



AVEVAWORLD
PARIS

AVEVAWORLD

OCTOBER 2024

Enhanced Upstream Surveillance and Optimization with PI System

ExxonMobil Services & Technology Private Limited

Anurag Kumar – Data Acquisition System Architect



AVEVA

Antitrust Reminder

- ExxonMobil competes with other participants in this conference ; accordingly it is important to avoid discussions or comments that may raise the appearance of impropriety.
- Avoid discussions or exchanges of information that may be viewed as inappropriate under antitrust/competition law, for example:
 - Individual company prices, price changes, discounts, allowances, credit terms, etc.
 - Individual company bids, contracts, and contract terms
 - Matters relating to actual or potential individual suppliers or customers
 - Non-public plans of individual companies
 - Rates or rate policies
- This list is not exhaustive but provides an idea of what should not be discussed during our meeting. Speakers should be aware of these concerns during their presentations.
- Prohibited discussion topics apply equally to discussions that may occur during non-structured times such as breaks, meals and social activities.

ExxonMobil

As one of the world's largest publicly traded energy providers and chemical manufacturers, ExxonMobil develops and applies next-generation technologies to help safely and responsibly meet the world's growing needs for energy and high-quality chemical products.

Three primary businesses - Upstream, Product Solutions and Low Carbon Solutions - provide products that enable modern life, including energy, chemicals, lubricants, and lower-emissions technologies.

ExxonMobil holds an industry-leading portfolio of resources, and is one of the largest integrated fuels, lubricants and chemical companies in the world.



ExxonMobil

PI System Install Base



 EA Aug 2019

 42 tb data

 14 Affiliates

 PI in the Cloud

 HA Setup

 5200 PI
Vision users

 1.2m Tags

 3 Full Dev
Environment

L4

Internet

ExxonMobil technology integration with Aveva PI System to define sustainable, secure and performant solution with Data Acquisition, Contextualization and Visualization for Upstream Surveillance and Production optimization

- **Data Modeling and contextualization for Topsides and Subsea operations using PI AF**
- **Well Operations , Equipment , Safety and Facility monitoring using PI Vision as shared visualization engine**
- **Constraint management for Wells, Pipeline and Facilities using PI AF and PI Web Manual logger**
- **Support and Sustainability using PI System Monitoring and Data Quality Tool**



Improve operations and sustainability with Data Contextualization for Topsides and Subsea with constraint management for wells, pipeline & facilities

Challenge

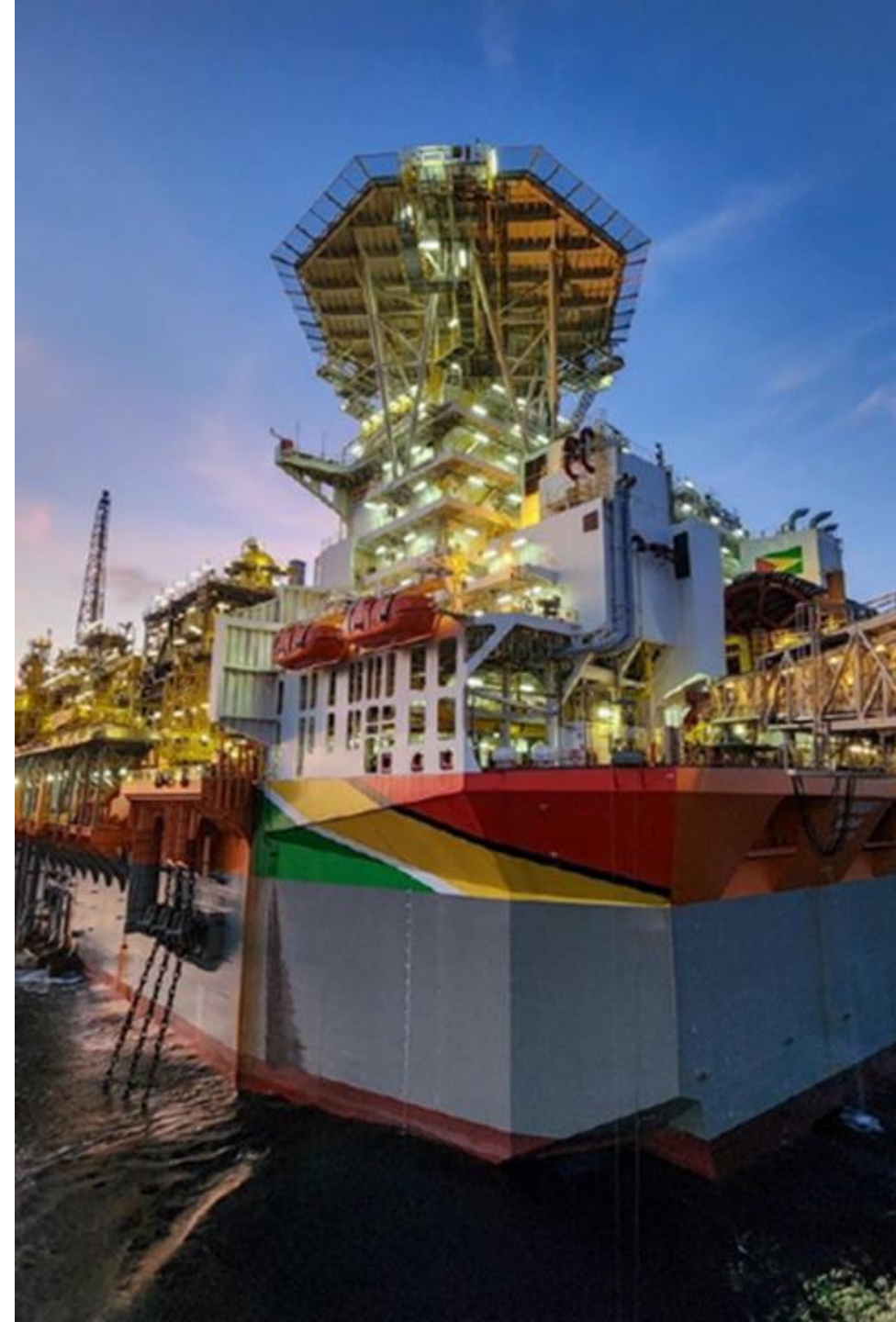
- Data interpretation to business context for Production optimization and Surveillance
- Accessibility of Topsides and Subsea Data Model for business users
- Sustainable modeling to replicate for other platforms and Production units
- Reliable thin client solution for managing equipment limits in constraint management

Solution

Implementation of PI AF system for different operations provide the contextualized view for easy operability and to reproduce for other Production Unit. Integration of PI Manual logger with PI System for limit updates within the constraint management tool.

Results

- **Process optimization is achieved by actively identifying the constraints using this tool by the engineers.**
- **Evolved the Centralized Data management for Operations.**
- **Improved, proactive operations and sustainable performance**



Shared Visualization using PI Vision increase the Sustainability for Well Operations , Equipment , Safety and Facility monitoring across FPSOs

Challenge

- Common shared visualization engine for integrated operations surveillance and support
- Scalable monitoring solution across FPSOs

Solution

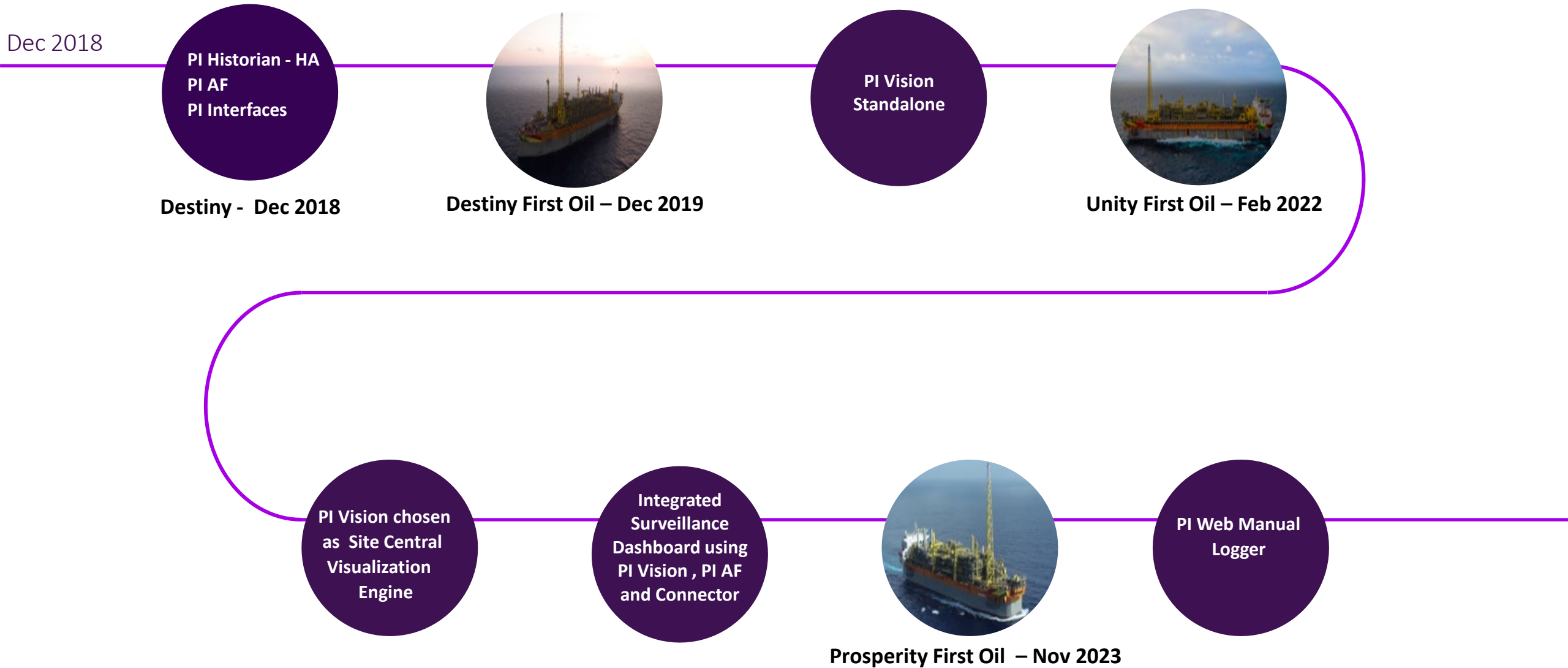
Implementation of PI Vision under shared infrastructure and integration with PI AF to ease the joint operation and support for sustainable Well Operations , Equipment , Safety and Facility monitoring across FPSOs

Results

- **Shared Visualization capabilities that enabled Integrated operations surveillance**
- **Benefits included Opex avoidance (Infra and sustainment costs) and Efficient operations surveillance by engineers**



The Journey

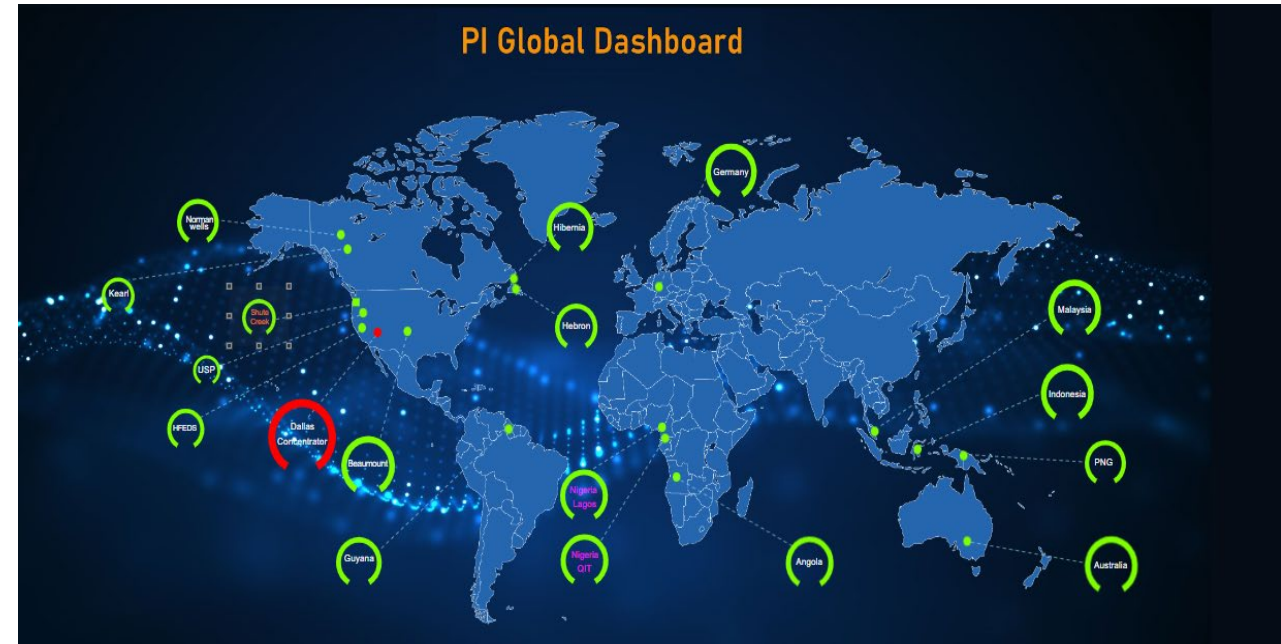


Support and Sustainability using PI System Monitoring

PI System Monitoring

PI System Monitoring is web based end to end monitoring tool which proactively identifies the operational outages and shows the cause of issue. It identifies the Process variable outages , equipment, PI System and Infrastructure failures with the self- healing capability. It substantially increases sustainability and Uptime of operation.

Solution includes PI AF , PI Eventframe , PI Notification, API , PI Vision , PI Interfaces ,Scripting using PI AFSDK



Benefits

Simplified monitoring visualization and Automated communication to Business Stakeholders.

Proactive monitoring with higher Up-time and minimal human intervention

Major reduction in Alerts

Data Reliability through PI Data Quality tool

PI Data Quality

Monitoring each data stream for high volume data is industrial challenge. Data Quality tool enrich the data reliability by monitoring each data stream and generates the data quality reports for stakeholders.

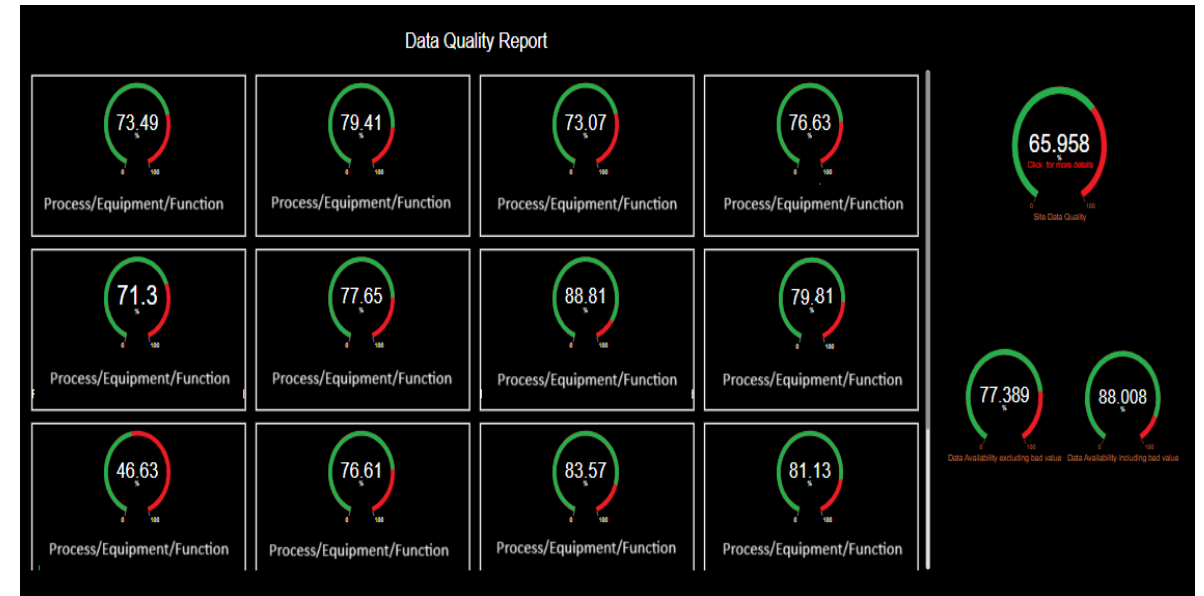
Solution includes PI AF , PI Eventframe , PI Notification, API , PI Vision , PI Interfaces ,Scripting using PI AFSDK , Spreadsheet.

Benefits

It's used in defining the measurable matrices, Visualization and Reporting platform for Business stakeholders for easy decision making, cleaning and enhancing data reliability for production, optimization and Surveillance

Identification of Duplicate, Stale , Flatline , Bad , Spike in single dashboard.

Improved the data reliability substantially.



Architecture highlights



Infrastructure

- Shared PI Vision Infrastructure(Guyana)
- FPSO PI Servers
- Maintain in-country's PI servers setup
- User load balance/fail over Enabled
- Perform load testing

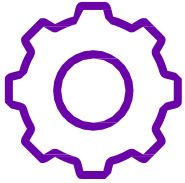
PI System

- HA PI Data Archive with DR
- Redundant PI AF system
- Integrated PI Vision server
- PI Manual Logger
- PI Web-API with load balance
- PI Interfaces
- SDK with scripting platform

Challenges

- On-Prem to Cloud data transfer using API
- PI Vision access for shared PI vision dashboard
- PI Vision timeout
- PI AF Syncing in shared infrastructure
- Data reliability testing

Enhances Upstream Surveillance and Optimization with PI Suite



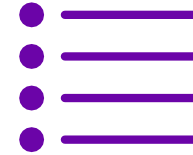
Challenge

- Design a solution for Greenfield Production units with Data Acquisition, Contextualization ,Visualization and Data management for Surveillance and Production optimization to provide the sustainable solution for operations and support



Solution

- Deployed AVEVA PI System (as part of EA) within our environment that consist of PI Data Archive, PI Asset Framework , PI Manual logger, PI Web API , PI Interfaces and PI Vision to all FPSOs to manage usages, performance and availability all at the same time



Benefits

- Shared Visualization capabilities for integrated operations
- Major engineer effort reduction on Operations surveillance
- Proactive monitoring with higher Up-time
- Major reduction in alerts
- Improved sustainability and data reliability



Anurag Kumar

Data Acquisition System Architect

- ExxonMobil Services & Technology Private Limited
- Anurag.kumar@exxonmobil.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!

©2024 ExxonMobil.

ExxonMobil, the ExxonMobil logo, the interlocking “X” device and other product or service names used herein are trademarks of ExxonMobil, unless indicated otherwise. This document may not be distributed, displayed, copied or altered without ExxonMobil's prior written authorization. To the extent ExxonMobil authorizes distributing, displaying and/or copying of this document, the user may do so only if the document is unaltered and complete, including all of its headers, footers, disclaimers and other information. You may not copy this document to or reproduce it in whole or in part on a website. ExxonMobil does not guarantee the typical (or other) values. Any data included herein is based upon analysis of representative samples and not the actual product shipped. The information in this document relates only to the named product or materials when not in combination with any other product or materials. We based the information on data believed to be reliable on the date compiled, but we do not represent, warrant, or otherwise guarantee, expressly or impliedly, the merchantability, fitness for a particular purpose, freedom from patent infringement, suitability, accuracy, reliability, or completeness of this information or the products, materials or processes described. The user is solely responsible for all determinations regarding any use of material or product and any process in its territories of interest. We expressly disclaim liability for any loss, damage or injury directly or indirectly suffered or incurred as a result of or related to anyone using or relying on any of the information in this document. This document is not an endorsement of any non-ExxonMobil product or process, and we expressly disclaim any contrary implication. The terms “we,” “our,” “ExxonMobil Chemical,” “ExxonMobil Product Solutions” and “ExxonMobil” are each used for convenience, and may include any one or more of ExxonMobil Technology and Engineering Company, Exxon Mobil Corporation, or any affiliate either directly or indirectly stewarded.



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.

 [linkedin.com/company/aveva](https://www.linkedin.com/company/aveva)

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

ABOUT AVEVA

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.

Learn more at www.aveva.com