



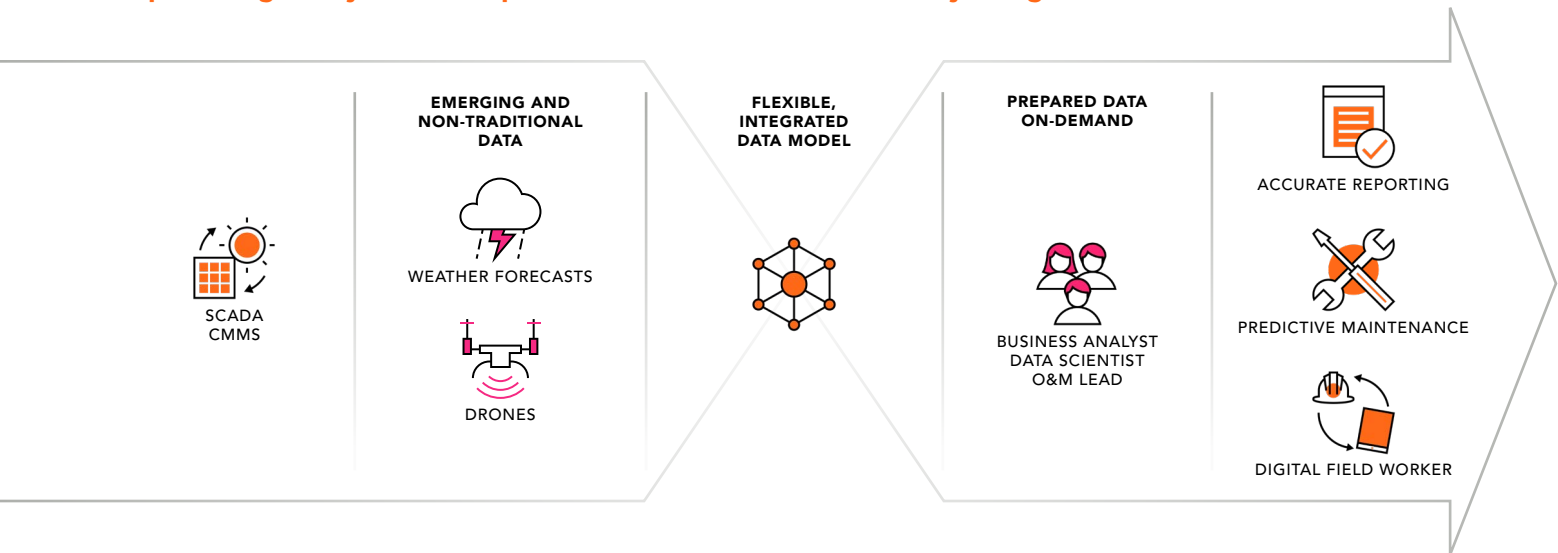
# INCREASE SOLAR PRODUCTION AND EFFICIENCY WITH COGNITE DATA FUSION

**Improve Operational Visibility • Reduce Operating Costs • Simplify Reporting and Workflows**

As solar generation becomes a larger part of the energy mix, operators must do more with fewer resources in order to maintain production efficiency and protect margins that are already thin. Demand for greater operational visibility and accurate reporting across sites and geographies require an evolution in how operational and business data is gathered and

used centrally to make decisions that impact the ROI of each solar installation and the portfolio as a whole. But data-driven insights are still difficult to institutionalize due to fundamental challenges with data access, quality, and integration into key workflows that compound and become complex at scale.

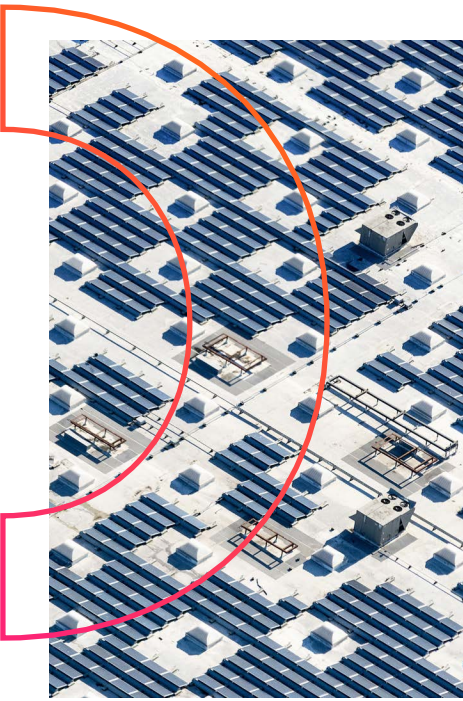
## Empowering Analytics and Operational Workflows With a Fully Integrated Data Model



A fully integrated data model — where relevant data from SCADA, CMMS, and other systems is aggregated and contextualized fleetwide — offers a sustainable solution for data to be mobilized, prepared, and used on demand by a growing pool of data consumers. This methodology is key for operators to understand and optimize expanding operations with the same resource pool.

Access and context with less data processing overhead enables:

- On-demand performance analysis, maintenance decisions, and RCA
- Digitally empowered field work that reduces cost of inspection and repair
- Accurate, low-effort reporting on KPIs to stakeholders and investors



## Unlock Your Operational Data and Empower Your Experts to Maximize ROI from Solar

**Cognite Data Fusion** is the leading industrial data foundation that makes traditionally siloed solar data available, usable, and contextualized so that users around the organization can improve decision-making and automate complex parts of the reporting process. CDF:

- Aggregates and contextualizes big data from all available IT and OT data sources
- Empowers data scientists, engineering, domain experts, and analyst workflows
- Enables operationalization and scaling of digital applications with open integrations (APIs/SDKs)
- Ensures data quality and lineage throughout the development pipeline and into the end application

### Cognite Data Fusion Delivers Data and Operational Insights to All Data Consumers

#### SUBJECT MATTER EXPERTS



Condition-Based Monitoring and Alerting Application

#### BUSINESS ANALYSTS



Asset Data Insight Dashboard

#### DATA SCIENTISTS

```

def define_substations():
    substations_list = [{"name1": "name1", "name2": "name2"}]
    # Define the power area by enclosing 2 levels around the defined substations
    area = area.power_area(substations_list).expand_area(level=2)
    # Draw power area on a map
    area.draw_with_map()

# Retrieve the interface (i.e. list of 3C line segments) to adjacent grid
interface = area.interface(base_voltage_range(330, 390))

# Crosslocate power flow to the power area at a given date-time
area.draw_flow(date=datetime(2020, 5, 17, 12), position='spring')
    
```

Python Power Software Development Kit

### Case Study:

A leading independent solar operator with more than 1GW of capacity is using Cognite Data Fusion to empower line-of-business experts and data scientists to work together to improve fleetwide operations and maintenance. CDF helps experts reduce costly

data analysis overhead while automating complicated aspects of reporting so that the company can operate profitably as it continues to grow its solar installation capacity.