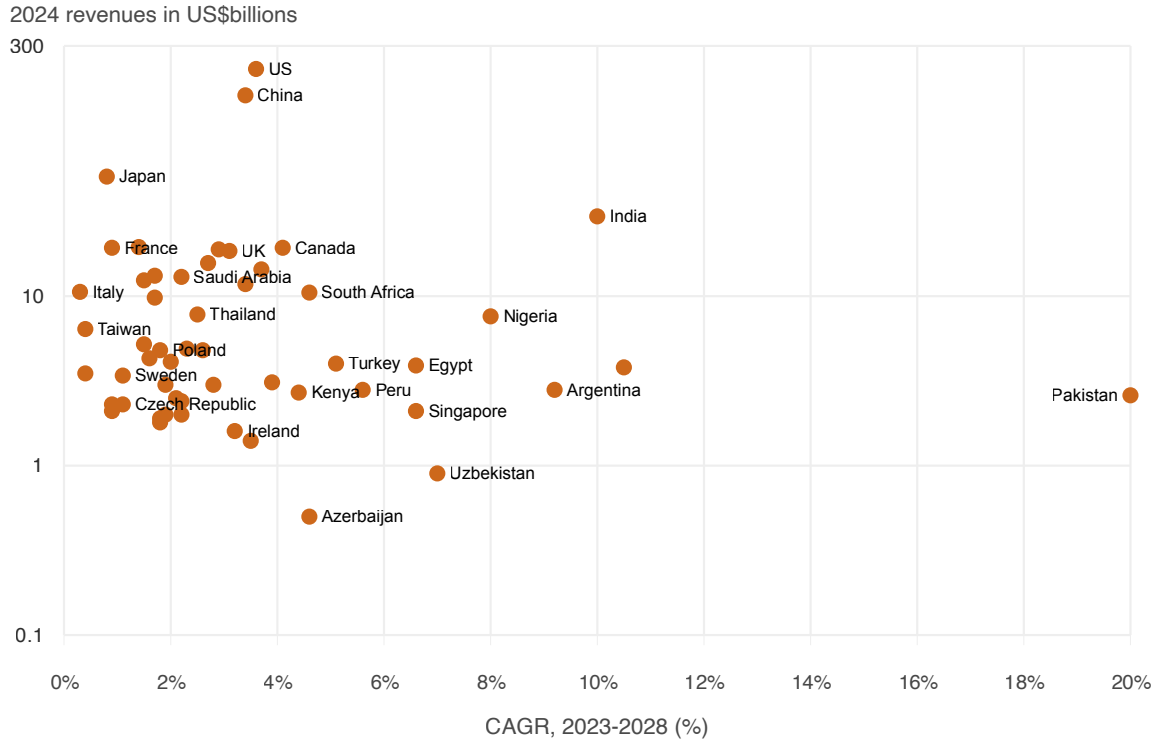
Sluggish global growth in overall revenues masks wide variations between different services and at the national and regional levels. Between 2023 and 2028 revenue from fixed broadband, mobile subscriptions, and fixed voice subscriptions will grow at projected CAGRs of 3.8%, 4.3%, and decrease by –1.8%, respectively. Even wider disparities emerge at the country level. The chart below maps telecoms service revenue by country in 2024, for both fixed (combining broadband and voice) and mobile, against the five-year CAGR for the relevant segment in each market. In fixed telecoms, most countries are grouped around the 0 to 6% CAGR range, including the US and China. But a few outliers show much higher growth—notably India, Nigeria, Egypt, and Kenya. Meanwhile, mature markets such as Japan and Switzerland exhibit negative CAGRs. Similar—albeit generally smaller—divergences emerge in mobile. The vast majority are again grouped in the 0 to 6% CAGR range. The revenue growth leader in mobile is Colombia, with a CAGR of 10.5%, closely followed by India and Argentina.

A World of Differences

Growth rates in revenues will be highest in developing countries

Mobile and Fixed revenue CAGRs by country, 2023-2028

Mobile revenue



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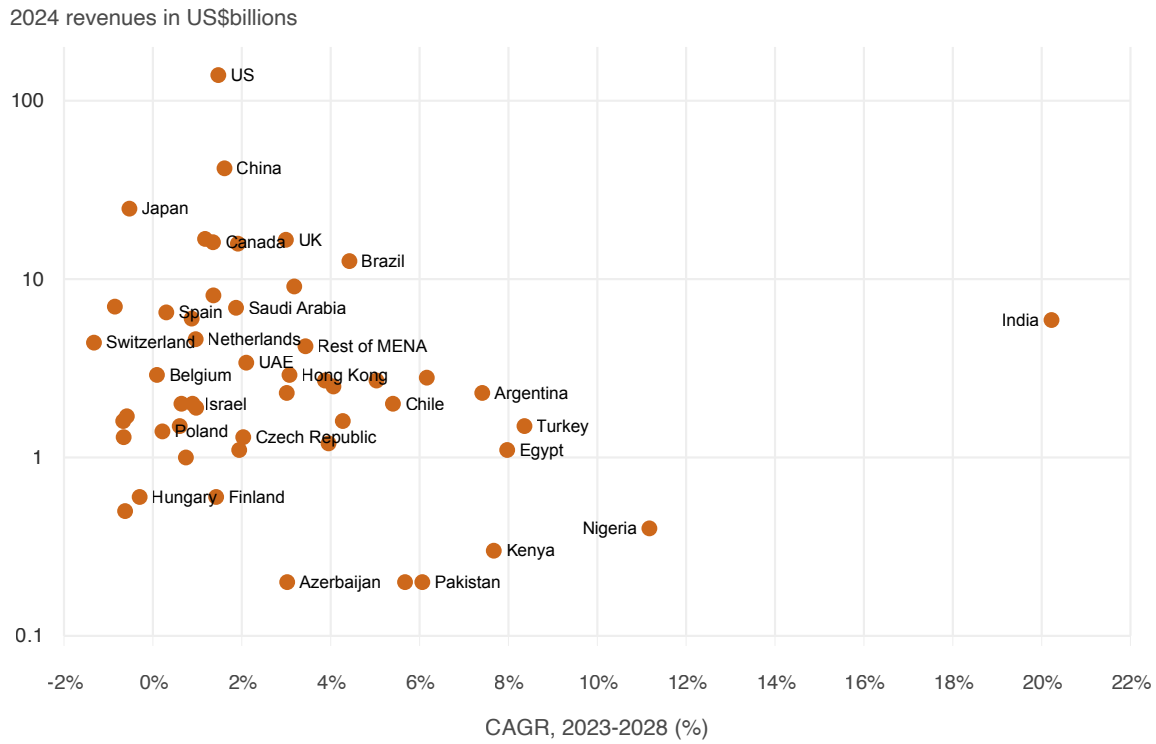
Fixed revenue



There are two potential contributors to growth – a rise in the sheer number of subscribers, and the ability to reap more annual revenues from each subscriber. Generally speaking, in both developed and developing countries, raw subscriber growth accounts for most of the new value, with average revenue per user (ARPU) generally growing at a slower pace in developing economies, and even declining in mature, highly competitive markets. Telecoms service ARPU will continue to decline over the next five years, with mobile ARPU falling at a CAGR of –1.3%, and fixed broadband ARPU essentially flat at a CAGR of –0.1%. Fixed voice ARPU will see a stronger decline at a CAGR of –4.7%. In fixed services, India's rapid growth in service revenues is being driven by headlong subscriber growth at a CAGR of 17.2%, coupled with an ARPU CAGR of just 0.9%. In Nigeria, fixed-line ARPU is projected to decline at a CAGR of –1.4%, while subscriber numbers rise at a CAGR of 9.8%. In mobile in the US, subscribers are growing at a healthy 4.9% CAGR, while ARPU is falling at –1.5% CAGR.

The upshot: the industry is currently in a situation where almost all the cash it generates is absorbed by capital expenditures, dividends, and servicing debt—leaving very little for investment in innovation or enhanced customer experience.

Reshaping B2C utility with AI

One opportunity for value creation lies in the business-to-consumer (B2C) services segment. **PwC research** shows that fixed communications services have become commoditized or are "on the edge" of commoditization in 34% of countries, with global population–weighted average revenue per account (ARPA) declining by 21% in the past seven years. Despite the rollout of 5G, a similar trend toward commoditization is **also underway in mobile**. As they confront such trends, telecoms have a **powerful new tool in AI**, especially GenAI. Deploying AI effectively can help take cost and friction out of the B2C business, protect margins, and improve the customer experience through AI-enabled personalization at scale, while also rapidly becoming the industry norm in network management.

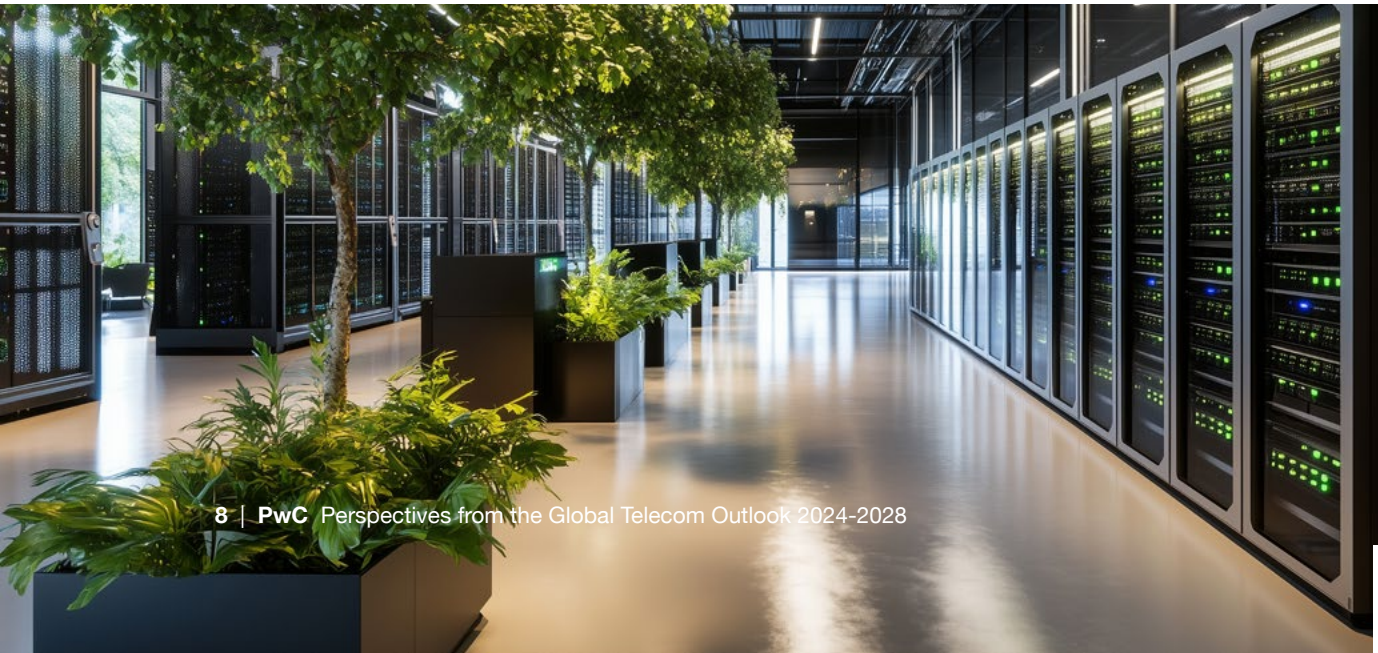
- AT&T is using AI to boost its workforce productivity and operational efficiency. AT&T chief data officer Andy Markus has discussed publicly the company's deployment of "Ask AT&T," a generative AI platform that has reduced software development time by around 10 to 30% while also saving customer service agents several minutes per call. Other use cases include helping to translate customer and employee documentation from English to other languages.

- An Indian enterprise network provider is developing a cognitive network operations center (NOC) powered by AI. Implemented as an overlay on the traditional telco NOC, the cognitive NOC leverages AI to act as a smart copilot or "buddy" that guides the NOC engineers in their day-to-day work, and applies automation to provide intelligence at scale and build self-healing network capabilities.

B2B as a growth priority

Carriers around the world are re-embracing B2B as a growth priority, partly driven by the rapid acceleration of price erosion in basic connectivity products. They are pursuing such efforts through two main strategies. First, verticalization—that is, shaping value propositions specific to an industry, such as IOT services, tailored infrastructure/security solutions, and private 5G networks for remote monitoring and control use cases in verticals like manufacturing, energy, mining, and defense; and second, horizontal plays—such as the CAMARA API simplification and standardization initiative established by a group of leading carriers and the network equipment supplier Ericsson.

Saudi Telecom Company (STC) is one of several telcos across the Middle East and North Africa region that is investing to unlock new growth possibilities. In Saudi Arabia, where over 60% of the population is under the age of 35 and information and communications technology (ICT) annual spending is growing rapidly, widespread digital adaption is creating major opportunities in the ICT sector. stc B2B, which began as a connectivity provider under stc Group, offers an end-to-end value proposition powered by its portfolio of subsidiaries, including: **sirar**, a cybersecurity leader; **iot squared**, a joint venture with the Public Investment Fund advancing IOT adoption; and Saudi Cloud Computing Company (**SCCC**), a cloud infrastructure provider in partnership with Alibaba Cloud. stc B2B holds the largest market share of Saudi Arabia's ICT market, at around 25%, and has successfully secured flagship projects that have further solidified its market leadership. Examples include a disaster recovery as a service (DRaaS) solution for Aramco affiliates and an IOT-based fleet management solution for real-time vehicle tracking of 25,000 cars and performance analytics for a large car rental company.



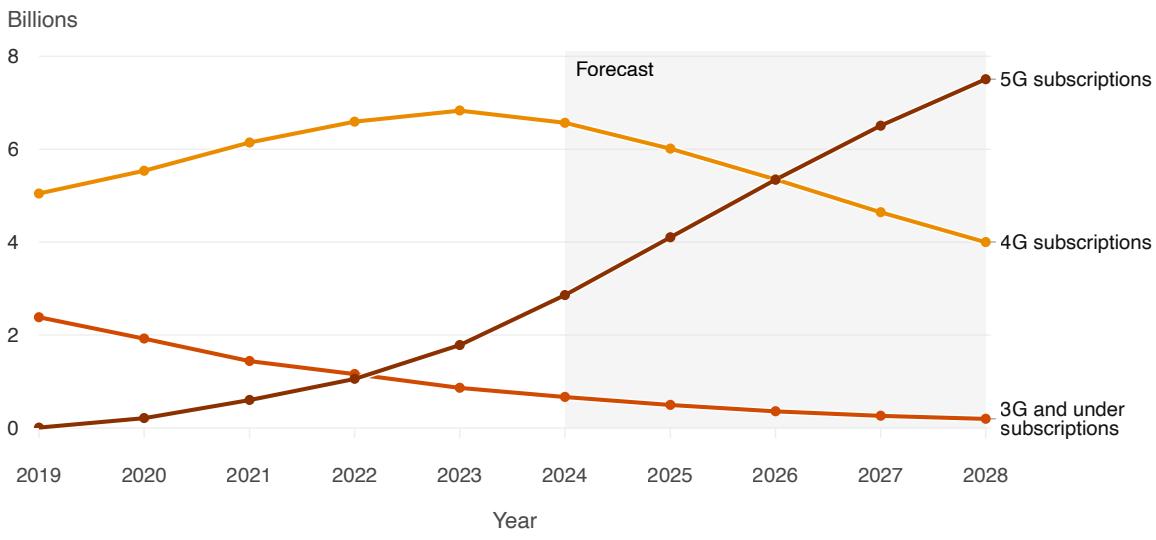
Pursuing 5G monetization

Use cases of 5G began to be rolled out in 2019, in areas like immersive augmented reality, autonomous robots, and connected vehicles. But they have been slow to materialize, in part because 5G is not sufficiently different from its predecessors to make the expense of upgrading to it feel worthwhile. At the same time, 5G take-up is booming—and it's set to take over as the dominant mobile standard globally from 2026. As the chart below shows, 5G subscriptions will more than quadruple from 1.79 billion in 2023 to 7.51 billion in 2028, with its share of total mobile subscriptions more than tripling, rising from 18.8% in 2023 to 64.1% in 2028.

5G Dominance

By 2028, 5G will account for nearly two-thirds of mobile subscriptions

Global mobile subscriptions by technology, 2019-2028



Note: 2019-2023 are actual numbers. Source: PwC's Global Telecoms Outlook 2024–2028, Omdia

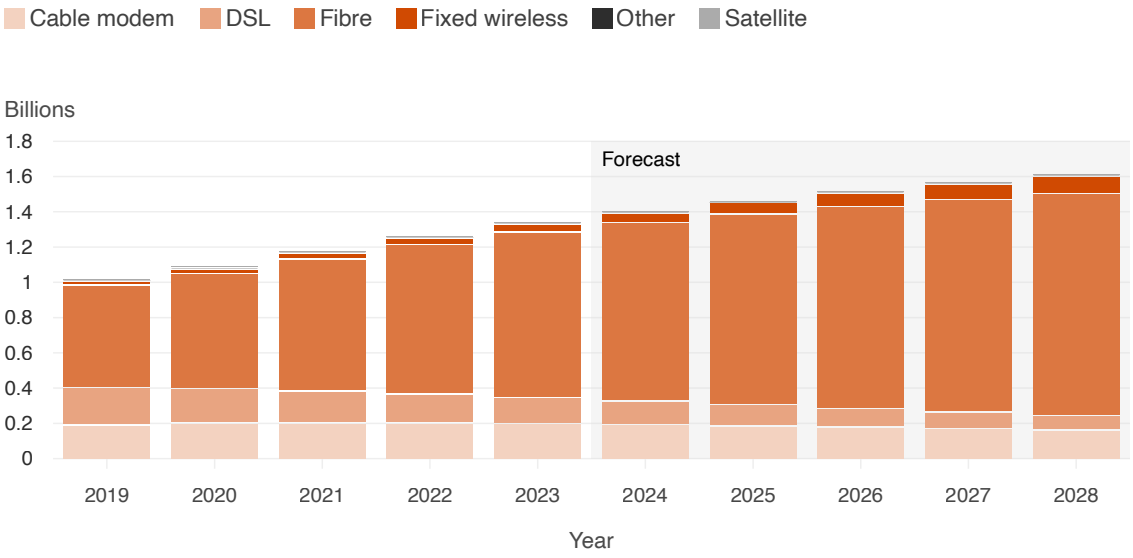
One high-potential area is fixed wireless access (FWA) broadband services for the home, offered as an alternative to cable and fiber landline internet services. FWA has the potential in many large markets globally to fill a gap in the urban-to-rural broadband coverage continuum. These include significant markets like the US, Saudi Arabia, South Africa, Australia, Italy, and—last

but not least—China, which collectively account for around 47% of total connections. As the chart below shows, FWA connections will be the fastest-growing broadband technology through 2028, rising at a CAGR of 18.3%. By 2028, however, FWA's 99 million subscriptions will still account for only about 6% of the total global broadband subscription market of 1.61 billion.

High-Fibre Diet

Fibre and fixed wireless will account for virtually all the growth in broadband connections

Global fixed broad subscriptions by technology, 2019-2028



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Private networks for business customers are a second niche of 5G growth, albeit with an estimated modest global market. The underlying problem here is that in most cases, private networks don't really need 5G; instead, the key value-add from the telco is linking up the customers' in-house systems with the wider network. In manufacturing, private network–enabled asset monitoring is enabling more efficient maintenance, and 5G-supported robotic units, automated production lines, industrial IOT (IIoT) devices, and automated guided vehicles (AGVs) are enhancing overall efficiency and reliability. Also, in sectors with a need for outfield applications—the likes of mining, ports, logistics, agriculture, and energy generation—5G private networks are enabling remote control of equipment and remote surveillance of operations, terrain, and worker safety. Specific use cases include energy companies monitoring wind, solar, or oil and gas "farms" with distributed infrastructure in geofenced—and often remote—areas.

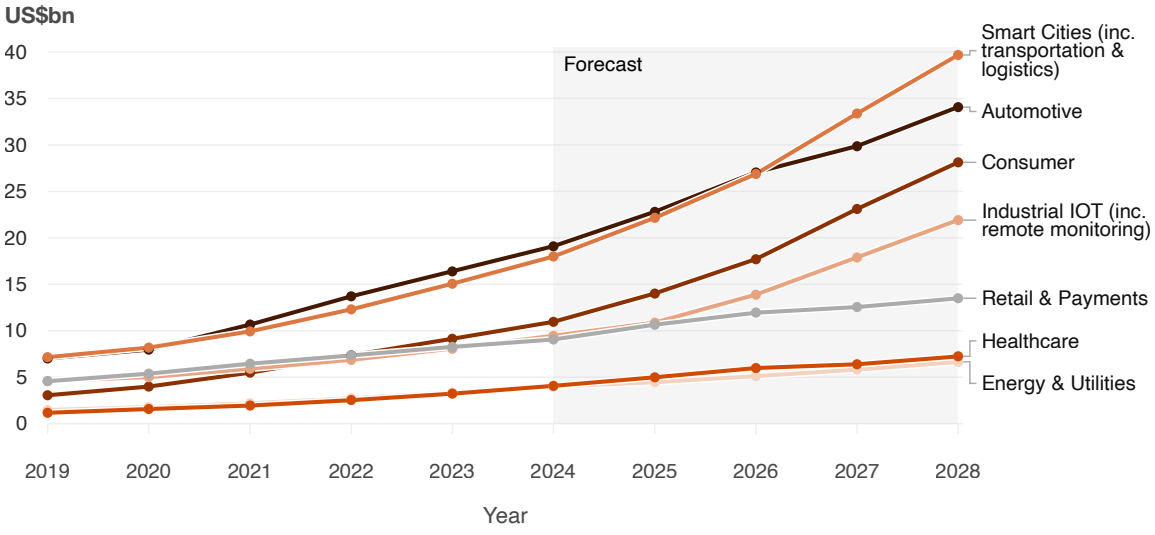
Cellular IOT is growing modestly

Cellular IOT services over mobile networks are growing across all territories, with the US currently having the largest market by far, supported by a deep tech ecosystem that fuels innovation, and with China close behind. Looked at on an industry basis, there are wide disparities in uptake. The leader, by some distance, is the automotive and mobility sector, partly reflecting the fact that fixed networks by definition can't deliver the mobile connectivity required. Every new electric vehicle—more than 17 million were sold globally in 2024—is essentially a mini data center that comes with connectivity built in. A projection by the IEA indicates that the global electric vehicle fleet is set to grow at a CAGR of 23% between 2023 and 2035, meaning it will expand twelvefold. As the chart below shows, overall IOT revenue in the automotive industry is projected to more than double between 2023 and 2028 to reach US$34.1 billion, rising at a CAGR of 15.8%.

Finding Value in Motion

Transport and autos will drive rapid growth in the IOT market

Global IOT revenues by vertical, 2019-2029



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Sectors that have some element of outfield or mobile equipment, such as mining, oil and gas, and ports, are also making strides with cellular IOT use cases. In manufacturing, today's industrial sites often have shop floors that need to be reconfigured frequently. In these use cases, cellular IOT avoids the need to rip out ethernet cables every time, and—especially with 5G IOT—can provide higher-fidelity connectivity than Wi-Fi, which may be critical for applications such as real-time computer vision analytics.

Among service categories, the fastest growth in IOT revenues will be in the application enablement platform segment, projected to grow at a 23.9% CAGR to reach US$83.1 billion by 2028. Consulting will be the second-largest segment, growing at a 17.9% CAGR to US$51.8 billion. By contrast, connectivity revenue will rise at a CAGR of just 3.2% to reach US$10.1 billion.

These growth disparities underline the inherent challenge facing telcos. The main engine of IOT growth is the supply side's ability to integrate and deploy solutions. This involves identifying and delivering specific use cases and functionality through software and then tailoring and integrating these solutions into existing business processes or operations—which brings in the consulting and professional services systems integration players. These areas of specialty are not traditional strengths of telcos. To close this gap, a growing number of telcos—including the likes of stc in Saudi Arabia—are setting up dedicated IOT solutions businesses, while others are looking at standing up some form of professional services organization.

The capital expenditures shift

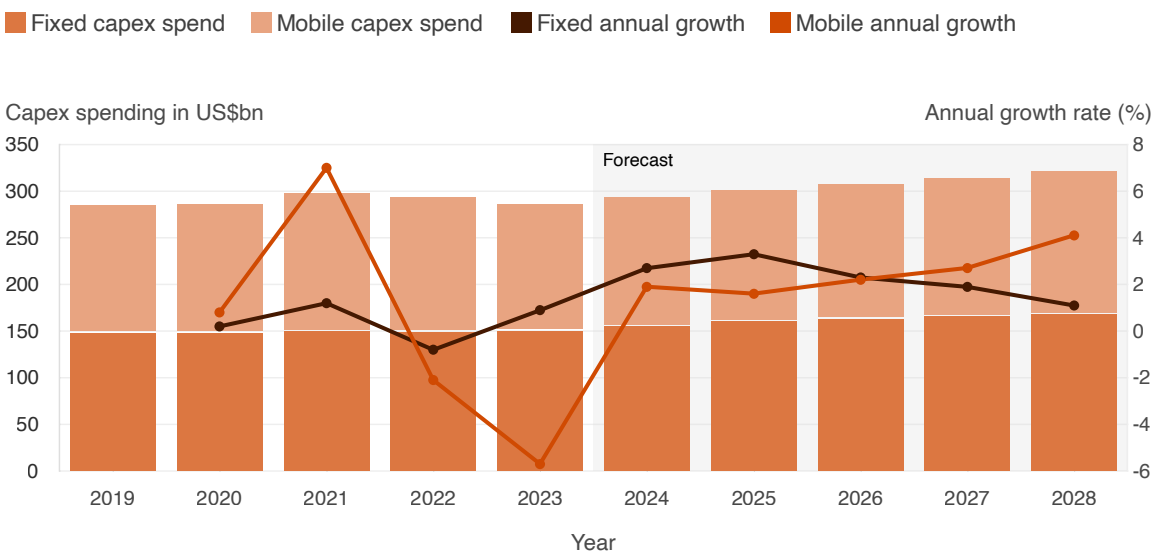
The momentum of capital investment is shifting decisively toward fixed connectivity—which, these days, means fiber. Today, growth in fixed connectivity revenues comes in the form of high-value, high-ARPA fiber-to-the-x (FTTx) subscriptions. It's about adding houses, apartments, or small businesses, which—from a fiber-connectivity perspective—are customers who already offer a good return through their regular subscriptions of between US$50 to US$100 a month. This rush to implement fiber networks is attracting a flood of new investment—and will continue to trigger deals in the industry. As the chart below shows, in 2023, total telecom capital

expenditures fell 2.3%, driven by a 5.7% decline in mobile. However, industry capital expenditures are projected to grow at a 2.4% CAGR from 2024, fueled initially by fixed broadband investments for fiber rollout, and later in the period by a revival in mobile capital expenditures as operators prepare for 6G, especially in China.

Building infrastructure

Companies face pressure to keep investing

Global capex by service type, 2019-2028



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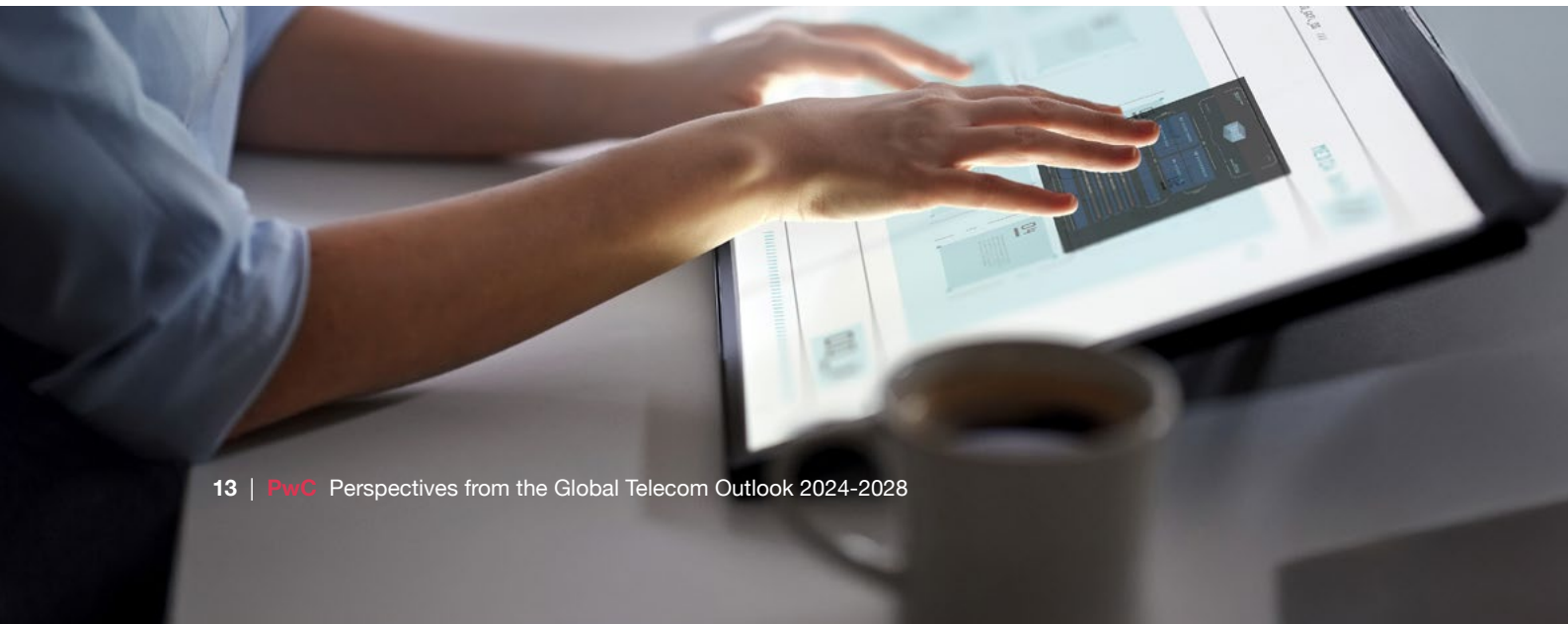
As a disproportionate share of industry investment flows into fixed networks, a combination of fiber build and network densification will "push" wireless access more to the fringes, as it becomes a way to handle the "last mile to the next fiber node." Excluding China—which dominates and skews the global numbers with its government-mandated fiber build-out—FTTx still has a lot of room globally to grow further and add new connections.



Conclusion: Building the AI grid

The biggest opportunity is one that is not necessarily captured in the Telecom Outlook. The internet as we know it today is insufficient to support and enable an AI-powered economy and the evolution of the domains of growth.

Network and compute infrastructure provide essential utility to the digital economy—and AI is elevating demand pressure across capacity, densified topology, and the energy grid. In response, the digital infrastructure sector is undergoing rapid transformation to meet demand, and, in turn, is attracting US$1 trillion-plus in private equit yand public funding, fueling M&A, joint ventures, divestitures, and so on. The need today is for companies to create business differentiators, enable transform technology, and ensure value creation through innovative service offerings.

To fulfil its purpose, the AI grid will need to combine and unite three formerly distinct elements. First, connectivity—with pervasive fiber at its core for scalable capacity. Second, compute—with hyperscale data center hubs branching out into compute capacity at the network edge and rim (i.e., on-device), moving compute closer to where it will be needed to power personal language models (LMs) and AI that is embedded into all aspects of life. The effect is to turn the data center game into a grid densification initiative that closely resembles what telco carriers have been doing to their networks. The third vital element of the AI grid? The green, sustainable energy needed to power the first two.

As the AI grid takes shape, telcos are uniquely positioned to lead the way. They know how to deploy and operate network and grid infrastructures at national scale. They own or lease a huge amount of legacy real estate in relevant places, which can be repurposed or reinvented to play a role in aspects such as edge/rim compute or energy storage. They know how to densify networks. And they run the connectivity that provides them with data and a unique spider-in- the-web position from which to optimize load balance and orchestrate the AI grid system.

The tools and building-blocks for such a strategy are already to hand. Take our **recent insight article** on the emergence of “puretone” telecoms operating models, involving delayering or decoupling the integrated telco into separate businesses. At its most basic, this means splitting the utility part (InfraCo) from the service/solution element (ServeCo/SolutionCo/BrokerCo). While this is already happening, the unbundling of the legacy telco structure can go much further and become much more granular. A powerful approach here is **business model reinvention (BMR)**—a proven strategy for transforming how a business creates, delivers, and captures value. BMR is ideally suited to addressing the challenges facing telcos today, since it centers on value realization from change, not change for its own sake.

Against this background, building the AI grid is more than just a business opportunity for telcos and other participants in the connectivity and compute ecosystems. It presents a platform for fundamental reinvention and growth—and a proof point of the sector’s capacity to enable all the other domains of growth.

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