Orbital Insight GO

Geospatial analytics — anywhere, anytime

Improved Supply Chain Operations and Margins Powered by Geospatial Data at Scale

Supply chain management today looks like a patching together of various supplier/customer operations and balances. The result is lost operational efficiency and sub-optimal margins. Low confidence in daily trading and operations is exacerbated in the event of an unexpected disruption.

In order to fully understand demand for products and new sales and sourcing options, supply chain managers are now using geospatial data—primarily satellite, location-based services, and vessel tracking (AIS)—to systematically monitor supplier and buyer operations.

We've compiled the top five ways our supply chain customers leverage our geospatial platform, Orbital Insight GO, to illuminate entire supply chains to decrease waste and increase profitability:

> *Everyone in the market is using 2nd and 3rd hand data because it is hard to reach these remote locations. What Orbital Insight is providing is truth.*
>
> — *John Eastwood*
> *Head of Nickel Marketing*
>
> AngloAmerican

1.	**2.**	**3.**	**4.**	**5.**
Inventories	Facility Monitoring	Traceability	Demand Indicators	Retail Consumption

1. Inventories

Gain a global perspective of feedstock availability

Understanding commodity inventory levels is the underpinning of a highly accurate supply-side model. Empirical daily observations provide a decisive edge in understanding feedstock availability, illuminating opaque markets and filling in missing information months ahead of traditional data sources.

Orbital Insight GO subscribers leverage millions of daily satellite images and connected device data points combined with AI and machine learning to track inventories on a global scale.

Oil and Gas

Increase forecasting accuracy with global breadth of monitoring and market leading cadence of data. Orbital Insight GO's multi-source capabilities quickly, accurately, and economically monitor E&P activity and inventory flows on a global scale.

Orbital Insight GO allows users to track activity across large areas of interest including all U.S. fracking basins.

Bloomberg

Markets

Oil Surplus Makes Surprise Return Despite OPEC Cuts, IEA Says

By Grant Smith
July 12, 2019, 4:00 AM EDT

► Supply exceeded demand by 900,000 barrels a day in first half
► OPEC may need to cut output to 17-year low to balance market

Orbital Insight clients knew global oil was at a surplus months before the IEA reported a "surprise build"

> " *That's critical data, hitherto unavailable, which is essential to anyone trying to understand the oil market.*"
>
> – *Andy Hall*
> *Legendary Oil Trader*

Inventories (continued)

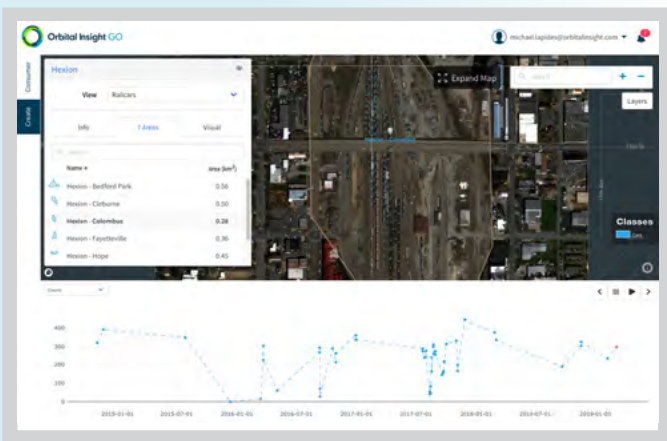## Track Inventory flows across marine, rail, and truck movements

Geospatial object detection supports pattern-of-life, trend analysis, change detection, and anomaly detection at sites leveraging hundreds of satellites with frequent coverage. Monitor and track commodities with computer vision:
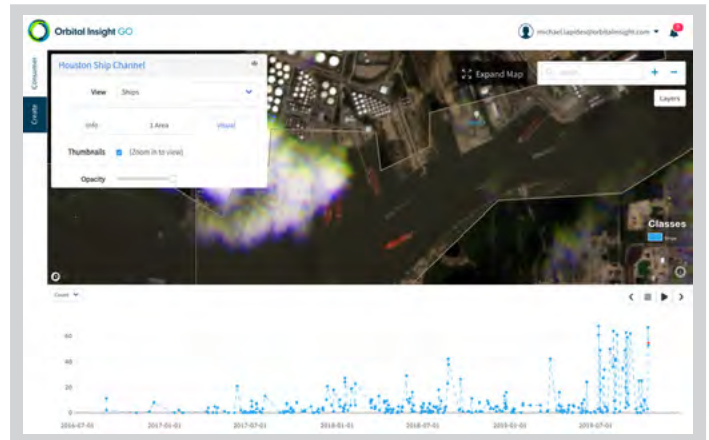
Marine

Orbital Insight GO persistently monitors ports and open seas to detect ships with the ability to integrate AIS data.
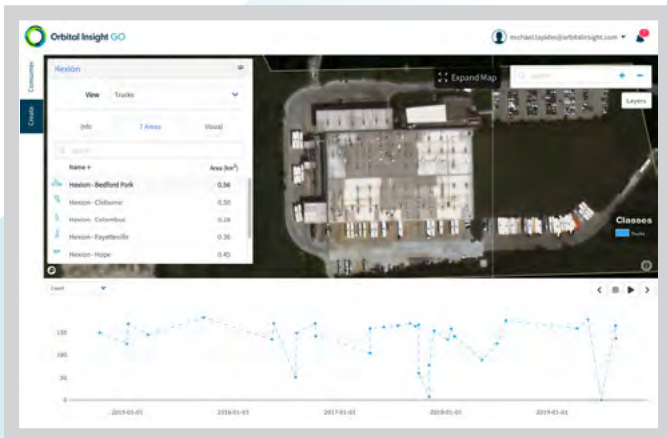
Trucks

Orbital Insight GO's geospatial object detection tracks important commodity transportation assets such as trucks.

Identify ships at pre-selected terminals with the ability to overlay AIS data for continuous tracking destination information.

Rail cars

Orbital Insight GO detects and quantifies railcar activity at sites of interest to understand commodity flows.
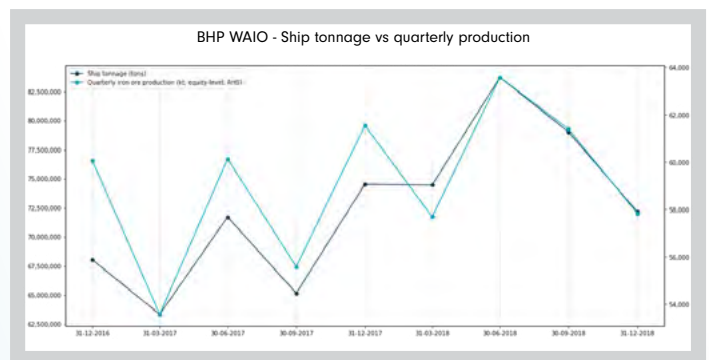
Orbital Insight GO accurately tracks commodity shipments through vessel tracking (AIS) data ahead of official production numbers.

Data sources include

| 800 Million+ Connected Devices | Satellite Detected Vehicles | Land Use Classification | Vessel Tracking (AIS) | Connected Car Data |

2. Facility Monitoring

Real-time Site Characteristics

Facility monitoring allows supply chain operators to better understand market supply and demand for their products. By systematically tracking activity at global plants, refineries, and manufacturing centers, geospatial data empowers users to rapidly identify interruptions and quickly identify new sales and sourcing options.

Orbital Insight GO customers leveraging multiple sources of geospatial intelligence are now able to create highly accurate and even predictive models, identifying facility anomalies before they become market knowledge.

Location-based services persistently monitor device "pings" at a variety of areas of interest, including competitor and customer sites. Staffing activity is then rapidly translated into geospatial analyses for refineries, chemical plants, and factories. The GO platform allows for easily self-selected or uploaded locations which are then instantly deployable for daily monitoring. This is scalable to thousands of locations which can be viewed in aggregate or at a granular plant level.
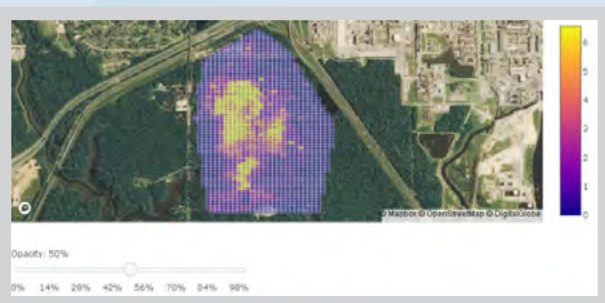
Orbital Insight GO produces activity heatmaps leveraging cellphone "pings". In this instance users can track daily construction progress at Lotte Chemical's Westlake cracker.
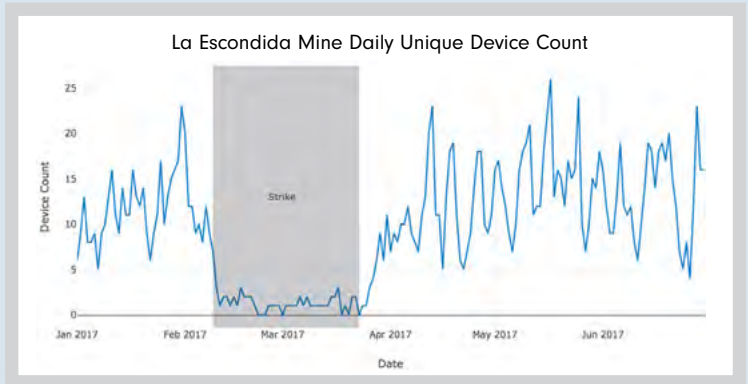
Deviations from Market Expectations:

Refinery Outages
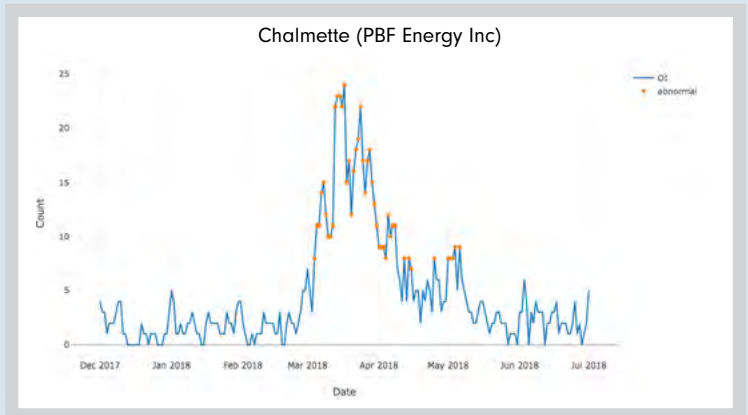
Orbital Insight GO detects an untracked turnaround at Chalmette which was not picked up by Bloomberg's REFO forecasts, skewing supply/demand models by 192,500 bpd. State regulatory bodies confirmed the refinery turnaround 60 days later.

Mining Strikes

Orbital Insight GO identifies a strike at La Escondida Copper Mine in Chile prior to the media. Location-based services reveal that work did not resume normal activity levels until weeks after the strike officially ended.

Petrochemical Plant Construction

Orbital Insight GO's computer vision can automatically detect, quantify, and alert the user of structural change.

Geospatial Data Users Benefit from:

Objectivity   Transparency   Speed

3. Traceability

Visualize the living breathing supply chain

For most companies, their greatest risks and impacts lie within their supply chains. Orbital Insight GO helps companies gain an empirical understanding of their supply chain operations to create positive economic and social impact.

GO helps visualize and trace entire supply chain networks, from first to last mile.
With remote sensing and AI, Orbital Insight contextualizes vast quantities of data to display a living breathing supply chain — showing the logistical relationships of factories, plantations, suppliers, stores, and distribution facilities on a global scale.

Sustainability

Orbital Insight GO's sustainability solution empowers sustainable sourcing managers to meet sustainability and deforestation pledges and create greater brand value and market leadership.

Gain an empirical understanding of supplier practices with historical and ongoing deforestation monitoring. By leveraging satellite imagery and computer vision algorithms, Orbital Insight provides its clients with actionable ESG analytics, automatically raising red flags within their supply chains.

Brazilian Soy Traceability

Orbital Insight GO traces and quantifies the logistical relationships between suppliers, farms, ports, warehouses, mills, and silos to deliver an empirical understanding of the supply chain.

Amazon BWI2 Fulfillment Center
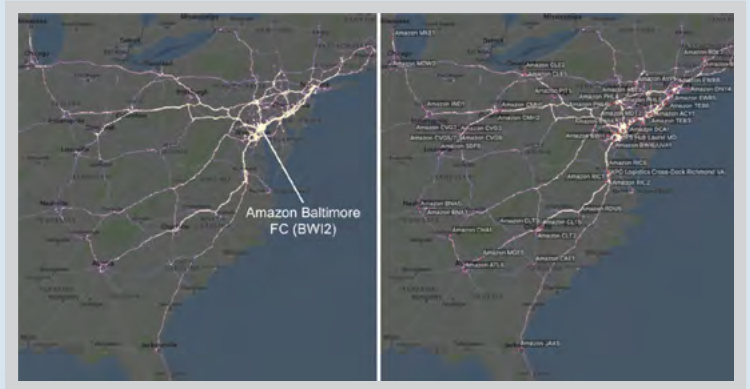
Orbital Insight GO leverages location data to identify the nodes connected to Amazon BWI2.

Deforestation Monitoring
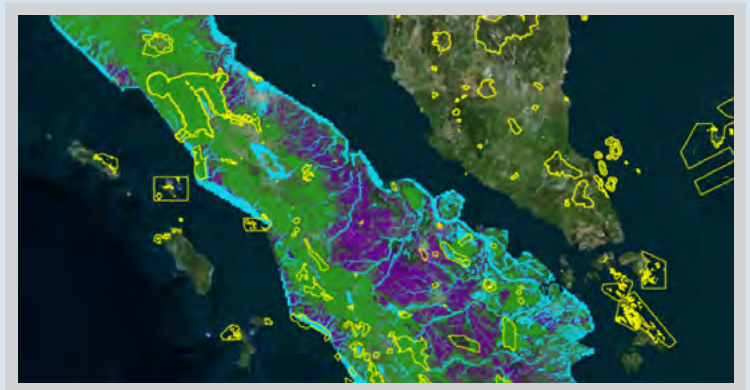
Orbital Insight's provides insight into agribusiness planting activity, differentiating natural versus planted vegetation.

Orbital Insight's algorithms will help us analyze and understand these complex networks to the point where we could forecast deforestation risk based on indicators like the number of logging trucks seen in an area."
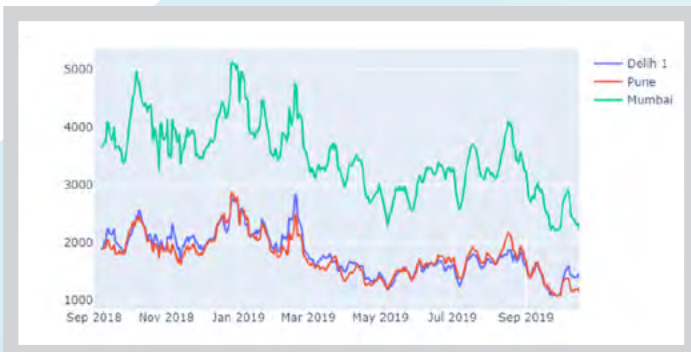
WORLD RESOURCES INSTITUTE

— Aaron Steele, CTO

4. Demand Indicators

Downstream Consumption at Scale

Fully understanding the demand for your products means observing markets from a new perspective. Businesses today use government data, which may suffer from latency and revision, to understand macroeconomic trends. When critical supply chain disruptions occur, geospatial data provides an quick, economic, and reliable methodology into researching downstream demand at scale with the clearest and most recent view.
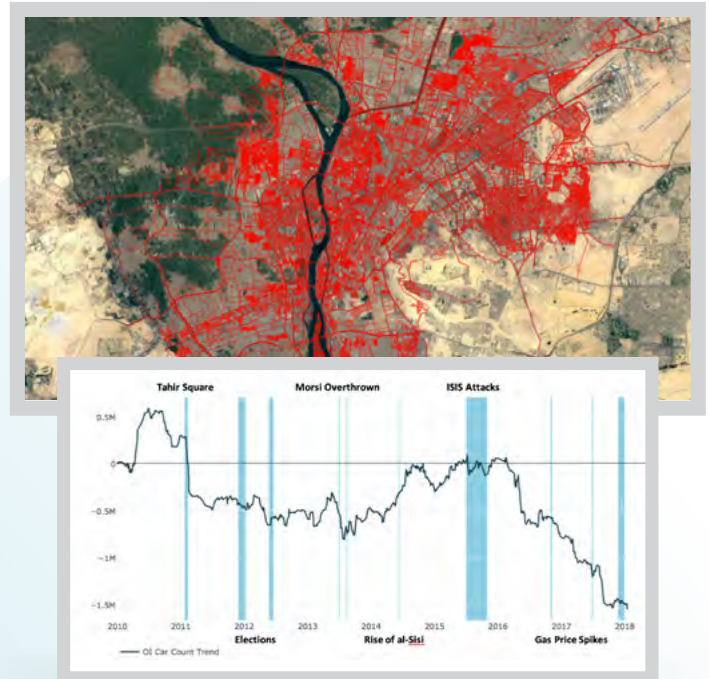
By applying state of the art computer vision and artificial intelligence to high-cadence satellite imagery, GO users are able to create insights on a national scale including auto usage, fuel consumption, emissions, and price elasticity.

Car Trend Count in Cairo

Orbital Insight's computer vision algorithms detect and quantify cars and trucks across all of Cairo amidst economic downturn, a rise in fuel prices, and geopolitical events throughout the Arab Spring.

Traffic Trends in India

By isolating key freeway chokepoints, GO users can quickly determine driving and fuel consumption trends across a large country. Simply draw your area of interest, select an algorithm and timeframe.

The Orbital Insight Advantage

Multiple Sources of Intelligence

Market Leading Data Science

Unprecedented Scale

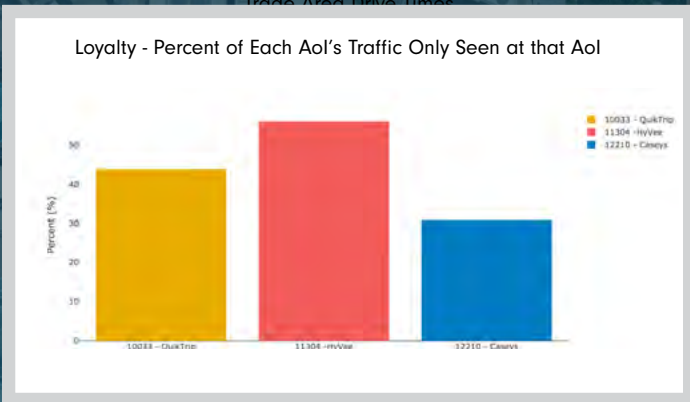# 5. Retail Consumption

Granular Consumption Analytics

Gas Stations

Customer visitation trends and market share analysis are critical inputs into your pricing and marketing strategies. Location-based intelligence provides actionable information to quantify foot traffic across national gas station footprints and deliver an objective market share comparison by brand, region, or location.
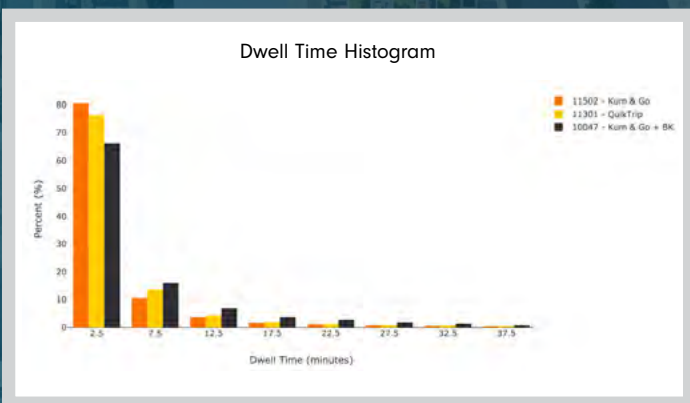
Gas station site selection and pricing professionals are better able to measure the impacts of seasonal trends, pricing, promotions, holidays, and new tenant mixes with daily empirical geospatial data including:

- Daily property visitation and seasonal trends
- Customer loyalty/revisit
- Cross-shopping analytics
- Time of Day/Day of Week Traffic Analysis
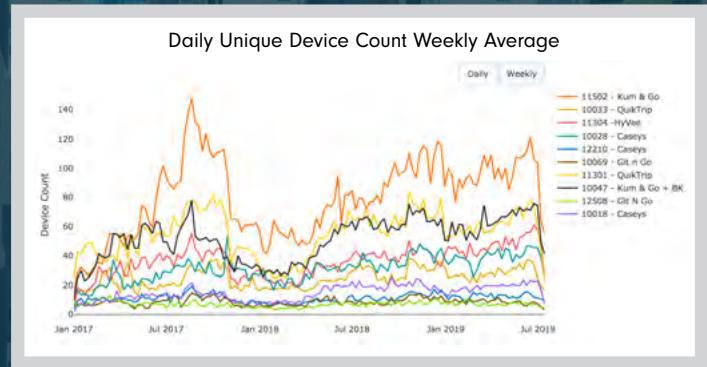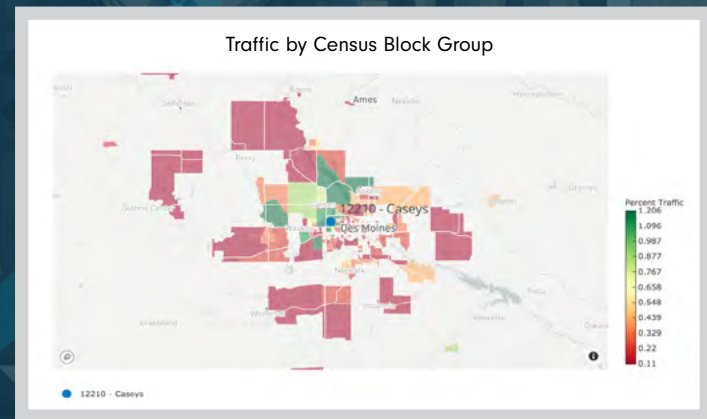- Trade Area
- Route Mapping

Daily Unique Device Count Weekly Average

Orbital Insight GO calculates daily market share of any selection of gas stations, scalable up to thousands of locations.

Traffic by Census Block Group

Orbital Insight GO reveals the trade area of your area of interest based on actual customers rather than a generic fixed ring methodology.

Loyalty - Percent of Each AoI's Traffic Only Seen at that AoI

Orbital Insight identifies gas stations with the highest levels of customer loyalty.

Dwell Time Histogram

Orbital Insight's dwell time analytics helps operators understand the impact of value add services such as convenience stores, car washes, and dining.

Demographics of Urbandale Convenience Stores

	10033 - QuikTrip	11304 - HyVee	12210 - Caseys
Median Household Income	$83,364	$83,433	$89,270
Average Household Income	$103,962	$105,397	$111,931
Median Disposable Income	$64,380	$64,447	$69,286
Average Disposable Income	$76,251	$77,024	$81,536
Median Distance From Homelocation	3.9	2.16	3.12
% Only High School Grad	17.52%	17.70%	16.65%
% GED/Alternative Credential	2.53%	1.98%	1.84%
% Some College/No Degree	19.43%	19.80%	19.30%
% Associate's Degree	10.28%	9.82%	9.82%
% Bachelor's Degree	30.90%	31.47%	33.33%
% Graduate/Professional Degree	13.78%	14.34%	14.41%
Median Home Value	$200,756	$202,051	$210,004
Average Home Value	$222,953	$220,560	$231,134

Orbital Insight GO develops a "localized census", allowing for a deeper understanding of your clientele to glean customer insights intelligent marketing campaigns.

Find out how Orbital Insight GO can make your supply chain better optimized and more profitable.

Connect our data directly into your desired workflow via API

alteryx   +ableau   esri
                SOFTWARE

About Orbital Insight

Orbital Insight develops geospatial analytics to help its clients unlock societal and economic trends at a global scale. We source petabytes of satellite, drone, balloon, drone, and IoT device data.

Using computer vision and machine learning technologies, we process and interpret this data to create intelligence enabling businesses, governments, and NGOs to make better decisions.

To learn more, contact
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or visit orbitalinsight.com