




**MSCI ACWI Asset-Level
Environmental,
Physical Risk
Reference Data,
Metrics and Indexes**

A photograph of a wind farm at sunset. The sky is a mix of dark blue and orange, with silhouettes of several wind turbines scattered across the horizon. The foreground is a dark, textured field of crops.

**Current ESG scores
don't work because...**

There are three ways to do ESG

Company Reported Data

Company reported data can often be inaccurate and not focus on the real problems with environmental impact

Estimates and Judgement

Complex estimates often overlook the important truth and small details that can have an effect on the performance of companies

Direct Measurements

ESGSignals® uses the approach of quantifying performance based on criteria vital for the company.



Data is the Foundational Challenge in ESG



Disclosure Gaps in Released Data

- Most firms only report a limited number of environmental and physical risk metrics
- Many private firms, and even public firms, do not disclose any data
- Disclosures are often inconsistent and outdated.



Shortage of Quality and Comparable Data

- ESG data that is available is typically based on estimates
- Proprietary internal processes for data collection fall far short of the rigor required to make fully informed capital allocation decisions using the provided data



Lack of Granularity and Data Consistency

- ESG data that is available is often reported at a corporate level, with little to no insights at the asset level
- There are vast variabilities in ESG disclosures among ESG Rating Providers

“Stakeholders relying on low quality, unreliable, and heterogeneous data are unable to adequately assess the asset-level risk exposure necessary to make ESG-informed actions” - **Maneesh Sagar, RS Metrics**

The Solution

“Geospatial analytics is the only feasible way to measure environmental performance and risk objectively and comparably for assets within public and private markets.”

Maneesh Sagar
RS Metrics



Objective and Comprehensive

It covers the world’s largest indexes starting with MSCI ACWI and expands to the private company universe with no dependency on company disclosures




Accurate Baselining & Benchmarking

It is built to scale and provides comparable temporal measurements across globally situated assets regardless of corporate ownership



Granularity through Geospatial

It allows investors, corporates, partners, vendors, customers, and other stakeholders to monitor a company’s operations at a level of detail beyond what is available, even from regulated financial reporting



The history of RS Metrics

Pivot to ESG

2019

We went through a rigorous analysis of where the geospatial analytics market was headed and how we could marshal our history of GIS innovation in ways that were proportional to the magnitude and gravity of the challenges society was facing.

Coupled with an acute ear for what the market had started asking us, we turned our focus to ESG analytics. We brought our 10+ years of geospatial expertise coupled with our AI, ML, data science, and financial product expertise to bear on creating the world's first asset-level ESG platform for capital markets and corporates

We started working on a transition product, MetalSignals. We chose the extractive industries, as a transition to ESG, since the metal and mining companies have financially material exposure to climate change

2021 Q3

we announced the General Availability of ESGSignals and a beta launch of our first-of-a-kind AssetTracker™ with MSCI ACWI coverage

2021 Q4

We partnered with Google and Infosys to create the 1st of its kind Turnkey ESG solution which we deployed in Q3 2022

Build around a core competence: Remote Sensing in the geospatial analytics market...

Married five distinct disciplines to analyze the market and challenges, but even with a head start...

...Collaborate to address complex problems – Choose Partners wisely and align business models

Complex Problems need interdisciplinary thinking and a collaborative approach

1. **GIS expertise** - in analyzing physical assets using traditional EO (Optical / SAR / Hyperspectral) + water stress, water-usage, land-usage, land-cover, GHG, aerosols, biodiversity
1. **Computing expertise:** Visual AI and ML / Object Detection / Algorithm generation / Micro-Services, Data Delivery
1. **Data Science expertise:** Identifying and optimizing the right data-sources and then determining and developing the right algorithms to extract the right data and create right metrics
1. **Capital Markets expertise:** Signals, Alerts, Indexes, Materiality, Market Segments including asset managers, owners
1. **Academic Collaboration:** Leveraging leading universities and researchers in climate modeling, water stress, land usage, and financial innovation
1. **Outside Expertise** / Data-sets: IBAT Biodiversity, Water from DHI, GHG Sat for Methane, Google for Big-Data / Geospatial Platform & Distribution; Board of Advisors for rest !



(2010): Retail traffic data and signals for 60,000 retailers including Walmart, Krogers, Home Depot



(2012): Trends and signals for employment, materials usage, and production for global factories and DCs (TESLA, BOEING, NIO)



(2016): Trends and signals for zinc, aluminum, copper, iron ore, bauxite, coal, and steel at 500+ global smelters, terminals, and storage sites



(2020): Custom monitoring of production at manufacturing facilities of leading electric car producers such as Tesla, NIO, Kandi, Xiaopeng, and BYD Auto



(2020): Asset-Level environmental metrics across GHG Emissions, Water Stress, Fire Risk, Land Usage, that can be integrated across rating agencies, data aggregators, and specialized data providers

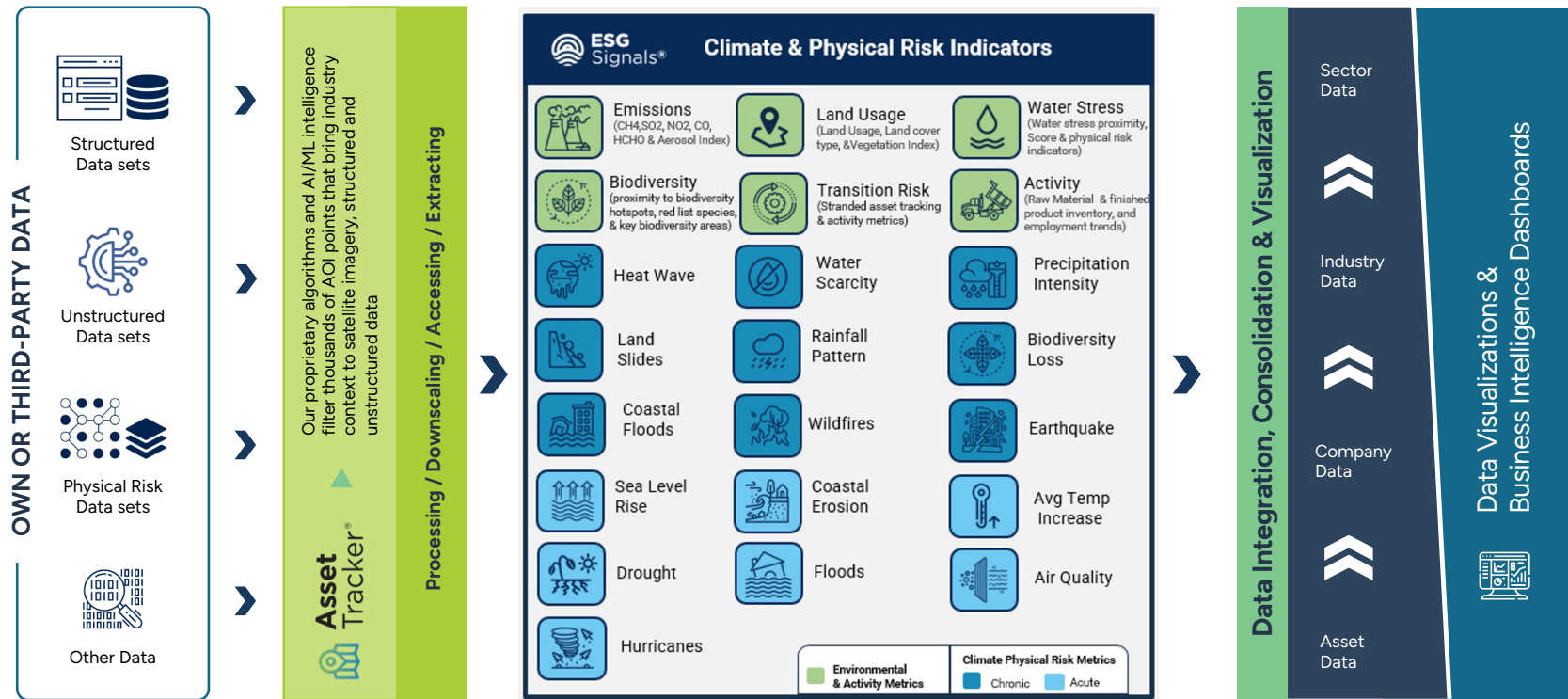


(2021) Global database providing asset-level geo-location information for the constituents of MSCI ACWI Index currently.

RS Metrics Product Suite:



















- Corporates
- Asset Managers
Regulators
- Rating Providers

ESGSignals™ BalancedScorecard™: allows cross-metrics, inter-company and intra-company comparison at AssetLevel



Balanced Scorecard™: Over 50 Comparable and Integrated Asset-Level Environmental, Climate, and Physical Metrics

Environmental Risk Metrics

 Methane Emissions	 Sulfur Dioxide Emissions	 Nitrogen Dioxide Emissions	 Carbon Monoxide Emissions	 Formaldehyde Emissions	 Aerosol Index	 Land Usage
 Land Cover Type	 Vegetation Index	 Water Stress Proximity & Score	 Biodiversity hotspots	 Red list species	 Key Biodiversity Areas	 Stranded Asset Tracker
 Asset Activity Metrics	 Raw Materials Inventory	 Finished Product Inventory	 Employment Trends			

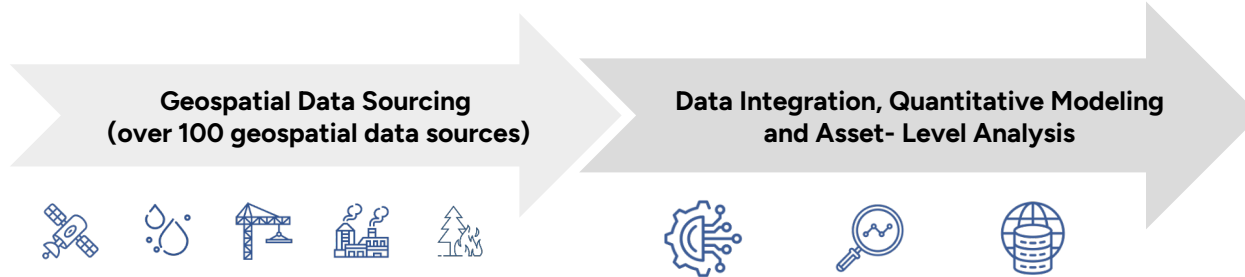
Chronic Climate & Physical Risk Metrics

 Heat Wave	 Water Scarcity	 Precipitation Intensity	 Land Slides	 Rainfall Pattern	 Biodiversity Loss	 Coastal Floods
 Wildfires	 Earthquake					

Acute Climate & Physical Risk Metrics

 Sea Level Rise	 Coastal Erosion	 Avg Temp Increase	 Drought	 Floods	 Air Quality	 Hurricanes
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ESGSignals® Platform and Solutions by Customer Segment



- Satellite Imagery
- Geo-location
- Emissions Datasets
- Meteorological Variables
- Biodiversity Datasets
- Water Stress Datasets
- Acute and Chronic Physical Risk Hazard Datasets

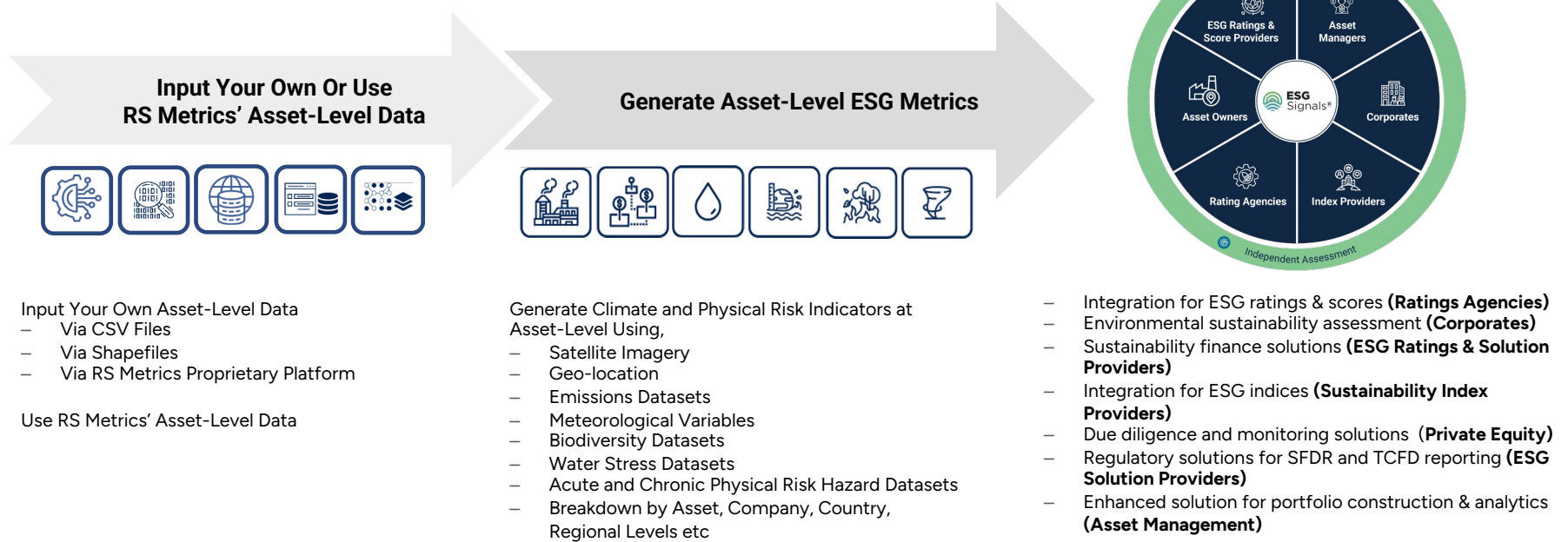
- Regriding and spatial downscaling
- Emissions dispersion modeling based on plume & asset-type
- Global hydrological model (GHM) integration for updated water stress indicators
- Biodiversity proximity assessment and GLOBIO model integration for impact assessment



- Integration for ESG ratings & scores (**Ratings Agencies**)
- Environmental sustainability assessment (**Corporates**)
- Sustainability finance solutions (**ESG Ratings & Solution Providers**)
- Integration for ESG indices (**Sustainability Index Providers**)
- Due diligence and monitoring solutions (**Private Equity**)
- Regulatory solutions for SFDR and TCFD reporting (**ESG Solution Providers**)
- Enhanced solution for portfolio construction & analytics (**Asset Management**)

Baselining and Benchmarking Through Foundational Asset-Level Environmental and Physical Risk Data and Metrics

ESGSignals® Platform and Solutions by Customer Segment

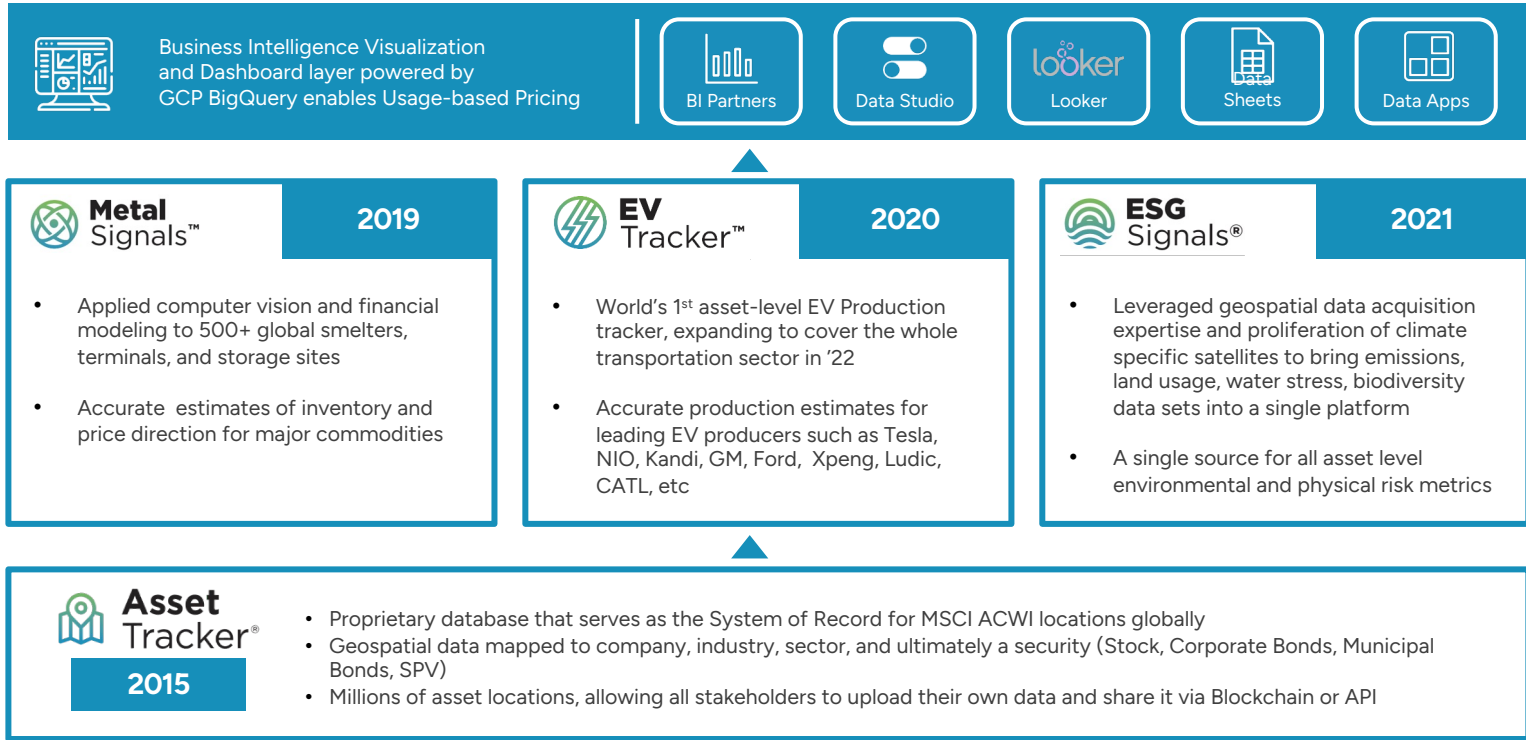


Baselining and Benchmarking Through Foundational Asset-Level Environmental and Physical Risk Data and Metrics



Architecture & Methodology

RS Metrics Geospatial ESG Architecture* Overview



ESGSignals® Platform Overview

Geospatial Data Sources (over 100 geospatial data sources)

- + Satellite Imagery
- + Geo-location
- + Emissions Datasets
- + Meteorological Variables
- + Biodiversity Datasets
- + Water Stress Datasets
- + Acute and Chronic Physical Risk Hazard Datasets

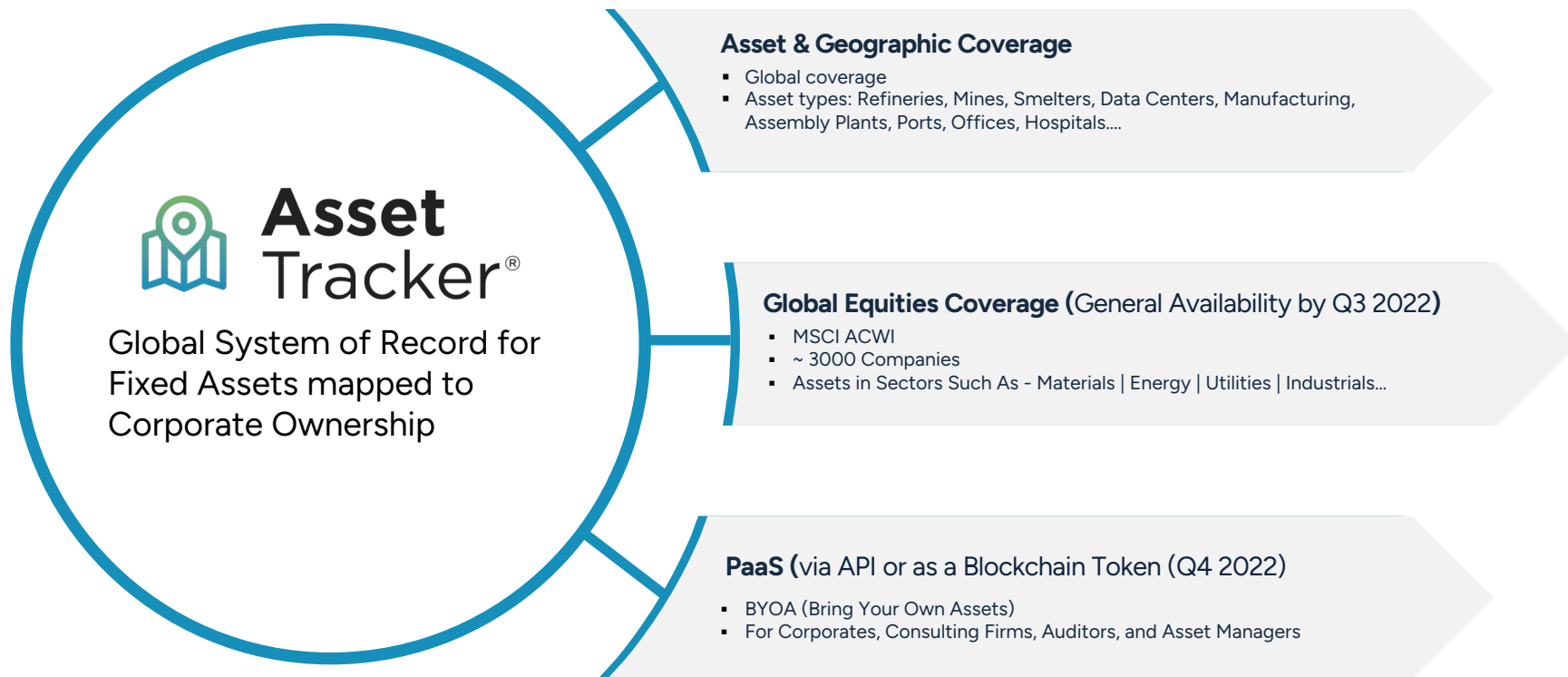


Data Integration, Quantitative Modeling and Asset-Level Analysis

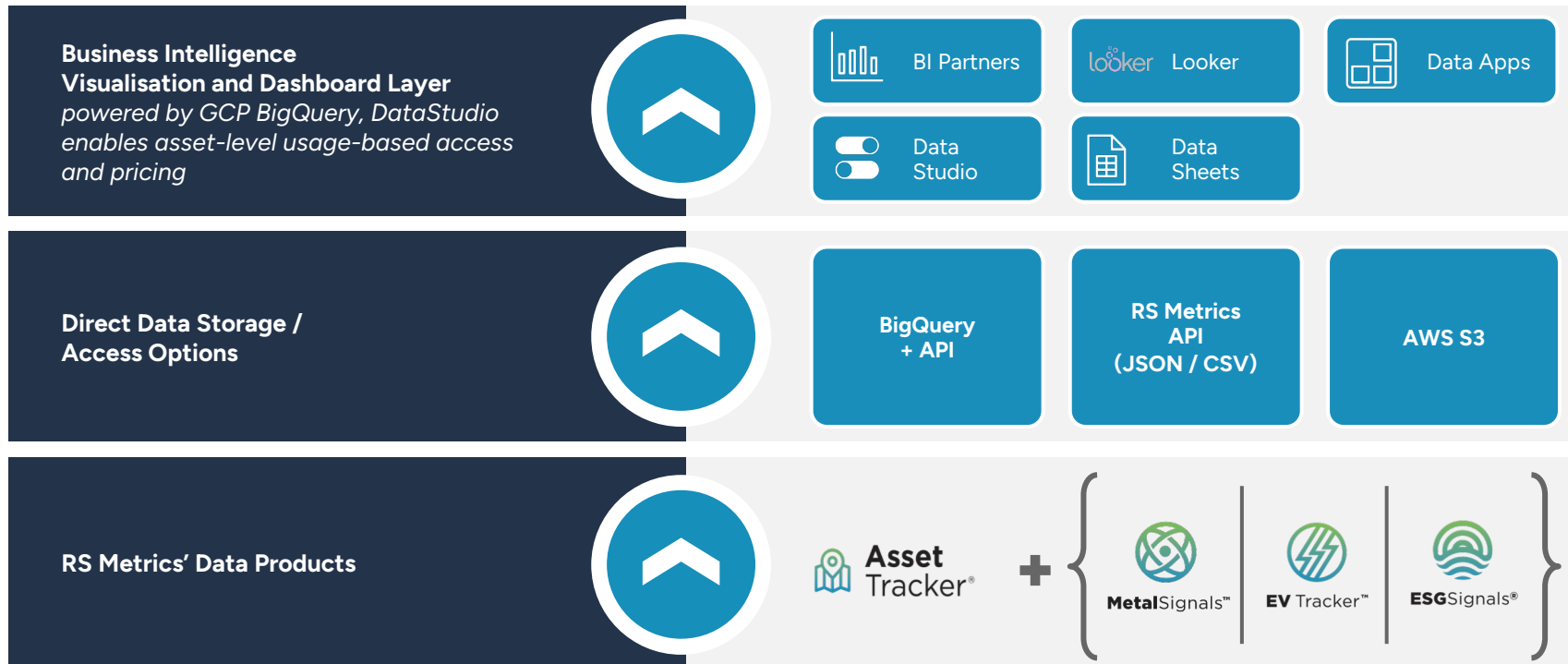
- Re-gridding and spatial downscaling +
- Emissions dispersion modeling based on plume & asset-type +
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Baselining and Benchmarking through Foundational
Asset-Level Environmental and Physical Risk Data and Metrics

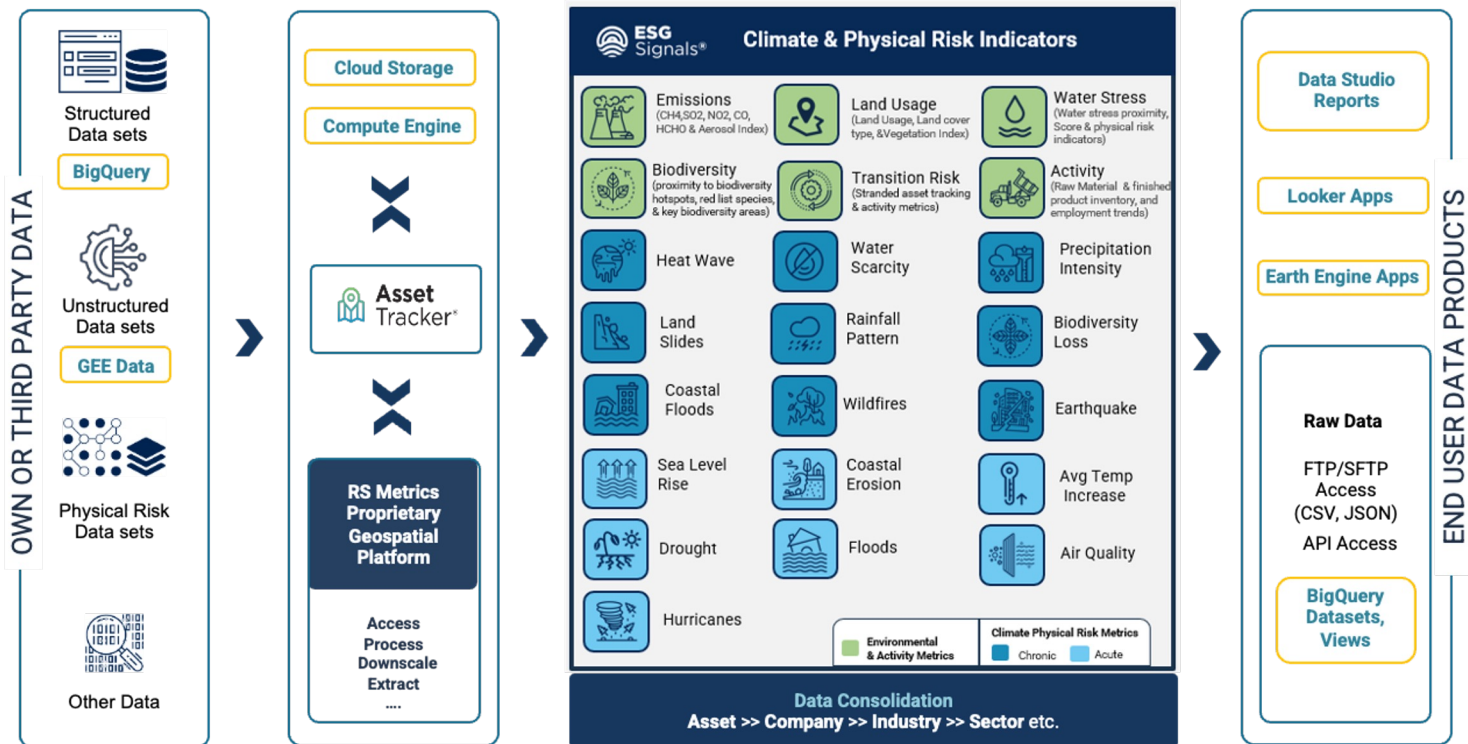
AssetTracker® and Asset-Level Capabilities



RS Metrics Geospatial ESG Architecture Elements



Geospatial Process and SAAS Apps (Google Cloud Powered)



An aerial night view of a city, likely New York City, showing a dense grid of streets and buildings illuminated by city lights. The lights create a warm, golden-brown glow against the dark background of the night sky and shadows. The layout is highly structured, with a clear pattern of streets and blocks.

Customer Segments & Use Cases

ESG Data as a Business Intelligence tool

Problem

Conducting ESG assessments is a logistical challenge for companies

- **Time** - measuring performance across a company's global operations is a complex and time consuming logistical undertaking; unclear lines of responsibility: ESG team, EHS, ops?
- **Cost** - self-assessment is an expensive process that requires additional FTEs with in demand skill sets, resulting in reliance on expensive consultants
- **Competitor Data** - to drive strategy, a detailed understanding of one's own ESG performance is insufficient; you need the same understanding of your peers and your industry
- **Digital Infrastructure** - to effectively measure performance requires digital infrastructure to extend ESG analytics to all areas of company operations. Data is typically siloed and hard to access



Solution

Acquiring ESG data via ESGSignals® can accelerate corporate ESG journeys

- **Faster** - obtaining asset level ESG performance data via a platform subscription provides ready access to ESG measurement
- **Cheaper** - companies can access the data their own data via subscription or pay per use
- **Accurate Benchmarking** - companies competitor data that is measured on the same basis, ensuring accurate strategic benchmarking
- **GCP BigQuery Powered Scalable Infrastructure** - companies can leverage the combined processing power and infrastructure build capabilities of GCP, Infosys and ESGSignals® to assess performance, monitor impacts in real time, and assess ESG risks in a comprehensive manner

“Our first TCFD report will also be published in 2023. We will continue to be transparent about our goals, progress and innovations and are committed to continue enhancing our climate and sustainability disclosures”

Overview of Operations and ESG

- **Operations**
 - 125 manufacturing facilities,
 - 27,000 suppliers
 - Major business lines:
 - Construction
 - Materials
 - Energy
 - Financing
- **ESG Focus areas**
 - Emissions
 - Water
 - Waste
 - Recycling
 - Safety



Significant ESG gaps

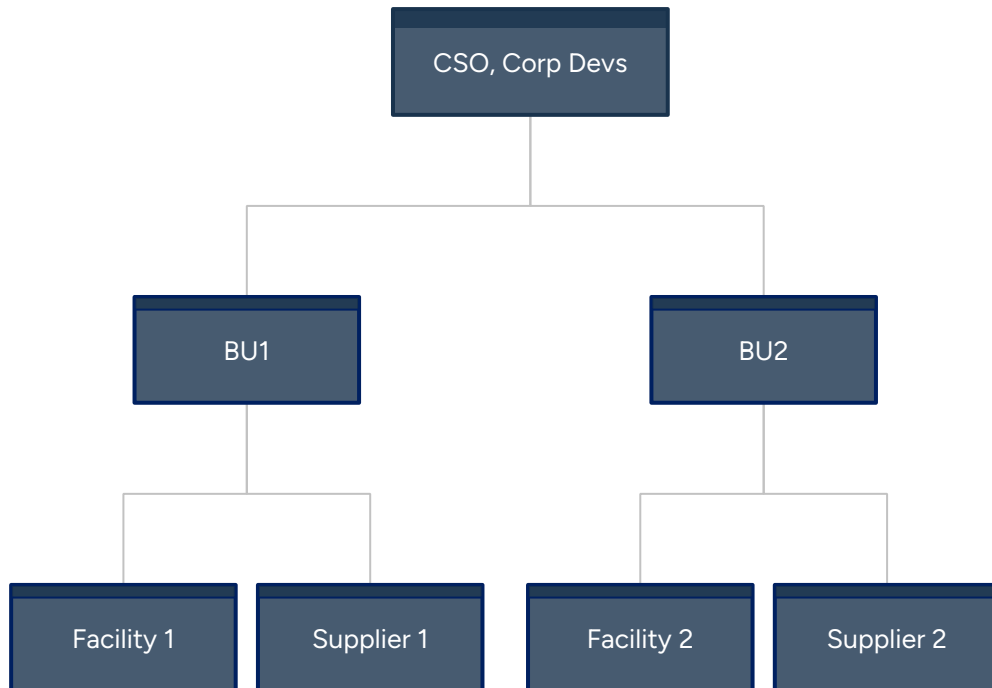
These gaps will need to be filled since Caterpillar plans a TCFD disclosure in 2023

- **Physical risk**
 - Facilities - Caterpillar needs to assess forward looking physical risk across its global footprint
 - Suppliers - Caterpillar provides no evidence that is has visibility into physical risks to key suppliers
 - Customers - given that Caterpillar’s customer base is in climate-exposed sectors, it needs to assess risk to its customers sales and credit operations
- **Biodiversity**
 - Given that Caterpillar has not yet conducted a physical risk assessment, it seems unlikely that Caterpillar has the ability to conduct a TNFD-aligned biodiversity assessment

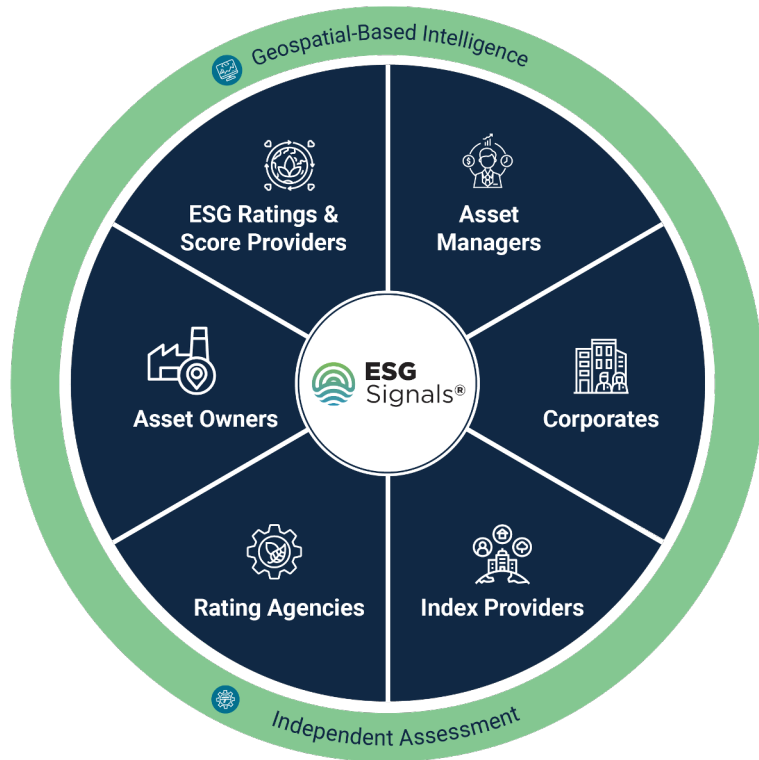
“Management’s sustainability governance includes our Chief Executive Officer (CEO) and all executive officers who report directly to the CEO, including the Chief Sustainability & Strategy Officer.”

Comprehensive ESG assessment is a complex and siloed process

- **Operations**
 - Companies typically do not have ready access to their own operations, much less those of suppliers and customers
- **Supply chain**
 - Visibility into the supply chain is typically limited to surveys conducted by third parties or procurement and heavily dependent on ESG expertise and responsiveness of suppliers
- **Assessment**
 - Heavily dependent on consultants and specialist data providers
 - Requires extensive coordination by ESG teams, who are typically understaffed and may not have the technical expertise
 - Results typically not easily available to operations, sales, procurement



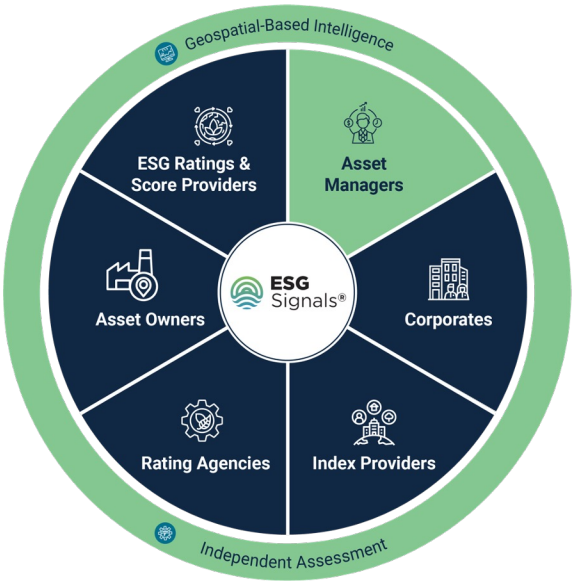
Representative ESG solutions across customer segments



Baselining and Benchmarking through Foundational Asset-Level Environmental and Physical Risk Data and Metrics

- Integration for ESG ratings & scores (**Ratings Agencies**)
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- Enhanced solution for portfolio construction & analytics (**Asset Management**)

ESGSignals® for Asset Managers



- **Impact Investments:** Receive objective information on the **past, present, and future exposure to environmental risks** for areas such as water stress, land use/land cover, biodiversity, etc.
- **Regulatory Reporting:** Use **independent and objective ESG metrics** for mandatory and voluntary sustainability disclosures
 - **EU SFDR** (Sustainable Finance Disclosure Regulation)
 - **SEC** Climate Disclosures
 - **CDP, GRI, TCFD, and TNFD (ESGSignals Biodiversity)**
- **Baseline | Benchmark | Monitor** Portfolio Companies

ESG Integration

- Emissions
- Land usage/biodiversity
- Water stress exposure and water intensity

Sustainability Themed Investing

- Clean energy deployment and sustainable agriculture

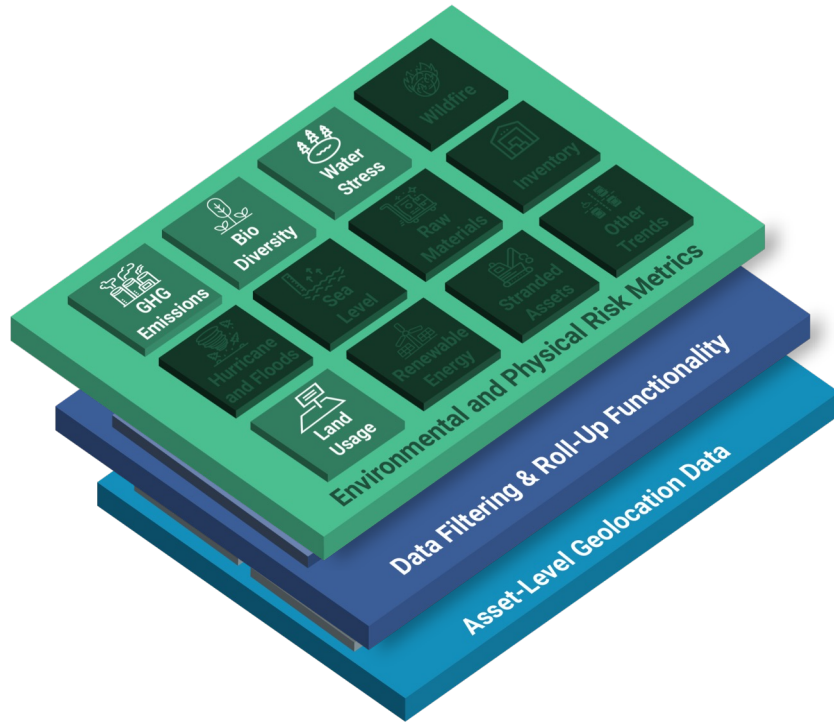
Best-In-Class Screening

- Company head-to-head Comparison
- RIO vs. BHP vs. AA

Exclusionary Screening

- Sector-level benchmarking to identify leaders and laggards

Product Segmentation Use Case: Asset Management



**Investing Themes
Considered:
Best in Class ESG Integration**

Objective:

The primary objective is financial performance. The secondary objective is to integrate ESG metrics with financial fundamentals to mitigate risk.

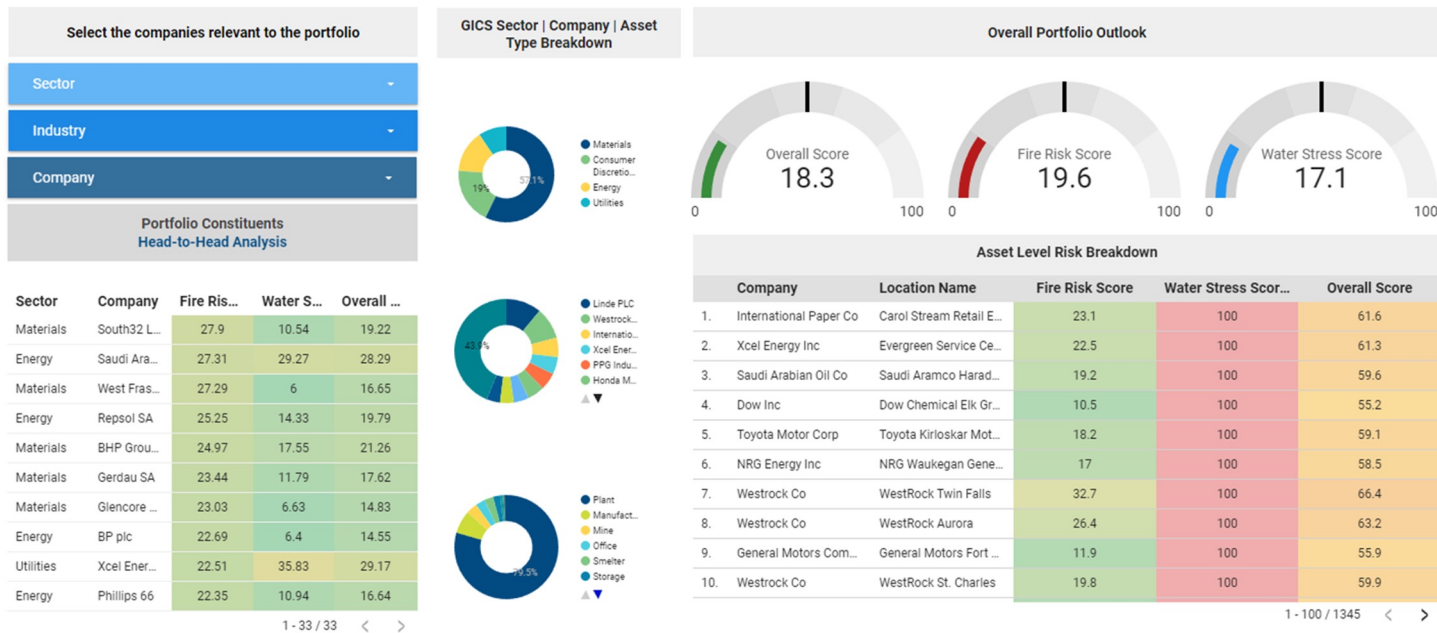
Sector:

Materials / Metals & Mining Companies operating in the materials sector are water-intensive and operate in areas close to biodiversity hotspots.

Configurable Dashboards

Data to Dashboards to Distributed Apps

Asset-Level Water Stress & Fire Risk Exposure



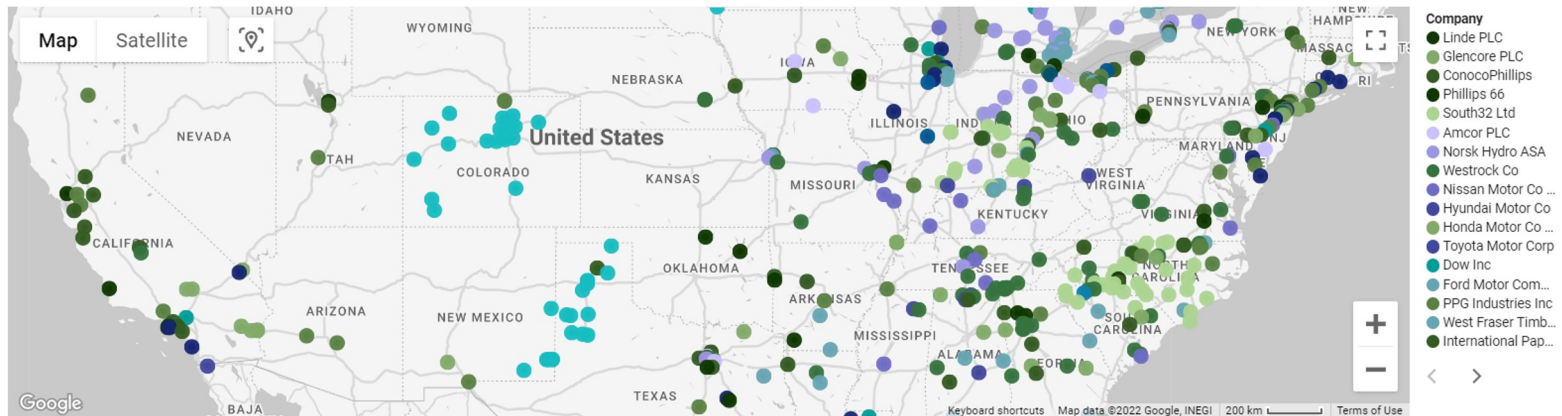
Benchmarking and Baselining

Understanding Sectoral vs. Geographical trends

Sectoral Benchmark

Materials Sector	Energy Sector	Utilities Sector	Consumer Discretionary Sector
Fire Risk Score 19.19	Fire Risk Score 24.49	Fire Risk Score 20.2	Fire Risk Score 18.18
Water Stress Score 14.2	Water Stress Score 20.3	Water Stress Score 22.55	Water Stress Score 18.12
Overall Score 16.69	Overall Score 22.4	Overall Score 21.37	Overall Score 18.15

Geographical Breakdown of the Assets

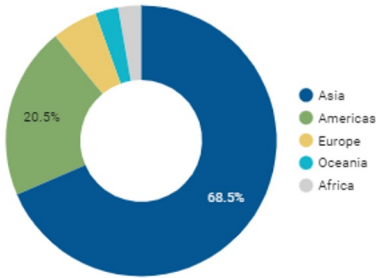


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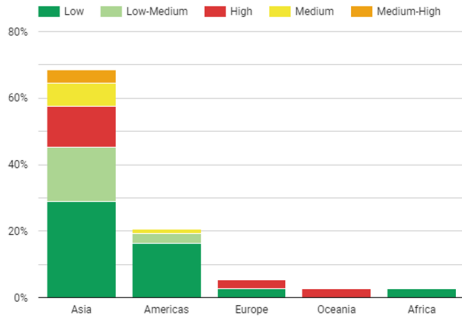
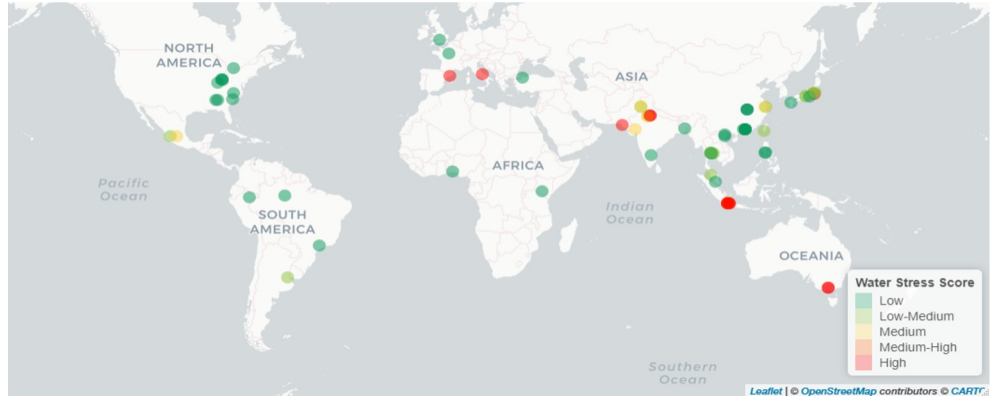
Private + Confidential

Asset-Level Insights: Modeling Forward-Looking Scenarios (Water Stress & Heatwave Risk Distribution)

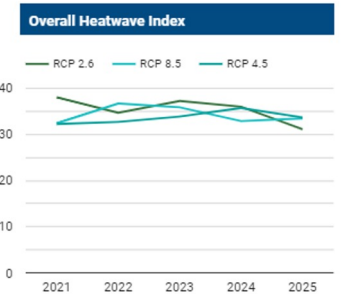
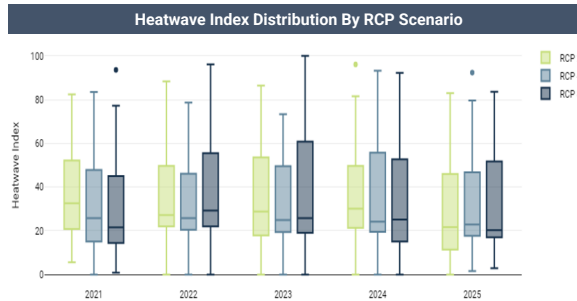
Company	Sector	Industry
Honda Motor Co Ltd	Consumer Discretionary	Automobiles



Asset Distribution by Continent

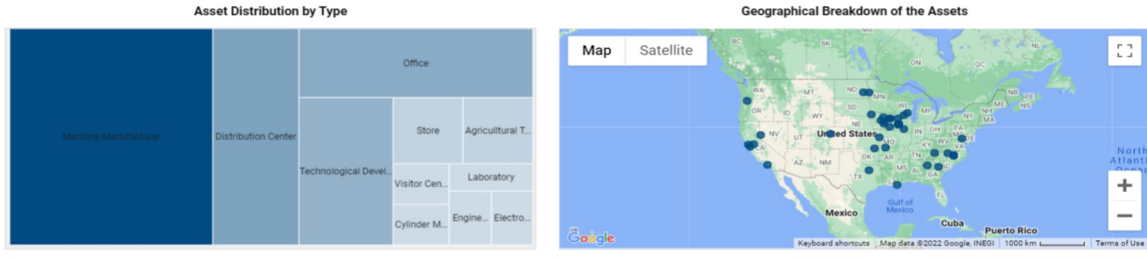


Water Stress Risk Distribution by Continent



Asset-Level Insights: Modeling Forward-Looking Scenarios (Water Stress & Heatwave Risk Distribution)

John Deere Overview - US Locations



Overall Outlook



Asset Level Breakdown

KBA: Key Biodiversity Areas, WPA: World Protected Areas

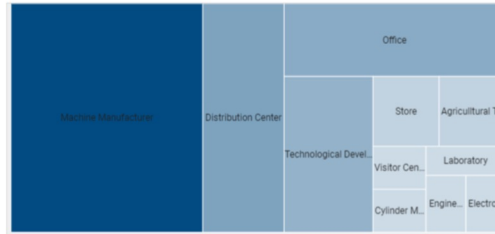
Asset	Water Stress Score *	Fire Risk Score	KBA Overlap (Sqkm Within 10 km)	WPA Overlap (Sqkm Within 10 km)
1. Blue River Technology Sunnyvale Center	86.2	0	0.0	44.3
2. John Deere ISG Torrance Center	82.8	0.1	47.8	1.5
3. John Deere Labs San Francisco	79.2	0	0.0	35.1
4. John Deere Capital Corporation Reno Office	49.7	0	8.3	1.2
5. John Deere Lathrop Regional Distribution Cen...	48.1	0.1	0.0	0.3
6. John Deere Seeding Group Valley Plant	41	0	0.0	4.3
7. John Deere Waterloo Engine Plant	38.5	0	0.0	2.9
8. John Deere Waterloo Product Engineering Ce...	37.9	0	0.0	2.9

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John Deere Dashboard - Overview

John Deere Overview - US Locations

Asset Distribution by Type



Geographical Breakdown of the Assets



Overall Outlook



Asset Level Breakdown

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John Deere Dashboard - Overview



Single Asset Overview

Physical Risk Assessment

Select an Asset



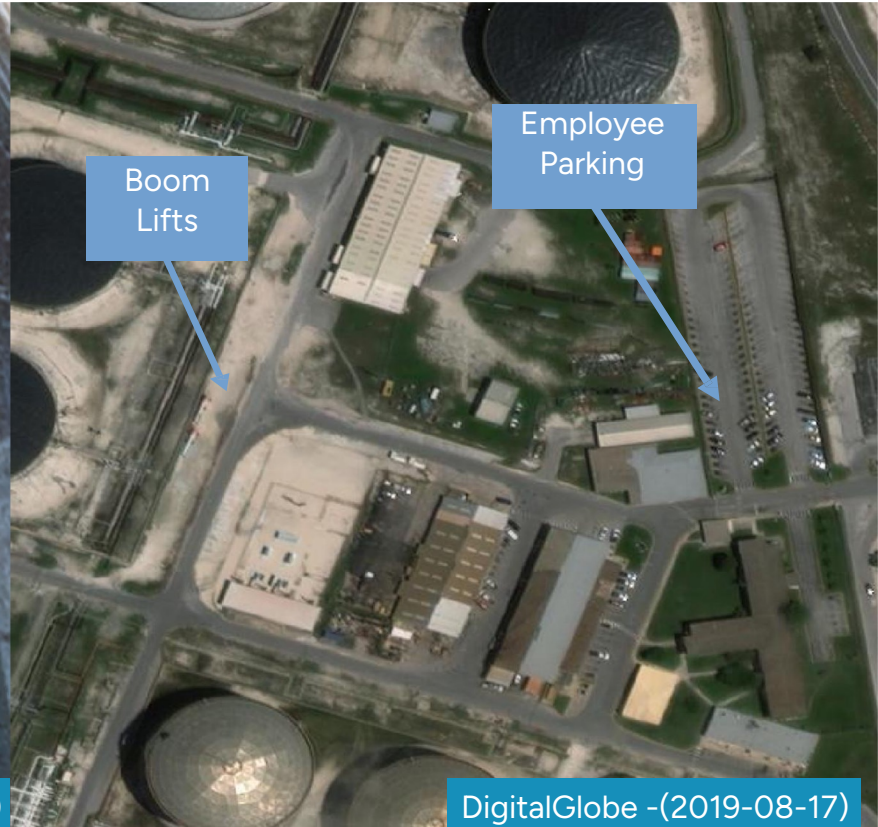
Disclaimer: For illustrative purposes only and may not fully represent up-to-date or correct information about the said company.



Buckeye Bahamas Hub Pre Hurricane 2019-08-17



Employee Parking (2019-09-05)



Product Segmentation Use Case: Impact Investment

Issues with Current Water Stress Metrics:

- Lack of data availability on the geographic location/distribution of companies.
- Quantitative water data is very scarce, poorly reported, and not externally verified on all levels
- Most datasets do not consider water risks at the basin level but only at the country level
- Publicly available datasets are not updated frequently, leading to asset managers using historical datasets for capital allocation and engagement.
- The majority of the corporates are not currently reporting water stress data as part of their voluntary disclosures

ESGSignals® Solution:

- Global water stress screener combines the asset's geolocation with the most updated basin and sub-basin level water stress indicators, along with the forecast for up to 9 months for engagement and portfolio optimization.
- Historical view of water stress indicators since the beginning of the engagement and monitor improvements in relation to basin-level water stress

Investing Themes Considered:

- Reducing water stress, water-neutral portfolio
- Engagement as part of active ownership

Companies:

Sasol - Integrated energy and chemical company based in Sandton, South Africa

Deliverables:



Raw data



Report



Web App

Product Segmentation Use Case: Private Equity Due Diligence

Current Operations and Issues:

- The PE firm develops its strategic approach to ESG related matters both internally and in partnership with its portfolio companies to adapt to the evolving ESG landscape
- Screening of ESG related risks related to environmental impact:
 - methane leaks and flaring
 - high carbon intensity relative to peers and industry average
 - higher land usage intensity and proximity to biodiversity hotspots
 - operations in high water stress basins
- Environmental due diligence and ongoing monitoring of environmental and climate physical risks metrics at portfolio companies
- Current process for measuring environmental impacts is based on industry estimates, company level reporting and is only available on an annual basis.

ESGSignals Solution:

- Continuous monitoring and measurement of methane emissions reported in tonnes/hr or Co2e from the oil & gas assets owned by the portfolio companies.
- Baseline of methane emissions starting 2018 and benchmarking against a peer group selected by the PE firm.
- Updated monthly water stress score and forecast combined with industry and asset-level water intensity metrics.

Themes Considered:

Tracking, quantifying, and monitoring of methane (CH₄) emissions, land usage, water stress, and physical risks.

Companies:

Largest PE firm using alternative datasets for environmental due diligence on oil & gas assets in the Bakken region.

Deliverables:



Raw data



Report



Web App

Product Segmentation Use Case: Accounting Firms

Current Operations and Issues:

- Current operations consist of coking coal, copper, and zinc mining operations which result in fugitive emissions
- Fugitive emissions are losses, leaks, and other releases of gases such as methane and carbon dioxide (CO₂) to the atmosphere that are associated with industries producing energy and materials.
- Fugitive mine emissions are a significant component of greenhouse gas emissions
- accounting for approximately 8% of total global anthropogenic methane emissions.
- Methane is a highly explosive gas and a serious safety concern in mining since methane is explosive at a concentration between 5 -15%.

ESGSignals Solution:

- Multiple satellite data sources are used to track the spectral fingerprint of various types of GHG emissions and air pollutants.
- Weather data is integrated to adjust for wind direction and cloud cover. Emission dispersion Models are selected to address the differences in types of emissions.
- Integrated Mass Enhancement (IME) model is selected for tracking the concentration of methane emissions and also for quantification of methane emissions into tons/hour

Themes Considered:

Tracking, quantifying, and monitoring of methane (CH₄) emissions.

Companies:

Who own one of the largest copper, zinc and coking coal mining operations in North America

Deliverables:



Raw data



Report



Web App

Environmental Risk Exposure Use Case - Water Stress

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Investing Themes Considered:

Reducing water stress, water-neutral portfolio

Engagement as part of active ownership

Companies:

Sasol - Integrated energy and chemical company based in Sandton, South Africa

Deliverables:



Raw data



Report



Web App

Baselining and Benchmarking Use Case - Emissions

Current Operations and Issues:

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Themes Considered:

Tracking, quantifying, and monitoring of methane (CH₄) emissions.

Companies:

Who own one of the largest copper, zinc and coking coal mining operations in North America

Deliverables:



Raw data



Report



Web App

Corporates Baselineing and Benchmarking Use Case

Current Operations and Issues:

- Current operations consist of coking coal, copper, and zinc mining operations which result in fugitive emissions
- Fugitive emissions are losses, leaks, and other releases of gases such as methane and carbon dioxide (CO₂) to the atmosphere that are associated with industries producing energy and materials.
- Fugitive mine emissions are a significant component of greenhouse gas emissions
- accounting for approximately 8% of total global anthropogenic methane emissions.
- Methane is a highly explosive gas and a serious safety concern in mining since methane is explosive at a concentration between 5 -15%.

ESGSignals Solution:

- Multiple satellite data sources are used to track the spectral fingerprint of various types of GHG emissions and air pollutants.
- Weather data is integrated to adjust for wind direction and cloud cover. Emission dispersion Models are selected to address the differences in types of emissions.
- Integrated Mass Enhancement (IME) model is selected for tracking the concentration of methane emissions and also for quantification of methane emissions into tonnes/hour

Themes Considered:

Tracking, quantifying, and monitoring methane (CH₄) emissions.

Companies:

Who owns one of the largest copper, zinc, and coking coal mining operations in North America

Deliverables:



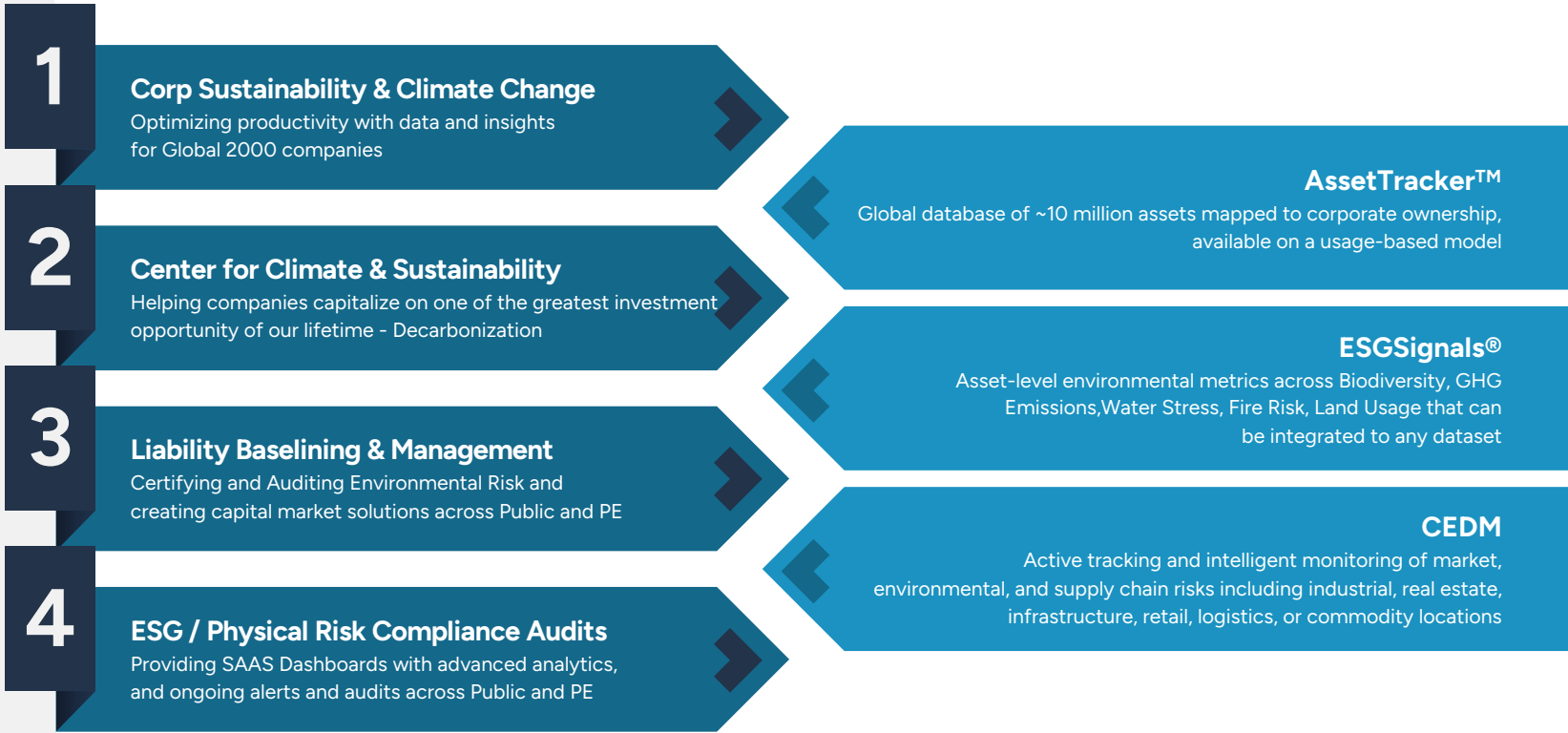
Raw data



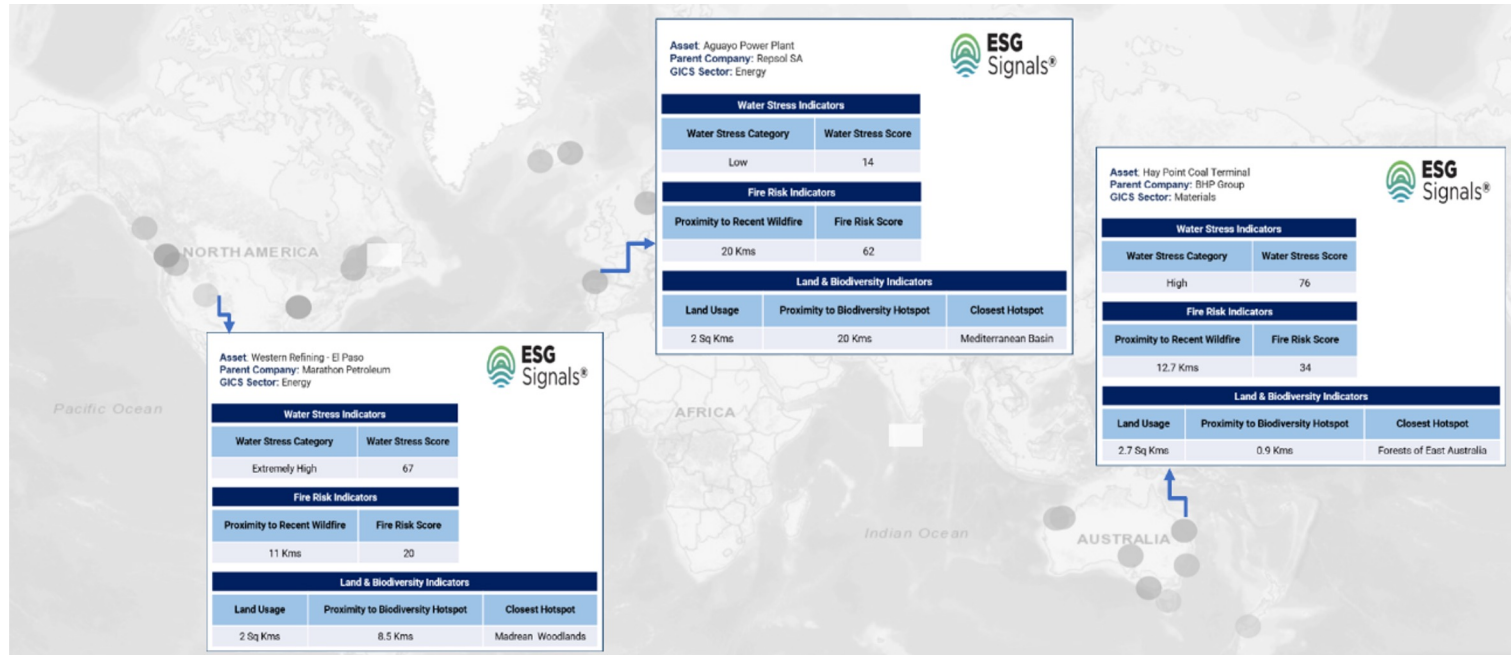
Report



Web App



Asset-Level Insights into Transition and Climate Physical Risk

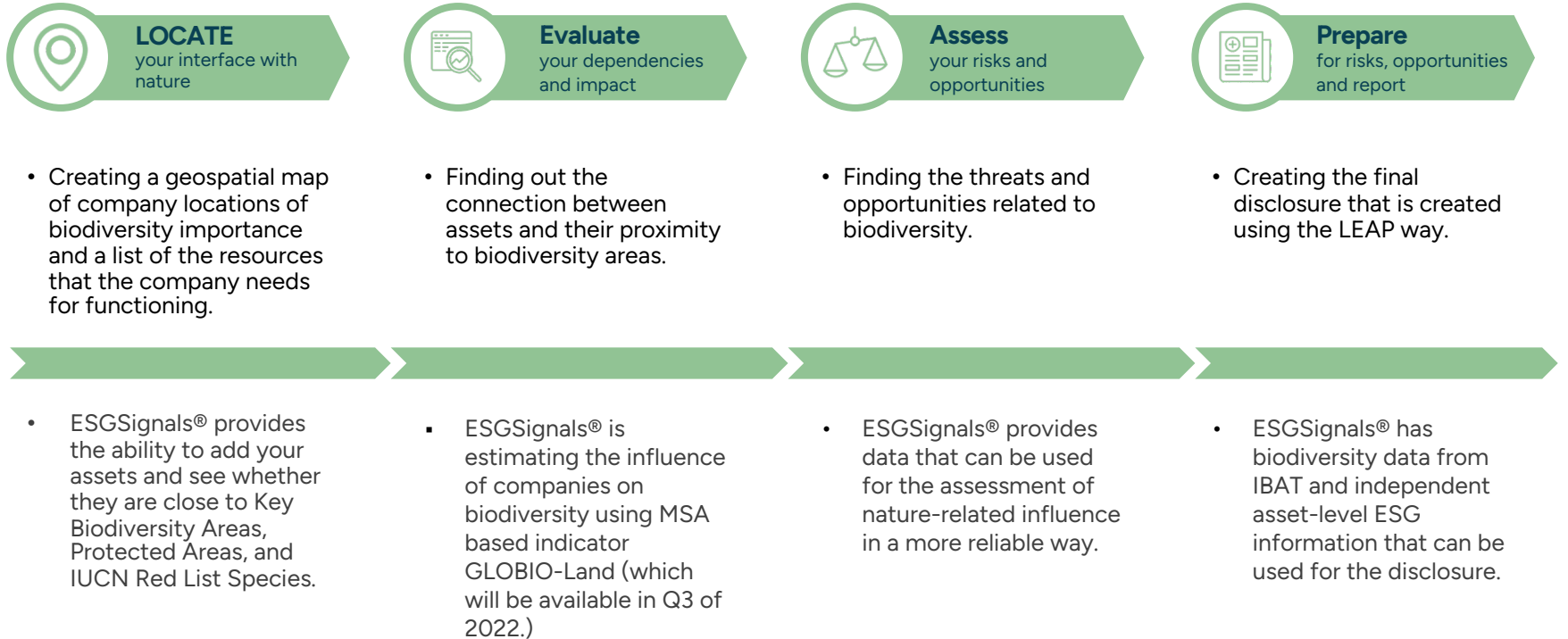


ESGSignals® comprehensive data platform allows investors to understand the risk that is not visible under current company disclosures.



ESGSignals® Biodiversity

Biodiversity data that addresses TNFD requirements



Collaboration with IBAT



**Integrated Biodiversity
Assessment Tool**

Three main biodiversity databases

IUCN Red List Species

information about the extinction chances for plant, animal, and fungus species

It contains:

- More than 142,000 species
- Information about range, population size, habitat, conservation actions, etc.
- Valuable species information that can help to protect them

Source: IUCN Red List

Protected Areas

information about areas that are located on land and sea

It contains:

- More than 269,000 Protected Areas
- Information that is used for reporting the performance of companies towards environmental preservation goals

Source: The World Database on Protected Areas

Key Biodiversity Areas

areas of importance that companies should know about and preserve

It contains:

- More than 16,000 Key Biodiversity Areas
- Information about the wildlife and biodiversity in those areas

Source: Key Biodiversity Areas



Competitor Analysis

AssetTracker® provides comprehensive coverage across all major sectors

Generalist Data Providers

Limited Coverage. Focused primarily on Retail and Financial Sectors and provide Office and Store level information



dun & bradstreet



RYSTAD ENERGY

S&P Global
Platts



SAFE GRAPH

precisely



Global geospatial asset level database for world's most critical and environmentally relevant assets that can be shared across all stakeholders

Attributes we cover:

- Corporate Ownership
- Sector
- Asset Name and Asset Type
- Address and Country
- Latitude and Longitude etc.

Sectors we cover



Energy



Industrials



Materials



Utilities



And More...

Adherence to major regulatory frameworks in climate

TCFD

How RS Metrics addresses it:

- Physical risk - a comprehensive set of metrics covering physical risk under different climate scenarios
- Transition risk - measuring emissions and pollution associated with assets

TNFD

How RS Metrics addresses it:

- Biodiversity - a comprehensive set of metrics covering nature-based services and impact over time on surrounding environment (such as Protected Areas, IUCN Red List Species, Key Biodiversity Areas)

On-Demand Cloud-Based Intelligence

Readiness

Efficient and better on-demand intelligence with more focused ARD (analysis ready data) composed with prior knowledge on assets via the AssetTracker® is available easily via GCP interface

Enhanced Alerts

Enhanced on demand asset monitoring with historical alerts, trends based on AssetTracker® and other related BlackSky and RS Metrics products

Differentiation - Scope and Coverage

Scope

A comprehensive set of physical, transition and biodiversity risks in one place is at the foundation of RS Metrics' holistic approach to data as well as additional environmental risk metrics including earthquakes, tornadoes, etc.

Coverage

Granular coverage is available at an asset and company level leveraging an independent asset database built with over 12 years geospatial expertise



Media coverage

Global ESG Thought Leadership

1st Call for Leading Business Publications



BARRON'S

CRAIN'S
CHICAGO BUSINESS.



WSJ

Seeking Alpha^α

BUSINESS
INSIDER



Bloomberg BusinessWeek

The Washington Post



The New York Times

SmartMoney

Institutional Investor

CNNMoney

Les Echos

The Economist

CTA Intelligence

TC TechCrunch

NEW YORK POST

MetalBulletin

FT FINANCIAL
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ASSET-LEVEL ESG

Indexes – Metrics – Insights

Satellite Analysis – AI – Machine Learning

Objective – Real Time - Verified