



COGNITE

Playbook:

How to Deploy AI-enabled Asset Performance Management Foundation for solutions at speed and scale

Unlock simple access
to complex industrial data

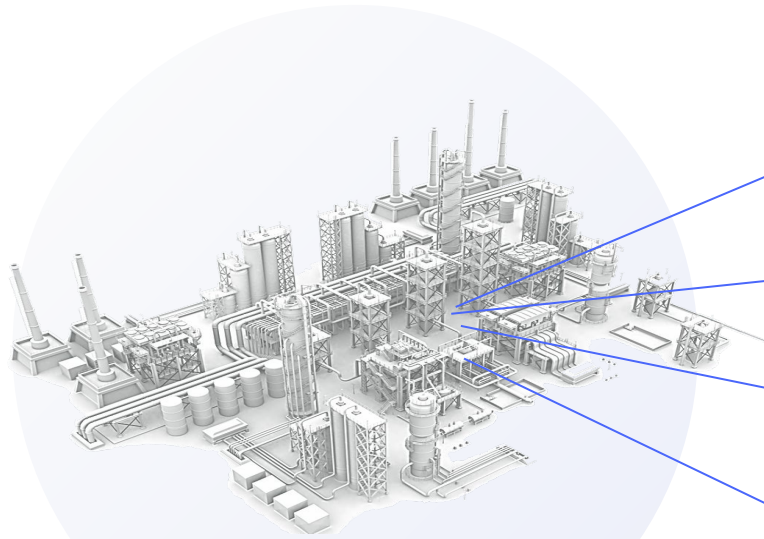


Section 1:

Solving APM data problem to accelerate time to value

1. Key value pools
2. Why do APM operators still struggle?
3. APM use cases to ensure continuous improvement

There is tremendous opportunity to improve Asset Performance Management



Ensuring safe and sustainable operations



Increase equipment performance and minimize unplanned events

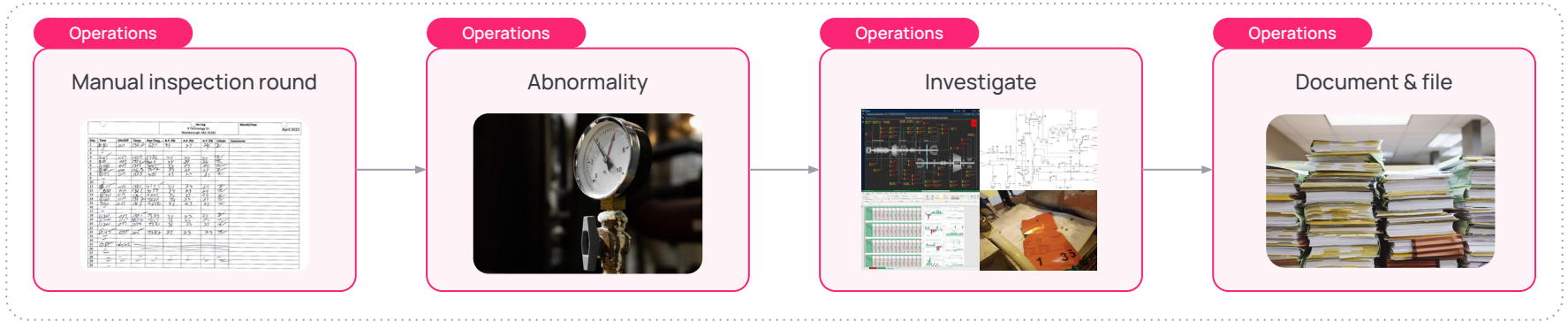


Reduce cost and time of maintenance

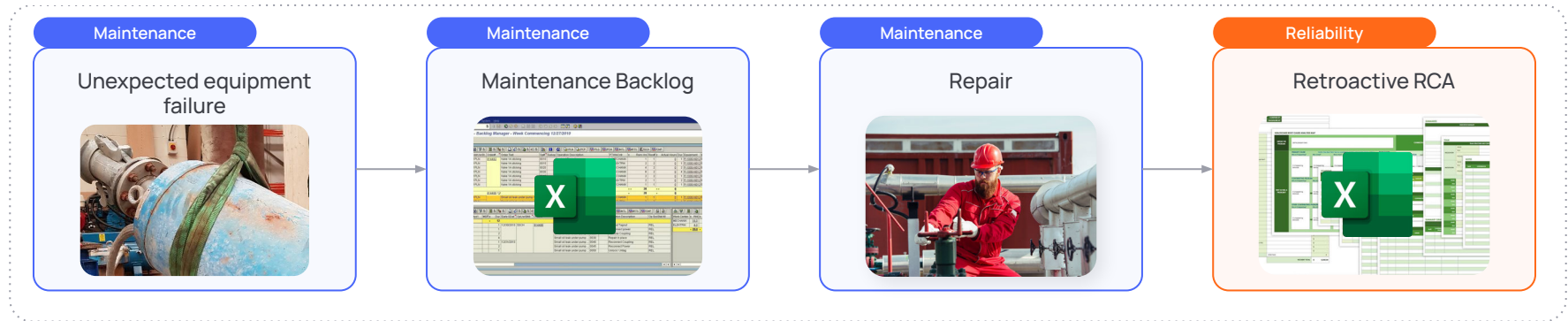


AI-assisted business decisions

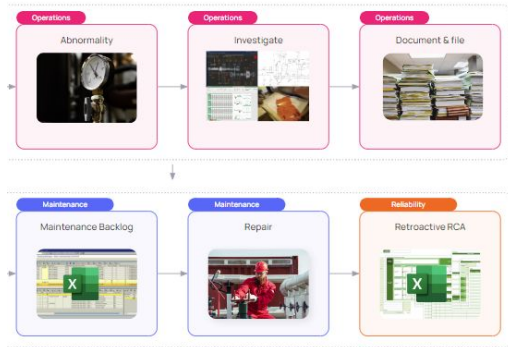
Traditional ways of working with data are siloed....



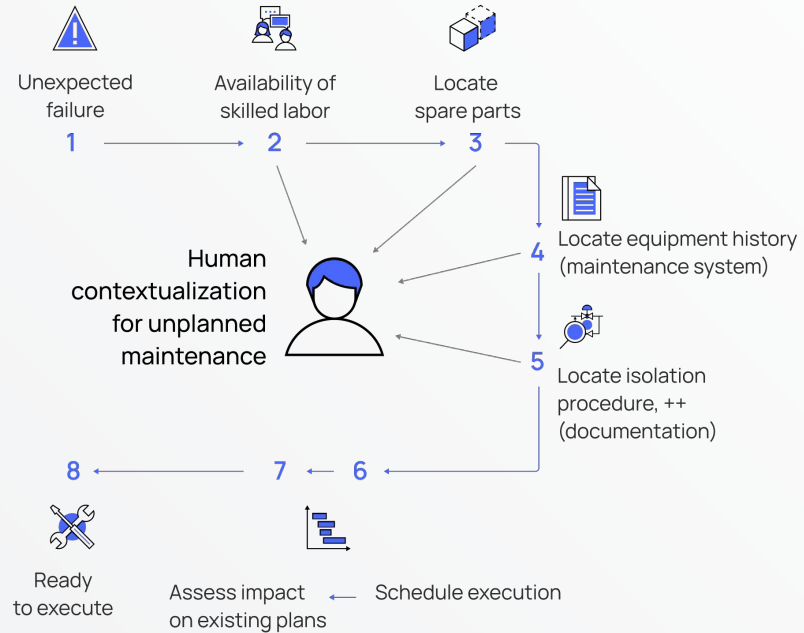
After some time...



...No simple access to complex industrial data...

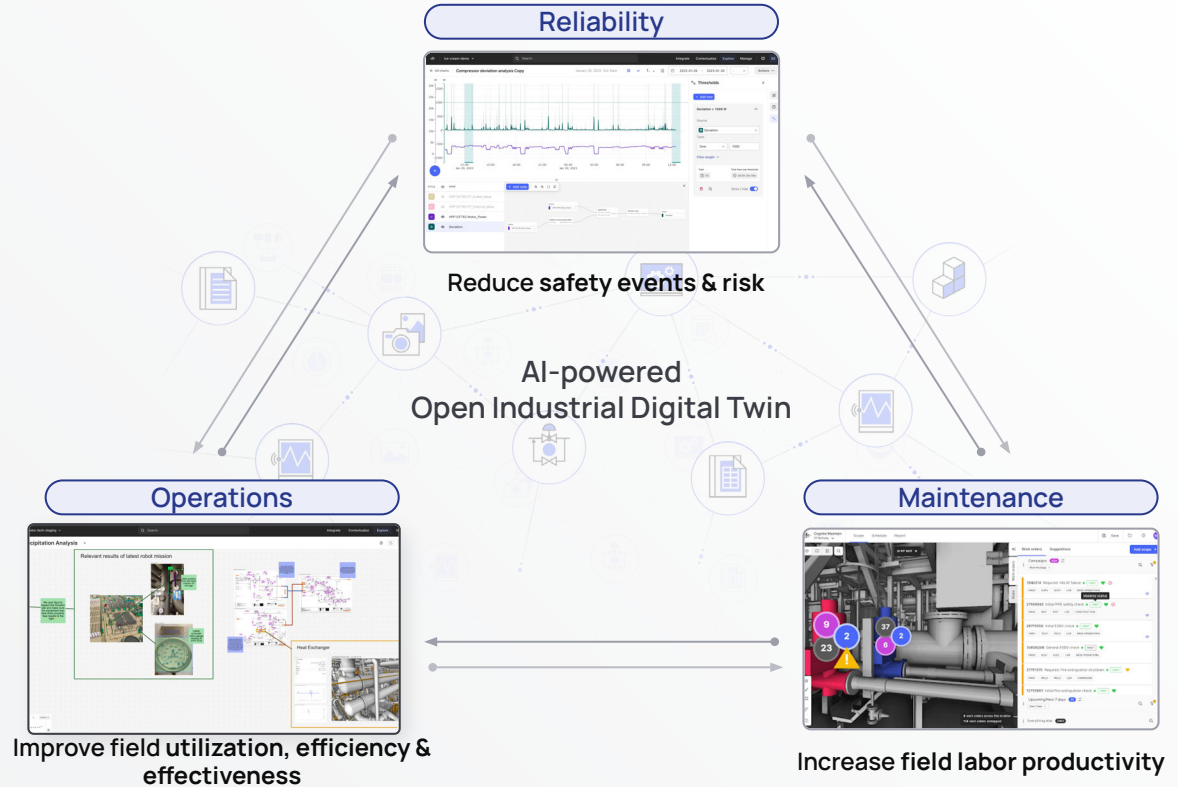


...remains the main cause of siloed and manual workflows



We need a unified APM approach to **achieve continuous improvement...**

- Improve asset reliability and health monitoring
- Optimize activity planning and maintenance with automated suggestions
- Efficient and safe field execution and data capture, assisted by generative AI



“77% of industrial operations leaders demand a greater consolidation of Asset Performance Management use cases”

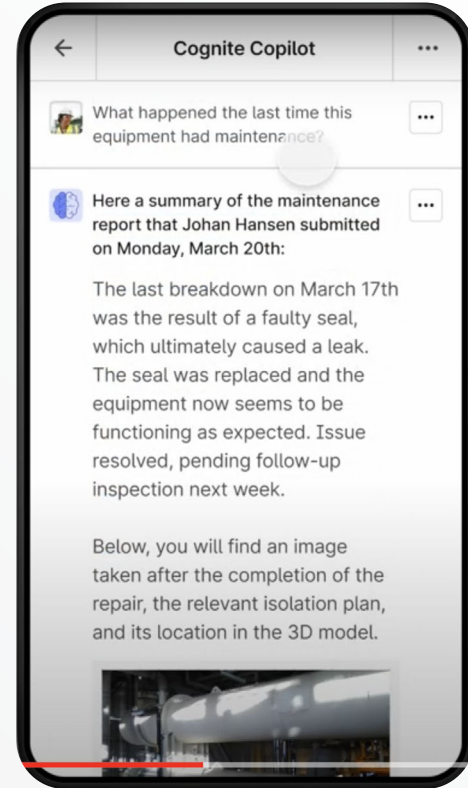
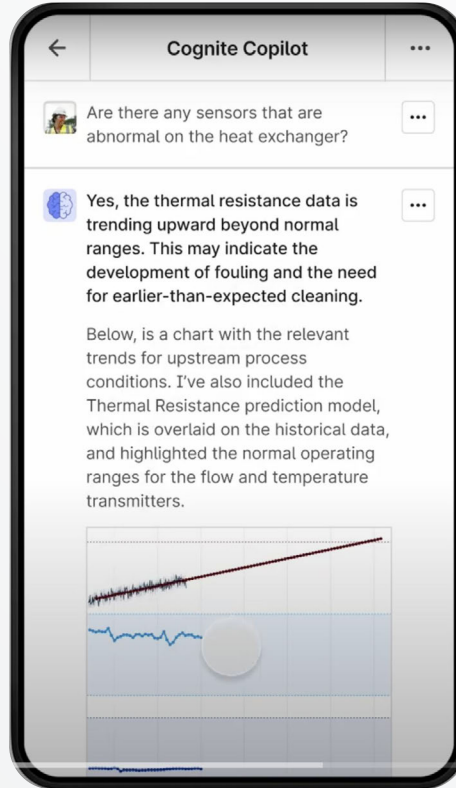
verdantix

Operations:

Enable simple access to industrial data and cross-source insights

As an operator in the field, I don't have the time to double-check multiple sources (data and people) to gain context.

I need quick access to trustworthy data so I can understand real world conditions and take the appropriate actions to improve production ASAP.



Maintenance:

Optimize planning, scheduling, and execution of activities

As a maintenance manager, I am always trying to proactively plan, but I have little insight into operations.

Priorities can shift rapidly, and it is a painful process to shift resources to execute new plans while minimizing impact to scheduled activities.

A screenshot of a software interface titled "LOR - SDNS" and "Maintenance Activity Plan". The main area displays a complex Process and Instrumentation Diagram (P&ID) with various equipment and piping. A blue line highlights a specific path through the diagram. On the right side, there is a chat window titled "Heat exchanger cleaning" with three messages. The first message asks about the last update to the isolation procedure. The second message provides information about a modification on January 14, 2023, and mentions yellow highlights on the P&ID. The third message asks about the last update to the isolation plan and standard operating procedure. Below the chat is a button labeled "Update maintenance plan" and a text input field "Ask anything...".

Heat exchanger cleaning
Scheduled cleaning of heat exchanger to reduce risk

January 14
WORK ORDER

What is the last time someone updated the isolation procedure for the equipment that just failed unexpectedly?

This isolation plan was last modified when this heat exchanger was cleaned on January 14, 2023. The work order has been added to the canvas. I've also highlighted the differences in the old isolation plan in yellow on the P&ID.

What is the last time the isolation plan and standard operating procedure for this job has been updated?

The best approach would be to move the scheduled heat exchanger cleaning forward by one week. You can see the consequences of this change in the Gantt chart that has been added to the canvas. See the attached summary for more info.

Update maintenance plan →

Ask anything...

Reliability:

Accelerate shift to data-driven condition-based activities

It's very hard to understand the condition across many different equipment as data and analysis are captured in disjointed systems and some assets have very little data.

Often times I need more complete information to take timely actions...



To troubleshoot the issue of the coffee being cold, you can start by checking the temperature sensor readings in the time series data. If the temperature readings are consistently low, it may indicate a problem with the heating element in the coffee machine. You can also use the infrared camera on the robot to check the temperature of the coffee machine directly. If the temperature is low, you may need to replace the heating element or adjust the settings on the coffee machine to ensure that it is heating the water to the correct temperature.

To troubleshoot the issue of the main water supply valve, you can use the computer vision model to check if the valve is open or closed. If the valve is closed, you may need to open it to ensure that the coffee machine is receiving water. You can also check the diagram that shows how the coffee machine is connected to the main water valve to ensure that the connections are secure and there are no leaks.



show the chart with the temperature values



Ok, showing the chart for 21PT1019 for the last week:



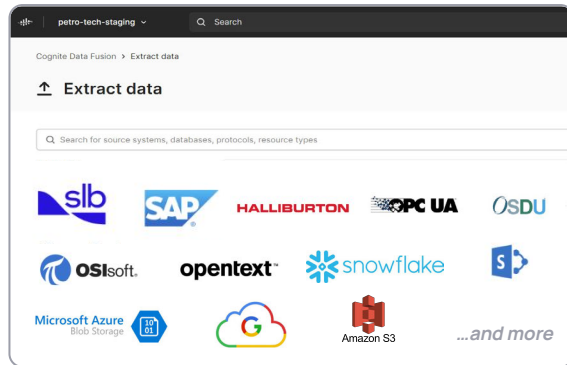
Section 2:

How do you deploy APM use cases at scale?

1. Getting started
2. What's required?
3. How do you deploy and scale?

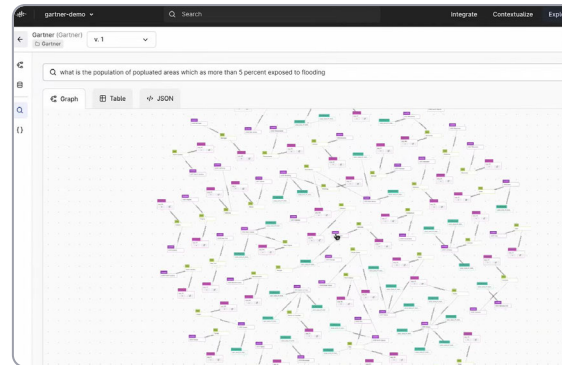
Getting Started: Prerequisites and order of operations

Liberate data



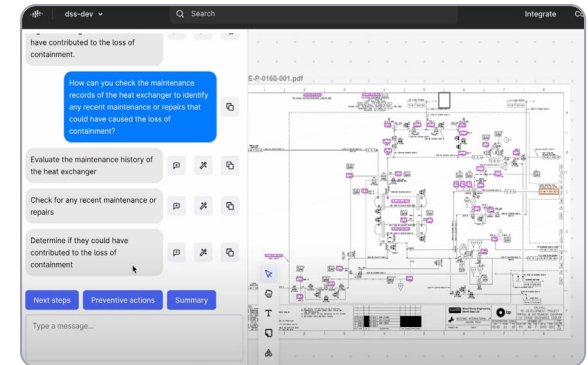
- All OT, IT and engineering data - **contextualized with AI**
- **Pre-built extractors** into common industrial sources and protocols
- Everything is accessible through a well-documented, open API

Build data foundation



- Interact with contextualized data through models, drawings, and **Google-like search**
- Automatically populate data models for faster and efficient scaling across
- Build knowledge graphs/ digital twins and leverage AI analytics to optimize plans

Create insights with AI



- Collaborative workspace for any data type (interactive P&IDs, 3D Models, and more)
- **AI-copilot** to find relevant data, no-code capabilities to create summaries, solutions, conduct root-cause analysis and make recommendations

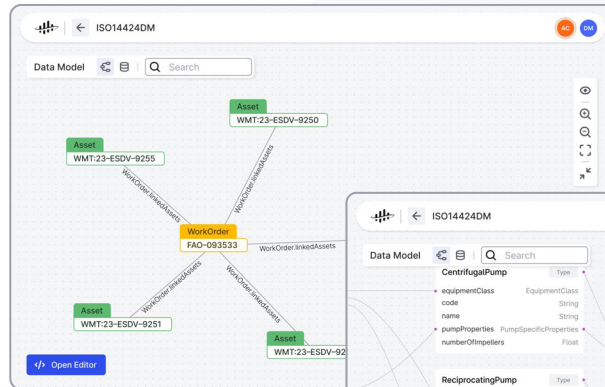
The industrial knowledge graph enables deployment of co-pilots and more, while serving as a foundation for scaling site-to-site

Automate data contextualization

- AI-powered contextualization services
- Mappings maintained automatically

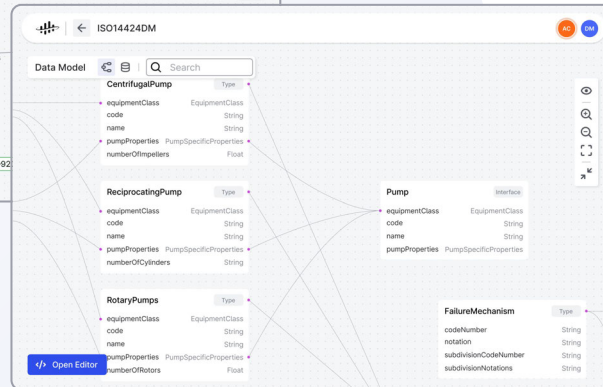
Contextualize all data types

- OT, IT, engineering, videos, images, etc.
- Pre-built extractors to industrial sources / protocols



Cognite Data Fusion's Industrial Knowledge Graph

Cognite Data Fusion's Flexible Data Modelling



Auto-populate data models

- AI suggestions to populate fields
- Copilot powered search

Use pre-built model templates

- Based on industry standards (ISA, CFIHOS, OSDU)
- Tailor templates to unique needs

With the right data + AI framework, you can rapidly scale proven capabilities & value

Scale what is proven

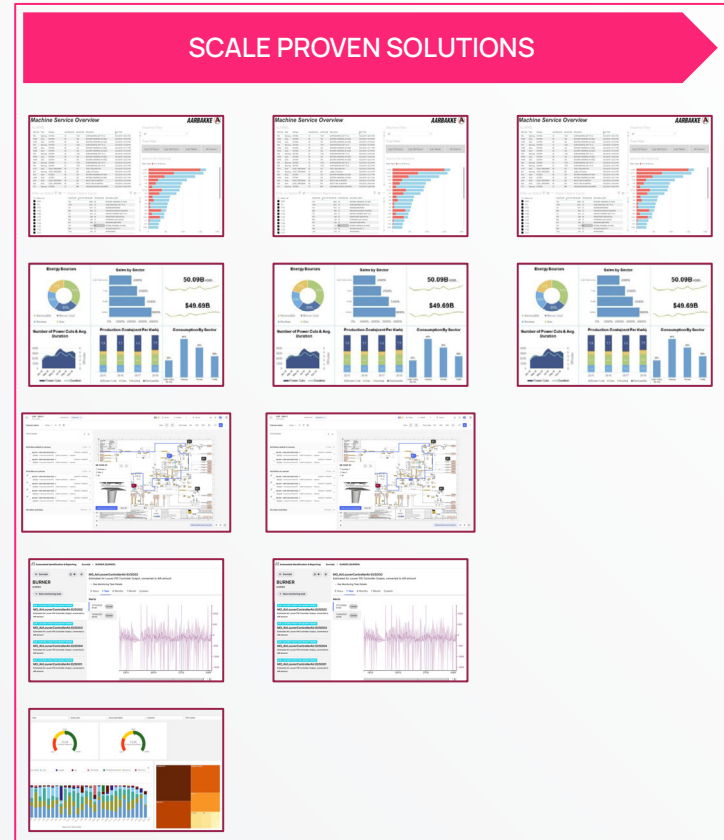
Rapidly scale proven solutions across production assets and fields

Scale in weeks, not months/years

With templated solution, and the ability to easily reuse previous data efforts, scale solutions in only days

Collaborate on innovation

Continuously improve and unlock value from 10s of use cases across assets by collaborating and sharing experiences



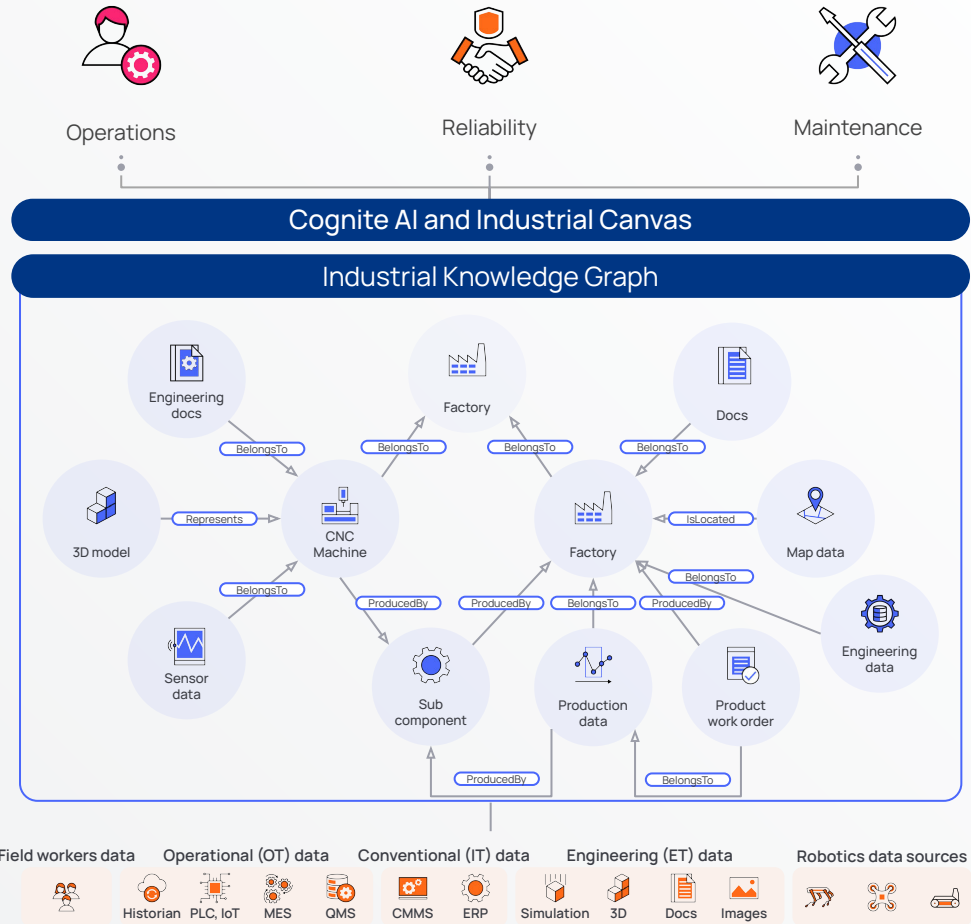
Section 3:

Get more value out of your data, for your APM program

1. APM foundation
2. Connected worker
3. Data-driven maintenance
4. Remote & Autonomous Field Inspections

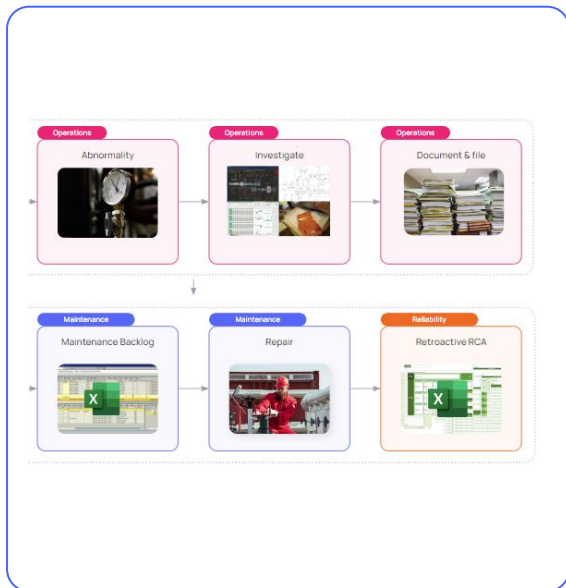
With Cognite Data Fusion[®], **access and continuously enrich** your industrial data

- Unified data everyone can trust and use
- One workspace for any type of data with a copilot-powered search
- Continuous enrichment and data capture, assisted by AI



Go from this...

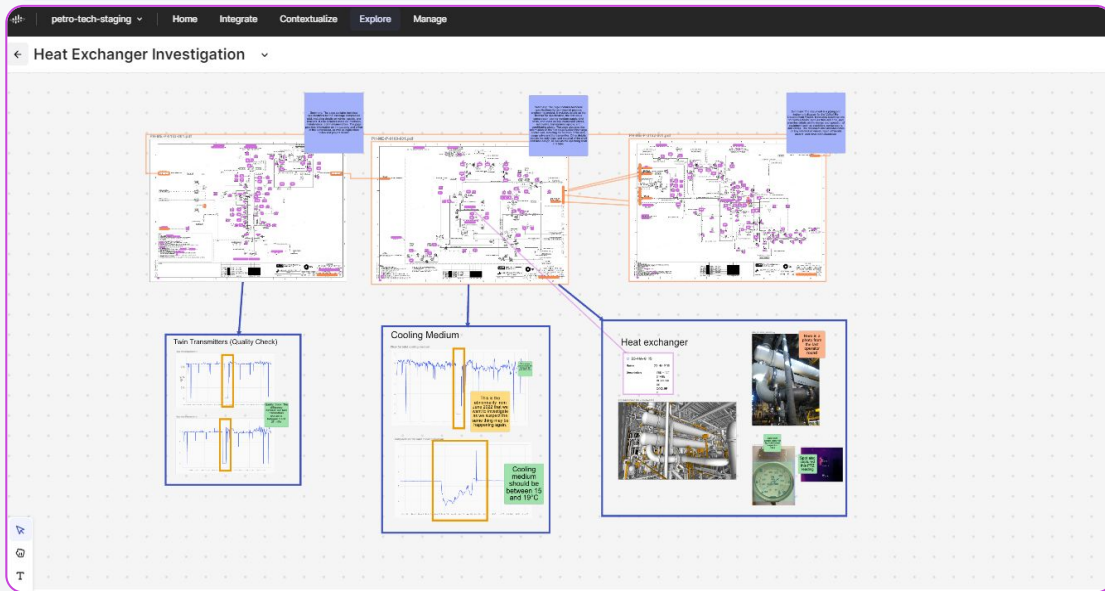
Manual and siloed data workflows



No simple access to complex industrial data and insights

...to THIS

Single workspace for data & analytics powered by AI



Explore

Access and add any type of data in one composable environment + Copilot powered research.

Collaborate

Annotate, tag users, share insights with seamless integration into no-code analytics.

Create

Summarize documents and write complex queries using natural language.

[Learn more about Cognite Data Fusion's Industria Canvas](#)

Cognite Data Fusion

The Leading Industrial Data Operations Software



Industrial

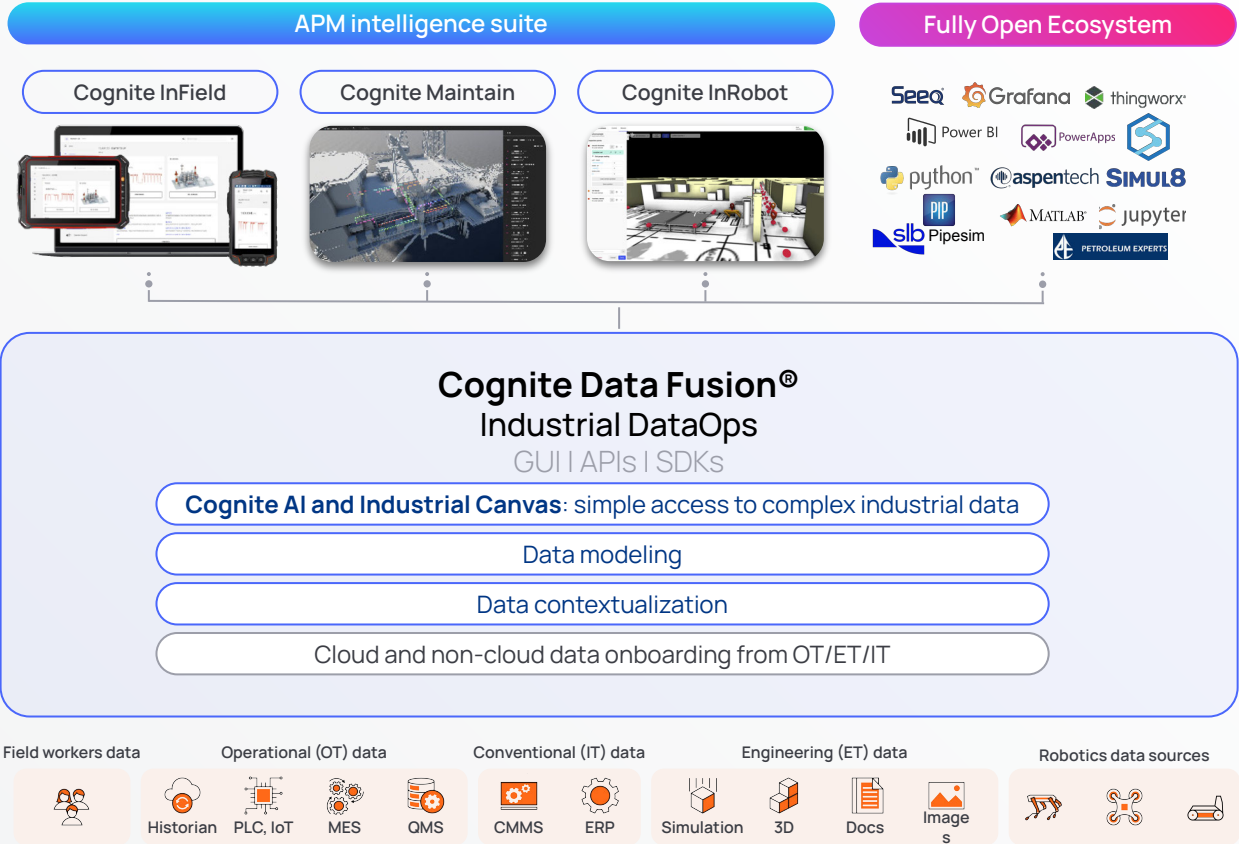


Simple



Scalable

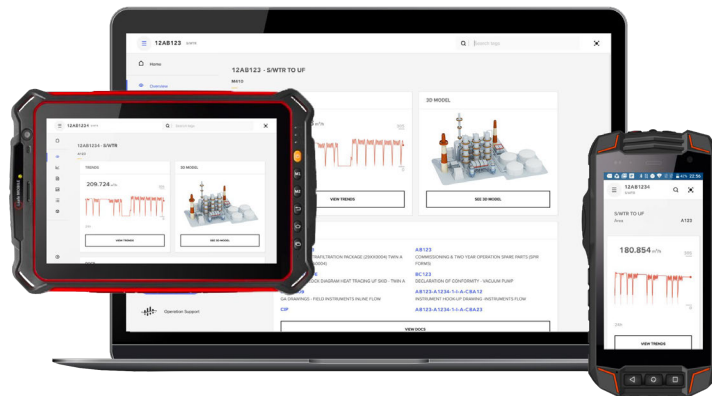
Cognite Tech Stack



Connected Worker

30-50%

reduction in time to execute
scheduled work orders



Empower decision makers and enhance field worker productivity by **bridging the gap** between **valuable insights from the field** and **effective execution**

[LEARN MORE](#)

Instant access to contextualized data

Generative AI-assisted search and summary for all equipment data on mobile, PC or tablet devices

Contextualized and interactive 3D data, P&IDs, documents

Take image and video to share the state of equipment across teams

Efficient end to end work order execution

View all work orders to be done from CMMS

Create flexible checklist based on work order object lists

CMMS writeback from application to e.g. create notifications

Capture field observations in real time, increasing the quality of work progress/status notifications

Digitized routine rounds

Round template creation and user governance replacing paper-based checklists

Flexible scheduling and collaborative checklists across shifts

Document using all data formats (images, videos, text), and provide smart reports to relevant stakeholders

Before Scenario

Aker BP faced the challenge of optimizing visual inspection and function tests for field workers on offshore installations. The current ordering of the object list was rarely optimized, resulting in workers revisiting the same locations multiple times and walking long distances.

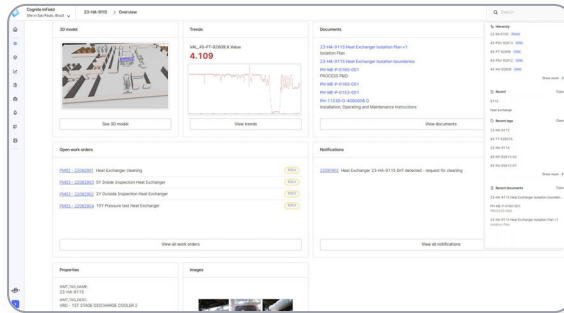
Pain Points

Their process was manual and led to:

- Extra time and resources spent
- Inability to quickly locate equipment tags in the field
- Lack of context for equipment tags and 3D models

Solution

Aker BP used one of Cognite's APM suite tools to connect equipment tags to 3D models to optimize visual inspection and function tests. This improved efficiency, by grouping equipment tags by area, displaying equipment tags in 3D, and providing high-level 3D views to see the areas containing equipment tags in the larger context of the installation.



Positive Business Outcomes

By providing 3D models and equipment tags through InField, Cognite enabled Aker BP to expedite valve inspections. They were able to reduce the time it takes to inspect the valves, leading to reduction in time spent on visual inspections, improved data access for field workers, and enhanced communication between the control room and field.



Improved communication between control room and field



Less time spent on visual inspection of valves



Access to contextualized data in the field

Deliver Data-Driven Maintenance

[Home](#)

15-30%

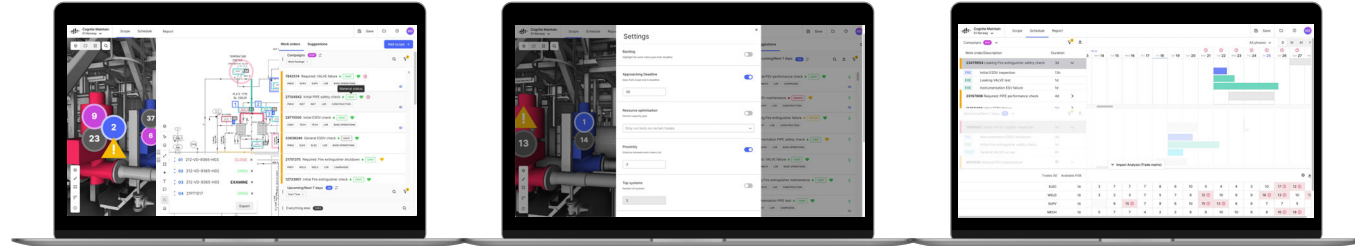
annual reduction in planned shutdowns

5%

efficiency gains on maintenance execution overall

Breaks down traditional data and organizational **barriers** to bring **AI and seamless collaboration** into your maintenance process

[LEARN MORE](#)



Collaborative planning & optimization

Creation and optimization of plans through contextualized and interactive lenses

Efficient and reusable job preparation supported by intuitive filtering and search

Enable more informed decision making through collaboration features

Enrich and standardize plan data

Support users lacking a source system to ensure that all data is collected in one place

Standardize planning data to provide transparency across

Enrich data in source system through relevant metadata (resource / team definitions) and guide decision making

Integrated view on activities to optimize across

View and adjust schedule in different time scales, considering available capacity

Identify the potential gaps between the activities and resources

Seamless navigation and reorganisation of schedule supported

Before Scenario

A manufacturing company relied on scheduled outages for seal replacement, and if none were available, they had to resort to unplanned outages. The mean time to repair for seal replacement was ~5 days, which included the activities of shutdown, repair, and start-up. This resulted in downtime and disruptions to the operational efficiency of the unit.

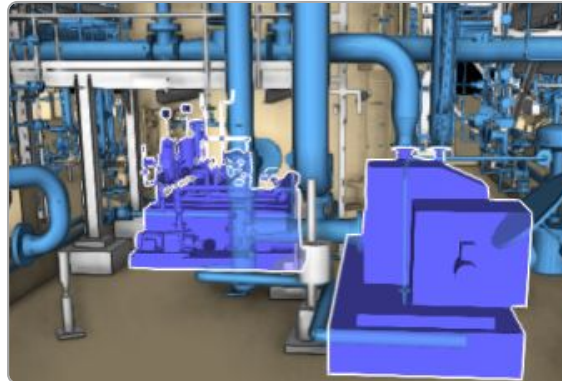
Pain Points

The inability to predict outages resulted in costly downtime

- No alerts prior to seal failure resulted in unexpected disruptions
- Unplanned outages led to significant time loss and operational disruptions

Solution

Digital insights offered the capability to track and analyze seal performance trends, simplifying the identification of degradation issues. The use of advanced analytics and real-time monitoring allowed for early alerts of potential south catalyst recycle pump seal failures, that previously would have been difficult to identify from manual readings on paper.



Positive Business Outcomes

The company is now able to proactively monitor and detect seal issues, leading to timely action and efficient maintenance. Plus, now operators are able to strategically plan a short outage to address seal problems, taking advantage of existing shutdown opportunities.

Cognite Data Fusion helped minimize downtime, improve operational reliability, and optimize production efficiency.



\$5.0m

Per year
Cost Avoidance

Remote & Autonomous Field Inspections

1.5%

Increased operational uptime

40%

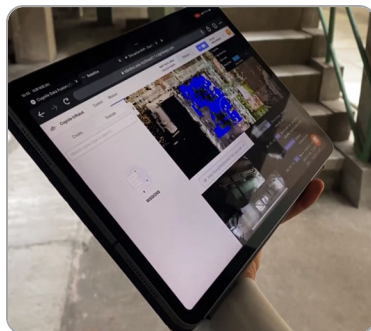
reduction of time frontline workers
need to spend in the field

5%

reduction in risk profile

Enabling remote and autonomous execution. Use **relevant information available** to setup and configure robotics route

LEARN MORE



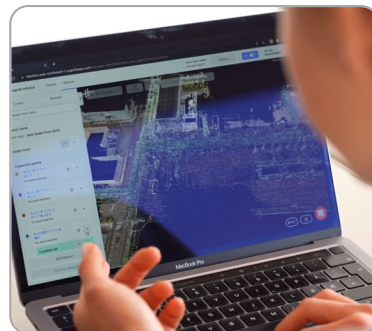
Efficient equipment monitoring & mission deployment

Live troubleshooting, by comparing historical data with stream from robot

Auto plan and deploy robot missions, powered by generative AI

Capture and tag data, making it easily available in the cloud and linked to relevant equipment

Get live stream of site with all sensors from robot, and navigate in an interactive 3D model

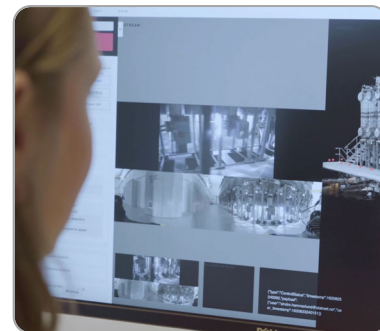


High frequency data capture, for up to date view

Detect failure modes and expanded sensing, with thermal, high resolution and 360 images.

All the data collected and captured during the mission is automatically contextualized, with simple access for all

Gen-AI powered search and summary of all relevant information



Analyze captured data for improved risk picture

Have collected data linked to relevant documentation and historian data for analysis

Data converted to annotations and time series, for building KPI with metrics and dashboards from data collected

Integrate with third party inspection and dashboard solutions, with all data easily available through connectors and API

Before Scenario

Inspection of offshore wind farms was increasingly expensive and posed a significant risk to health and safety.

Orsted needed new ways to reduce reliance on remote visits to assets, increase safety, awareness of asset status and reduce costs.

Pain Points

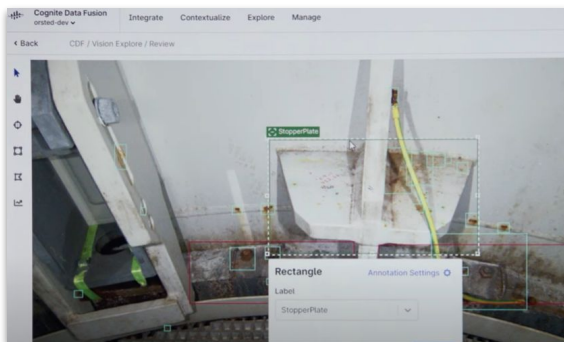
Inspection of the inside of turbine foundations posed:

- High safety risk of operating in an enclosed space
- Safety risk necessitated a large of technicians to ensure safety
- Need to find a better data capture approach to observe corrosion

Solution

Ørsted's maintenance technicians used a drone to collect images and other sensor data. Then, the data is automatically extracted from the drone provider's cloud platform and organized in Cognite Data Fusion® in order to provide Ørsted's domain experts with the necessary information to perform digital inspections.

Cognite Data Fusion® enabled Ørsted to run computer vision models on the data to track corrosion and cracks.



Positive Business Outcomes

The new, data-driven approach to inspection gives Ørsted's technicians a complete overview of developing maintenance issues. This enables the company to reduce the number of technicians needed to conduct maintenance from four to two, and eliminates the need to physically enter enclosed spaces within the foundation of the wind turbines.



Reduced maintenance cost by using fewer engineers and moving from manual to digital inspections



Increased energy production by reducing the downtime of a wind turbine due to inspections



Established safer work environment

Section 4:

Get started today

1. Business value
2. Additional resources
3. Get in touch with us

The business value of Cognite Data Fusion®

Forrester Consulting: **400% ROI** from Cognite Data Fusion®

1-2%

Gain in SME
Efficiency

1-5 days

Reduced
Downtime

1%

Gain from Data
Productivity

2-3%

Reduced
Maintenance \$

2-3%

Increased
Machinery Optz

7-8%

Less Energy \$

Cognite AI

Increases efficiency of industrial workflows by **10x**
and **ease of use for end-users**

Industrial Canvas

Analyze complex scenarios 90% faster than before

Data Modeling

Save thousands of domain expert hours

Industrial DataOps

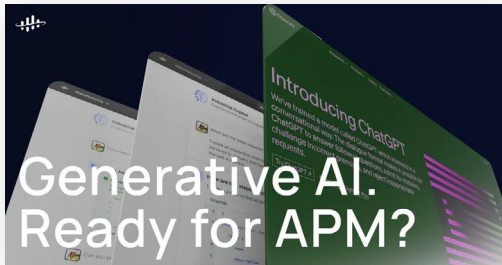
Scale asset-to-asset, site-to-site in hours and weeks, not months and years.

Learn more about data-driven APM



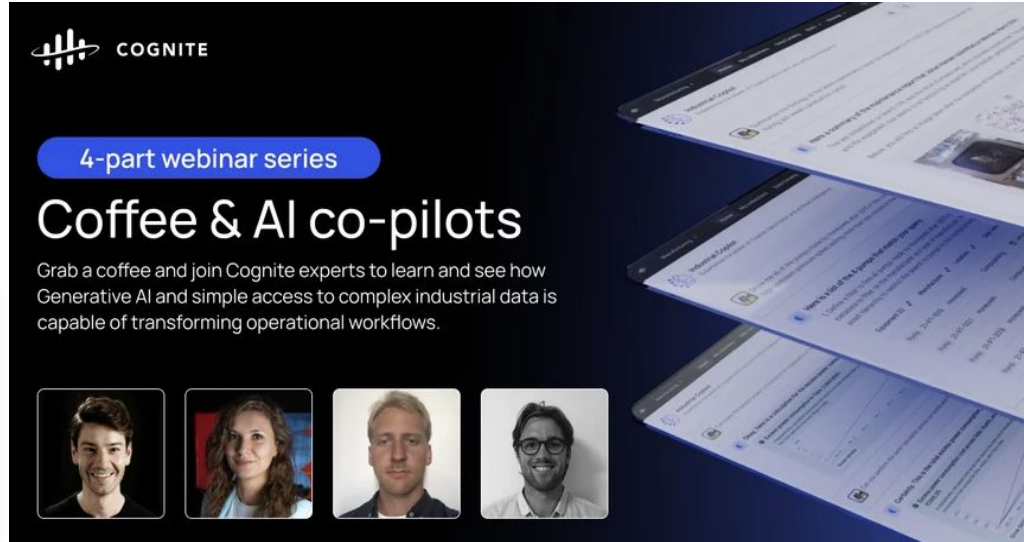
APM has a Data Problem

This slide features a blue background with a white Cognite logo in the top left. The main text 'APM has a Data Problem' is in a large, bold, blue font. To the right, there is a 3D illustration of an industrial facility with various tanks and pipes, overlaid with a white line graph showing data trends.



Generative AI. Ready for APM?

This slide has a dark background with a white Cognite logo in the top left. The text 'Generative AI. Ready for APM?' is in a large, white, sans-serif font. In the background, there are several overlapping images of computer screens displaying data dashboards. One screen prominently shows the text 'Introducing ChatGen' and 'We've trained a model to generate natural language responses to complex requests'.




COGNITE

4-part webinar series

Coffee & AI co-pilots

Grab a coffee and join Cognite experts to learn and see how Generative AI and simple access to complex industrial data is capable of transforming operational workflows.



This slide features a dark background with a white Cognite logo in the top left. The text '4-part webinar series' is in a white rounded rectangle. Below it, the title 'Coffee & AI co-pilots' is in a large, white, sans-serif font. A paragraph of text describes the webinar. Below the text are four circular headshots of the speakers. On the right side, there are several overlapping images of computer screens displaying data dashboards.



5 things you need to know about Generative AI for industry

This slide has a dark background with a white Cognite logo in the top left. The text '5 things you need to know about Generative AI for industry' is in a white, sans-serif font. In the center, there is a large blue circle containing a white brain icon. Surrounding the brain are various small icons representing different aspects of industry and data.



COGNITE

Cognite Product Tour: Data-driven Asset Performance Management

2023

with guests from:



Moe Tarabian, CPO
Markus Christian Bertram, Product Manager
Catherine Steinschuld, Senior Director of Product Management
Lewin Mahn, Partner

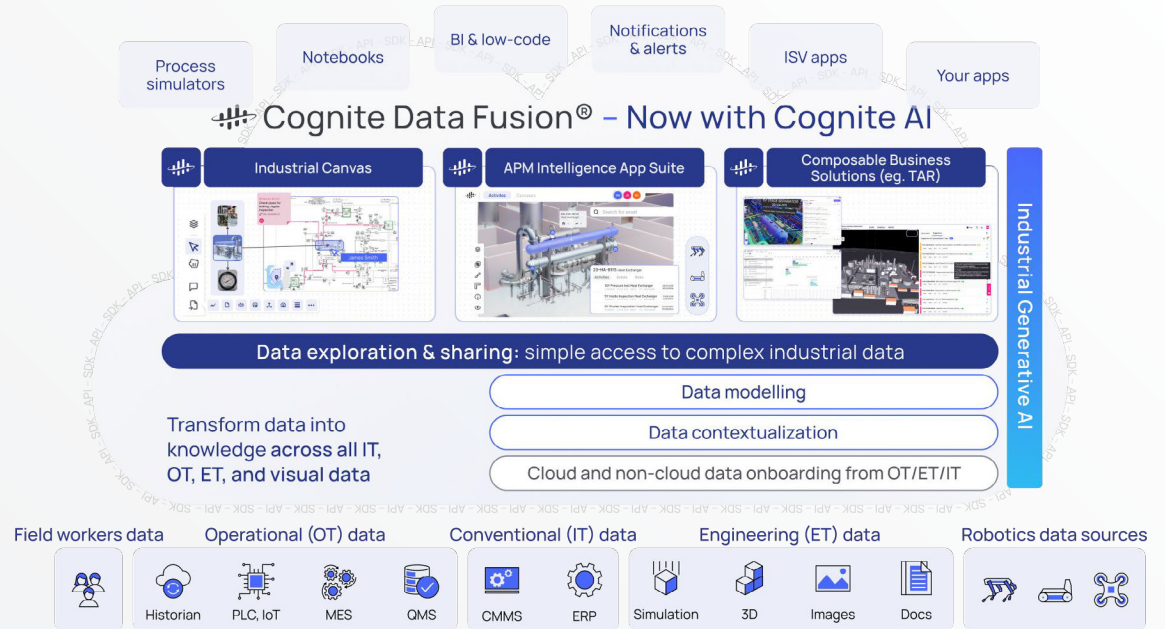
PINNACLE | Celanese | OMV

This slide features a dark background with a white Cognite logo in the top left. The title 'Cognite Product Tour: Data-driven Asset Performance Management' is in a white, sans-serif font. To the right, the year '2023' is displayed in a large, white, outlined font. Below the title, there are four circular headshots of the guests. At the bottom, there are logos for Pinnacle, Celanese, and OMV.

Cognite offers comprehensive capabilities to accelerate your AI roadmap

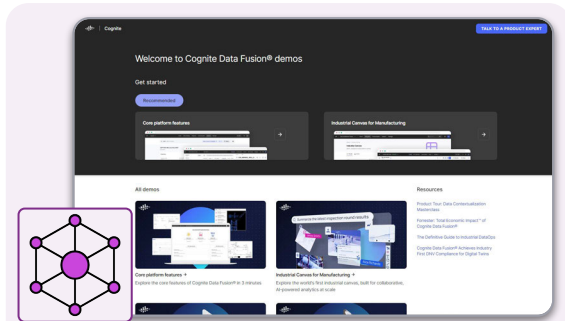
→ Get in touch:
cognite.com/contact

→ Get a free AI value review:
cognite.com/en/value-review

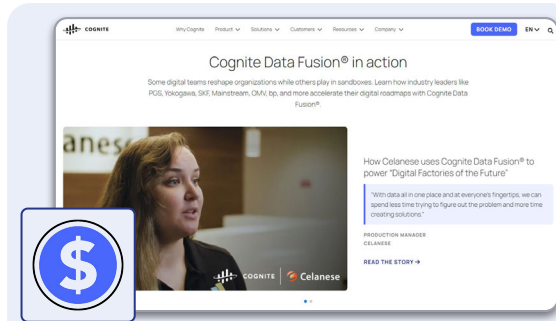


Cognite Data Fusion offers industry-leading, automated data contextualization capabilities that ***make AI work for industry***

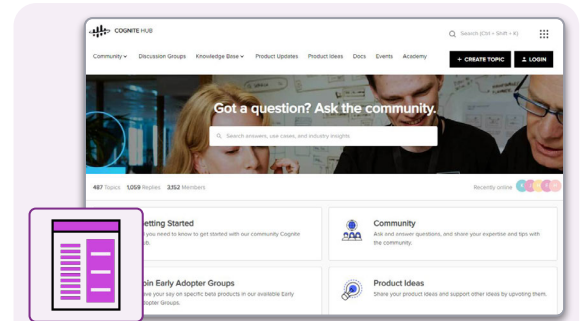
Learn more about Cognite



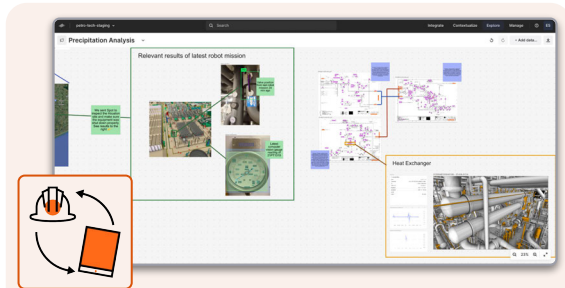
Cognite Demo Hub
Explore Cognite Data Fusion



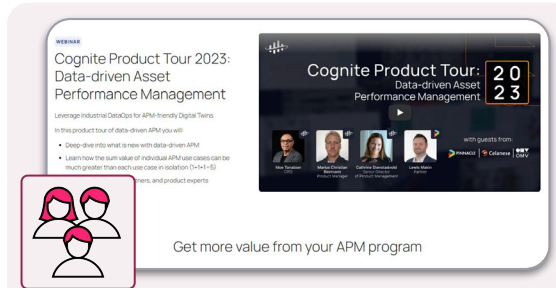
Customer Stories
Cognite success stories



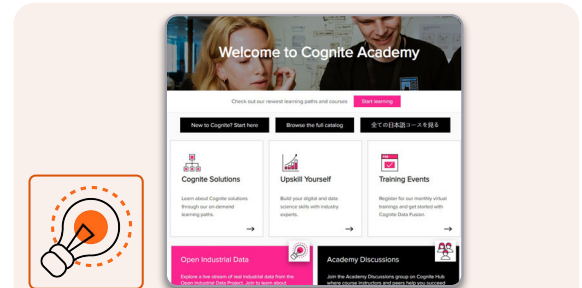
Cognite Hub
Cognite's user community



Industrial Canvas
Simple access to complex industrial data



Customer Solutions
Cognite's solution areas



Cognite Academy
Learn Cognite Data Fusion

Industrial Software for Global Industry

Simple Access to Complex Industrial Data

Cognite is the fastest growing industrial SaaS company in the world

Key Partners:



Global Partnership in the Energy Industry



Global Partnership for Manufacturing



Global Alliance & Center of Excellence



Global ISV, PRACR, Marketplace



Google Cloud Partner; Technology Partner of the Year: Manufacturing



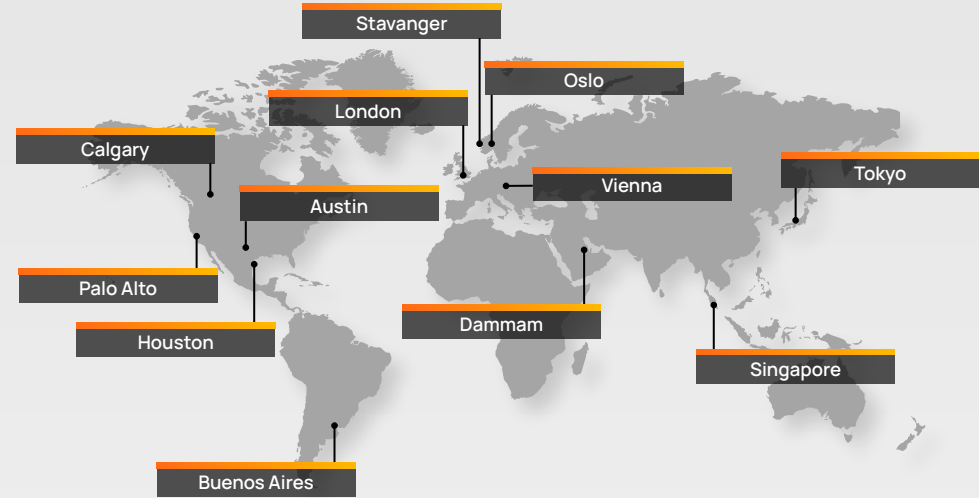
Long-term digitalization partner with 7.4% stake in Cognite



\$150M Series B (at \$1.6B) Redefining Modern industrial Data Management



\$75M Series A (at \$500M) To Accelerate Leadership in Industrial DataOps



Our Customers:

Energy	Manufacturing	Power & Renewables



COGNITE

Thank You

contact@cognite.com
www.cognite.ai

