OCTOBER 2025

Building opportunity from uncertainty

Presented by: Rashesh Mody (EVP, Business Strategy – AVEVA)

Major **uncertainties** to overcome

Value chain volatility increasing

25% or more price fluctuations

Tribal knowledge decreasing

10 years of knowledge being replaced with 3 years

Technology disruptions accelerating

50% of top Industrial Production Index companies replaced since 2004

Software turns **volatility** into opportunity

DESIGN & BUILD SMARTER

$1.1B saved

by getting the design right the first time

Wood

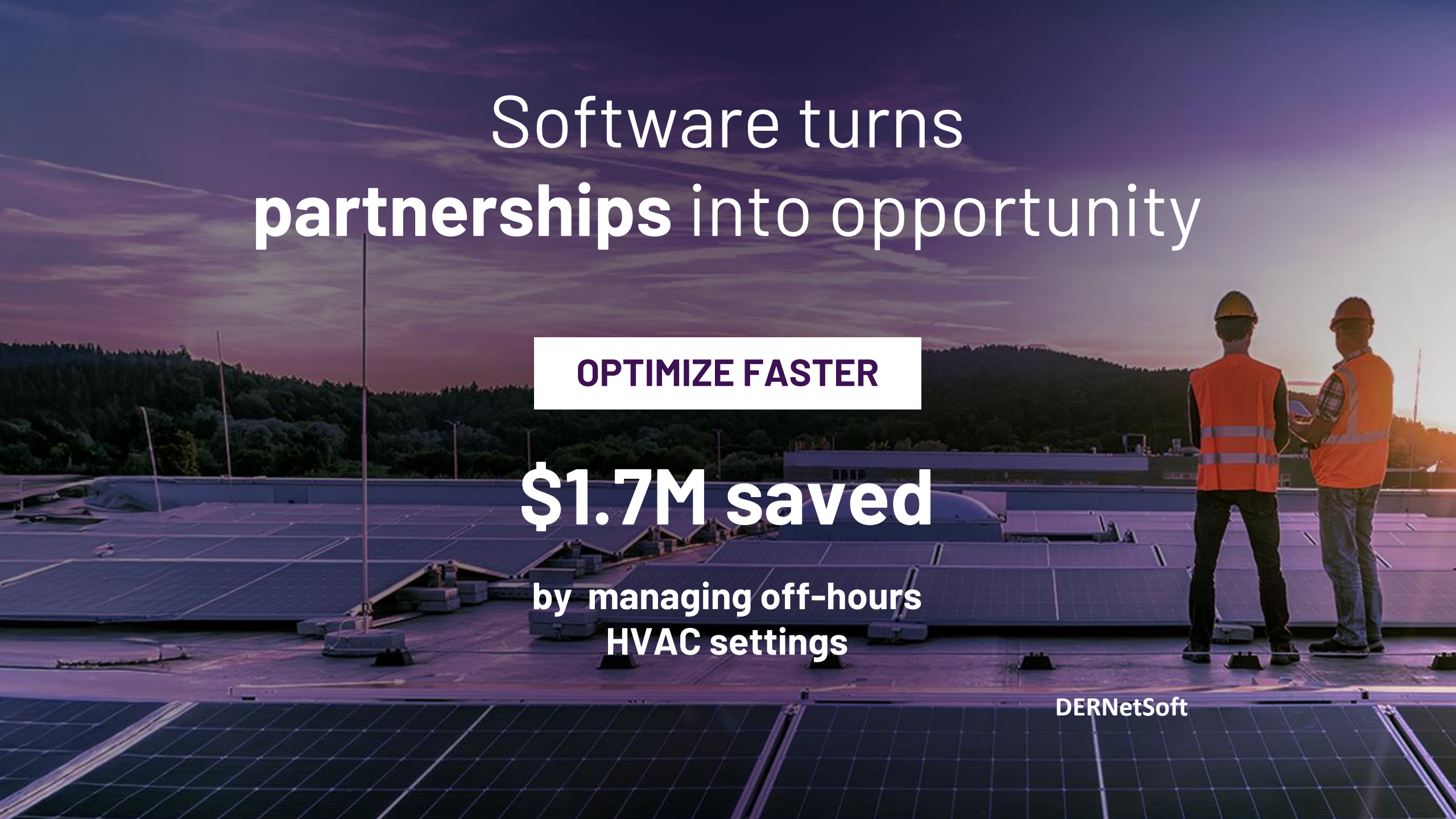
Software turns
talent into opportunity

OPERATE SAFER

20% faster response

by empowering teams with real-time monitoring displays

Imrys

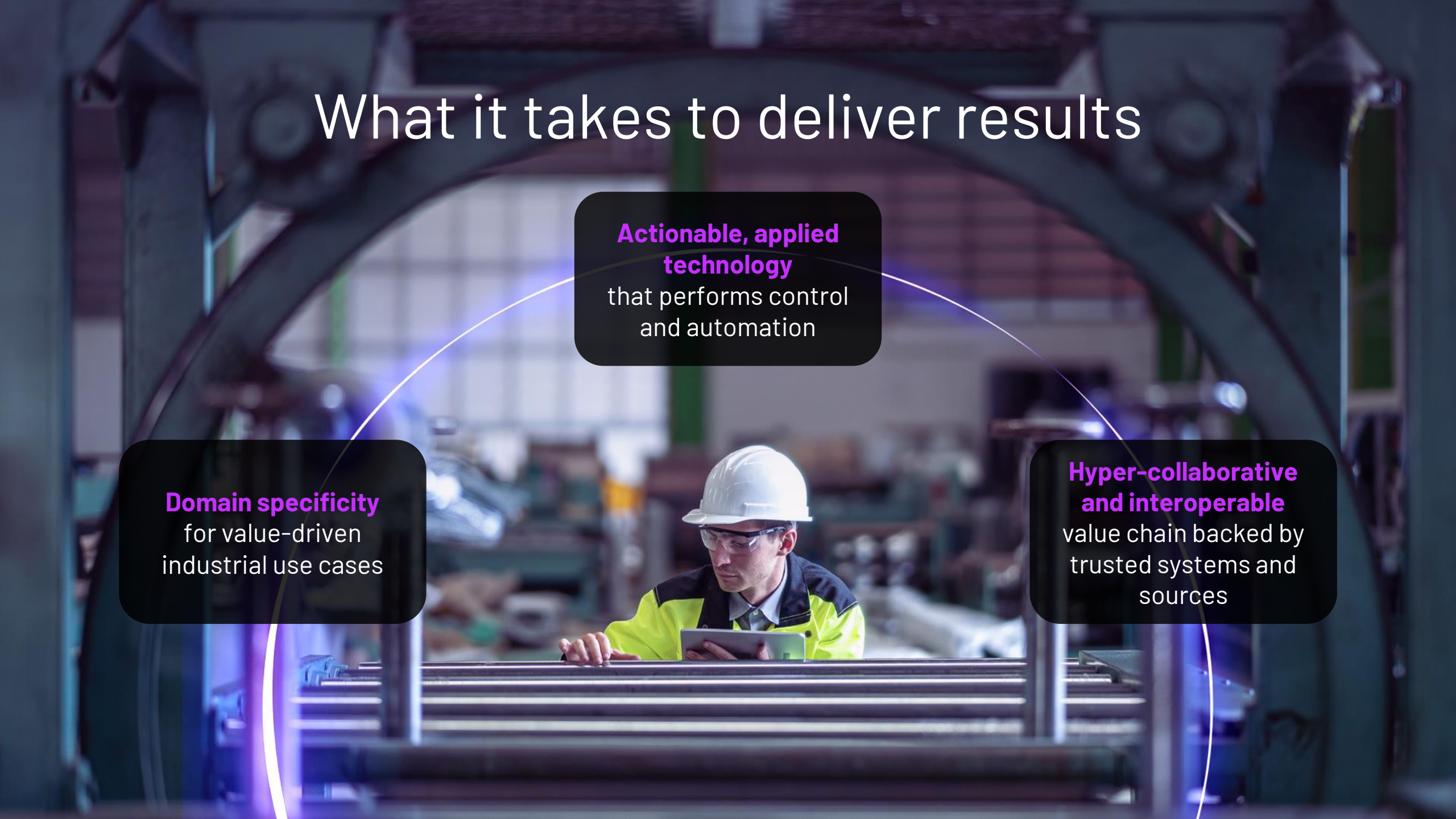

Software turns
partnerships into opportunity
OPTIMIZE FASTER
$1.7M saved
by managing off-hours
HVAC settings
DERNetSoft

What it takes to deliver results

Actionable, applied technology
that performs control and automation

Domain specificity
for value-driven industrial use cases

Hyper-collaborative and interoperable
value chain backed by trusted systems and sources



Design **Build** **Operate** **Optimize**

Design **Build** **Operate** **Optimize**

CONNECT Industrial intelligence

Seamless experience

Applications & analytics

Design | Build | Operate | Optimize

Information

Engineering information ⟷ Operations information

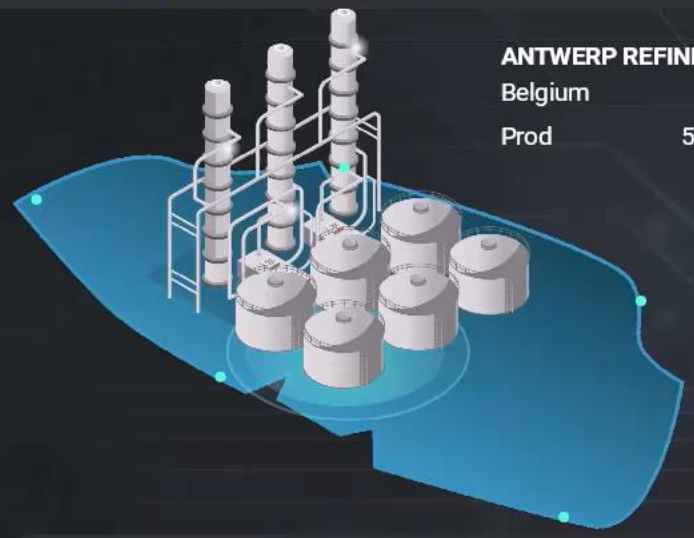
Assets and devices

All enabled by an ecosystem of developers and partners

Delivering a seamless experience from digital twin to digital enterprise

Let’s look at a Demonstration


CONNECT
intellavi
50
25
75
0
94
%
52
TARGET
Upstream Production
100
50
25
75
0
82
%
81
TARGET
Midstream Utilization
100
6
3
9
0
7
%
4
TARGET
Downstream Profit Margin
12
GAS PIPELINE
LNG EXPORT
LNG LIQUIFICATION
GAS GATHERING
OFFSHORE PRODUCTION
186
KDB
86
MMSCFD
NGL EXPORT
NGL FRACTIONATION
PRODUCT EXPORT
ONSHORE PRODUCTION
202
KDB
86
MMSCFD
REFINING
CRUDE EXPORT
CRUDE OIL GATHERING
GAS
LNG
NGL
REFINING
CRUDE EXPORT
Home
Map
Operations
Maintenance
Forecasting
Revenue
Collaboration
HSE
Activities



ANTWERP REFINERY
Belgium

Prod 513 kbpd

HSE

Days Since Last Injury
47

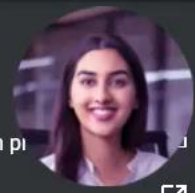
Average Time to Report (mins)
90

Total Injuries this month
0

Lost Time to Injuries (hr/month)
70

EVENTS

- High Vibration Alarm Detected - Asset J-9002A
- Maintenance work 145 In Progress. Staff assignmnet in pl
- High Bearing Temperature - Pump Trip - Asset J-9002A



SUSTAINABILITY

Energy Consumption (Billion KWh)

Actual	Predicted	
2.11	2.093	+1%

Monthly Carbon Emissions (t CO2)

Actual	Predicted	
37,000	35,520	+4%

Monthly Nitrogen Emissions (t NO2)

Actual	Predicted	
26,000	26,780	-3%

EFFICIENCY

PERFORMANCE

Unplanned Downtime (past month)

Actual	Predicted	
70 hours	69 hours	+1.5%

PROCESS UNIT PERFORMANCE (Target quarterly utilization all units = 100%)

MAINTENANCE

Mean Time to failure

Actual	Target	
45	60 hr	-25%

Mean Time Between Failures

Actual	Target	
430	500 mins	-14%

Maint Cost

Actual	Target	
360	500 $K	-28%

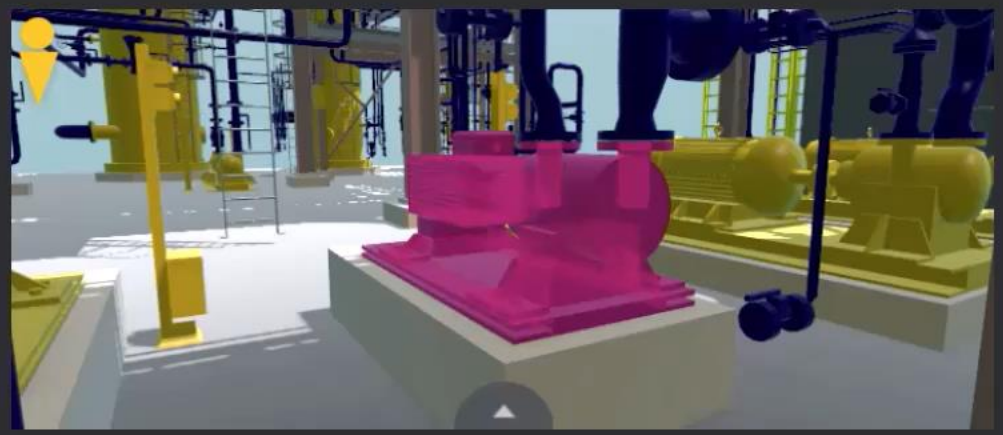
REFINERY PRODUCTION

	Plan (KBD)	Actual MTD (KBD)	vs Plan	vs Plan %
Crude Train 1	206.9	207.7	0.8	0.4
Crude Train 2	148.5	146.8	-1.7	-1.2
LPG	12.1	12.9	0.8	0.4
Naphtha	20.1	28.1	8.0	39.8
Gasoline	132.7	141.8	9.1	6.8
Kerosene	50.0	53.1	3.1	6.2
Diesel	95.3	88.6	-6.7	-7.6
Gas oil	13.8	15.2	1.4	1.1
Fuel oil	16.3	14.7	-1.7	-9.9

J-9002A-Dashboard

3D Model

IED Model



Asset Properties

Commissioning (3)

Commissioning Completion Date	25-Mar-21
Commissioning Completion Status	SH1 Complete
Commissioning System	System 0-71-AO-D0

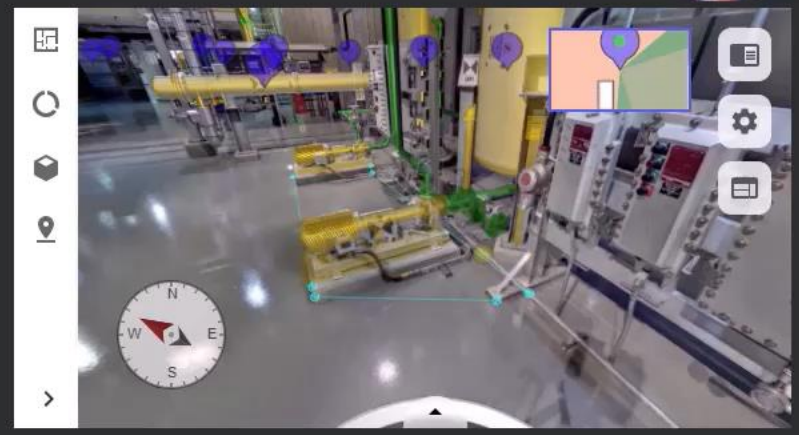
Piping Data (2)

Compressibility Factor	0.839
Insulation Code	IED

Physical Data (13)

Dry Weight	249 kg
Height	388 mm
Inner Diameter	435
Installation Date	02-Nov-16 21:47
Length	935 mm
Manufacturer	AVEVA Equipment
Model	M3HP 160 MLE 4
PO Number	ER300
Rated Power	3.5 kW

Asset Point Cloud Viewer



Suction and Discharge Pressures

11/02/2025 00:00:00 - 11/02/2025 15:20:08

Status Board

11/02/2025 00:00:00 - 11/02/2025 15:20:08

		CURRENT VALUE	TREND
J-9002A.Energy Consumed Daily		939.97 kilowatt hour	
J-9002A.Energy Cost Daily		122.2	
J-9002A.Amps - Motor		445,851 ampere	
J-9002A.Motor Power		214,008 kilowatt	

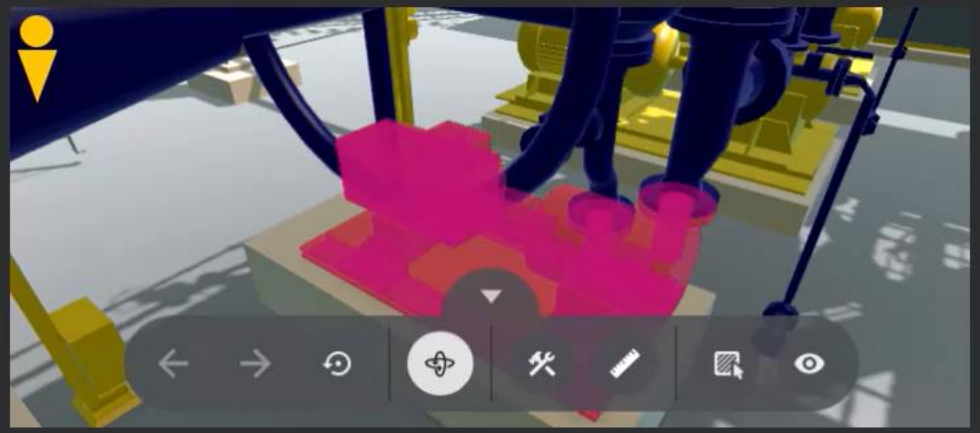
Anomaly Score J-9002A

J-9002A Ops Dashboard

Edit

3D Model

IED Model



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PO Number	ER300

Status Board

03/13/2025 2:29:58 PM - 03/14/2025 7:30:27 AM

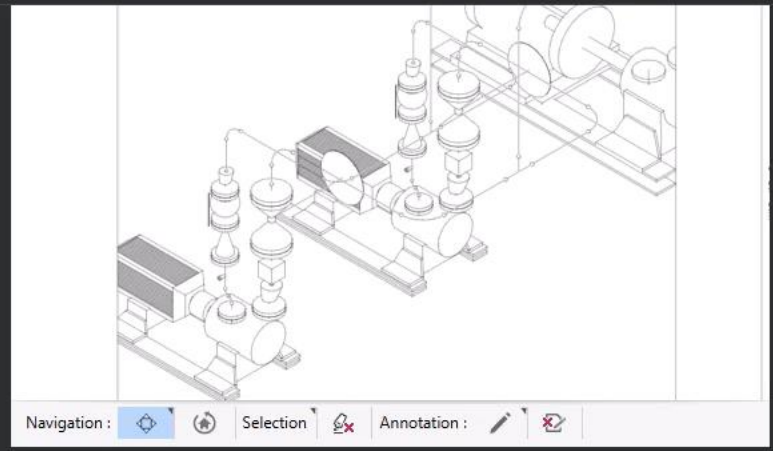
	CURRENT VALUE	TREND
Energy Consumed Daily	21,342 kilowatt hour	
Energy Cost Daily	3,211.5	
Amps - Motor	451,843 ampere	
Motor Power	216,885 kilowatt	

Suction and Discharge Pressures

03/13/2025 2:29:58 PM - 03/14/2025 7:30:27 AM

Documents

GA-IED-Piping



Anomaly Score J-9002A

01/15/2025 1:00:00 AM - 01/16/2025 1:00:00 AM

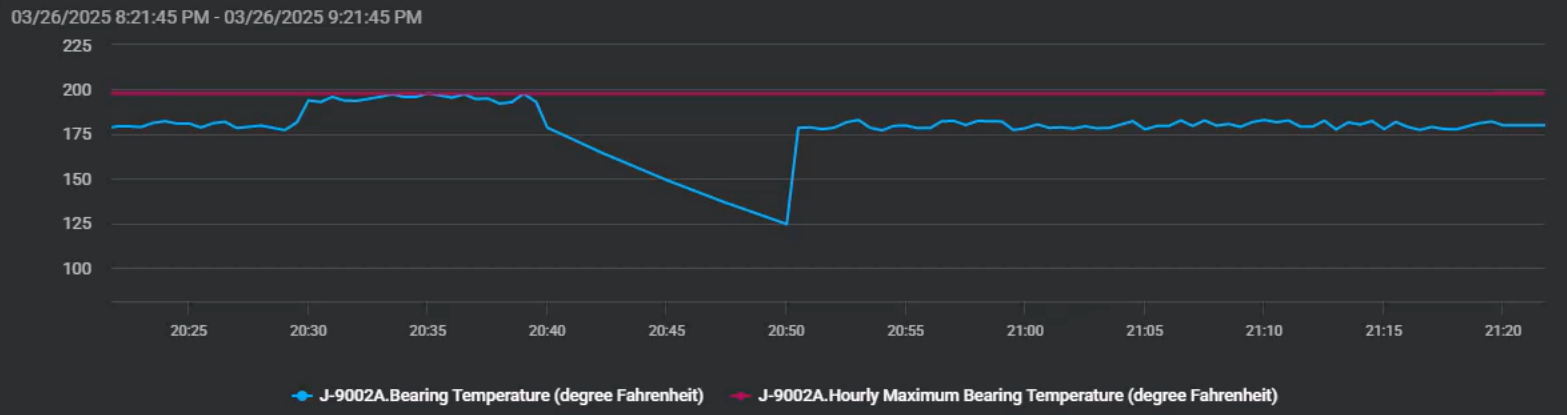
300

CONNECT

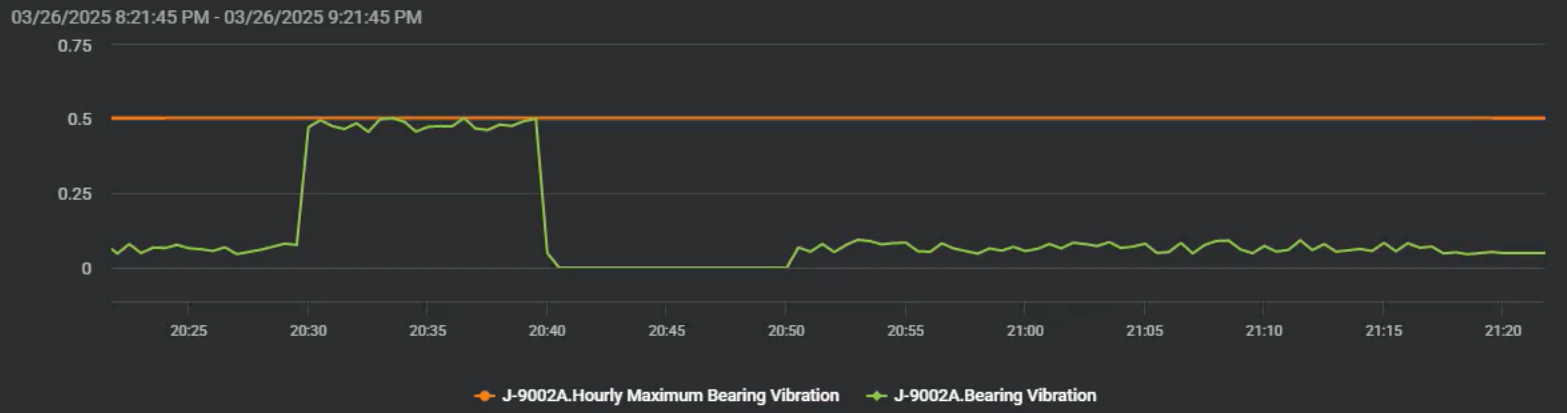
J-9002A Bearing Temperatures and Vibrations

Edit

Bearing Temperatures for J-9002A



Vibrations for J-9002A



Industrial AI Assistant (Preview)

Advanced Mode

Industrial Assistant 9:21:49 pm

Hi Lori Brossard-Warda. How can I help you?

What can you help me with?

How are some of my operations performing?

What are some assets in this system?

Enter your message...

Send

0 / 500

CONNECT

J-9002A Overview Dash

Edit

Info

Active

Name / Title	LP Flare KO Drum Pump
Type	Pump
Parent	Not Set
Location	Not Set
Aliases	/J-9002A

Attributes

Common (13)

Corrosive Liquid	no
Function Code	PA
MainTag	43PA002B
Originator	TST
Plant	IED
Project Code	AVEVA CMGK DEMO
Safety Critical	no

Select Document

Id: ED0142-DTPAV-111-F-XV-11151
Name: LLP1S32004
Type: Miscellaneous

Id: ED0142-DTPAV-111-F-XV-11155
Name: PO-63871-SC
Type: Procedure

Id: ED0142-DTPAV-111-O-KA-11128
Name: MA_128
Type: Procedure

03/27/2025 12:00:00 AM - 03/27/2025 9:19:05 PM

Industrial AI Assistant (Preview)

Advanced Mode

Industrial Assistant 9:19:10 pm

Hi Lori Brossard-Warda. How can I help you?

What can you help me with?

How are some of my operations performing?

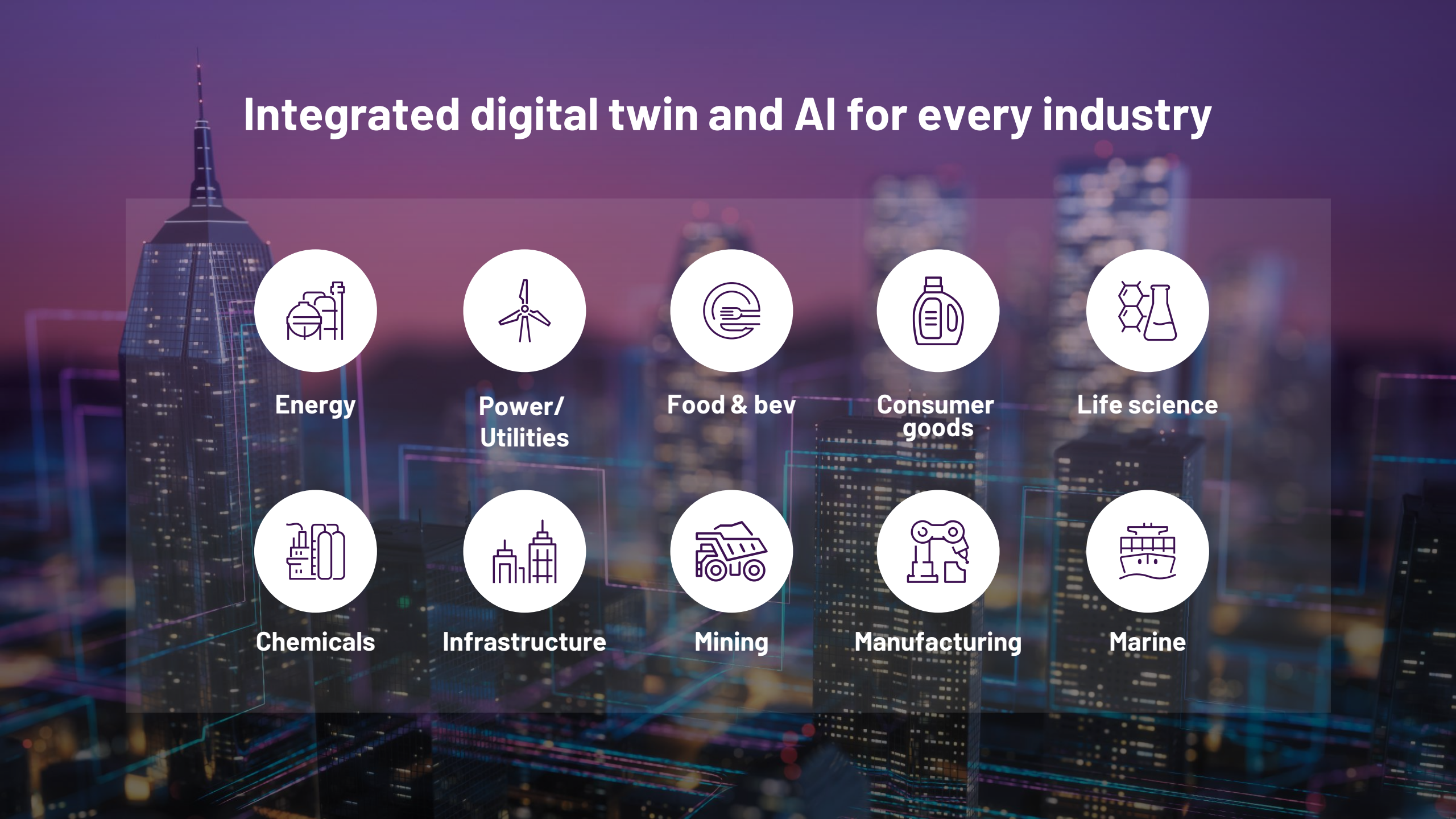
What are some assets in this system?

Enter your message...

Send

0 / 500

Integrated digital twin and AI for every industry



CONNECT Industrial intelligence

Seamless experience

Applications & analytics

Design | Build | Operate | Optimize

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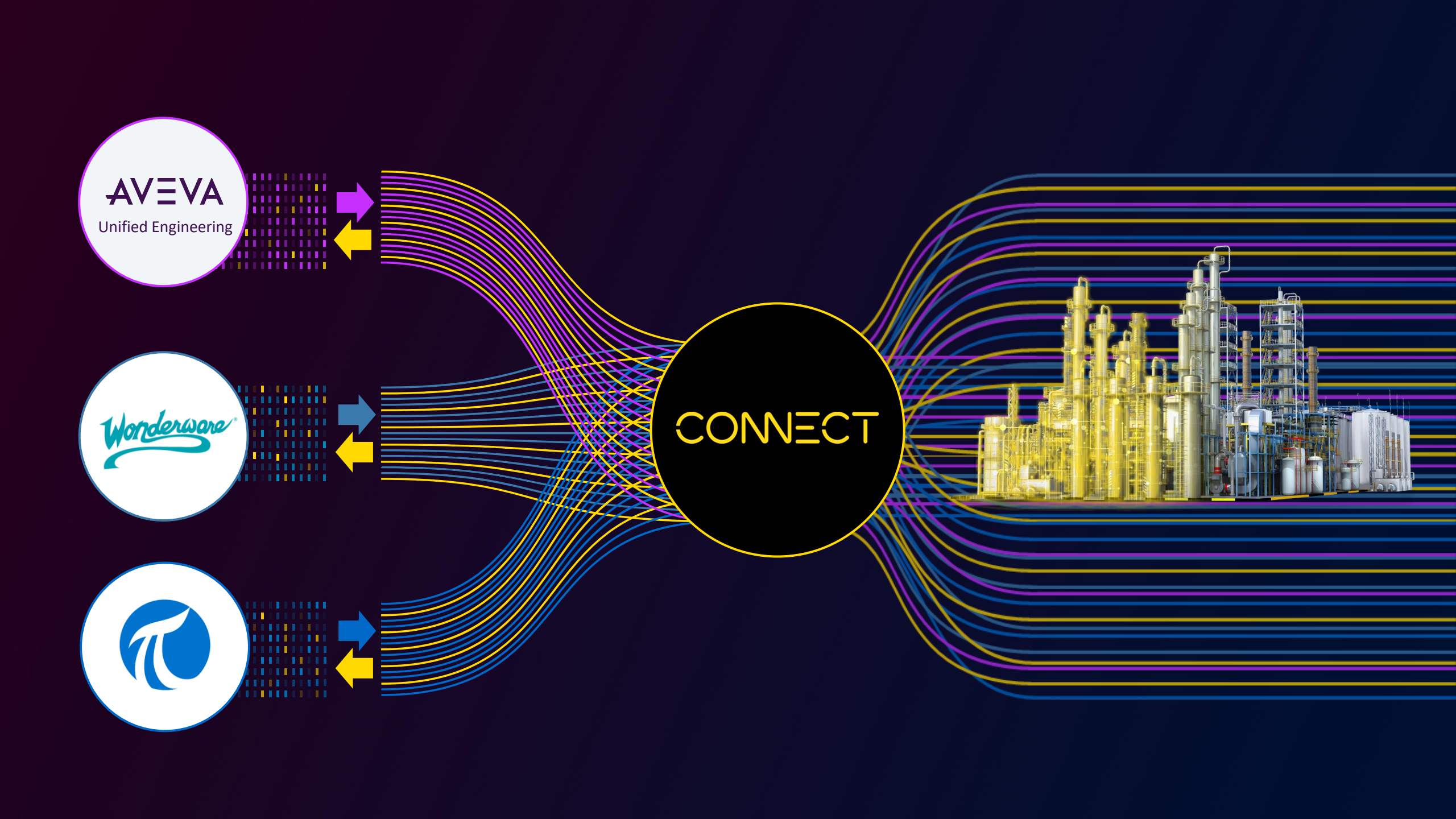
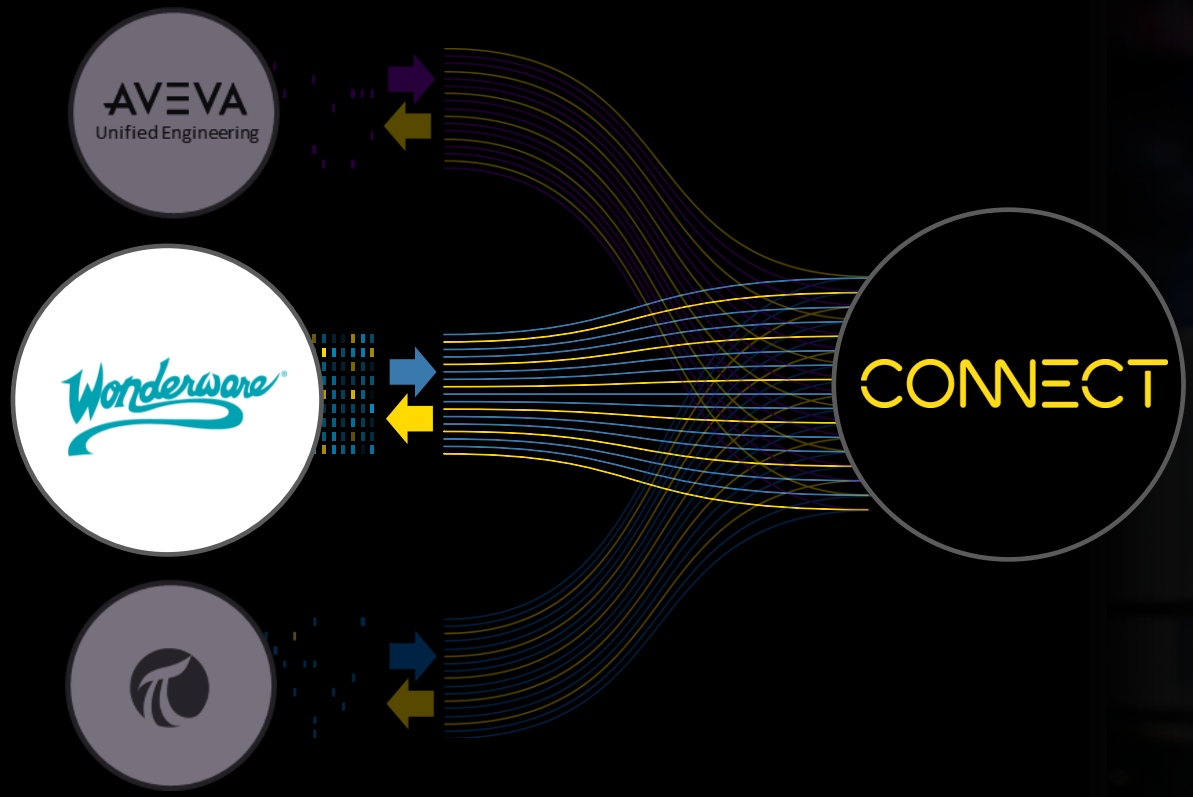
Engineering information ⟷ Operations information

Assets and devices

All enabled by an ecosystem of developers and partners


AVEVA
Unified Engineering
Wonderware
CONNECT



OPERATE BETTER with multi-site visibility

Generative HMI Example

AVEVA™ InTouch IDE

File Home Draw View Help Runtime

Paste Cut Copy Duplicate — Clipboard
New Open Close Folder — Application
New Save Close Delete — Page
New Delete Remove content Toggle Designer — Pane
New Import Export Delete — UDT
Alignment Spacing Sizing — Layout
Bring to front Send to back Bring forward Send backward — Arrange
Alarm groups — Alarms
Tag dictionary — Tags

Pages & Layouts

Search

IndustrialAssistantDemo
- Layouts
- Pages

Pages & Layouts | User defined type

Model - Tagname

Search

UDT
- $System
- MyViewApp

Model - Tagname | Elements

AI

Welcome to InTouch assistant Enter your query below

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin dictum porttitor tellus, eu volutpat libero ullamcorper a. Donec vehicula rutrum erat ac euismod. Sed ut risus in diam egestas convallis.

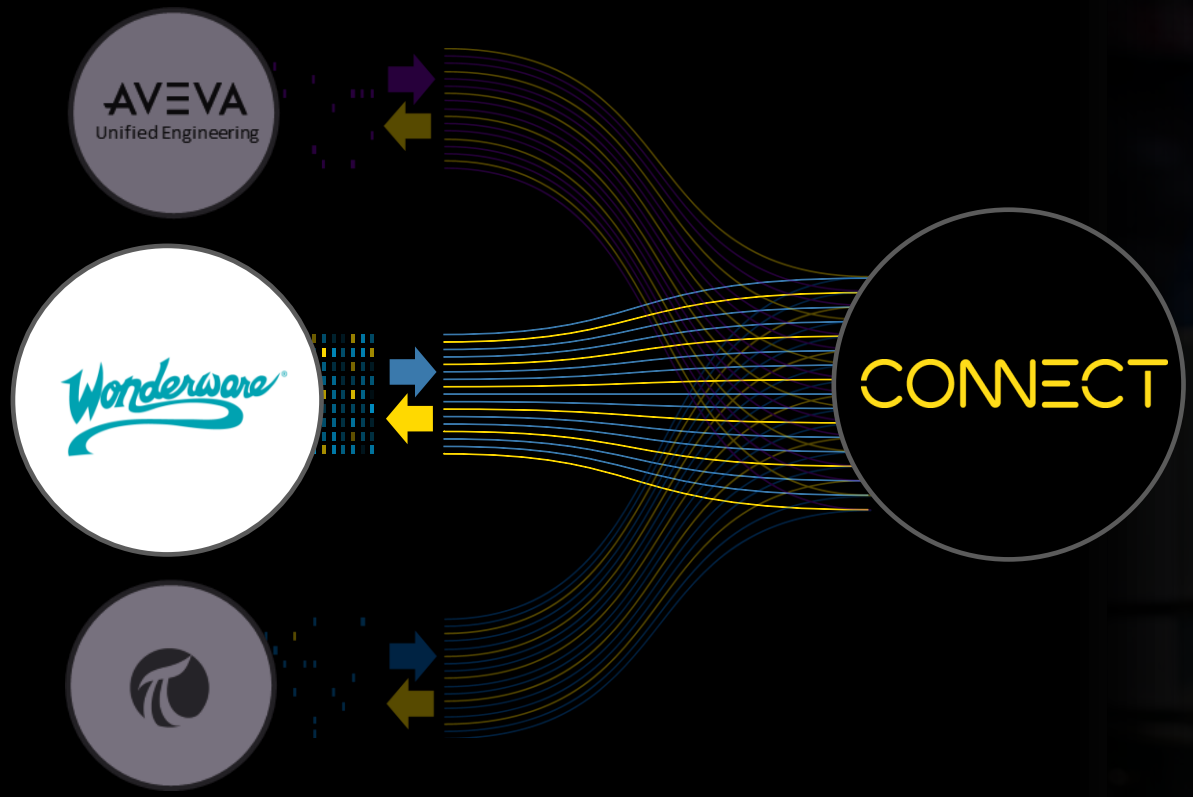
See more

Message InTouch assistant

Send

AI | Industrial Graphics | Properties

Watch Window



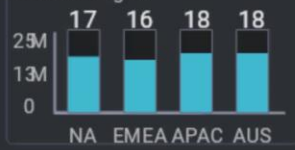
OPERATE BETTER with multi-site visibility

NEW! Hybrid operations control

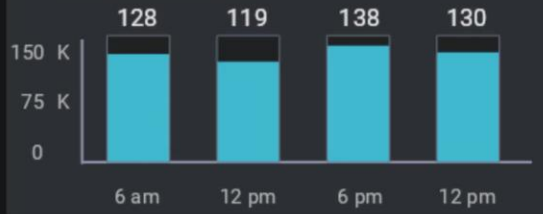
Revenue

Revenue

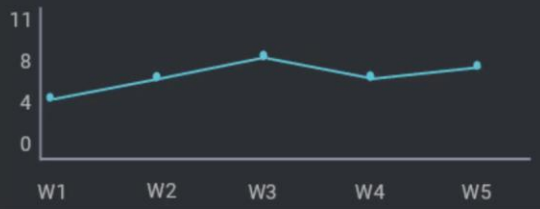
Revenue Region



Production Volume



CO2 Emission (mt)



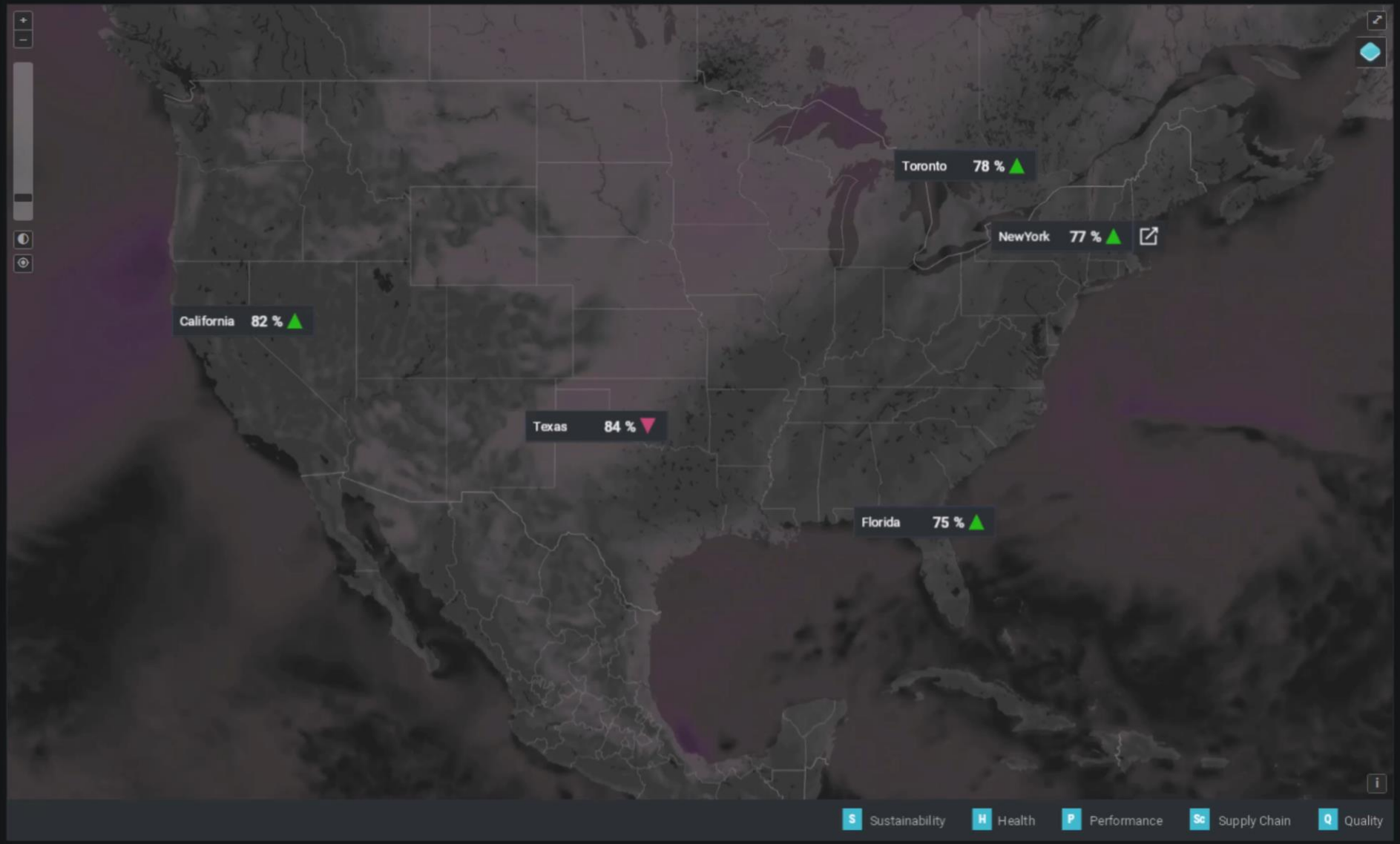
Efficiency

Safety

Number of Incidents

4 m ▲

Map View | Tile View



“We were able to take a hybrid approach to quickly build a hierarchy of data services that enabled us to analyze assets from multiple dimensions including quality, performance, and throughput. Those are the things that are changing the way we operate.”

Carlos Paredes, Automation Manager, Amcor Rigid Packaging

Enabling your partner ecosystem

Industry Accelerator for Water

Water Distribution

Water Treatment

Energy Optimization

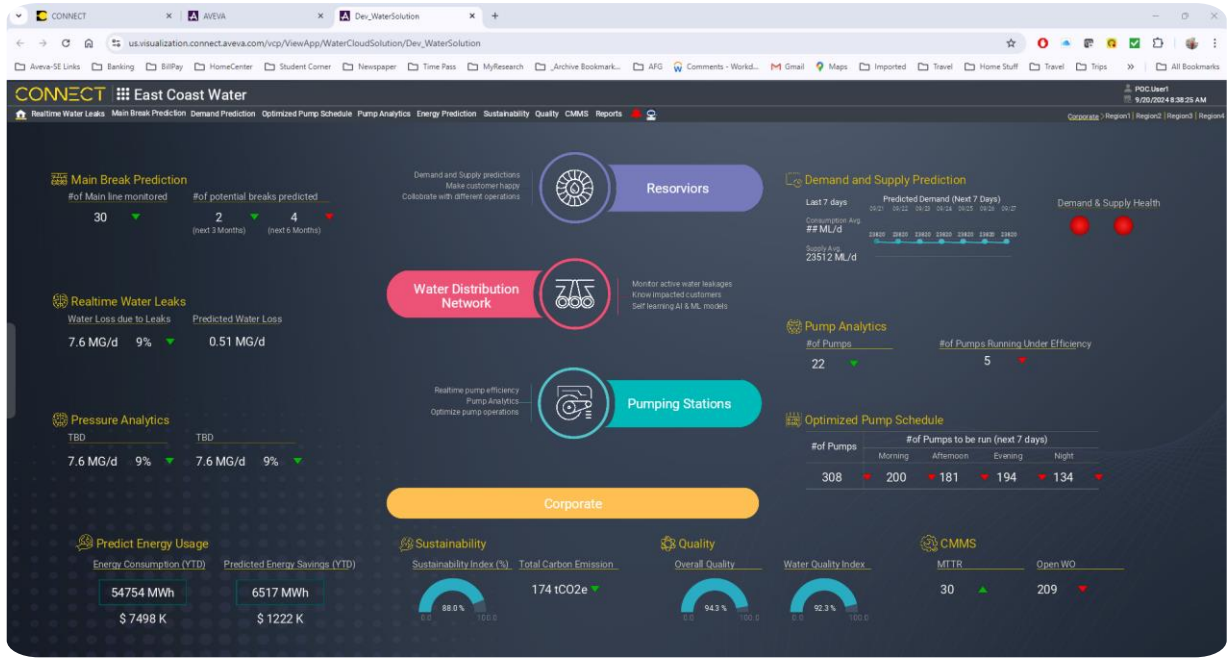
Corporate KPI(s)

Key capabilities

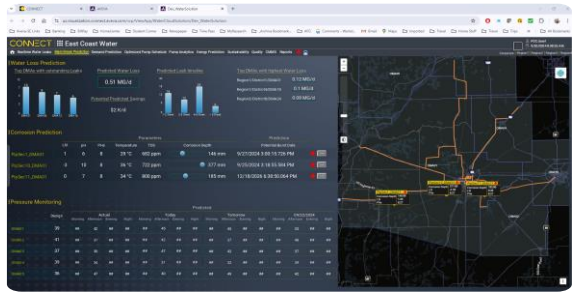
- Detect active water leaks, including leak volumes over time
- Proactively identify and mitigate potential pipeline failures due to corrosion and pressure fluctuations
- Forecast water demand based on historical data and enable demand profile visualization
- Ensure that the most efficient pumps are utilized first, reducing overall operational costs
- Optimize power consumption for operating pumps during off-peak electricity hours
- Optimize pumping schedules by leveraging real-time and historical data
- Predict UV dosage set points during feed flow variations in quality and quantity
- Stabilize flow rates of biological treatment processes during diurnal, seasonal fluctuations, or storm conditions

Industry Accelerator for water

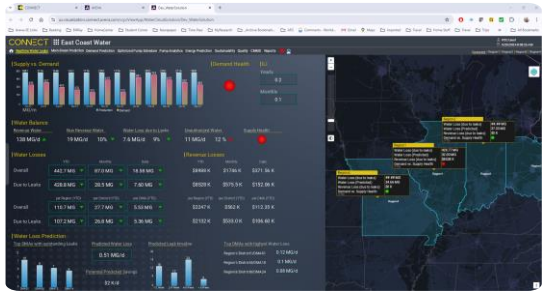
Cockpit View : Summary Analytics View



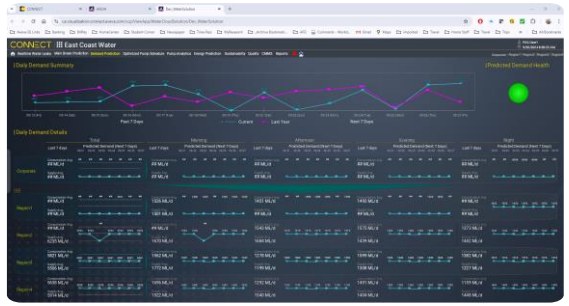
Predicted Main Breaks



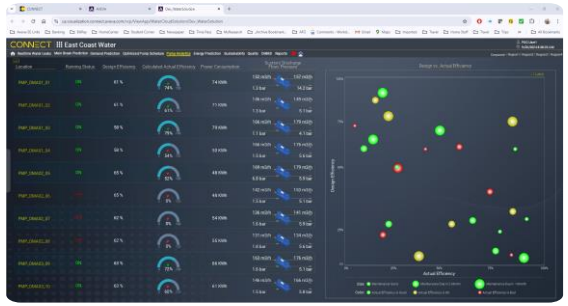
Real-time Water Leaks



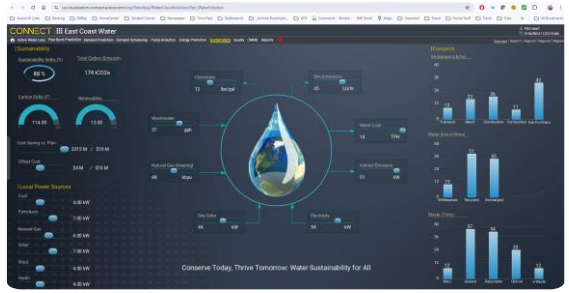
Demand Prediction



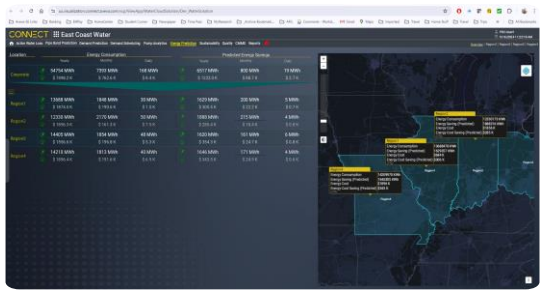
Pump Analytics



Sustainability



Energy Prediction



Smart water leak detection
Identify and mitigate leaks early. AI/ML-driven insights pinpoint leak location, volume, and size in near real-time. Aggregated analytics support proactive water loss control and financial accountability.

Prediction of main breaks
Detect potential pipeline failures early. It uses real-time data and predictive analytics to assess asset health and end-of-life risks. This enables a shift to preventive maintenance, improving reliability and safety.

Predicted water demand forecasting
Accurate short-term demand prediction. Advanced analytics forecast daily demand using historical data for up to seven days. Supports proactive supply planning, sustainable water management, and pump scheduling.

Energy-optimized pump scheduling
Enable optimized pump scheduling using demand forecasts, pump efficiency, and energy tariffs. Prioritize pumps and align operations with off-peak hours. Achieve energy savings, supply continuity, and improved reliability.

Water Distribution

Water Treatment

Flow equalization
Enable stable flow to treatment plants by predicting influent with AI/ML. It considers diurnal, seasonal, and storm variations to optimize treatment. Predicts setpoints, reducing manual intervention and enhancing process stability.

UV disinfection system optimization
Enable UV dosage prediction in treatment plants using AI/ML to meet regulatory standards. It optimizes dosage based on changing flow quantity and quality. Reduces manual intervention and ensures consistent water quality.

Conserve Today, Thrive Tomorrow: Sustainability for All

Pump performance and efficiency analytics
To cut energy and maintenance costs. It calculates real-time pump efficiency using key operational parameters. Helps prioritize efficient pumps, flag underperformers, and support optimized pump scheduling.

Energy optimization with early purchase
It forecasts energy needs using water demand and pump efficiency analytics. Enables early energy purchasing and optimized pump scheduling for better cost and performance.

Energy Savings

Corporate

CMMS
Provides insights on maintenance costs, asset performance, and resource use, enabling organizations to spot inefficiencies, optimize strategies, and make decisions that extend equipment life and cut expenses.

Water Quality
Water quality parameter monitoring delivers real-time insights into quality parameters while analyzing long-term trends, enabling compliance, optimized treatment processes, and smarter resource allocation.

Sustainability
Monitoring sustainability parameters in the water industry provides insights on chemical dosing, sludge, and emissions, consolidating metrics for transparent ESG compliance and environmental responsibility.

LOS ANGELES COUNTY SANITATION DISTRICTS
Converting Waste Into Resources

LACSD utilizes the Industry Accelerator for Water solution on the CONNECT industrial platform to leverage data and model treatment processes for two use cases at their Valencia Water Reclamation Plant.

Challenge

- Use existing historical data from AVEVA PI database server to find relationships amongst the data.
- ***Use Case #1:*** Flow Equalization Basins (FEB) help maintain a stable flow going into the secondary (biological) treatment process and store excess flow during storm conditions. Currently, Operators manually calculate a flow setpoint.
- ***Use Case #2:*** Ultraviolet Light Disinfection (UV) treats plant effluent before river discharge. Currently, UV dose is based on daily coliform count results that are received the next day.

Solution

- Leverage data from on-premise AVEVA PI server and connect to the Industry Accelerators for Water Solution, the CONNECT Industrial Platform, Data & Visualization Services, and Advanced Analytics to find correlations among the data and create models to provide setpoint recommendations for each Use Case.
- This is done on the cloud, separate from SCADA and the plant's treatment processes. The AI/ML models' recommendations help Operators with decision-making.

Results

- Both Use Cases use the AI/ML models to find patterns in the historical data and formulate suggested recommendations for Operators to use.
- The FEB model recommends a flow setpoint based on diurnal and seasonal/weather fluctuations to maintain a steady flow into the aeration tanks.
- The UV model tries to predict coliform hit events based on process and water quality relationships and recommends a UV dose to preemptively avoid the hit altogether.

Increasing value from a growing ecosystem

- Services
- Specialized solutions
- Enterprise integration

NEW
Databricks integration

AVEVA Unified Engineering

Wonderware

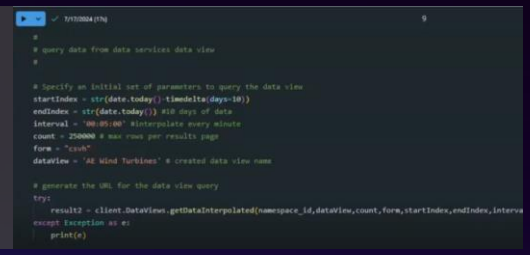
CONNECT

databricks

Industrial data

Enterprise data

Data scientist



Reliability engineer

Operator

CONNECT

Industrial intelligence platform

Industrial AI Innovations

Enriching existing investments

Partner ecosystem