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OCTOBER 14-16  
2025

GSMA  
Intelligence

# Satellite and NTN Summit

Tuesday October 14, 2025

Sponsor



# GSMA Intelligence

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# Space is (still) getting more crowded

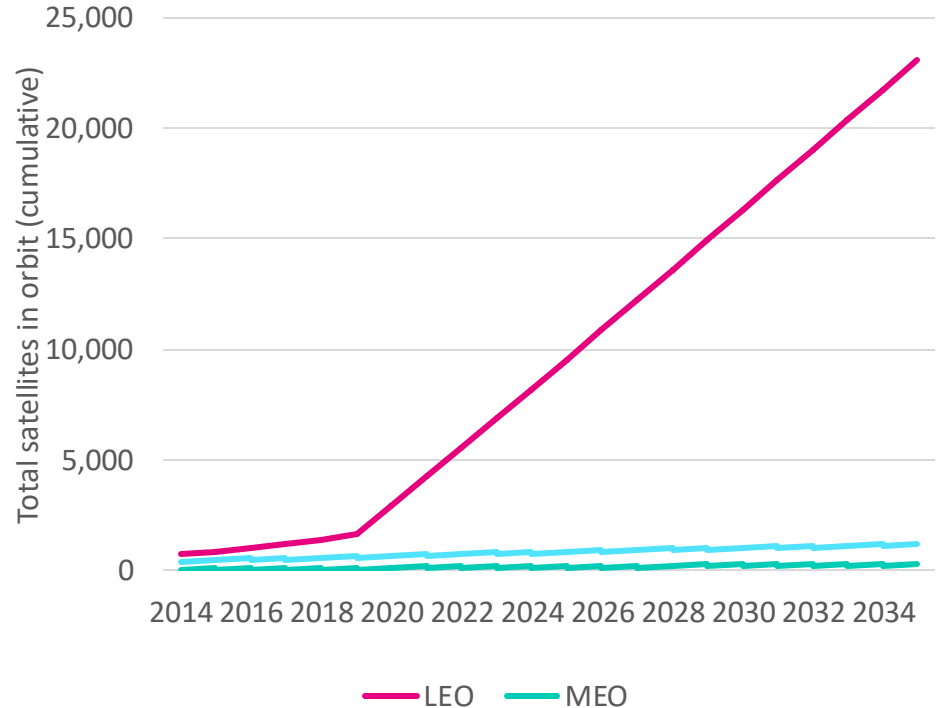
## ▪ Huge momentum

- LEO constellation explosion. Total satellites in orbit will be 10x pre 2020 levels by end of decade
- Driven by improved satellite economics and performance
- Telco demand growing

## ▪ Wide ranging use cases

- Consumer = unconnected, roaming, emergency service
- IoT/industrial sell in coming into frame across several industries
- Emergency + disaster response

## Satellite is exploding, driven by LEO volumes



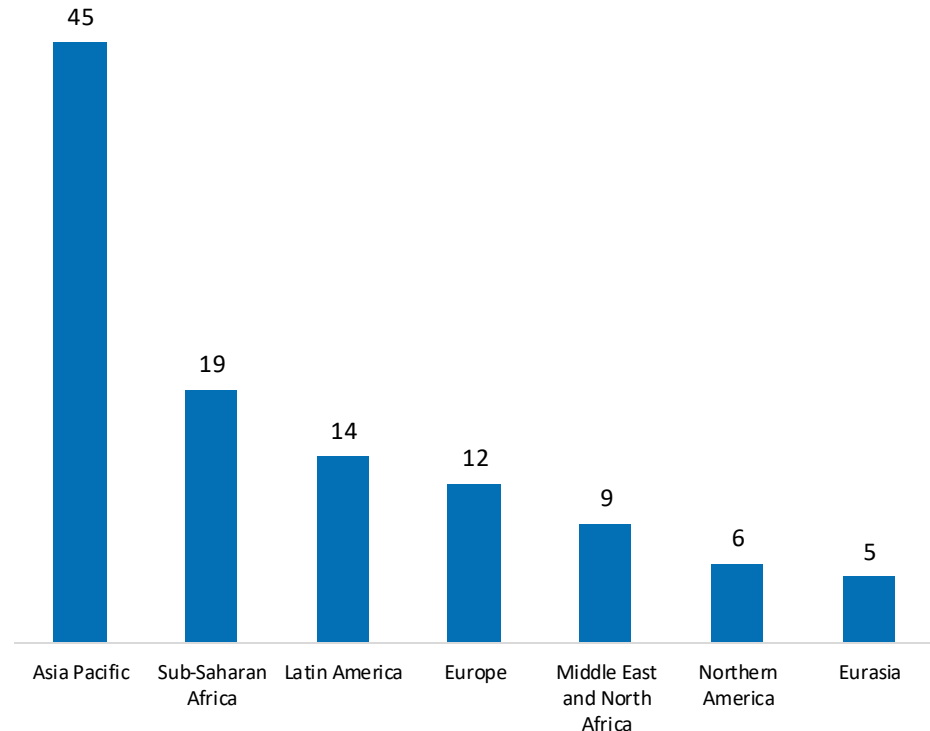
# The market in numbers: >110 telcos working with satellite

## Telco satellite and NTN footprint

| Metric                                                         | May 2025 | August 2025 | Change (last three months) |
|----------------------------------------------------------------|----------|-------------|----------------------------|
| Operators with satellite service*                              | 109      | 110         | +1                         |
| Of which are live                                              | 27       | 28          | +1                         |
| Of which are planned or testing                                | 82       | 82          | -                          |
| Mobile connections footprint (million)                         | 5,752    | 5,881       | -                          |
| Share of total connections base covered by satellites and NTNs | 66%      | 67%         | +1ppts                     |

\* Defined as unique operators or operator groups operating a direct constellation or offering satellite connectivity through one or more partnerships.

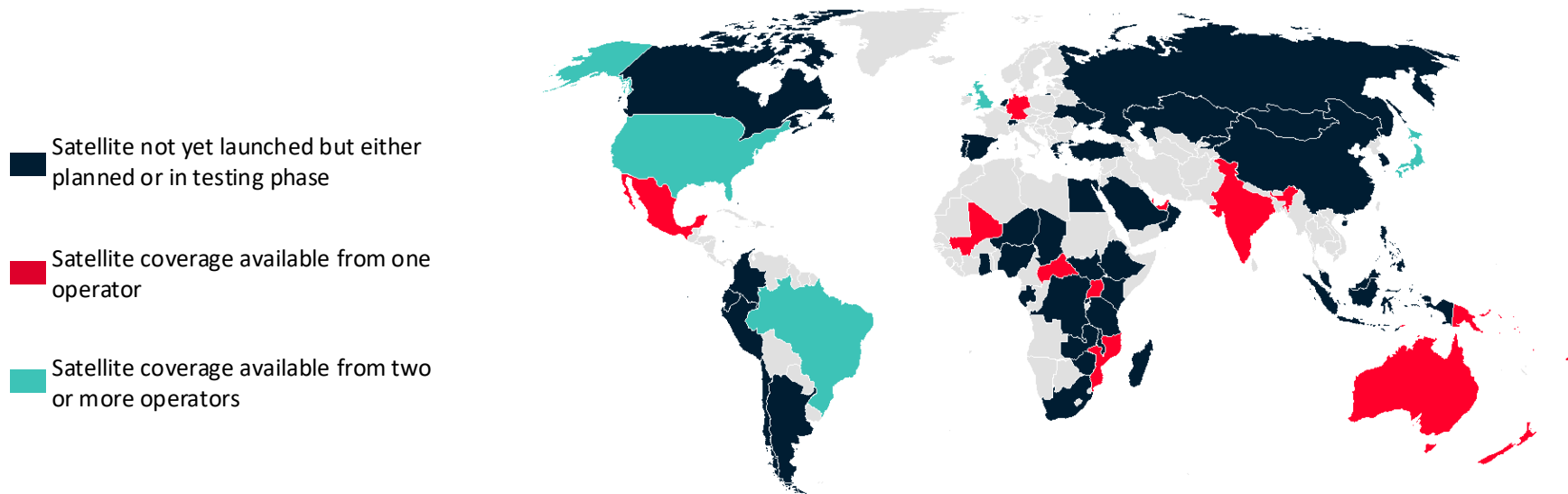
## Regional split of telcos with a satellite presence



Data correct to September 2025  
Source: GSMA Intelligence

# Global view (changing by the week)

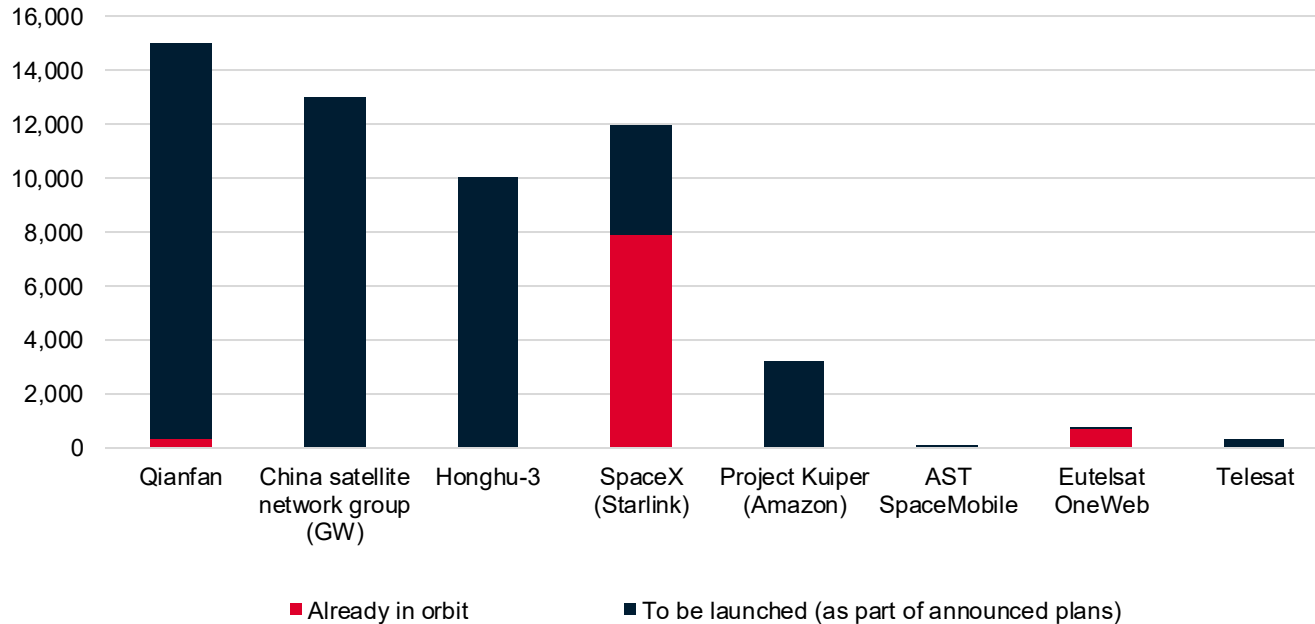
## Global view of telco satellite coverage



- Note some countries may not be shaded but still have operators with satellite partnerships not been publicly disclosed
- Data correct to May 2025.  
Source: GSMA Intelligence

# Competitive landscape: satellites

## China + global top 5 Number of satellites



Data correct to August 2025  
Source: GSMA Intelligence

# Competitive landscape: satellites

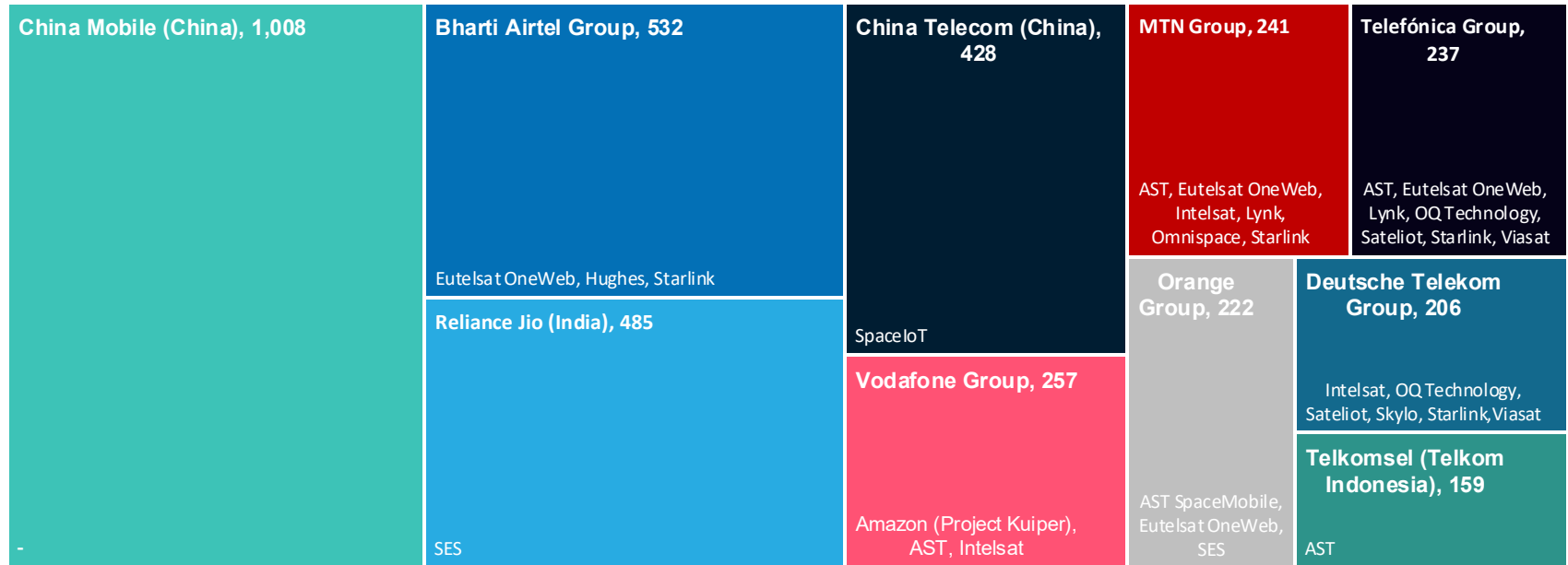
- **Starlink**
  - First mover
  - Bolstering spectrum position (Echostar)
  - Cross sell
- **AST and Kuiper**
  - AST – fraction launched, fully financed for remainder
  - Kuiper – larger in scale, strategy likely more in broadband and logistics, D2D TBC
- **The rest**
  - A raft of existing sat-co's from Iridium to Viasat and SES/Intelsat have large fleets that will be leveraged for D2D over the next 3 years

## Top satellite constellations (ex China)

|                                       | Currently in orbit | Planned constellation (all services) | % of constellation deployed |
|---------------------------------------|--------------------|--------------------------------------|-----------------------------|
| Starlink                              | 7,875              | 12,000                               | 66%                         |
| Lynk                                  | 5                  | 5,000                                | 0.1%                        |
| Kuiper                                | 27                 | 3,232                                | 1%                          |
| Eutelsat/OneWeb                       | 655                | 673                                  | 97%                         |
| SES/Intelsat                          | 142                | 142                                  | 100%                        |
| Iridium                               | 66                 | 66                                   | 100%                        |
| AST Space Mobile                      | 5                  | 60                                   | 8%                          |
| Viasat/Inmarsat                       | 23                 | 41                                   | 56%                         |
| Globalstar                            | 32                 | 32                                   | 100%                        |
| Echostar                              | 10                 | 10                                   | 100%                        |
| Space42 (merger of Yahsat and Baysat) | 6                  | 8                                    | 75%                         |
| Skylo*                                | -                  | -                                    |                             |
| Omnispace                             | Not yet launched   |                                      |                             |

Data correct to September 2025  
Source: GSMA Intelligence

# A varied set of partnerships



Note: The number of mobile subscribers for each operator or group represents the addressable footprint for a partnership, assuming national satellite coverage.

Data correct to September 2025

Source: GSMA Intelligence



# Direct to cell is all the rage (for now)...

- **Momentum.** The direct to cell phenomenon is driving a significant amount of telco-satellite partnerships. Our data indicates that, for AST, Starlink and Lynk, this model powers the majority of their telco partnerships for satellite service that integrates with mobile networks
- **Phased launches.** That does not, however, mean that commercial services will spring up tomorrow. We are instead likely to see a phased transition where satellite constellations at LEO start by offering partial service (2-3 hours/day) in 2025/26 when satellites are overhead, gradually expanding to 24/7 offerings to the polar latitudes by 2027/28

\* Figures are for satellite partnerships with telecoms operators for mobile connectivity, either by providing backhaul or direct to device. Where a satellite player has partnered separately with an operator group and its subsidiary, this has been counted twice. Satellite broadband services (e.g. at home, businesses or community locations) are not included.

\*\* Includes direct to cell and direct to IoT device

\*\*\*Numbers of SES and Intelsat have been combined post completion of their merger

| Satellite operator | Live telecoms operator partnerships* | Planned telecoms operator partnerships* | Delivery mode: direct to BTS | Delivery mode: direct to device** |
|--------------------|--------------------------------------|-----------------------------------------|------------------------------|-----------------------------------|
| AST SpaceMobile    | 0                                    | 31                                      | 6%                           | 94%                               |
| Lynk               | 3                                    | 23                                      | 4%                           | 96%                               |
| Starlink           | 8                                    | 13                                      | 52%                          | 48%                               |
| SES/Intelsat**     | 8                                    | 12                                      | 95%                          | 5%                                |
| Eutelsat OneWeb    | 3                                    | 8                                       | 91%                          | 9%                                |
| Others             | 11                                   | 38                                      | 47%                          | 53%                               |
| Total/average      | 33                                   | 125                                     | 42%                          | 58%                               |

Data correct to August 2025

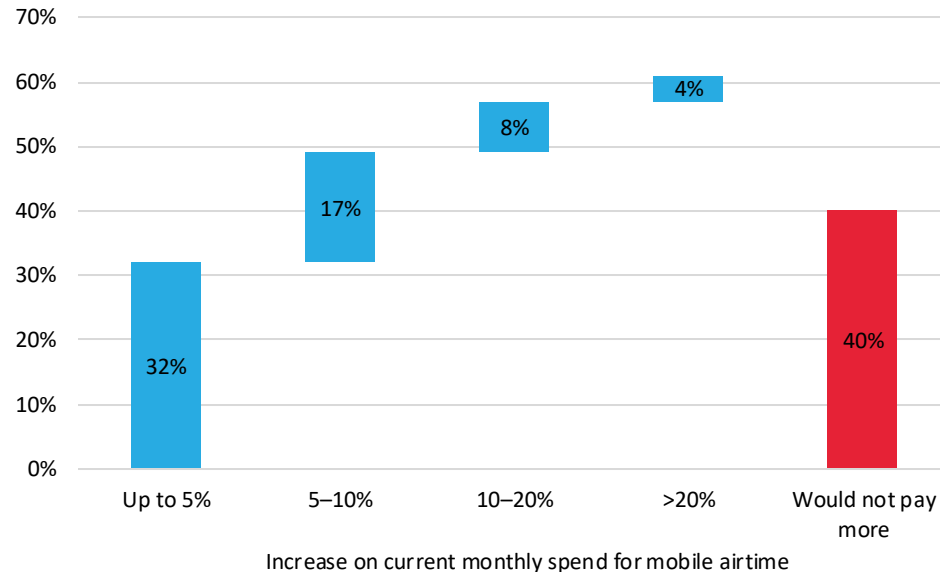
Source: GSMA Intelligence

# How much would people pay?

- **Wants vs. needs.** Assessing willingness to pay is part science and part art, in large part because we take consumer attitudes with a grain of salt, compared to actual purchases
- **60% would pay.** That said, our survey data indicates a fairly buoyant picture, with 60% of people, on average across the 10 countries, willing to pay more on top of their existing spend on mobile airtime.
- **Uplift.** To be conservative, it is sensible to discount the figures towards the lower end; half of those willing to pay more would pay only up to 5% on top of existing spend.
- **Boost to revenues.** However, even this would be a meaningful boost to ARPU when spread across the applicable customer base of the mobile operators most likely to take satellite

How much more would consumers be willing to pay on their existing mobile spend if the tariff included satellite connectivity (aggregate across 10 countries)?

Percentage of respondents



N=1,000 respondents per country (across 10 countries)

Source: GSMA Intelligence Satellite Consumer Attitudes Survey June 2024

# Market pricing implies a 15-25% uplift for satellite

Telco pricing for D2D in cellular tariffs (selected examples)

Data correct to September 2025

Source: GSMA Intelligence, company websites

| Operator                    | Satellite partner           | Service launch date | Service   | Base contract tariff (\$ per month) | Satellite bolt-on (\$/month) | Contract ARPU (\$/month) | Effective satellite uplift (percentage of contract ARPU) |
|-----------------------------|-----------------------------|---------------------|-----------|-------------------------------------|------------------------------|--------------------------|----------------------------------------------------------|
| Rogers, Canada              | Starlink                    | July 2025 (trial)   | SMS       | \$73/<br>\$51                       | 0/<br>\$10.95                | \$58                     | 0%/<br>19%                                               |
| T-Mobile, US                | Starlink                    | July 2025           | SMS       | \$105/<br>\$50                      | 0/<br>\$10                   | 49                       | 0%/<br>31%                                               |
| Entel, Chile                | Starlink                    | May 2025            | SMS       | \$13.72                             | -                            | 11.70                    | 0%                                                       |
| Verizon, US                 | Skylo                       | January 2025        | SMS       | -                                   | 0                            | 45                       | 0%                                                       |
| One NZ, New Zealand         | Starlink                    | December 2024       | SMS       | 29                                  | 0                            | 24                       | 0%                                                       |
| SmarTone, Hong Kong         | Tiantong-1 satellite system | August 2024         | Voice/SMS | -                                   | \$3.60                       | 28                       | 13%                                                      |
| 3 (CK Hutchison), Hong Kong | Tiantong-1 satellite system | July 2024           | Voice/SMS | -                                   | \$2.45                       | 25                       | 10%                                                      |

# There is also an allure of convergence

- **Portfolio.** D2D may garner the headlines, but it's not the only game in town when it comes to the satellite portfolio
- **Bundling strategies**
  - D2D cross sell to broadband and/or IoT
  - Vice versa
  - Some other combination
- **Benefits.** Why? In theory...
  - Higher bundle value
  - Lower churn
- **Limitations.** In practice, watch for...
  - Capacity constraints
  - Competition

## Product offerings among major satellite companies

| Satellite provider | Home broadband | Backhaul    | Direct to device | IoT         | Telco partnerships (live)* | Telco partnerships (planned)* |
|--------------------|----------------|-------------|------------------|-------------|----------------------------|-------------------------------|
| Starlink           | Available      | Available   | Available        | Available   | 6                          | 14                            |
| AST Space Mobile   | Not offered    | Not offered | Available        | Not offered | 0                          | 30                            |
| Lynk               | Not offered    | Available   | Available        | Not offered | 3                          | 23                            |
| Kuiper             | Planned        | ?           | ?                | ?           | 0                          | 3                             |
| Eutelsat/One Web   | Available      | Planned     | Available        | Available   | 3                          | 8                             |
| Viasat/Inmarsat    | Available      | Available   | Planned          | Available   | 2                          | 2                             |
| Skylo              | Not offered    | Not offered | Available        | Available   | 2                          | 3                             |
| Echostar           | Available      | Available   | Planned          | Available   | 0                          | 0                             |

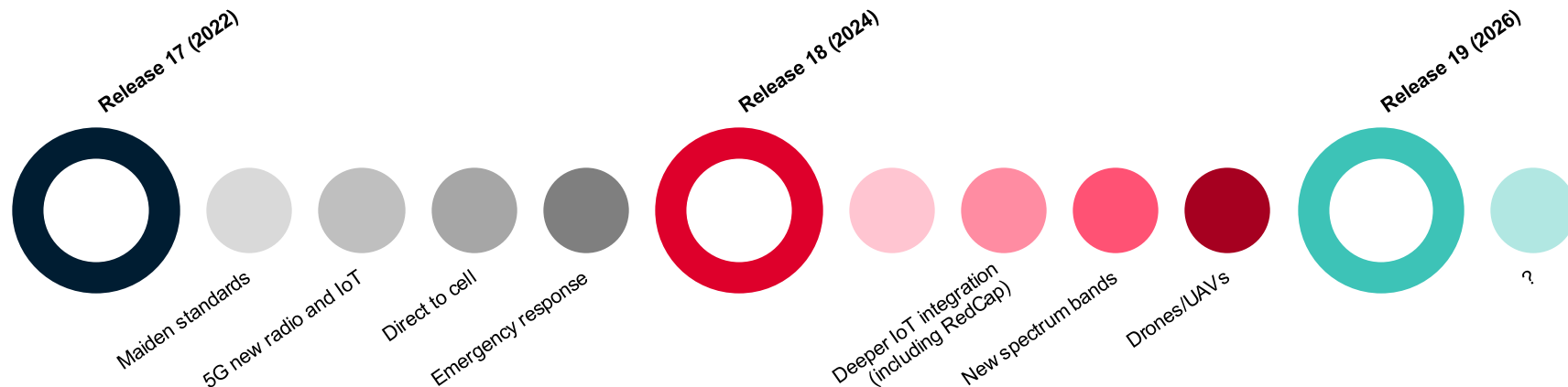
Source: GSMA Intelligence

# IoT ready for prime time?

- **Coming to fruition.** Satellite for IoT is one of the most interesting storylines of 2025. This rests on the total addressable market of 2.5–3 billion IoT devices across a range of industries and the fact that 20–25% of enterprise CTO and CTIOs say they intend to incorporate NTN into their connectivity portfolios.
- **Standards impact.** The next standards update (Release 19) should also help by adding new functionality such as RedCap into NTN for IoT. There is already a competitive segment that focuses mostly on IoT (e.g. Skylo, Orbcomm), with the new standards also attracting Iridium and other legacy satellite providers. Starlink is an X factor, with the potential to put downward pricing pressure across the board, although it would have to tolerate a low-margin business to do this.

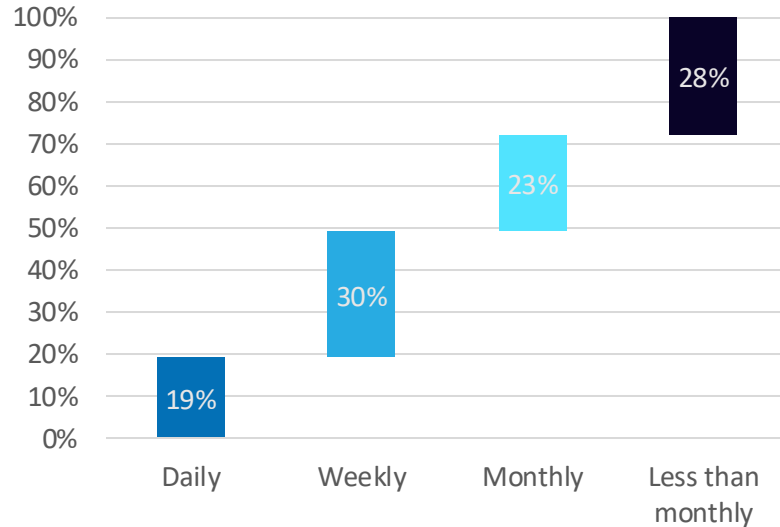
Satellite capabilities get better with each standards release

Source: GSMA Intelligence, 3GPP



# Plugging gaps that directly impact business performance

How often do businesses have critical operations delayed by lack of timely data?



Where could satellite MOST help?

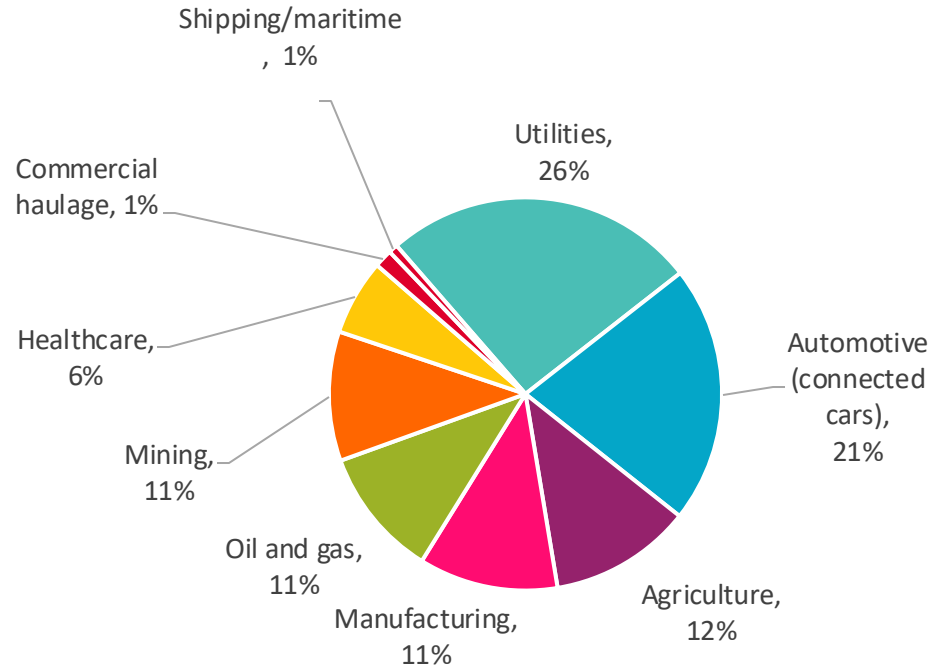


Source: GSMA Intelligence and Skylo survey of satellite enterprise attitudes (2025)

# IoT universe = 2.5bn devices

- **Myriad sectors.** The range of industries wishing to tap into satellite connectivity is wide, playing to company premises being in rural or remote areas (e.g. mining, oil and gas), or businesses that deal in asset tracking (e.g. logistics, cars)
- **Pricing.** Pricing is highly variable with ARPUs for IoT modules usually being well under \$1 per month (except connected car subscriptions), so overall addressable revenues have big bound of uncertainty
- **\$10bn run rate by 2035.** Our base case is that IoT revenues enabled by satellite can get to \$10bn per year by 2035, roughly 25% of what mobile operators make on IoT as of now

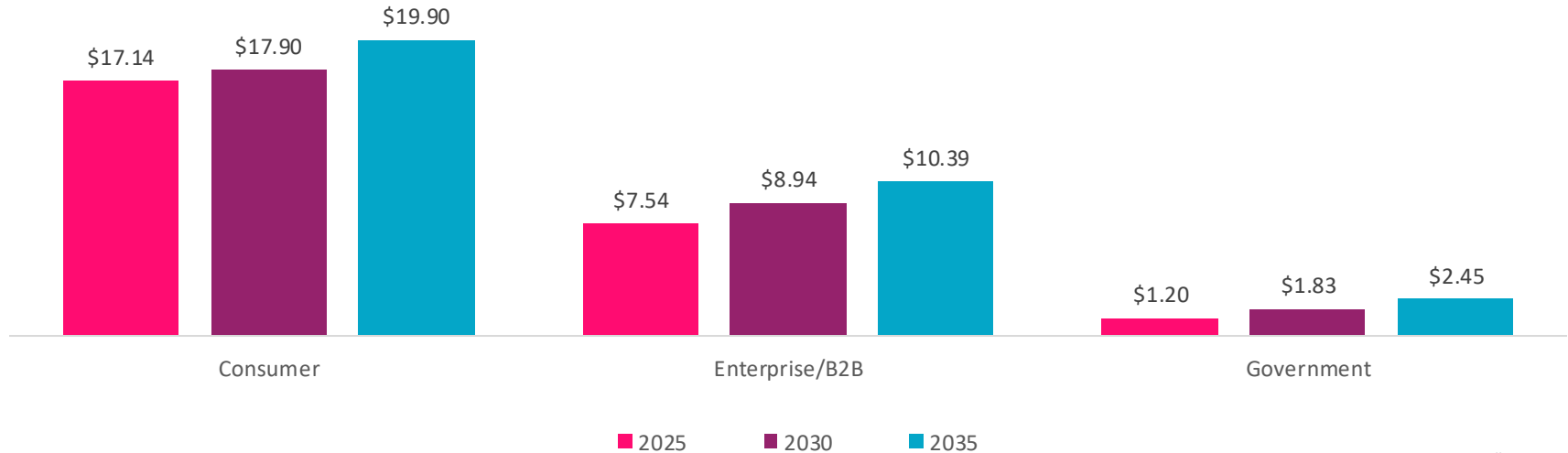
2-2.5bn IoT devices sit within the satellite addressable base



# What's it all worth?

\$30-35bn is in play...2-3% of the telco topline

## Addressable telco revenues via wholesale sat partnerships (\$ billions)



Source: GSMA Intelligence



# Spectrum models and trade-offs

|           | Mobile Satellite Spectrum (MSS)                                                   | Terrestrial (repurposed)                                                                                                                                                 |
|-----------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Companies |  |                                                                                       |
| Bands     | L band (1.5-2.5 GHz)<br>S band (2.2-2.7 GHz)                                      | Depends on holdings of partner operator<br><br>T-Mobile US, Salt = 1.9 GHz<br>One NZ = 1.8 GHz<br><br>AT&T, Verizon = 850 MHz<br><br>Sub 1 GHz (Pacific Islands, Africa) |

- Both have advantages and challenges
  - TRADE-OFFS
- Watch the news (e.g. Starlink/Echostar)

# Overall outlook. Big questions? It's why we're here!

## Technology

- **Network performance:** does it get beyond '3G-like?'
- **Satellite longevity:** does this lengthen? How long?
- **D2D:** real deal?
- **Chipsets and handsets:** how quickly is NTN integrated? How fast can people tap in?

## Commercial

- **Integration costs + set up:** how can telcos minimize opex/capex vis-à-vis NTN integration?
- **Willingness to pay:** will people pay more for satellite...and by how much?
- **Proving the revenue story:** to what extent do these show up? Do operators disclose the NTN impact?

## Regulatory

- **Spectrum:** interference mitigations? Borrowing terrestrial? MSS?
- **Landing rights:** getting global alignment...possible?
- **NTN standards integration...and 6G:** NTN impact with 5G-advanced and 6G?

Source: GSMA Intelligence

# Want to learn more? Check it out

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[gsmaintelligence.com](https://gsmaintelligence.com)

[@GSMaI](https://twitter.com/GSMaI)

## Satellite and NTN tracker, Q3 2025: Starlink versus the rest

DATE  
September 2025

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# George Giagtoglou

Strategy Committee Chair, MSSA



# Advancing the Future of Global Mobile Connectivity

October 2025



# Why Is an MSS Association Needed?

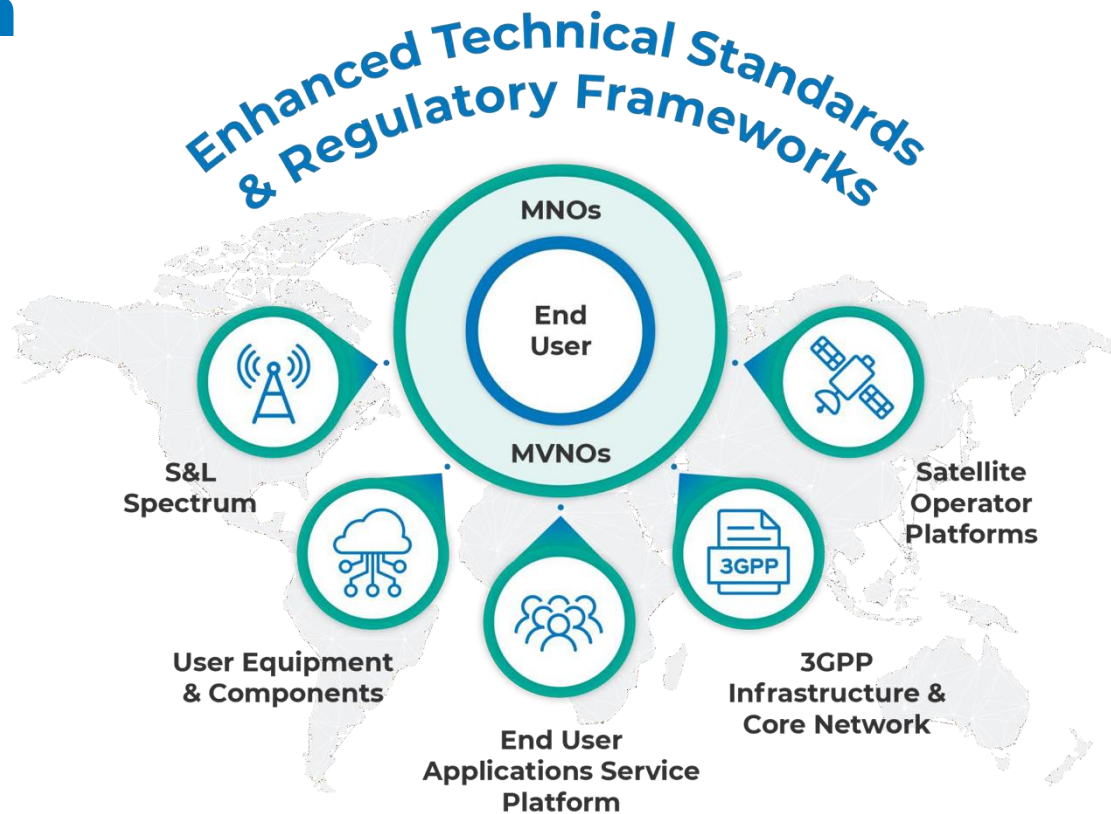
Our Vision: To facilitate and accelerate the integration and evolution of terrestrial and non-terrestrial network services to deliver scalable, sustainable, and affordable connectivity to any device, anytime, anywhere.

- Unite efforts to foster global support for new MSS solutions
- Accelerate market adoption and innovation
- Coordinate and drive advocacy for space sustainability and regulatory goals of the MSS operators
- Neutral platform for working, code of conduct and identifying viable technical solutions and processes
- Open forum for jointly developing and coordinating 3GPP and other standards submissions/responses
- Coordinate with other industry associations and groups to ensure alignment as non-terrestrial network technologies, standards and efficiencies evolve



**Working cooperatively with other associations to align & execute on common goals**

# Ecosystem





# MSSA Members

AALYRIA



ADDVALUE

APEX

Capgemini

COBHAM  
SATCOM

Druid

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Member Roster October 2025

## Partners/Collaborations/Memberships



GSMA





# MSSA Publications

## Executive Summary

Mobile Network Operators (MNOs) are seeking efficient ways to expand service to unserved and underserved areas where traditional infrastructure is economically unviable. Direct-to-Device (D2D) satellite connectivity is emerging as a practical solution, and MNOs have spectrum options to support such services, including using Mobile Satellite Service (MSS) spectrum.

## This white paper explores:

- A comparative summary of spectrum options for supporting scalable D2D service delivery
- The trade-offs between using Mobile Satellite Service (MSS) spectrum and reusing MNO terrestrial spectrum for D2D connectivity
- The regulatory and technical advantages of MSS spectrum for near-term deployment
- Key spectrum planning considerations for MNOs evaluating D2D deployment models



**Download the full white paper for an in-depth look at the business case, technical considerations, and regulatory factors shaping D2D connectivity.**

**Download the White Paper**

[mss-association.org](https://mss-association.org)

# Thank You!

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## **Moderator: Tim Hatt**

GSMA Intelligence

## **Mersad Cavcic**

Globalstar

## **Brian Aziz**

Iridium

## **Michael Burkis**

SES

## **Tregg Spolar**

Viasat

# **30 minute break**

## **Satellite and NTN Summit**

Resumes here at 12:30pm

# Barbara Pareglio

Senior Technical Director, Smart Mobility Lead, GSMA

# Realising the future of interworking between TN and NTN

Barbara Pareglio – Senior Technical Director, GSMA

# Satellite technology - Reshaping global connectivity



- ☐ **Evolving role of satellite networks in the connectivity ecosystem**
- ☐ **LEO satellite constellations are transforming satellite connectivity**
- ☐ **Providing complementary service**
- ☐ **Provides resiliency**
- ☐ **Regulatory frameworks to be aligned with advancements in non-terrestrial network communications and evolving satellite landscape**



In cities, densely populated urban areas as well as in towns and villages with medium to low population density, operators connect consumers to the mobile internet.

In remote and sparsely populated areas, satellite solutions can help connect consumers to the mobile internet.





# GSMA

## Non-Terrestrial Networks Community



Launched in 2024, the GSMA NTN Community drives integration between terrestrial and non-terrestrial networks, acceleration adoption, seamless interworking, and industry collaboration.

GSMA™

# Non-Terrestrial Networks Community

Community

SCOPE



- Accelerate TN & NTN through interworking.
- Leverage industry learnings by sharing experiences from pre-commercial trials, service launches, and early deployments.
- Shape business and technical priorities by linking business needs with technical requirements and supporting standardisation.
- Identify key focused areas of technology and work with relevant GSMA Working Groups, GSMA Communities or external stakeholders.

# Non-terrestrial networks – opportunities and challenges

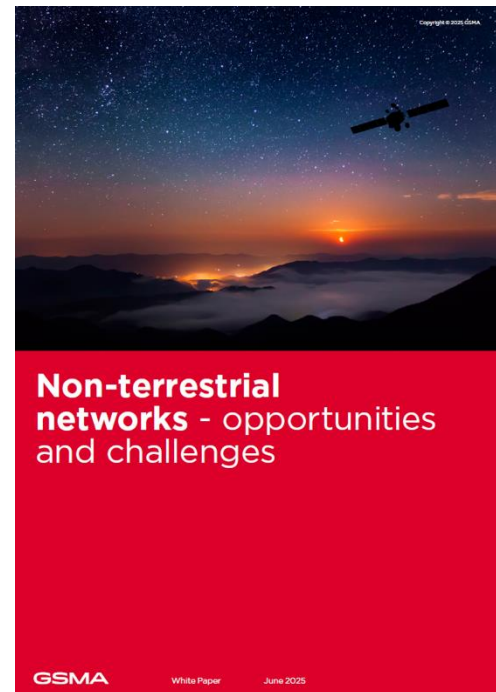


GSMA NTN White Paper launched in June 2025

- ◆ Technical and spectrum-challenges
- ◆ Standardisation landscape & ecosystem outlook
- ◆ Direct-to-device satellite connectivity
- ◆ NTN use cases - integrated TN/NTN deployments
- ◆ NTN Terminal design requirements & challenges



## WHITE PAPER



# NTN Community initiatives

- ❑ Identify top-priority topics to shape business requirements for GSMA Working Groups
- ❑ Business needs and the implication on the technical level
- ❑ Standardisation and deployments
- ❑ Terrestrial & Non-Terrestrial Networks interworking
- ❑ Roaming Agreements and Interoperability



**Join the NTN  
Community**

Contact:  
[bpareglio@gsma.com](mailto:bpareglio@gsma.com)

Request to join the  
Community



## **Moderator: Tim Hatt**

GSMA Intelligence

## **Cristina Rodriguez**

Intel

## **George Giagtoglou**

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