GLOBAL CELLULAR IOT MARKET 2024-2028

Competitor Leaderboard

Prepared for Tata Communications

JUNIPER RESEARCH

Contents

1.1 Why Read This Report

This section details the product offerings of leading cellular IoT management providers. Given the expansive cellular IoT ecosystem, this report is not intended to provide comprehensive coverage of all the vendors operating in this market, but introduces the reader to 18 cellular IoT management vendors that Juniper Research considers to be leaders in the market.

The cellular IoT market is rapidly developing as 5G and LPWA (Low-power Wide-area) networks continue to expand potential use cases, and requirements for connectivity. Consequentially, operators and IoT vendors must continuously demonstrate innovation with solutions such as cost management, digital twins, and satellite connectivity to rank as an established leader.

Juniper Research is a Europe-based provider of business intelligence. We specialise in providing high-quality data and fully researched analysis to manufacturers, financiers, developers, and service/content providers across the communications sector. Juniper Research is fully independent and able to provide unbiased and reliable assessments of markets, technologies, and industry players. Our team is drawn from experienced senior managers with proven track records in each of their specialist field.

Key Cellular IoT Market Takeaways

The GSMA Announces New eSIM Specifications for IoT

eSIMs (embedded SIMs) provide IoT devices with greater security, are smaller, and enable enterprises to easily change the profile of a device. eSIM profile changes are dependent on SMS protocols, with an SMS being sent to a device, which is then received, and another SMS is sent back.

However, NB-IoT (Narrow Band IoT) does not normally support SMS protocols, leading to the GSMA developing a new eSIM technical specification, SGP.32, which was introduced in May 2023. This specification creates a new entity called eIM (eSIM IoT Remote Manager). The eIM provides a simplified architecture for eSIM profile switching enabling optimisation for cellular IoT devices. This enables profile switching over NB-IoT networks, as well as more efficient cellular IoT profile switching in general.

In turn, this will expand the cellular IoT eSIM market, enabling enterprises to avoid permanent roaming bands, and increase the ease at which remotely connected devices can be managed.

Federated Learning Will Require Adaptive Approaches to Client Selection

Federated Learning is a subset of machine learning, which takes a decentralised approach to training machine learning models. To effectively utilise federated learning in their IoT management platforms it is critical that operators and IoT vendors continue to improve their client selection methods.

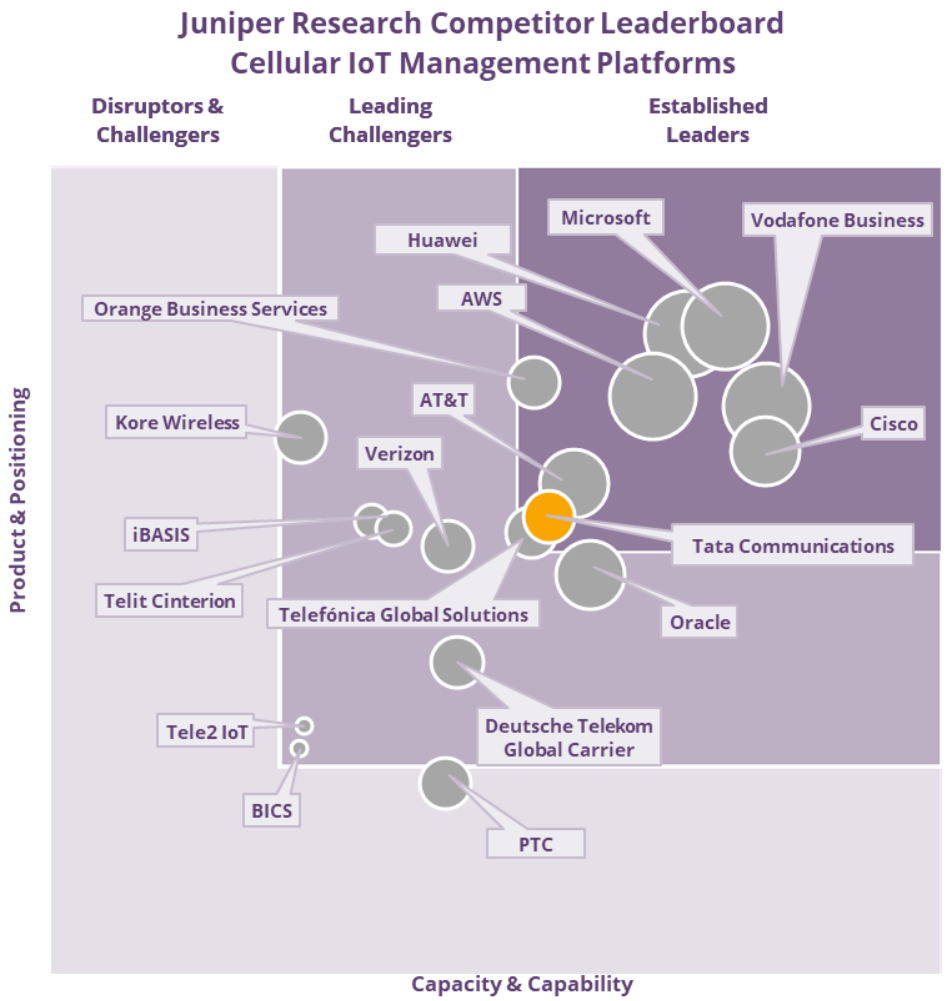
Specifically, Juniper Research recommends that operators and IoT vendors take an adaptive approach to client selection. Adaptive client selection is a method which is cognisant of the training progress of clients. This, alongside gradient compression, will enable federated learning models to navigate the extensive heterogeneity in the cellular IoT market. Gradient compression is a technique which reduces the communications overhead and bandwidth usage of distributed training framework. This will further improve the data analytics they can offer to enterprises. These analytics will be critical to future revenue as IoT devices and traffic grow to unprecedented volumes.

3GPP NB IoT and LTE-M Standards Reduce Satellite IoT Costs

3GPP (Third-generation Partnership Project) Release 17 established standards for NB-IoT and eMTC (enhanced Machine Type Communication), a type of LTE-M network in satellite connectivity. Satellite networks using these standards can be connected to any IoT devices eliminating the need for costly proprietary devices, unlike networks outside the standards. As a result, the use of 3GPP's standards greatly reduce the cost of satellite IoT connectivity.

In order to capitalise on this trend, Juniper Research recommends that operators and IoT vendors offering IoT management platforms develop a range of value-added services for satellite IoT connectivity, such as optimised steering between satellite and terrestrial networks. This will enable them to support and monetise the growing demand for satellite connectivity.

Figure 1: Juniper Research Competitor Leaderboard: Cellular IoT



Source: Juniper Research

TATA COMMUNICATIONS

Tata Communications: The established Cellular IoT provider leader, as scored by Juniper Research.

Juniper Research believes Tata Communications to be a leader in the cellular IoT market; providing its services in 200 countries and territories, to enterprises across a wide range of verticals, such as Automotive, Aviation, Smart Wearables, Manufacturing, Healthcare, Transport & Logistics.

Juniper Research identified the reliability of the connectivity afforded to enterprises by Tata Communication's MOVE™ platform as key to the company's success in the cellular IoT space. This provides enterprises with the confidence to deploy cellular IoT devices in mission-critical industries and operations.

Notably, Tata Communications offers specialised mobility services which provide multi-modal connectivity to ensure ubiquitous connectivity for mission-critical connected vehicle use cases, such as autonomous vehicles and emergency services. As a result, Tata Communications has a very strong market presence in the automotive market vertical.

The MOVE™ platform also offers industry-leading roaming services for cellular IoT devices, with Tata Communications leveraging its tier 1 infrastructure and vast partnership network to enable high-quality, global connectivity.

JUNIPER RESEARCH

1.1.1 Tata Communications

TATA COMMUNICATIONS

Table 2: Juniper Research Cellular IoT Competitor Leaderboard Heatmap: Tata Communications

	Capacity & Capability					Product & Positioning					Market Presence
	Financial Performance in the Cellular IoT Sector	Size of Operations in the Cellular IoT Sector	Extent of Cellular IoT Partnerships	Marketing & Branding	Experience in the Cellular IoT Market	Cellular IoT Market Coverage	Cellular IoT Platform Features	Cellular IoT Value-added Services	Extent of Innovation in the Cellular IoT Market	Future Business Prospects	
Tata Communications											

High

Source: Juniper Research

i. Corporate Information

Part of the Tata Group, Tata Communications is a communications technology player serving more than 190 countries and territories. Its solutions include core and next-generation connectivity, cloud hosting and security and media services. Among its customers, Tata Communications counts 300 of the Fortune 500 companies.

The executive team at Tata Communications includes Amur Swaminathan Lakshminarayanan (Managing Director & CEO); Aadesh Goyal (Chief Human Resources Officer); Genius Wong (Executive VP – Core and Next-Gen Connectivity Services, Chief Technology Officer); Mysore Madhusudhan (President – Collaboration and Connected Solutions); Kabir Ahmed Shakir (Chief Financial Officer); Srinivasan CR (Executive VP – Cloud and Cybersecurity Services, Chief Digital Officer); Sumeet Walia (Executive VP, Chief Sales and Marketing Officer); Tri Pham (Executive VP – Corporate Strategy Head); Troy Reynolds (Chief Legal & Compliance Officer).

Tata Communications fully completed the acquisition of Oasis Smart SIM Europe SAS, a leading eSIM technology provider in July 2023. The combined solutions of Tata Communications' MOVE platform and Oasis eSIM and remote SIM provisioning capabilities will provide global enterprises with end-to-end, scalable, and secure eSIM connectivity.

For FY 2022-2023, Tata Communications achieved a total gross revenue of ₹17,838 Cr.

Table 3: Tata Communications' Select Financial Information (₹ in crore), FY20-22

	FY2019-20	FY2020-21	FY2021-22
Net Revenue	₹ 17,068	₹ 17,100	₹ 16,725

Source: Tata Communications

Tata Communications' IoT solutions stack comprises connectivity and hardware solutions that can be managed via a single platform, MOVE™. With its variety of security solutions, Tata Communications ensures that customer networks, data, and devices are always secure, wherever they are. The company's in-built industry use cases for automotive, manufacturing, logistics, energy, retail, MVNOs, and multiple other verticals, combined with its edge platform (Tata Communications CloudLyte), makes it easy for enterprises to build solutions that drive industry-leading use cases and accelerate innovation.

ii. Geographical Spread

Within North America, Tata Communications has three offices in the US, as well as one office in Montreal, Canada.

In Europe, Tata Communications has offices based in Germany, the UK, Spain, Russia, France, and Poland. Tata Communications has six offices in India, including the company's Mumbai headquarters.

The company also has a vast system of networks which provide coverage across the Americas, Europe, the Middle East and Africa, Asia Pacific, as well as India and neighbouring countries; allowing it to provide services around the world.

In Asia Pacific, Tata Communications operates out of Hong Kong, Malaysia, Singapore, and Australia. Tata Communications is also present in Dubai, UAE.

In July 2020, Tata Communications secured a Type B telecom licence in Saudi Arabia; entitling Tata Communications to provide ISP (Internet Service Provider) and related telecom services to enterprises. This will enable the company to make the shift from offering services as a foreign carrier in the Middle East to a local licenced service provider.

iii. Key Clients & Strategic Partnerships

Tata Communications' customer portfolio spans a variety of industries including automotive, financial services, construction, consulting, eCommerce, education, energy, finance, government, healthcare, holdings, utilities, IT/ITES, legal, manufacturing, media and entertainment, pharmaceutical, real estate, retail, services, sports and telecommunications.

As the Official Broadcast Connectivity Provider of Formula 1, Tata Communications facilitates the transfer of more than 90 video feeds and over 150 audio channels between the Grand Prix venue and F1's Media & Technology Centre in the UK every race weekend in under 200 milliseconds.

In December 2023, Tata Communications and JLR (Jaguar Land Rover) announced a strategic partnership, where Tata Communications will future proof JLR's digital transformation and pave the way for new standards such as Industry 4.0 and advanced analytics. The partnership will power the production of JLR's next-generation vehicles, a key part of its Reimagine strategy, and provide the connectivity foundation for the next phase of digital transformation for the organisation.

Tata Communications has also previously formed strategic partnerships with Singapore Airlines, AWS, Cisco, Google Cloud, Microsoft, MotoGP and SailGP.

iv. High-level View of Offerings

Tata Communications' services for cellular IoT are offered through its MOVE™ platform. It includes a range of services.

a) Mobility

Tata Communications enables a connected vehicle ecosystem with MOVE™ that helps organisations transform from a hardware-focused vehicle manufacturer to a digitally focused, software-defined vehicle producer. Tata Communications' MOVE™ uses its Tier 1 global infrastructure to provide vehicle connectivity in 200 countries

and territories. They also provide multi-modal connectivity, to cover instances when cellular connectivity is unavailable. This includes mission-critical vehicle applications like autonomous driving, providing emergency services in case of an accident. This multi-modal connectivity is offered through multiple strategic partnerships with satellite providers, Sigfox, etc.

b) eSIM/Cloud SIM

Tata Communications MOVE™ eSIM and CloudSIM solution provides pre-connected and configured devices, thereby reducing investments and efforts for design and integration, decreasing time-to-market and improving flexibility to connect to any provider of choice.

With MOVE™, organisations can launch, manage, and monetise devices and services with embedded connectivity from a single trusted source, as well as gaining valuable insights about product and customer usage to stay ahead.

c) Connectivity Service Providers

Tata Communications MOVE™ delivers managed, innovative end-to-end services all the way from connectivity aggregation and SIM fulfilment, through to billing and customer care. The solution manages operations and technical issues so that organisations can focus on improving customer experience.

MOVE's MVNE service is based on its global data and voice network with regional PoPs on five continents, and it supports multiple functions and use cases without the need for additional systems integration.

The service enables organisations to launch digital-ready MVNOs in weeks, instead of months – as well as generating revenue, delivering global connectivity and a differentiated customer experience for subscribers through its MVNE platform.

Speaking to Juniper Research about Tata Communications MOVE™, Prakash Nagarajan, VP – Product Management, stated that:

'The solution's features enable enterprises to stay connected and deliver the promises of always on, always connected and always up to date.'

Tata Communications offers signalling and roaming services to support its cellular IoT service:

- Signalling: Tata Communications provides a single service for interworking and international roaming which supports SS7, Diameter, ITU (International Telecommunication Union) and ANSI (American National Standards Institute) protocol conversion across 930 destinations. The solution also offers multi-STP configuration for redundancy, and serves more than 230 PoP locations and 200 direct MNO connections. Tata Communications monitors signalling traffic, detecting signalling threats. This protects network operators from security attacks such as tracking, IRSF (International Revenue Share Fraud), spam and DoS (Denial of Service) attacks.
- 5G Roaming: Tata Communications provides our IPX and signalling services for 5G-NSA and 5G-SA roaming, addressing use cases encompassing eMBB (Enhanced Mobile Broadband), uRLLC (Ultra-reliable and Low-latency Communications), mMTC (Massive Machine-type Communications) for IoT.
- VoLTE Roaming Interworking: As MNOs worldwide shut down their 3G networks, the need for VoLTE is transitioning to a key requirement to maintain voice roaming services for subscribers. Tata Communications can support MNOs for VoLTE roaming and inter-working needs.
- Border Roaming: Tata Communications offers border roaming as well to prevent unnecessary handovers or location updates near national borders, along with intelligent routing that customises routing based on customer manipulation, such as TT routing or prefixing.

These services are backed with insights into networks, and workflows that reduce troubleshooting complexity and costs, to offer a more business-focused approach with full visibility into roaming experiences. The managed steering solution provides

MNOs with control over their roaming partners; selecting VPMNs (Visited Public Mobile Networks) based on preference rules.

1.2 Juniper Research Leaderboard Assessment Methodology

Juniper Research provides updates on a select number of companies offering cellular IoT solutions and platforms. To qualify for the Competitor Leaderboard, companies must be involved in the direct provision of cellular IoT services. The vendors included here have developed specific expertise in the cellular IoT space, though some embarked on the route earlier than others and therefore have wider customer bases or geographical reach.

The companies featured include established messaging specialists, such as Tele2 IoT, as well as companies who offer cellular IoT solutions as part of a wider range of operator services, such as Tata Communications and Verizon. This research covers a significant number of vendors; however, we cannot guarantee that all players in the market are included. Our approach is to use a standard template to summarise the capability of players offering cellular IoT solutions. This template concludes with our view of the key strengths and strategic development opportunities for each vendor.

We also provide our view of vendor positioning using our Juniper Research Leaderboard technique. This technique, which applies quantitative scoring to qualitative information, enables us to assess each player's capability and capacity, as well as its product and position in the broader market for cellular IoT. The resulting Leaderboard exhibits our view of relative vendor positioning.

1.3 Limitations & Interpretations

Our assessment is based on a combination of quantitative measures, where they are available (such as revenue and numbers of employees) that indicate relative strength, and also on qualitative judgement, based on available market and vendor information as published. In addition, we have added our in-house knowledge from meetings and interviews with a range of industry players. We have also used publicly available information to arrive at a broad, indicative positioning of vendors in this market, on a 'best efforts' basis.

However, we would also caution that our analysis is almost by nature based on incomplete information and therefore with some elements of this analysis we have had to be more judgemental than others. For example, with some vendors, less detailed financial information is typically available if they are not publicly listed companies. This is particularly the case when assessing early-stage companies, where a degree of secrecy may be advantageous to avoid other companies replicating elements of the business model or strategy.

We also remind readers that the list of vendors considered is not exhaustive across the entire market but rather selective. Juniper Research endeavours to provide accurate information. While information or comment is believed to be correct at the time of publication, Juniper Research cannot accept any responsibility for its completeness or accuracy; the analysis is presented on a 'best efforts' basis.

The Leaderboard compares the positioning of platform providers based on Juniper Research's scoring of each company against the above criteria that Juniper has defined. The Leaderboard is designed to compare how the vendors position themselves in the market based on these criteria. Relative placement in one particular unit of the Leaderboard does not imply that any one vendor is necessarily better placed than others. For example, one vendor's objectives will be different from the next and the vendor may be very successfully fulfilling them without being placed in the top right box of the Leaderboard, which is the traditional location for the leading players.

Therefore, for avoidance of doubt in interpreting the Leaderboard, we are not suggesting that any single cell in the Leaderboard implies in any way that a group of vendors is more advantageously positioned than another group, just differently positioned. We additionally would draw the reader's attention to the fact that vendors are listed alphabetically in a unit of the Leaderboard and not ranked in any way in the cell of the Leaderboard.

The Leaderboard is also valid at a specific point in time, February 2024 It does not indicate how we expect positioning to change in future, or indeed in which direction we believe that the vendors are moving. We caution against companies taking any decisions based on this analysis; it is merely intended as an analytical summary by Juniper Research as an independent third party.

Table 4: Juniper Research Competitor Leaderboard: Cellular IoT

Category	Scoring Criteria	Relevant Information
Capability & Capacity	Experience in the Cellular IoT Market	Here, Juniper Research has evaluated each company's experience in the cellular IoT market and has considered the length of time each vendor has offered a cellular IoT solution.
	Financial Performance in the Cellular IoT Sector	For this criterion, we considered the total sector-based revenue.
	Size of Operations in the Cellular IoT Sector	This criterion considered the countries covered by the IoT platform, the total number of customers, and the total number of IoT connections supported.
	Marketing & Branding	Strength of marketing efforts, including the average duration of each site visit.
	Extent of Cellular IoT Partnerships	This criterion considers the total number of cellular IoT partnerships
Product & Position	Cellular IoT Platform Features	Weighted scoring of the features offered within each company's cellular IoT platforms such as eSIM management.
	Cellular IoT Market Coverage	Total number of market verticals served by each vendor's IoT management platform.
	Cellular IoT Value-added Services	The range of value-added services provided alongside the company's cellular IoT platform.
	Extent of Innovation in the Cellular IoT Market	Score of Juniper Research's opinion of the company's innovation, or plans for innovation.
	Future Business Prospects	Score of Juniper Research's opinion of the company's future prospects in the market.
Market Presence	Market Presence	Number of employees employed by the company and number of customers

Source: Juniper Research

About Tata Communications

Tata Communications is a leading digital ecosystem provider that powers today's fast-growing digital economy. The Company enables the digital transformation of enterprises globally, including 300 of the Fortune 500 – unlocking opportunities for businesses by enabling borderless growth, boosting product innovation and customer experience, improving productivity and efficiency, building agility and managing risk.

With its solutions orientated approach, proven managed service capabilities and cutting-edge infrastructure, Tata Communications drives the next level of intelligence powered by cloud, mobility, Internet of Things, collaboration, security and network services.

Tata Communications has been a part of the rich heritage of the internet in India. Over the last 25 years, enterprise-enabled services have been essential to the adoption of digital services in the country. From utility to transformation, connectivity is an essential fabric of sustenance for the economy.

About Juniper Research

Juniper Research was founded in 2001 by the industry consultant Tony Crabtree, in the midst of the telecoms and dot-com crash. The business was fully incorporated in February 2002 and has since grown to become one of the leading analyst firms in the mobile and digital tech sector.

Juniper Research specialises in identifying and appraising new high-growth market sectors within the digital ecosystem. Market sizing and forecasting are the cornerstones of our offering, together with competitive analysis, strategic assessment and business modelling.

We endeavour to provide independent and impartial analysis of both current and emerging opportunities via a team of dedicated specialists - all knowledgeable, experienced and experts in their field.

Our clients range from mobile operators through to content providers, vendors and financial institutions. Juniper Research's client base spans the globe, with the majority of our clients based in North America, Western Europe and the Far East.