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Turning Real-Time Satellite Data into a Competitive Advantage

As access to space-based intelligence grows, the window for early advantage is narrowing. Three capabilities offer immediate, scalable returns.

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Charles Beason/NASA

Reinsurer Swiss Re streams near-real-time flood maps into its catastrophe-risk services, accelerating its claims processing and disaster response. Cargill, the Minnesota-based agribusiness company, uses a satellite-monitoring platform to track land use and forest loss across its global supply chains, strengthening its pledge to be deforestation-free by 2030. Maersk, the Copenhagen-based shipping and logistics

company, has installed SpaceX Starlink broadband on more than 330 container vessels, improving communication and operational efficiency with cloud tools and remote management.

Across industries, space has become a critical source for satellite-based intelligence for business. Just five years ago, roughly 3,500 active satellites orbited the planet. That number has since more than tripled and could exceed 60,000 by 2030, as commercial constellations expand at scale. Investor confidence is also rising: Venture capital funding for space startups reached $3.1 billion in the second quarter of 2025—up from $2 billion in the previous quarter and the second-highest quarterly total on record. By 2035, the global space economy will be worth $1.8 trillion, the World Economic Forum estimates.

Equipped with on-board AI, real-time connectivity, and edge computing that processes data directly in orbit, modern satellites have evolved into intelligent decision engines capable of powering predictive logistics, environmental intelligence, and rapid disaster response. They're also enabling new applications from satellite-triggered insurance payouts to live migration modeling and infrastructure that adapts to environmental signals in real time.

Despite this potential, most companies haven't invested in satellite-based technology. A survey we conducted of 1,300 executives at large multinationals operating across 17 industries found only 18% said they expect to scale satellite technologies across their enterprise in the next three years. Our research suggests two factors explain this hesitation. First, many leaders still view space as a state-run, complex domain not yet suited for day-to-day enterprise operations. Second, even executives who do see space's potential often struggle to move beyond fragmented pilots that fail to deliver scalable value, reinforcing the perception that space-based solutions are too experimental to be

practical. Nevertheless, a few companies are already using satellite data to build competitive advantages. In this article we'll tell you which companies have gotten started, what they've achieved, and how your business can get started today.

Turning Space Into a Strategic Advantage

Three forces are turning what was once a distant capability into an operational advantage for some companies.

First, commercialization has slashed the cost and complexity of access. Launch costs have plunged thanks to reusable rockets like SpaceX's Falcon 9 and small satellite launchers, such as ISRO's PSLV. Falcon 9 now delivers payloads for about $2,700 per kilogram, down from tens of thousands of dollars just a decade ago. Meanwhile, companies like SpinLaunch are testing kinetic launch systems that could cut costs further.

Satellite hardware costs are also falling. Mass-produced CubeSats —lunchbox-sized satellites capable of conducting space-based experiments, making observations, or relaying communication signals —can now be built for as little as $100,000. With modular satellite designs and standardized payloads, space infrastructure is no longer bespoke or inaccessible; it's scalable and within reach.

Second, technical barriers have dropped. Companies can now tap open constellations, cloud platforms, and pay-as-you-use application programming interfaces to embed satellite insights directly into their workflows. Venture capital is fueling this wave of innovation, as new private-sector entrants deliver satellite data and analytics tools tailored for non-space companies. Platforms like e-Geos' CLEOS and Planet Labs Insight allow teams to access and act on orbital intelligence without owning satellites or hiring specialists. Open Cosmos, a UK-based space

tech company, can deploy small satellite systems with manufacturing, launch, and operations fully managed end to end. Partners can easily access and share Earth observation data through its Data Cosmos cloud platform and OpenConstellation shared network of small satellites.

Third, autonomy is transforming what satellites can do. Satellites have become intelligent nodes that detect anomalies, reprioritize tasks, filter out noise, and trigger automated responses. Radar satellites, for example, can identify flooded zones in real time and feed that data directly into insurance or infrastructure project workflows. For companies that know where and how to apply the capabilities strategically, space has become a new source of competitive differentiation.

As such, the question is no longer whether to engage with space but how fast and how deeply to do so. Below, we outline key use cases to help companies decide where to apply space-based capabilities. We also identify three actions every company should take to operationalize how they put orbital intelligence to work.

Applying Satellite Intelligence Where It Matters Most

As access to space-based intelligence grows, the window for early advantage is narrowing. Three capabilities offer immediate, scalable returns.

See performance in real time.

Satellite-based Earth observation has evolved beyond static images or delayed reports. With AI and ground data, it now offers a dynamic, multi-view sensing layer for environmental, operational, and regulatory insight. For example, Duke Energy, the U.S.-based utility, uses an AI-enabled platform to detect methane emissions using satellite imagery, identifying risks near real time and accelerating infrastructure response. This not only helps Duke Energy meet its net-zero targets

but also strengthens the resilience of its infrastructure. Meanwhile, companies like Dendra Systems and Satelytics use tailored earth observation satellite analytics to monitor biodiversity, ensure compliance, and replace guesswork with measurable insights.

Earth observation is also becoming more agile and customizable. Companies and cities can dynamically re-task satellites to monitor large crowds during public events or track safety perimeters at concerts and major sports events. In these cases, space isn't just providing information; it's delivering it when and where it's needed most, supporting real-time decisions on the ground.

Enhance connectivity.
Space-based networks are extending the reach of enterprises by linking people, systems, and assets where terrestrial networks fall short. Embedding AI and computing power directly into the satellite communications stack that makes low-Earth orbit satellite networks powerful complements to emerging 5G and 6G systems. These hybrid networks provide resilient data relay connections where fiber infrastructure is unavailable and enable ultra-reliable, near-instant response coverage for real-time applications, such as autonomous vehicles and connected factory machines.

Geely, the Chinese automaker, is deploying a 240-satellite low-Earth orbit constellation to deliver centimeter-level positioning and connectivity for its vehicles and smart infrastructure. Its multi-cloud platform, called OmniCloud, fuses satellite data with AI to support autonomous driving, logistics, and industrial machine connectivity, especially in areas beyond the reach of ground networks. Similarly, Accenture and QuSecure, a California-based cybersecurity company, partnered to demonstrate a quantum-resilient, multi-orbit data channel, where AI autonomously managed security risks, rerouted data paths, and maintained transmission integrity.

Move smarter.
Navigation is now dynamic, context-aware, and self-optimizing. While constellations like the Global Positioning System (GPS), Europe's Galileo and Russia's GLONASS have long provided global positioning data, their effectiveness in poor signal environments like dense urban settings and remote terrains has historically been limited. Now, edge computing-enabled satellites augment and refine these signals in real time, enhancing accuracy and effectiveness.

This shift is particularly valuable in sectors where precision and timing are essential. For example, ESP Logistics Technology, the California-based geospatial supply-chain company, works with Spire, a Virgina-based satellite data company, to track and forecast cargo ships with edge-processed satellite data, improving arrival forecasts, supporting dynamic rerouting, and reducing supply-chain risk. AI also enables autonomous navigation for drones, tractors, and connected fleets. In agriculture, GPS supported by satellite analytics allows farmers to apply fertilizer and irrigation only where needed, conserving resources while improving yields. Satellite data also speeds up agricultural insurance claims processing by as much as 50%, freeing adjusters to focus on higher-value work, such as proactive farmer support and risk management.

How to Operationalize Space-Based Intelligence

Space data is no longer limited to engineers and scientists. It is increasingly integrated into enterprise systems—from ERP platforms and logistics dashboards to risk models and sustainability reports. To avoid fragmented pilots and scale space-based technologies, companies need to make satellites a key element of their digital strategy. Three steps can help.

Build satellite and geospatial literacy.
As with cloud computing and AI, executives must develop a functional understanding of how space technologies can shape business outcomes. This doesn't mean learning about orbital mechanics, but it does mean asking the right questions: What kinds of satellite data can sharpen our forecasts? How can AI-enhanced Earth observation help us monitor environmental risks across our supply chain? Where can space data provide early visibility into disruptions? How might space-derived insights feed into operational dashboards? These are only a few of the space-related questions that should be on every executive's radar.

Improving geospatial literacy also requires more than a handful of Geographic Information System (GIS) specialists who map and analyze geographic data. Companies should invest in both enterprise-wide learning and a robust data and analytics function capable of interpreting satellite and spatial data. Training programs, partnerships, and simulation tools can all help leaders frame the right problems and identify opportunities.

Some companies already embed Earth-observation modules in executive education programs or partner with satellite analytics startups to deepen understanding across teams. Commercial Earth-observation data provider Capella Space's Analytics Partner Program, for example, empowers companies to develop AI-driven geospatial solutions across industries such as agriculture, insurance and logistics. Likewise, the EU's Copernicus initiative provides user-friendly interfaces and modular tools that bring space data out of the lab and into strategic decision-making.

Create a seamless link between space and ground systems.
Space data ecosystems have become much smarter, but their impact depends on how quickly and effectively companies can respond to the data they receive. That's why coordination between edge devices

—like sensors and satellites—and cloud systems is crucial. To turn orbital insights into timely decisions, companies must ensure their digital infrastructure can communicate seamlessly with satellites, process incoming data on the edge, and relay only the most valuable information to the cloud for enterprise-wide action.

This seamless integration between cloud systems and edge devices addresses two essential demands: immediate responsiveness and the ability to handle vast amounts of data. Satellites equipped with AI and onboard computing can identify anomalies, trigger alerts, and even initiate basic diagnostics autonomously. But unless enterprise systems can respond in real time—whether to a wildfire detection, a pipeline anomaly, or logistics delay—the opportunity is lost in transmission lag.

In sectors that depend on real-time situational awareness, such as energy or emergency response, integrating space data into ground systems can be transformative. Oil and gas operators can trigger pipeline shutoffs the moment satellites detect abnormalities. Disaster teams can combine satellite imagery with on-the-ground sensors to direct relief efforts with greater precision.

Integrate satellite data with AI-driven workflows.
Access alone doesn't create advantage from satellite data, integration does. Companies should treat satellite data as a live operational input, not an external report or special resource. Embedding it into supply-chain management platforms, financial risk models, customer-service systems, and environmental, social, and governance (ESG) dashboards allow real-time decision-making across functions.

To make this operational integration possible, companies also need to build AI models tailored to their industries. Generic models rarely capture the nuances of sector-specific challenges—from crop variability to urban infrastructure stress to logistics bottlenecks. The real gains

come when satellite data such as radar scans, thermal images, or geolocation signals is fused with ground-based sources like industrial sensor networks, enterprise resource planning systems, and field reports.

Dendra Systems, for instance, merges drone and satellite data for to support revitalizing natural habitats. ESP Logistics Technology combines space-based tracking with cargo telemetry to reduce oil and gas shipping risks. CLEOS allows users to analyze and act on space data via cloud-based AI tools, without requiring deep geospatial expertise. And insurers now embed satellite flood data directly into claims workflows, reducing fraud and accelerating payouts after natural disasters.

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Space may seem remote, but the business race it's fueling is happening now. With satellites delivering insight, connectivity, and precision at speed, real-time, planet-scale intelligence is within reach of every company. Those leaders who craft a clear satellite strategy by investing in the right data, skills, and partnerships will successfully integrate satellite-powered insights into their core operations.

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