Satellite IoT Forecast 2019-2025

Reaching $5.9bn by 2025, with 30.3mn devices, fight with LPWAN will start turning bloody towards end of period

Companies mentioned in this report: Actility, Amazon, Astrocast, Eutelsat, Fleet Space Technologies, Globalstar, GOMSpace, Hiber, hiSky, Inmarsat, Iridium, John Deere, Kepler Communications, Kinesis, Lacuna Space, LoRa Alliance, Myriota, NanoAvionics, Orbcomm, SES O3B, Sigfox, Sky and Space Global (SAS), SpaceX (Tesla), Swarm Technologies.

Authored by Alex Davies

Executive Summary

"Leading the way with independent thought and no regurgitated analysis"

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Introduction

The global market for IoT-focused satellite services, focused on end-device connectivity hardware and the annual connectivity fees charged, will grow to $5.9bn in 2025, after taking off in the 2021-2022 period. Incumbent satellite providers will be pressured by a new wave of startups that are leveraging the recent advances in smaller satellite technologies, but many of these new entrants are going to strike out or be absorbed by their larger and entrenched rivals.

The costs of entry to this market are much smaller than just a few years ago, thanks to improvements in the launch technologies as well as miniaturization of the satellites themselves, with Low Earth Orbit (LEO) designs now weighing just 10kg and some not larger than two shoeboxes. LEO networks are able to provide lower power consumption for end devices, and they can be deployed in a modular fashion, expanding as more customers or funding becomes available.

While terrestrial LPWAN networks have taken hold, they have not achieved the sorts of footprints first promised by the most enthusiastic marketers. While much of the nanosatellite marketing can be critiqued in the same fashion, there are vast swathes of the earth that do not have LPWAN coverage but could make use of these low-cost satellite networks.

For the incumbent satellite providers, IoT-focused customers could be a nice way to improve their margins, especially in the increasingly cut-throat broadband and broadcast satellite market. For the nanosatellite startups, these are hugely lucrative opportunities for companies that don't have to take on anywhere near the level of capex burden that the incumbent satellite network operators have been saddled with.

However, this market is still around 3x smaller than the terrestrial LPWAN market, according to *Riot Research's* recent market forecast,

despite higher hardware and connectivity revenues per device. While some of the industries involved do overlap with LPWAN, these satellite devices will not compete directly with LPWAN deployments all that frequently, due to their use cases having much better tolerances and allowances for the power consumption of the end device.

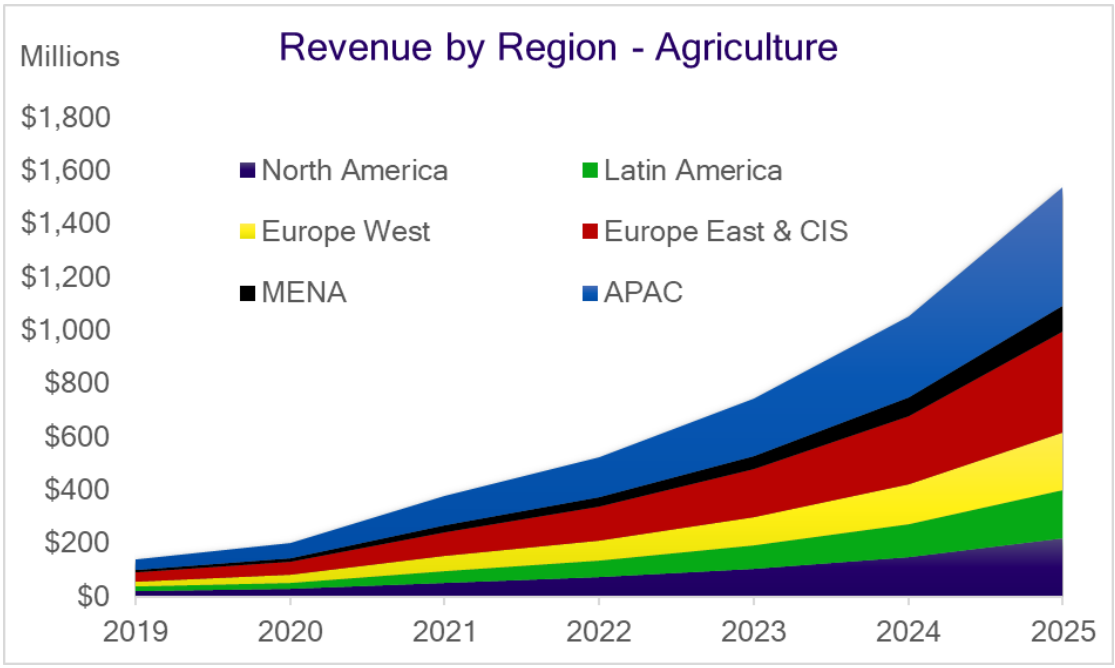
Connectivity is often said to be between 10% and 20% of the total cost of ownership (TCO) for an application, and because of this, higher value applications are likely going to drift towards satellite or non-LPWAN cellular options, as these applications are going to be able to justify or settle for having to swap batteries out when needed. The unlicensed spectrum LPWAN (U-LPWAN) markets also have to solve the global roaming problem quickly, in order to counter the marketing narrative from the satellite community – that satellite is the only way to get truly global coverage.

While there are an estimated 2.5mn satellite IoT devices deployed currently, we expect that 2021 will see a major jump in deployed devices, as the first few startups begin launching their constellations and supporting live customers. When viewed on a graph, this presents as an initial bump that slows the next year, before a period of prolonged growth settles in.

Because of the scalability of nanosatellites, more units can be added to a constellation to support more devices, should the maximum throughput threshold be met. However, there will be some wasted resources, as many of these startups will be competing directly with each other. Should a startup fail, they will be adding to the cloud of space junk orbiting the earth – as it is not clear how easily another operator could take over these communications assets, in the wake of a bankruptcy.

By 2025, we expect there to be some 30.3mn Satellite IoT devices deployed globally, growing at a CAGR of just under 40%. We expect this growth to begin to flatten off in around 2027, due in part to the

spread of terrestrial rivals for Satellite IoT connectivity, and improvements in fixed and local networks that can be used as alternatives for the global satellite ones.



In terms of usage, we have identified key use cases within the three main elements of the global economy – Agriculture, Industry, and Services. We expect Agriculture to grow from 18% of initial demand to 26% by the end of the forecast period, with Industry growing from 20% to 32%, and Services diminishing from 62% of initial demand to 42%. The respective CAGR for each sector is 48.8%, 51.4%, and 31.2%.

Methodology

The data collected for the report was drawn from a series of interviews with operators, equipment vendors, silicon designers, and device manufacturers. It draws on Rethink Technology Research's deep knowledge of the markets, as well as Riot Research's expertise in the IoT. Public documents and filings, and private confessions, have been combined with and used to corroborate the forecast.

Riot Research maintains a demographic model that charts a range of criteria that help us profile countries. This ranges from population projections, landmass usage and urban population data, household income and spending, broadband internet and mobile usage, transport infrastructure and usage, and national productivity and economic data.

This demographic model formed the basis of initial projections, for the key regions and countries we were interested in. From this, we can then determine the value of each of the vertical market and value chain classifications, which are modeled through the period. These adjustments are based on our research and experience with the sectors and other markets, and are intended to create a top-level view of the sector.

Just who should buy this report and what will it do for them?

This report is for anyone at C-Suite and strategy level who is trying to cost a major IoT application, using a network for collection. This report shows that you must now consider satellite as well as both licensed and unlicensed LPWAN. It will help you understand which technology is the best way to collect your data, and if you are in Agriculture, Industry, and Services, it is likely to be via on of the new Low Earth Orbit satellite networks.

There are multiple types of satellite and a massive number of new market entrants, and this report will help you understand each of them, what they are capable of sensing from space, and how you are likely to be charged for using satellites to collect IoT data.

This is a sprint to around 2027 with the market growing at 40% CAGR each year, because satellite is such a strong option, outweighing the benefits of LPWAN in key circumstances.

And if you are one of the early market users of this technology, you are likely to be able to attract low pricing and massive reach using satellite IoT, as there are new entrants using nano-satellites, vying for market share with older, established satellite players and larger satellites. The price cutting will be brutal. There will be a race for each of them to collect enough business to balance their initial cost base.

This is a 33 page report with comprehensive graphs and diagrams showing how this market will break into different value layers, and who we expect to take the market lead.

The full report can be purchased via our e-commerce store.

Riot Research: Forecasting the elements of the IoT

Riot Research is the forecasting service attached to Riot (our Rethink IoT service). Riot is a weekly publication which highlights and analyses all the important events in IoT, and Riot Research is the monthly forecast attached to the service looking at AI, Cloud Security, LPWANs and low power networks as well as sensors, actuators and chip markets.

Riot has been published for 4 years, but the Riot Research forecasts were introduced this year.

Riot consists of two parts:
1) Circa 10 long-form articles which discuss and analyse the week's events and disruptions in IoT including Around the Web—A curation of news which affects the IoT with links to sources.
2) A monthly forecast focused on IoT technologies

Here are some sample titles of reports we have produced recently:

- IoT Security Revenue — Forecast to 2023
- Smart Home as a Service — Forecast to 2023
- AI: Show me the Money—Forecast to 2023
- LPWAN Revenue Key Opportunities —Forecast to 2023

Subscription Costs

Annual 1-5 User license - $1,850 (A group license permits up to 5 users).

Annual corporate license - $3,700 (unlimited distribution inside your organization).

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About Rethink Technology Research

Rethink is a thought leader in quadruple play and emerging wireless and IoT technologies. It offers consulting, advisory services, research papers, plus three weekly research services; Wireless Watch, a major influence among wireless operators and equipment makers; Faultline, which tracks disruption in the video ecosystem, and OTT video. Riot Riot focuses on enterprise transformation and disruption, from the combination of IoT technologies with emerging cloud computing and AI applications.

NEED MORE INFORMATION?

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