

NOVEMBER 2022

Aggregating engineering content, data and documents and real-time data into a common user experience

Rick Standish, Gary Patterson, Steve Parvin, and Lori Warda

AVEVA

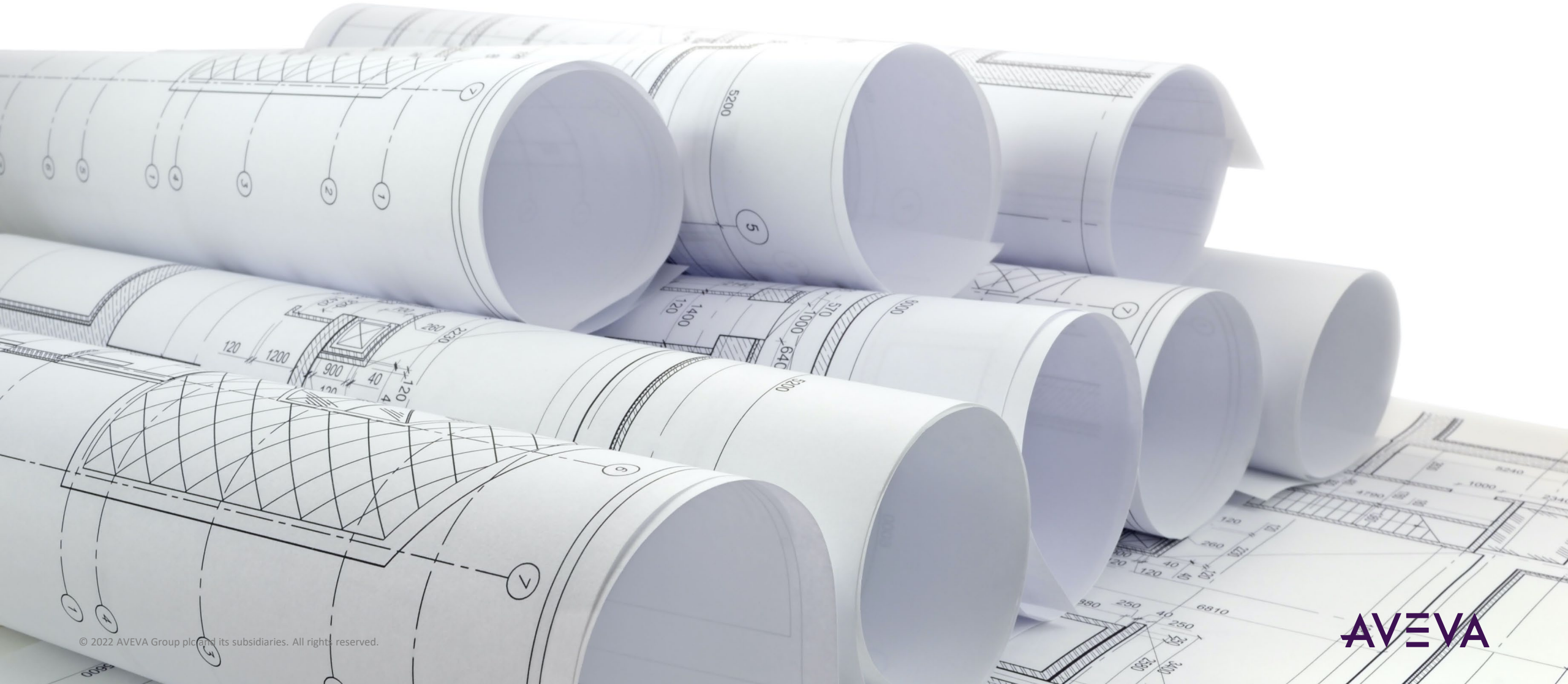


Introduction – the Business Challenge

AVEVA Asset Information Management

AVEVA Insight

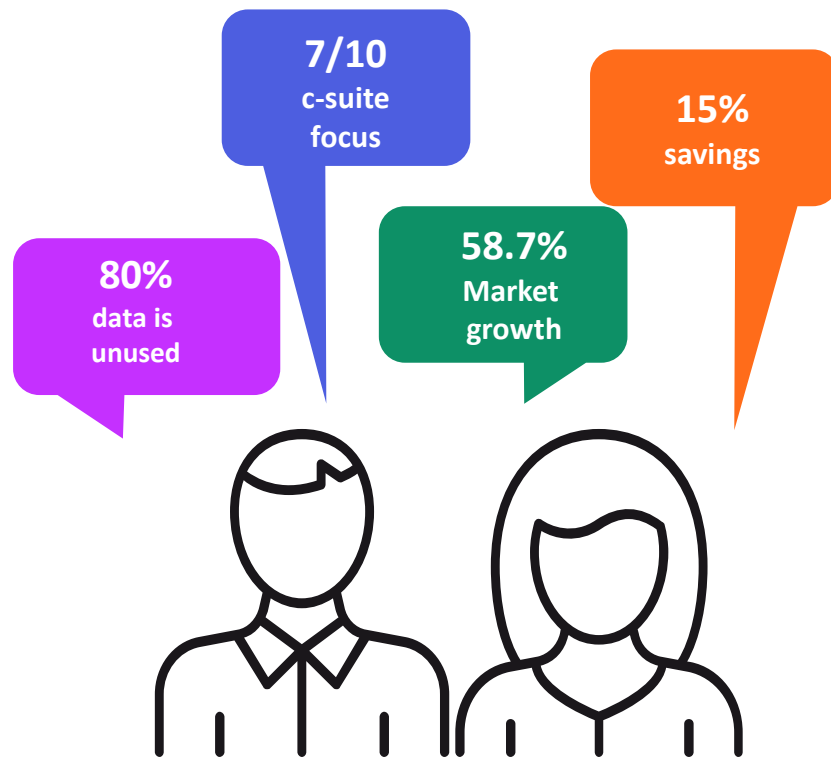
Digital Transformation



Business Challenge

AVEVA

Market Landscape: Digital Twins are gaining momentum



80% of data is unused

“The majority of today’s data is unstructured, making it difficult for organizations to create understanding and value from what they collect. Data is also increasingly distributed, stored across private data centers and public clouds. Landlocked, it provides no enrichment or meaning.”¹

7/10 of c-suite execs are adopting

“70 percent of C-suite technology executives at large enterprises are exploring and investing in digital twins.”²

They unlock 15% OPEX Savings

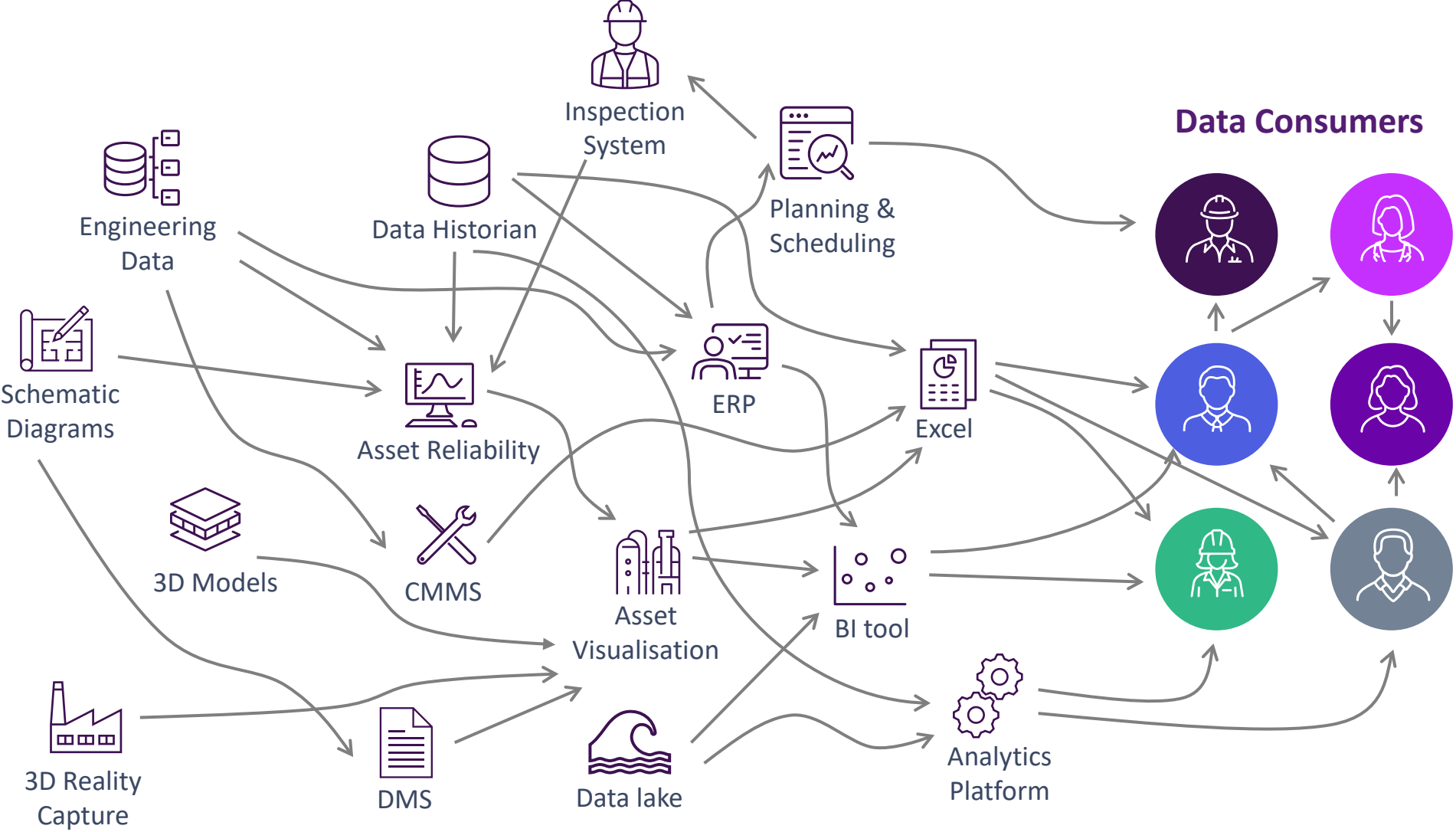
“...digital twins reduce the time needed to deploy new AI-driven capabilities by up to 60 percent and capital expenditures and operating expenditures by up to 15 percent.”²

Digital Twin Market Growth: 58.7%

“Market estimates for digital-twin investments of more than \$48 billion by 2026—a 58 percent compound annual growth rate.”²

Sources: (1) [Forbes](#) (2) [McKinsey](#)

Digital Twin - The Data Challenge





Trusted information matters

Accurate decision making relies on being able to find the correct information, at the right time

- Businesses with poor asset information management processes are found have total business expenditures up to 5% higher.

Ref. IAM Institute

Asset Information, Strategy, Standards and Data Management SCG, 2018

- “Only 2/3 of required asset information is in the EAM system”

ARC Advisory Group survey 2010/SAP-Centric EAM 2011

- “The cost of poor asset information equates to 1.5% of sales revenue p.a.”

Ref. NIST Study / SAP-Centric EAM 2011

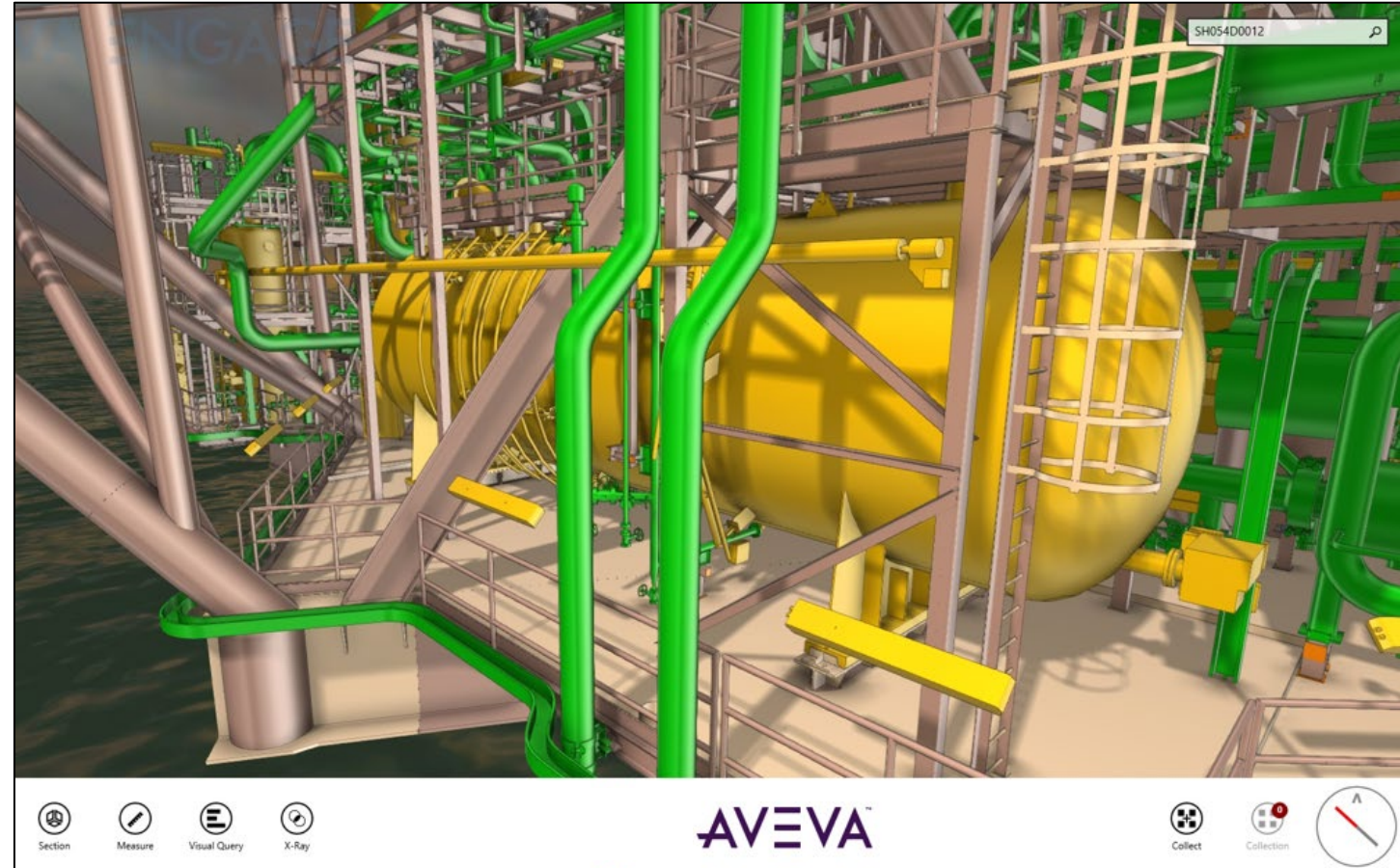
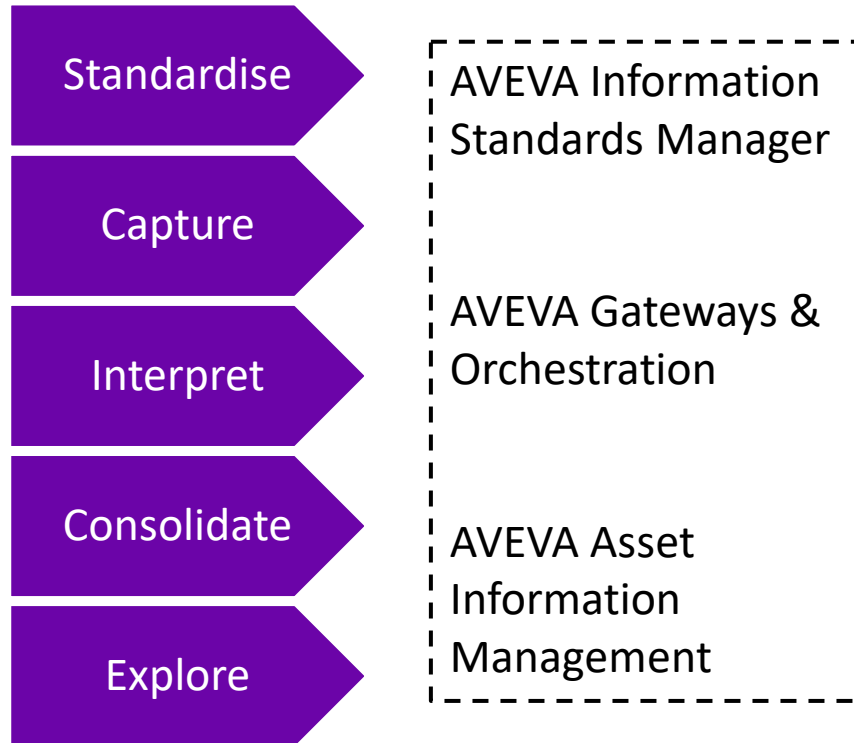
The Cost of Untrusted/Unavailable Information

@\$50\hr ~
\$8m

| Department | No. of People | Average Manhours per week\Person | | | | | Total A+B+C+D | Manh\Year (40 wk work yr) |
|--|---------------|----------------------------------|------------|-----------------|---------------------|----|----------------|---------------------------|
| | | Search (A) | Verify (B) | Unavailable (C) | Correct\Compile (D) | | | |
| Operations - OPEX | | | | | | | | |
| Offshore – Maintenance and Facility Integrity | 238 | 5 | 3 | 2 | 3 | 13 | 123,760 | |
| Offshore – Operations Engineer | 12 | 1 | 10 | 8 | | 19 | 9,120 | |
| Onshore – Maintenance and Facility Integrity | 3 | 5 | 5 | 2 | 3 | 15 | 1,800 | |
| DCS – Document Support | 30 | | | 10 | 10 | 20 | 24,000 | |
| | | | | | | | 158,680 | |
| Modification - CAPEX | | | | | | | | |
| Engineering Team | ~30 | 5 | 8 | 2 | | 15 | 18,000 | |
| Offshore – Support to Engineering | ~30 | 4 | 4 | 17 | | 25 | 30,000 | |
| DCS – Project Document Controller | ~4 | 10 | 15 | | | 25 | 4,000 | |
| Extract from “Digital Maturity Assessment” – Customer Operating Region | | | | | | | 52,000 | |

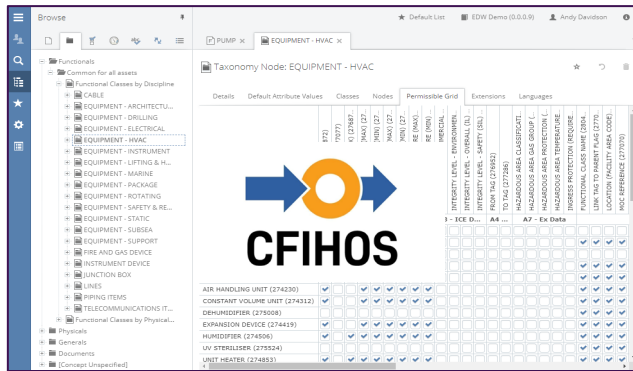
AVEVA Asset Information Management

Key building block of the Digital Twin

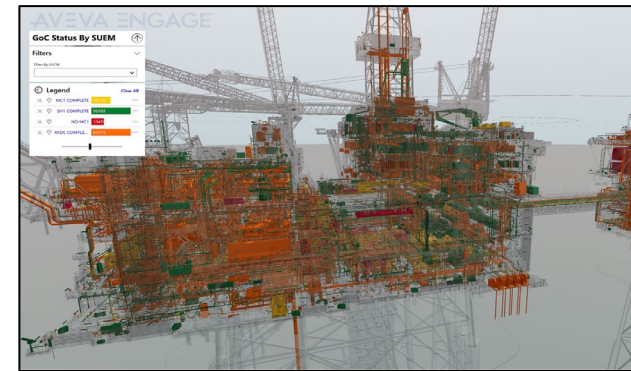


Capabilities during CAPEX

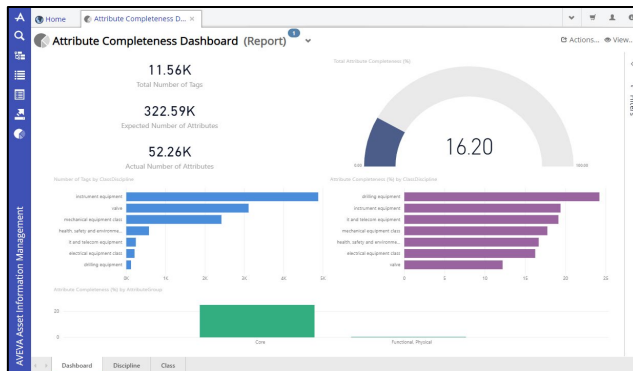
Improve visibility, trust and control to meet budget and schedule while enabling a smooth handover and a quick start-up



Information standard aligned with international standards to guide adoption of a consistent approach to information.



Collaborative, graphical reviews of constructability and commissioning status



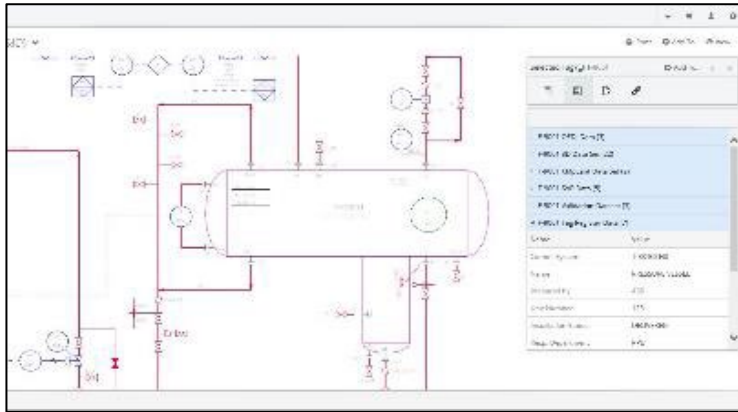
Accurately measure data quality Verify consistency, compliance and completeness of data from EPC.



Use the 3D model for conducting e-reviews and apply mark-up remotely.

Capabilities during OPEX

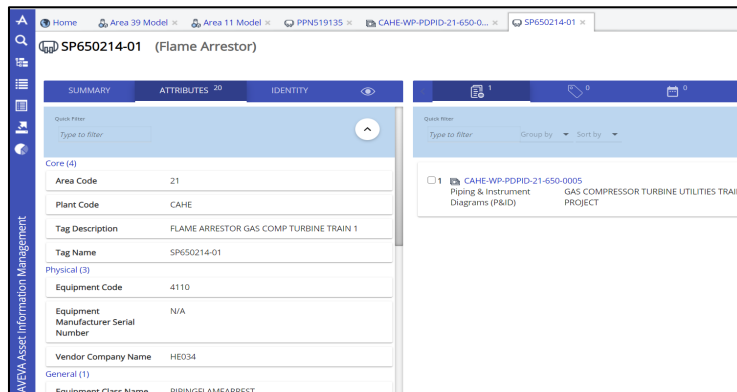
Use of As-Operated Engineering Data to support analysis for Performance, Safety, Process Issues...



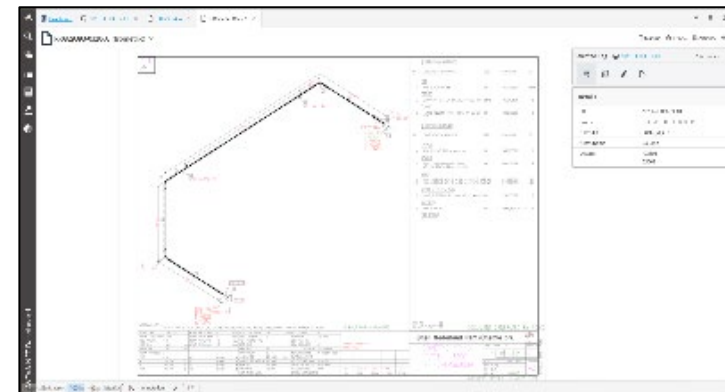
Intelligent,
Hotspotted
2D Diagram
(PEFS, Instruments &
Electrical drawings



Interactive
Streamed 3D
Model



Functional
Location Summary
Page



Intelligent,
Hotspotted
Isometric,
Corrosion Loop Iso
etc

Get to the Cloud

A truly scalable solution

Today's technology

opportunities lost

Legacy Technology → People & Process Impact

| | |
|-------------------------|---------------------------------------|
| Rigid legacy systems | Security & asset risk |
| Sequential tasks | Data trapped in silos |
| Server access issues | Data hard to access |
| Scaling asset by asset | Everything is bespoke |
| Data doubles each 18m | Choking on 4G/5G data |
| Batch processing | Slow decision cycle (Monthly/weekly) |
| Dated legacy IT systems | Training, cost, recruitment challenge |
| Disparate project teams | Stagnated collaboration |



Tomorrow with AVEVA

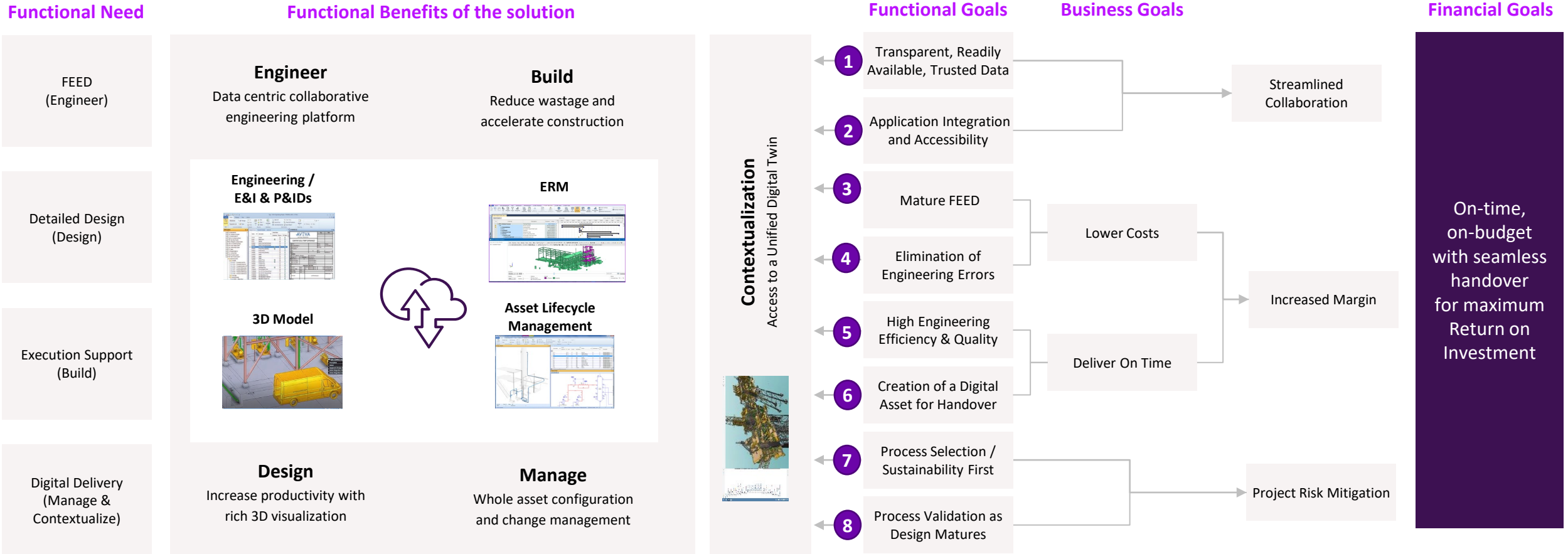
opportunities realized

AVEVA SaaS → People & Process Impact

| | |
|-------------------------------|---|
| Continuous upgrades | No legacy issues/costs |
| Single data platform | People & machine collaborating |
| Available & secure | Anywhere, anytime access with an internet connection (any device) |
| Proven repeatable processes | Scale at speed (hrs not months) |
| AI, ML | Magnitude of insight |
| Alert and notification driven | Realtime decision cycle |
| Business led user experience | Fingertip insight for everyone |
| Up-to-date, transparent data | Improve sustainability performance |

A Unique Cloud Solution

Addressing the broadest challenges in engineering

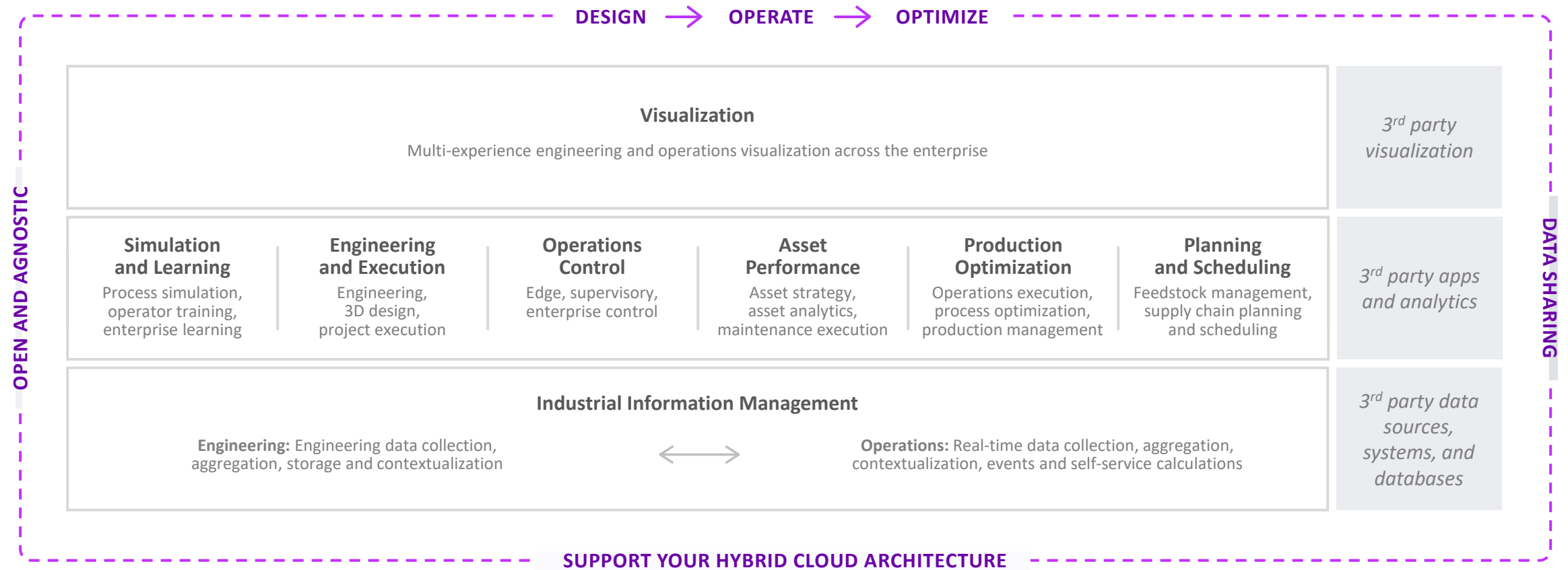


AVEVA™ Asset Information Management

AVEVA

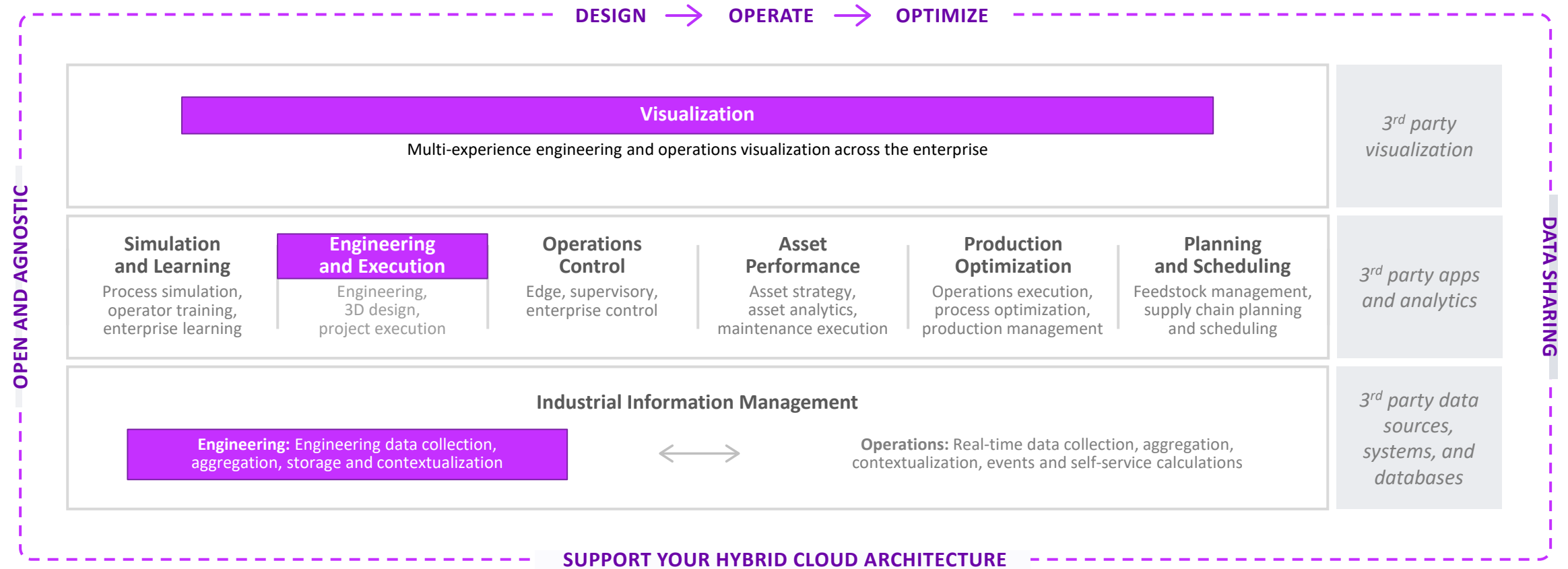
Delivering a complete digital thread, purpose-built for industry

Accelerate time to value with flexible, scalable, and trusted industrial hybrid SaaS solutions



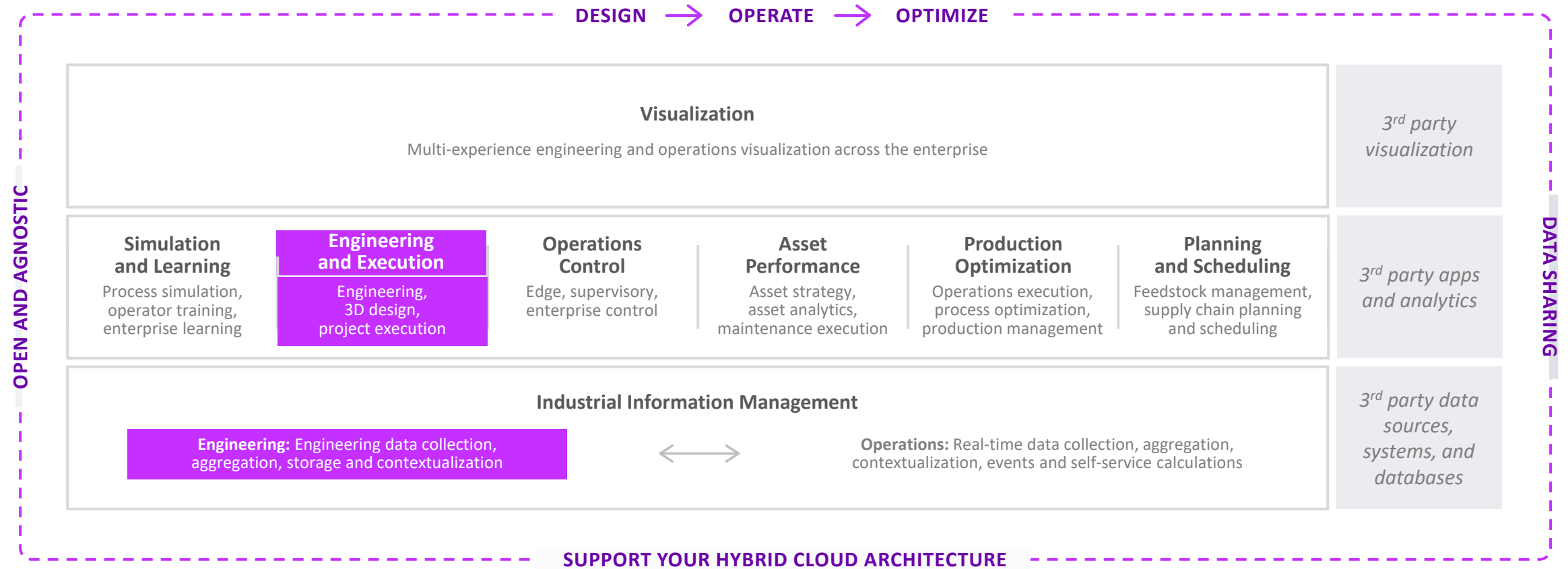
Delivering a complete digital thread, purpose-built for industry

Contextualization of engineering data across your entire enterprise



Engineering Information is the core of the digital twin

Contextualize your data in 3D across your entire enterprise



The Digital Twin : Information mastery across the asset lifecycle

A unified data platform for better and faster decision-making combining both the engineering and operational data segments of industrial information.

Data Aggregation

Aggregate and align information from multiple sources to create a single source of truth for a given piece of data

Data in Context

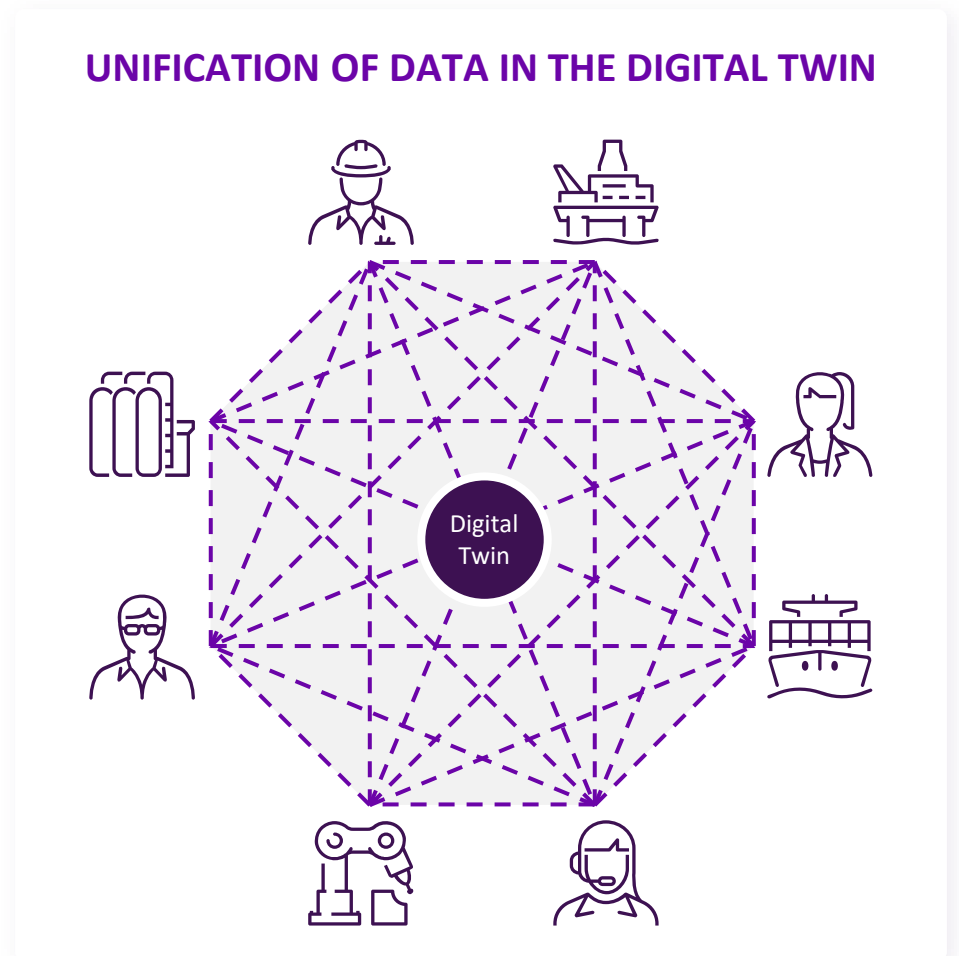
1D/2D/3D contextual enrichment of information to improve the quality and speed of decisions

Data Management

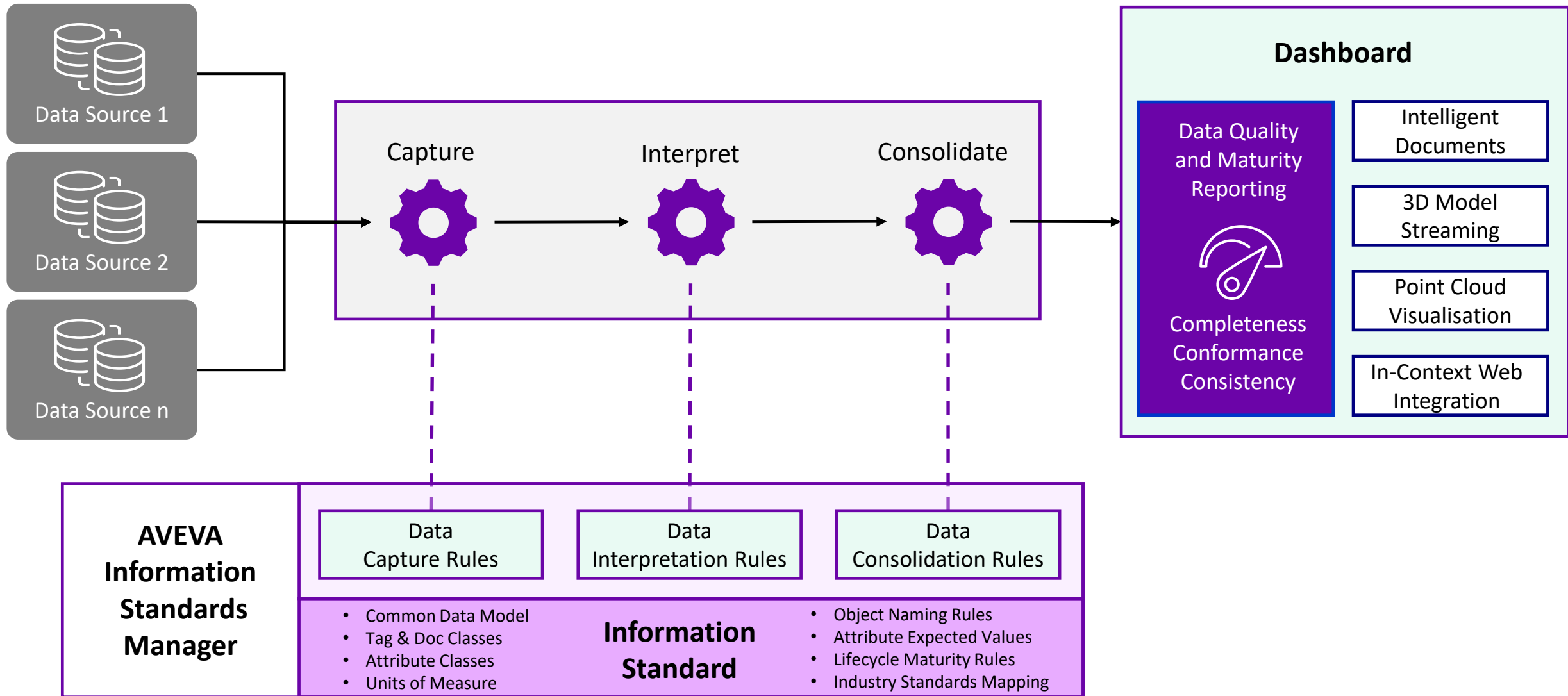
Configuration, change management, approval and baselining of engineering data and requirements.

Data Sharing

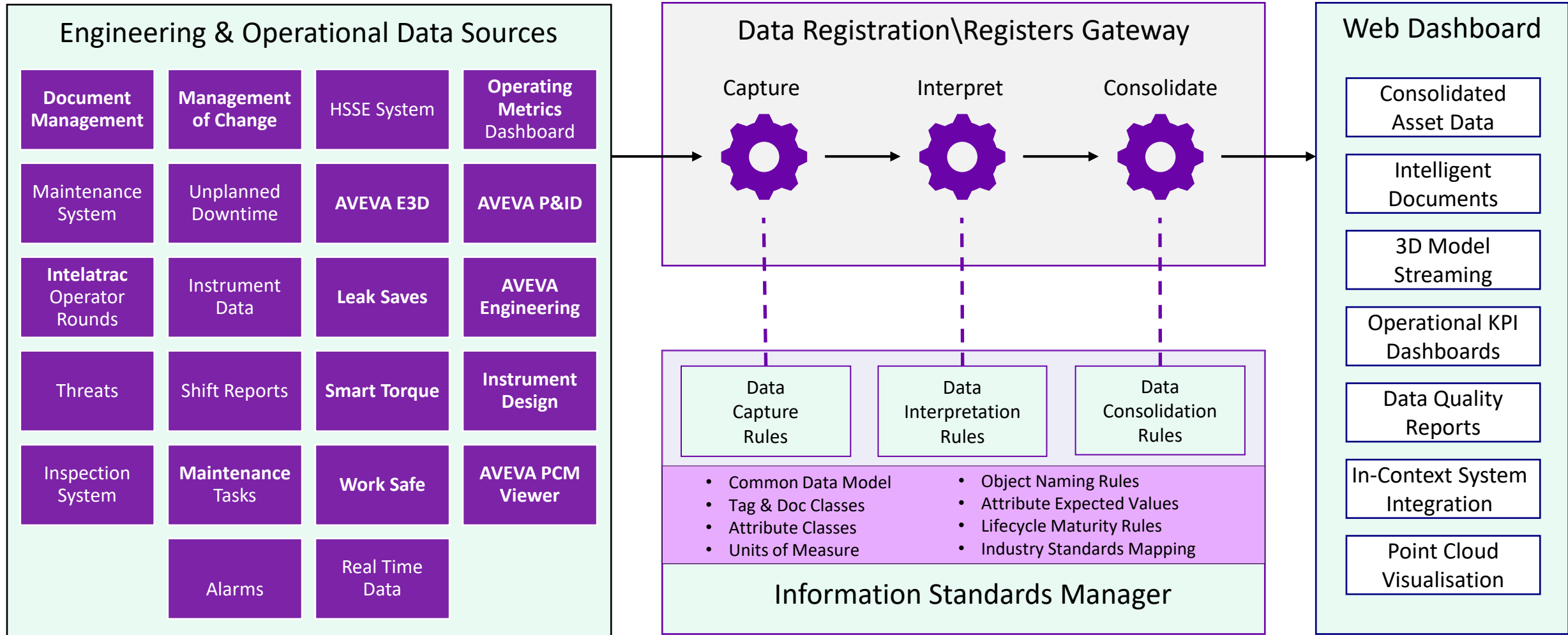
Democratize access to information for internal and external stakeholders (OEMs, Partners, etc.)



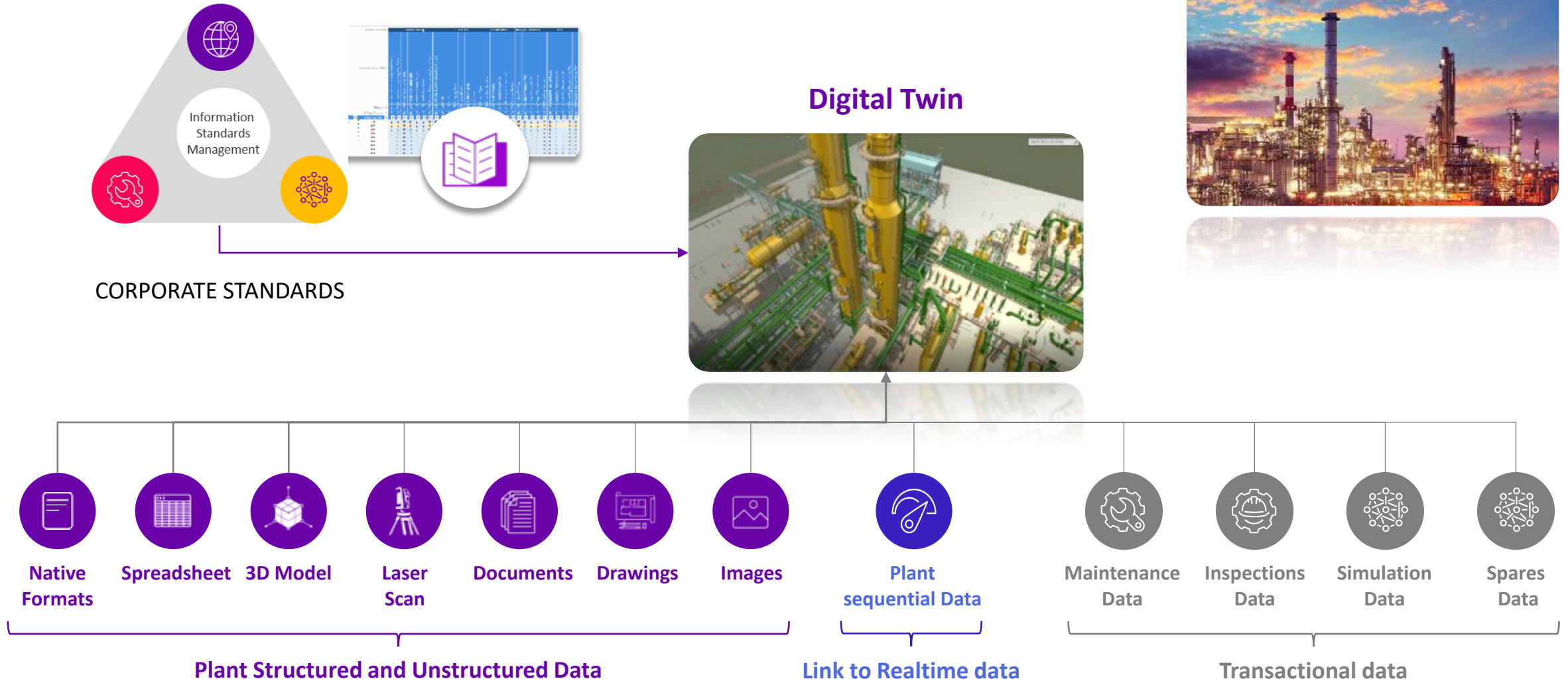
How asset information management works



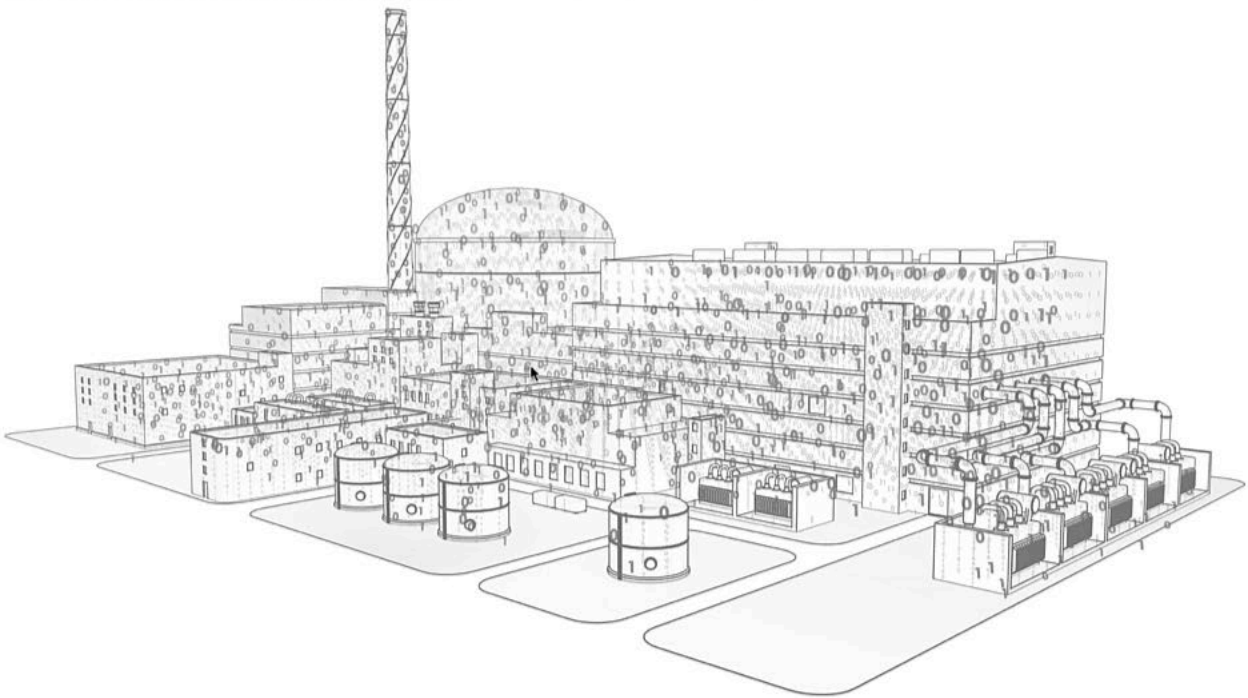
Complex data mapping



Bringing the Digital Twin To Life



AVEVA Asset Information Management™ 5.1.9 *The Future of Engineering Information Management*



Powerful and effective
Information Management for
Engineering and Operations

Collect

Bring together information in multiple formats and from various source systems to create a complete cross-reference index with links to, and associations between, all items in the digital asset.

Locate

Provide fast and powerful search capabilities which, combined with its knowledge of tag and document associations, delivers efficient and effective location of information required for decision making.

Discover

Automatically extract and maintain tag to tag, tag to document, and document to document relationships. Exploiting this interconnectivity, it provides efficient navigation of the digital assets and aids in the discovery of new insights in your information.

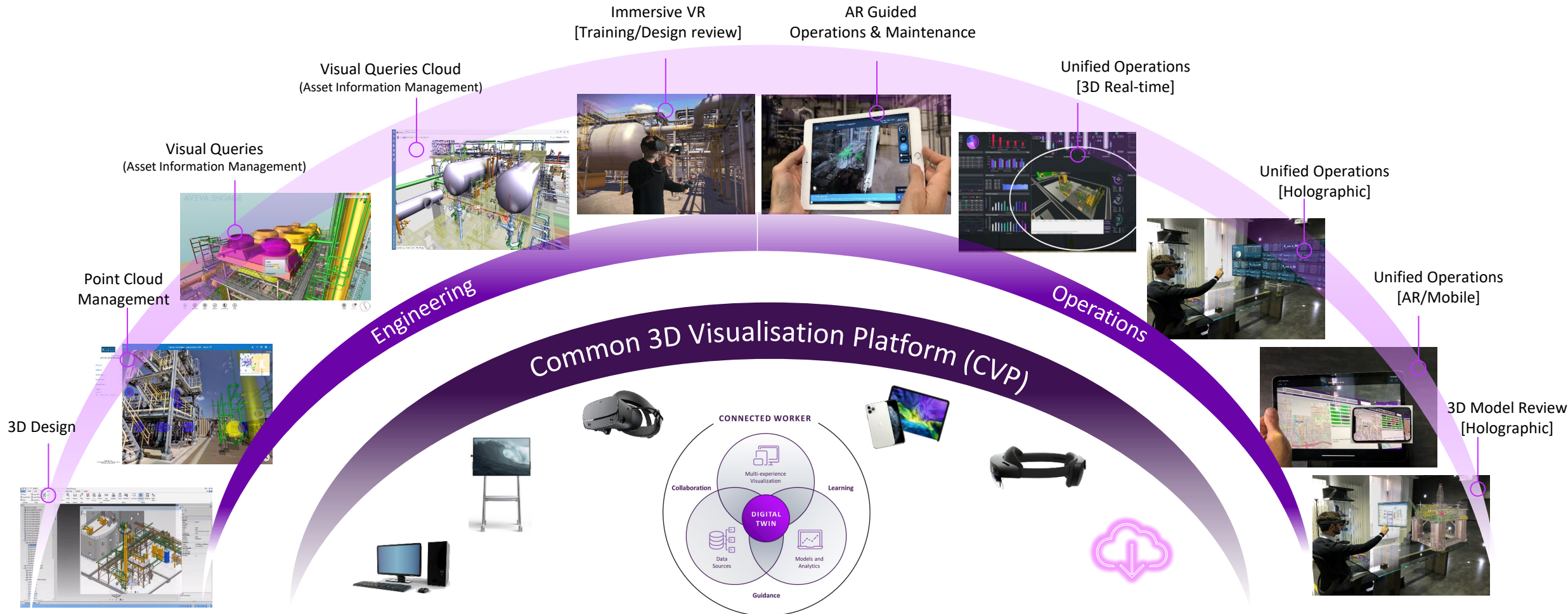
View

Deliver high-quality web-based visualisation of tag data, documents, drawings, 3D models and laser scans. Automatic creation of hotspots and hyperlinks provides additional intelligence for easy identification and navigation of tags.

Report

Improve project and operational compliance by aggregating project and asset data to report on the quality, consistency, and completeness of your information.

Redefining what can be asked and how we can ask it



Whole Asset Insights



Model



Reset View



Section

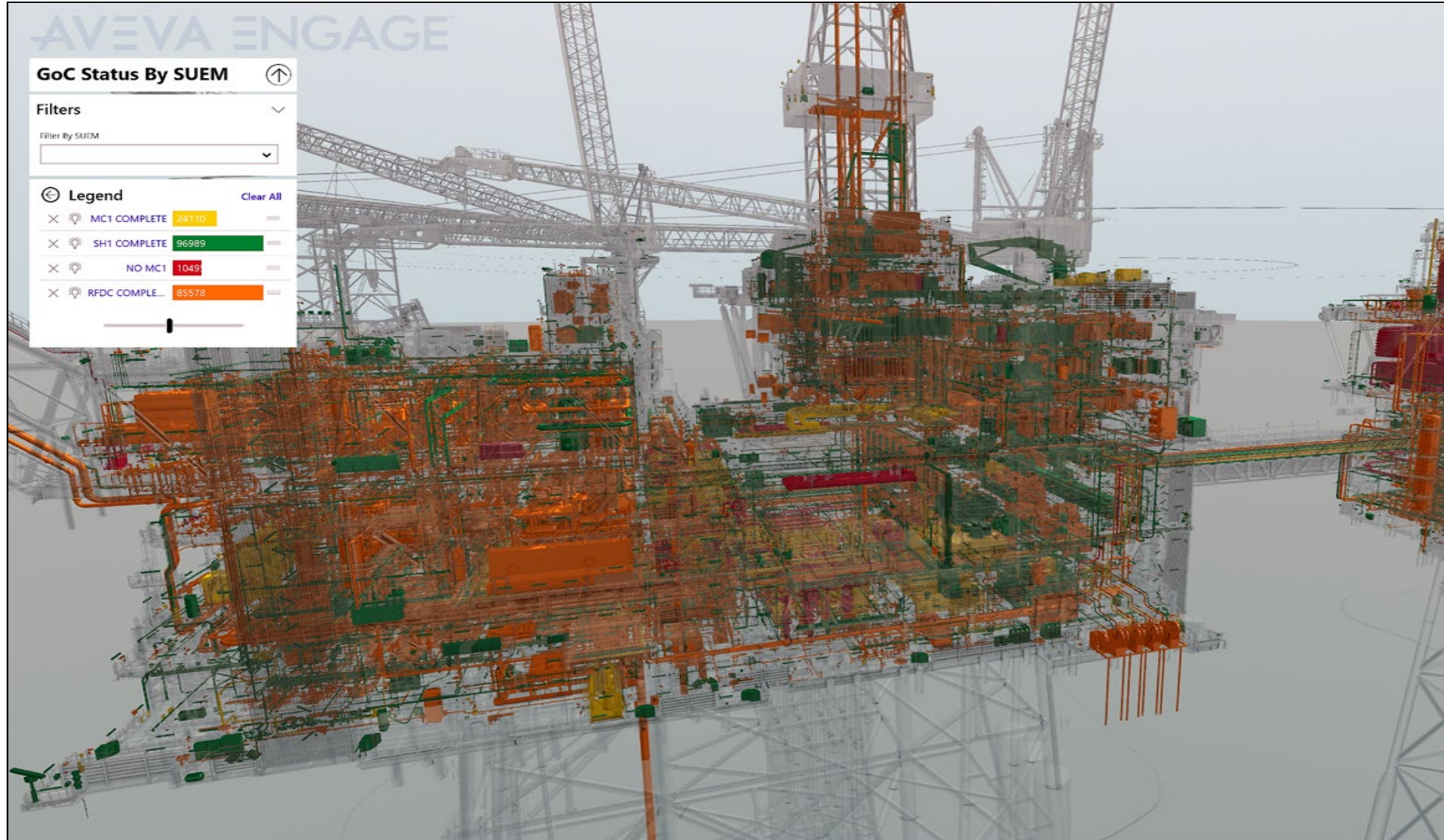


Measure



AVEVA

Whole Asset Insights

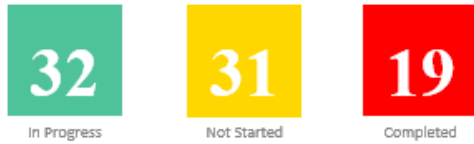


Operations Dashboard



Work Order by Status

Summary of Work Orders by Status



Safety Incident Summary

Summary of Safety Incidents by Category



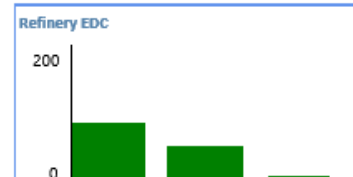
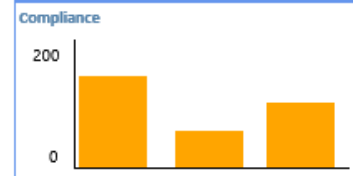
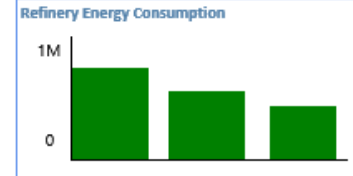
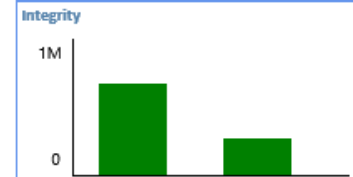
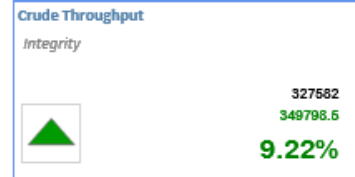
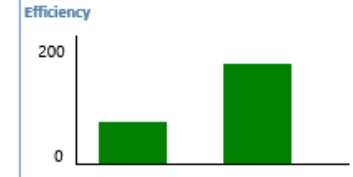
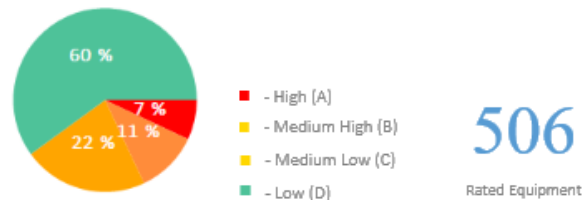
Key Documents by Category

Total Tags by Category



Equipment Criticality Status

Rated Equipment by ABC Indicator



Information Completeness Dashboard (IM Dashboard) 1

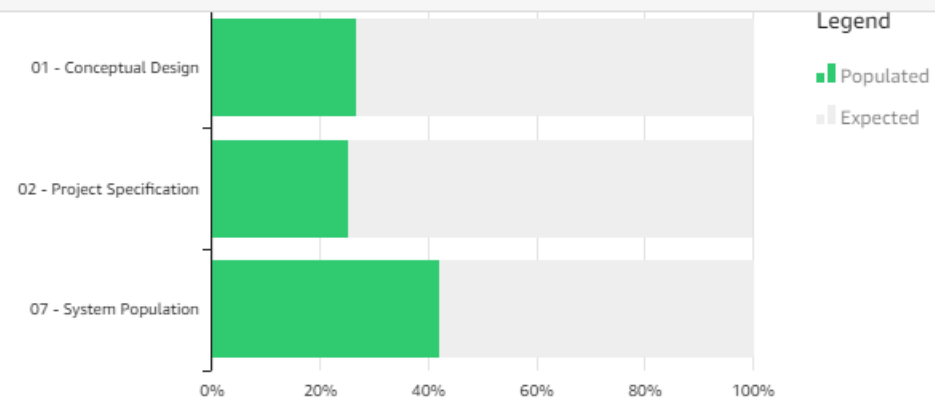
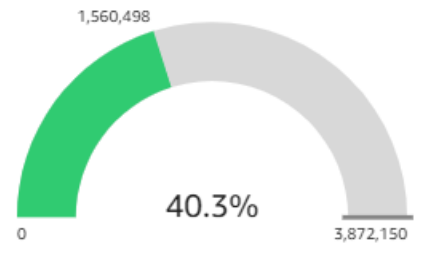
Undo Redo

Overview Detail

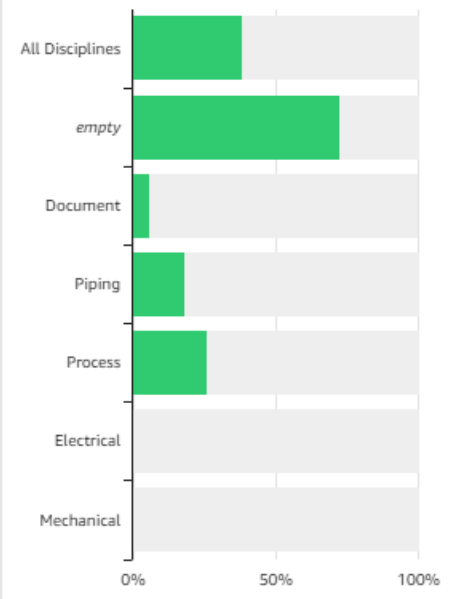
Controls Maturity Objective [ALL] Tag Discipline [ALL] Tag Class [ALL] Attribute Discipline [ALL] Attribute Name [ALL]

592,886

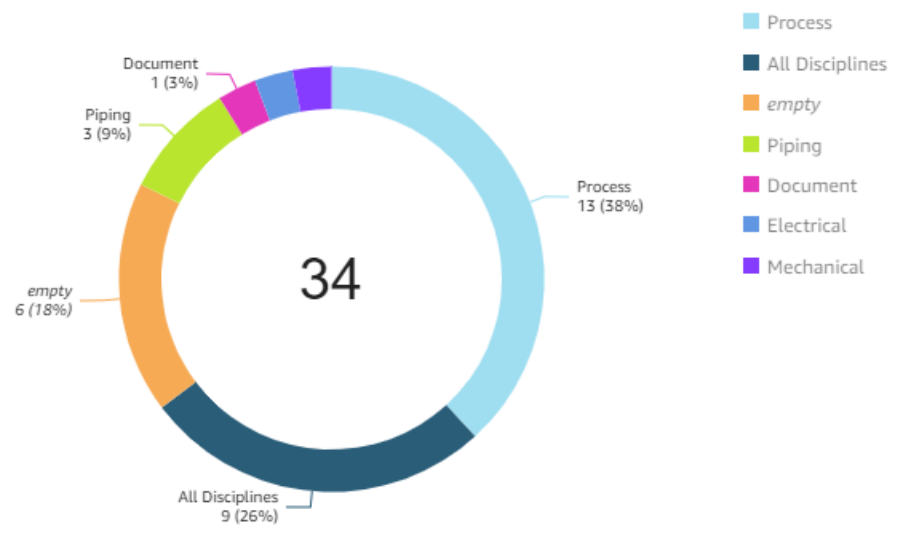
132



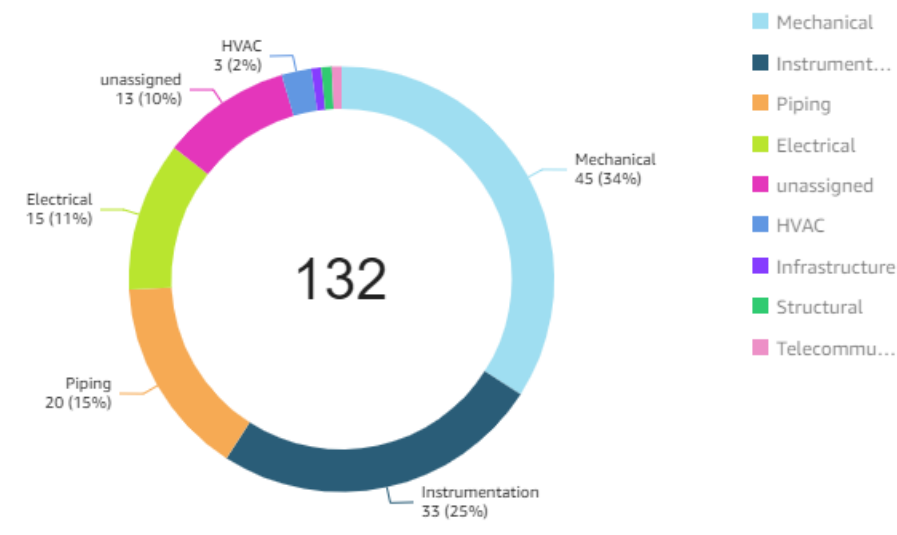
Discipline Completeness



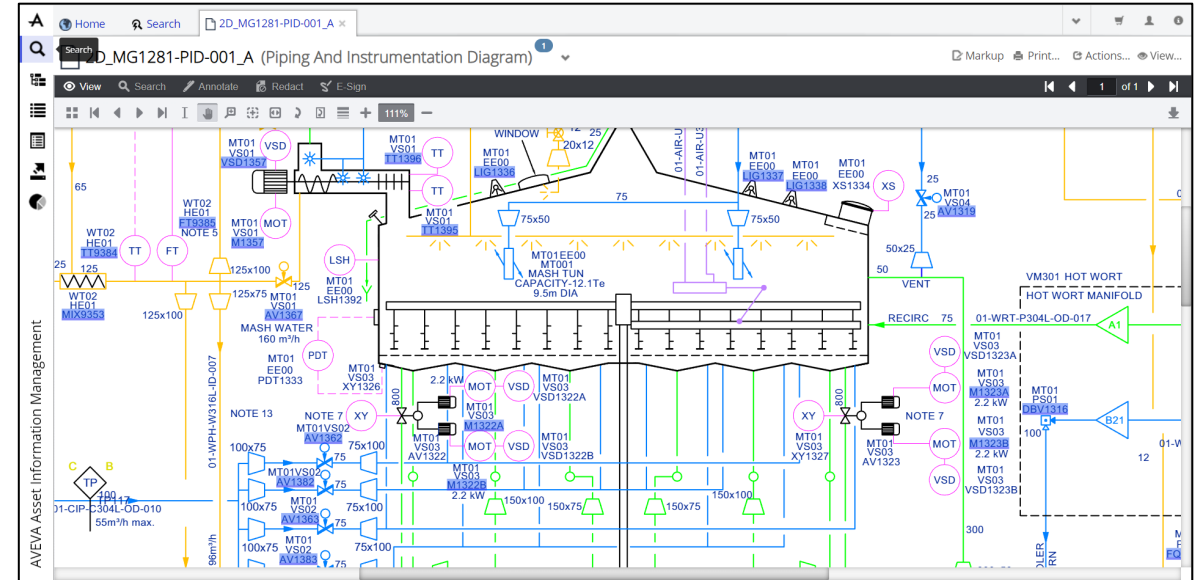
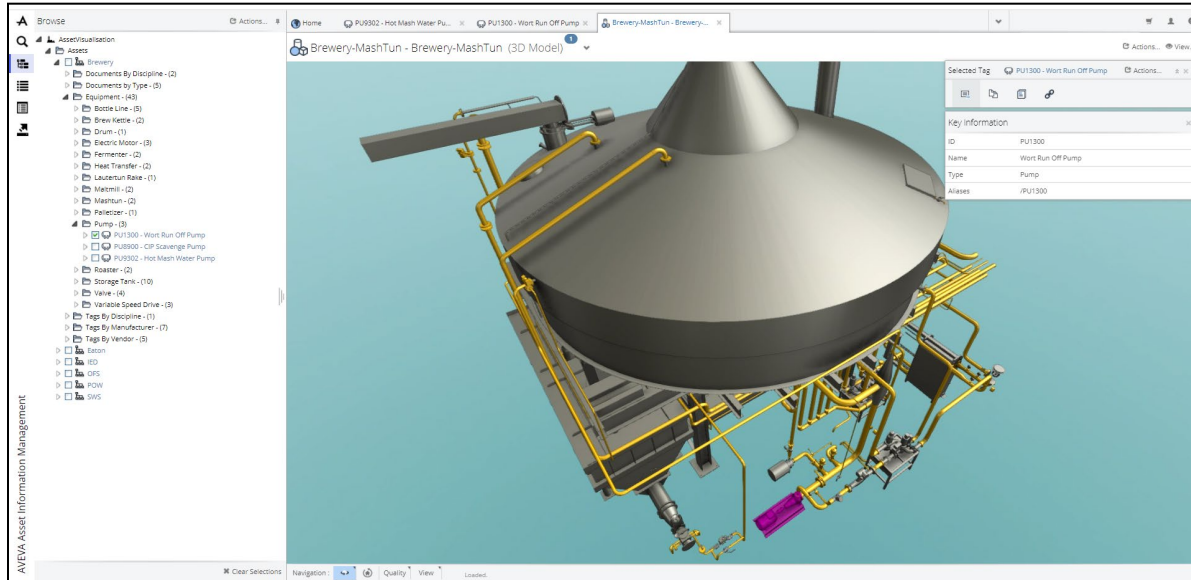
Attributes in Review Set



Tag Classes in Review Set



AVEVA Asset Information Management Advantages



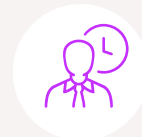
Eliminate data silos with all information available in one place



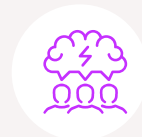
Improve safety and compliance with quick access to critical information



Gain the insights necessary for informed, good decision making



Save time and effort on finding and validating information



Empower teams to collaborate with a 360° view of data



Reduce costs and time to value with a cloud solution

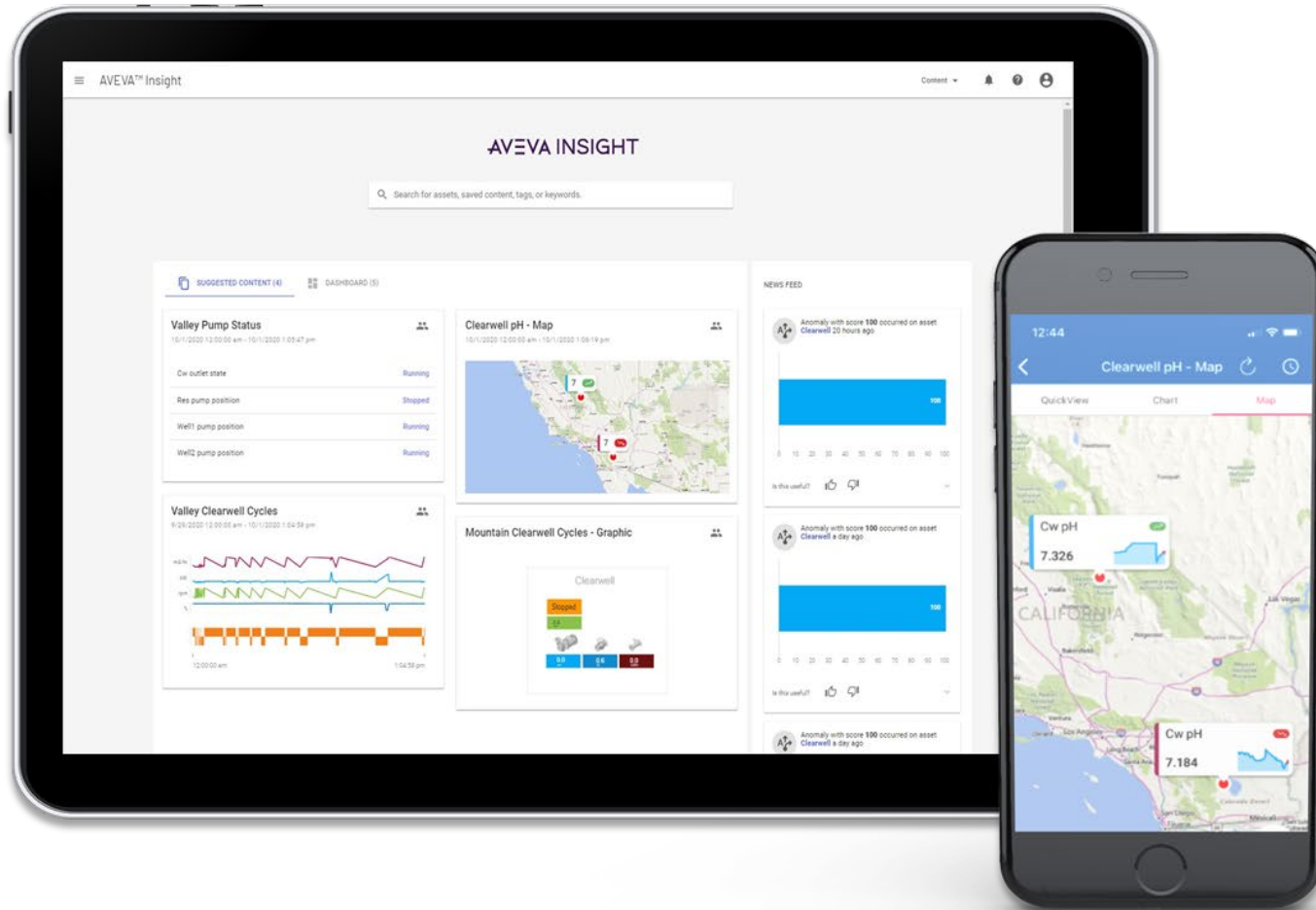


AVEVA™ Insight

AVEVA

AVEVA™ Insight

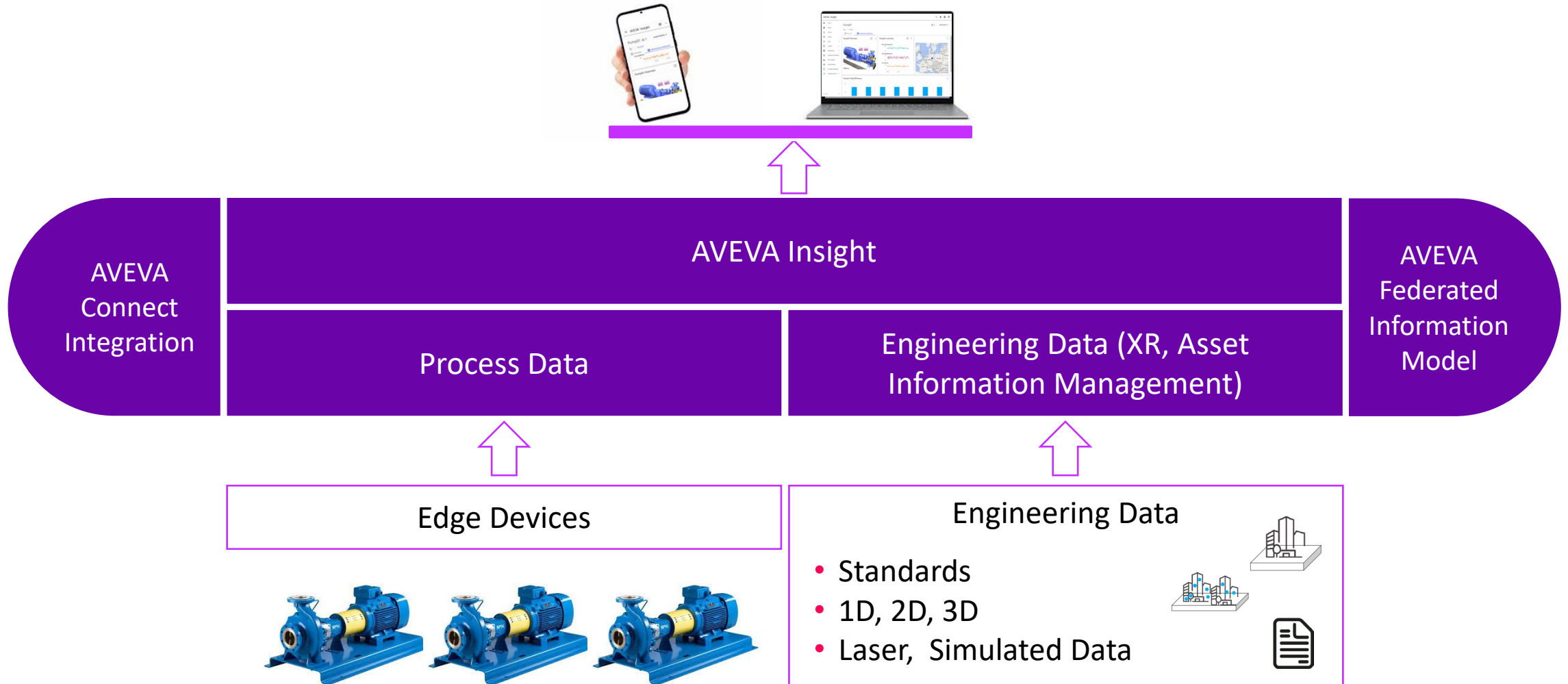
Make better and faster decisions with complete visibility of your operations in the cloud.



AVEVA Insight provides information when and where you need it, so you and your teams, can better manage your assets and improve performance.

- Unlock critical data
- Increase collaboration
- Improve asset reliability
- Drive operational performance

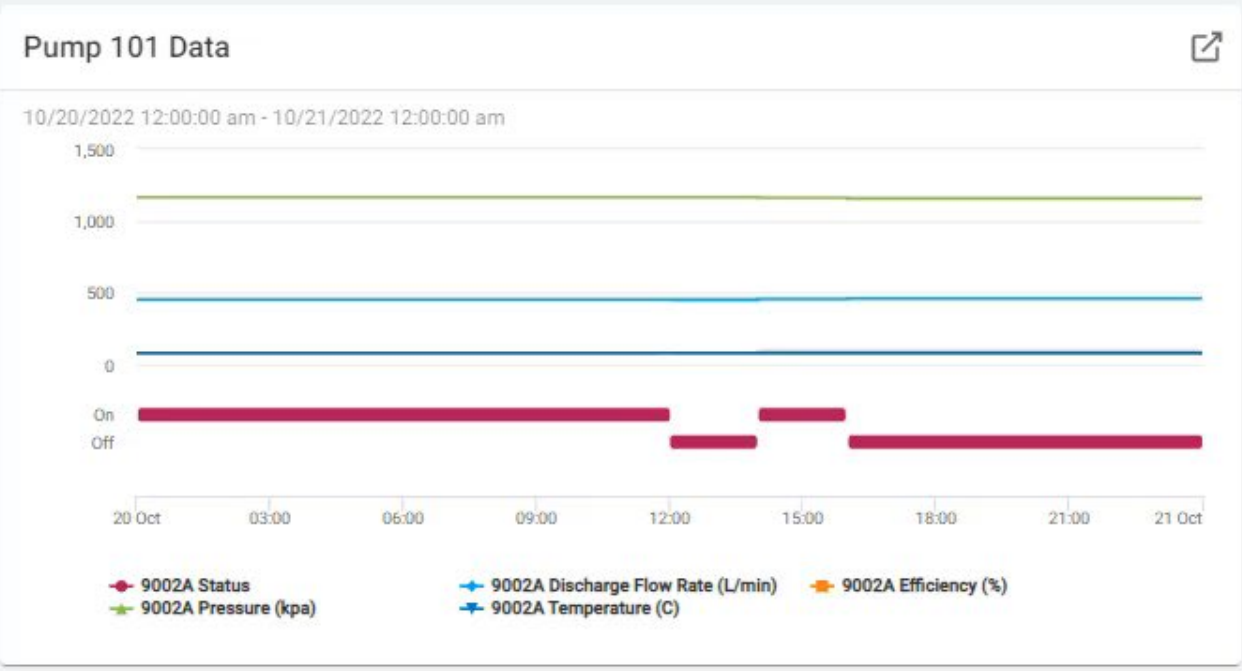
AVEVA Insight Visualization of Digital Twin



- Home
- Alerts
- Alarms
- Assets
- Lists
- Content
- Dashboards
- Collections
- Equipment Efficiency
- OEE Analysis
- Administration
- Recently Viewed

AVEVA INSIGHT

Search for assets, data or saved content



Interesting facts about your data

We spend the first week or two learning about your data. After that, you'll begin seeing news stories here that highlight unusual and interesting events in your data trends.



Release Plans

AVEVA Insight / AVEVA Asset Information Management-Advanced Integration

Available Now

- AVEVA Insight
- AVEVA Information Standards Manager
- AVEVA Asset Information Management-Advanced

Lighthouse Release 1Q 2023

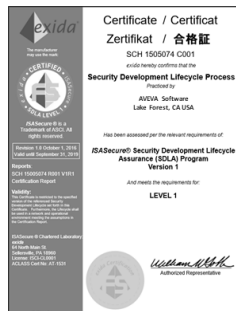
- Initial Feature set available for Lighthouse Program
- Seeking AIM-A Customers to partner with us

General Availability April 2023

- Search
- Asset / Summary View
- Dashboarding Widgets
- Collections
- Power BI Report View
- Point Cloud Viewing

2023 +

- Custom Query / Visual Query
- Search Results / Saving
- Document Mark Up
- Enhanced 2D Document Viewing
- Administrative Tools



<https://trust.aveva.com>

Interested in Learning More?

- Expo Booths (Need details)
- Digital Twin track on day 2 with a panel session and other industry segment tracks
- Day 3 presentation covering the implementation steps for Asset Information Management and Insight in more detail.

| Chemicals Room 2018-2020 | Digital Twin Room 2004 | Industrial AI Room 2006 |
|---|--|---|
| 10:45 - 10:55 | 10:45 - 10:55 | 10:45 - 10:55 |
| Chemicals Track Introduction | Digital Twin Track Introduction | Industrial AI Track Introduction |
| 10:55 - 11:20 | 10:55 - 11:20 | 10:55 - 11:20 |
| The International Group: Lityx, use AVEVA™ Data Hub (ADH) to implement AI-based analytics, improving yields and generating millions in additional profit at a 20x ROI | Building a digital twin alongside the physical asset to unlock value across the full lifecycle at Wood | AVEVA Industrial AI Overview |
| 11:30 - 11:55 | 11:30 - 11:55 | 11:30 - 11:55 |
| AmSty: Utilizing Event Frames with Downtime Reason Codes to improve Asset Utilization | The complete digital twin at KBR | AI to improve efficiency and unplanned downtime at Schneider Electric |
| 12:05 - 12:30 | 12:05 - 12:30 | 12:05 - 12:30 |
| Albemarle: Data is the new Gold - Using the AVEVA PI System to accelerate growth in AI - Albemarle Intelligence | Kent: Asset Digital Thread | Renewables monitoring with PI and Predictive Analytics at Southern Company |
| 14:00 - 14:25 | 14:00 - 14:25 | 14:00 - 14:25 |
| Evonik: OneCAE - Data Driven Asset Lifecycle Management | Saudi Aramco: 4IRC PI Based Solutions and Applications | Predictive On-Line Monitoring of Co-Generation Plants at Suncor |
| 14:35 - 15:00 | 14:35 - 15:00 | 14:35 - 15:00 |
| Cyanco: Enabling Proactive and Predictive Maintenance Using PI System | ENEOS: Building digital twin infrastructures for refineries | ENEL Remote Predictive Diagnostic Center and cutting-edge technologies in AI with AVEVA |
| 15:10 - 15:35 | 15:10 - 15:35 | 15:10 - 15:35 |
| Covestro : Leveraging OSIsoft PI data to Assess Asset Health and Prevent Unplanned Outages | A Practical Implementation of CFIHOS to meet Data Surveillance Needs at ExxonMobil | Building a Winning Business Case for Predictive Asset Analytics at Saudi Aramco |

Learn more about AVEVA Connect & AVEVA Data Hub

Industrial Cloud Platform @ AVEVA PI World 2022 – San Francisco

Day 1: Industrial Cloud Platform

- AVEVA: AVEVA Connect, Industrial Cloud Platform – Vision, roadmap, and starting your operations and engineering digital twin journey [14:00]
- AVEVA: Power your secure industrial ecosystem of data, applications, and partners with AVEVA Data Hub connected communities [14:40]
- AVEVA: Accelerate Your Time to Value with Analytics and Applications Fueled by AVEVA Data Hub [15:40]
- AVEVA: On your marks, get set, Unleash your Operational Data in the Cloud! [16:20]
- AVEVA: Aggregating Engineering Content, Data and Documents and Real-Time Data into a Common User Experience [17:00]

Day 2: Customer Presentations

- Wood: Building a digital twin alongside the physical asset to unlock value across the full lifecycle at Wood [10:45]
- KBR: The complete digital twin at KBR [11:30]
- Kent: Asset Digital Thread [12:05]
- Saudi Aramco: 4IRC PI Based SOLUTIONS and Applications [14:00]
- ENEOS: Facilities Reliability Improvement using Digital Twin Technology [14:35]
- ExxonMobil: A Practical Implementation of CFIHOS to meet Data Surveillance Needs [15:10]

Day 3: Industrial Cloud Platform

- AVEVA: Four Imperatives of a Trusted Information Infrastructure [10:45]
- AVEVA: Deploy Edge Data Store and Adapters in minutes with AVEVA Edge Management [11:25]
- AVEVA: Visualizing the Digital Twin, an Independent Service on the Industrial Cloud Platform [13:30]
- AVEVA: Uniting the connected community through secure and transparent industrial data sharing [14:25] [\[this talk\]](#)
- AVEVA: Harnessing the power of Sequential Data Store (Sds) and Assets for developers and partners [15:30]
- AVEVA: Aggregating data with Data Hub asset rules and data views for analytics and applications [16:25]



Gary Patterson

VP Engineering Information
Management Sales

- gary.patterson@aveva.com



Steve Parvin

VP Head of Information
Engineering

- steve.parvin@aveva.com



Rick Standish

VP Engineering Information
Management

- rick.standish@aveva.com



Lori Warda

Senior Product Manager – AI
& Analytics

- lori.warda@aveva.com



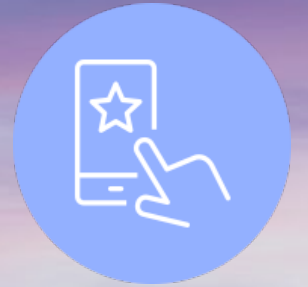
Questions?

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!

This presentation may include predictions, estimates, intentions, beliefs and other statements that are or may be construed as being forward-looking. While these forward-looking statements represent our current judgment on what the future holds, they are subject to risks and uncertainties that could result in actual outcomes differing materially from those projected in these statements. No statement contained herein constitutes a commitment by AVEVA to perform any particular action or to deliver any particular product or product features. Readers are cautioned not to place undue reliance on these forward-looking statements, which reflect our opinions only as of the date of this presentation.

The Company shall not be obliged to disclose any revision to these forward-looking statements to reflect events or circumstances occurring after the date on which they are made or to reflect the occurrence of future events.

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 [@avevagroup](https://twitter.com/avevagroup)

ABOUT AVEVA

AVEVA is a global leader in industrial software, sparking ingenuity to drive responsible use of the world's resources. The company's secure industrial cloud platform and applications enable businesses to harness the power of their information and improve collaboration with customers, suppliers and partners.

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. With operations around the globe, we are headquartered in Cambridge, UK and listed on the London Stock Exchange's FTSE 100.

Learn more at www.aveva.com