The telecoms industry in 2025: trends to watch

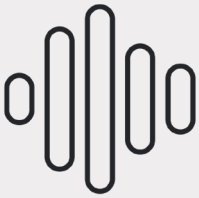
INSIGHT SPOTLIGHT

January 2025

Are you ready for 2025?

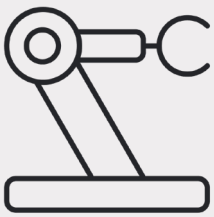
We recently published our 2025 Research Themes – the big topics that will shape the industry and drive our focus throughout the year. To complement these, and help the industry navigate the year ahead, below we share our views on the key trends to watch in 2025 and what they mean for ecosystem players across five areas.

5G and network transformation



Spectrum landscape

Fixed and pay-TV markets



IoT and enterprise markets

Digital consumer

For more details on our research themes, see 2025 Research Themes

GSMA Intelligence

5G and network transformation: five trends to watch in 2025

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Analysis

5G-Advanced: balancing use cases and deployment aspirations

The availability of 5G-Advanced standards and solutions has led to deployment announcements, with an incredible share of operators planning to launch 5G-Advanced in the near term: three quarters expect to deploy within the next two years based on our latest network transformation survey. Regardless of whether suppliers could even address that demand, planned use cases will ultimately play a major role in justifying investment in the technology. Operators know what they expect 5G's next evolution to deliver: network performance, management and efficiency improvements. None of these are seen as significantly more important than the others. But at the same time, the fact that potential use case improvements targeting the B2B and B2C segments are seen by operators as less important is directly at odds with strategic growth imperatives.

AI use cases: internal and external tensions will continue

While operators have been employing AI in their networks for years, recent generative AI (genAI) innovation has driven a renewed focus on how AI can be used in support of strategic business objectives: improving customer experience, generating new revenues and delivering opex and capex efficiencies. While operators prioritise revenue generation and customer experience over opex and capex savings by a four-to-one margin, the biggest impact from genAI is expected to come from internally focused network operations use cases, including network planning/optimisation and predictive maintenance, followed by internal software development. More reliable networks and faster software development will certainly support better user experience. Use of genAI to drive new revenues, however, remains a work in progress.

Open RAN: momentum will continue, with 5G-Advanced keeping it top of mind

There has been noticeable momentum building for open RAN in 2024, including major operator commitments and supply-chain diversification progress on the solution supplier (e.g. Ericsson) and silicon (e.g. Qualcomm) fronts. And yet, while our network transformation survey identified open RAN as a top technology priority in 2023, it fell precipitously in 2024, settling in behind 5G-Advanced, network APIs, cloud technologies, automation and AI. This might seem like a contradiction, but nearly the same number of operators point to open RAN as 'very' or 'extremely' important year on year. Going forward, then, the challenge for operators will be balancing open RAN interest against other, more pressing priorities. 5G-Advanced should help, as most operators see it as a catalyst for open RAN deployment – though the market still needs to first overcome basic obstacles in terms of security, performance and integration.

Security: cross-cutting implications will make it an end-to-end imperative

Security is more than just a concern for open RAN deployment. The telecoms threat landscape is getting increasingly complicated, as networks are relied upon to carry mission-critical data, high-profile hacks are becoming more frequent and AI democratisation threatens to make network attacks and end-user fraud easier to implement. This helps to explain why end-user and network security were listed as the top network-related business priority by operators in our survey. The relationship between security and open RAN, however, highlights an important point. Because security is critical to network operations and end-user services, operators need to think about its application across the diverse technologies they implement, including open RAN, AI, APIs, non-terrestrial networks, edge computing and private networks.

User experience: coverage and capacity might be unexciting, but will continue to matter

User experience ranked as the top criterion by which network transformation success is measured. As to how 'experience' is defined, we can look to the top capabilities deemed necessary for executing B2B and B2C objectives: coverage (wide-area and in-building), data speeds and network performance visibility. Against the backdrop of new services seen as a telco growth vector, a focus on more fundamental capabilities does suggest less of an innovation mindset and more of a concentration on capabilities such as massive IoT, ultra-reliable low-latency communications or positioning support. This highlights that the 'basics' are what operators still focus on, with implications for how future 5G-Advanced and 6G decisions will be made.

Implications

Mobile operators

- **Don't forget standalone –** Since 5G first launched, it was understood that 5G standalone (SA) would be important for delivering on the technology's full promise, especially in support of B2B use cases. Deployments, however, have not matched early expectations. Today's focus on 5G-Advanced is encouraging; it suggests that operators understand the limits of non-standalone 5G. However, 5G-Advanced does not require the deployment of 5G SA and operators cannot afford to let 5G-Advanced plans further delay SA launches.
- **Hone 5G-Advanced use cases –** Clear use cases are key to supporting the deployment of any new technology; without an understanding of what the technology will be used for, investment is difficult to justify. Against this backdrop, the broad set of use case priorities for 5G-Advanced is potentially concerning. No clear winners among these suggest a lack of defining vision, and a relative lack of focus on B2B and B2C services may complicate the return on investment delivery.
- **Re-evaluate aspirations beyond 5G –** It is clear that expectations around 5G evolutions are very optimistic: operators are planning accelerated deployments of 5G-Advanced; they see 6G networks arriving well before 2030; and they expect 6G to deliver on a wide array of needs, including new spectrum bands focused on coverage. While it's logical to aim for new technologies to deliver on diverse goals – especially when standards and specifications are getting finalised – operators also need to be realistic in their expectations or results will be deemed a failure as soon as those technologies arrive.

Network infrastructure suppliers

- **Make messaging about tech maturity and integration capabilities –** Across all priority network technologies, the most common deployment obstacles are technology maturity and integration into existing networks. For technology suppliers, the implication is clear. As new technologies are rolled out, messaging must focus on solution maturity and market readiness, along with ease of integration, potentially tied into integration service capabilities.
- **Moderate 6G posturing –** Current operator thinking about 6G is seemingly contradictory. On one hand, operators have high hopes for the next network generation in terms of both deployment timing and what they expect the technology to achieve. On the other hand, many would rather that the industry talk less about 6G visions while 5G monetisation is still a work in progress. Network solution vendors may be eager to tout their 6G R&D innovations, but aligning with their customers' interests will require more nuanced messaging that balances future 6G capabilities without a push on accelerated (near-term) timelines.
- **Tie coverage and capacity to new tech priorities –** Much like with 6G, broader telco network transformation strategies include some contradictory thinking. A focus on improved user experience, for example, results in coverage and capacity being top investment priorities. But at the same time, network monetisation and new service development imperatives require more than just delivering coverage and capacity. Infrastructure suppliers therefore have an opportunity. By making a connection between foundational service requirements (i.e. coverage and capacity) and new service opportunities (e.g. ubiquitous and high-capacity IoT support), vendors can telegraph a way to support forward-looking growth agendas alongside the basics of reliable service delivery.

Related reading

Open RAN in 2024: why deployments are lagging behind expectations

After a slow start, the rollout of 5G SA networks is set to accelerate over the next two years

Author

Peter Jarich, Head of GSMA Intelligence

Spectrum: five trends to watch in 2025

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Analysis

The year of spectrum renewals and network sunsets

Spectrum assignments in different bands, such as the 900, 1800 and 2100 MHz bands, are approaching expiry in over 30 countries in 2025. At the same time, 61 network sunsets are planned for 2G and 3G technologies within the same year. Globally, the 900, 1800 and 2100 MHz bands are the harmonised home for 2G and 3G networks, offering a good portfolio for coverage and capacity. They are therefore the ideal bands to migrate in part or fully via network sunsets to enhance the 4G and 5G connectivity of telecoms operators. It is crucial for regulators that these bands are renewed on a technology-neutral and affordable basis to allow for the migration of these spectrum resources for future connectivity requirements.

D2D connectivity will be a key part of spectrum discussions

99 operators worldwide have partnered with satellite companies to offer satellite services, with 19 having already launched commercial offerings, according to GSMA Intelligence. The increasing supplemental capabilities of telecoms and satellite networks, especially in the direct-to-device (D2D) space, has sparked significant regulatory activity. For example, the Australian telecoms regulator announced that IMT-based satellite direct-to-mobile services can operate under Australia-wide spectrum licences without further approval. Meanwhile, regulators in the UK and India have sought industry input on satellite-based communication services. As this trend accelerates, D2D connectivity is poised to become one of the key topic of spectrum strategies and discussions in 2025.

More countries will identify 6 GHz for IMT in their national table of allocations

At the World Radiocommunication Conference 2023 (WRC-23), the upper 6 GHz band (6.425–7.125 GHz) was identified for mobile use across all ITU Regions (Europe, the Middle East and Africa, the Americas and Asia Pacific). A GSMA study found that mobile networks will need an average of 2 GHz of mid-band spectrum per country by 2030 – this will be difficult to achieve without 6 GHz, which is the single largest remaining mid-band block. Ensuring its timely availability at reasonable conditions and prices is therefore crucial. Hong Kong recently concluded the world's first IMT auction of the upper 6 GHz band and the UAE is assigning the full upper 6 GHz to its operators. Meanwhile Sri Lanka, Indonesia, Thailand, Bangladesh and Cambodia have added it to their spectrum roadmaps. In 2025, many more nations will make 6 GHz available for IMT in their national tables of allocation, a cornerstone for spectrum roadmaps that are essential to provide long-term investment certainty to telecoms operators.

New pricing and licensing methodologies will promote connectivity for digital nations

Nations around the world aspire to become digital nations, with spectrum serving at the heart of these digital economies by enabling connectivity for all. It is therefore vital that operators have access to timely and adequate spectrum resources at affordable prices. Governments and regulators are mindful of this and are adopting innovative pricing and licensing models to ease the financial pressure on operators while encouraging investments in connectivity and coverage. For instance, Germany and Spain have extended spectrum licences by five and 10 years, respectively, at no additional cost, in return for coverage commitments. With licences approaching expiry in over 30 countries in 2025, more nations are likely to adopt similar or other innovative licensing frameworks to advance connectivity and reduce the financial burden on operators.

Spectrum for future technologies

The agenda for WRC-27 includes new studies for IMT in the 4400–4800 MHz, 7125–8400 MHz and 14.8–15.35 GHz bands for next-generation technologies. In addition to possible new IMT bands, the WRC-27 agenda includes studies for D2D in IMT bands between 694/698 MHz and 2.7 GHz, and studies for new mobile satellite bands (1427–1432, 1645.5–1646.6, 1880–1920, 2010–2025 and 2120–2170 MHz). In 2024, the industry focused on identifying their stance and strategy for the upper 6 GHz band, renewals of spectrum used for previous-generation networks, the assignment of 5G spectrum in 20 additional countries and partnerships with satellite players. While these will continue to be focus areas in 2025, and possibly 2026 as well, studies and trials on the WRC agenda items will also initiate on the topics of coexistence and spectrum use and needs.

Implications

Mobile operators

- **Assess your spectrum portfolio requirements –** The renewal of spectrum licences offers telecoms operators an opportunity to reassess and optimise their spectrum portfolios. When licences are renewed through assignments, rather than extensions, operators can bid for additional spectrum or increase their bandwidth in one frequency band while reallocating resources from others. However, this requires a thorough assessment of current and future spectrum needs. With spectrum licences approaching expiry in more than 30 countries in 2025, operators must proactively and transparently articulate their requirements with regulators, backed by clear use cases.
- **Embrace the inevitability of network sunsets –** Network sunsets are not novel, with the industry witnessing the sunset of CDMA networks in the early 2010s and some 2G networks in Asia Pacific in the late 2010s. The advent of 5G has spurred momentum in network sunsets to address declining traffic on legacy networks, the financial burden of maintaining them and the need for efficient spectrum use by migrating to newer technologies. Network sunsets are now a question of when, not if. By the end of November 24, a total of 152 networks had been shut down and another 131 networks were planned to be shut down by 2030. Operators should develop a clear strategy and roadmap around their network sunset plans. A GSMA Intelligence report highlights best practices and challenges from these cases, offering operators a roadmap to navigate their network sunset journey effectively.
- **Don't miss the flight to space –** Just shy of 100 telecoms operators, representing 70% of the global market by number of connections, have made partnerships with satellite players. The basic premise of leveraging satellite connectivity is to address coverage gaps. However, the integration with both mobile broadband and IoT devices in 3GPP standards has also opened a whole new world of possibilities in the enterprise segment. We estimate that 2–3 billion IoT devices are currently addressable using satellite connectivity, which equates to around 10–15% of total IoT connections. GSMA Intelligence's global enterprise survey reveals that 43% of enterprise buyers consider satellite as extremely important to their technology plans. The time for telcos to act is now, whether this this involves offering the connectivity or participating in spectrum discussions to avoid interference or other technical issues.

Regulators

- **Ensure the safe coexistence of various technologies –** The growing momentum of D2D services has already sparked regulatory discussions to identify spectrum strategies and understand the technicalities involved. The WRC-27 agenda includes studies for D2D in IMT bands between 694/698 MHz and 2.7 GHz. As the industry focuses on studies and trials on the WRC-27 agenda items, regulators and policymakers must ensure that the protection of terrestrial networks is not at risk, and non-terrestrial networks must not cause interference into terrestrial networks. Spectrum issues with respect to D2D present substantial challenges. International and cross-border coordination will be critical for the operational sustainability of D2D, which will not be a benefit unless it can coexist safely alongside terrestrial mobile and other services.
- **Play your role in telcos' network sunset journey –** Network sunsets are inevitable. However, telecoms operators in many countries face significant roadblocks in their network sunset journeys. Common challenges include the reliance on legacy 2G/3G networks for critical services (such as e-call or SOS), public utilities such as meters and elevators still being configured to these networks and the affordability of 4G/5G devices. It is therefore imperative for regulators to provide a guiding framework and implement various policy measures to assist operators with network shutdowns based on market requirements. For example, several countries have introduced import bans on devices that rely exclusively on 2G/3G networks. Such measures can accelerate the adoption of 4G/5G networks, facilitating smoother network shutdowns.
- **Establish clear spectrum roadmaps –** Spectrum roadmaps offer the much-needed certainty to operators to foster long-term investment in their networks. Establishing transparent, long-term spectrum roadmaps, including the availability of the 6 GHz band and future IMT bands, is critical to enabling sustained industry investment.

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Network Sunsets, Q3 2024

Author

Radhika Gupta, Head of Data Acquisition

GSMA Intelligence

Fixed and pay-TV markets: five trends to watch in 2025

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Analysis

Fixed network transformation will be in vogue

The switch-off of copper-based networks is accelerating (our tracker shows that Europe and North America are leading), with benefits coming in the form of lower overall maintenance costs, a future-proof network and higher ARPU. We expect progress in 2025, including new switch-off announcements from operators. Additionally, cable companies are increasingly using fibre for greenfield deployments, with some (e.g. Virgin Media O2 and Altice USA) even planning to replace DOCSIS with fibre altogether. Finally, due to the growing demand for ultra-fast and reliable connectivity to support digital lifestyles and remote working, momentum for fibre to the room (FTTR) will accelerate, with the Middle East and North Africa (MENA) and Asia Pacific currently leading.

These three trends will boost fibre adoption. Across 36 major markets, we forecast that FTTP/B's share of fixed broadband connections will reach 76% by the end of 2025. As a result, FTTP/B will be the leading access technology in 24 markets (up from 14 in 2020).

5G FWA penetration will become material in more markets

As of September 2024, 139 operators across 68 countries had launched 5G fixed wireless access (FWA) services, with 22 operators having announced plans to launch in 17 countries – a combined total of 161 operators across 76 countries. With 14.7 million 5G FWA connections expected by the end of 2025 (up from 11.6 million in 2024), the US will continue to be the world's largest 5G FWA market, followed by India (6.1 million connections). Three markets will have a 5G FWA penetration (as percentage of fixed broadband connections) of 10% or more by the end of 2025: Austria (23%), the US (11%) and India (10%).

5G FWA momentum will be driven by various factors, including more 5G network launches, enhanced network performance due to the ongoing deployment of 5G standalone and the early launch of 5G-Advanced, cost reductions in customer-premises equipment (CPE), early availability of 5G RedCap and continuing demand for fixed broadband services in unserved or underserved areas.

Traditional pay TV will have its toughest year to date

Across many countries, the combination of increased competition for video services and the cost-of-living crisis will continue to bite, leading to record levels of cord-cutting. In 2025, traditional pay-TV net losses across 36 major markets will amount to 16.5 million, up from 15.9 million in 2024. However, trends will vary by country. During 2025, the number of traditional pay-TV connections will decrease in 21 countries and increase in 15 countries. Encouragingly, annual net losses will slow in the US, from 5.8 million in 2024 to 4.5 million in 2025, partly due to operator strategies to mitigate churn.

The OTT video space will be more challenging than ever

With the pandemic-induced boom having clearly come to an end and the ongoing cost-of-living crisis affecting many countries, providers of over-the-top (OTT) video services will face a much tougher environment in 2025. Following price increases to enhance profitability and the fragmentation of content across multiple services, the perception of standard OTT subscriptions as a low-cost alternative to traditional pay TV is diminishing. Providers of OTT services are now confronted with slowing growth and rising competition from free ad-supported streaming TV (FAST) services, many of which are offered by device vendors to generate additional revenue streams and differentiate themselves.

Operators will face a growing threat for OTT service bundling

Over the past couple of decades, operators have emerged as a key distributor of OTT services, successfully bundling them with connectivity. Other verticals are starting to follow this path. In the US, retailers such as Kroger and Walmart offer free ad-supported subscriptions to popular OTT video services for a year to increase the appeal and stickiness of their own loyalty schemes. Other membership-based services, such as Instacart in the US and Uber One in the UK, have partnered with Peacock and Disney+ respectively for similar bundles. In Australia, AGP bundles Netflix with gas and electricity. In 2025, we expect more partnerships between providers of OTT video services and players in other verticals, notably retail and utilities.

Implications

Fixed broadband providers

- **Monetise the transition to fibre –** With the ongoing transition from copper to fibre, operators can increase ARPU by encouraging subscribers to upgrade to higher speed tiers. French operator Iliad, for example, has successfully done this by including better CPE and additional video content in its top-tier bundles. FTTR represents another way to generate additional revenue from fibre, as well as an opportunity for differentiation. As of June 2024, 20 service providers in 18 markets had commercially deployed their FTTR services, primarily in the MENA and Asia Pacific regions. At the same time, operators replacing copper with fibre will need to ensure that plans are in place to cater for the needs of legacy PSTN users to make a successful transition.
- **Evolve bundling strategies –** Operators have successfully been using service bundling as a customer acquisition or retention strategy, starting with multi-play offerings combining their own services and then adding third-party digital services, notably OTT video services**.** Faced with the prospect of growing competition from players in other verticals in 2025, operators need to add more value to customers beyond value-for-money propositions. For example, they can make it easier for customers to select and manage their third-party subscriptions through direct carrier billing (DCB) and portals such as Optus SubHub and Verizon+.
- **Leverage 5G FWA to complement fibre –** In 2025, converged mobile/fixed operators that haven't already done so can extend their fixed broadband service footprint by launching 5G FWA services, especially in unserved and/or underserved areas, where it is less viable (from an economics perspective) to deploy fibre. In addition, 5G FWA is well suited for use cases such as back-up/temporary connectivity or it can be positioned as a lower-cost and more flexible alternative to fibre, particularly if using 5G RedCap. 5G FWA also gives operators the opportunity to offer pay-TV services to customers who do not take up traditional wired fixed broadband. For example, Verizon bundles Netflix and Max (formerly known as HBO Max) with some of its FWA subscriptions.

Pay-TV providers

- **Reinforce the perception of value for money –** Cord-cutting will increase in many markets during 2025, as high prices and insufficient use of the service are leading consumers to review the need to have a subscription to traditional pay TV. Operators such as Charter Communications in the US have reduced net losses in Q3 2024 by recently including ad-supported tiers of popular OTT video services, such as Paramount+, free of charge within their pay-TV propositions. Others, such as Cox Communications, have been adding FAST channels to their offer.
- **Create integrated experiences –** In 2025, the growth of FAST services will lead to increasing fragmentation of content across multiple services, making it harder for consumers to find the content that they want to watch. Traditional pay-TV providers can capitalise on their role as content aggregators by providing user interfaces that allow subscribers to easily access relevant content through features such as unified search capabilities, content recommendations and voice control.
- **Revisit OTT video business models –** The recent rounds of price increases for most OTT video services may have boosted profitability, but this can come at the expense of growth, leading to more cancellations and reduced take-up rates, notably for secondary OTT video services. Many players have turned to more affordable ad-supported tiers, and some have made partnerships to offer discounted bundles, such as Starz and Britbox combining their services in the US. We anticipate more of these partnerships in 2025.

Mobile operators

- **Capitalise on 5G FWA to gain fixed broadband market share –** For mobile-only operators, 5G FWA represents an opportunity to better monetise 5G by generating an additional revenue stream in the fixed broadband market. Following the launch of 5G FWA services in 2021, T-Mobile US has gained 6 million subscribers as of September 2024. In 2025, providers of 5G FWA services can also capitalise on emerging 5G Redcap technology to make fixed broadband more affordable. In the Philippines, operator Dito is aiming to capture a share of the fixed broadband market by offering value-for-money FWA propositions that leverage 5G and 5G RedCap technology.

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Pay TV: consumer trends and commercial practices shaping competition and adoption

Author

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GSMA Intelligence

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Analysis

Enterprise interest in generative AI will reach a new high

During 2024, the launch of generative AI (genAI) solutions for enterprises has ramped up, driven by major enterprise software application vendors such as Microsoft (Copilot AI agents), Zoom (AI Companion) and SAP (Joule), among others.

According to our Global Digital Transformation Survey 2024, 86% of enterprises undertaking digital transformation already use genAI technology, but only 33% are currently making advanced use of it, leaving room for growth. During 2025, we expect enterprises to push the use of genAI technology across three areas: validation of early use cases; experimentation of new use cases; and initiatives to move from limited to more advanced use of the technology.

AI will prompt a rethink of cloud versus on-premises decisions

The large-scale adoption of genAI and wider AI applications – including for experimentation purposes – will eventually increase data traffic and security vulnerabilities, which means further network and digital infrastructure upgrades will be needed. The data centre market is already seeing a shift towards on-premises deployments (propelled by the desire to run AI at the edge). During 2025, this trend will solidify, as some enterprises will turn towards more tailored and secure on-premises solutions as a way out from less flexible cloud contracts and to avoid less secure deployments.

2025 will help clarify winners and losers in private networks

In 2024, private 5G networks – a technology still in the early stages of its lifecycle – expanded to more enterprise adopters than ever before. However, despite the growing market, private network sales cycles have proven longer than originally expected. Additionally, as implementations are typically highly customised, monetisation for many have proved to be less straightforward than anticipated. According to our operator enterprise survey, almost 40% of operators deem the monetisation of private networks as challenging. As profit margins are typically compressed and the supplier market remains crowded, it is very likely that some vendors will decide to exit in 2025, and it may become clearer which ones will stay and win bigger market shares.

Mission-critical 5G will emerge as a key enterprise 5G opportunity

In the broader enterprise 5G picture, 5G networks that are configured as mission-critical networks will likely prove to be a key opportunity. In this segment, buyers are primarily the wider public sector and large-scale infrastructure companies (e.g. utilities, heavy industries, railways, airports) with specific needs, mainly around security, reliability and availability of connections. As an example, the US Department of Defense has been working with Nokia and Verizon for the implementation of its private 5G deployment strategy. In 2025, more government agencies will adopt 5G-based technologies, such as 3GPP-certified broadband mission-critical services (MCx), in their nationwide emergency response services (e.g. FirstNet in the US, Virve 2 in Finland), potentially as a future replacement of existing TETRA networks.

5G IoT: 5G RedCap will launch in the US

5G RedCap is a 5G-native IoT technology with a value proposition around performance, cost and mid-range data rate support. According to the GSMA Intelligence 5G RedCap tracker, the technology is just starting to be deployed outside of China. At the end of 2024, T-Mobile will activate 5G RedCap in the US, and in the beginning of 2025 AT&T is expected to do the same. 2025 will therefore show whether 5G RedCap establishes itself in the US (as well as displaying use cases and pricing), which will be an important indication for the rest of the world. In terms of the more established cellular IoT business, throughout 2025 IoT players will be busy migrating old connections from 2G and 3G networks, which are scheduled to be shut down, to newer technologies, mainly LTE Cat 1, LTE Cat 1bis, NB-IoT and LTE-M.

Implications

Mobile operators

- **Capitalise on AI risks** – According to our Global Digital Transformation Survey 2024, on average across the 10 sectors and 21 countries we surveyed, enterprise spend on digital transformation will be equivalent to 10% of enterprise revenue during 2024–2030. AI will capture the biggest share of spend among technologies beyond connectivity (14%). This presents a significant opportunity for suppliers of AI technology, including operators, who will need to be very deliberate about which needs to target. According to the same survey, enterprises' main needs are around enhancing security, while security, privacy and confidentiality of data are key implementation barriers. Therefore, offerings will resonate more if they are about tapping into enterprises' need for security and resilience, such as private networks that safeguard operations and data exchange in and out of enterprises' sites and across multiple places. Operators can also utilise their cloud infrastructures for supporting enterprises' adoption of genAI. For example, Orange Business Services offers a GPU-as-a-service solution to customers in need of dedicated access and control of AI-capable servers.
- **Double down on mission-critical 5G** – It is no secret that operators are under pressure to monetise 5G. A segment that will emerge as an important opportunity in 2025 is 5G networks that are configured for mission-critical applications. Operators are well positioned to take advantage of this segment thanks to their established presence and natural fit with relatively highly regulated environments where mission-critical service support is needed. As a specific example, the wider public sector (government agencies, municipalities) should be targeted, as larger-scale public safety networks are in scope for mission-critical support features. These include priority functions, secure and reliable communications, live video sharing, coverage during disruption and emergencies for use cases by the police, fire fighting, hospitals and emergency services. Indicatively, the FirstNet Authority plans to invest $8 billion to upgrade FirstNet, the US's national public safety network, from 4G/LTE to 5G. Operators in Europe should target the public safety and defence sectors, as the relevant investment in Europe will increase during 2025 as a result of geopolitical uncertainty. Additionally, they can upgrade the communications of European railways, encompassing dense freight and passenger train networks, with the implementation of 5G FRMCS as a replacement path of existing GSM-R.

Network vendors

- **Be realistic about the private networks opportunity** – In 2025, some private network vendors that are struggling to scale up the business might question their future strategy. However, the benefits for early adopter enterprises are clear (87% of operators' private networks customers state they have achieved expected benefits), while only a tiny part of the large pool of enterprises has adopted the technology. According to our Global Digital Transformation Survey 2024, only 2% of enterprises globally had adopted private networks, illustrating that the opportunity is largely untapped. From 2025 onwards, network vendors that intend to stay in the business should seek their management's and investors' support for a strategy that accounts for realistic project delivery timelines and adequate investment in the longer run.

Enterprises across vertical sectors

- **Tap into networks (operators and vendors) for AI** – AI adoption comes with several challenges for enterprise adopters. According to our survey, the top challenges include cost of implementation (31% of respondents), complexity of integration (29%) and security risks (29%). In 2025, enterprises will want to optimise where to run AI (on-premises versus in the cloud) in order to be secure. For this, enterprises should look for the right partners with capabilities in securing connections of data centres and reliable data exchange across multiple sites. The wider networking ecosystem, including operators and vendors, has a role to play here. Our data suggests that, at the end of 2024, around 38% of enterprises working with operators in some form for AI are getting help in integrating multiple networks needed for AI initiatives and a similar share for securing their AI applications.

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Digital consumer: five trends to watch in 2025

INSIGHT SPOTLIGHT

Throughout 2024, we have analysed important developments and innovation spanning all areas of the telecoms industry and wider digital ecosystem. How will the industry evolve in 2025? Which trends will continue to run their course? Which trends will take a new direction? And which will enter the fray for the first time?

To help navigate the year ahead, we are releasing a series of reports that highlight the key trends to watch in 2025 and the implications for ecosystem players. The analysis covers five key areas: 5G and network transformation; spectrum; IoT and the wider enterprise market; the digital consumer; and fixed and pay-TV markets. This Insight Spotlight addresses the digital consumer.

Analysis

Monetisation of 5G adoption will be a pressing objective

With 2 billion 5G mobile connections at the end of 2024 (roughly five years since launch), 5G adoption has certainly been fast. While adoption will continue to grow, reaching nearly 30% of total connections by the end of 2025, monetisation will be more pressing than ever. So far, progress has been mixed. Looking at the 10 markets that had achieved over 40% 5G adoption by mid-2024, only half were able to invert the trend of declining ARPU. In 2025, we expect a bigger push from operators on 5G monetisation through different routes, from traditional service/content bundling to newer approaches such as speed-based tariffs and experience-based propositions that target differentiated services (already launched by operators such as China Mobile, China Unicom, AIS Thailand and Telefónica).

AI will attempt to be the new differentiator in devices

Much of the work centres around the use of advanced AI such as generative AI (genAI) for delivering a more intelligent, personalised and engaging consumer experience. In 2025, we expect genAI to be increasingly prevalent in consumer devices, running either on-device, in the cloud/edge or in a hybrid format. However, in our August 2024 consumer survey, AI capabilities ranked towards the bottom among the most important smartphone features driving consumers' purchasing decisions (the top five features were battery life, durability, security of data, cost and camera quality). This partly reflects the early days of advanced AI's integration in devices but is also an important reminder about the need to deliver real utility to consumers for scalable take-up.

Gaming consumption will increasingly shift beyond fixed consoles

A consumer shift away from fixed gaming consoles is underway, as reflected, for example, in declining Xbox hardware revenue and lower PlayStation 5 unit sales. In 2025, we expect consumers to increasingly adopt cloud gaming and gaming handhelds. According to our survey, among gaming service subscribers, 57% held a cloud gaming subscription. This user base is expected to grow, as it will be facilitated, for example, by big gaming players such as Microsoft getting firmly behind cloud gaming. Looking at gaming handhelds, there have been many new gaming handheld launches (e.g. MSI and Acer), spurred on by the Nintendo Switch's success. The momentum behind these devices is expected to pick up in 2025, with Nintendo likely to announce a new Switch by Q1 2025 and Microsoft's reported work on an inaugural Xbox gaming handheld adding a boost to gaming handhelds in general.

Extended reality, away from hype, will continue to make quiet progress

The success of extended reality (XR) remains elusive – only 5% of consumers own an XR (e.g. augmented reality, mixed reality and virtual reality) headset. In 2025, XR hardware should make progress across several key areas, including display, cameras and sensors, gesture sensing, rendering and chips. Following the success of Meta's smart glasses and its unveiling of the Orion prototype, augmented reality glasses are likely to be a key focus of innovation. Samsung could also give XR a helping hand in 2025, as it is reportedly re-entering the market with a new XR headset. Beyond hardware progress, XR content creation should also advance through the increased application of genAI, which will help lower content costs and build time.

eSIM adoption will expand beyond the US

2024 has been a remarkable year for eSIM commercialisation. There will be three important things to watch in 2025. The first is progress with consumer adoption of eSIM beyond the US (where eSIM penetration is already at 30% following the launch of eSIM-only phones in 2022). Now that consumer awareness of eSIM has reached 50% on average (across major developed mobile markets) and operators are starting to promote eSIM when onboarding new customers or as part of their digital-first/digital-only consumer propositions (including digital brands), there should finally be an uplift in adoption. The second is the transition to eSIM-only smartphones beyond the US. While it's difficult to predict if there will be new launches in 2025, launching eSIM-only phones is a matter of when, not if. The third is the growing use of eSIM for international roaming; beyond being a primary use case for eSIM, it allows consumers to get familiar with the use of eSIM.

Implications

Mobile operators

- **Leverage 5G tariff innovation to deliver an ARPU uplift –** According to our August 2024 consumer survey, consumers who intend to upgrade to 5G are willing to pay 5% extra for their 5G mobile subscription, on average, versus what they pay for their current 4G subscription. This is positive news for operators. Looking at the financial benefit that some of the 5G monetisation methods could have, our research finds that the three markets with the highest share of speed-based tariffs (Finland, Switzerland and Norway) are among the top performers in terms of ARPU growth. Everything else being equal, consumers in leading speed-based tariff markets are prepared to pay $14 extra per month to increase their download speeds from less than 100 Mbps to the maximum speeds available. The ongoing rollout of 5G standalone and early commercialisation of 5G-Advanced should help operators deliver enhanced network performance and user experience, as well as innovative, revenue-enhancing services for consumers. Customer segmentation will be key to operators' monetisation efforts.

XR ecosystem players

- **Filling in the gaps –** Apple, with the launch of its Vision Pro XR headset in February 2024, set a steep new performance benchmark for XR headsets. However, according to various industry estimates, sales of the Vison Pro have since trailed market expectations, mainly due to its high retail price ($3,500 in the US). In a lesson from this, as XR OEMs push hardware innovation and adjust to higher specifications even for their base headset models (due to the influence of the Vision Pro), they will need to balance this with consumer affordability for wide-scale adoption. Indeed, Apple itself is reportedly expected to launch a cheaper version of the Vision Pro in 2025. XR providers will also need to redouble their efforts to expand XR content libraries beyond gaming to foster mass appeal for this technology. Apple is again taking the lead here, with the Vision Pro now having more than 2,500 native spatial apps and 1.5 million compatible apps for VisionOS 2, covering a multitude of use cases such as productivity, social, entertainment, live sports, shopping, creativity, finance, learning and health.

OEMs

- **Entering a new phase for device innovation –** Rapid continuing innovation in AI – including small language models, multi-modality, genAI agents and improved large language model (LLM) reasoning techniques (e.g. chain of thought) – augurs well for AI capabilities emerging as a differentiating factor for consumers in device purchases. As with most new technologies, flagship models from OEMs will likely act as a showcase for advanced AI before it cascades down to the rest of the device range. OEMs with scale could also look to develop their own genAI, as Samsung is doing in partnership with Naver, with the aim of controlling what is likely to become an important technology in consumer devices. Also, in terms of monetising genAI in their devices (apart from the natural price uplift of flagship models), OEMs could charge an explicit fee. For example, Amazon is reportedly looking to offer its Titan-LLM-refreshed Alexa under a subscription plan, potentially launching in 2025.

Gaming providers

- **Partnerships to promote cloud gaming –** Like with over-the-top (OTT) video, partnerships with other gaming ecosystem players (e.g. gaming studios, super aggregators and operators) will be a key aspect of cloud gaming providers' efforts to boost cloud gaming adoption. For example, one such partnership is between Microsoft and Amazon, with the Xbox Game Pass service being made available on the Fire TV Stick. Operators will be a crucial partner to help cloud gaming providers optimise subscriber acquisition costs and reduce sign-up friction, especially in developing markets where payment infrastructure is often inadequate. There are different types of partnerships between operators and cloud gaming providers, including promotional (no operator billing), integration (e.g. billing, cloud gaming via set-top box) and commercial (revenue sharing).

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