



**AVEVAWORLD**  
PARIS



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# Cloud-Scale AI with CONNECT: From Point-and-Click Simplicity to Databricks Integration

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AVEVA

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# Agenda

AVEVA World 2024

## CONNECT

- Overview of the platform

## No Code/Low Code AI:

- Advanced Analytics





## Unified Analytics Platform Integration

- Enhancing analytics with Databricks

## Success Stories

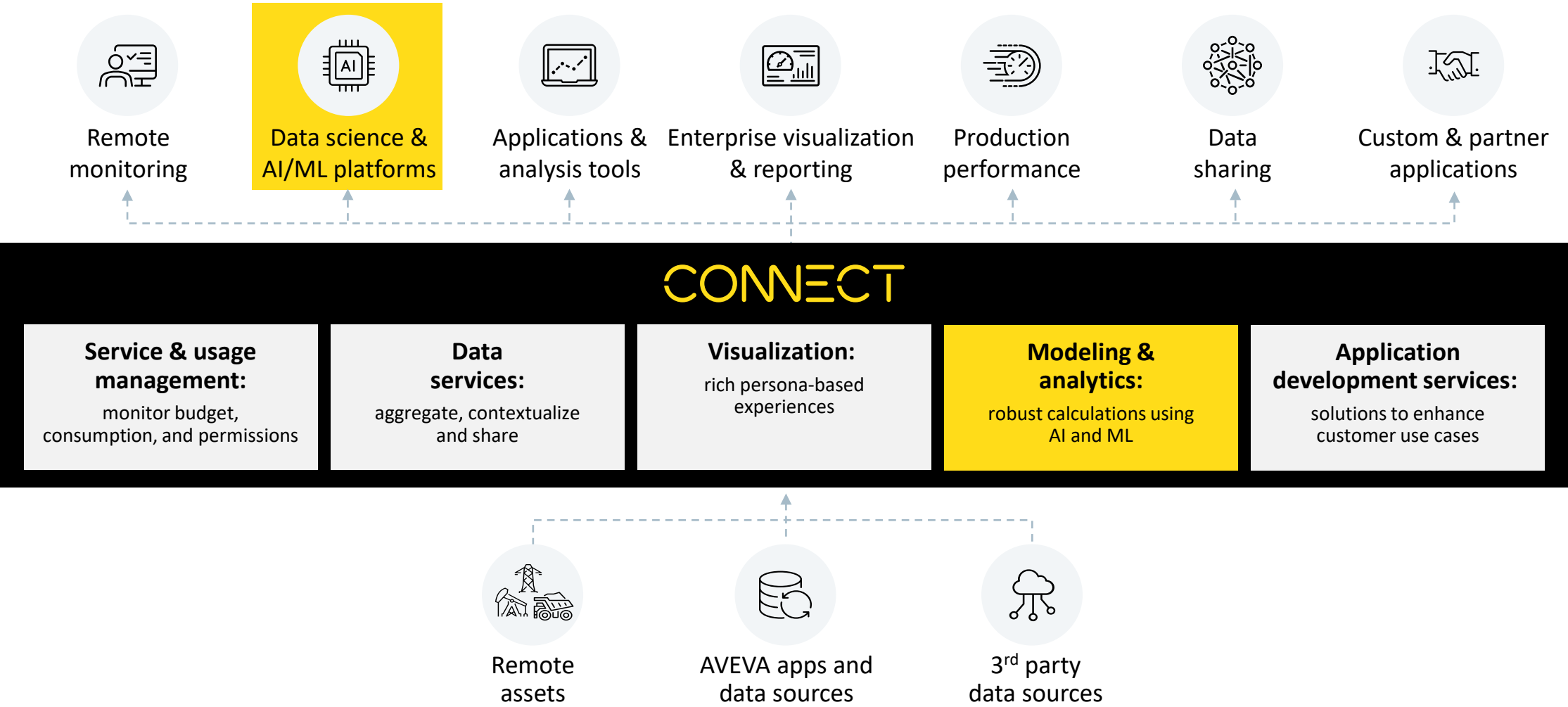


# Operating companies are innovating to face challenges

	Extract more value from existing assets	Optimize capital investments
 <b>Productivity</b> <i>High performance</i>	<ul style="list-style-type: none"><li>Improve production execution and quality accuracy</li><li>Optimize value chain complying with market demands and ensuring margins</li></ul>	<ul style="list-style-type: none"><li>Innovative processes to improve competitiveness</li><li>Production of critical metals to enable energy transition</li></ul>
 <b>Energy</b> <i>Reach 2050 targets</i>	<ul style="list-style-type: none"><li>Better monitor and reduce energy and fuel consumption</li><li>Ensure energy supply while enabling transition from conventional to clean energy sources</li></ul>	<ul style="list-style-type: none"><li>Increase renewable power capacity</li><li>Modernize plants and improve green energy mix</li></ul>
 <b>Circularity</b> <i>Close the loop</i>	<ul style="list-style-type: none"><li>Improve supply of raw materials, reduce waste and do better use of natural resources</li><li>Collaboration across the ecosystem, close the circular loop</li></ul>	<ul style="list-style-type: none"><li>Scaling of green products</li><li>New processes for product recycling</li></ul>
 <b>Workforce</b> <i>Digitally connected</i>	<ul style="list-style-type: none"><li>Attract and retain the new generation of workforce enabling a digital working environment</li></ul>	<ul style="list-style-type: none"><li>Train workforce and build competency</li></ul>

# CONNECT, our industrial intelligence platform

Open and neutral, providing rich data insights for your unified industrial ecosystem



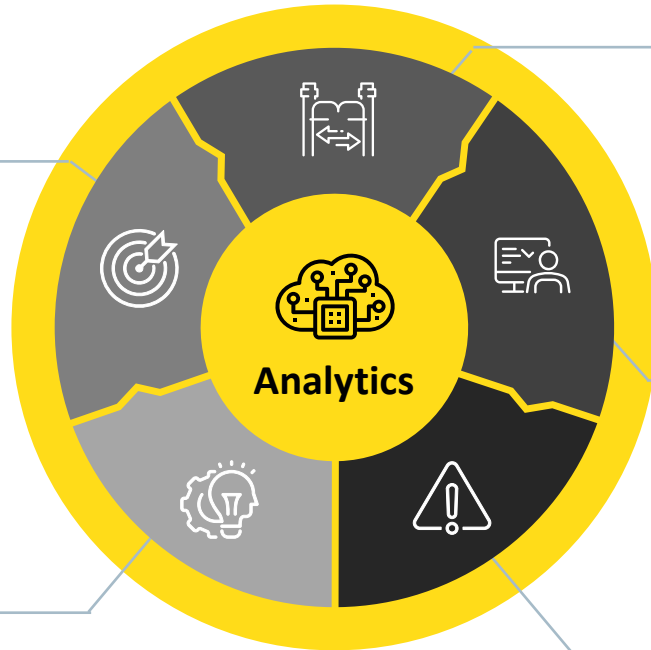
# AVEVA Advanced Analytics

## ② Solve

Consolidate learnings and apply solutions that mitigate problems and improve performance

## ① Learn

Automate investigations and understanding of performance drivers with ML



## ③ Model

Combine data from multiple sources to mirror physical assets & processes on digital twins

## ④ Monitor

Apply algorithms & logic to continuously assess performance

## ⑤ Alert

Give early warnings of performance issues with improvement suggestions

## Combine existing data with AI for faster and smarter decisions

- Utilize AI and ML to improve process efficiency
- Understand production outcomes and get recommended corrective actions
- Automate AI model execution and retraining
- Easily apply AI models across many similar processes or assets at scale

# AI-driven optimization for industrial excellence

## Process Optimization

### Perfect Energy

Operate at the sweet spot of production and energy consumption

### Perfect Production

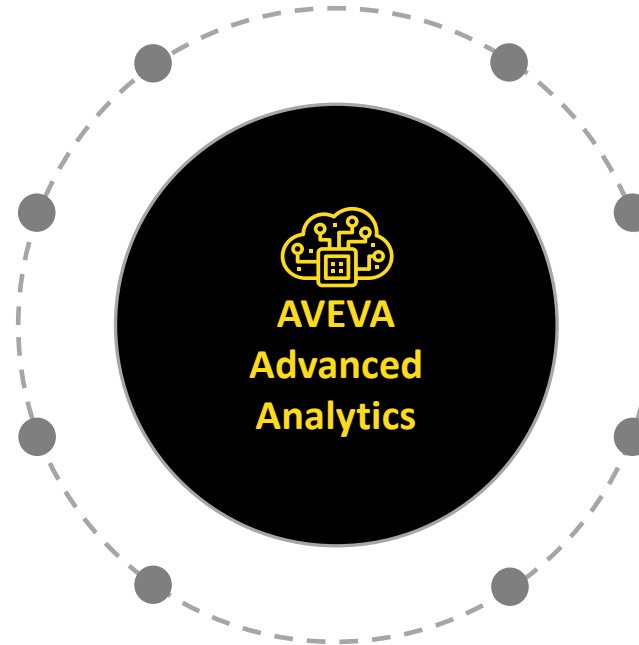
Automate investigations and understanding of performance drivers with ML

### Perfect Quality

Reduce variability, eliminate losses, and improve operational flexibility

### Perfect Batch

Continuously evaluate batch performance and automate actions



## Asset Optimization

### Uptime Optimization

Real-time alerts and recommendations to avoid downtime events

### Throughput Optimization

Maximize production output on a per-product and per-asset basis

### Asset Reliability

Predict and prevent common failure modes at scale

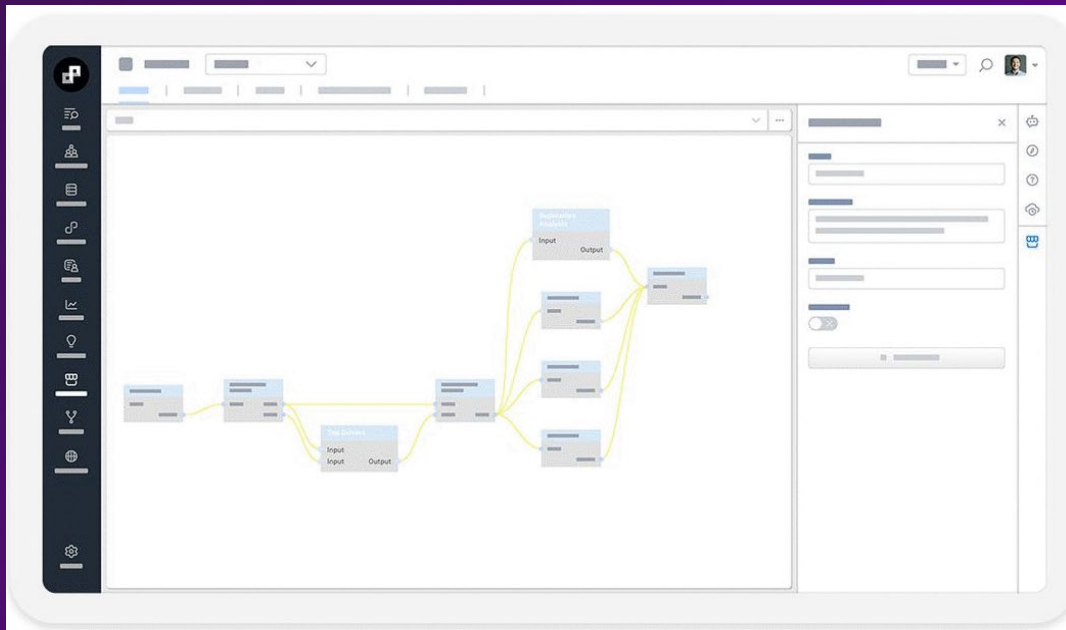
### Asset Life

Maximize serviceable life and proactively manage failure risks at scale

# Model factory

## Templates to solve fundamental manufacturing problems

- Use cases templated model selection
- Automate Machine Learning (ML) model creation
- Easy-guided twin configuration steps - product segmentation, operational state, rate
- Automatically evaluates and selects the best performing algorithm
- Visualized model creation process



A digital assembly line for automating machine learning (ML) model creation and deployment



# Model Behavior Analysis

Analyze the key information about your asset and process models

- Out-of-the-box visualizations and graphs
- No-code workflow tools

“Predicted Quality Value”

“Top Model Drivers”

“Ideal Conditions Visual”

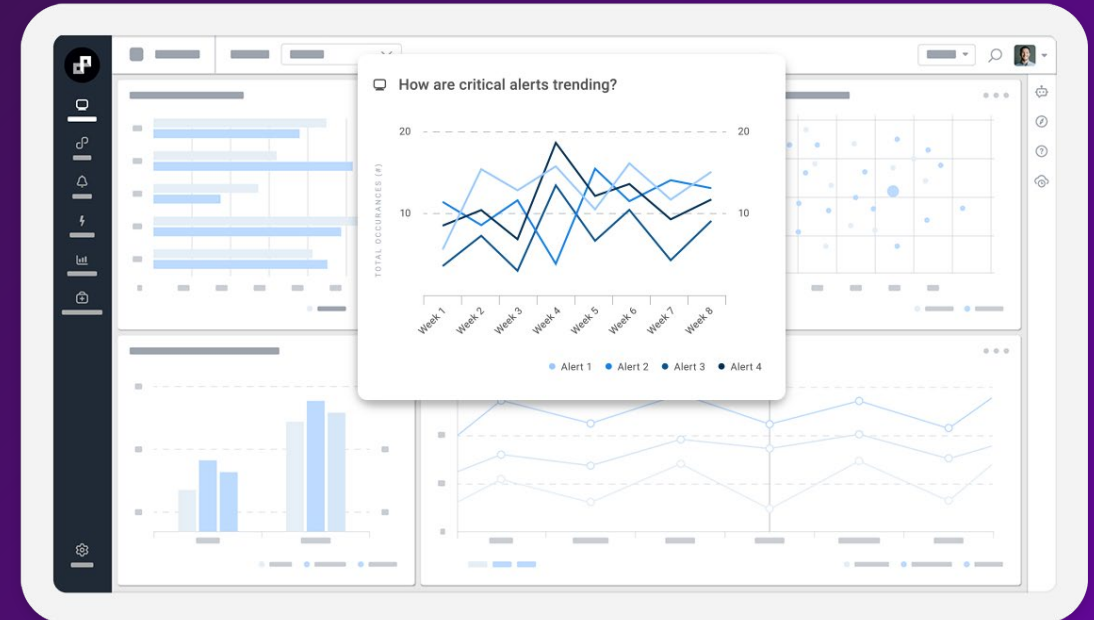
“Anomaly Status”

“Anomaly Timeline”

“Recommendations”



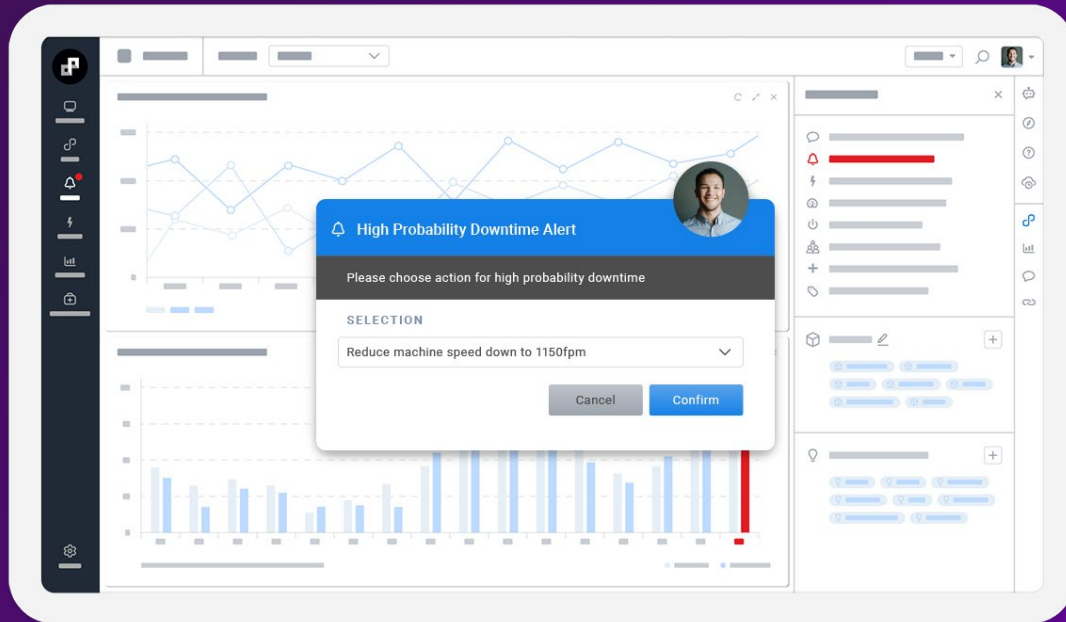
Powerful analysis tools to distil complex data into simple, easily readable views



# Intelligent alerts & actions

## Notify when condition is abnormal

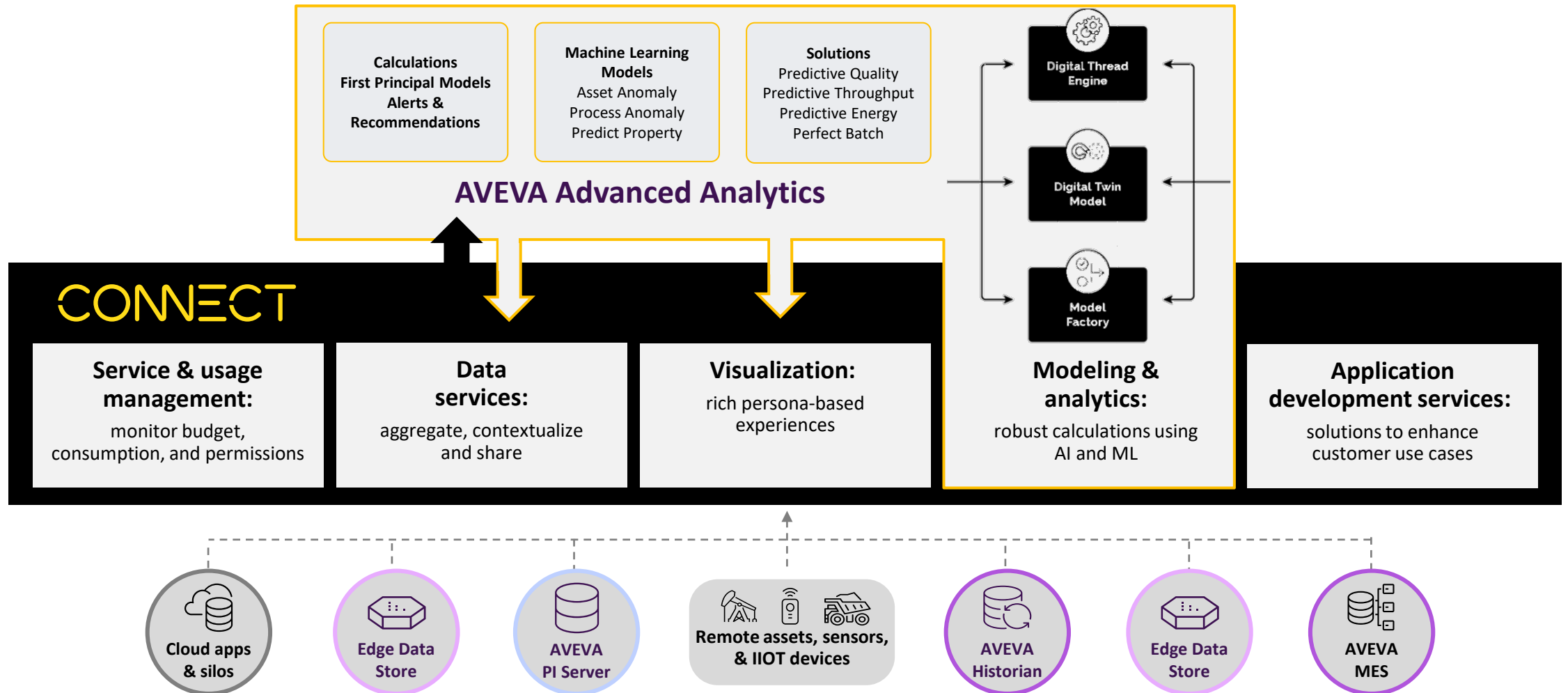
- Create intelligent alerts
- Create logical workflows
- Automate actions
- Action awareness views



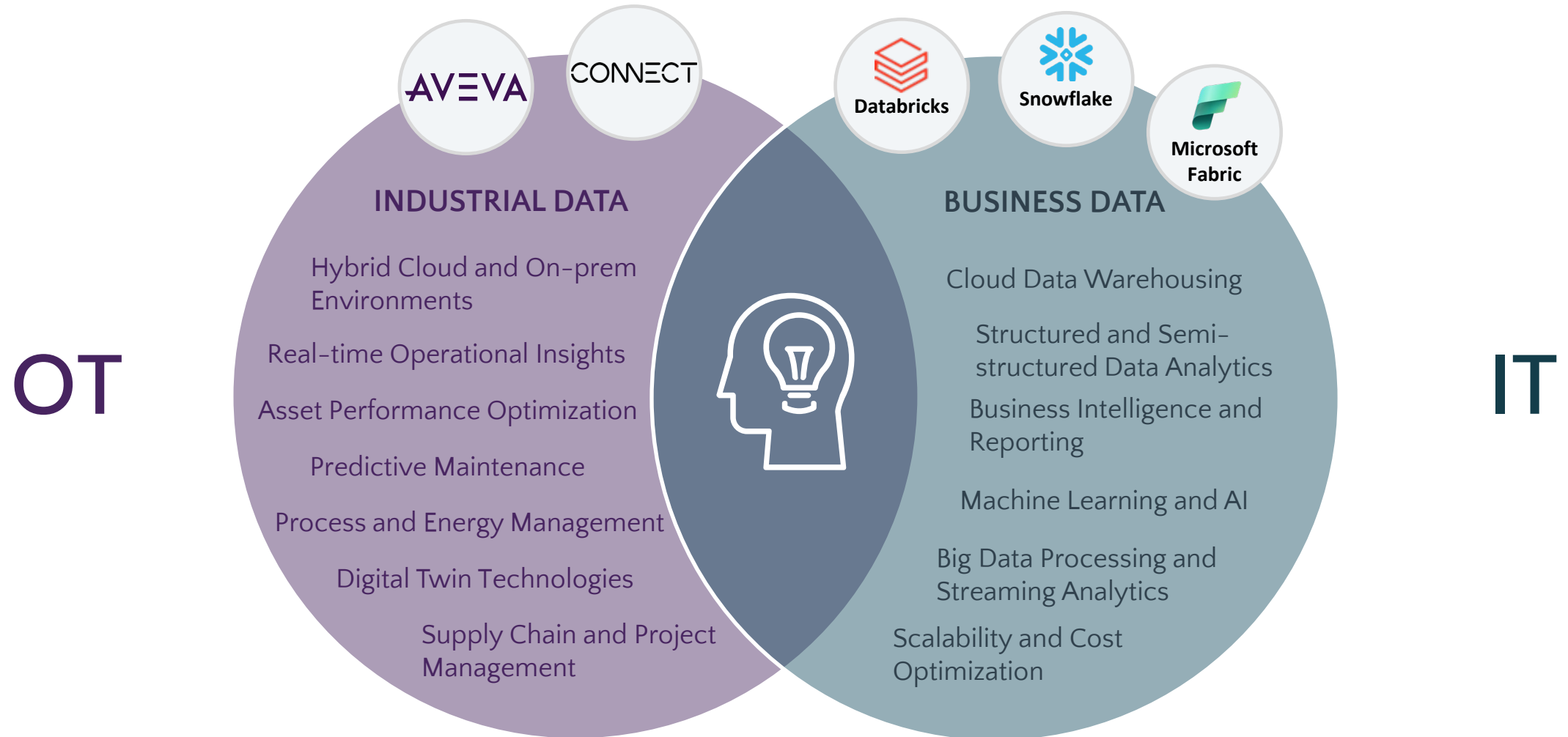
Intelligent alerts and automated actions each time a process is operating outside of normal conditions.

# Connect AI with all industrial data and visualization

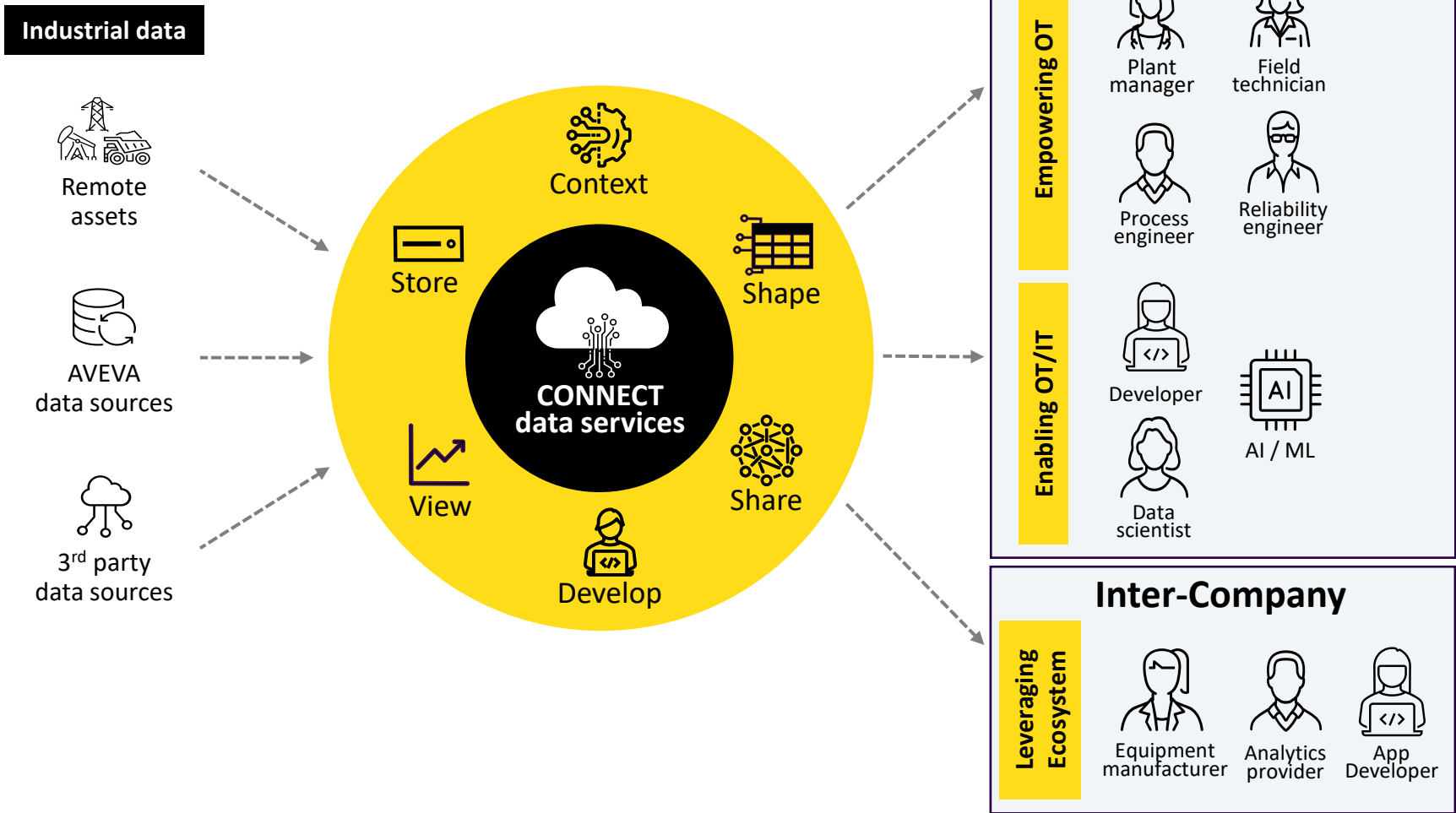
Open and neutral, providing rich data insights for your unified industrial ecosystem



# A new era of industrial data collaboration & AI



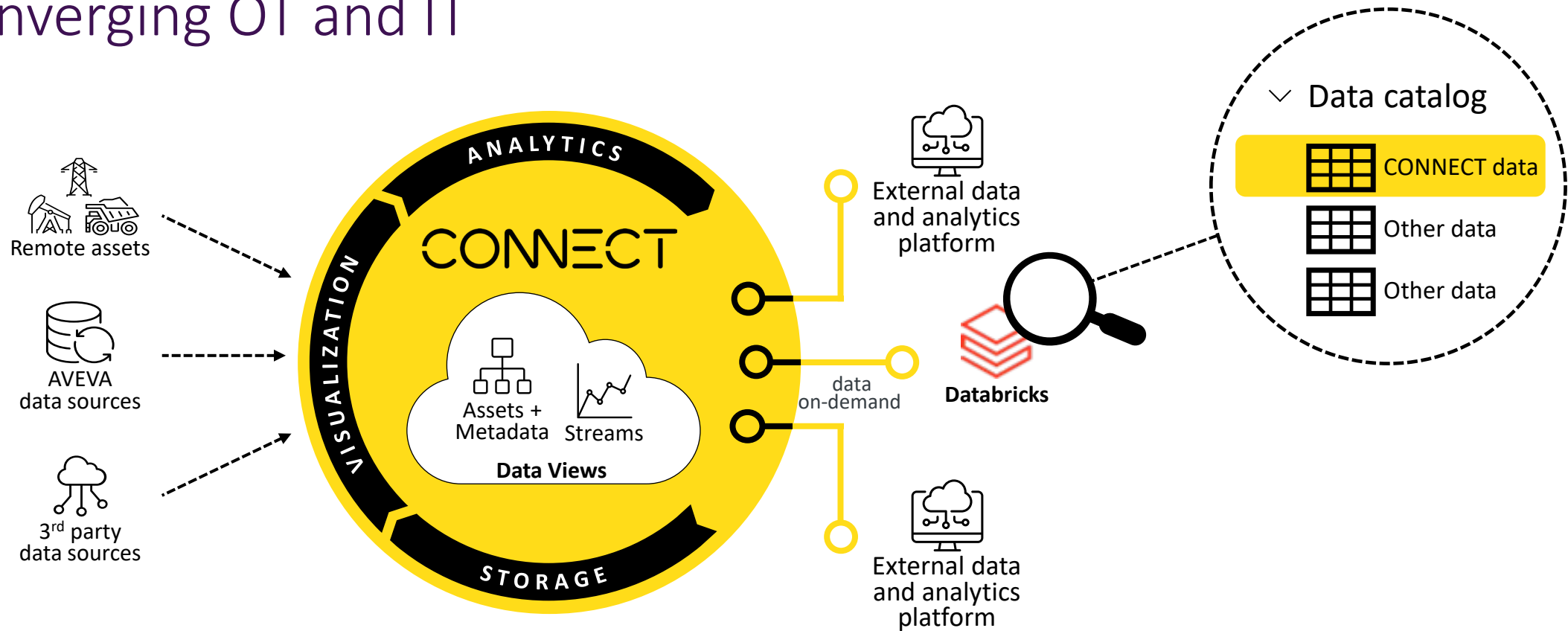
# CONNECT data services



## Enabling three patterns of use – Intra and Inter Company

- **Empowering OT** users to solve specific use cases leveraging their expertise with platform and/or partner capabilities
- **Connecting OT & IT** by sharing industrial information with new data consumers within the broader organization
- **Leveraging Ecosystems** outside company boundaries by sharing Industrial Information at scale.

# Converging OT and IT



## DATA INTEGRITY

Make more informed decisions with near real-time, accurate data

## NATIVE CONTEXTUALIZATION

Save interpretation time with ready-to-consume data

## STORAGE EFFICIENCY

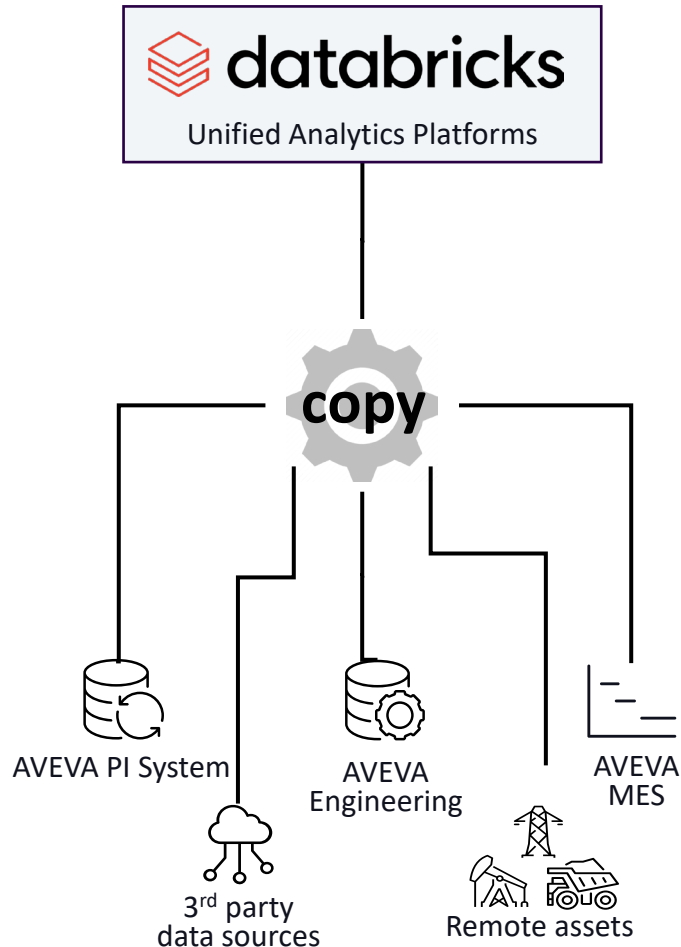
Reduce costs by eliminating duplicated datasets

## STREAMLINED DEPLOYMENT

Out-of-the-box integration, no technical debt left behind

# Live industrial data for data science

## In-House Solutions



### Out-of-the-box integration

- No custom development
- No maintenance by end customer

## Seamless Integration



### Aggregated industrial data

- Maintain and augment contextualization of data across sites and sources
- Ensure accurate capture of updates and changes to the system of record.
- Results and insights return to OT environments

## INTEGRATION

### Easily scales

to support new use cases

### Native integration

with operations and engineering data sources

# Point-and-Click - Integration Workflow

## CONNECT

## Customer

### Create a Virtual Table

- Select the Data View

### Configure the Virtual Table

- Set the **Retrieval Interval**
  - Time-Fixed Window
  - Time-Extending Window
- Set the **Retrieval Mode**
- Set the **Refresh Interval**

### Select/Create a Share

- Get Metastore ID of the Customer Databricks Workspace

### Security

- Select roles



Delta Sharing:  
Open, real-time data  
sharing, no data replication



  
Unity Catalog

  
Delta Lake with UniForm

 Metadata

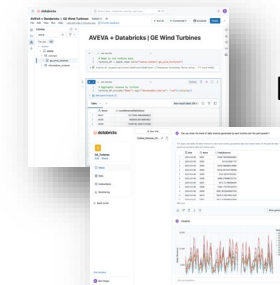
 Parquet



Data Scientist



Data Analyst





Video within the recording

## Nestlé: Harnessing advanced analytics and real-time data in the cloud to enhance product quality and minimize waste

### Challenge

- Fully manual operation of the agglomeration process caused variability in product moisture and density
- Low product yield due to low moisture
- Inconsistent product caused unnecessary waste

### Solution

- Deployed CONNECT and transferred data via AVEVA™ Historian. AVEVA™ Advanced Analytics was used to predict quality parameters of powder production and recommend optimal process setpoints, removing the need for resource-constrained on-premises systems to carry the additional burden of supporting this solution.

### Results

- **A 10% savings on Nesquik powder in the trial, or 101g saved from every 1kg jar**
- **Consistently tighter jar-to-jar weight variation**
- **Improved product consistency and consumer satisfaction**
- **Less product waste on production and packaging lines**



“ Working with AVEVA’s Lighthouse team helped us to understand how we can realize even more value from our solution in the future. For instance, running the solution in the cloud means we can easily roll out the analytical model to other plants across different regions without needing to invest in additional on-premises infrastructure.

*Greg O’Brien, Project Engineer and Project Owner, Nestlé*

# ACCIONA reduces environmental impact and increases supply of treated water

## Challenge

- Improve the performance of all water treatment facilities with minimum impact to the environment.
- Needed a digital solution to collect, contextualize, and analyze data to anticipate equipment behavior deviations and find the optimum operating point in real-time.
- Increase water production capacity and reduce energy use.

## Solution

- Acciona uses CONNECT data services to manage and contextualize historical and streaming data collected by AVEVA™ System Platform. AVEVA™ Advanced Analytics adds rich machine learning-based analytics and provides easy access to monitor critical KPIs.

## Results

- **Prediction model enabled optimization of energy recovery systems resulting in 4.6% reduction in energy consumption of the high-pressure pump, and increased production capacity of the rack by 16 m3/h.**
- **Increased efficiency in O&M teams thanks to readily available information.**
- **Improved confidence from clients due to transparency of operations.**



# Questions?

Please wait for the microphone.  
State your name and company.



# Please remember to...

Navigate to this session in the mobile app to complete the survey.



# Thank you!

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AVEVA is a world leader in industrial software, providing engineering and operational solutions across multiple industries, including oil and gas, chemical, pharmaceutical, power and utilities, marine, renewables, and food and beverage. Our agnostic and open architecture helps organizations design, build, operate, maintain and optimize the complete lifecycle of complex industrial assets, from production plants and offshore platforms to manufactured consumer goods.

Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life's essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

Named as one of the world's most innovative companies, AVEVA supports customers with open solutions and the expertise of more than 6,400 employees, 5,000 partners and 5,700 certified developers. The company is headquartered in Cambridge, UK.

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