

# Satellite Executive BRIEFING

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Industry Trends, News Analysis, Market Intelligence and Opportunities

## Satellite Industry Disruption

by Bruce Elbert

Major changes and challenges seem the norm in the satellite industry – what was once stable and predictable for established players has become a foreign battlefield in many ways. We didn't seem to have so many expensive satellite failures, congestive corporate mergers, and disruption by new and previously untried technological models. I want to help us understand what we have at present and what kinds of prescriptions can resolve this conundrum and put our industry, and we participants, in a safe and productive mode. Yes, we must seize this change, yet we must recapture what allowed 60 years of commercial space to become a practical medium for business and government. In particular, two generations of space technologists and entrepreneurs have passed and many lessons are lost from memory. Some of us are still around but few are influential enough to hold

fast to the truth. Even if we found that scripture or electronic file containing such lessons learned, how can we still make them relevant in the age of the Internet, cloud computing, graphics processors and Artificial Intelligence (AI)? So, let's step back, grab hold of our assets (and there are many), and look ahead to the new frontier.



Image courtesy of Boeing

### What's Happening?

Industry turnovers in the past few years have startled those who have been around for decades. The long-term trend had included few total failures of in orbit satellites; but, now we've seen these of the elaborate designs in ways that boggle the mind. The failure of the Viasat 3 antenna to deploy seems incredible as this design has flown successfully for over two decades. The apparent spontaneous destruction of Intelsat 33e would have to be the first ever of that kind of event in GEO. And Inmarsat 33e was declared a total loss almost

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## Mark Your Calendars

As the year's events calendar fills up with seemingly more and more industry events, mark your calendars for the Fourth Annual Virtual NatSatTel conference in April 2nd this year. Satellite Markets and Research is proud to partner again with the Internsputnik International Satellite Organization and the International Telecommunications Union (ITU) for another edition of NatSatTel.



For those of you who are yet unfamiliar with NatSatTel-- it's a unique virtual conference that free to attend which focuses on the key market and technical trends in the global satellite industry. In just a few hours, where you don't need to book a flight or hotel, you will be able to hear speakers and participate from the comforts of your office or abode and get the latest analyses of the key changes and opportunities in the industry from industry experts.

You can view videos of past NatSatTel conferences and register for free for this year's edition at: [www.natsattel.com](http://www.natsattel.com)

We look forward to your participation in this important event.

*Virgil Labrador*

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## Industry Disruption from page 1

immediately after its initial checkout. Other kinds of failures were of rather low-tech items like power converters yet these still impaired the fundamental mission. Clearly, something was done differently (or not at all).

Supply chain is a term that rolls easily off the lips and is often used by leadership and the media to explain why a given program is running late or failed to meet requirements. When broken down into its components, the supply chain has internal and external features. COVID challenged literally everything involved with designing, constructing and launching satellites. If you shipped across the sea, vessels couldn't dock; if you needed staff to physically assemble and test spacecraft, people had to work remotely and factories were locked down. Another aspect was the trend over the past few decades to outsource critical components and even a major portion of a spacecraft. As a result, the whole process was disrupted – and that disruption lasted years after lock downs ended. Interestingly, there is a trend now for manufacturers to pull almost the entire design inside. But, the necessary expertise would have been lost or never developed due to outsourcing and retirements. Therefore, we cannot capture the problem at the gross supply chain level.

There has been a shift in the design of communications payloads, from pure analog RF construction with common transponders to complicated structures with phased arrays and digital signal processing for greater functionality and efficiency. The design and engineering of a digital payload has proven to be more

**"...The private space sector continues to do a remarkable job in terms of innovation and response to economic realities. We are in a period of high inflation and government involvement. The way forward will involve creativity and possibly public-private partnerships to activate the financial and human resources needed to develop future satellite communications systems and build out the networks that meet demands, both public and private..."**

extensive since signals are not simply turned around, bent pipe style, and amplified as they existed from the ground. Advanced payloads play a greater role as they can modify signal structure. However, the particulars of the waveforms and scheme for networking users must be identified before the satellite is constructed. These functions are internal to the processor, embodied in microcircuits (FPGA or ASIC) and instructed by software code that could be uploaded at any time. That code can be changed is a good thing and perhaps allows some correction post launch. But, it cannot overcome structural problems or failure modes. Because of these factors, software-defined payloads require a long development cycle and some programs such as OneSat have experienced delays. Part of the problem is that the performance and versatility that were promised during contract negotiations may fall short as the timeline progresses toward delivery.

While issues abound with space segment development and operation, the associated ground segment has not escaped scrutiny. Tracking, Telemetry and Command (TT&C) facilities for GEO satellites are well established and little has transpired of a negative nature. However, the communications ground segment, consisting of

user terminals of various types and gateways at fixed locations, remains a challenge for new operators and applications. As a general rule, the total cost of the ground segment equals that of the space segment, so one would think that the attention ought to be in the same proportion. One positive example for a new system introduction is how Hughes Electronics introduced DIRECTV with the first low-cost digital TV home receiving systems in parallel with the launch of the satellites and construction of a fully digital broadcast facility. They did this through partnerships and excellent management of established manufacturers like Thomson Consumer Electronics and Sony.

It was interesting to hear from the head of the still absent Kuiper LEO broadband system when he spoke about their small consumer terminal concept while the space segment had not experienced even a single launch of the requisite satellites. If the original Iridium LEO system is any example, the ground segment can easily derail the business even if the satellites become a reality. It is remarkable that SpaceX put in place so many of their first and second generation user terminals in time to exploit the first thousand Starlink LEO satellites. Reportedly, all of this technology



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development and production were under the direct control of SpaceX. This roll out, still underway, gained respect for this startup, including positive publicity from introducing Starlink where it was really needed in Ukraine and North Carolina.

### How to Recover?

The private space sector continues to do a remarkable job in terms of innovation and response to economic realities. We are in a period of high inflation and government involvement. The way forward will involve creativity and possibly public-private partnerships to activate the financial and human resources needed to develop future satellite communications systems and build out the networks that meet demands, both public and private. The trend now is for dual use systems that satisfy the interface and functional requirements of users and platforms no matter where they may be.

Past generations of engineers, operators and entrepreneurs did their job effectively to bring us to the current state. But, the cracks across boundaries identified above need to be addressed with working age and student populations who are the force to effect development and change, as appropriate. In particular, we must restore the fundamentals of physical science. From Google Artificial Intelligence (AI):


- o They provide a basic understanding of how the natural world operates, enabling technological advancements, solving global challenges, and improving our daily lives by explaining phenomena like motion,

energy, matter, and forces, which underpin many modern inventions and discoveries across various fields like medicine, engineering, and communication; essentially acting as a foundation for further scientific exploration and innovation.

AI is powerful and is ratcheting up its potential. In my opinion, however, it cannot replace human instinct and innovation, both of which are key to invention and extension. Virtual and physical robots do what they are told to do, yes, by humans. You must ask the right questions, observe what is happening, create a solution, and build it properly. This process is inherently human. We see in the recent movie, *Oppenheimer*, that it took a team of brilliant scientists along with practical “hands on” people to establish the atomic age. Likewise, we need those resources to take the space age forward into an expanded future.

The old hands have retired and, in many cases, passed on. So, the key to an effective space resource is recruitment, education, training and mentoring. The focus should be on the technical aspects as opposed to sales and marketing, legal and strategy. Vision is important, for sure, but a technical foundation is vital to

convert vision into reality. Arthur C. Clarke was asked what factor would take space forward; his answer was “technology”. In short, we must teach physical sciences and engineering (like they do in China and India), not narrow specialties like robotics, AI and sustainability. Also, companies and government agencies need to bring back technical education and training like existed before COVID.

One avenue that’s still available is the technical satellite industry conference held every year by a joint effort of the American Institute of Aeronautics and Astronautics (AIAA) and FGM Events. This is the International Communications Satellite Systems Conference (ICSSC) coupled with the Ka Broadband Communications Conference, which have been going on since 1966 and 1995, respectively. This joint conference is the only place where satellite-related scientific and engineering papers are presented in public. The next schedule meeting is October 22 – 24, 2025, in Turin, Italy. More venues like these will contribute to better designs, operations, and the advancement of the art and science of space communications. 



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# A Rising China in the Global Satellite Market

by **Blaine Curcio**

I have covered China's rising commercial space sector for a long time. And I have covered the global satellite communications industry for even longer. And yet, for the most part, these two worlds have remained pretty separate. Satcom remains a sensitive market in China, because anything telecommunications is a sensitive market in China. Even today, there are only five companies in China with a so-called "Basic Telecommunications License", that is, a license to operate a telecommunications network: the big three state-owned telcos, China Satcom, and China Transport Telecommunication Information Group Company (CTTIC). For those keeping score at home, that is 5/5 companies being State-Owned Enterprises (SOEs).

And so it has been, with my China coverage and my satcom coverage existing in two separate universes. Until recently, that is, as one commercial Chinese satcom player in particular has taken the global satcom market by storm. This recent development was catalyzed by a shot heard round the Chinese world that occurred in October 2023.

## The Leadup to October 2023

The beginning of the end of China Satcom's monopoly came in April 2021, when China Satellite Networks Limited (SatNet) was established as a centrally-owned SOE, putting them at the same level of the hierarchy as those big three telcos, and far above China Satcom. SatNet's *raison d'être* was simple: launch the Chinese version of Starlink. To do that, they were given an effective monopoly on LEO comms satellites in China. And in the 3.5 years since SatNet's establishment, they have launched precisely zero Chinese versions of Starlink and made precisely no use of their monopoly. In fact, they've only launched ~10 satellites, though they did commission a very impressive headquarters building that was recently completed in the Xiong'an New District, a bit south of Beijing. Meanwhile, Starlink continues to take over the world of satellite broadband, and more importantly, continues to connect drones and other



**China SatNet's Shiny New HQ in Xiong'an**

materiel in warzones from Ukraine to Congo and who knows where else. Without wanting to read too much into the tea leaves, it seems safe to say that the powers that be atop the People's Liberation Army and elsewhere are getting increasingly antsy at 1) the incredible power of this new tool being used by western militaries, and 2) the incredible lack of a Chinese response. What to do?

October 2023 was the shot heard round the world, with China's Ministry of Industry and Information Technology (MIIT) announcing the "Opinions on Innovating the Management of Information and Communications Industry to Optimize the Business Environment"

(关于创新信息通信行业管理优化营商环境的意见〈征求意见稿〉)

The opinions called for coordinated opening of the telecommunications business to private capital, increasing support for private enterprises to participate in mobile communications resale and other businesses and services, and promote the reform of the satellite internet business in steps and stages, broadening the scope for private enterprises to participate in telecommunications. In plain English: more scope for non-SOEs to enter the telecommunications and satellite internet industries.

This was unprecedented, with telecoms being one of

the most closely-controlled sectors in China's economy. In an optimistic scenario, the announcement could open these notoriously stodgy industries to some of that famed, cutthroat Chinese competition. And so it did, in a dramatic way that's become increasingly clear these past few months.

### These Past Few Months

These past few months have been what people used to call a doozy. Unquestionably, the star of the show has been SpaceSail, the Shanghai-based company formerly known as SSST/GMS Space, and their Thousand Sails constellation (formerly known as G60). SpaceSail blasted onto the scene from relative obscurity in January 2024 when they announced a ¥6.7B (~US\$935M) funding round, with money mostly coming from the Shanghai Government and the Chinese Academy of Sciences. We speculate, but believe that these two were emboldened by MIIT's announcement just a few months' prior.

And since January, SpaceSail has moved at China Speed. Employing two manufacturing primes, the company launched two batches of 18 satellites each in August and October, and has announced plans to have 108 satellites on-orbit by end of year (seeming unlikely). Chinese media sources have speculated a LM-5 launch with 36 Thousand Sails satellites for later this year. SpaceSail officials have noted plans for 648 satellites by EOY 2025, with 324 each to be built by well-established Chinese Academy of Sciences spinoff Shanghai Engineering Center for Microsatellites (SECM), and SECM's own commercial JV spinoff, Genesat (a JV with the Shanghai Government, more or less). SpaceSail's ~\$1B from January surely won't get them to 648 satellites, but Chinese media has noted that the company is currently raising a B-round in the tens of billions of CNY (billions of USD). Off to the races.

With those satellites on-orbit, SpaceSail has been making waves on the ground. Most notable came in Brazil in early November. Some context: Brazilian government opinion of Elon Musk has waned markedly during 2024. This comes because of public spats between Musk and Government officials related to Brazilian government regulations of X.com (formerly Twitter). In short, Musk is not a fan of their regulations, and he's let the Brazilians



**The good folks at Telebrás and SpaceSail. Not shown: Cachaça**

know it. At one point, X.com was suspended in the country.

Brazil is, of course, a reasonably large market for Starlink, with some 250 million people and a huge SME sector that lacks good connectivity. Even an article from The Economist last year discussed Starlink use among Brazil's farmers. And while Musk and the Brazilian Government were at one another's throats, SpaceSail was apparently sipping cachaça and dancing flamenco with Telebrás. Because a few weeks after the whole Musk saga died down, SpaceSail announced a major win: an MoU signed with Telebrás during a meeting of Chinese President Xi Jinping and Brazilian President Lula Ignácio Lula da Silva, with plans for SpaceSail to enter the Brazilian market in 2026. My two cents: the date is plausible.

As a cherry on top, the company's Brazilian adventures also allegedly involved discussions to launch their satellites from the Alcântara Space Center on the northern coast of Brazil. Given Chinese export control regulations surrounding full satellites, I will definitely believe it only when I see it, but the fact that talks took place is a notable step, and preferential treatment by China towards Brazil with regard to launch would be yet another way to solidify the allegedly rock-solid friendship between Messrs. Xi and Lula.





### And Then There Was Zhuhai

Brazil is not the only market where SpaceSail is knocking on the door. During a presentation at the 2024 Zhuhai Air Show in November, a SpaceSail representative showed a world map slide with 6 countries of emphasis: Brazil, Uzbekistan, Kazakhstan, Pakistan, Malaysia, and Oman. And, by 2025 the company plans to be active in more than 30 countries, primarily in Sub-Saharan Africa, but also including Argentina and various countries in Southeast Asia.

In the days following the Zhuhai Air Show, Chinese media began rumbling with rumors of another imminent constellation launch. The rumors became considerably more substantive when more than 10 CAST-labeled crates showed up at Wenchang, Hainan, having been shipped by air from Tianjin. The crates are unquestionably SatNet/Guowang satellites, with the first Guowang launch apparently coming up before the end of the year.

Whether this will be too little, too late for SatNet is anyone's guess. SpaceSail has jumped out to a big lead, but we should remember that their project was still very much in stealth/not allowed by the government mode until October 2023, and that China Speed is anything but slow. For all we know, SatNet might launch a few hundred satellites in the next few months (though for many reasons, I doubt it).


### Conclusion

The Chinese space industry and global satcom industry are at last colliding, driven by at least two large LEO comms constellations coming out of the Middle Kingdom. After a few years of stagnant monopoly, the past 12 months have seen a ramp-up in activity that can only be described as China Speed. Moving forward, we should expect to see more satellites from SpaceSail, and the start of batch launches by SatNet.

With SpaceSail planning global coverage by EOY 2025, we should expect them in more international markets. A cursory look through LinkedIn reveals a growing roster

### SpaceSail coming out with their global ambitions.

of super-impressive people with incredibly relevant backgrounds: US-educated electrical and spectrum engineers, overseas Chinese with deep ties to Malaysian government and industry, and a bunch of financiers who cut their teeth at western banks that we've all heard of. SatNet remains a bit more of a black box, full of SOE employees who have SOE employee tendencies such as having precisely zero LinkedIn presence. They've done very little to now, but with their implicit and explicit resources, they should not be counted out.

No one can predict the future, least of all consultants. But moving forward, it seems a pretty safe bet that China will have a much, much bigger impact on the global satcom sector than they've had up to now. The only questions are how soon, where, and by which company. 

**Blaine Curcio** is a contributing Editor of the Satellite Executive Briefing and the Founder of **Orbital Gateway Consulting**. He's an expert on the commercial space and satellite industries with a focus on the Asia-Pacific region. He is also an Affiliate Senior Consultant for Euroconsult. Since joining Euroconsult in 2018, he has contributed to a wide range of consulting missions and research reports, primarily covering the satcom sector globally, and broader space industry in China. He can be reached at: [blaine@orbitalgatewayconsulting.com](mailto:blaine@orbitalgatewayconsulting.com)



# Executive Roundtable on the Small to Medium Satellite Manufacturing Market

by **Bernardo Schneiderman**

**B**ryceTech announced the new edition of its annual Smallsats by the Numbers report. In 2023, a record number of 2,680 smallsats ( $\leq 1200\text{kg}$ ) were launched, an 18% increase from 2022 and a 61% increase from 2021. Smallsat broadband megaconstellation operators dominated smallsat activity in 2023 and are continuing deployments in 2024. The launch of large constellations will continue to influence smallsat activity over the next few years

More highlights from the report:

- 97% of all spacecraft launched in 2023 were smallsats
- Starlink & OneWeb satellites make up 64% of all smallsats launched since 2019
- 164 launches in 2023 carried smallsats
- 5% of smallsats launched on small/micro launch vehicles in 2023
- Between 2014 and 2023, China has deployed three more government smallsats than the United States

For this year's report, BryceTech adjusted the definition of smallsats to include spacecraft up to 1,200 kg. This adjustment was made to accommodate the increasing mass of next-generation satellites, including Starlink.

At the Small Satellite Conference held in Logan, Utah last year, some of the key trends in the small satellite market were identified, including:

- Cost-effectiveness. Small satellites are a more economical alternative to larger satellites, which can be more expensive to manufacture, launch, and operate. This cost-efficiency is attracting a wider range of users, including government agencies, commercial companies, and academic institutions.
- High-throughput communication payloads. These payloads allow minisatellites to provide high-speed data transmission, which supports applications like broadband internet and secure communications.
- Multi-satellite constellations. These constellations increase coverage and redundancy, which ensures that service is available continuously.
- Low-cost satellites. Companies like Spire Global offer a range of low-cost satellites, including nanosatellites, which are used for low-cost remote sensing.
- Robotics and autonomous solutions. Companies like Maxar use sophisticated robotics and autonomous solutions to design and manufacture satellites

Gabriel Deville, senior consultant at Novaspace in a presentation during the Small Satellite Conference, said his company was forecasting 14,500 smallsats would launch into the next decade. The number of smallsats forecasted to launch in the next decade is declining as some satellites get heavier. Novaspace, defines smallsats as those weighing no more than 500 kg. Starlink's is moving to heavier Satellites that number is down from the 23,000 forecasted a year ago by Novaspace.

SpaceX is continuing to deploy Starlink satellites, but the "V2 mini" spacecraft is weighed about 750 kg, that increase



in mass is part of industry trend as operators seek to increase performance of their spacecraft, particularly those moving into large constellations as the case of Starlink Constellation. Gabriel mentioned that the average mass of smallsats launched in 2017 was just 19 kg (cubesat models), during 2023, the mass of smallsats grew to 199 kg.

The exhibition had a large number of small satellite manufacturer presenting a range of sizes from Cubesat to small and medium Satellites and application range from broadband communications, radar, imaging (earth observation) and other sensing technologies. We cover some of the companies attending the show highlight their website and some of them provided some feedback to our questions.

The Satellite Executive Briefing (SEB) invite companies to participate in this virtual executive roundtable to provide an inside view on the small satellite market. Among the companies we received feedback are: **Gordon Wasilewski**, Business Development Manager, **Creotech Instruments**; **Andrew Swain**, Business Development Manager, **NanoAvionics (A Kongsberg Company)**; Carol Craig – CEO and Founder, **Sidus Space**; **Alex da Silva Curiel**, Business Development Manager, **Surrey Satellite Technology, Ltd.** The responses to our questions follows:

**Satellite Executive Briefing (SEB):** Please provide a brief profile of your company and the current status of your product line and availability.

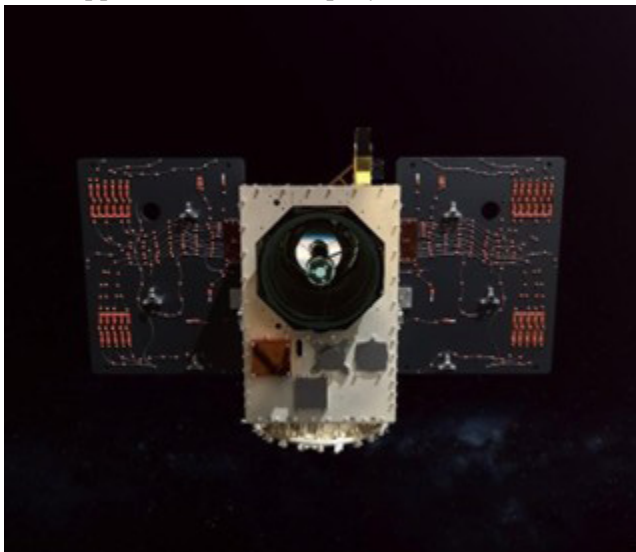
**Creotech:** Creotech Instruments is the Poland's leading designer and manufacturer of satellite systems, subsystems and components, as well as advanced electronics for quantum computer and communication control systems and other applications. The company was

founded in 2012 and has been listed on the Warsaw Stock Exchange since 2021. Creotech is involved in the design and production of custom-made electronics based on ECSS quality standards and as such was involved in multiple large science missions, like ExoMars, JUICE & Comet Interceptor, as well as commercial missions, with over 40 electronics subsystems launched. Most importantly, since 2017, the company develops microsatellite platforms based on proprietary

radar constellations.

**NanoAvionics:** Kongsberg NanoAvionics is at the forefront of the New Space economy, specializing in the development and deployment of small satellite platforms. As a subsidiary of Kongsberg Defense and Aerospace, we leverage our extensive expertise to deliver robust, innovative, and reliable satellite solutions that accelerate our clients' missions.

Our product line centers around standardized small satellite platforms, including cubesats and microsatellites, which are designed for a variety of mission requirements and for payloads up to 100kg in mass. These platforms, with 21 ready-to-deploy configurations, are built for scalability, accommodating diverse payloads and mission objectives while ensuring cost efficiency, reduced mission risk, and faster production times. For our constellation customers, with specific mission requirements not matching any of the standard products, we provide custom-built satellites and serial manufacturing. In addition to our satellite platforms, we offer end-to-end mission services including payload



**Creotech's HyperSat Eagle satellite (50-80 kg class)**

HyperSat architecture and avionics. In 2024, using Transporter-11 Creotech launched Poland's largest satellite - EagleEye, a 60 kg EO satellite based on HyperSat Eagle bus. Creotech is currently working on several national and ESA missions, such as PIAST constellation, Lunar Mapper orbiter, Plasma Observatory constellation, and combined optical and



**Sidus Space' manufacturing facility**

integration, testing, launch support, and mission operations. This comprehensive approach allows our clients to focus on their core mission goals while we manage the complexities of satellite deployment and operation.

Our solutions are designed with flexibility in mind, offering clients the ability to start with smaller missions, such as In-Orbit Demonstrations (IOD), and scale up to full constellations as their needs evolve. This phased approach, combined with our global reach and robust support, enables us to cater to both emerging space startups and established industry leaders with equal efficiency.

**Sidus Space:** Sidus Space (NASDAQ: SIDU) is a multi-faceted Space Infrastructure as a Service satellite company based in Cape Canaveral, Florida, where it operates a 35,000-square-foot facility for manufacturing, assembly, integration, and testing. The company specializes in mission-critical hardware manufacturing, multi-disciplinary engineering services, satellite design, production, launch planning, mission operations, and in-orbit support. Sidus Space offers vertically integrated

Space-as-a-Service solutions, including end-to-end satellite support.

Sidus Space's mission is "Bringing Space Down to Earth™" by enabling new technologies to

gain space flight heritage status and delivering data and predictive analytics to customers worldwide. The company is more than just a Satellite-as-a-Service provider, with products and services offered through multiple business units:

- **Space-as-a-Service:** Comprehensive satellite services, including mission planning, launch, and operations.
- **Space-Based Data Solutions:** Providing analytics and data services for Earth observation and remote sensing.
- **AI/ML Products and Services:** Utilizing artificial intelligence and machine learning for enhanced data processing and analytics.
- **Mission Planning and Management Operations:** Expertise in planning and executing complex space missions.
- **3D Printing and Products/Services:** Offering advanced manufacturing solutions for space and defense hardware.
- **Satellite Manufacturing and Payload Integration:** Full-service design, production, and integration for a range of satellite types and payloads.

- **Space and Defense Hardware Manufacturing:** Producing high-quality components for aerospace and defense industries.

**SSTL:** Surrey Satellite Technology Ltd. ("SSTL" or "Surrey") was established in 1985 and is an experienced spacecraft manufacturer and operator based in Guildford. It specializes in small satellites, and has been wholly owned by Airbus Defense and Space since 2008. In today's terminology it provides turn-key operational missions as "Spacecraft-as-a Service" and "Mission-as-a-Service" with its 400 skilled staff. It is vertically integrated, and manufactures entire spacecraft and small constellations, including the manufacture of the majority of sub-systems and payloads, and integrating and testing spacecraft. In addition, SSTL also has its own spacecraft operations center to bring spacecraft into operation. SSTL tends to serve all applications and customer types, and today SSTL it is building its 80th spacecraft.

**SEB: Considering the market for small & medium satellites has can serve a wide variety of applications, what application are your main focus or the mix (ie. Communications, Imaging, Radar, etc.)**

**Creotech:** In the space segment, Creotech is currently mainly involved in optical and radar Earth Observation (EO), as well as space weather applications and in orbit demonstrations.

**NanoAvionics:** Our company and satellite technology are payload-ag-

nostic, meaning that we have hosted a wide variety of payloads since our inception and do not focus on a single application. We have launched nearly 50 missions covering communications, remote sensing, and fundamental research. However, we have observed increased interest and a growing customer base in the remote sensing category. This trend is partly due to advancements in our satellite buses, which are now capable of hosting more sophisticated instruments, as well as rapid developments in remote sensing technologies and the rising demand for Earth Observation (EO) data driven by geopolitical factors.

Our expertise particularly shines in remote sensing applications. The payloads our buses have hosted include meter-class resolution RGB imaging, UHD video livestreaming, multispectral and hyperspectral sensors, thermal infrared, SAR (Synthetic Aperture Radar), RF sensing, and more.

**Sidus Space:** Sidus Space is focused on several key satellite applications:

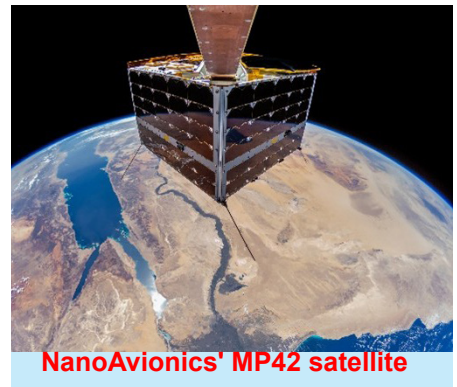
- **Imaging:** Utilizing state-of-the-art optical and infrared sensors for Earth observation, supporting sectors such as agriculture, urban planning, environmental monitoring, and disaster response.
- **FeatherEdge™ Onboard Computing:** Utilizes the FeatherEdge onboard computer, designed for real-time data processing and analytics in space.
- **Custom Satellite Design and**

**Manufacturing:** Providing tailored satellite solutions to meet specific client needs, from initial design and payload integration to manufacturing and launch support.

- **Other Applications:** Supporting scientific research, technology demonstrations, and IoT connectivity to provide seamless data integration and insights.

**SSTL:** Although SSTL builds spacecraft for all applications using in-house payloads or hosted customer furnished payloads, we have strong in-house optical payload capability and many of our projects relate to Earth Observation missions including optical, hyper-spectral, radar and infra-red imaging. SSTL is also building GNSS Reflectometry spacecraft for the European Space Agency to provide a science data service, built a Bringing into Use satellite for Telesat Lightspeed, and it is building a communications satellite as part of its own commercial initiative to provide lunar data relay services to a range of planned third party orbiters, landers and rovers. Recently demand for privately owned Earth Observation has increased significantly both with Enterprise and Government users around the world.

Demand for localized production or project specific batch production has also increased, and is something that we can also address well. For example, SSTL designed and built the first spacecraft for the TASA Formosat-7 spacecraft, with the remainder of the constellation being integrated and tested by the customer in their facility.



NanoAvionics' MP42 satellite

**SEB:** Describe what vertical application your satellite has more penetration (ie. Enterprise, Government or Defense) and can you provide some examples.

**Creotech:** Our current platform portfolio tackles both civilian, military and dual-use applications, with main customers located in Poland and Europe.

**NanoAvionics:** Currently, NanoAvionics has a customer split of approximately 80% commercial and 20% government, with the latter encompassing both civil and defense applications. However, a significant portion of our commercial customers deliver data or services to governments, which necessitates maintaining very high reliability standards. While the smallsat demand from government and defense organizations is rapidly increasing, we anticipate a shift in this split over time. However, institutional programs tend to develop more slowly and do not translate into backlog as quickly as commercial ones.

We are an ideal partner for commercial constellation companies because we can guide them through



the entire constellation development process—a service they highly value. This includes everything from demo missions to serial manufacturing and automated mission operations.

For defense customers, the highest security standards for sensitive information or classified missions are crucial, and we can meet these requirements by collaborating with our parent company, Kongsberg Defence and Aerospace.

**SSTL:** was one of the first smallsat suppliers to support commercial Earth Observation missions such as RapidEye and ExactEarth, and pioneered novel models such as leased Earth Observation satellites and fractional ownership of small satellites and constellations. In the 2010-2020 period there was significant interest in Enterprise systems as commercial investment into space peaked, however more recently governments have also started taking note of the benefits of small satellite in providing affordable private and independent surveillance systems.

Hotsat-1 is a good example of a more recent Enterprise system where SSTL has teamed with SatVu in the UK to provide ground-breaking high-resolution thermal imaging capability in support of a range of applications.

Tyche is a good example of a Defense system for an SSTL satellite for operational service for UK Space Command, as small satellites provide the potential for private and priority service, and in groups can provide an affordable high-revisit satellite system.



**SSTL has teamed with SatVu in the UK to provide ground-breaking high-resolution thermal imaging capability in support of a range of applications.**

In addition, SSTL also serves customers wanting to develop their own licenced satellite production. Examples of that include the Thai Space Agency GISTDA and Philippine space agency MULA with whom SSTL has developed the THEOS-2TS

and MULA spacecraft, so that these organizations can use the technology for their own future science and technology and operational government missions.



**Bernardo Schneiderman** is the Principal of Telematics Business Consultants. He can be reached at: [info@tbc-telematics.com](mailto:info@tbc-telematics.com)

## iKONG's Shmulik Koren on the Religious Broadcast Market

**A**t this month's NRB Convention focusing on the religious broadcast market to be held in Grapevine, Texas from February 24-27, religious broadcasters from all over the world will congregate to see the latest innovations in content distribution specifically geared for the religious market. One company to watch at the show is media services and content distribution company iKO Media Group (iKONG) which launched recently FaithTime, a revolutionary Over-the-Top (OTT) platform designed to serve Christian audiences worldwide. FaithTime offers a comprehensive library of Christian content, including live TV, on-demand programming, sermons, and educational series, accessible across all devices.

FaithTime features an impressive lineup of faith-based channels, including content from 3ABN (Three Angels Broadcasting Network), Amazing Facts, and Christian Television Network (CTN). These partnerships enable FaithTime to deliver a diverse range of spiritual content that caters to a global Christian audience, providing everything from Bible teachings to inspirational family programming. To shed light on iKONG's services is its co-Founder Shmulik Koren, who recently spoke with the Satellite Executive Briefing. Excerpts of the interview with Koren follows:

### **Give us a brief overview of your capabilities and offerings for religious broadcasters?**

Building on iKONG's extensive experience in supporting faith-based broadcasters through initiatives like FaithTV and the Galaxy 19 Satellite Package, FaithTime brings these offerings into the digital realm, making faith-driven content more accessible than ever before. Additionally, the platform includes an Influencers section where viewers can easily watch all programs from their favorite preachers and pastors, making it simpler to connect with spiritual leaders who inspire them.

At iKONG, we understand the challenges faith-based broadcasters face in expanding their reach and engaging their audiences. That's why we created Faith Beyond—a multi-solution product package designed to remove pain points, streamline distribution, and adapt to the unique needs of religious broadcasters.



**Shmulik Koren**

Our comprehensive Faith Beyond suite offers seamless, multi-platform distribution, ensuring faith-based content reaches viewers anytime, anywhere, with global coverage and optimized revenue opportunities.

- **Reliable Satellite Distribution** – Our extensive satellite network (Galaxy-19, Galaxy-18, IS21, Nilesat, and Hotbird) delivers faith-based programming to millions of homes worldwide.
- **FaithTV** – A 24/7 Free-to-Air faith-based streaming channel providing global accessibility, immersive programming, and built-in donation features to drive viewer support.
- **FaithTime** – A dedicated Over-The-Top (OTT) platform featuring uplifting, faith-focused content available on-demand across multiple devices.
- **iKOLIVE Impact Events** – A powerful tool for live, interactive faith experiences, including events, missions, and virtual congregations, helping ministries create real-time, meaningful connections.
- **Faith Payout & BMS** – A cloud-based payout, scheduling, and rights management solution that ensures seamless content delivery, automation, and monetization for broadcasters.

With Faith Beyond, iKO Media Group delivers a one-



stop, turnkey solution for faith-based media—helping broadcasters increase their reach, amplify their message, strengthen community engagement, and unlock new possibilities in faith-driven media.

### ***Why should religious broadcasters trust their content and distribution to iKOMG?***

With our extensive experience in broadcasting and satellite distribution, iKO Media Group provides religious broadcasters with the expertise and infrastructure needed to amplify their reach and connect with viewers worldwide. Our solutions ensure seamless, high-quality content delivery (is its distribution?), creating an engaging and inspiring viewer experience. By leveraging our advanced technology and global reach, broadcasters can build stronger connections with their community while maintaining the highest standards of reliability and excellence. With iKO Media Group, faith-based content is in the best hands, enabling faith broadcasters to expand their impact with confidence.

### ***Can you give a brief example of what you have done on behalf of a religious client?***

Amazing Facts is a nice example. We play a key role in expanding the reach of Amazing Facts by distributing their channel across multiple regions, including the USA via Galaxy-19, Europe via Hotbird, and Africa via IS-20. As part of the FaithTV platform, they leverage our innovative QR coding technology to attract viewers, enhance engagement, and drive audience support.

To further enhance accessibility, we provide their Electronic Program Guide (EPG) through our cutting-edge iKOGUIDE solution on G-19, ensuring seamless navigation and scheduling for viewers. Additionally, their content is available on FaithTime, allowing audiences around the world to watch their programming on-demand—anytime, anywhere. Through our comprehensive distribution and technology solutions, we help Amazing Facts expand their ministry and connect with a global audience more effectively than ever before.

### ***What differentiates iKOMG from other service providers?***

At iKO Media Group, we are more than just a service



provider—we are a strategic partner committed to empowering religious broadcasters with seamless, future-ready solutions. Unlike many providers that offer only a limited number of services, we deliver a comprehensive, end-to-end broadcasting ecosystem that ensures seamless connectivity, superior quality, global reach, and robust content security.

What truly sets us apart is our ability to combine tradition with innovation. We understand the importance of preserving the authenticity of faith-based content while leveraging cutting-edge technology to enhance audience engagement and futureproof your distribution. With iKO Media Group, you gain a single, trusted partner for:

- Satellite broadcasting
- OTT streaming
- Live event support
- Cloud-based payout
- QR coding for audience engagement
- Monetization strategies
- Advanced content protection & security

This level of interoperability, expertise, and scalability ensures not only operational efficiency but also a powerful, unified presence across all digital and traditional media channels. Our secure content management safeguards against unauthorized access, piracy, and distribution risks, giving broadcasters peace of mind while reaching millions worldwide.

By choosing iKO Media Group, religious broadcasters can stay ahead of industry shifts, maximize their reach, protect their content, and inspire audiences globally—without the complexity of managing multiple providers. 

# iKONG



Take your broadcast to new heights with iKONG's **Satellite Distribution and OTT Services.**

## FAITH *Beyond*

Where Broadcasting Takes Faith Further

### FAITHTIME

An on-demand OTT platform offering uplifting, faith-focused content to inspire and connect audiences anytime, anywhere.

### FAITHTV

A 24/7 FTA channel with spiritual programming and seamless donation options reaching and engaging viewers worldwide.

### iKOLIVE IMPACTEVENTS

Power your live, immersive events with tools to deliver impactful experiences to your audience in real-time.

### FAITH Playout & EMS

A reliable, cloud-based solutions for seamless channel playout, scheduling and rights management.

Learn more about iKO MEDIA GROUP Companies

eCLUTCH **WENAFlix** STN ISRAEL **PADELTIME TV**



# Where AI is Paying Off for Satellite Service Providers

by Robert Bell

In just the past two years, investors and companies have dropped US\$56 billion on generative AI technology and projects. That's a lot of cash when you consider what 2,500 top executives surveyed by the Boston Consulting Group and MIT had to say. "Seven out of ten said their AI projects had generated little impact so far. Two-fifths of those with 'significant investments' in AI had yet to report any benefits at all."

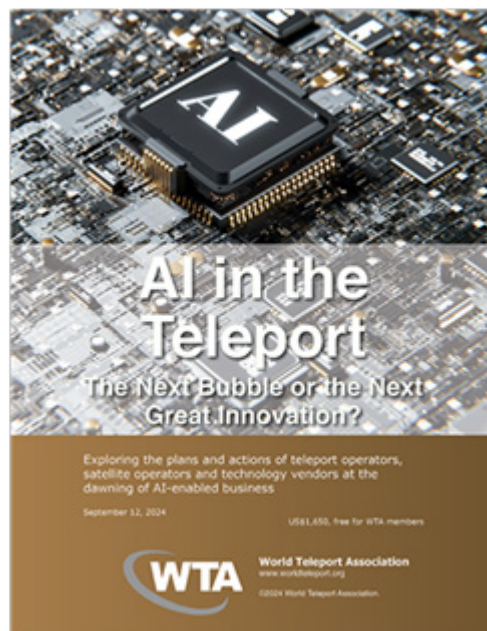
It's early days for the technology, of course. It took decades for investment in IT to demonstrate a return, yet no one today would seriously argue that IT is a failed experiment. Still, the road to AI nirvana continues to be littered with potholes, from the Microsoft MYCity chatbot that encouraged business owners to cheat their employees to McDonald's three-year experiment with AI order-taking that drove its customers batty.

Fortunately, for the satellite service sector, AI is already achieving gains that executives value, and they expect more to come, as described in the World Teleport Association report, *AI in the Teleport: The Next Bubble or the Next Great Innovation?*

## Impact in Multiple Areas

Generative or "Gen" AI uses machine learning models to learn patterns from large amounts of data. It then uses these patterns to predict what would come next in a sequence, such as a word, sound, or pixel. Put that way, it sounds simple, but it is equipping computers to effectively learn human and programming languages, art, science and pop culture, and to apply what it has learned to solving new problems (when it is not hallucinating the answers).

At teleport and satellite operators, Gen AI is delivering positive results for users in business areas such as marketing and customer relations and also making inroads in more technical areas such as assisting with code development and cybersecurity. As AI capabilities continue to evolve and the teleport sector become more comfortable with AI, there will be improvements in areas such as antenna



scheduling, interference detection and predictive equipment monitoring.

Along with enhancing operations across multiple existing teleport offerings, there are new companies that credit their existence to advancements in AI. The technology is opening up new opportunities in areas such as data compression and the application of hyper-accurate weather forecasting to teleport operations and network designs.

## How to Integrate AI

Teleport companies are building their own AI systems and services due to decades of experience working with machine learning technology. But for incorporating AI services in broader business services, such as marketing and cybersecurity, there are numerous third parties that can help set up AI operations, including the biggest names in technology such as Amazon and Microsoft.

As with many technologies, the success of AI depends



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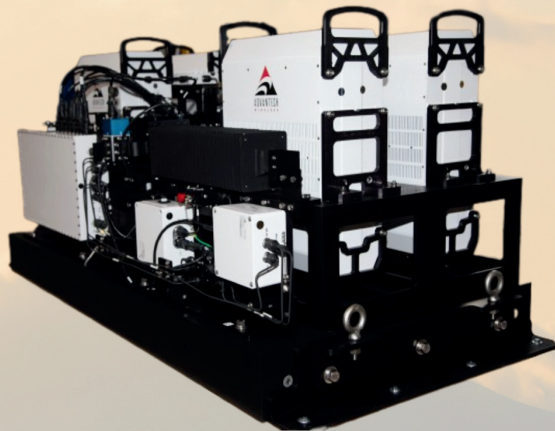
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on good data. The teleport sector has plenty of data to provide these systems, but executives caution that formatting the data can be a challenge, and companies should also retain strict control of their data while working with third parties.

**Selling Services, Not AI**

The impacts of AI are still emerging in the satellite services sector. But one thing is unlikely to change. Teleport and satellite operators are not selling AI to their customers. Instead, they are using AI as intellectual capital in the same way as investments and employees – deployed where companies think it will have the best impact. Are customers impressed by AI? Maybe. But they are definitely impressed by the benefits of new services that AI provides and the operational and cost improvements it delivers. 

***"...Teleport companies are building their own AI systems and services due to decades of experience working with machine learning technology..."***



Robert Bell is the executive director of the **World Teleport Association** ([www.worldteleport.org](http://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. **AI in the the Teleport** is available for free to members and for sale to non-members at <https://www.worldteleport.org/store/viewproduct.aspx?id=24498105>. He can be reached at: [rbell@worldteleport.org](mailto:rbell@worldteleport.org)

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**25 YEARS**

# ND Satcom: Looking Back at the Past Year, Going Forward in 2025

by Michael Weixler

In 2024, ND SATCOM demonstrated its drive and ambition with a multi-faceted approach: new product launches, new marketing campaigns and strong strategic investments in the next generation of highly secure and resilient products and networks. In turn, metrics ranging from total revenue to customers trained grew, reflecting a robust business environment.

We kicked off 2024 with our new website, which impressed our customers with its modern design and ease of use: [www.ndsatcom.com](http://www.ndsatcom.com)

At events such as AFCEA in Bonn and MSPO in Kielce, as well as with campaigns for our defense portfolio, we raised brand and product awareness in 2024. The part of the ND SATCOM exhibit that garnered the most attention at all events was the Multi-Band FlyAway Terminal MFT 1500 with its variants: manual and motorised, military frequency bands and integrated antenna control by the embedded SKYWAN modem. The unique feature of this terminal is its wind resistance; operating in very strong winds and severe storms. At subsequent events, we presented versions of the larger trailer-based transportable terminal used by some NATO partners. It was definitely an eye-catcher.

The next major event for the ND SATCOM team was our



In 2024, ND Satcom launched a new campaign at their Factory Event with the theme "Xperience the NDS Factor."

NDS Factory Event in June. With the motto "Xperience the NDS Factor" as part of our new image campaign, we opened the doors in Immenstaad to our customers from all over the world.. The live demo "direct-from-helicopter" video stream was one of the highlights and surprised our guests. At the panel discussion of the popular topic "How good is your satellite network without security?", our partners participated with valuable insights. We also presented the new NDS image video for the first time, which continues the story from the 2019 campaign and reflects the different business units of ND SATCOM (Broadcast, Government and Defense). This generated a lot of excitement and interest.

## Fostering Stability and Growth

The key financial figures for

2024 are up again compared to the previous year. The support business, including the Integrated Logistics Support (ILS) for our Business Unit Defence, was the solid foundation for this successful year.

Over a number of years now, the business has proven to be highly profitable and resilient even against unpredictable events such as Covid. As much as the Ukraine war is a humanitarian catastrophe, the increase in defence spending in Europe in the last years and the commitment of NATO and Europe to continue to build on this approach in the coming years will result in further business growth and opportunities.

## Installing Reliability

For challenging deployments for a large governmental network, we demonstrated a new resilient network design based on SKYWAN

capabilities, including additional geo-redundant and site-redundant DVB-S2 hubs.

Together with the SKYWAN production partner we increased the volume and the number of units delivered to customers. The stellar performance of 100% on-air stability of installed SKYWAN networks and no station downtimes this year underscored again our claim “Installing Reliability”.

Our strong and stable product portfolio gave the team room to focus on new research activities, new product development, and pilot demonstrations in sensitive satcom-use cases.

### Serving Existing Customers and Developing New Markets

SKYWAN is a reliable solution in maritime satcom networks on ships where our “NDS Factor” has a long history that we will extend to “at-the-water-surface” and “below-the-water-surface”. We achieved our first proof-of-concept with a SKYWAN solution targeting submarines.

The campaign “Under-The-Rotor” for our SKYWAN helicopter solution was ongoing in parallel to the approval processes and flight demonstrations, such as at our Factory Event in June with a live video transmission from the starting helicopter to a large video wall.

### Extending the Portfolio of Solutions and Products

As a VSAT modem company, we have kept our promise of providing SKYWAN maintenance over the product life cycle.

To further increase our Ka-band sales we worked on the upcoming Ka4GOV – our motorised Ka-band antenna with integrated SKYWAN. We presented this new antenna model in late May at Cabsat2024 and to the commercial broadcaster community in September at the IBC show in Amsterdam.

New capabilities were added to the Antenna Control Unit Series ACU 6000. This was integral to the MFT1500 where the ACU logic was merged into the SKYWAN modem to reduce components, cabling and “Size, Weight and Power” (SWaP), and to increase usability and reliability.

In the domain of secure networks we had international guests from LuxGovSat, Cysec/F and GISS/PL on our Factory Event panel discussion: “How good is your satellite network without security?”. In addition to these valuable insights, ND SATCOM is actively working on a Quantum pilot project (driven by the QuNET initiative and funded by the German Federal Ministry of Education and Research) to demonstrate Quantum Key Distribution (QKD)-based encryption using SKYWAN.


Resiliency and security are addressed in the international SIGMA project (an EU/EUSPA funded programme for GOVSATCOM) using SKYWAN in a multi-band, multi-satellite scenario with cellular 5G multi-path links for public safety organisations. The SIGMA project is ongoing with live demonstrations planned with selected end users in European countries in the coming months.

Late in 2024 we received a research grant by the German Federal Ministry of Interior and Community to develop a deployable 5G Stand-Alone (SA) infrastructure for public safety organisations. It will demonstrate 5G Stand-Alone cells with roaming capabilities between deployed ad-hoc cells where cell interconnection is either via a fully-meshed SKYWAN backbone or via microwave links.

### ND SATCOM Outlook: Xperience the NDS Factor

Not only did ND SATCOM grow its business in 2024 but also its staff. With offers accepted by young people for training and study as well as the hiring of experienced applicants, we successfully rejuvenated our team to continue to provide the superior level of innovation and service our customers seek.

Our ideas to design and produce new integrated solutions with partners resulted in challenging test and demonstration activities in Europe and on other continents. We “Live the NDS Factor” every day.

Last but not least: At the June Factory Event we presented to key partners the first operational setup of SKYWAN 5G with its more powerful successor – SKYWAN 7X. Stay tuned. 



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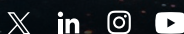
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# Redwire Acquires Edge Autonomy

**Jacksonville, Fla., January 20, 2025**--Redwire Corporation (NYSE: RDW), announced that it has signed a definitive agreement to acquire Edge Autonomy, a provider of field-proven uncrewed airborne system (UAS) technology. Under the terms of the merger agreement, Redwire will acquire Edge Autonomy for US\$ 925 million on a debt free, cash free basis and subject to customary working capital, cash and debt adjustments.

The merger consideration is expected to be paid using US\$ 150 million in cash and US\$ 775 million in shares of Redwire common stock, based on the volume-weighted average trading price on the NYSE for the 30 trading days ending on January 17, 2025 of \$15.07. Following the merger, Edge Autonomy and its subsidiaries would be wholly-owned subsidiaries of Redwire.

The acquisition is expected to transform Redwire into a leader in multi-domain autonomous technology, broadening its portfolio of mission-critical space platforms to include combat-proven autonomous airborne platforms, according to the company. Immediately upon closing, the transaction is expected to be accretive to Redwire's revenue, Adjusted EBITDA, and Free Cash Flow. For the twelve months ended December 31, 2025, Redwire, as a combined company, is forecasting full year, revenues of US\$ 535 million - US\$ 605 million and Adjusted EBITDA of US\$ 70 million - US\$ 105 million with positive Free Cash Flow, assuming the transaction had been consummated on January 1, 2025.[1]

Formed in 2021 through the merger of UAV Factory and Jennings Aeronautics, Edge Autonomy harnesses over three decades of experience developing uncrewed and autonomous technology systems. Edge Autonomy is vertically integrated with proven capabilities, extensive mission heritage, and strong relationships with U.S. Department of Defense, Special Operations Forces, and allied

governments. Edge Autonomy's fleet of UAS technology, including its Stalker series and Penguin series, is optimized for long endurance, long range reconnaissance missions and can be deployed quickly for time-critical operations. Executing on multiple programs of record, these field-proven capabilities are critical for the modern warfighter to collect crucial information and make informed decisions quickly and effectively. The combination of Redwire and Edge Autonomy is expected to create a transformative, multi-domain, scaled and profitable space and defense tech company focused on the convergence of integrated autonomous,



AI-enabled multi-domain operations for defense and national security. For the last twelve months ended September 30, 2024, Edge Autonomy achieved revenues of \$222 million and Adjusted EBITDA of \$72 million.[2]

Redwire has strengthened and grown its position as a critical provider of defense technology by scaling its national security space business and investing in enhanced capabilities. Redwire recently added two space platforms to its technology portfolio, Thresher and Mako, designed for software defined, AI-enabled, autonomous operations in low Earth orbit, medium Earth orbit, and geostationary orbit. Additionally, Redwire is currently developing Very Low Earth Orbit spacecraft or "orbital drones" that bridge the gap between airborne and space-based systems. The addition of Edge Autonomy's UAS technologies with these capabilities expands our coverage across multiple domains and is expected to create new integrated capabilities for our customers that leverage connectivity across space and airborne operations.

"The combination of Redwire and Edge Autonomy creates a uniquely positioned space and defense company focused on two of the fastest growing trends in defense technology," said Peter Cannito, Chairman and CEO of Redwire. "As space and airborne platforms converge into an integrated network of autonomous, collaborative systems,



Redwire will be poised to provide end-to-end solutions for multi-domain operations from the surface of the earth to the surface of the moon and beyond.”

Headquartered in San Luis Obispo, California, Edge Autonomy has a team of more than 600 employees around the world. With more than 265,000 square feet of manufacturing and production capabilities across the U.S. and Europe, Edge Autonomy’s experienced team delivers proven solutions based on real-world mission needs.

### Transaction Financing and Closing

Redwire will pay the purchase price for the acquisition in a combination of US\$ 150 million in cash and US\$ 775 million in shares of Redwire common stock issued at \$15.07, the 30-day VWAP. The transaction consideration positions Redwire with a stronger balance sheet and enhanced credit quality as a result of significant cash flow accretion, better operational scale, and commercial diversification. Redwire, at its option, may finance the cash portion of the purchase price with cash on its balance sheet, availability under its existing credit facility, or proceeds from new committed debt facilities, taking advantage of the expected significant expansion of its Adjusted EBITDA and free cash flow on a combined company basis. Redwire, at its option, may also elect to use proceeds from a new issuance of Redwire common stock. If Redwire elects to raise cash in a common equity financing, the \$15.07 issuance price would be increased or decreased depending on the per share price of such equity financing.

The transaction is subject to customary approvals and closing conditions, including a Redwire stockholder vote and regulatory approvals, and is expected to close in the second quarter of 2025.

In addition to approval by Redwire’s Board of Directors, the transaction has also been approved by a special committee of the Board composed entirely of directors who are independent both with respect to Redwire and AE Industrial Partners, LP and its affiliates (“AEI”). As a condition of the transaction, the stockholder approval must include a majority of the voting power not held by AEI. In connection with the transaction, entities affiliated with AEI, Genesis Park (through its affiliate Genesis Park II LP) and Bain Capital (through its affiliate BCC Redwire Aggregator, L.P.) have agreed to vote in favor of the proposals relating to the transaction at the stockholder meeting

to be called for such purpose, representing an aggregate of approximately 73% of Redwire’s outstanding voting power, and over 50% of Redwire’s outstanding voting power held by persons other than AEI and Redwire management, as of January 20, 2025.

At the closing of the transaction, Redwire will enter into an amended and restated investor rights agreement with AEI, Genesis Park Holdings, and Edge Autonomy Ultimate Holdings, LP (“Seller”) and certain of their affiliates, which would provide that (i) AEI would be permitted to designate four directors for election to Redwire’s Board of Directors, which number would be reduced once AEI no longer holds 50% or more of the shares of Redwire common stock issued beneficially owned by AEI (excluding the Seller’s) at the closing of the transaction and (ii) Seller would be permitted to designate one director for election to Redwire’s Board of Directors so long as Seller continues to hold 25% or more of the shares of Redwire common stock beneficially owned by Seller at the closing of the transaction. The Investor Rights Agreement also provides that AEI and Seller will not sell any of such Redwire Shares during the six-month period following the closing of the transaction, subject to certain limited exceptions.

### Advisors

J.P. Morgan Securities LLC and GH Partners LLC are serving as financial advisors and Holland & Knight LLP is serving as legal advisor to Redwire. Roth Capital Partners is serving as financial advisor and Richards, Layton & Finger, P.A. is serving as legal advisor to special committee of the Board of Directors. Citi is serving as financial advisor and Kirkland & Ellis LLP is serving as legal advisor to Edge Autonomy.

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 [1] These amounts are the sum of the standalone full year forecasts for the Redwire and Edge Autonomy businesses by Redwire management, and have not been calculated pursuant to Article 11 of Regulation S-X.

[2] Amounts presented for the last twelve months ended September 30, 2024. Metrics based on data available to Redwire that has not been audited by Redwire or its auditors and is subject to change. Such metrics may not have the same definition as, nor be comparable to, Redwire’s financial measures, including non-GAAP financial measures, of the same or similar name.



### NOVELSAT and AYECKA Merger

**Ra'anana, Israel, January 8, 2025**

– Satellite service providers NOVELSAT and AYECKA, announce their unification, creating a single, unified company. This strategic union combines the companies' complementary technologies and expertise, positioning the converged company to offer end-to-end solutions across multiple markets, including broadcast, media, government, defense, mobility, and IoT.

Both NOVELSAT and AYECKA bring strong engineering foundations and a diverse portfolio of transmission, video processing, and security capabilities in different market sectors. This convergence leverages NOVELSAT's extensive global presence to scale AYECKA's specialized offerings internationally. Combining NOVELSAT's expertise in high-capacity broadcast and broadband solutions with AYECKA's tailored solutions for government and defense markets, forms a unified, multi-segment provider ready to address complex connectivity demands. The new entity is poised to drive strategic investments in next-generation connectivity solutions, fueled by powerful technological synergies.

"AYECKA and NOVELSAT joining forces represents a strategic move that expands market reach and enhances our ability to deliver mission-critical solutions," said Avi Barda, President of AYECKA. "By combining our unique capabilities, we can offer a more comprehensive suite of solutions, better meeting the demanding needs of customers across

government, defense, broadcast, and IoT sectors, driving innovation and growth across these high-value mar-

cutting-edge technologies, combined with Gilat's advanced IFC solutions to position us as a market leader



kets. Together, we can deliver robust connectivity solutions that respond to the unique requirements of our global customers."

### Gilat Completes Acquisition of Stellar Blu Solutions LLC

**Petah Tikva, Israel, January 7, 2025** — Gilat Satellite Networks Ltd. (Nasdaq: GILT, TASE: GILT) today announced that it has successfully closed the acquisition of Stellar Blu Solutions LLC, a US-based provider of next-generation SATCOM terminal solutions.


Gilat expects its annual revenues from Stellar Blu to range between US\$ 120 and \$150 million in 2025, based on Stellar Blu's robust backlog. In addition, the acquisition is expected to be accretive on non-GAAP results for 2025. Furthermore, the company estimates that once Stellar Blu reaches its target manufacturing capacity, which Gilat expects will occur during the second half of 2025, Stellar Blu's EBITDA margin is expected to be above 10%.

"This acquisition is a pivotal step in our strategy to expand Gilat's presence in the growing In-Flight Connectivity (IFC) market," said Adi Sfadia, Gilat's CEO. "We expect Stellar Blu's

for both commercial and business aviation, as well as adjacent high-end mobility markets that are ideal for Electronically Steered Antenna (ESA) applications."

The acquisition's consideration at closing was US\$ 98 million in cash, as adjusted. Although the Company had over US\$ 115 million in Net Cash at the end of 2024, the company used a new secured credit line of US\$ 100 million from HSBC Bank USA and Bank Hapoalim to fund \$60 million of the consideration paid at closing. The remaining US\$40 million, from the secured credit line, along with the company's resources, is expected to be called upon and cover potential earn-out payments. The three year loan will bear interest at a rate of SOFR plus 2.6% to 3.35%.

Funding this acquisition through a combination of the company's resources and a secured credit line will provide Gilat with additional flexibility given the opportunities in the market.

The consideration payment in connection with the acquisition may increase by up to an additional \$147 million in cash, conditioned upon the acquired business achieving operational and strategic business milestones, during the first two years that follow the signing of the agreement. 

## Eutelsat America and OneWeb Technologies Appoints Ian Canning as President and CEO

Houston, Tex, January 8, 2025 – Eutelsat America Corp. and OneWeb Technologies Inc (EACOWT), which operate as a wholly owned independent U.S. proxy company and subsidiary of Eutelsat Group, today announced the appointment of **Ian Canning** as president and chief executive officer (CEO). His appointment by the EACOWT board of directors became effective on December 20, 2024.

Canning served as EACOWT's chief operating officer and most recently served as the company's acting CEO. He brings a wealth of leadership experience in the global satellite communications (SATCOM) and telecommunications industries, along with a proven track record driving strategic growth, operational excellence and commercial success.



**Ian Canning**

Ian joined OneWeb Technologies' (OWT's) predecessor, TrustComm, in 2012 as COO, helping to lead its successful acquisition by OneWeb and transformation into a U.S. proxy company. Recently, his leadership was

instrumental in OWT's merger and integration with Eutelsat America Corp.

Previously Ian led global product innovation and marketing at Stratos Global Corp. Prior to that, at Iridium Satellite LLC, he led sales for Europe, the Middle East and Africa (EMEA), establishing key partnerships for the business. Ian's extensive experience includes running sales and business development and driving commercial initiatives within global leaders Inmarsat, Nortel and Motorola.

In his new role as CEO, Ian will be responsible for furthering the combined EACOWT vision of providing global satellite connectivity, innovative solutions and exceptional support focused on meeting the mission requirements of the U.S. government. His appointment follows the departure of Kevin Steen, who was CEO of the combined EACOWT entity since May 2024, having served as CEO of OWT since 2022.

"Ian has been instrumental in driving EACOWT's operational and business success and strengthening our reputation as a leader in the satellite communications industry. His vision and commitment to excellence make him the ideal person to lead the company into its next phase of growth," said Dr. Pamela Drew, chair, EACOWT Board of Directors.

"I am honored to step into the role of CEO at such an exciting time for EACOWT. Our team is dedicated to delivering innovative and secure SATCOM solutions to meet the evolving needs of the U.S. government and its allies and I look forward to continuing our mission of providing resilient, multi-orbit satellite capabilities to address our customers' unique challenges," said Ian Canning.

"Ian Canning's experience in advancing new technologies in the satellite world, combined with his deep industry knowledge, positions him well to lead EACOWT and drive its continued success in delivering Eutelsat's innovative solutions to the U.S. government and its allies," said Eva Berneke, CEO, Eutelsat Group.

## Stephane Israël Steps Down as CEO of Arianespace, To be Succeeded by David Cavailloès

Paris, France, December 19, 2024- ArianeGroup today announce the departure of **Stéphane Israël**, CEO of **Arianespace**, who has been at the company's helm since April 2013. **David Cavailloès** will join the Group in January as CEO of Arianespace and member of ArianeGroup's Executive Committee.

As CEO, Israël has played a key role in developing the Ariane industrial cluster with the Ariane 6 launcher, and in transforming Arianespace, which became a subsidiary of ArianeGroup in 2017. After consolidating the Ariane 5, Vega and Soyuz launcher families and supporting the development of Ariane 6 and Vega C next-generation launchers.

Israël gave Arianespace's offering a new direction, transitioning from dual GEO satellite launches to solutions designed for large constellations in low-Earth orbit and the growing diversity of satellites. Thanks to these initiatives, Arianespace reached a record rate of 15 launches in 2021 while taking orders for 30 Ariane 6 launches and 15 Vega C launches. Since April

EXEC MOVES



**David Cavailolès**

2013, Stéphane Israël has supervised 108 launches, including, recently, the emblematic James Webb Telescope (JWST) mission for NASA and the JUICE probe launch for the European Space Agency (ESA).

Martin Sion, CEO of ArianeGroup, said: “I sincerely thank Stéphane Israël for his invaluable contribution to Arianespace and ArianeGroup over the last few years. Stéphane has supported Arianespace through major milestones, from the height of Ariane 5’s success to the first flight of Ariane 6. He also worked hard to transform Arianespace in line with ArianeGroup. His track record reflects his strategic vision and his ability to gain global recognition of the Ariane excellence. We wish him every success in his new job and look forward to welcoming David Cavailolès to the Group.”

“Every day I have spent since April 2013 writing this chapter in the history of Arianespace has been a great honor and an extraordinary human adventure,” said Israël. “I would like to thank the teams at both ArianeSpace and ArianeGroup for their passion and unrivalled excellence. I also extend my gratitude to our partners,

ESA and CNES, and to our European and international customers for their unwavering trust. After the success of Ariane 6’s first launch and Vega C’s return to flight, I am pleased to entrust my successor with a company boasting a solid order book to ramp up the launch rate as of 2025. With Ariane 6, Arianespace will be able to capture the opportunities arising in a dynamic and fast-changing market,” he added.

Cavailolès will join the Group in January as CEO of Arianespace and member of ArianeGroup’s Executive Committee. After starting out in the French public sector holding positions of responsibility in finance, innovation and industry, he was appointed ministerial advisor for French space policy in 2017. He then joined Capgemini in 2019 where he held various leadership positions contributing to the firm’s business development.

Cavailolès, 36, is a graduate of Ecole Polytechnique (X2008) and ENSAE Paris (2012).

### ABS Appoints Bruno d’Espina as Chief Business Development Officer

**Dubai, UAE, December 10, 2024**—Agility Beyond Space (ABS) announced the appointment of **Bruno d’Espina** as Chief Business Development Officer. Based in Dubai, UAE, Bruno will lead ABS’s business development efforts, bringing over 15 years of expertise in driving strategic growth and forging partnerships within the satellite communications industry.

d’Espina is a results-driven executive known for his approach to business development and his ability



**Bruno d’Espina**

to cultivate impactful partnerships that enhance shareholder value. His leadership will be pivotal in driving ABS future satellite mission plans, space and ground assets development and optimization.

“Bruno’s strategic insight and proven track record in growth-focused leadership make him an invaluable addition to our team,” said Mark Rigolle, CEO of ABS. “We look forward to leveraging his expertise to drive transformative business development initiatives that align with ABS’s commitment to staying at the forefront of industry advancements.”

d’Espina joins ABS from Inmarsat – Viasat, where he held key roles, including Vice President Partnerships, leading strategic alliances with major technology partners to drive digital transformation. He also served as division CFO, implementing data-driven strategies to unlock significant revenue and operational efficiencies. Prior to Inmarsat, Bruno spent years at SES, managing global M&A projects and driving strategic investments. 



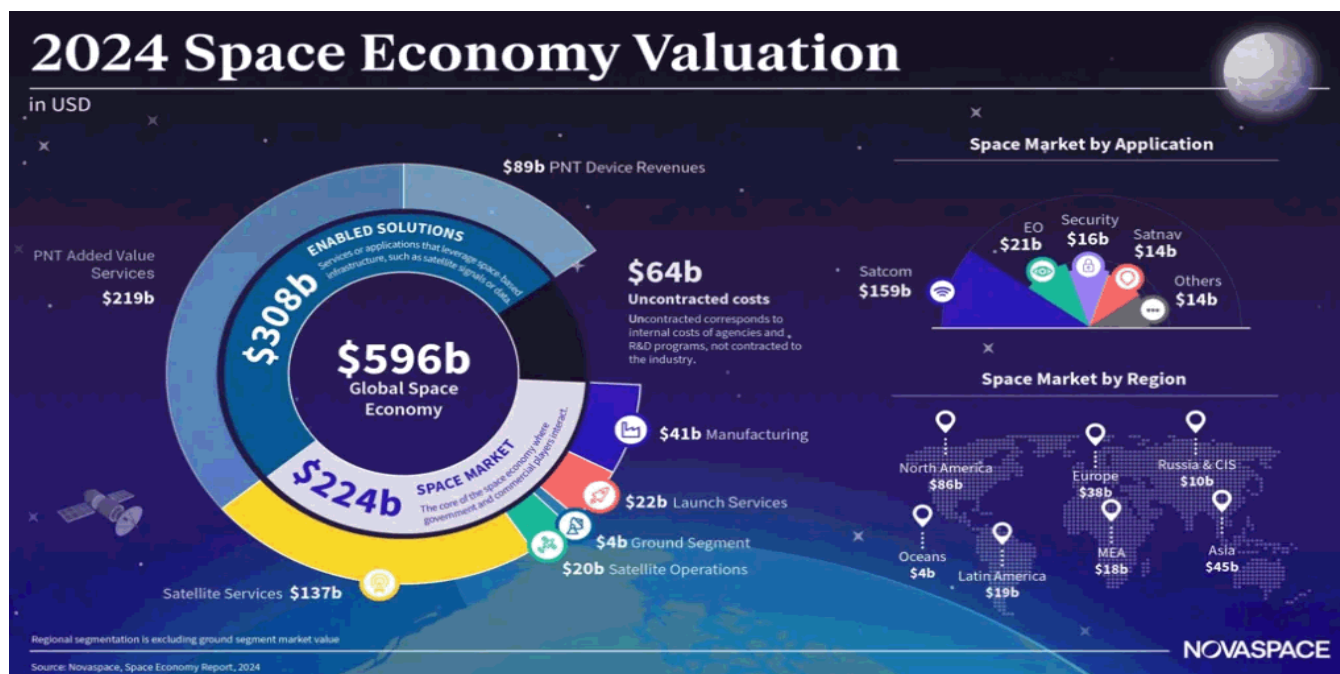
# The Space Economy to Reach US\$ 944 Billion by 2033

Paris, France January 9, 2025

–Space consulting and market intelligence firm Novaspaces has released the 11th Edition of its Space Economy Report, forecasting the global space economy to grow from \$596 billion in 2024 to US\$ 944 billion by 2033. This steady growth,

Lead Industry Expansion “Downstream applications are the main driver behind the projected US\$ 348 billion growth over the next decade, notes Lucas Pleney, Novaspaces Senior Consultant and report lead author. “Satellite-enabled services, such as

for the Space Industry As the space economy approaches a trillion-dollar valuation, it is positioned at the intersection of technological innovation and market disruption. Emerging business models, such as Direct-to-Device services and in-orbit economies, hold



driven primarily by advancements in downstream solutions, marking a pivotal decade for the industry.

The report emphasizes the essential role of emerging technologies such as artificial intelligence (AI) and cloud computing in downstream applications. These innovations are enhancing data collection and processing capabilities, fostering convergence with the digital economy, and creating new opportunities for commercial adoption.

Downstream Solutions

navigation, Earth observation, and communications, are becoming increasingly integral across diverse industries, including agriculture, logistics, and urban planning.”

While downstream activities play a central role, upstream sectors face persistent challenges. Inflation, supply chain disruptions, and material shortages are reshaping traditional ecosystems, prompting industry consolidation and increased competition from vertically integrated players.

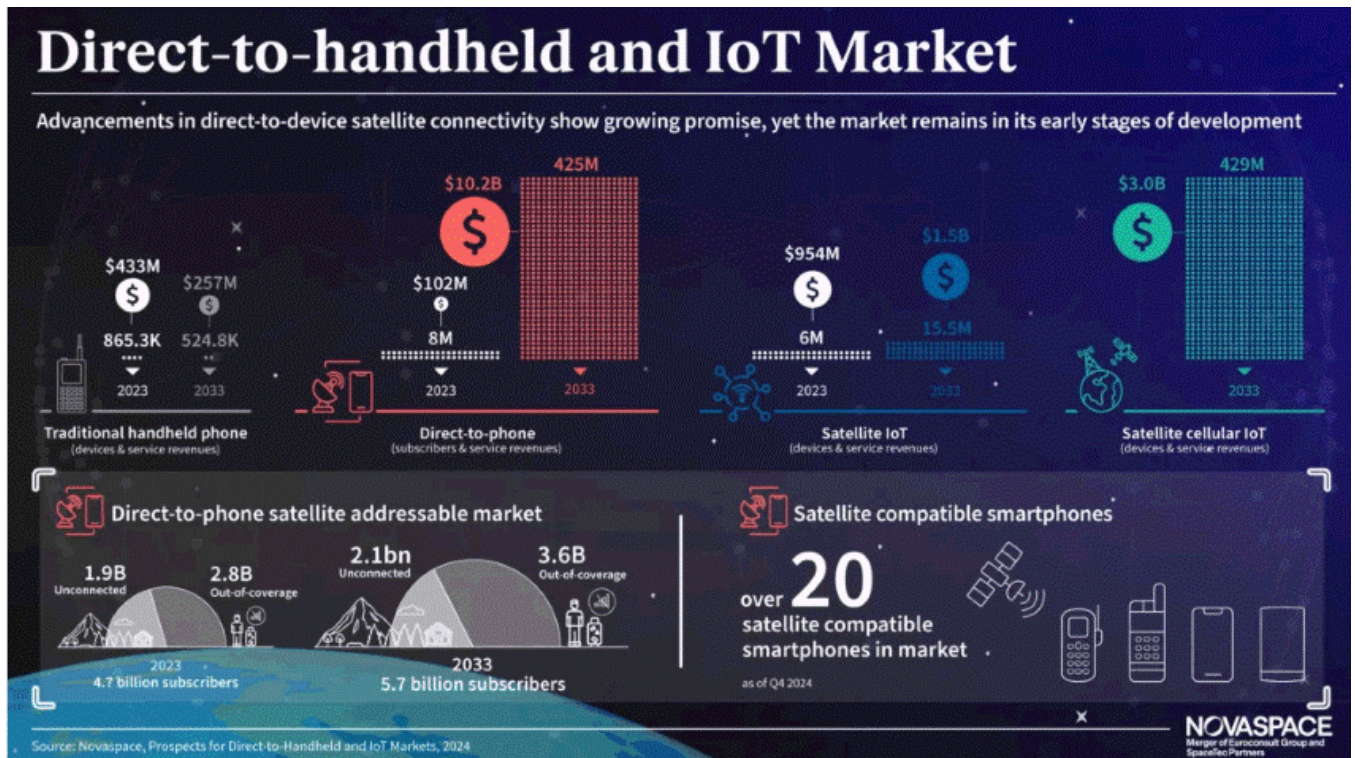
A Transformative Decade

promise for the industry’s future. However, their success will depend on early mission performance and commercial viability.

Government investment remains a key factor in driving growth, with global military space budgets exceeding \$64 billion. Defense spending continues to outpace civilian expenditures, underscoring the strategic importance of space in national security and international competitiveness.



# The Space Economy to Reach US\$ 944 Billion by 2033



Paris, France, December 10, 2024—Novaspaces has released the 9th edition of its report Prospects for Direct to Handheld and IoT Markets. The study projects the direct-to-device satellite connectivity market to grow from US\$ 1.5 billion today to nearly US\$ 15 billion by 2033, fueled by rapid advancements in technology and expanding satellite networks.

Key Findings of the report:

- 425 million monthly users will connect to direct-to-phone services by 2033.
- US\$ 42 billion in direct-to-phone service revenues alone expected over the next decade, a 33% upward revision.
- Over US\$ 1.7 billion in investments this year and the avail-

ability of 20+ satellite-compatible smartphones are accelerating growth.

“The rapid evolution of direct-to-device satellite connectivity marks a transformative shift in global communications,” states Sumaiya Najarali, Novaspaces Senior Consultant. “With the potential to connect hundreds of millions of users and generate billions in revenue, this market bridges connectivity gaps and expands networks.”

The report also highlights strong growth in satellite cellular IoT, with hundreds of millions of compatible devices expected by 2029. Traditional handheld phones are projected to decline sharply as emerging satellite-enabled services are adopted.

Novaspaces’s Prospects for Direct to Handheld and IoT Markets, 9th

Edition provides an in-depth analysis of direct-to-phone services, including their addressability in regions with limited mobile network coverage and large rural populations. It highlights recent investments, commercial contracts, and partnerships by leading players such as AST SpaceMobile, Globalstar, Lynk, and Starlink.

The report examines growth opportunities and challenges in the handheld and IoT markets, offering forecasts for devices, service revenues, and market verticals by region. It also explores emerging applications such as connected cars and wearables.

A free extract of the report is available for download.







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## VITAL STATS

### Future Heavy-Lift Launch Market for U.S. Providers 2024 – 2033

Global market estimates shown here reflect heavy-lift launches open to U.S. commercial launch providers  
Heavy-lift launch market will be driven by deployment of megaconstellations

