SBM Offshore Data Governance Journey

Anisio Pamplona / Hachem Halawana

© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

SBM Offshore

Objectives

Architecture

Challenges and Governance

Applications

Avevanet integration

SBM OFFSHORE

OUR VALUES

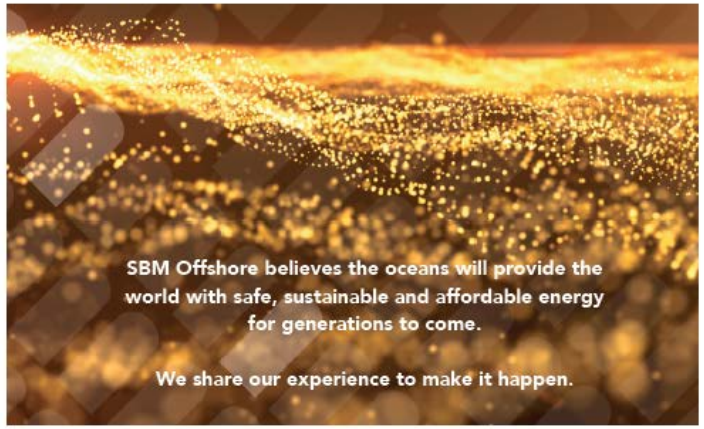
INTEGRITY
We act professionally and in an ethical, honest, and reliable manner. Transparency, doing the right thing and consistency are essential in the way we behave towards all our stakeholders.

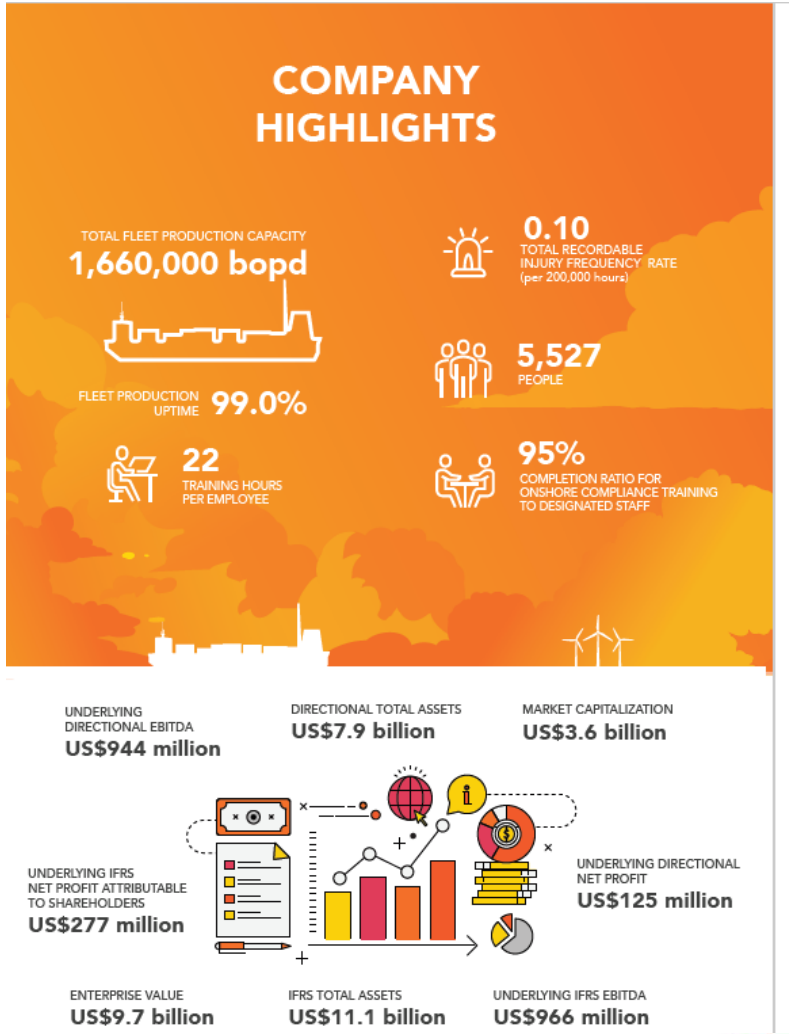
CARE
SBMers respect and care for each other and for the community. Employees value teamwork and diversity. The Company listens to all its stakeholders. Health, Safety, Security and the Environment are paramount to everything the Company does.

ENTREPRENEURSHIP
We have an entrepreneurial mind-set in everything we do. We deliver innovative and fit-for-purpose solutions with passion. In doing so, we aim to exceed our clients' expectations and proactively achieve sustainable growth. We balance risks and rewards.

OWNERSHIP
We are all accountable for delivering on our commitments and pursuing our objectives with energy and determination. Quality is key. We say what we do and do what we say.

OUR VISION





© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

OIL & GAS

Leveraging the PI System for Operational Data Governance

Challenge

- Structure the data in order to increase further efficiency

Solution

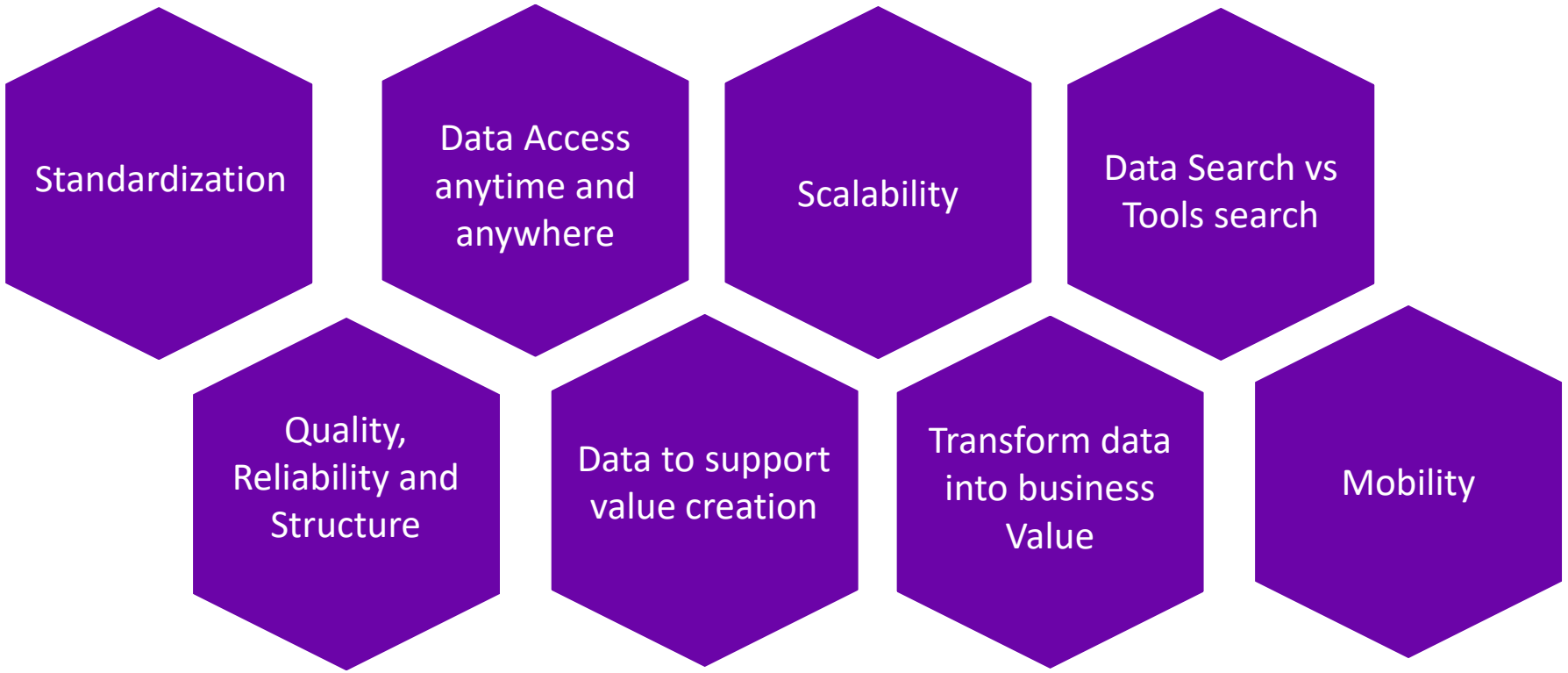
- Deployed the latest technology available on the market including PI AF and PI Vision as a foundation for Process Monitoring, Condition Based Maintenance, Advanced Analytics, and data governance

Benefits

- Improve and standardize monitoring
- Reduce cost and increate uptime
- Optimize production
- Unleash use of machine learning and artificial intelligence based on operational data.

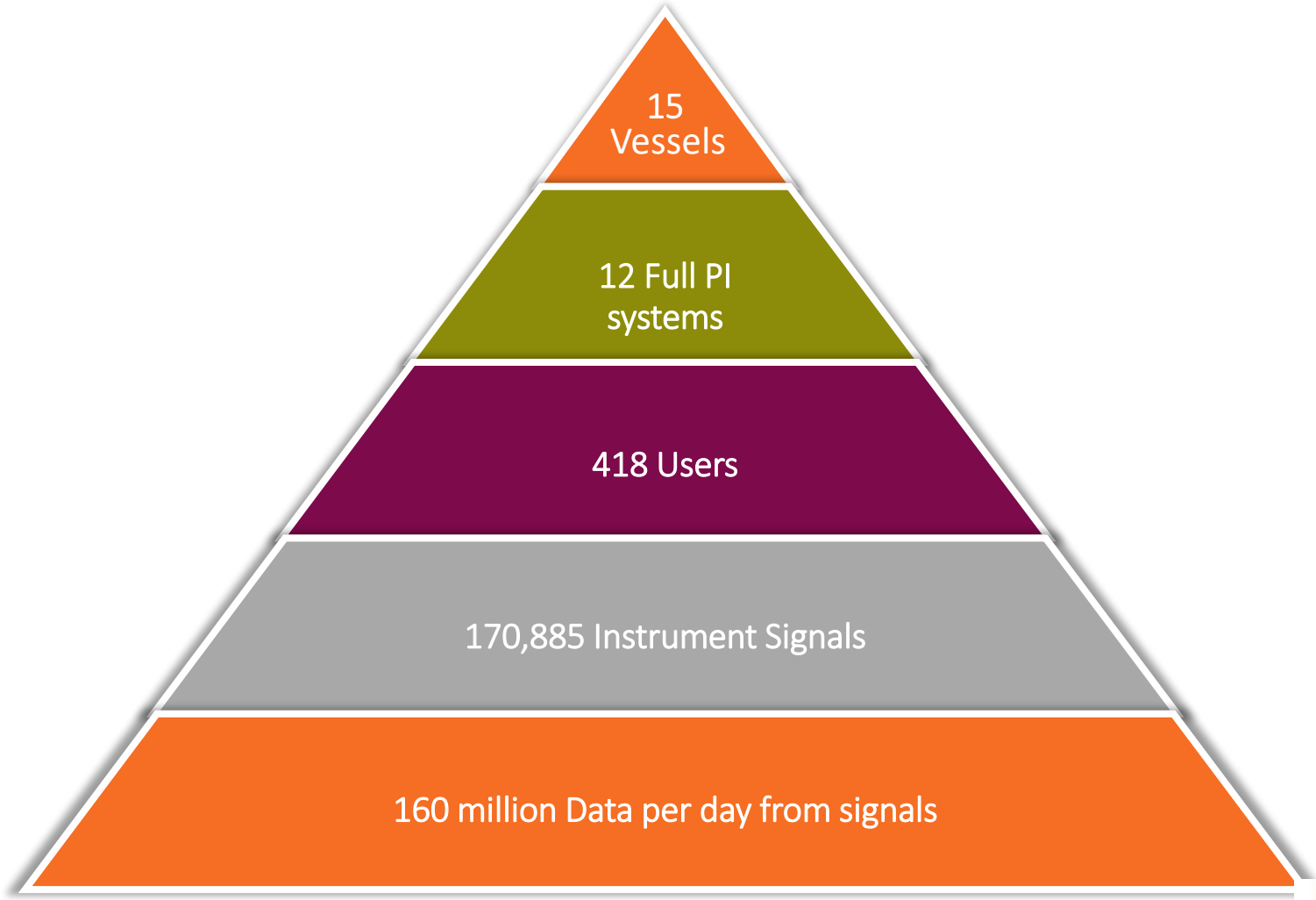
© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

Core Objectives



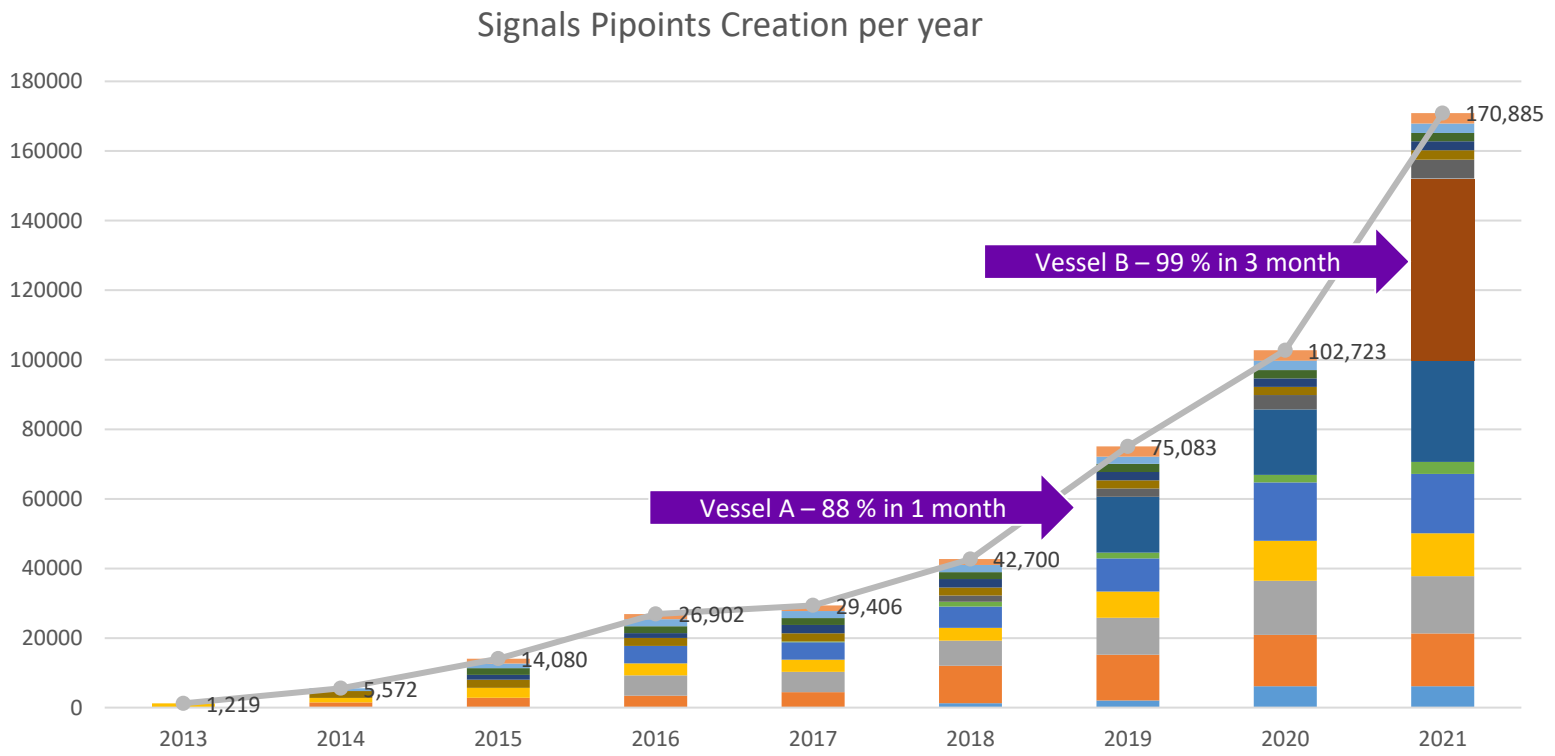
© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

Smart Operations: the Dimension at Q1 2022



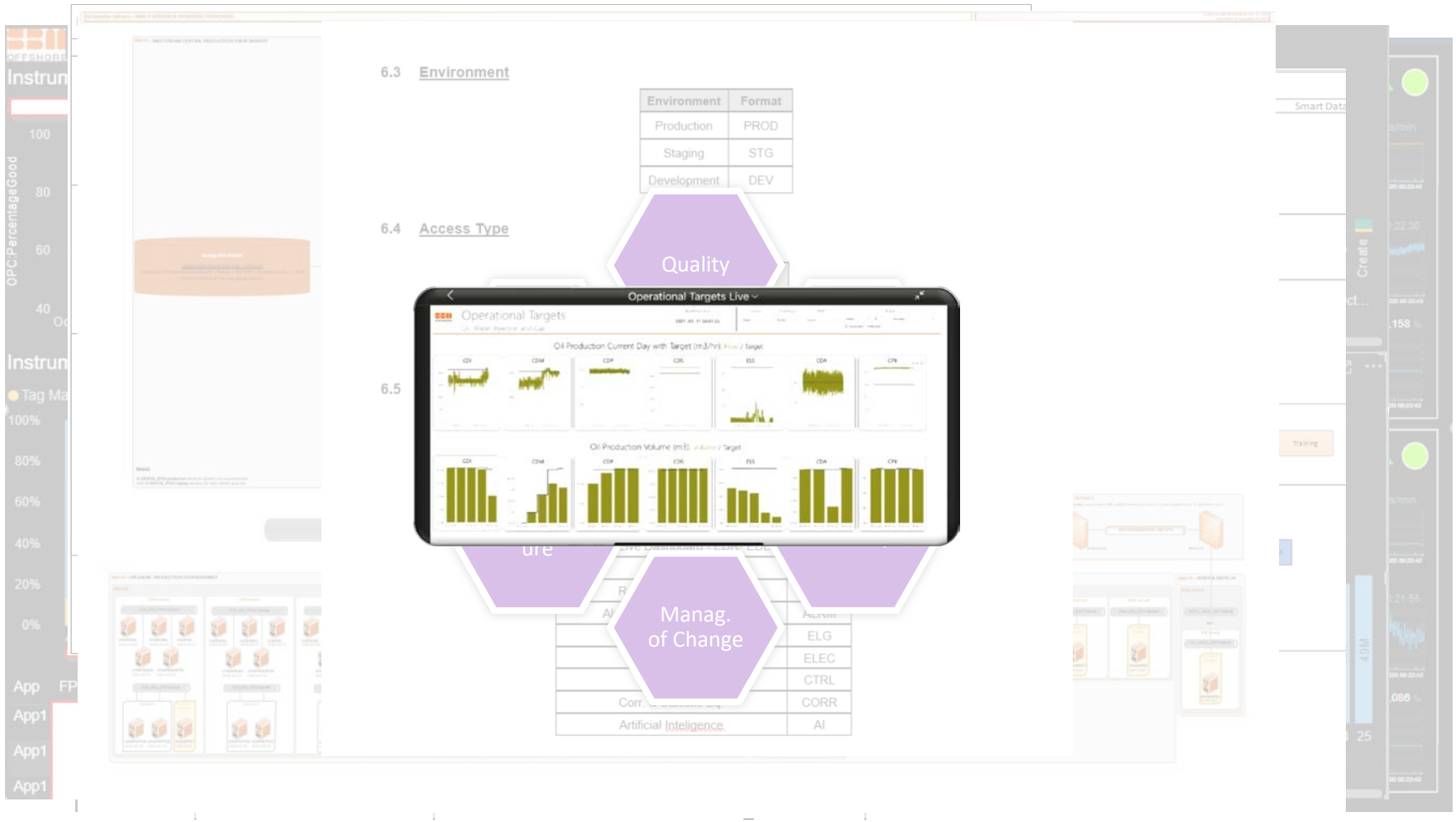
© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

Ramp up of Signals per year from **2016 to 2021**



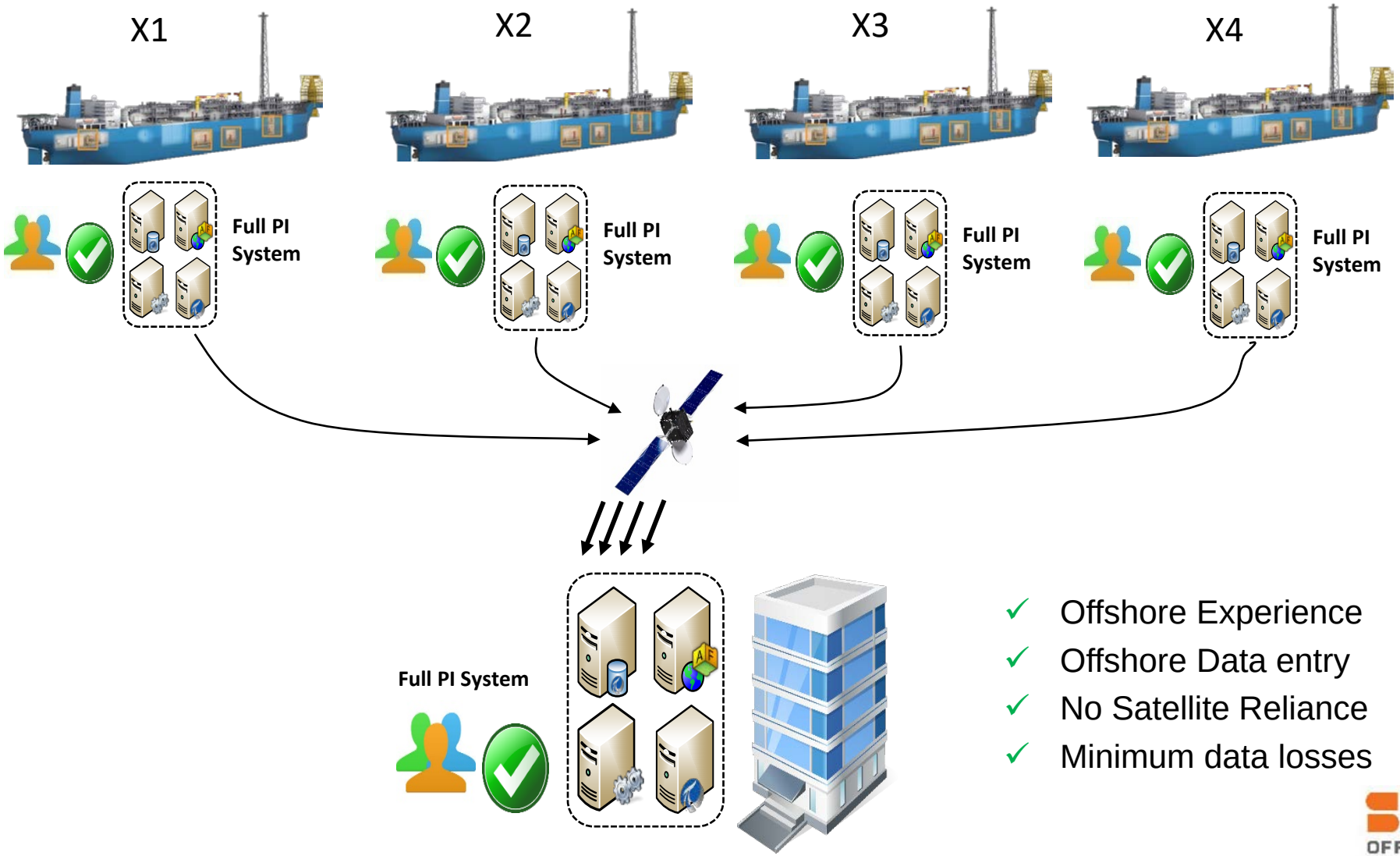
© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

Governance



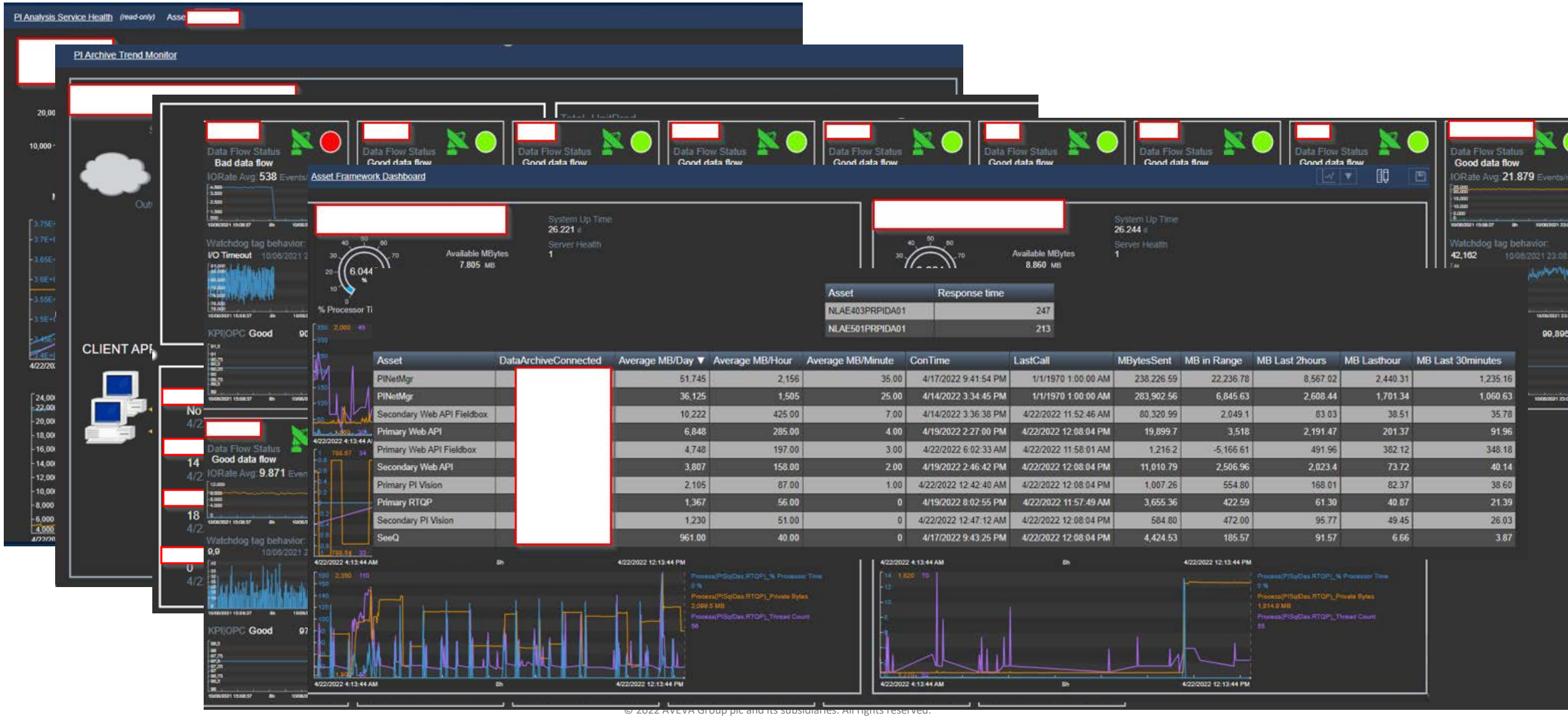
- Test data

Architecture



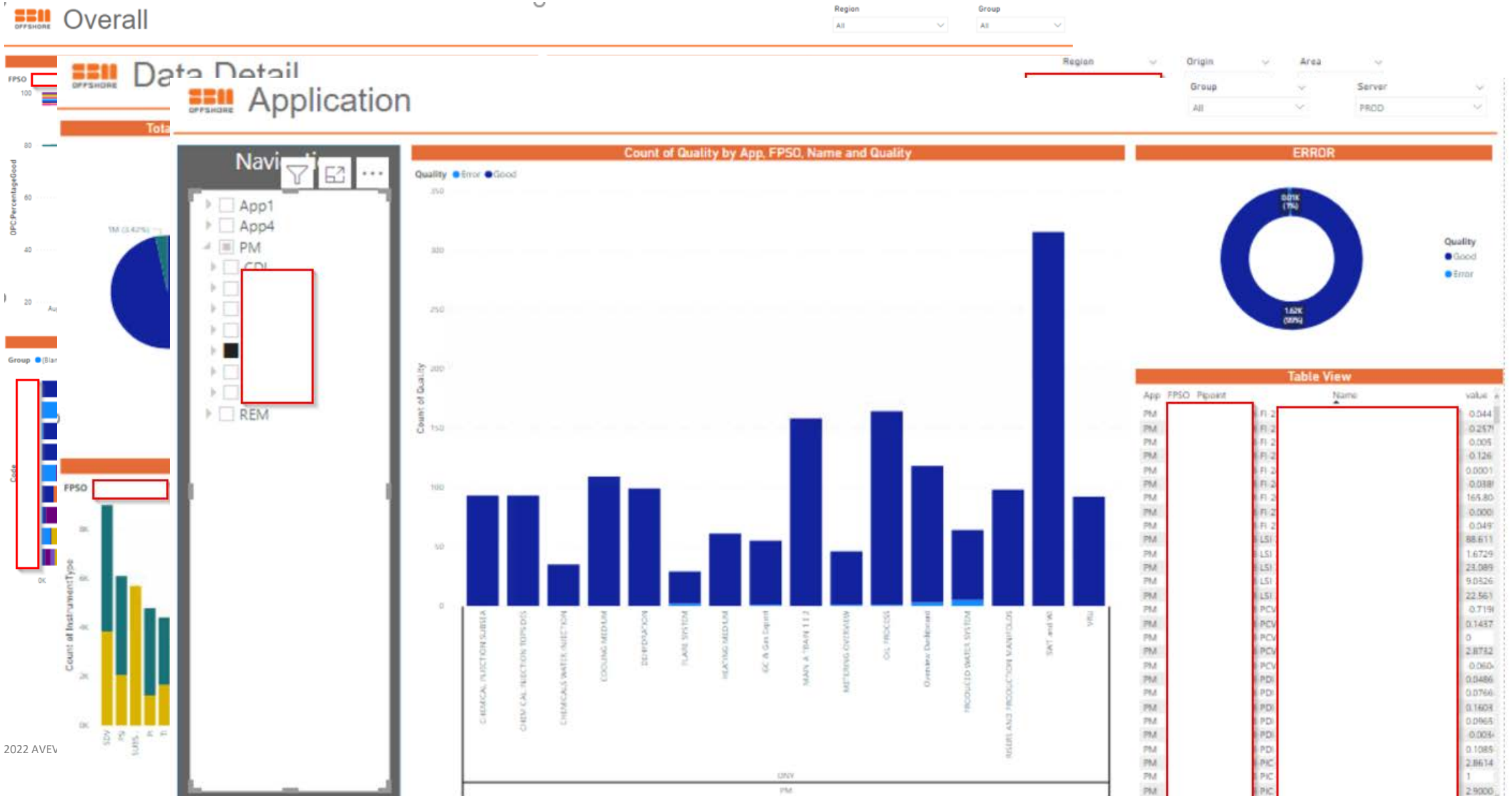
- ✓ Offshore Experience
- ✓ Offshore Data entry
- ✓ No Satellite Reliance
- ✓ Minimum data losses

PI System Monitoring



© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

Data Quality



© 2022 AVEV

Data Structure Standardization

\\MCSTGPIIS01\DIGITALFPSO_STG\SBM Assets\Brazil\Santos
- Analyzers
- Boilers
- CO2 Removal Units
  - A-T7910A CO2 Removal Unit Membrane Train 1
  - A-T7910B CO2 Removal Unit Membrane Train 2
  - A-T7910C CO2 Removal Unit Membrane Train 3
- Compressors
- Flow Meters
- Fresh Water Generators
- Gas Turbines
- Heat Exchangers
- Lab Sample Points
- Level Gauges
- Level Meters
- Power Generators
- Pressure Gauges
- Pressure Vessels
  - V-T7961 H2S Removal A Vessel 1
  - V-T7962 H2S Removal A Vessel 2
  - V-T7963 H2S Removal B Vessel 1
  - V-T7964 H2S Removal B Vessel 2
- Pumps
- Rotating
- Scrubbers
- SRP Membranes
  - A-T2631A SRP Membrane Train A
  - A-T2631B SRP Membrane Train B
- Tanks
- Temperature Gauges
- Temperature Meters
- Volume Flow Gauges

Functional
- Electrical
- Fire Fighting & Safety
- Gas Processing
- General
- Hull
- Instrumentation & Control
- Oil Processing
- Subsea & Mooring
- Utilities

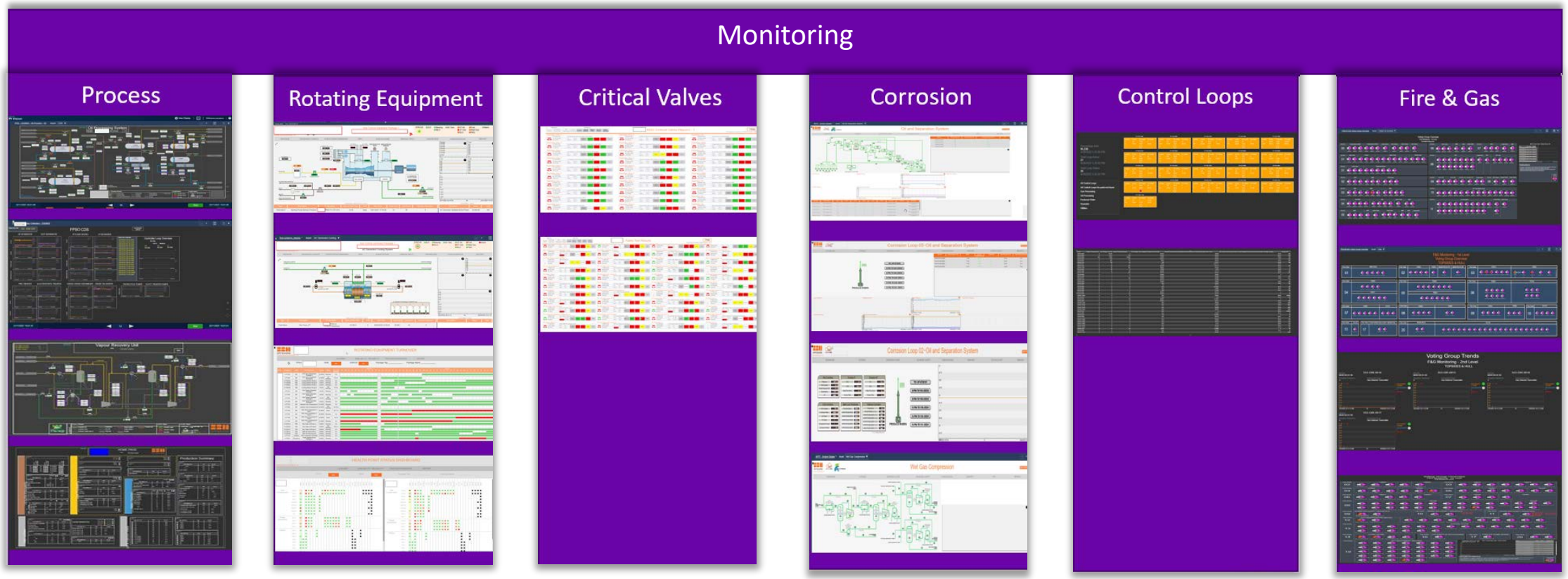
Component
- Analyzers
- Boilers
- Chillers
- CIPs
- CO2 Removal Units
- Compressors
- Control Valves
- Deaerators
- Flow Meters
- Fresh Water Generators
- Gas Dehydrators
- Gas Turbines
  - 111-PKPG-0100 Power Generation Package A
  - 111-PKPG-0200 Power Generation Package B
  - 111-PKPG-0300 Power Generation Package C
  - 111-PKPG-0400 Power Generation Package D
- Heat Exchangers
- Hydrocyclones
- Lab Sample Points
- Level Gauges
- Level Meters
- Power Generators
- Pressure Gauges
- Pressure Meters
- Pressure Vessels
- Pumps

Component
- Analyzers
- Boilers
- Chillers
- CIPs
- CO2 Removal Units
- Compressors
- Control Valves
- Deaerators
- Flow Meters
- Fresh Water Generators
- Gas Dehydrators
- Gas Turbines
- Heat Exchangers
- Hydrocyclones
- Lab Sample Points
- Level Gauges
- Level Meters
- Power Generators
  - 111-PKPD-5100 Essential Power Generator No1
  - 111-PKPD-5200 Essential Power Generator No2
  - 111-PKPD-6100 Emergency Power Generator Package
  - 111-PKPG-0100 Power Generation Gas Turbine
  - 111-PKPG-0200 Power Generation Gas Turbine
  - 111-PKPG-0300 Power Generation Gas Turbine
  - 111-PKPG-0400 Power Generation Gas Turbine
- Pressure Gauges
- Pressure Meters

© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

SBM OFFSHORE AVEVA

Use Cases



© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

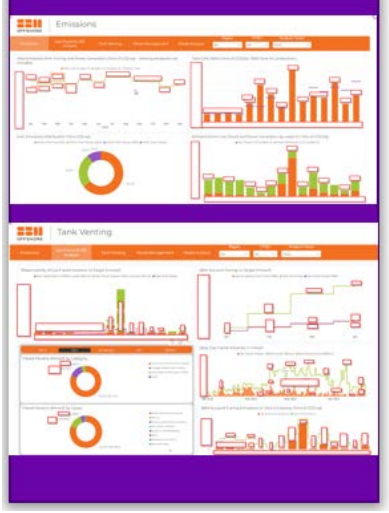
Use Cases

Dashboards

Management

Technical

Emission 0

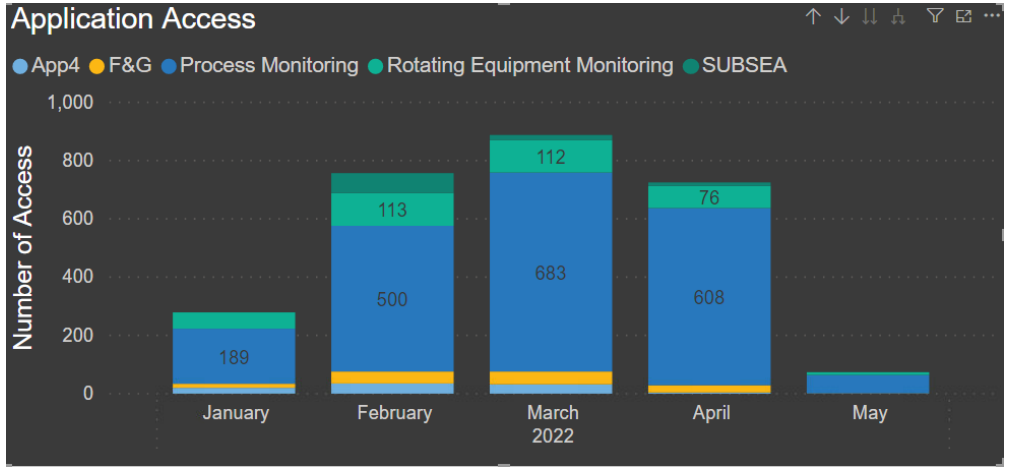


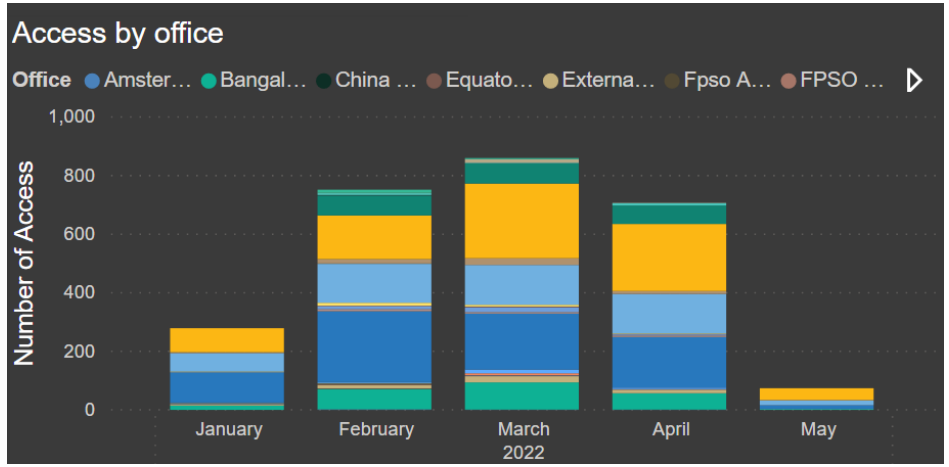
Data Science (Intelligent agents)

- Molecular sieves
- Dry Gas Seal
- Oil Separator
- Mooring
- Sea Water Treatment
- Power Generation
- Heat Exchanger
- Instrumentation
- Bearing temperature
- Vibration

© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

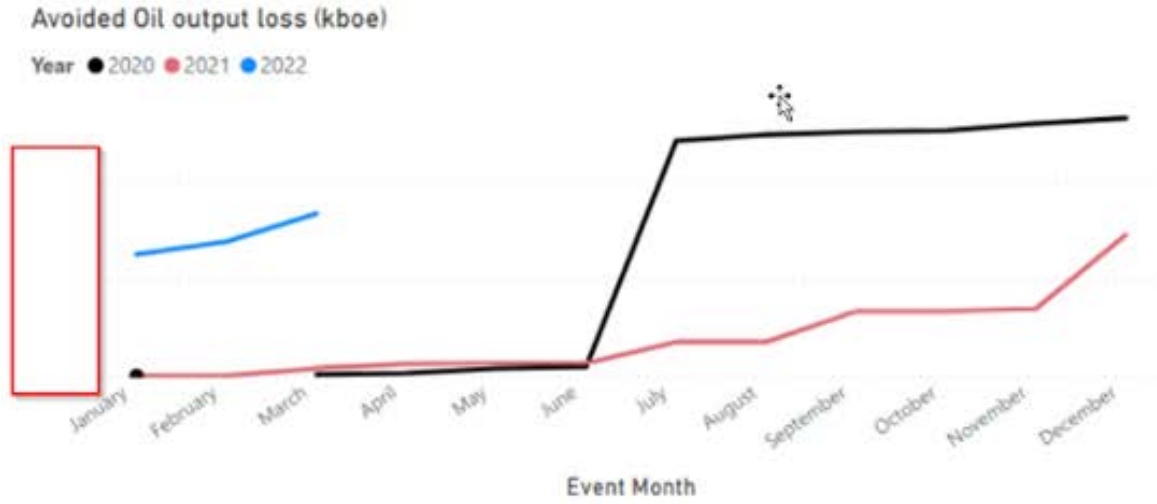
Adoption

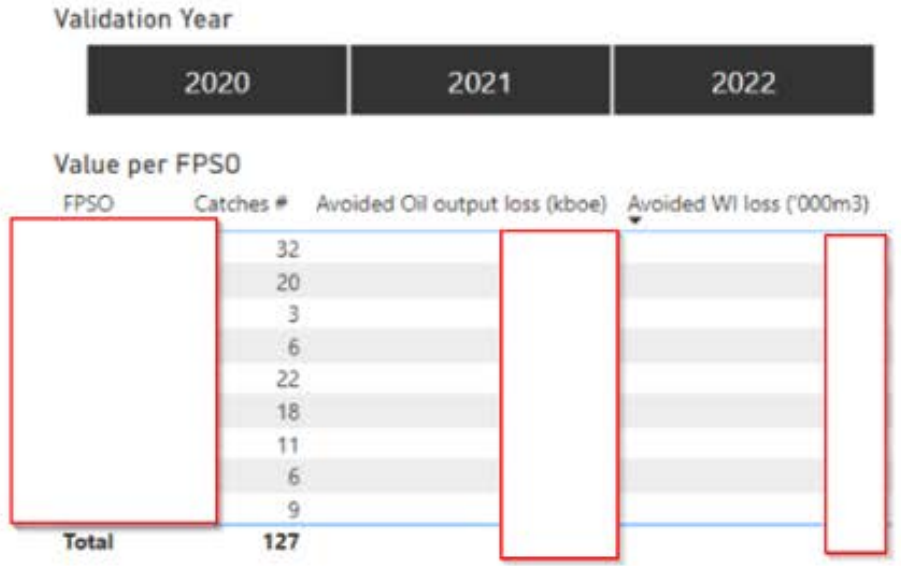


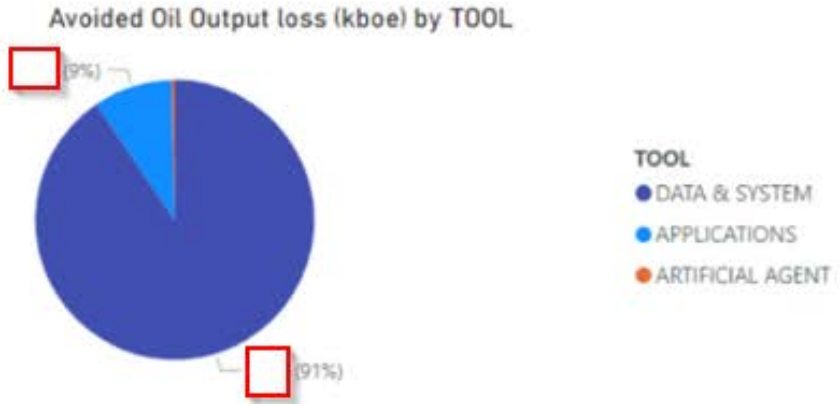


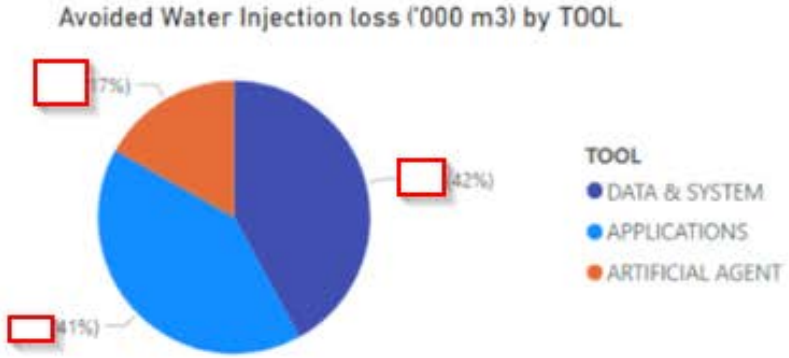
© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

Value creation









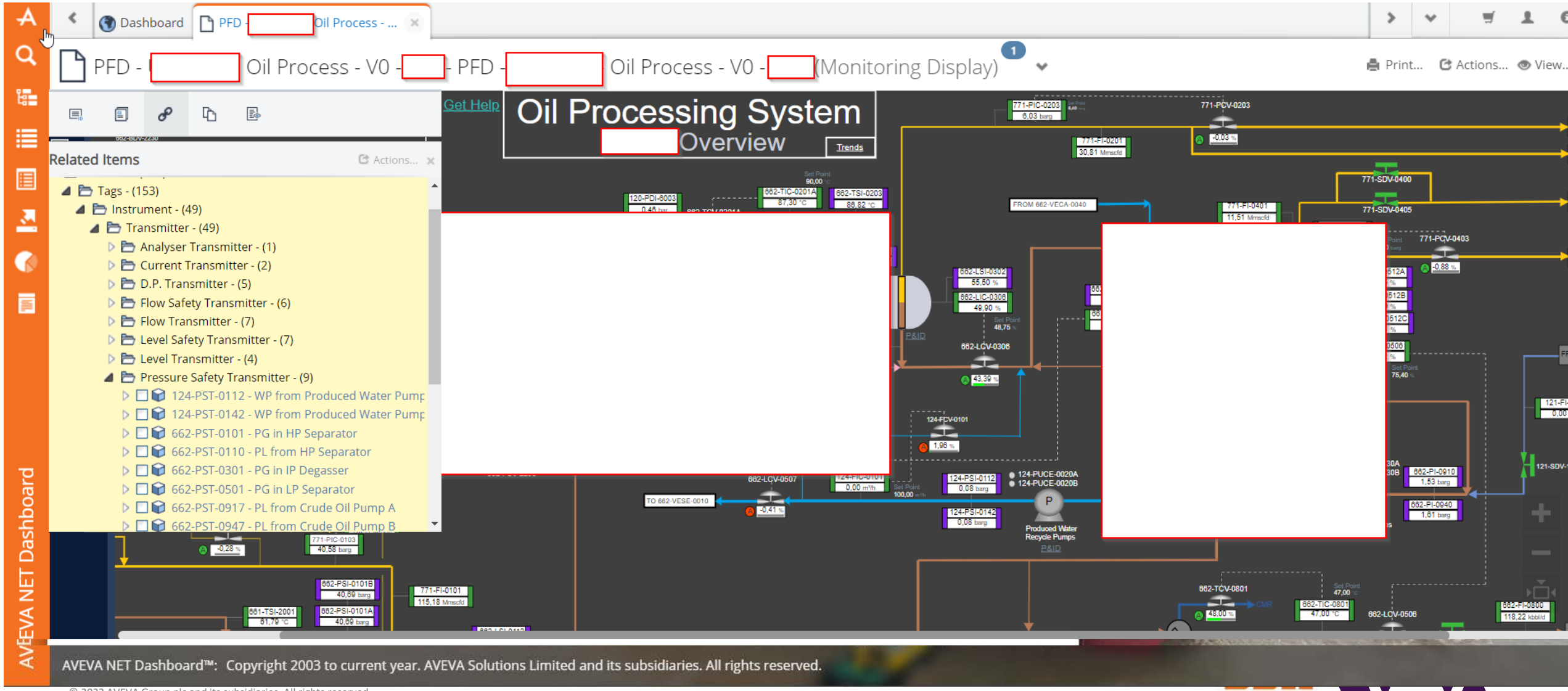
© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

Avevanet

- EPCI Digital twin solution chosen for one project
- Structure and integrate EPC data to make available to operations
- In principle no native integration with the PI System

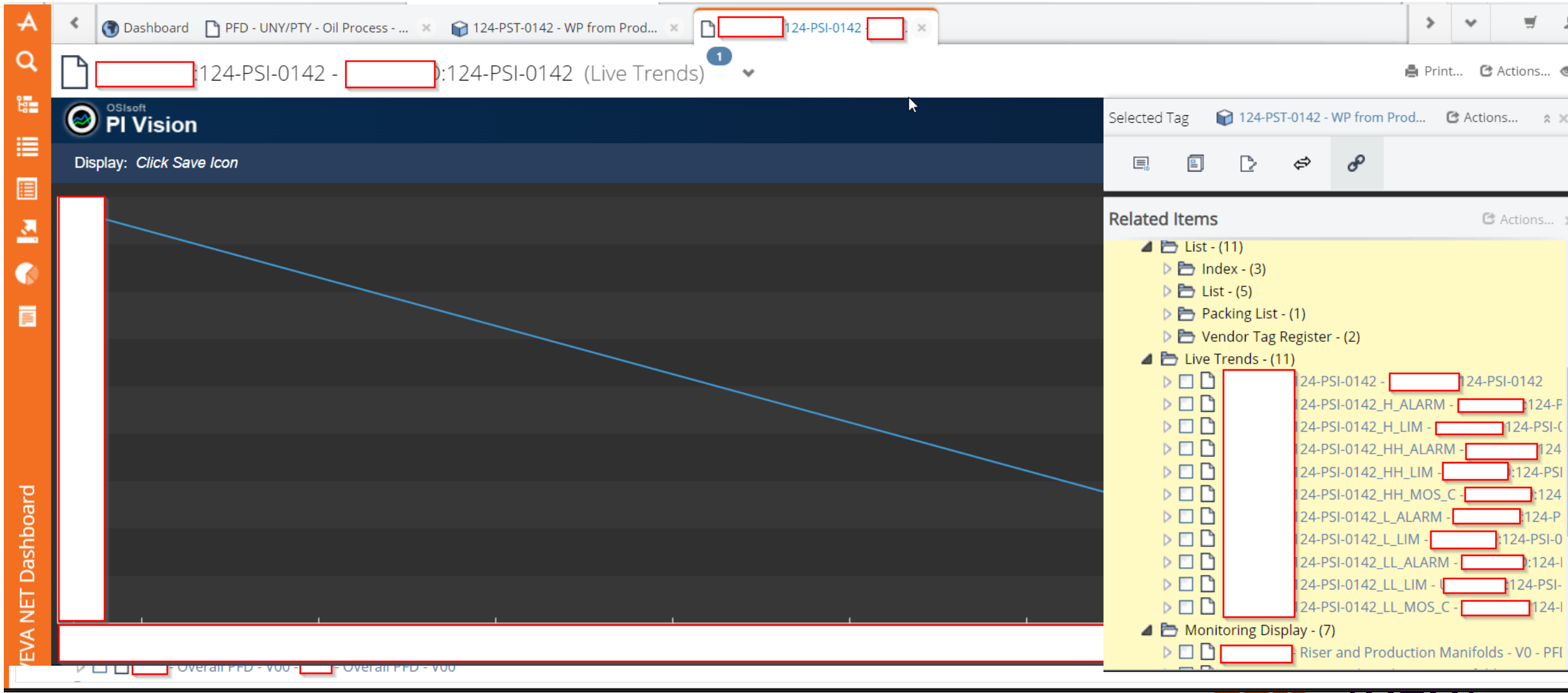
© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

Avevanet



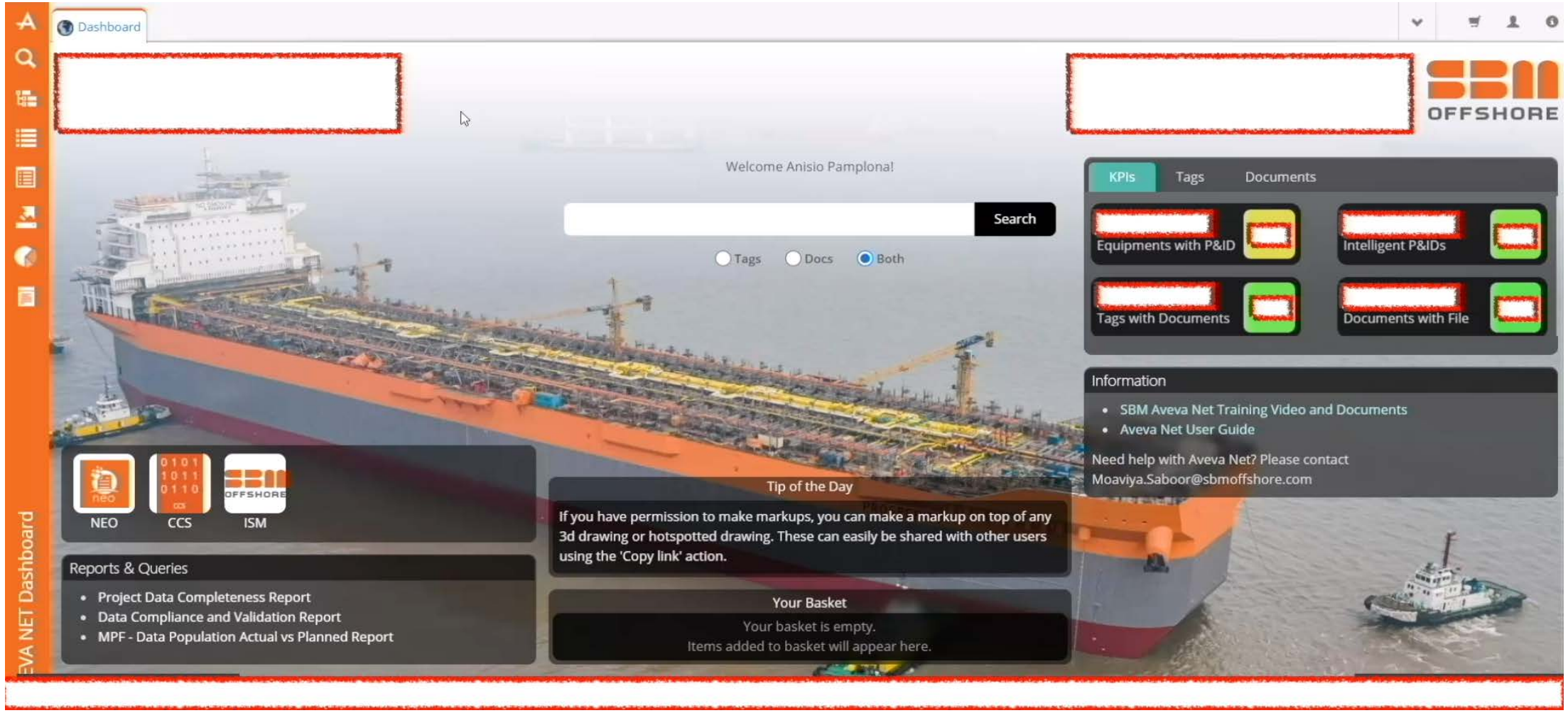
© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

Avevanet



© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

Avevanet



© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

Conclusion

- Data governance is key on the digital journey
- Quality is a daily challenge
- Data structure standardization is a key enabler for digital initiatives
- Internal evaluation to modularize and commercialize data governance and monitoring as a digital services

© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.

© 2022 AVEVA Group plc and its subsidiaries. All rights reserved.