TOP 10 TELECOMS & CONNECTIVITY TRENDS 2025

JUNIPER® RESEARCH

Contents

Introduction

This year's telecoms & connectivity trends has been created to provide industry stakeholders, including network operators, technology vendors, and investors, with foresight into emerging technological shifts and market opportunities. Juniper Research prides itself on identifying and evaluating the latest disruptive trends in telecoms and connectivity.

Additionally, as the tricky economic climate continues, a focus on reducing costs and maximising return on existing investment is a key priority for success. We anticipate that these economic pressures will be a major priority for stakeholders and will drive a number of key trends discussed here including Wi-Fi 7, managed connectivity, emerging MVNO-in-a-Box initiatives, and the strategic development of 6G.

It is clear that telecommunications markets are undergoing seismic changes. From quantum developments to consumer roaming experiences, connectivity preferences and telecoms technology are changing quickly in different markets, all across the world for market stakeholders and consumers alike.

About the Trends

The following trends are presented in the order of number one being the most influential, to number ten being the least. Referenced in the graphic on the right, Juniper Research has identified four key themes that will shape the ten most influential trends throughout 2025. These themes will shape key disruptions in the market and will require operators to respond swiftly to secure competitive edge.

If you would like more information about the markets being discussed, where relevant, we have provided direct links to our supplementary research reports.

Additionally, you can find links to appropriate sources, including complimentary whitepapers, at the end of the document. You can also contact us via email at info@juniperresearch.com, where we can answer any questions you may have.

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1. AIT to Decline as Firewalls Shift Tide Against Fraudsters

AIT (Artificially Inflated Traffic) refers to non-genuine A2P (Application-to-Person) SMS traffic generated by fraudulent players to increase SMS volumes and impose unnecessary costs on enterprises for traffic that serves no operational purpose. Juniper Research has identified the decline in AIT fraud as the most influential trend in telecommunications in 2025, with SMS firewalls reducing the amount of costly AIT over SMS networks.

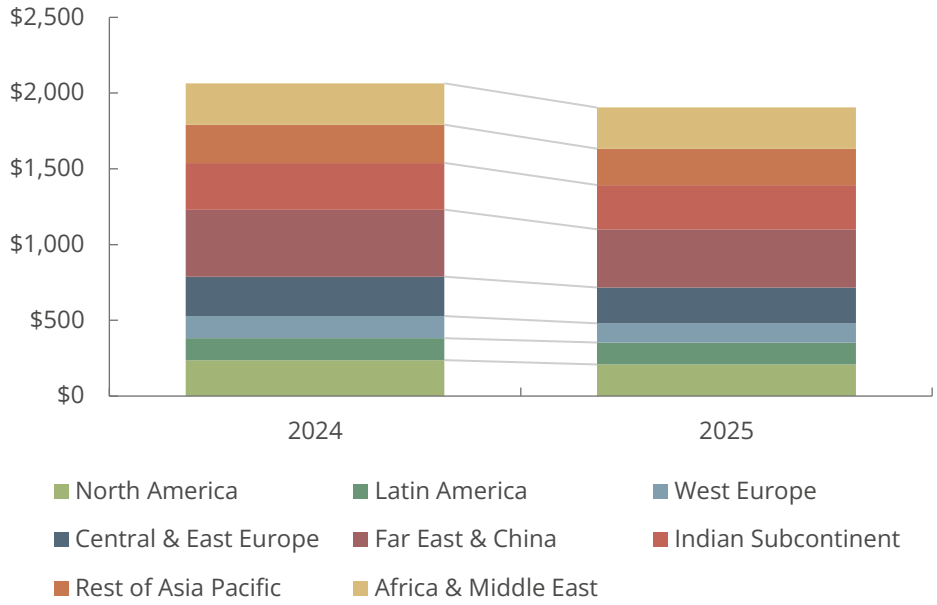
Since 2020, enterprise losses to AIT have accelerated, with fraudulent players capitalising on the widespread use of OTPs (One-time Passwords) and multi-factor authentication. With fraudulent players recognising the potential monetary gain from AIT, this has prompted MNOs and enterprises to seek enhanced mechanisms to monitor, identify and block suspected AIT fraud to protect SMS networks.

AIT has often been difficult to detect by SMS firewalls; being indistinguishable from legitimate OTP SMS traffic prior to the message reaching the mobile number. Typically, enterprises are not alerted to suspected AIT until they exceed their SMS messaging limit for a certain time period or through analysis of user conversion rates.

As shown in figure 1, Juniper Research anticipates that global enterprise losses to AIT fraud will decrease by 8% in 2025. Specifically, whilst there was a small decline in AIT traffic between 2023 and 2025, the solutions, which have required collaboration from all levels of the ecosystem, are expected to more efficiently prevent AIT within enterprises websites and applications. This will contribute significantly to drive the decline in AIT in 2025.

Albeit steady, the shift in momentum away from increasing AIT is crucial to operators' SMS business messaging revenue, with the risk of enterprises moving to alternative forms of authentication putting MNOs under pressure to act swiftly. This expected reduction in AIT over 2025 will reinstall the value of the SMS channel as other channels, such as authentication APIs and RCS, emerge as alternatives.

Figure 1: Enterprise Losses to AIT Fraud ($m), 2024 vs. 2025, Split by 8 Key Regions



Source: Juniper Research

Therefore, with SMS firewalls increasingly blocking and mitigating AIT fraud, fraudsters will experience reduced success in their efforts and SMS will become an increasingly valuable channel for authentication requirements. This decline will be evident in 2025 due to increasing awareness from MNOs and action taken by SMS firewall vendors meaning that there are more layers to AIT prevention and enterprises see more success in blocking traffic.

With the decline in AIT comes the risk that fraudulent players may migrate their efforts to alternative forms of SMS fraud, such as SMS phishing or ATO (Account Takeover) fraud. AIT is a more simplistic form of fraud in comparison to alternative forms of fraudulent activity, and Juniper Research anticipates that the decline in AIT will not directly impact other forms of SMS fraud.

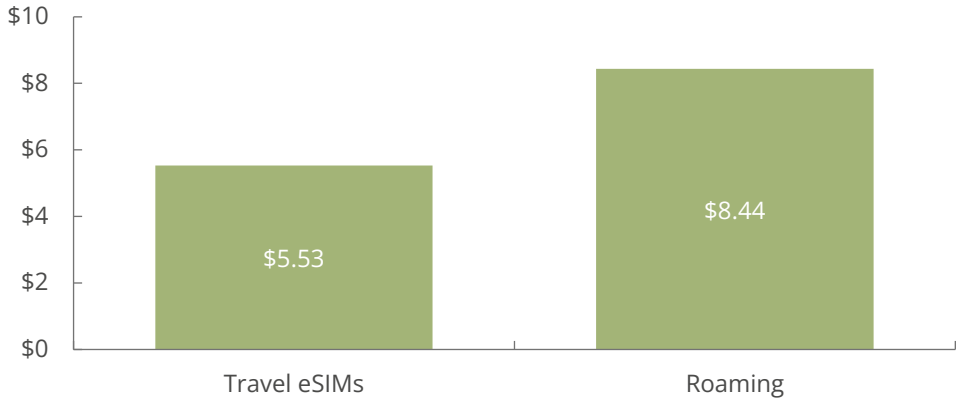
Global AIT Prevention Market 2024-2029

2. Travel eSIMs to Provide Serious Competition to Traditional Roaming Solutions

A travel eSIM is a digital profile that enables international travellers to access mobile networks without needing a physical SIM. It provides temporary mobile data plans while travelling abroad. In 2025, Juniper Research forecasts that global revenue from travel eSIMs will exceed $2 billion for the first time. Travel eSIMs will provide significant competition to traditional roaming services, as an increased number of consumers opt for travel eSIMs as an alternative connectivity solution when travelling. In our latest report, we estimate that operators will lose $1.2 billion of potential roaming revenue to travel eSIMs in 2025.

Compared with traditional roaming solutions, travel eSIMs provide users with more control over what they are spending and the data that they are consuming. For example, in 2025, the cost of 1GB data when travelling using a traditional roaming package is anticipated to be 50% higher compared with 1GB data on travel eSIM packages.

Figure 2: Average Global Cost of 1GB Data Roaming vs Using a Travel eSIM in 2025 ($)



Source: Juniper Research

Since the visited network can set the price of roaming, this has resulted in rising inter-operator charges over the last two years as operators seek new ways to increase revenue. Currency conversion costs can also cause additional charges, which are subsequently passed on to the consumer. This has resulted in the increasing costs to roam over the last few years; further driving consumers to alternatives for staying connected whilst travelling.

By the end of 2024, the number of connected consumer devices that will leverage eSIMs for connectivity will surpass 1 billion, with most mobile operators globally supporting eSIMs for connectivity.

Juniper Research expects an increasing number of travel eSIM vendors to partner with online travel agencies and airlines next year to widen distribution channels for travel eSIM packages. This will increase consumer awareness of travel eSIMs for connectivity in 2025 and makes it possible to provide tailored offerings to consumers based on the travel destination and duration.

The increased convenience of being able to download an eSIM profile, as opposed to swapping a physical SIM, will be an important factor driving this increased adoption.

Juniper Research has identified China, Japan, the UK, and the US as key markets in which this trend will be most felt. Outbound travellers from these countries are expected to increasingly demand travel eSIM packages the most; owing to the higher penetration of eSIM-compatible consumer devices, a high demand for mobile data, and high proportion of travellers that roam whilst abroad, with many of those that currently roam expected to look for more cost-effective alternatives.

Global Travel SIMs & eSIMs Market 2024-2028

Global eSIMs & iSIMs Market 2024-2028

3. First Commercial Direct-to-Cell Connections to Launch

Direct-to-cell communications refers to an approach to connectivity that enables cellular devices, such as smartphones and IoT devices, to directly connect to satellites, without the need for additional hardware or terrestrial signal coverage. In doing so, the technology will provide ubiquitous connectivity over large geographical spaces, through the use of LEO (Low Earth Orbit) satellites.

Substantial investment has already been put into creating this ecosystem that enables devices with a SIM card to connect directly to signal from a satellite, including capable radios in devices and satellites with the correct antennas. In turn, this will provide cellular coverage in locations that were not financially viable for operators, such as rural locations or maritime.

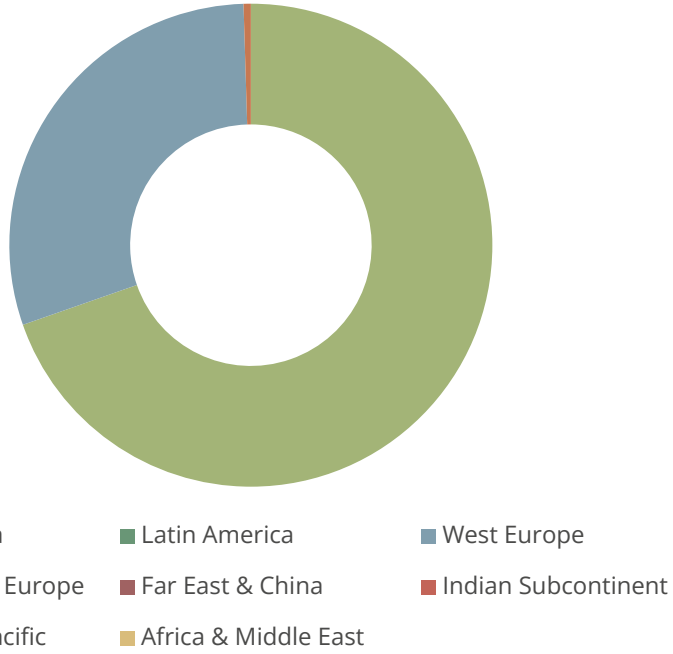
Juniper Research expects the first commercial connections to be adopted in 2025; an ecosystem has already been created in which a commercially viable service can be launched. SNOs such as AST SpaceMobile, Lynk Global, Omnispace and Sateliot have all been investing heavily in satellite launches and operator partnerships to enable the first commercial service in 2025.

To begin the monetisation of direct-to-cell services, operators must begin to create the relevant sales channels to promote these services. Unlike terrestrial channels, there is a very niche addressable user base. In 2025, operators must look to promote their services to enterprises above all else. Enterprise clients have a higher average revenue per client than consumer subscribers, so will position operators well to secure a return on investment.

Juniper Research has identified three key reasons as the anticipated first commercial connection over direct-to-cell networks:

- Decreasing Cost of Satellite Launches: New technologies and business models are decreasing the cost of launching satellites. In addition, the growth of the private space economy has driven advancement in the available options for SNOs in launching their satellites.
- Immediate Total Addressable Market: With the growth of direct-to-cell compatible devices, there is already a potential user base for service providers. Whilst there will be an immediate large addressable user base for consumer devices, Juniper Research expects there to be an initial low demand for services in 2025 owing to the existing coverage of terrestrial base stations. Additionally, network operators must prioritise areas with high population densities, to create value in their networks.

Figure 3: Total Number of Commercial Direct-to-Satellite Connections in 2025: 600,000



Source: Juniper Research

Global Direct-to-Cell Market 2024-2029

4. Wi-Fi 7 Devices to Provide Alternative to Cellular Technologies

Wi-Fi 7 (also known as IEEE 802.11be) is expected to gain traction in 2025; most notably in the enterprise IoT market. Wi-Fi 7 provides lower latency and higher speed connectivity for users in comparison to previously utilised Wi-Fi 6, 6E and 5G networks. Wi-Fi 7 achieves these desirable network functionalities by incorporating both 6GHz and 5GHz bands to establish a multi-link operation. This ensures users remain connected even when moving out of range of one band; increasing throughput and avoiding network traffic.

A key feature of Wi-Fi 7 is its ability to maintain high speeds and low latency even when faced with high device and traffic volumes. As device densities increase over networks, technologies that are able to maintain network conditions will be highly sought-after. Juniper Research predicts that, with the launch of Apple's iPhone 16 and increased adoption of AI PCs in 2025, device numbers will increase.

Additionally, Wi-Fi 7 does not require a monthly recurring payment or subscription-based payment model, only the purchase of Wi-Fi 7 compatible hardware such as Wi-Fi 7 routers. The simplicity of payment for Wi-Fi 7 devices will benefit smaller IoT networks, and is expected to add value to enterprise IoT markets; providing an additional network technology that can be integrated into technology solutions.

We expect Wi-Fi 7 to be implemented for IoT use cases, such as industrial automation and real-time analytics. As connectivity becomes ever expansive, the technology represents a cost-effective solution to improve the capabilities of IoT networks and solutions.

Juniper Research has identified two key elements of Wi-Fi 7 that will drive demand for Wi-Fi 7:

- MLO (Multi-link Operation): This enables connections to connect to multiple frequency bands simultaneously, with a seamless handover between frequencies. This will be most felt in IoT networks with a high density of devices.
- Reduced Latency: Latency will remain a key metric for network operation in IoT networks given the expanding requirements for end devices.

Juniper Research anticipates that with the growth in Wi-Fi 7 compatible user devices, the technology will be increasingly adopted to complement cellular technologies in 2025 due to the rich features offered that align to the capabilities of 5G technologies. In particular, use cases requiring high bandwidth will benefit from Wi-Fi 7, such as mobile gaming and video conferencing, leading to the technology gaining momentum.

Broadband network companies must target use cases such as mobile gaming and video conferencing to ensure that Wi-Fi 7 gains momentum and establishes its position as an alternative to cellular technologies such as 5G SA (5G Standalone). A limitation to the success of Wi-Fi 7 devices in providing an alternative to cellular technologies is that the 6GHz band utilised in the multi-link operation is not readily available in all countries due to varying standards and regulations. Therefore, this must be a key area of focus for operators in 2025.

Figure 4: Wi-Fi 7 Value-added Features

Source: Juniper Research

5. Managed Connectivity: Development of Services Will Target New Opportunities

Operators have employed many strategies to increase revenue, with a key focus on increasing consumer ARPUs (average revenue per user). This has historically included bundling additional services to increase the value proposition of adopting a mobile subscription with the operator.

In figure 5 we can see that operators have been experiencing revenue growth globally despite a decline in ARPU. However, service provision amongst consumers is an increasingly saturated market, and operators have struggled to secure a return on investment in 5G by relying on consumer subscriptions. Operators have also struggled to monetise 5G networks to their fullest potential; pricing 5G subscriptions similar to 4G subscriptions to migrate as many subscribers to 5G as early as possible.

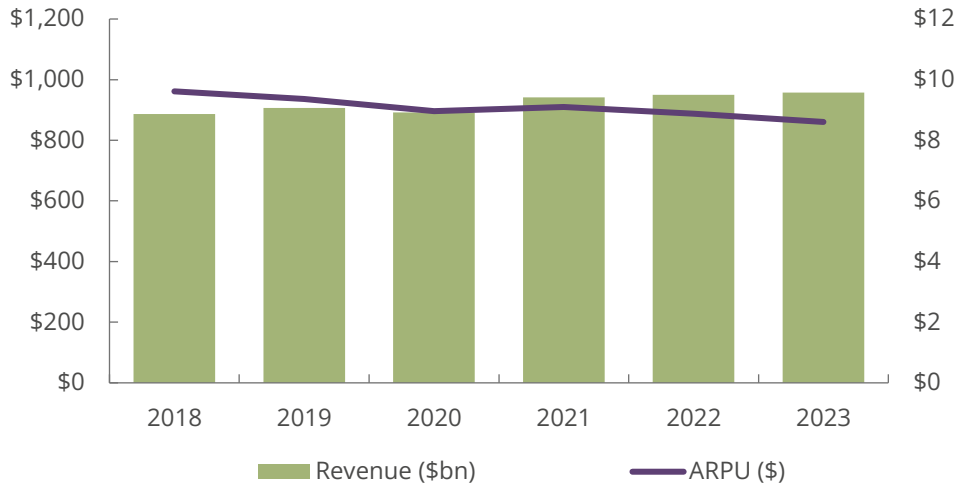
Interestingly, advancements in 5G standards will enable operators to evolve their managed connectivity services and offer them to a broader range of enterprise users. A key factor here is the higher levels of virtualisation that enable operators to offer modular connectivity solutions.

To capitalise on this momentum, operators will develop their managed services to accommodate the wide range of underserved enterprises which could leverage cellular networks and services to underpin their business operations. Operators have an abundance of experience in connectivity services. With the emerging technologies that are expected to increase in 2025, such as 5G Advanced and 5G RedCap, operators must develop their managed services to cater to the SME (small-to-medium enterprise) market.

As operators seek to increase revenue from enterprises; it is essential these new services enable SMEs to best manage networks when out of their core competencies. Whilst the average spend per enterprise will be lower for SMEs, this segment cannot be ignored given the opportunities available in the aggregate.

Additionally, Juniper Research believes that operators must begin tracking the average revenue per enterprise client; given the high levels of market saturation of connectivity provision in the consumer sector, operators must look to increase revenue from enterprise clients. Whilst there is a higher acquisition cost for an enterprise client, average revenue per enterprise client will be substantially higher. To capitalise on this trend, and most notably the SME market, Juniper Research believes that management connectivity services must have a strong focus on consulting and advisory services that share technological expertise with SMEs.

Figure 5: Global Operator Revenue ($bn) & Average ARPU ($), 2018-2023



Source: Juniper Research

Global Operator Revenue Strategies 2024-2028

6. RCS Hype to Finally Materialise

RCS messaging is a communication protocol standard native to the mobile device that allows the mobile subscriber to send messages containing rich media, such as images, video, and audio. The development of the messaging channel first began in 2007. Google first became involved with RCS in 2015 with the purchase of Jibe Mobile, where it subsequently worked with the GSMA to develop the Universal Profile in 2016. This interoperable standard allowed operators to implement RCS.

However, Apple announced it would support RCS in June 2024, and support began with the roll-out of iOS 18 later in the year. However, the hype around RCS business messaging has persisted for the last few years. With this support, we anticipate that RCS will finally begin to live up to the hype associated with it in 2025.

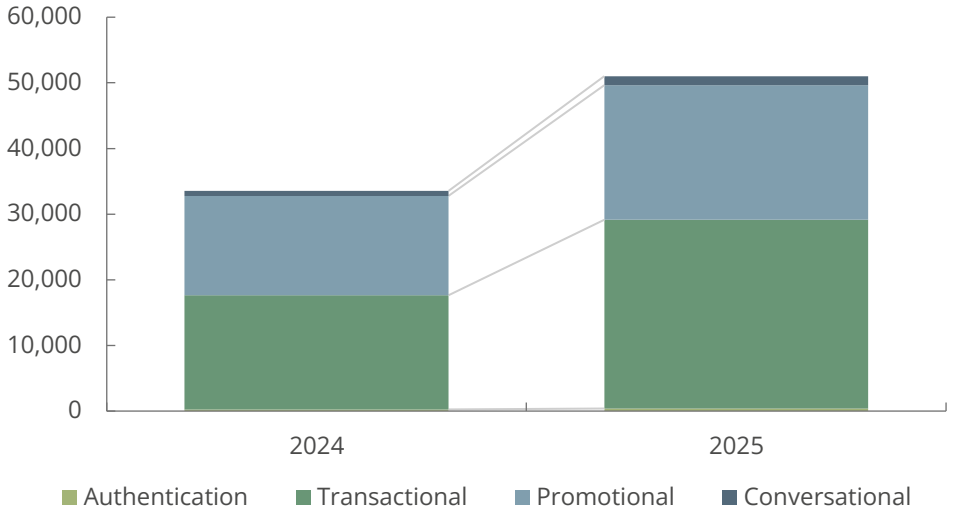
This coincides with the decline of the SMS business messaging market, which is suffering from decreased demand for SMS traffic and gaining less revenue owing to high pricing and the damage caused by historically high AIT. As a result, the market for mobile authentication traffic is undergoing substantial disruption as enterprises seek alternative channels to SMS to authenticate new users and transactions.

Apple's support of RCS is well-timed. Rising levels of fraud across SMS networks and diminished trust in the technology are forcing enterprises to explore alternative channels to send OTPs (one-time passwords) or MFA (multifactor authentication).

With Apple's support, countries such as the US, Canada, France, the UK and Australia are all expected to experience a growth of over 100% in the number of RCS-capable subscribers in 2024; providing a valuable option for authentication traffic. However, operators must ensure this user growth translates to increased business messaging traffic and subsequent revenue in 2025.

To accomplish this, Juniper Research expects operators to make substantial efforts to develop an ecosystem for RCS business messaging over their networks that provides value to enterprises. As shown in the figure below, Juniper Research believes that global RCS business messaging traffic will grow by over 50% in 2025. A point of note is that most growth over these 12 months will be attributable to transactional messages, the use case that requires the most minor investment.

Figure 6: Global Number of RCS Business Messages Delivered (m), Split by Key Use Cases, 2024 & 2025



Source: Juniper Research

Whilst transactional messages will provide the most growth in 2025, operators must also prepare for growth in authentication messages (which require OTP and MFA support) and conversational traffic which requires investment into chatbot and automation technologies. As a result, 2025 will also be the year operators invest heavily in RCS ecosystems, moving beyond the marketing hype the technology has experienced.

Global RCS Business Messaging Market 2024-2029

7. Emerging MVNO-in-a-Box Model to Disrupt Connectivity Market

MVNOs (Mobile Virtual Network Operators) have become increasingly important players in telecommunications markets, with their low cost and more customised offerings enabling continued growth in market share around the world. This can be seen in the increase in MVNO revenue from mobile subscribers over the next five years, which will increase from $73 billion in 2024 to over $100 billion in 2029. MVNO-in-a-Box is defined as:

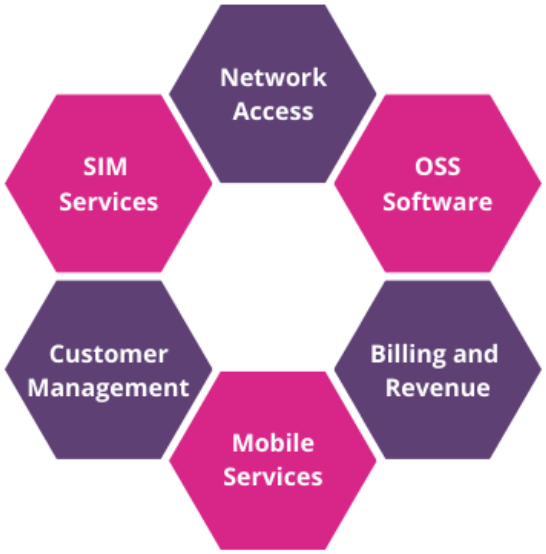
"A package of managed services, software, agreements and solutions which allow an enterprise to launch an MVNO quickly and easily."

Alongside this growth in MVNO revenue from mobile subscribers, decreased barriers to entry to the MVNO market have continued to decline, with MVNAs (Mobile Virtual Network Aggregators) and MVNEs (Mobile Virtual Network Enablers) continuing to simplify services with 'as-a-service' models, and reducing the rates for purchasing network capacity. Furthermore, the growth of cloud-based services and reduced reliance on physical network infrastructure have further reduced the barriers for enterprises to enter the MVNO market.

Juniper Research expects these trends to continue in 2025, with MVNEs, MVNAs, and other stakeholders in the market partnering and collaborating to bring 'MVNO-in-a-Box' solutions to market. Specifically, MVNO-in-a-Box provides a simplified low-cost approach to launching and operating an MVNO service. Through an MVNO-in-a-Box solution, an organisation, enterprise, or group can easily launch an MVNO in a few months, without having any technical expertise in telecommunications. As a result, the continued emergence of MVNO-in-a-Box solutions in 2025 will further reduce the barriers to entry into the MVNO market, and encourage new players to enter the market.

In particular, Juniper Research expects the MVNO-in-a-Box model to be highly appealing to enterprises seeking to diversify revenue streams, and complement their existing services to customers. MVNO services can also be used by enterprises to increase customer loyalty and stickiness.

Figure 7: MVNO-in-a-Box Components



Source: Juniper Research

In 2025, Juniper Research expects an increasing number of enterprises to begin offering connectivity service in addition to their core offering, such as streaming platforms or eCommerce. This is a seismic shift from the bundling of other services on top of connectivity subscriptions.

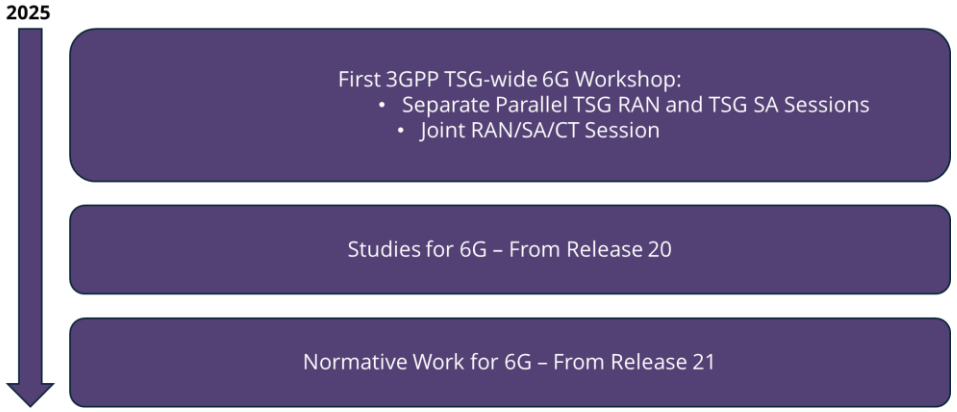
Specifically, we anticipate that in 2025, MVNO services will be integrated into digital loyalty schemes and customer reward programmes as a first key strategy for emerging MNOs to upsell their newly established connectivity services to existing digital customers. This will incentivise adoption by existing customers and expand the product ecosystem. For example, MVNO subscriptions can increase the points earned on purchase at a retailer.

Global MVNO-in-a-Box Market 2024-2029

8. 6G Standardisation to Begin with Lessons Learned from 5G

Having officially approved its first study on 6G in September 2024, 3GPP (Third-generation Partnership) will continue its work on 6G in 2025. In March 2025, the first 3GPP TSG- (Technical Specifications Group) wide 6G workshop will be held, with studies on 6G also beginning in 2025.

Figure 8: 3GPP 6G Workplan and Timeline



Source: Juniper Research

The ITU (International Telecommunications Union) has also begun its work on technical performance requirements, and evaluation criteria and methodology, in 2024, and this will continue into 2025. As well as this, the ITU will work on the requirements, evaluation criteria, and submission template for 6G.

With operators slowing their annual investment in 5G infrastructure in 2025, they are expected to turn their attention to 6G. Whilst 5G was quick to focus on niche use cases such as autonomous vehicles, 6G must focus on highly monetisable enterprise use cases. Juniper Research expects the 6G standards to focus heavily on improving network efficiency and sustainability. For example, the 6G core network will focus on supporting energy consumption optimisation, and operations automation.

Network efficiency and sustainability will not only be key to meeting operators' ESG (Environmental, Social, and Governance) goals, but will also allow operators to better control their expenditure on 6G networks. This will make it easier for operators to profit from their investment.

As part of this drive for efficiency and sustainability, 6G discussions in 2025 must improve upon the energy efficiency features included in standardised 5G Advanced technology; ensuring that a significant number of energy-saving features will be available from day one. Additional energy saving features will also be implemented into the network as well, such as advanced sleep nodes, and quality of service adaption based on cell load will also be a focus for operators.

As mentioned, Juniper Research anticipates that the sustainability and efficiency of 6G networks will be key areas of research for stakeholders in 2025. To achieve the sustainability and efficiency goals, Juniper Research anticipates that 6G development will focus heavily on AI-native networks and architectures. 6G will include AI enablers throughout the different network layers. This will enable autonomous and intelligent network management, with AI monitoring the network status in real-time and optimising network performance via automatic adjustments and anomaly detection. It will also optimise the energy consumption of the network; allowing operators to make further progress towards their sustainability goals.

6G networks will offer ultra-low latency, and higher throughput; enabling significant growth in use cases, such as augmented reality, and real-time broadcasting. In order to support these new use cases operators will continue to develop their technological and service capabilities throughout 2025.

Global 6G Development Market 2024-2032

9. Operators to Increase Network Efficiency, Not Capacity

Even with 6G network standardisation commencing, and investment in 5G technologies slowing, Juniper Research believes that investment into supporting network technologies will occur next year. The maturing of 5G networks and changing demand for connectivity will drive network operators to focus on increasing the efficiency of cellular networks in 2025. This is in contrast to previous years, in which operators have focused capital-intensive network rollouts. Energy consumption to operate telecommunications networks is substantial; with growing pressures from regulatory bodies and mobile subscribers, operators are prioritising the efficiency of their networks.

In addition, considering the recent struggle of operators to fully monetise connectivity and network services, reducing the operational expenditure of networks will be a key strategy as operators continue to invest in 5G networks and prepare for 6G standardisation.

Juniper Research believes that this trend can be broken down by the adoption of three key strategies, outlined below:

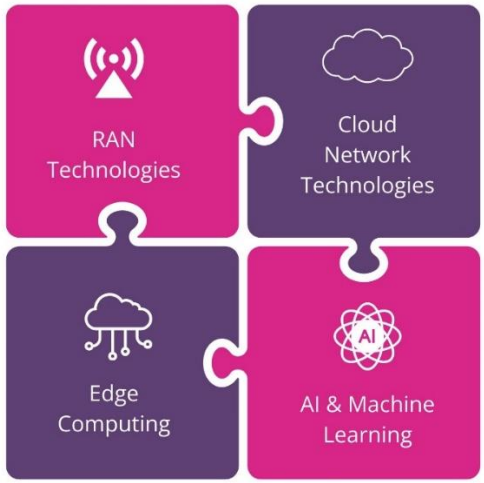
- AI-based Networks: Automating network processes through AI and increasing the efficiency of networks. In turn, this will enable operators to lower operational costs by only running network functions when they are required.
- Dynamic Spectrum Sharing: The ability to use the same spectrum across various technologies, such as 4G and 5G, thus negating the need for expenditure on additional spectrums, and reducing the cost of operating network base stations.
- Sustainable Initiatives: Operators will adopt renewable energy sources and cost-efficient technologies to reduce the monetary spend on operating networks.

The implementation of AI in RANs (Radio Access Networks) must be a key area of focus for operators reducing operational expenditure. Radio access networks act as the bridge between the core of networks, where many network functions are processed, and the connections on these networks. As a result, they consume the most energy; approximately 50% of an operator's operational expenditure. Secondly, we also expect virtualising network functions through cloud technology to be a critical element of sustainability initiatives. These two technologies are expected to account for over 95% of operators' cost savings in 2025.

Not only will these technologies enable operators to reduce their efficiency without increasing network capacity, it will also enable them to evolve their network service; providing more capabilities for mobile subscribers and enterprise clients. The continual development of 5G networks and the demand for increasing network performance from users has led to operators needing to continually invest in network expansion. This, in turn, this will lead to increasing network expenditure if sustainability and efficiency-saving technologies are not implemented.

As 5G penetration increases, in 2025 it is essential that operators focus on increasing the efficiency of their networks to handle the increasing amount of connections and demand for data.

Figure 9: Key Technologies that Enable Greater Network Efficiency



Source: Juniper Research

10. Quantum-resistant Network Development to Accelerate

In 2025, the development of quantum-resistant networks will grow across key industries such as healthcare, government, and transport, to prepare for the growing threat of quantum computing to current network encryption standards.

Specifically, investment in and research on quantum-based security methods is making notable progress in telecommunications, especially in Europe and Asia. For example, the European Union has initiated the EuroQCI project, an initiative which builds a quantum infrastructure to enhance cybersecurity. Additionally, in 2025, China is expected to launch several quantum communications satellites in low Earth orbit.

The acceleration of quantum-resistant network developments will be driven by the integration of QKD (Quantum Key Distribution) in telecom networks. QKD provides true random number generation through the use of unpredictable quantum processes, to generate security keys to pass encrypted data between two users. It also provides instantaneous threat detection, as the keys' states will change if a bad actor or hacker attempts to intercept the key. Furthermore, QKD keys can be generated freshly as many times as needed, whereas in classical cryptography key generation is limited by the use of algorithms with which only a finite set of keys can be generated.

Following this investment, we anticipate that throughout 2025, operators will begin to leverage QKD for networks to secure communications against future threats posed by quantum computing. Traditional encryption methods, like RSA (Rivest-Shamire-Adleman), could be broken by quantum computers; making sensitive data vulnerable. QKD provides a quantum-safe encryption method by allowing encryption keys to be securely exchanged.

Any eavesdropping attempts by bad actors disrupts the quantum state, making it detectable. Specifically, we anticipate that telecom operators will invest in expanding QKD infrastructure alongside post-quantum cryptographic algorithms. This will create a layered defence against emerging quantum threats, such as harvest-now, decrypt-later. This convergence will play a pivotal role in protecting sensitive information across telecom networks.

To improve network security, several operators are already testing QKD systems within 5G core networks, aiming to create safe environments. For example, operators across the US, China, Japan and Europe are actively testing and implementing QKD technologies in their networks. However, scalability and integration challenges remain, particularly in the management of quantum networks alongside classical ones.

With the high investment costs for quantum solutions, it is essential that stakeholders act now to implement quantum-hybrid solutions to maximise available revenue. This solution harnesses the power of both quantum and classical computers; resulting in less environmental noise and cost compared to current pure quantum computers. Consequently, these computers will provide an immediate commercial quantum solution for operators at a lower cost, before pure quantum computers become commercialised.

Additionally, throughout 2025, Juniper Research predicts that a number of operators will form partnerships with quantum computing providers to develop QKD solutions for operators. These partnerships will need to be unique to each operator group, given the varying requirements of each group, and will look to solve specific security concerns for various use cases and clients in several industries including healthcare, government and transport.

Whilst we anticipate that QKD will provide a significant avenue of revenue and protection for quantum-resistant network infrastructure in 2025, we acknowledge that telecom stakeholders are also researching and testing a number of other quantum technologies, including quantum sensors, quantum random number generation, and quantum computing.

Global Quantum Technology Market 2024-2030

Top 10 Telecoms & Connectivity Trends 2025: Summary

Trend	Related Research	Whitepaper
1. AIT to Decline as Firewalls Shift Tide Against Fraudsters	Global AIT Prevention Market 2024-2029	
2. Travel eSIMs to Provide Serious Competition Against Traditional Roaming Solutions	Global Travel SIMs & eSIMs Market 2024-2028	
3. First Commercial Direct-to-Cell Connections to Launch	Global Direct-to-Cell Market 2024-2029	
4. Wi-Fi 7 Devices to Provide Alternative to Cellular Technologies	Global Cellular IoT Market 2024-2028	
5. Managed Connectivity: Development of Services Will Target New Opportunities	Global Operator Revenue Strategies 2024-2028	
6. RCS Hype to Finally Materialise	Global RCS Business Messaging Market 2024-2029	
7. Emerging MVNO-in-a-Box Model to Disrupt Connectivity Market	Global MVNO-in-a-Box Market 2024-2029	
8. 6G Standardisation to Begin with Lessons Learned from 5G	Global 6G Development Market 2024-2032	
9. Operators to Increase Network Efficiency, Not Capacity	Global Operator Sustainability Strategies Market 2024-2029	
10. Quantum-resistant Network Development to Accelerate	Global Quantum Technology Market 2024-2030	

How Do We Pick Our Trends?

The process begins with Juniper Research's team of in-house analysts and thought leaders conducting extensive research and analysis on emerging technologies, industry developments, and market disruptions in the telecoms space. Our team reviews a wide range of sources including our own research portfolio, forecast suites, industry reports, market research, and expert opinions, to develop an initial long list of potential trends.

Once this list is compiled, the team engages in a structured debate to critically assess the significance, feasibility, and relevance of each trend for the year 2025. Experts evaluate the potential market adoption, technological breakthroughs, and socioeconomic factors influencing these trends. Through multiple rounds of discussion, the list is gradually narrowed down based on criterion such as potential growth, disruptive potential, and alignment with key industry shifts. After extensive deliberation, the team votes to finalise the top 10 trends.

Following selection, each of the top trends is expanded by answering three key essential questions:

- What will happen? A detailed explanation of the trend, including its technological, economic, or social drivers.
- What is the impact? This section outlines the specific effects of the trend on businesses, consumers, and industries, highlighting potential opportunities and challenges.
- Why 2025? The rationale for why this trend is expected to materialise or gain significant traction in 2025, backed by key data and market indicators.

About Juniper Research

JUNIPER® RESEARCH

Juniper Research has been providing essential market intelligence to the telecommunications and network operator industries for over two decades.

Whatever sector they work in, our clients – including many of the world's leading operators, service providers, and telecoms technology providers – benefit from actionable knowledge and insight; delivered by experienced industry experts, and backed up by robust and dependable forecasting models.

Our operators and providers portfolio comprises 40+ reports; covering everything from established technologies such as CPaaS and RCS Business Messaging, to emerging technologies such as 6G, MVNO-in-a-Box and 5G Satellite Networks.

This level of coverage, together with our industry-leading client support programme and quarterly forecast updates, means that no matter how fast the market moves, our clients never have to worry about being left behind.

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