# TOP 10 TELCO TRENDS 2024

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# Contents

## Introduction

As we present the top trends that are anticipated to disrupt the telecommunications market in 2024, it is important to examine the wider context of the market before drilling down into the specifics.

Juniper Research has identified four key themes that will guide the telecommunications ecosystem over the next year; by shaping key disruptions in the market, these trends will require operators to respond swiftly to secure a competitive edge.

These themes are:

### 5G Advancement

The evolution of 5G will surge to unprecedented heights in 2024, driven by innovative new services such as satellite networks. This growth will not only foster enhanced speed and responsiveness, but also unlock new realms of possibilities across industries such as healthcare, transportation, and smart cities.

- Satellite Networks
- Data Roaming & BCE 2.0
- 5G Advanced

### Messaging Evolution

The cornerstone of operator revenue, mobile messaging underwent rapid transformation over the last year. However, the trends under this theme are exploring the next phase of this growth: including increases in fraud and quality of SMS networks, and how operators and mobile messaging vendors can best position themselves against the sector's rapidly changing market conditions.

- Open APIs
- Cross-platform Interoperability
- Network-wide AI Implementation

### AI Disruption

AI is having positive impacts across many verticals, and the telecoms market is no exception. Many stakeholders, including operations, communications platforms and messaging vendors, will leverage advances in AI to create new network efficiencies. Additionally, the rise of generative AI – a technology so emergent, it remains largely misunderstood amongst enterprises – will play a key role in differentiating CPaaS services over 2024.

- Generative AI
- Large Language Models
- Network-wide AI Implementation

### Innovative Sustainability

Over the next year, operators will be tasked with launching a wealth of new services, as well as preparing for the development of 6G networks. Sustainability must be at the forefront of decision-making processes, including network operations and the carbon footprint relating to the roll-out of 6G network infrastructure.

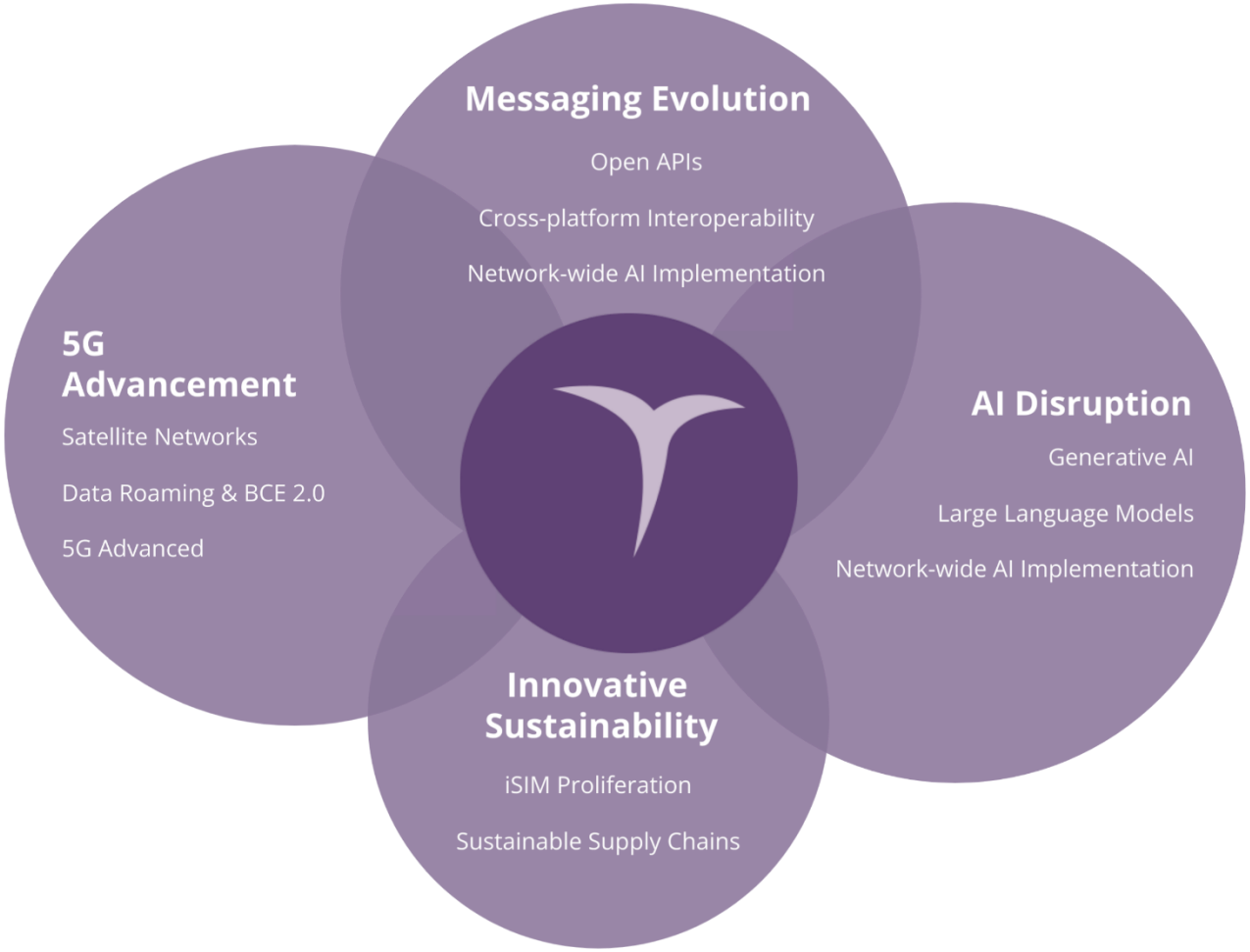
- iSIM Proliferation
- Sustainable Supply Chains

## About the Trends

The following trends are presented in the order of number 1 being most impactful, to number 10 being the least impactful. Fundamentally, we consider the top 5 trends to be the most significant over the next year, but all 10 will have major repercussions across the ecosystem.

If you want more information about the markets being discussed, you can find links to appropriate resources, including complimentary whitepapers, at the end of this document. You can also contact us via email at info@juniperresearch.com, where we can answer any questions you may have.

*Figure 1: Juniper Research's 4 Telco Themes for 2024*




*Source: Juniper Research*

## 1. Satellite Launches to Accelerate in 2024, Integrating Terrestrial & Non-terrestrial Cellular Networks

In the 2022 edition of this whitepaper, we predicted that there would be a significant increase in the number of satellites launched in 2023; however, their impact would be hindered by the predicted economic downturn. With this, Juniper Research anticipated that satellite-based 5G networks would not provide an immediate return on investment for both operators and service providers, as the cost of launching these networks would not be immediately reciprocated through the number of 5G-capable subscribers.

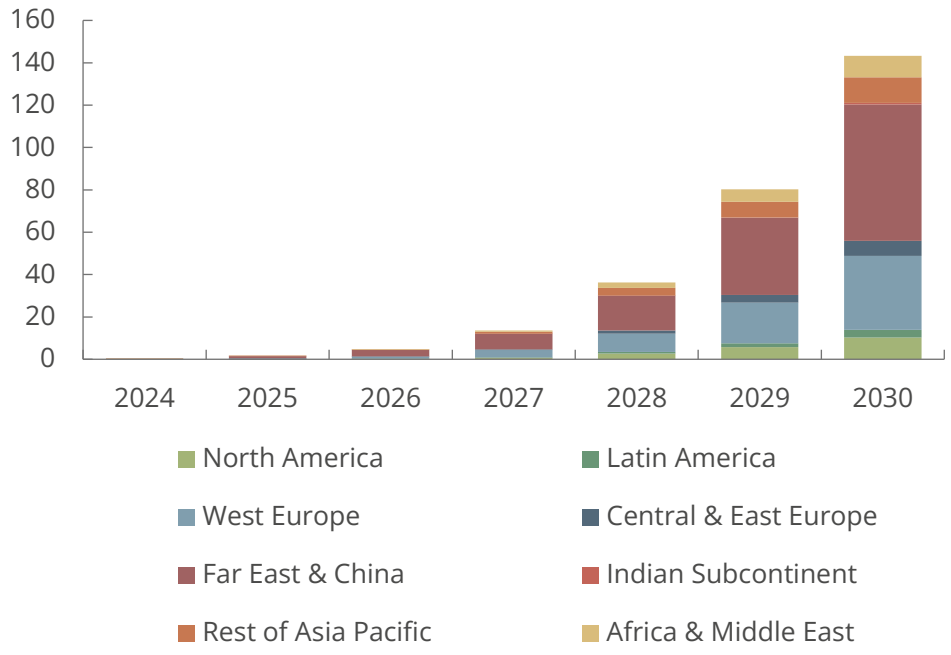
Since then, Juniper Research forecasts that the global number of 5G subscribers has increased by 60%, with connections nearing 1.6 billion by the end of 2023. This increase in 5G connections improves the value proposition of 5G satellite-based services, as these services will provide competition to private networks, IoT and mobile broadband for cellular communications.

Through the development of R-17, from the 3GPP, satellites will play a critical role in the development of 5G networks in 2024. This will be achieved by providing coverage in underserved areas, and improving both network performance and capacity. The benefits of satellite-based connectivity include increased network coverage, enhanced support of backhaul infrastructure, rising network capacity and throughput, and growing network resilience through the addition layer of network redundancy.

Specifically, Juniper Research forecasts that there will be over 300,000 connections accessing 5G satellite networks in 2024 with regions such as North America, West Europe and Far East & China accounting for approximately 80% of all major satellites in operation today; totalling over 8,000 satellites. Additionally, these regions also contain the headquarters of many of the leading SNOs, including Starlink, Intelsat, Inmarsat and Sateliot.

Juniper Research anticipates that this increase in satellite launches will cause a surge in the development of compatible services including 5G IoT, 5G mobile broadband and 5G mobile subscriptions in 2024. Specifically, leveraging satellite-based 5G services will provide a plethora of benefits including the ability to deliver high-speed Internet connections in underserved areas, as service carriers consider whether to make 5G more economical in less affluent nations. Additionally, it will also provide an ability to support the drive in demand for higher-yielding service packages to facilitate the increased use of data-centric use cases in IoT markets.

*Figure 2: Total Number of 5G Satellite Connections (m), Split by 8 Key Regions, 2024-2030*



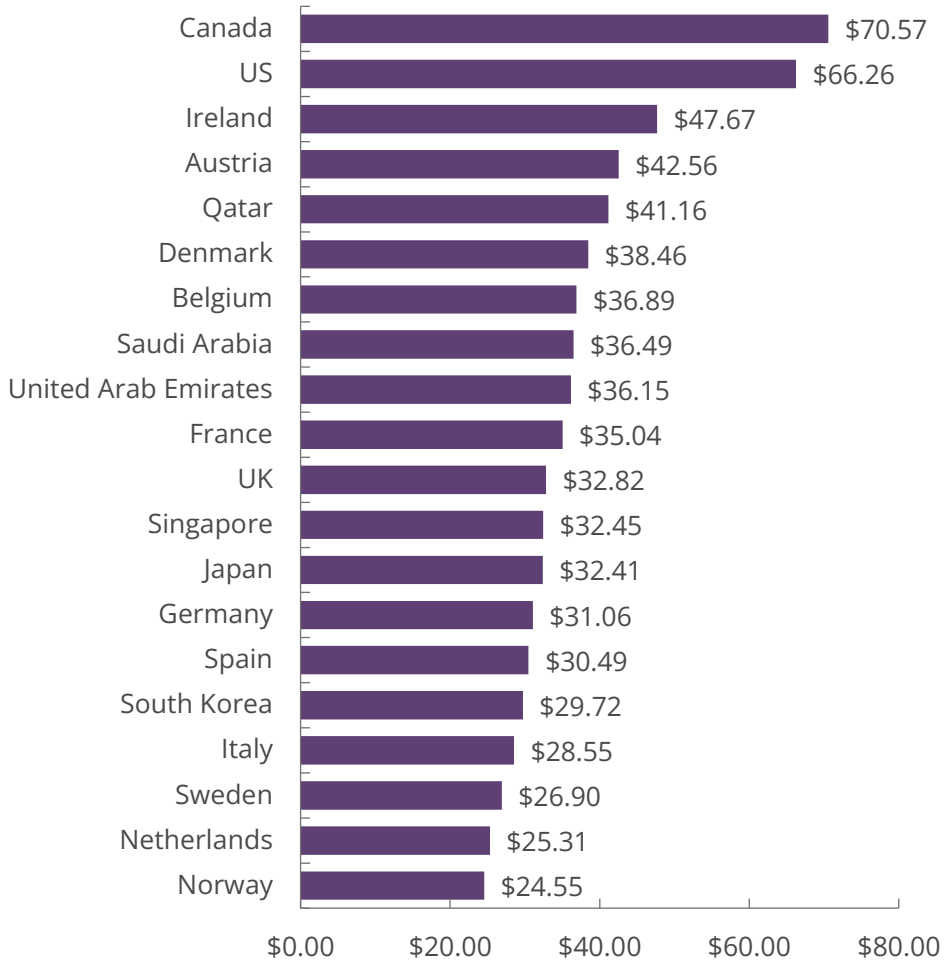

*Source: Juniper Research*

However, Juniper Research anticipates that the pricing of satellite services will be of key focus next year. The pricing of satellite services must reflect the pricing of terrestrial services already in use. Juniper Research believes that whilst 5G satellite services will be integrated into terrestrial networks from an orchestration standpoint, it is in the best interests of operators to ensure that satellite access is monetised separately to existing subscriptions based on terrestrial networks, such as mobile broadband and IoT.

With this, monetisation is key for operators to secure a return on investment for the launch of satellite services. Whilst the integration of satellite services is essential for orchestration and a seamless hand-off of connectivity between terrestrial and non-terrestrial networks, it is imperative that operators can differentiate the services for IoT and broadband use cases. A failure to do so will result in diminished revenue, which will lengthen the time operators can secure return on investment into partnerships with SNOs (Satellite Network Operators). With this, operators will need to charge subscribers to access satellite services on top of their terrestrial services in order to ensure a return on investment.

*Whilst Juniper Research anticipates that 5G satellite services will not necessarily be a commercial priority for operators in 2024, developing this ecosystem in preparation for commercial service will be. By ensuring open network standards early, this will enable cellular, fixed and satellite networks to work in tandem to provide seamless global coverage moving forward.*

*Figure 3: Average Revenue per 5G Connection Accessing Satellite Services in 2030 ($), Split by 20 Select Countries*




*Source: Juniper Research*

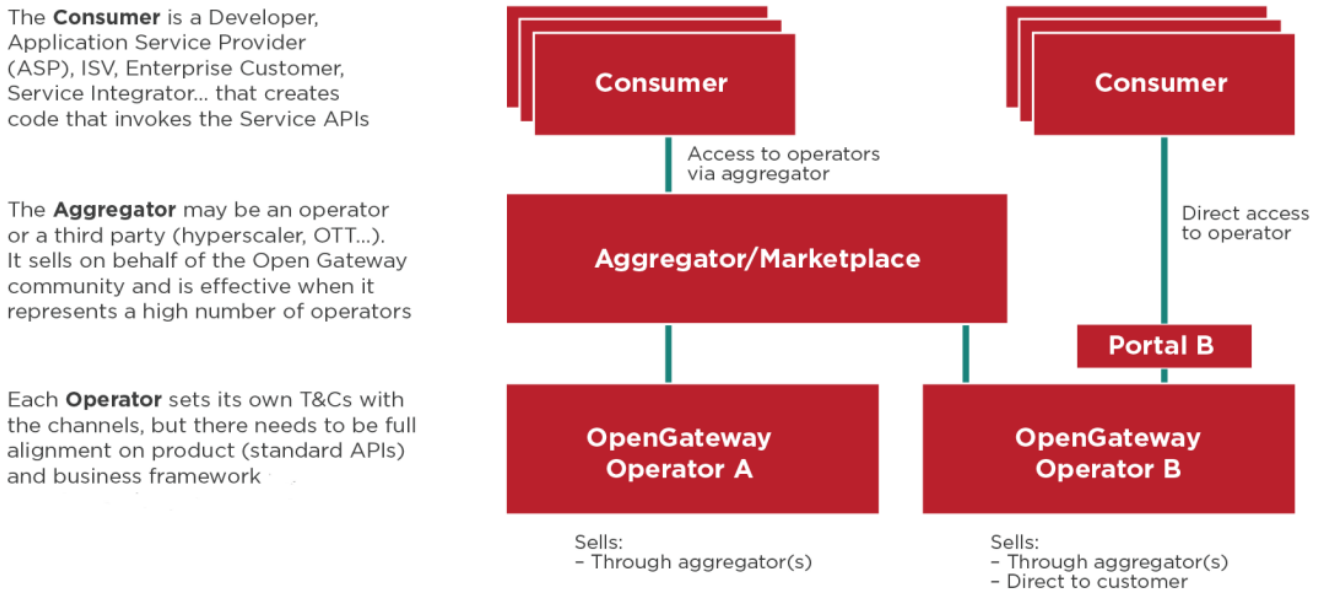
## 2. Greater Usage of Open APIs in Telecoms, Driven by Rising SMS Pricing & Fraud

Juniper Research notes that the price of SMS has increased between 50% and 500% across various SMS networks over the last 12 months and as a result, the demand for A2P SMS has begun to plateau. At the same time, open APIs are increasingly gaining traction in the space to enhance connectivity, communications and develop new services and applications.

As open APIs help third-party applications integrate with operator networks, this rise in SMS pricing will lead to a shift in the mobile messaging landscape in 2024 with businesses and developers exploring alternative communications channels via open APIs, such as Number Verify and SilentAuthentication. Additionally, third party channels, such as WhatsApp for Business will be an ever-growing threat to operators' mobile messaging revenue.

As developers begin to diversify their API offerings, through initiative such as the GSMA's Open Gateway API, which was announced at MWC23, developers will continue to integrate various communication channels into their appliances for telecommunications use cases.

*Figure 4: Relationship Models for GSMA Open Gateway*




*Source: GSMA*

Whilst the reasons for increases in SMS pricing vary by region and operator, Juniper Research notes that there are a number of reasons that will cause disruption in SMS business pricing over 2024:

- Wholesale SMS Pricing: As SMS traffic continues to be impacted by alternative authentication channels, operators are experiencing slowing demand for wholesale SMS traffic. To maintain revenue growth, many operators are increasing prices; however this only serves to slow the demand for SMS traffic as enterprises explore other authentication channels such as flash calling and OTT messaging apps.

- SMS Network Quality: Operators are unable to optimally price their SMS business messaging traffic owing to SMS networks that are plagued with fraud, such as AIT and message trashing. This can further increase and enterprises' spend on SMS owing to undelivered messages or unnecessary spend on authenticating non-existent user. Overall, this significantly diminishes the value of SMS for mobile authentication.
- Regulations: As SMS must be compliant with a number of government regulations, such as TCPA (Telephone Consumer Protection Act) in the US, and GDPR (General Data Protection Regulation) in the UK, the costs associated with ensure compliance will often mean these costs are passed to consumers through their services, including SMS. However, despite these regulations, SMS continues to experience high levels of messaging fraud, including spoofing, grey routes, phishing, unmonetised flash calling, messaging trashing, and more recently, AIT (Artificially Inflated Traffic).

Furthermore, Juniper Research notes that a significant reason for this rise in price is due to more businesses opting to use instant messaging platforms and social media channels as an alternative to SMS. Therefore, as the use of SMS begins to plateau, operators will be forced to increase their pricing to compensate for a decline in revenue.

However, to ensure the future of operator revenue, Juniper Research notes that operators will need to keep authentication traffic within the realm of telecommunications ecosystem. A failure to do so will lead to decreasing operator revenue in the long term. To do this, whilst brands and enterprises look to Open APIs to supply alternative resources for business messaging use cases, Juniper Research notes that operators have the ability to increase the value proposition of their services, specifically via authentication services. For example, if operators are not able to reduce prices, then they must look to promote their API-based authentication solutions, such as Number Verify.

*Figure 5: Prevalent SMS Threats*


*Source: Juniper Research*

## 3. Generative AI to Revolutionise Conversational AI by Automating Personalised Marketing

Since late 2022, conversational AI has gained an immense new level of popular curiosity with the November 2022 launch of OpenAI's ChatGPT (Generative Pre-trained Transformer). ChatGPT is a chatbot with a generative LLM. The initial language model on release was called GPT-3.5, but the subsequent GPT-4 was released in March 2023.

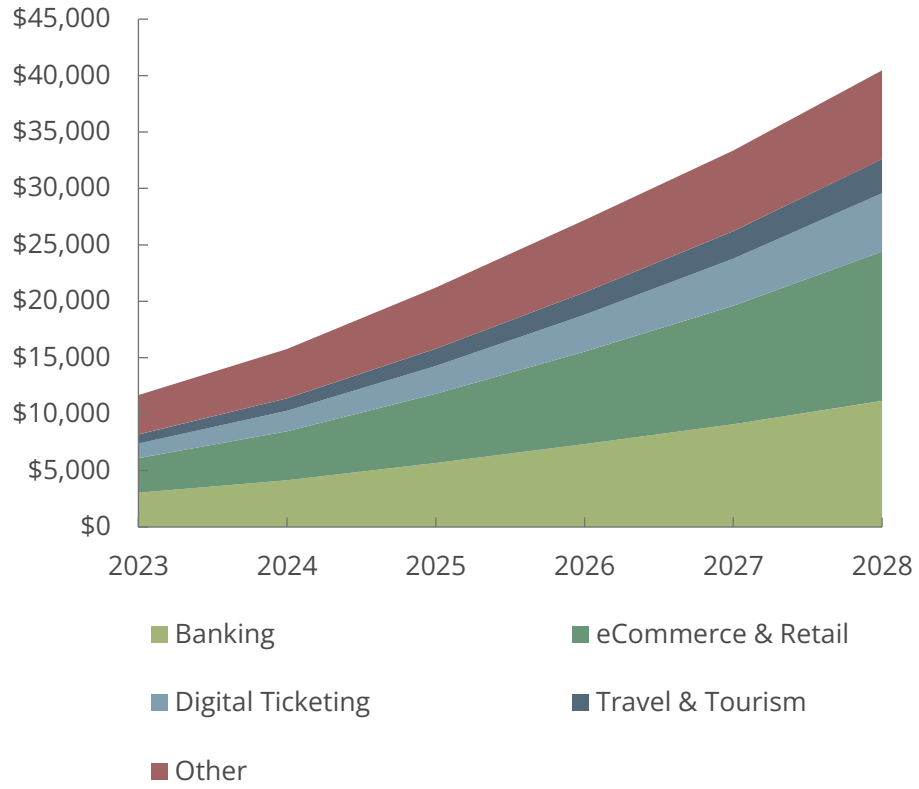
Since then, generative AI, an emerging technology that automates the generation of new digital content, will be considered a priority in 2024 for conversational AI vendors and will play a key role in LLMs. Specifically, Juniper Research believes that generative AI models will be embedded into LLMs to map entity and sentiment analysis whilst also being able to provide summaries of conversations for enterprises to utilise in future conversations.

There are numerous examples of how the technology can benefit enterprises, and conversational AI vendors must look to position themselves as service providers, with solutions underpinned by generative AI integrated into existing portfolios.

Specifically, Juniper Research predicts that generative AI will revolutionise the automation of personalised marketing campaigns in a number of ways, including:

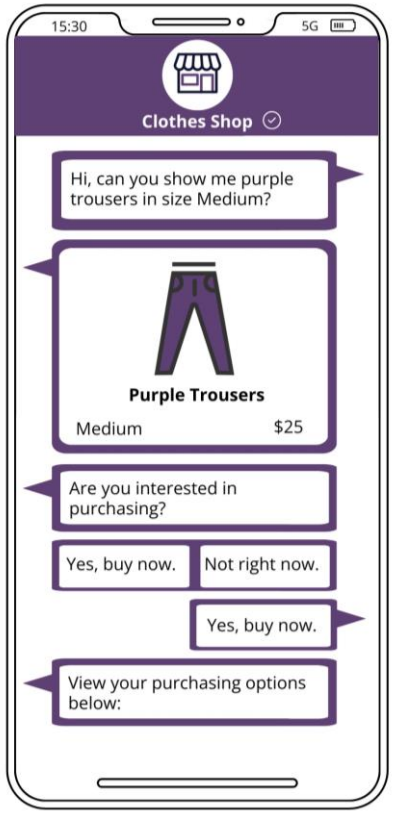
- Chatbots and Conversational AI: Chatbots that leverage generative AI will engage with users with personalised conversations, recommendations and question answering.
- User Segmentation: Generative AI will allow enterprises to identify and segment audiences based on demographics and behaviours to enable more targeted marketing campaigns.
- Multichannel Marketing: Through the support of CPaaS (Communication Platforms-as-a-Service) and CSP (Communications Service Providers), enterprises are able to provide an omnichannel experience through the coordination of marketing materials across various marketing channels to ensure a consistent tailored experience.

*Figure 6: Total Spend on Chatbot Commerce ($m), Split by Market Vertical, 2023-2028*




*Source: Juniper Research*

*Figure 7: Example of Conversational Commerce Chatbot*




*Source: Juniper Research*

With this, Juniper Research predicts that generative AI will create personalised content such as product descriptions, social media messages, and email reach-out that will be used for tailored conversational interactions with customers.

However, Juniper Research warns that educating enterprises is necessary to ensure that the ecosystem is able to understand and utilise the differences in capabilities between generative AI and conversational AI. With this, whilst conversational AI is trained using large datasets to respond to customer queries as if it were human, generative AI is trained to autonomously create personalised content and resources.

Additionally, with all the hype around generative AI, there seems to be a common opinion amongst enterprises that the technology will be able to adapt to specific company processes to solve all business problems, thus replacing the need for specific third-party service providers. For example, many enterprises confuse generative AI with general AI and the efficiency savings that arise. Therefore, Juniper Research anticipates that in 2024, services providers in the telecommunications space will not focus on developing their own generative AI capabilities to automate marketing processes, but these vendors will also place emphasis on educating enterprises on the capabilities of generative AI. This education will ensure that enterprises still value the outsourcing and management of telecommunications services to third-party service providers.

## 4. iSIM-capable Devices to Proliferate in 2024, Driving Global eSIM Adoption

An iSIM (integrated SIM) is a standard that places the functions of a traditional SIM, such as identification and security, directly into the software layer of the device in use, including consumer and IoT devices.

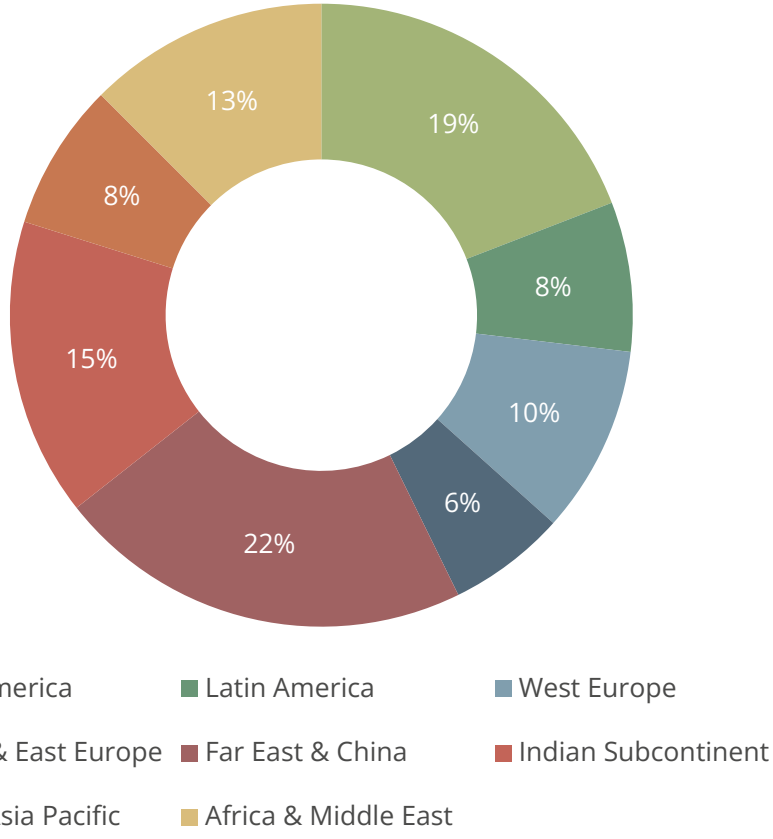
During 2023, there were numerous examples of launches of iSIM platforms and modules, from companies such as Nokia, Kigen and Thales. Over the course of 2024, we expect device vendors in the IoT space to be a key driver of the iSIM standard. IoT use cases are those that will benefit the most from the reduction in form factor enabled by the removal of a physical SIM module.

Juniper Research predicts that there will be more urgency to deploy iSIMs over eSIMs; owing mainly to the complete removal of hardware dedicated to SIM functionality, and its integration into the software layer. For IoT device vendors, this will reduce development and manufacturing times, whilst the ability to use RSP (remote SIM provisioning) will reduce deployment costs for IoT users.

Key industries that will drive this growth will be those that use LPWA (Low-power Wide-area) network technologies. Reducing the form factor of devices in use in these industries will be a priority. iSIM will be a key technology that will enable device vendors to accomplish this.

Additionally, the launch of SGP.31/32 will also help drive the growth of iSIMs in 2024. These standards enable interoperability with eSIM profiles without user interaction, thanks to the LPA (Local Profile Assistant) evolving into an IPA (IoT Profile Assistant), SGP.31/.32 also introduces the eIM (eSIM IoT Remote Manager) for standardised provisioning and management of eSIM-enabled IoT devices across larger IoT networks; supporting the growing demand for Massive IoT deployments.

*Figure 8: Total Number of eSIMs Installed in Connected Devices in 2028: 7 Billion*




*Source: Juniper Research*

## 5. EU's DMA Forces OTT Channels to Develop Cross-platform Capabilities, with Apple Supporting RCS in Response

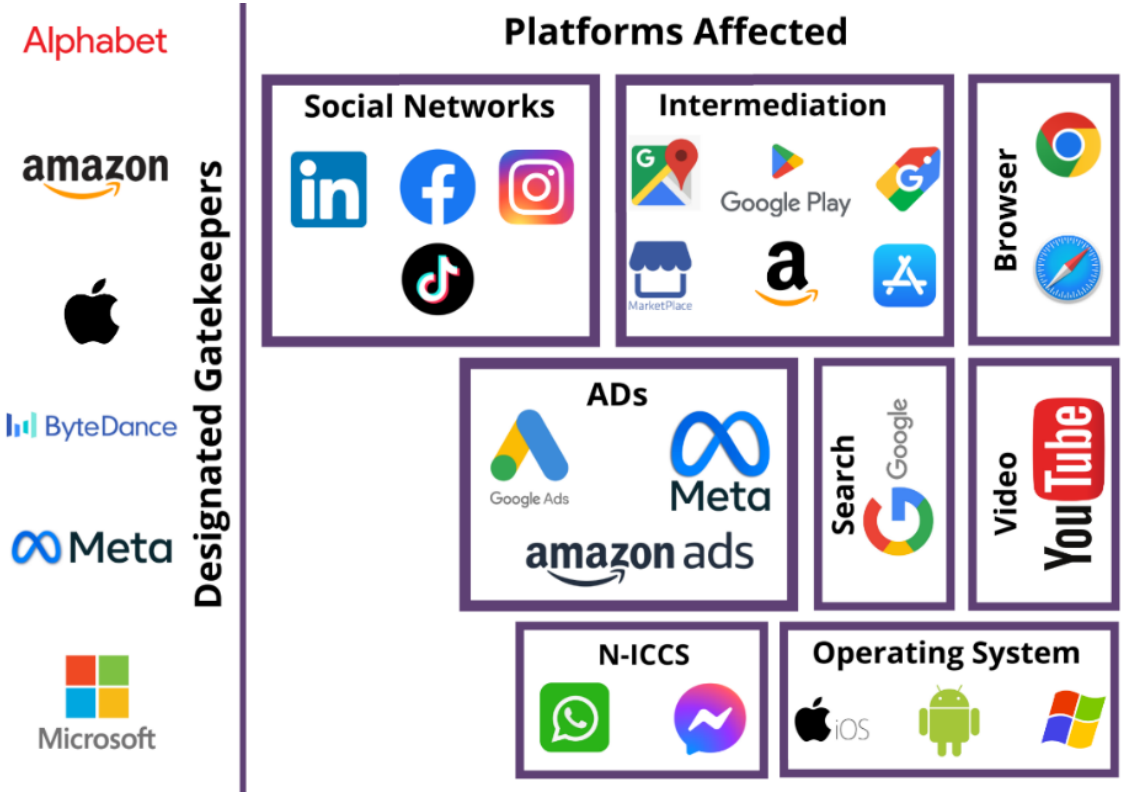
In September 2023, the EU designated six digital gatekeepers, in accordance with the new regulations on big tech introduced by the DMA (Digital Markets Act). These gatekeepers include Apple, Meta, and Microsoft, affecting 22 communication platforms, including WhatsApp, and Messenger.

A significant impact of this legislation is the creation of an obligation for gatekeepers to provide third-party interoperability within the OTT messaging ecosystem, including apps such as WhatsApp and Messenger. Meta has already begun to develop this feature, with interoperability needing to be supported by March 2024 in order to comply with these new EU regulations.

OTT channels will be under intense pressure to develop these cross-platform capabilities in 2024, as these platforms will face fines as high as 10% of global turnover, with potential to rise to 20% for repeat offences if regulations are not complied with by March 2024. In response to the legislation, WhatsApp has begun to develop an interoperable chat feature, that will enable users to communicate across OTT messenger apps. This can be seen in the updated app's code which contains coding for a third-party inbox.

The introduction of interoperability will have significant impacts for the wider A2P (Application-to-Person) messaging market, as it will eliminate the constraint of fragmentation on the EU's OTT business messaging market, with enterprises able to interact with consumers, regardless of the OTT messenger app used. In turn, this greatly expands the value of OTT business messaging, and its capacity to compete with other established A2P messaging channels such as SMS services provided by operators.

*Figure 9: Designated Gatekeepers and Platforms Under the DMA, 2023*



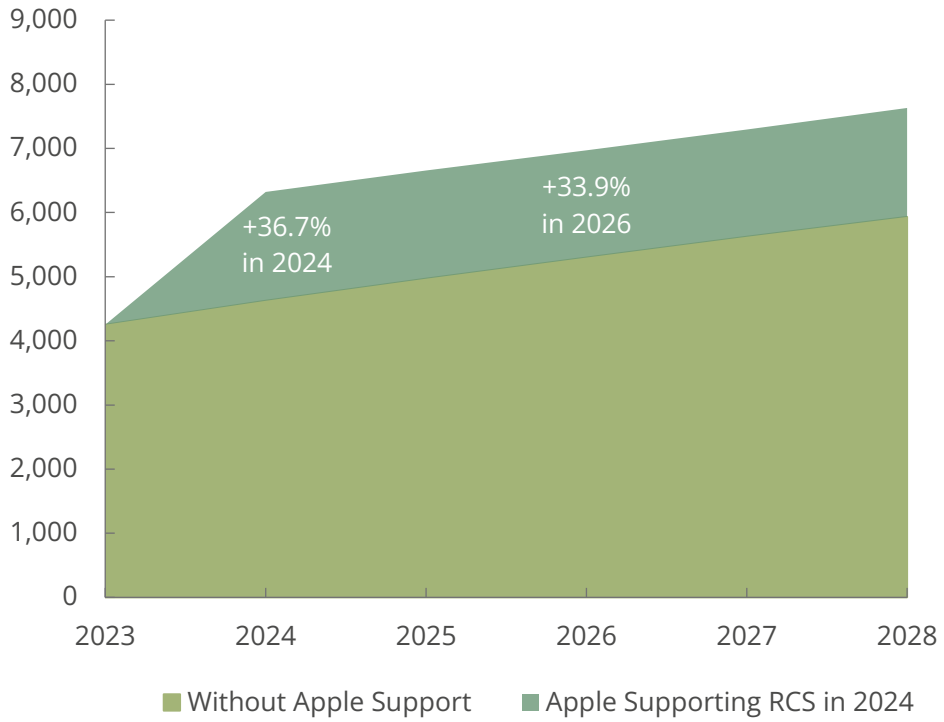

*Source: Juniper Research*

Due to the proliferation of omnichannel communications, the announcement from the DMA to provide interoperability between multiple OTT channels will not only reduce a key weakness of the OTT messaging market, but it will also impact the wider business messaging ecosystem. In particular, this will affect RCS (Rich Communication Services), a competing, operator-led messaging channel, with capabilities beyond SMS and MMS.

Owing to pressure from the DMA, Apple has recently announced that it will support the universal profile for RCS. The deployment of RCS has historically been very staggered, and therefore, this announcement has implications for the messaging market, notably in regions with a high penetration of iOS devices. There will be a significant increase in the number of RCS-capable subscribers globally, thus encouraging enterprise adoption of RCS.

Despite this, Juniper Research approaches this announcement from Apple with some caution. There is scepticism as to the extent of which Apple will support RCS, and there is also ambiguity over whether there will be support for RBM (RCS business messaging). There are also still barriers to overcome in order for RCS to be widely adopted within the A2P messaging market, including the uniformity of monetisation models among operators, and the process for brand verification. With this, Juniper Research anticipates that in 2024, Apple will launch its support of RCS for P2P communications. However, it will take some more time for the effect of this to be felt in the business messaging market.

*Figure 10: Number of RCS-capable Subscribers 2023-2028 (m), with and without Apple RCS Support*

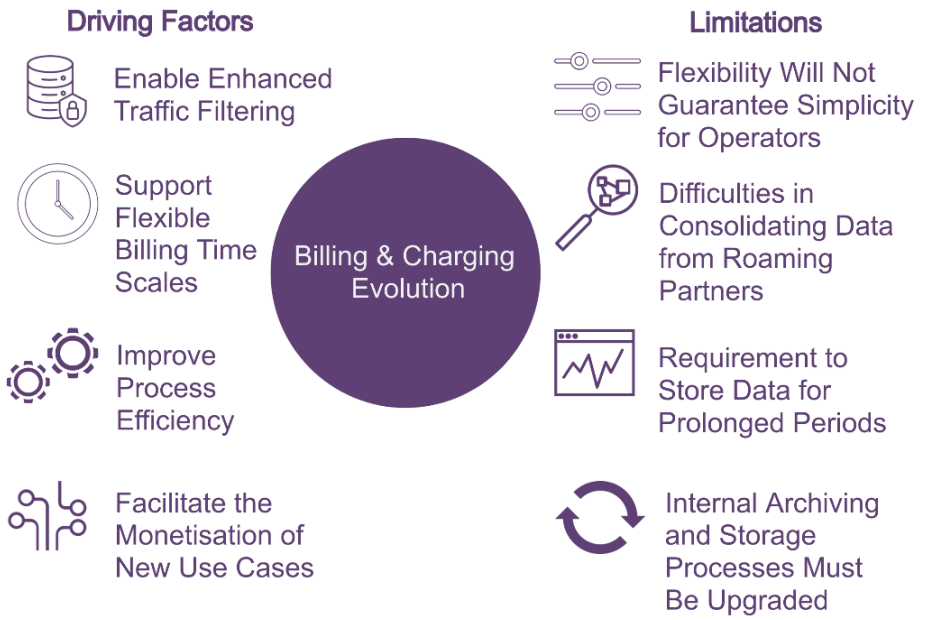



*Source: Juniper Research*

## 6. 5G Data Roaming Traffic to Necessitate Acceleration of BCE 2.0 Protocol Adoption

Despite the GSMA's BCE (Billing and Charging Evolution) being announced in 2019, fewer than 100 operators leverage the protocol's benefits, with the vast majority opting to continue to depend on TAP (Transferred Account Procedure). There are a number of reasons for this slow uptake, ranging from uncertainty over BCE 2.0, and the high investment costs associated with supporting the protocol.

*Figure 11: Driving Factors and Limitations of the GSMA's BCE Protocol*




*Source: Juniper Research*

The development of BCE 2.0 was focused on enabling operators to effectively monetise 5G standalone connections, as the GSMA found that its predecessor, BCE 1.4 was insufficient for these purposes. This was due to the DDR (Detail Data Records) and BSR (Billing Statement Report) provided, which lacked the necessary quality parameters, and definitions for the effective monetisation of 5G standalone connections. Therefore, the BCE 2.0 corrects these issues, introducing a different architecture.

However, with BCE 2.0 expected to become operational in July 2024, Juniper Research expects the uptake of BCE to gather significant momentum. Instrumental in driving adoption will be the ever-increasing number of 5G roaming connections, with Juniper Research predicting that the total number of 5G roaming connections will rise from 35 million in 2023 to 77 million by the end of 2024; demonstrating a growth of 220% over the next 12 months.

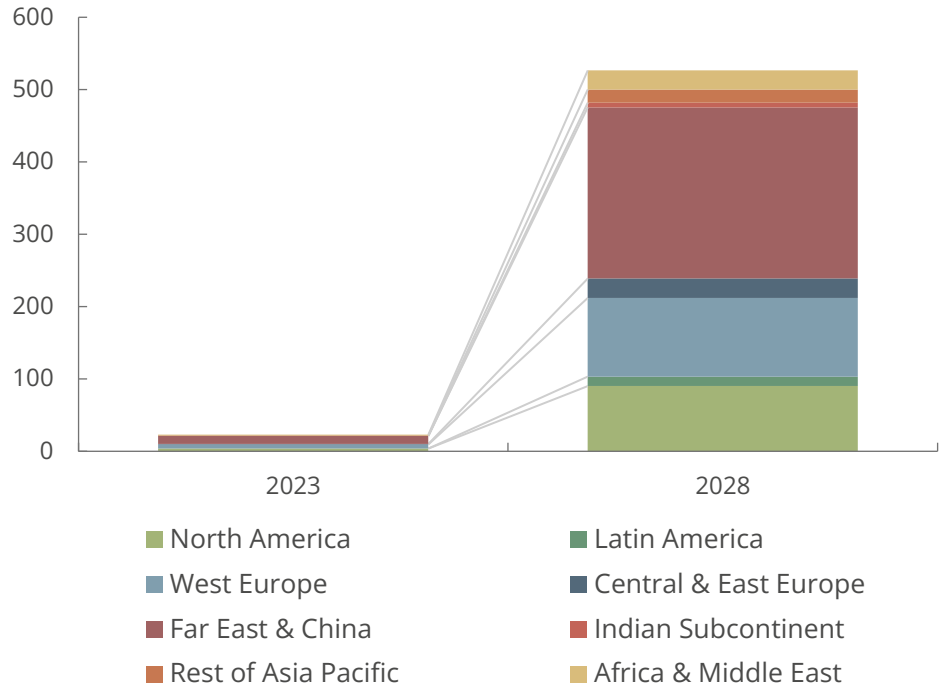
This growth in 5G roaming traffic will drive the adoption of BCE 2.0 in 2024, as it will exacerbate operator revenue leakage caused by TAP, which is ineffective for 5G monetisation. TAP results in revenue leakage as operators are limited in the volumes of data they can exchange in TAP files, a major issue when using the protocol for 5G connections, which produce vast amounts of data per connection.

Moreover, as 5G roaming traffic continues to increase in 2024, operators will face growing consequences for not adopting the BCE protocol. Most significantly, operators will be unable to maximise revenue from enterprises' 5G roaming traffic, as the flexibility of BCE enables operators to deploy new charging models, that apply premium charges against 5G roaming traffic.

Specifically, BCE will enable operators to apply differential pricing for roaming access to different network slices on 5G standalone networks. These network slices will have different KPIs for quality of service, such as latency, allowing enterprises to optimise their purchases of roaming access for their needs.

This will allow operators to maximise revenue, finding the optimal price equilibrium for different roaming connections. Furthermore, this revenue maximisation can be extended to individual devices, with operators able to offer enterprises the highest quality connection for their mission-critical traffic, whilst saving costs on low-priority traffic. These new charging models are only possible due to the flexibility and efficiency of the BCE protocol, and thus the growing demand for 5G roaming services will drive operator adoption of BCE 2.0 in 2024.

*Figure 12: Total Number of 5G Roaming Connections in 2023 & 2028 (m), Split by 8 Key Regions*




*Source: Juniper Research*

## 7. Sustainable Initiatives to Be Prioritised to Reduce the Impact of Telco Supply Chains

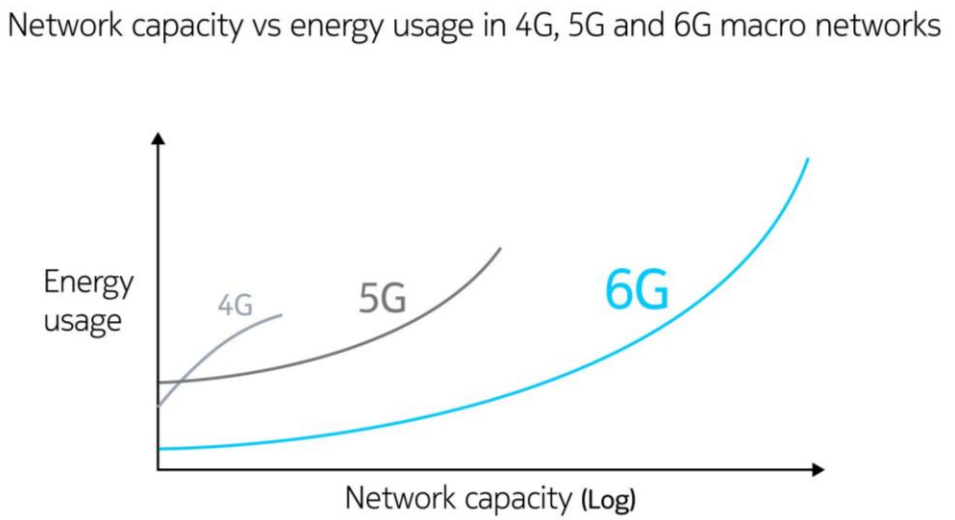
Sustainability has become a key priority for network operators. Initiatives such as The European Green Deal, and the Circular Economy Action Plan from the EU, as well as the Ecodesign for Sustainable Products Regulation, are driving operators to place ESG (Environmental, Social and Governmental) initiatives at the forefront of planning.

With the launch of 4G and 5G technologies, network virtualisation has played a key role in operators' sustainability strategies. By reducing the reliance on hardware, operational costs can be reduced, as well as lowering transport costs.

However, in 2024, Juniper Research expects operators to focus on new initiatives that look to reduce the impact of telecommunications on the environment as they seek diminished returns on implementing more virtualisation in networks that reduce carbon footprint.

- AI & Machine Learning: These technologies will generate efficiency gains for operators by automating the network orchestration of operations and supply chains.
- Sustainable Supply Chains: Another implication of 6G network launches is the need to deploy new network hardware. Given the need for more base stations and the wide geographical coverage needed, operators will invest in new sustainable supply chain practices such as the electrification of delivery vehicles and minimising the number of required base stations.

*Figure 13: Proposed Key Differences in Energy Efficiency of 4G, 5G, and 6G*




*Source: Nokia Bell Labs*

- Energy-efficient Equipment and Batteries: There is a greater focus for base stations and other network equipment to use less energy for their operations. Notably, the introduction of higher frequency bands in spectrum auctions for 5G NSA (Non-standalone) necessitated a greater number of base stations and network cells, which placed pressure on operators to deploy equipment that was energy efficient. Additionally, the inevitable deployment of 6G networks will likely require ever-higher frequency bands, which will exacerbate this need for more energy-efficient equipment.

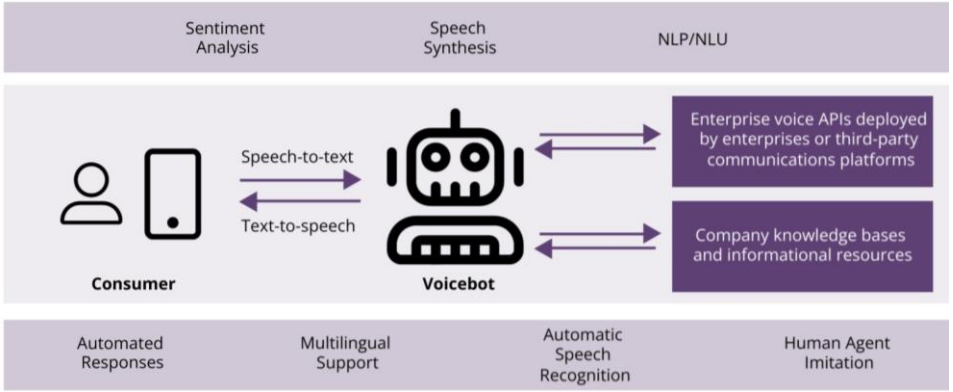
## 8. Large Language Models to Lower Entry Barrier for Voicebot Implementation

Despite enterprises leveraging mobile messaging channels as part of their business communications strategy, Juniper Research anticipates that voice will remain a core service for enterprise communications over the next five years. Specifically, voice calls in contact centres and the rise of voice assistants such as Alexa, necessitated chatbot vendors to expand their services to include voicebots.

However, in order to maintain its relevance in established markets, voice services must continue to evolve; improving not only the quality of services, but also the flexibility afforded to enterprises. With the support of open API initiatives including the GSMA Open Gateway launched in 2023, Juniper Research predicts that in 2024, LLMs (Large Language Models) and generative AI will revolutionise the capabilities of voicebots across industries such as banking, eCommerce, retail and insurance. Specifically, these AI models will not only improve the personalisation of services such as recommendations, transactions and customer support, but also ensure a quickening in response time, thus improving business efficiency.

Enterprises increasingly need the flexibility to scale their operations, but they also need to be able to quickly and efficiently integrate with, and adopt new technologies. For example, the recent growth and development of AI, specifically LLMs such as ChatGPT, have prompted many enterprises to integrate AI into their communications channels. Technologies such as AI have allowed for increased automation; reducing enterprise costs. With this fast-paced evolution of technologies and services, enterprises now need more than ever to have flexible communications channels they can integrate these into.

*Figure 14: Voicebot Implementation and Capabilities*




*Source: Juniper Research*

Voice orchestration is an element being increasingly introduced to chatbot developmental frameworks to allow consumers to ask direct questions to the bot through speech, rather than having the client type out their question or search through multiple menus to find the information.

However, a large barrier anticipated to hinder the widespread adoption of voicebots in 2024 is their translation capabilities. As many enterprises operate on a global scale, it is essential to develop multilingual voicebots that are able to manage customer interactions regardless of location. Multilingual voicebots are developed via a number of techniques including language detection APIs and multilingual NLU (Natural Language Understanding). However, one technique which has shown particular innovation is the use of LLMs to train voicebot architecture. Therefore, LLM voicebots will be able to reduce this barrier of entry by supporting multiple languages to enable voice to understand and respond to customers in a wider range of languages and dialects without the need of manual programming and scripting.

## 9. 5G Advanced Networks to Enable New Mobility & XR Markets

5G Advanced represents a forthcoming evolution in 5G which will empower a diverse new range of industry verticals, such as mobility and XR (Extended Reality). Notably, as an evolution of the technology, it will be backwards compatible; leading to swift implementation timelines for operators and mobile subscribers. The new 5G standard aligns with specifications in release 18 from the 3GPP (3rd Generation Partnership Project; reducing complexity of network processes and increasing power efficiency. The release will standardise the use of AI and machine learning to automate network orchestration, especially in the context of the performance of the RAN (Radio Access Network) functions.

5G Advanced, which is anticipated to launch in 2024, will have significant benefit to the entertainment and education sectors, by providing support for more interactive application use cases. Operators must capitalise on this rise of new use cases by supporting business models that leverage APIs for service access. The launch of the GSMA's Open Gateway in 2023 will act as the ideal platform to develop homogeneous APIs that can be implemented across multiple networks.

5G Standalone network architecture is needed to maximise the benefits of 5G Advanced services. However, only a handful of operators have launched standalone networks so far. Although many operators are investing into these networks, it is important to note that whilst commercial deployments will occur in 2024, with development starting in 2022, impacts of 5G Advanced will continue to grow in the following years.

5G Advanced will have notable impacts on certain IoT sectors; the specification's impact on network end node-positioning capabilities will impact the development of autonomous vehicles and ADAS (Advanced Driver Assistance Systems).

## 10. Network-wide AI Implementation to Increase Efficiency of Functions, as 6G Approaches

Operators have readily implemented AI in various elements of their network architecture; however, we expect network-wide AI implementation to come to the fore in 2024. This will include AI services that can access data from the entirety of the network, from the core to edge nodes, rather than in isolation.

This will enable operators to further optimise their network operations, including predictive maintenance and security. At a time when operators are faced with declining ARPC, minimising network operational expenditure is key. With network functions becoming increasingly virtualised, the impact of AI on networks has never been greater.

The focus of 5G standalone networks, as well as the impending focus on future 6G networks, is driving this focus on AI implementation. Whilst a reduction in capital expenditure is the key motivational aspect for its implementation, the benefits it can provide to mobile subscribers and IoT users cannot be understated.

Firstly, subscribers will benefit from better network performance, including data throughput and security, allowing subscribers to get more value from their mobile subscription or IoT service. Operators have been active in implementing AI in the network cores, generating substantial efficiency gains in orchestration. However, as AI increasingly penetrates the edge of networks and other use cases, savings will be found in areas such as customer support and battery life of devices.

Over 2024, we will see tier 1 operators further integrate AI into all areas of their networks, including the core, RAN, session management, security and location-based services. The most tangible benefit of this network-wide implementation will be the ability for all network areas to communicate in real-time, and adjust network functions accordingly.

## Summary

| Trend | Summary | Further Resources |
|---|---|---|
| **1. Satellite Launches to Accelerate in 2024, Integrating Terrestrial & Non-terrestrial Cellular Networks** | New satellite launches will enable cellular, fixed and satellite networks to work in tandem to provide seamless global coverage. | Download our Free 5G Satellite Networks Whitepaper<br>Visit our 5G Satellite Networks Research |
| **2. Greater Usage of Open APIs in Telecoms, Driven by Rising SMS Pricing & Fraud** | Open APIs will gain traction, enabling businesses and developers to explore alternative business messaging channels. | Download our Free Mobile Messaging Whitepaper<br>Visit our Mobile Messaging Research |
| **3. Generative AI to Revolutionise Conversational AI by Automating Personalised Marketing** | Generative AI will automate the creation of personalised marketing content for tailored conversational interactions with customers. | Download our Free Conversational Commerce Whitepaper<br>Visit our Conversational Commerce Research |
| **4. iSIM-capable Devices to Proliferate in 2024, Driving Global eSIM Adoption** | Industrywide hardware changes and the launch of SGP.31/32 will drive device vendors to deploy iSIMs, in turn driving eSIMs. | Download our Free eSIMs Whitepaper<br>Visit our eSIMs Research |
| **5. EU's DMA Forces OTT Channels to Develop Cross-platform Capabilities, with Apple Supporting RCS in Response** | OTT channels will be under intense pressure to develop cross-platform capabilities or risk major penalties from EU regulators. | Download our Free OTT Business Messaging Whitepaper<br>Visit our OTT Business Messaging Research |

| Trend | Summary | Further Resources |
|---|---|---|
| **6. 5G Data Roaming Traffic to Necessitate Acceleration of BCE 2.0 Protocol Adoption** | Uptake of BCE to gather significant momentum as a result of the launch of BCE 2.0 and growth in 5G roaming traffic. | Download our Free 5G Roaming Whitepaper<br>Visit our 5G Roaming Strategies Research |
| **7. Sustainable Initiatives to Be Prioritised to Reduce the Impact of Telco Supply Chains** | Operators will drive new initiatives to reduce their environmental impact, following diminished returns on network virtualisation. | Download our Free Private Cellular Networks Whitepaper<br>Visit our Private Cellular Networks Research |
| **8. Large Language Models to Lower Entry Barrier for Voicebot Implementation** | LLMs will revolutionise the capabilities of voicebots, improving the personalisation of services and overall business efficiency. | Download our Free Mobile Voice Whitepaper<br>Visit our Mobile Voice Strategies Research |
| **9. 5G Advanced Networks to Enable New Mobility & XR Markets** | 5G Advanced will empower a diverse new range of industry verticals, driven by backwards compatibility that shortens implementation timelines for operators. | Download our Free 5G Monetisation Whitepaper<br>Visit our 5G Monetisation Research |
| **10. Network-wide AI Implementation to Increase Efficiency of Functions, as 6G Approaches** | Network-wide API implementation will enable operators to further optimise their network operations – a vital necessity given declining ARPC and upcoming 6G networks. | Download our Operator Revenue Strategies Whitepaper<br>Visit our Operator Revenue Strategies Research |

## About 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 30+ reports; covering everything from established technologies such as CPaaS and Flash Calling, to emerging technologies such as Chatbots 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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