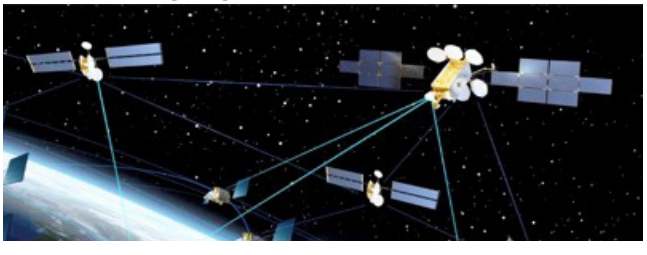
Satellite Executive BRIEFING
Vol. 19 No. 4 July-August 2026
SATELLITE Markets & Research
Industry Trends, News Analysis, Market Intelligence and Opportunities

Update on the Small Satellite Manufacturing Market

by Bernardo Schneiderman

This article will be addressing the market for small satellite manufacturers and the key trends in this challenging environment where constellations are getting implemented for global and regional players both for communications, internet and earth observation among other verticals.

The global small satellite manufacturing sector is undergoing a massive shift driven by commercial mega-constellation, advanced automation, and a strategic pivot toward larger "small" satellites for increased operational utility. According to industry reports from firms like Fortune Business Insights and Mordor Intelligence, the global small satellite market is experiencing a rapid trajectory, growing from USD 5.25 billion in 2026 toward an anticipated US$ 15.17 Billion by 2031. Driven by dropping launch costs, aggressive commercial investments, and geopolitical demand, an estimated 16,900 small satellites (under 500 kg) are expected to launch over the next decade.



Over the next five years, the sector will experience major technical, commercial, and regulatory updates among the key factors that are listed below:

The Rise of Sovereign and Regional Constellations

While commercial mega-constellations like SpaceX's Starlink heavily influenced early market growth, the next five years will see a dramatic shift toward national and regional space programs.

Geopolitical Security: Countries are investing in sovereign constellations for secure data, communications resilience, and defense.

Asia-Pacific Acceleration: While North America currently leads the market, the Asia-Pacific region is the fastest-growing sector. This is

Continued on page 4

What's Inside

JONSA®

Link Jonsa VSAT Antenna Cover Your Life

Key Features & Benefits:

- Manual, automatic, and one-touch satellite acquisition; deployment time within 3 minutes.
- Composite-material reflector and tripod construction; lightweight, high-strength, and structurally stable for portable field applications.
- Ring-focus feed system; high gain, low side lobes, optimized RF performance.
- Integrated GPS module and position detection system; 2 or 3 axis auto-protection mechanism for precise alignment and operational safety.
- High-performance signal-strength auto-tuning; automatic signal-loss detection and reacquisition.
- Intelligent antenna controller with integrated control and management software.
- Dual operation modes: motorized and manual control for field and emergency scenarios.
- Tool-free assembly; rapid system setup and breakdown.

JONSA Technologies Co., LTD.

No. 206 Cheng-Kung 3 Rd.,
Nan Kang Industrial Park, Nantou,Taiwan
Tel : 886-49-2260666
Fax : 886-49-2260191
E-mail : saccount@jonsa.com.tw
www.jonsa.com.tw

RoHS compliant

EDITORIAL

Reaching for Space

Summer is traditionally a time to take a break and recharge but the satellite industrry is a 24/7, all-weather industry on which so much of modern daily life depends on. So it goes as well for industry trade shows and conferences.

In this issue we focus on the very pivotal small satellite sector in our cover story by Bernardo Schneiderman to coincide with the Smallsat conference to be held in Salt Lake City in mid-August. We also have a very insightful report on there satellite industry events held in Asia over the summer, namely APSAT in Jakarta, Satelltie Asia in Singapore and the ISS in Korea, by our resident correspondent, Blaine Curcio.

Here at Satellite Markets and Research you can always rely on us reporting all year round on the important industry developments as they happen.

Stay tuned!

Virgil Labrador

Editor-in-Chief

View video interviews with key satelite executives at recent trade shows including Satellite 2026, among other at:

https://satellitemarkets.com/marketcasts

Satellite Executive BRIEFING
Industry Trends, News Analysis, Market Intelligence and Opportunities

EDITORIAL

Virgil Labrador
Editor-in-Chief
virgil@satellitemarkets.com

Peter I. Galace
Elisabeth Tweedie
Associate Editors

Contributing Editors:

North America:
Bruce Elbert
Latin America:
Bernardo Schneiderman

Europe:
Omkar Nikam *(Strasbourg)*
Hub Urlings (*Amsterdam)*
Roxana Dunnette (*Geneva)*

Asia-Pacific:
Blaine Curcio (*Hong Kong)*,
Naoakira Kamiya (*Tokyo),*
Riaz Lamak *(India)*

ADVERTISING

For Advertising enquiries send an e-mail to:
info@satellitemarkets.com

Satellite Executive Briefing is published monthly by Synthesis Publications LLC and is available for free at www.satellitemarkets.com

SYNTHESIS PUBLICATIONS LLC
1418 South Azusa Ave.
Suite # 4174
West Covina CA 91791 USA
Phone: +1-626-931-6395
E-mail:
info@satellitemarkets.com

Small Satellite Manufacturers... from page 1

heavily propelled by Chinese initiatives like the Guowang and Qianfan broadband constellations, as well as Indian Space Research Organization (ISRO) commercial smallsat expansio ns.

"...The global small satellite manufacturing sector is undergoing a massive shift driven by commercial mega-constellations, advanced automation, and a strategic pivot toward larger "small" satellites for increased operational utility..."

Edge Computing and Onboard Artificial Intelligence (AI)

Satellites are shifting away from being simple "data gatherers" that pass raw information down to Earth. Instead, they are becoming autonomous data centers in orbit.

Bandwidth Optimization: Integrating onboard Artificial Intelligence (AI) and machine learning allows smallsats to run edge-computing processes. Satellites can automatically filter out unneeded or cloud-covered imagery, reducing downlink bandwidth bottlenecks by over 40%.

Real-time Insights: Operators are shifting from selling raw imagery to offering Analytics-as-a-Service (AaaS) subscriptions. AI-driven data processing delivers actionable intelligence to users in logistics, agriculture, and defense within minutes of capture.

Optical Communications and Software-Defined Payloads

Hardware constraints are a major hurdle for small architectures, but advances in connectivity and adaptability are bypassing traditional physical limitations.

Laser Mesh Networks: The adoption of Optical Inter-Satellite Links (OISL) is rising. Laser communications create gigabit-per-second, high-speed mesh networks in space, vastly reducing communications latency across low Earth orbit (LEO)

In-Orbit Reconfigurability: Enabled by software-defined radios (SDR) and adaptive payloads, operators can entirely repurpose or upgrade a smallsat's functionality via code updates while it remains in orbit. This extends commercial value without requiring new hardware launches.

Stricter De-orbit Rules and Space Sustainability

As tens of thousands of new satellites enter LEO over the next five years, spectrum and orbital congestion present severe collision risks. Regulatory pressure is forcing operators to design with end-of-life disposal in mind.

The 5-Year Deorbit Mandate: Regulatory bodies like the Federal Communications Commission (FCC) require smallsats to deorbit within 5 years of ending their missions. Large constellations face disposal reliability standards as high as 99%.

Propulsion Requirements: To avoid space debris, smallsats are increasingly built with advanced electric propulsion systems or mechanical drag sails to guarantee controlled deorbiting.

Miniaturization and Shift to "Minisatellites"

Though miniature nanosatellites (like CubeSats) opened up space access, the industry is leaning heavily into minisatellites (101 to 1,200 kg) for operational tasks.

Superior Payload Capacity: Minisatellites strike a perfect balance by offering higher onboard power availability and larger physical envelopes. This is essential for deploying advanced technologies like Synthetic Aperture Radar (SAR) systems and high-resolution Earth observation cameras.

Modular Infrastructure: Manufacturers rely on flexible, power-efficient, mass-produced satellite buses. Standardizing the bus cuts production timelines and permits easy scaling from individual missions into massive global constellations.


ACORDE
Space & Defence
RF EXPERTS
challenge
the limits
CEPYME NATIONAL AWARD 2024
TECHNOLOGICAL INNOVATION
CEPYME AWARD 2025
PROMOTION OF EMPLOYMENT QUALITY
CANTABRIA TALENT AWARD
ESTABLISHED COMPANY 2025
CANTABRIA SME OF THE YEAR AWARD 2025
NATO
AQAP 2110
MORE INFORMATION:
ACORDE.COM

Major Players in the US Market for Small Satellite Manufacturers

The landscape of small satellite (smallsat) manufacturing in the United States features a mix of massive aerospace primes, prominent vertically integrated space systems providers, and highly active specialized startups. Driven by major U.S. Space Force and Space Development Agency (SDA) contracts, as well as massive commercial constellations, the market has shifted toward high-volume, standardized manufacturing.

The main small satellite manufacturers in the USA include the following key players:

SpaceX: By far the most prolific small satellite manufacturer in history by volume. SpaceX builds thousands of its own Starlink broadband satellites internally, alongside a growing number of militarized Starshield smallsats for national security customers.

Rocket Lab Corporation: Known originally for its Electron rocket, Rocket Lab has become a dominant smallsat manufacturer. They supply standard satellite buses (like the Photon line), custom spacecraft for high-profile missions like the Space Force's VICTUS HAZE, and have expanded aggressively through vertical integration, including their massive acquisition of Iridium Communications.

Airbus U.S. Space & Defense: Operates a state-of-the-art final assembly line in Merritt Island, Florida. Born out of the joint venture that mass-produced over 600 satellites for the OneWeb constellation, they build the standardized ARROW150 and ARROW450 modular smallsat families for both commercial and government agencies. Dedicated Smallsat Pioneers & Defense Contenders

Terran Orbital: Widely recognized as one of the top commercials

Spacex' Starlink satellites getting ready for launch.
(image courtesy of Spacex).

smallsat and CubeSat manufacturers in the country. They produce high-reliability satellite buses and have historically been a major supplier for both commercial constellation operators and defense primes.

York Space Systems: A powerhouse in turnkey satellite missions. Publicly listed on the NYSE under the ticker YSS, York is a primary contractor for the Pentagon's SDA Tracking and Transport Layers, mass-producing high-utility smallsats designed for rapid deployment.

Sierra Space: Originally a subsidiary of Sierra Nevada Corporation, Sierra Space produces highly agile smallsat platforms alongside its larger Dream Chaser spaceplane program. They are actively involved in building tranches for the military's proliferated low-Earth orbit (pLEO) constellations.

Traditional Defense Primes with Smallsat Lines

Lockheed Martin Space: While famous for large-scale legacy spacecraft, Lockheed has pivoted hard into smallsat mass production to capture the booming defense market. They maintain dedicated lines for small satellite buses used in military defense networks.

Northrop Grumman Space Systems: Utilizing the deep heritage of its acquired Orbital ATK branch, Northrop Grumman builds an array of agile, modular small satellites alongside its massive deep-space exploration platforms.

L3Harris Technologies: A massive defense contractor that has scaled up its responsive space and small satellite division, capturing vital roles building small, sensor-heavy tracking payloads and smallsat buses for national security missions.

Fast-Growing NewSpace Startups

Apex: A rapidly rising startup specializing in the mass manufacturing of standardized, scalable satellite buses (such as their Aries platform), designed to strip complexity out of custom smallsat builds.

Major Players Rest of the World

The leading small satellite (smallsat) manufacturers outside the United States represent a mix of massive defense primes and specialized "NewSpace" commercial builders.

Europe

Airbus Defence and Space (Netherlands/France/Germany): As Europe's largest satellite manufacturer, Airbus designs modular and smallsat configurations. Notably, they are a primary manufacturing force behind the mass-produced OneWeb low-Earth orbit (LEO) constellation.

Thales Alenia Space (France/Italy): A powerhouse joint venture between Thales and Leonardo. While they build massive geostationary craft, they are also a top player in the global smallsat market, building the platforms for LEO communications and Earth observation constellations.

Surrey Satellite Technology Ltd / SSTL (United Kingdom): A wholly owned subsidiary of Airbus, SSTL pioneered the commercial small satellite industry and remains a premier builder of rapid-response, low-cost micro and mini-satellites.

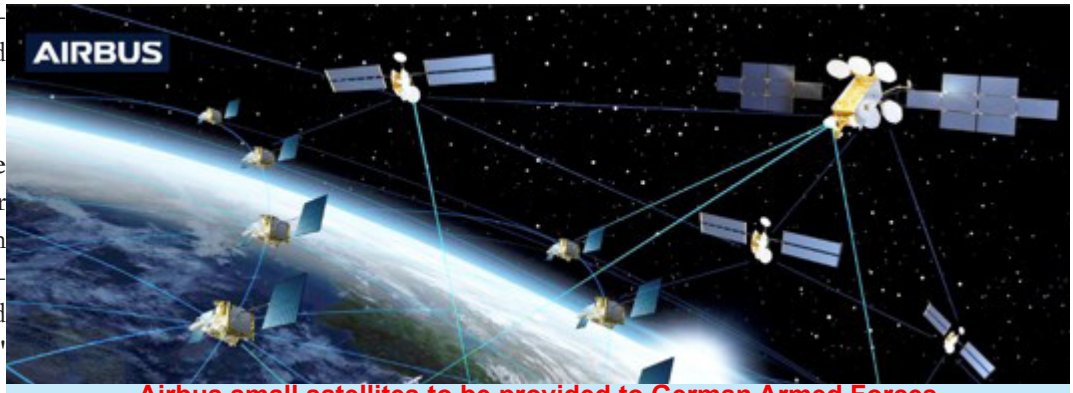
OHB SE (Germany): A key European space prime specializing in small geostationary and low-Earth orbit satellites for telecommunications and Earth observation

GomSpace (Denmark): A major player globally for cubesats and nanosatellites ranging from 1 to 50 kg, serving tracking, science, and defense sectors.

EnduroSat (Bulgaria): One of the fastest-growing European NewSpace companies. They dominate the shared-satellite and nano-satellite bus

market, providing pre-integrated software-defined platforms.

AAC Clyde Space (Sweden/UK): A top-tier provider specializing in advanced small spacecraft, cubesat buses, and "Space-as-a-Service" turnkey missions.



Airbus small satellites to be provided to German Armed Forces

Asia-Pacific

Dhruva Space (India): A prominent full-stack space engineering company that has risen rapidly to manufacture nanosatellites (8 to 35 kg) and deployment systems.

Mitsubishi Electric Corporation (Japan): While traditionally a manufacturer of heavy spacecraft, they have deeply integrated into the smallsat component and platform assembly line to support regional constellations.

ArkEdge Space (Japan): A highly watched Japanese startup aggressively scaling up customized micro-satellite constellations for Earth observation and IoT communication.

Satrec Initiative (South Korea): Widely recognized across Asia for manufacturing high-performance, cost-effective small-to-medium satellites optimized for high-resolution Earth observation.

China Aerospace Science and Technology Corporation / CAST (China): The state-owned prime powering China's massive sovereign LEO internet and remote sensing smallsat constellations.

Americas

MDA Space (Canada): A global leader in space robotics, geo-intelligence, and satellite components. MDA expanded its smallsat footprint by acquiring Colorado-based smallsat builder Blue Canyon Technologies from RTX, leveraging international expansion to command a large global defense and commercial backlog.

In this section of the article, we highlight the primary commercial use cases for small Satellites where Agriculture, maritime logistics, and telecommunications are driving the commercialization of small satellites. By deploying low-cost constellations, operators provide real-time, global insights that were previously impossible with traditional, expensive geostationary satellites.

The primary commercial use cases reshaping global industries over the next 5 years include:

Satellite Direct-to-Device (D2D) Connectivity

The most disruptive commercial shift is the integration of satellite networks with everyday consumer cellular devices.

Standard Smartphones: Instead of requiring specialized satellite phones, standard smartphones can now connect directly to low Earth orbit (LEO) smallsats for emergency text messaging and voice calls.

Global Texting: Partnerships between satellite operators and telecom providers are expanding to deliver ubiquitous text messaging across dead zones, oceans, and remote wilderness areas.

Broadband Access: Massive constellations are expanding high-speed internet to rural, disconnected communities, bridging the digital divide globally.

High-Revisit Earth Observation and Radar Imagery

Smallsat constellations dramatically decrease the time it takes a satellite to pass over the exact same spot on Earth, transitioning imagery from static historical maps to live operations.

Hourly Revisits: By staggering dozens of smallsats in orbit, companies can snap images of critical industrial assets multiple times per day.

Synthetic Aperture Radar (SAR): Small satellites equipped with SAR technology can pierce through thick cloud cover and capture high-resolution imagery in complete darkness.

Change Detection: Automation software uses these high-frequency images to immediately spot changes on the ground, such as tracking military movements, monitoring illegal mining, or counting port cargo.

Asset Tracking and IoT Supply Chain Logistics

Global logistics companies rely heavily on smallsats to eliminate dark spots in the international supply chain.

Ocean Freight: Satellites track the locations, fuel efficiencies, and safety metrics of cargo ships across vast, open oceans.

Remote IoT Sensors: Companies deploy low-power Internet of Things (IoT) sensors to monitor heavy machinery, oil pipelines, and rail cars in deep wilderness areas.

Cold-Chain Management: Smart shipping containers transmit real-time internal temperatures to prevent the spoilage of sensitive pharmaceuticals and foods.

Precision Agriculture and Environmental Monitoring

Frequent, multi-spectral satellite imagery allows agricultural businesses to maximize crop yields and manage scarce resources.

Crop Health: Satellites detect microscopic changes in vegetation color to spot pest infestations and fertilizer deficiencies weeks before they are visible to the naked human eye.

Drought Prediction: Thermal and infrared imaging tracks exact soil moisture levels to optimize water usage and predict localized droughts.

Carbon Credit Verification: Corporations use objective satellite data to map forests and accurately verify carbon offset initiatives.

Disaster Response and Insurance Tech

The insurance and emergency management sectors utilize immediate data to mitigate financial risk and save lives during climate crises.

First Responders: Emergency crews use satellite maps within minutes of a hurricane, earthquake, or wildfire to identify safe evacuation paths and locate trapped victims.

Instant Claims: Insurance firms deploy smallsats to evaluate property damage over entire zip codes simultaneously, speeding up automated payouts to policyholders.

Wildfire Tracking: Thermal sensors on smallsats detect early-stage forest fires in remote regions, notifying local fire departments before the blazes spin out of control.

It is evident from current trends that small satellites are transforming the global satellite market not only in from the technological point of view but in terms of its varied applications as well.

Bernardo Schneiderman is the Contributing Editor of the Satellite Executive Briefing He can be reached at: info@satellitemarkets.com

The Asian Satcom Sector in Summer '26: Balancing Sovereignty and Economic Reality

by Blaine Curcio

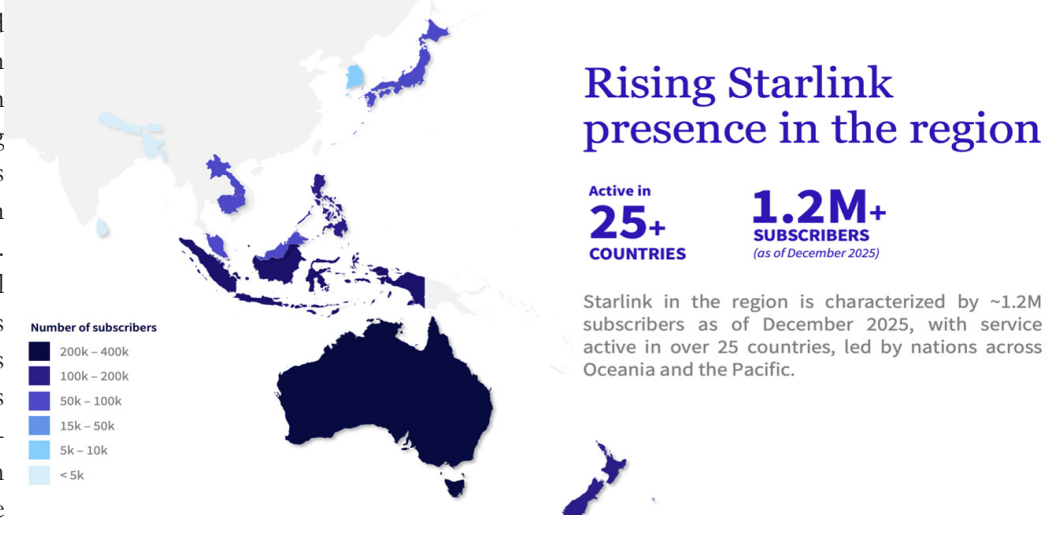
It's a fascinating time to be covering the space and satcom sector in Asia-Pacific. On the one hand, APAC is one of the regions most rapidly adopting Starlink and other global infrastructure. On the other hand, in an increasingly multipolar world, many of APAC's larger and more developed countries are upping the ante in meaningful ways by investing into sovereign space infrastructure. At the center of this contrast lies an important, multifaceted question: how to balance the desire for sovereign space assets and technology transfer with the high costs and long-term timelines of such solutions? Over the course of May and June, I attended conferences in Jakarta, Singapore, and Daejeon (South Korea), giving three different perspectives on these questions.

The Indonesian Case

The APSAT Conference in Jakarta is the premier annual Indonesian satcom conference. Held in May with copious amounts of Batik clothing, and organized by the Indonesian Satellite Association (ASSI), the conference brings together Indonesian satellite operators, service providers, and a growing number of companies in the earth observation, cybersecurity, and broader space domain.

This year was, admittedly, my first time attending, so my analysis can be taken with a grain of salt, but several topics stood out. First, the tension between reliance on Starlink and desiring domestic capabilities in the satcom domain was on full display. Over the past several years, Indonesia has undertaken perhaps the most ambitious universal service obligation (USO) program of any country in the world, the BAKTI program, initially envisioning connecting 150,000 rural sites using satellite. The CEO of the BAKTI Program, Fadhilah Mathar, was a speaker on the Indonesia satcom panel, where he noted that today, there are nearly 32,000 sites connected to Satria-1, a large Geostationary-High Throughput Satellite (GEO-HTS) operated by domestic satellite operator Pasifik Satelit Nusantara (PSN). This represents a major win for domestic capacity, self-sufficiency, and sovereignty.

However, during the same panel, Pak Mathar noted that since their entry into the market justunder two years ago, Starlink has captured 45% of the Indonesian satcom market, causing significant challenges for local operators, and causing difficult decisions for policymakers. On the one hand, Starlink offers relatively low service costs, low latency, and perhaps most importantly in the Indonesian context, small and simple-to-install ground equipment that can easily be shipped to even the most remote areas of the country. On the other hand, there are now multiple large GEO-HTS operated by local operators that can support tens of thousands of sites around the country, albeit with ground equipment that can be more difficult to transport and install. Local operators, for their part, are trying to address these issues, with PSN for example developing their



own antenna that they say simplifies installation, but the challenge remains for Indonesia's regulators: longer-term sovereignty, or immediate convenience?

Indonesia's push for sovereignty is by no means limited to universal connectivity. During the conference, we heard rumblings of sovereign defense satcom projects, sovereign LOw Earth Orbit (LEO) constellations, and satellite manufacturing planned for Indonesia. Overarching all of these themes was the broader shift from communications towards defense, catalyzed by the 2024 election of President Prabowo Subianto, a former General. Combined with a more uncertain global geopolitical environment, this shift has seen the Ministry of Defense become arguably the country's most powerful ministry.

Our conversations in Indonesia revealed one more important trend: neutrality. Indonesia, being a large country with nearly 300 million people, is pursuing a strategy of not relying on any one country or group of countries. The conference had participants from the United States, Europe, China, India, and Russia, all trying to sell into this massive market. And Indonesia, for its part, is buying from a variety of sources. All of these trends point towards a central question: efficiency vs. sovereignty. If a country buys all its technology from a single source, even if it internalizes that technology, is it really sovereign? Arguably not. But, if a country buys various systems from many countries, can it really be done efficiently? Time will tell how Indonesia tackles this challenge, but for now, it represents opportunities for a variety of players worldwide.

A Market Lesson in Singapore

After a much-needed weekend in Lombok (which included many BAKTI satellite dish sightings in remote schools), I headed to Singapore for Asia Tech X Singapore, as well as the Satellite Industry Forum (SIF), hosted by Novaspace and the Global Satellite Operator Association (GSOA). Admittedly my time on the ground in Singapore was too short (around 48 hours) to get much of a vibe, however my time spent at SIF was informative of some of the broader regional trends, outlined succinctly and with the usual excellent storytelling my by colleague Nathan de Ruiter from Novaspace.

Nathan laid out the challenge very clearly: Starlink has a rising presence in Asia-Pacific, with market access in more than 25 countries and more than 1.2M subscribers in the region as of December 2025. As the slide below shows, countries such as Australia, Indonesia, New Zealand, and the Philippines are becoming hotbeds of Starlink activity, pressuring local satellite operators to pivot their business plan.

Fortunately, the Novaspace team had some strategies up our sleeve to address this. As per Nathan's breakdown, as a result of this Non-Geostationary (NGSO) disruption, satellite operators largely have three options:

1) Vertical integration and orchestration, i.e. becoming a "managed service provider" by stitching together multiple Non-Geostationary (NGSO) and GEO offerings and providing turnkey solutions to end customers.

2) Diversified services, expanding offering beyond traditional satcom into Earth Observation (EO), Direct-to-Device (D2D), Positioning, Navigation and Timing (PNT), among others, leveraging space assets to address multiple different pools of demand, i.e. "becoming a space solutions provider."

3) Sovereign refocus. This is particularly relevant in Asia-Pacific, where several satellite operators are already a de-facto national space company. This strategy involves becoming a "National space champion", aligning oneself with national objectives and prioritizing ownership, resiliency, and aligning with critical infrastructure.

And so it was at the SIF, with most of the region's satellite operators and many leading service providers getting together for a day of networking and chewing through some of these ideas. With a variety of upstart satellite manufacturers in the room offering alternatives to Starlink (i.e. Astranis, ReOrbit, K2Space, and more), the tone was clear: it's an uncertain time with Starlink in our markets, but we are going to band together and we are not going down without a fight.

Rounding Out the Summer Conference Circuit in Daejeon

A few weeks after the conferences in Southeast Asia, the International Space Summit (ISS) took place in Daejeon, South Korea. Hosted by Contec, the ISS brings together an eclectic mix of South Korean and international space companies, and this year's was the biggest ever, with some 70 exhibitors and more than 1,000 attendees.

Like APSAT, the ISS showcased different takes on sovereignty. The host country of South Korea is a small, but highly advanced economy with a rapidly-growing space

Es'hailSat سهيل سات
Qatar Satellite Company الشركة القطرية للأقمار الصناعية
Space to deliver your vision

CONNECTING QATAR TO THE WORLD AND BEYOND

At Es'hailSat, we power Qatar's communications through cutting-edge satellite technology. From broadcasting and government services to business connectivity and beyond, we ensure secure, reliable, and high-performance satellite solutions across the region. We are enabling a future that is always connected and always advancing.

www.eshailsat.qa

sector. The country's military and government space projects are extremely ambitious, including the Korea Positioning System (KPS) navigation constellation, multiple defense-related NGSO remote sensing constellations, and several satcom initiatives. Compared to Indonesia, South Korea's balance of sovereignty vs. foreign players is more nuanced. South Korea is a small country with excellent terrestrial connectivity: the satcom industry is primarily DTH services operated by KTSAT, and while Starlink has entered the market, it poses little threat to Korean satellite operators or telcos.

That being said, South Korea has big space ambitions, and will need to rely on foreign partners for other things, most obviously launch infrastructure. South Korea's leading commercial launch manufacturer, Innospace, is a case in point, leveraging the Alcantara Spaceport in Brazil for their launch services. Elsewhere at ISS were foreign suppliers of all manner of products including antenna systems, thrusters, ground stations, and more.

One of the highlights of the ISS was continued discussion around sovereign LEO in the Korean (and East Asian) context. Newly-appointed KTSAT CEO Kevin Choi highlighted early-stage plans for a possible sovereign LEO constellation during his presentation, encouraging other Asia-Pacific countries to band together and launch an alternative to Starlink, Amazon LEO, OneWeb, etc. The size of these constellations, costing billions, if not tens of billions of dollars, and being by definition global, is such that even a highly developed country like South Korea (or Japan) cannot justify their own large constellation projects, meaning that they must collaborate, or risk becoming reliant on Starlink and others.

Conclusion: The Future of Space Sovereignty in APAC

The global space sector is becoming more fragmented as more countries pursue their own sovereign space policies, and nowhere is this more apparent than Asia-Pacific. Being home to several of the world's most prominent Middle Powers, and several leading satcom nations, the region has seen a proliferation of sovereign space capabilities, and the trend is only just beginning.

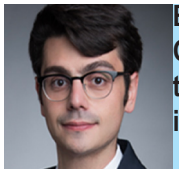
Moving forward, we should expect several key trends from the region:

1) Proliferation of nation-level remote sensing constellations. This is already occurring in South Korea, Japan, and elsewhere, and more countries are likely to jump on the bandwagon as remote sensing satellites become cheaper and more accessible.

2) Small GEOs for countries, and may even eventually for companies. While Starlink remains the biggest player in the satcom market, the price of small GEOs is becoming more competitive, and data sovereignty becoming more paramount. Already we have seen satellite operators in South Korea, the Philippines, and Thailand purchase small GEOs, and with more options coming to market, this should increase. Eventually, we may even see very large companies (such as state-owned oil & gas companies) start to buy small GEOs for their own internal networks.

3) A pan-Asian NGSO constellation to rival Starlink, Amazon LEO, OneWeb, and Chinese competitors. This will require significant coordination, investment, and cooperation, but will become more likely if, for example, Starlink starts to threaten a greater portion of telco business models.

As always, only time will tell which of these trends takes shape, but in the meantime, it surely is a dynamic and fascinating time to be covering the space sector in Asia-Pacific.



Blaine Curcio is the Founder of Orbital Gateway Consulting. He's an expert on the global commercial space and satellite industries He can be reached at:
blaine@orbitalgatewayconsulting.com

New Markets Watch: How Executives are Planning for the Future

by Jason Bates

Low Earth Orbit (LEO) broadband is reshaping the market—but it's just one of several major shifts underway, alongside software-defined satellites, 5G non-terrestrial networks (NTN), optical communications, and direct-to-device (D2D). As these trends move from concept to deployment at varying speeds, which will have the greatest impact on teleport operators managing shared, multi-orbit infrastructure?

This shift has been underway for several years, driven by factors including the arrival of mega-LEO constellations. More recently, satellite-based D2D services have been vying for center stage, with ambitions to expand beyond text and SOS emergency services to full global cellular roaming capabilities. Meanwhile, traditional GEO satellites and associated ground infrastructure are increasingly software reprogrammable, and emerging 5G NTN standards are accelerating satellite's convergence with terrestrial telecom services.

Teleport operators, whose businesses were built around GEO satellite broadcast services delivered across closed, proprietary networks, are racing to adapt to the new technological and market realities. Assisted by technologies including software-defined wide area network (SD-WAN) routers, radiofrequency (RF) signal digitization, hardware virtualization, and increasingly sophisticated orchestration platforms, these operators are supporting mega-constellations with antenna infrastructure while integrating LEO services into their offerings. Some are even de-emphasizing GEO-based services in favor of low-latency LEO and LEO-based D2D services.

The trend has accelerated in recent years, and appears to have passed the point of no return. By 2030, experts believe, teleports, including those owned by GEO satellite operators, will operate as flexible, integral hubs within a larger telecommunications ecosystem that includes satellites in different orbits with different owners, as well as terrestrial cable and wireless infrastructure.

The Technologies

Telecommunications technology is advancing at breakneck speed, creating opportunities and challenges for longstanding ground segment service providers. While traditional video broadcast markets continue to decline, demand for satellite-delivered data is surging. According to NovaSpace, a space industry consultancy, the satellite-delivered data business will overtake video by 2033. Fueling that growth is a combination of innovations including mega constellations, D2D services, 5G NTN standards, software-defined networks and satellites, and laser-optical communications.

Customer Expectations

Technological innovation continues to raise the performance bar for satellite service providers. Today's cus-

tomers expect seamless connectivity across multiple orbital and terrestrial pathways, with the reliability, quality and user friendliness of terrestrial and wireless services. Mobility customers, especially in critical safety, military or enterprise fields, are demanding assured connectivity via pathway redundancy. At the same time, they want a user-friendly experience, which is pushing service providers to streamline and integrate provisioning, monitoring, and billing.

Shifting Strategies and Investment Priorities

To deliver on heightened customer expectations, teleport operators – including companies that own GEO satellites – now view LEO services as complementary rather than competitive offerings and are investing in the technologies necessary to integrate all available pathways, satellite, wireless and terrestrial. These include SD-WAN routers, orchestration platforms incorporating APIs, and LEO gateway infrastructure.

Partnerships with constellation operators allow teleport service providers to stay competitive with expanded reach and low-latency services while maintaining GEO's core strengths, including secure, reliable broadcast and bandwidth-intensive connectivity, especially in high-density markets. Such partnerships range from simple reseller agreements with vertically integrated operators to strategic arrangements involving ground segment integration. Hosting LEO gateway antennas has become an important revenue source for teleport operators with the right location and available resources, notably real estate and terrestrial connectivity.

"...Teleport operators, whose businesses were built around GEO satellite broadcast services delivered across closed, proprietary networks, are racing to adapt to the new technological and market realities...."

Putting it all Together

While software-defined networks clearly undergird multipath connectivity, APIs and automation are critical adjuncts. APIs are software interfaces between a satellite system and a teleport's operations support system/business support system (OSS/BSS). They are critical to network responsiveness, enabling, for example, a satellite to track the movement of key customers and shift its beam accordingly. APIs are not yet standardized, meaning OSS/BSS and orchestration platform providers must adapt and integrate separate APIs to deliver multipath capabilities to teleport operators. Although 5G NTN adoption and other factors are building momentum behind API standardization, technical and competitive hurdles remain. Automation and AI also play a growing role in increasingly complex network operations and health monitoring.

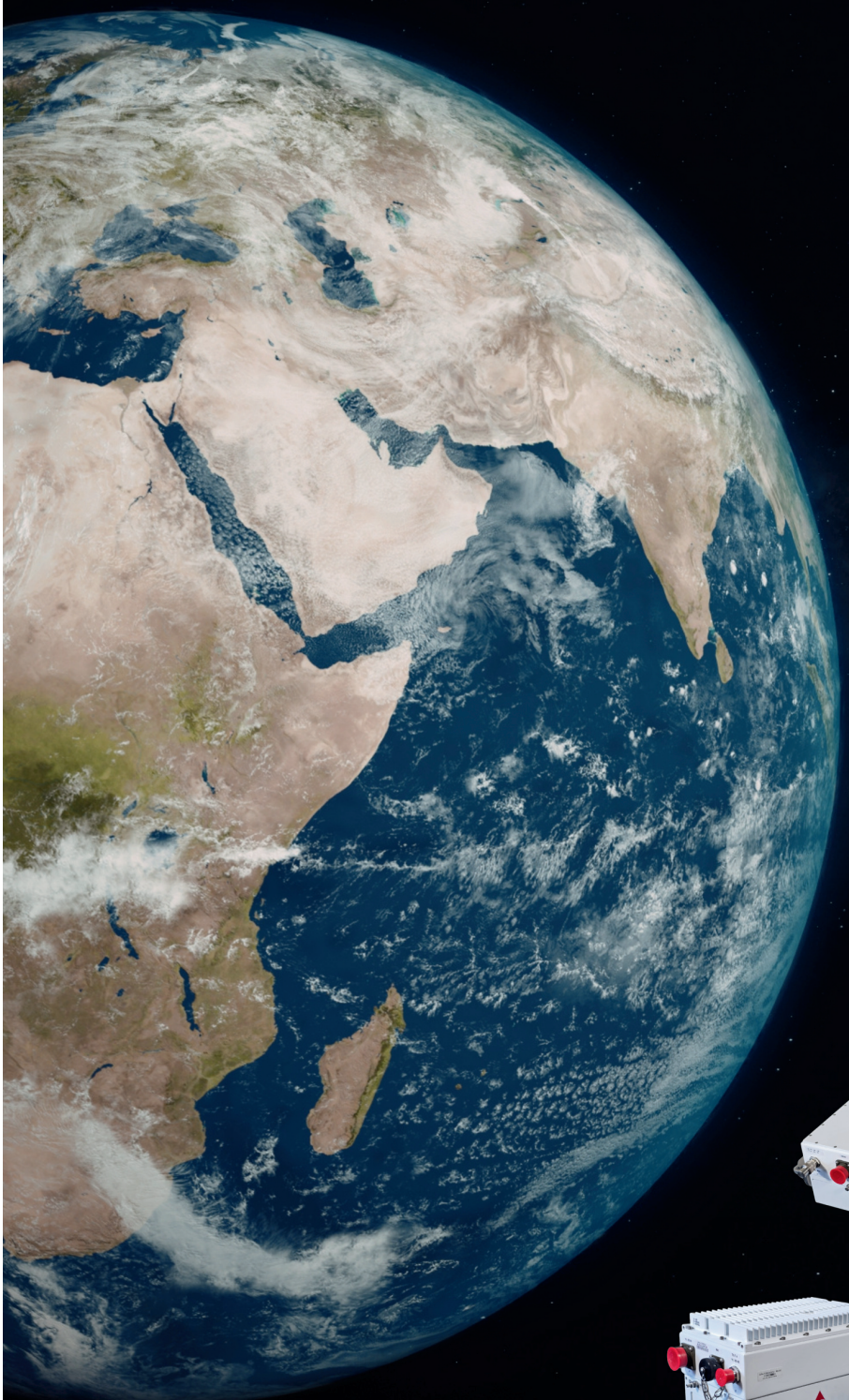
The transformation of the satellite telecom is accelerating, driven by converging technology and market trends, some further along than others. There remain serious questions surrounding the mega constellations, most significantly over the number of systems the market can sustain, even as bandwidth demand continues to surge. Whether satellite D2D can move beyond text and emergency SOS applications to become a true global broadband roaming service at a commercially viable price point is also up for debate. There even is some confusion over the true nature of multi-orbit services, which typically requires separate terminals for each orbit.

All that said, it is increasingly clear that the traditional GEO-based teleport model is fading. In its place, agile, software-defined networks supported by APIs, orchestration platforms, and automation, are enabling a new hybrid ecosystem that integrates satellites in all orbits with terrestrial infrastructure.

Jason Bates is editor for the **World Teleport Association (www.worldteleport.org),** which conducts research into the teleport and satellite industry, provides a unified voice for teleport operators and offers Teleport Certification programs to service providers. **"New Markets to Watch: How Executives are Planning for the Future"** is available for free to members and for sale to non-members from WTA's online store **(www.worldteleport.org/store/).**

MoonTalk

SSPAs and Converters for Cislunar Space Applications



- S and L/S-band - 1.76-2.16 GHz, Power levels: 80w – 2300W
- Low X-band - 7.145-7.250 GHz, Power levels: 100w - 1600w
- Low Ka-band – 22.55-23.1 GHz, Power levels: 40w-400w

ADVANTECH WIRELESS
A Baylin Technologies Company

advantechwireless.com

Rethinking the Ground Segment for LEO

by Craig Bowley

It wasn't so long ago that GEO satellites with their fleets numbering in the tens, dominated satcom. With geostationary satellites sitting at fixed points in the sky over the duration of their 15+ years lifespan, the ground segment was built to mirror their static nature. Needless to say, operation, management and coordination of both the space and ground segment was relatively straight forward. However, the advent of LEO satellites, with their offer of low latency and global coverage, has upended the satcom industry.

With 43,000 satellites expected to be launched by 2035 [source: Novaspace], many of which will be in LEO, the industry is now facing a new world order. This rapid expansion and shift towards NGSO is driving transformation across the ground segment, with ground equipment having to evolve to cope with the complex technical needs of LEO constellations.

A Market in Expansion Mode

The appeal of LEO is easy to understand. Orbiting at an altitude of between 500 and 2,000 kilometres, the close proximity of LEO satellites to Earth (in comparison to GEO satellites which operate at around 36,000 kilometres) brings a number of benefits. With characteristics including low latency and fast data transmission, LEO connectivity is ideal for a broad range of applications, from broadband connectivity to Earth observation, offshore, IoT and defence.

While market projections vary from one analyst to another, all agree that the market will continue to grow at a fast rate in the coming years. Mordor Intelligence for example, expects the global LEO satellite market to grow from USD 28.81 billion in 2025 to USD 32.59 billion in 2026, up to USD 50.96 billion in 2031, a CAGR of 9.36 from 2026-2031. Alongside SpaceX's Starlink which dominates the market and has over 9,000 active satellite in orbit and is reportedly planning to extend to 42,000 satellites, other contenders include Eutelsat Group's OneWeb, Amazon's LEO, Telesat's Lightspeed, and China Satellite Network Group's Guo Wang constellation.

This rapid market expansion is already having a major impact on the satcom industry, introducing operational challenges, many of which are being felt on the ground.

Understanding Challenges on the Ground

The ground infrastructure needed to support LEO constellations is much more complex than was needed to support traditional GEO fleets. In this new landscape, equipment needs to be designed for the high bandwidth and low latency applications that LEO can support.

Additionally, to provide continuous coverage, LEO constellations are made of high numbers of satellites. These satellites are not only orbiting in big numbers, but because of the fact they're travelling at high speeds in relatively close proximity to the ground (compared to GEO), they each only have a brief window to connect to an individual antenna as they pass overhead. Antennas therefore need to be able to track these fast-moving satellites and then seamlessly handover the connection to the next available satellite without any service interruption, which is in itself technically complex.

Another complication comes because the entire network is highly dynamic. High numbers of satellites are moving at fast speeds and huge networks of antennas and user terminals on the ground are all interconnected, which are also highly dynamic. All of this dynamism creates an increased risk of interference, which of course needs to be avoided because of potential performance and service issues, financial and reputational impact, etc.

To manage the technical complexities that LEO introduces and to mitigate increased risk of RFI, antennas and associated ground equipment must be high performing and able to operate with high levels of accuracy and precision. Ground equipment also needs to be much more sophisticated, enabling smart switching, auto acquire connectivity, and least cost routing.

Alongside all of this, there is also a growing need for equipment that can support users who want the flexibility of multi-orbit and multi-band

networks that span across GEO, LEO, MEO and HEO. This added capability does however introduce additional complexities.

The Shift Towards Multi-orbit and Multi-band

While LEO expansion is indeed having a huge impact on the satcom industry, other orbits continue to play a vital role. LEO can't possibly meet the needs of all users, and neither does GEO, or any other orbits for that matter. In the new order of things, it's all about utilising each orbit's specific characteristics to get the most benefit. For example, GEO may be selected if a user needs to send high volumes of data where speed isn't an issue, MEO may be better for time sensitive heavy data loads, and LEO might be tapped for high-speed and low latency connectivity.

To support the move to multi-orbit networks, equipment must be able to seamlessly switch between orbits depending on the specific needs of the user or application, or availability at a given time. Alongside having equipment that is able to leverage the specific characteristics of each orbit, there is also a growing demand for ground equipment that can operate across multiple bands. This allows networks to use different frequencies to overcome challenges such as interference, signal congestion, and regulatory issues, as well as to meet performance demands and increase data throughput, reliability and flexibility.

Satcom is breaking free from many of the limitations that up until now have held it back. However, all of this is only possible if operators and service providers have ground equipment that supports this new flexible way of working.

Agility is the Defining Factor

As the ground segment shifts to support LEO and accommodate multi-orbit, multi-band offerings, being agile and able to quickly and easily adapt in response to changing requirements is critical to success. As a result, the industry is increasingly moving away from rigid, fixed function hardware towards equipment that can be reconfigured and adapted to meet different operational needs. Traditionally, upgrading or reconfiguring ground infrastructure could involve lengthy deployment cycles and significant hardware replacement. That model is no longer sustainable. Operators instead require ground infrastructure that can be dynamically reconfigured in near real time, allowing networks to adapt quickly to changing traffic patterns, satellite availability, interference conditions and customer requirements.

With such large and complex layers at both space and ground level, orchestration is becoming increasingly important. To manage all parts of the network effectively and efficiently, orchestration needs be largely automated, enabling bandwidth to be shifted to where it's needed, and different elements such as beam steering, spectrum management and network optimisation to be coordinated as required. AI-driven orchestration and network management tools will certainly play a growing role across increasingly complex LEO, multi-orbit, multi-band environments. As LEO constellations continue to scale and multi-orbit/band architectures become the norm, the ground segment will increasingly define the commercial viability of next-generation satcom networks. While flat panel antennas will undoubtedly continue to be a key enabler for LEO, XY antennas are also growing in popularity. Mounted on an X-Y positioner rather than a traditional azimuth-elevation mount, XY antennas allows for smoother tracking of satellites across all orbits, providing high gain, and excellent link performance. This makes them particularly well suited for both LEO and multi-orbit satellite networks.

The industry is undoubtedly moving towards a future where networks and the terminals and devices that support them will have the ability to automatically and seamlessly switch between orbits, bands and satellites in order to provide the most effective and cost-efficient connectivity that best meet a user's specific needs at any time. To succeed (and succeed it must because the hyperconverged networks of the future will rely on satellite as a key component), the industry needs highly flexible and adaptable ground infrastructure capable of adapting in real time to an increasingly dynamic space environment.

Craig Bowley is the Chief Commercial Officer of **Global Invacom**. is responsible for driving the commercial strategy growth of Global Invacom Group. Craig has had a long career at ST Engineering iDirect where he held the position of Senior Regional Director, Government and Defence, EMEA before becoming Regional Vice President, Europe and rising to Regional Vice President, EMEA. He can be reached at: sales@globalinvacom.com

AVCOM
1976 - 2026
50 Years
Of Virginia Inc.
Following the Signal

Spectrum Analyzers Beacon Receivers RF Monitoring

From L-Band to Ka-Band

COMPLETE SIGNAL MONITORING HARDWARE & SOFTWARE APLLIANCE SYSTEMS

- SHAPE ALARMS
- RECORDING
- TRENDING DATA

LEO - MEO - GEO CONSTELLATION APPLICATIONS

Low SWaP
High Reliability
Wide Temperature Range

Compact and Custom Enclosures for Indoor and Outdoor Applications

7729 Pocoshock Way
North Chesterfield, Virginia
23235 USA

Phone: +1 (407) 574-2450
Email: salesrfq@avcomofva.com
www.avcomofva.com

Visit us now

SKYWAN 7X

ND SAT COM
INSTALLING RELIABILITY

BECAUSE
EV RY SIGNAL COUNTS

Whether at the command post or in the field, armed forces demand and depend on secure and reliable satellite-based communications worldwide. The advanced standards-compliant **SKYWAN 7X** meets this challenge and continues the success story of **SKYWAN** technology.
Highly reliable, available, and secure communications for every mission. The robust solution is **SKYWAN 7X.**
More Security for the Military.
www.ndsatcom.com/SKYWAN7X/

ND SATCOM Wins German Brand Award for the Second Consecutive Year

ND SatCom GmbH, a leading provider and system integrator of secure and innovative satellite communication solutions, has once again been honored with the German Brand Award. Following last year's success, the company has received the Winner award in the category "Excellence in Brand Strategy and Creation – Brand Communication 360° Campaign" for 2026. The award recognizes the integrated campaign "The Ultimate Fusion: MFT1500 X Motorized", which accompanied the market launch of ND SATCOM's new motorized multi-band FlyAway terminal.

With this second consecutive award, the German Brand Award recognizes ND SATCOM's consistent commitment to strategic brand management. The award-winning campaign combines technological innovation with a clear brand strategy and an integrated, cross-channel communication approach. At its core is the MFT1500 X Motorized, which combines the mobility of a highly portable FlyAway system with the performance and convenience of a fully motorized antenna – truly delivering "the best of both worlds."

"We are truly honored to receive the German Brand Award for the second year in a row," said Alexander Mueller-Gastell, CEO of ND SATCOM. "This recognition confirms that successful branding goes far beyond visual design. It is created where technological innovation, strategic communication, and the dedication of our employees come together. This award is therefore a tribute to the outstanding work of our entire team."

The campaign supported the market introduction of the MFT1500 X Motorized by showcasing its unique value proposition across all relevant communication channels—from trade shows and product presentations to videos, the corporate website, social media, trade publications, and sales materials. A distinctive visual concept featuring the elephant as a symbol of strength, reliability, and adaptability created strong brand recognition while conveying the campaign's message in an engaging and memorable way.

"With the MFT1500 X Motorized, we have developed a solution that combines outstanding performance with a high level of flexibility," said Dirk Walther, Head of Business Unit Defence at ND SATCOM. "The campaign successfully translated these technological strengths into a compelling and emotionally engaging story. Receiving the German Brand Award confirms the importance of combining product innovation with outstanding brand communication."

ND Satcom's Director Marketing and Communications Arzu Evlek accepting the German Brand Award for the second consecutive year.

"After receiving the German Brand Award last year for our corporate image campaign XPERIENCE THE NDS FACTOR, we are especially proud that this year a product-focused campaign has been recognized," said Arzu Evlek, Director Marketing & Communications at ND SATCOM. "It demonstrates that our brand strategy creates sustainable value—from strengthening our corporate brand to successfully positioning innovative products. Our goal is to make complex technologies understandable, relevant, and emotionally engaging. Receiving this recognition once again motivates us to continue shaping our brand with passion, creativity, and strategic focus."

The German Brand Award is one of the most prestigious awards for excellence in brand management in the German-speaking world. Initiated by the German Design Council, it recognizes companies, brands, and campaigns that set benchmarks in strategic brand management, creative excellence, and sustainable communication.

View a video interview with Arzu Evlek at:
https://satellitemarkets.com/marketcasts/interview-arzu-evlek-director-marketing-communications-nd-satcom

11-14 SEPT
2026
RAI
AMSTERDAM

Create the Moment

Where media and entertainment come to life

Register Now:
show.ibc.org

#IBC2026

AvL TECHNOLOGIES

Announcing the enhanced 1.35m XY Antenna
the next generation of precision tracking!

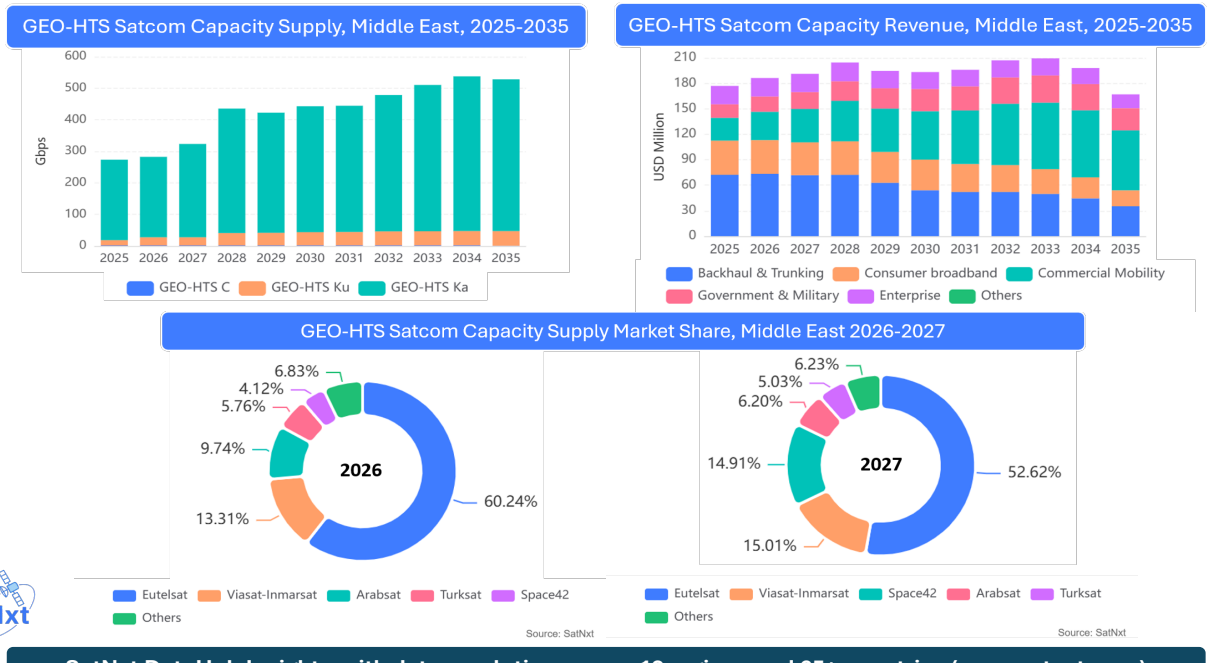
- **Full Hemisphere Coverage**
- **Faster Time to Target**
- **Less Peaking Time**
- **Two Checkable Cases**

AvLTech.com **Sales@avltech.com**

ADVERTISERS' INDEX

VITAL STATS

Middle East: Growing Capacity Supply Meets Rising Demand, but Pricing Pressure Limits Revenue Growth



SatNxt DataHub Insight – with data resolution across 19 regions and 65+ countries (www.satnxt.com)