



Rice Global E&C Forum  
Engineering &  
Construction

# RICE GLOBAL ENGINEERING & CONSTRUCTION FORUM



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MUSTANG**



***“Project Information Management  
Challenges...Solutions”***

# Introduction



- Project handovers are not just documents anymore....
- Owner/Operators are looking for tagged item data handovers to support virtual asset management during a project and after.
- Eg. Chevron's Mafumeira Sul project

# Project Description



- The Mafumeira Sul Project /offshore Angola:
- design, fabrication and installation of five new platforms,
- project highlights a continued effort to expand the capabilities of Angolan fabrication yards,
- increase the knowledge of Angolan engineers,
- adds skilled employees to the Angolan workforce.
- Located 15 miles (24 km) offshore Cabinda province in 200 feet (60 m) of water.

# Project Description

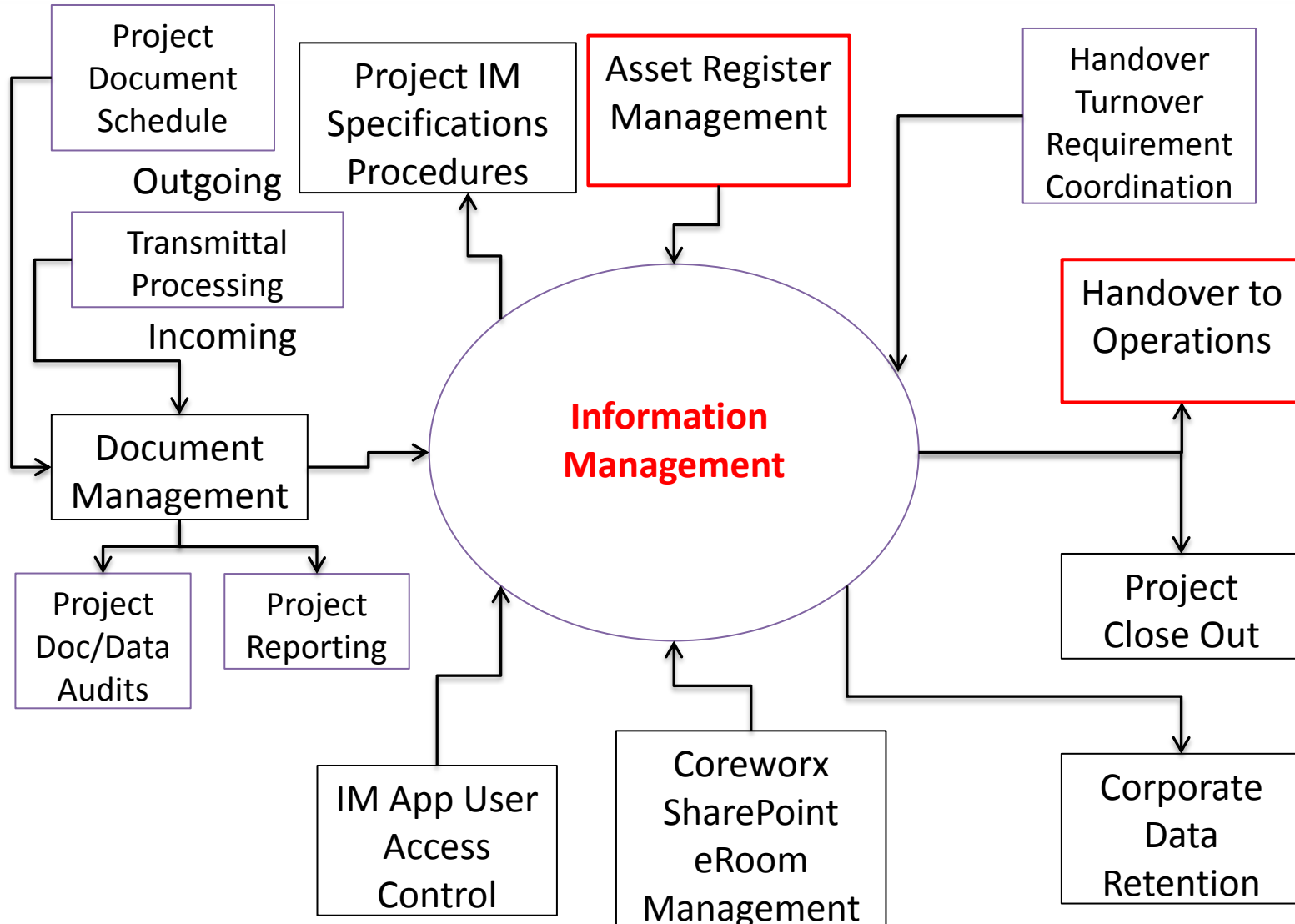


- \$5.6 billion Mafumeira Sul project is the second stage of development of the Mafumeira Field located in Block 0.
- scope includes 50 wells, two wellhead platforms, a central processing and compression facility and approximately 75 miles (121 km) of subsea pipelines.
- Online in 2015, the project will build to a production capacity of 110,000 barrels of crude oil and 10,000 barrels liquefied petroleum gas per day.



# Why is Data so important to MSP?

# MSP Info Management Overview



# Information Management



- Information Management Contractual Requirements
  - Information Management Requirements Spec
- Deliverables Management
  - Vital Documentation and Data (VDD) Deliverables Requirements Spec
  - Document Requirements Schedule (DRS)
  - Project Document Schedule (PDS)

# Information Management



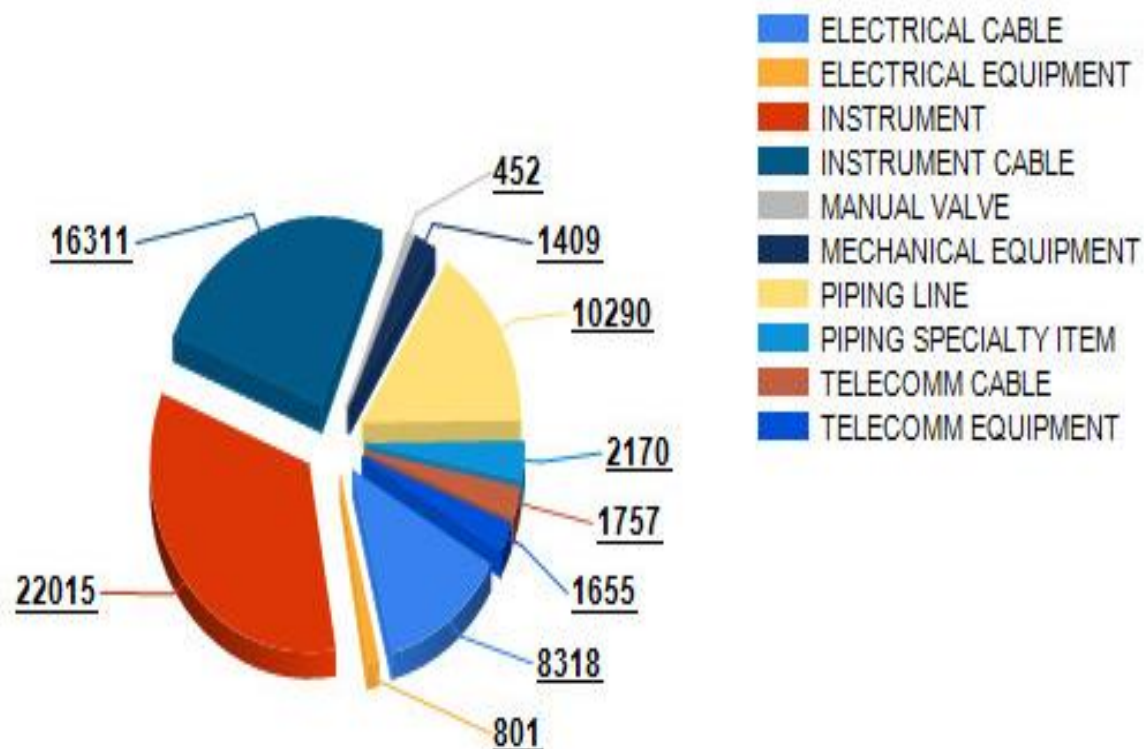
- Document Management Requirements
  - Document Numbering and Coding Spec
  - Document Control and Exchange Requirements Spec
  - Transmittal Management
- Data Management Requirements
  - Vital Data and Documentation (VDD) Deliverables Requirements Spec
  - Facility Engineering Data Requirements



# Topsides Handover for MSP



Tag Count by Type - Chart



Tag Count by Type

Tag Type	Tag Count
ELECTRICAL CABLE	8,318
ELECTRICAL EQUIPMENT	801
INSTRUMENT	22,015
INSTRUMENT CABLE	16,311
MANUAL VALVE	452
MECHANICAL EQUIPMENT	1,409
PIPING LINE	10,290
PIPING SPECIALTY ITEM	2,170
TELECOMM CABLE	1,757
TELECOMM EQUIPMENT	1,655
<b>Total:</b>	<b>65,178</b>

# PIM Challenges for OO



- **Data Development** – *When should an EPC start developing the data handover?*
- **Data Surveillance** – *How do we monitor data development when the standard topside has 60,000+ tags?*
- **Data Consistency** – *Data is being pulled from multiple sources...how does the EPC ensure consistency?*
- **Data Completeness** – *How do we know we have a complete handover?*
- **Data Status** – *How do we know the maturity of the data?*

# PIM Challenges....Solutions

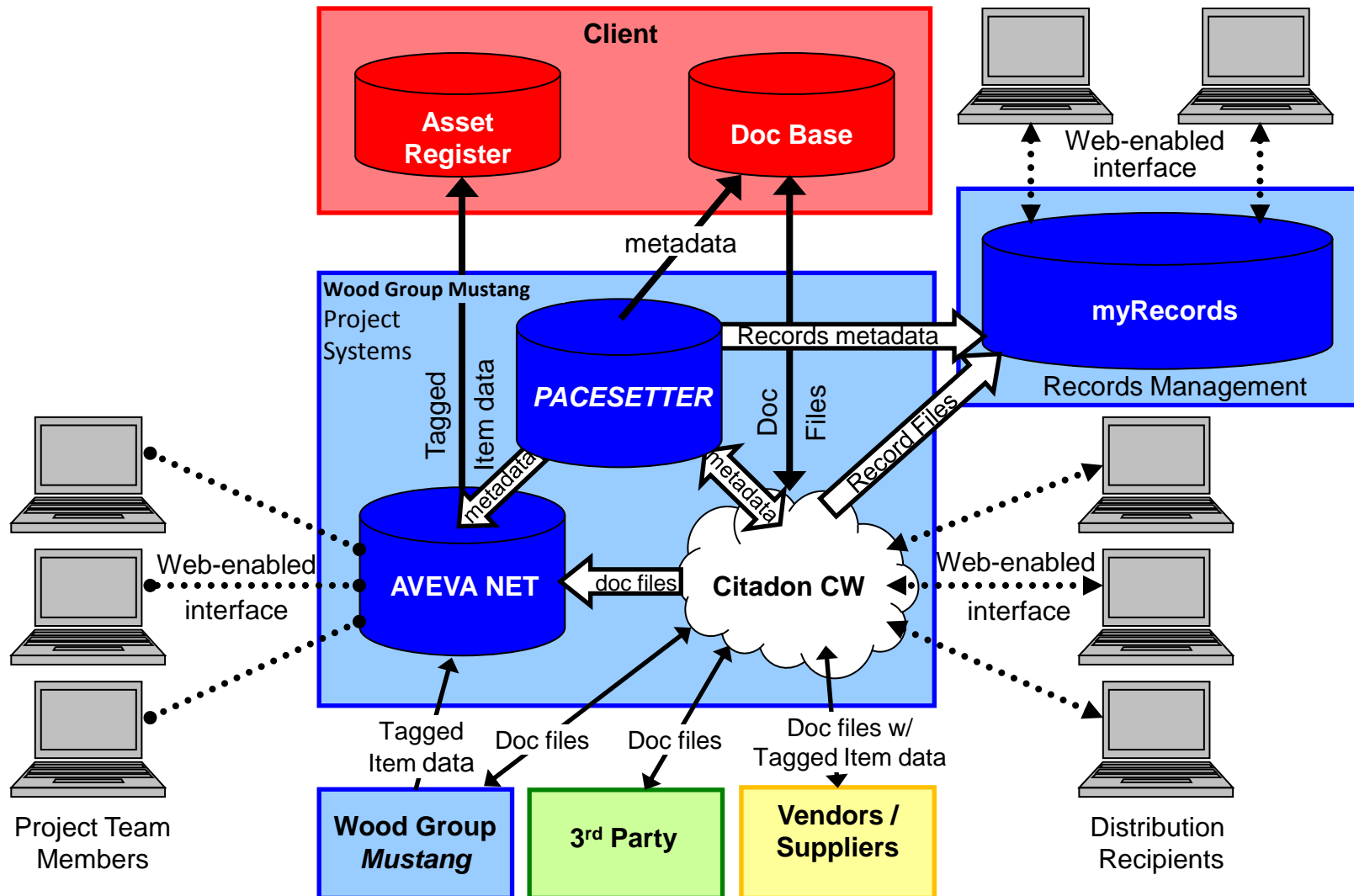


- Wood Group Mustang Project Strategy
- Consolidation database integrated with all standard applications
- Establish role of Data Manager as a discipline
- Data Management - Early implementation with detailed up-front planning
- Roll out standard procedures
- Buy in from Engineering
- Data Visibility through Engineering Information Portal
- People Processes and Technology

# PIM System Map

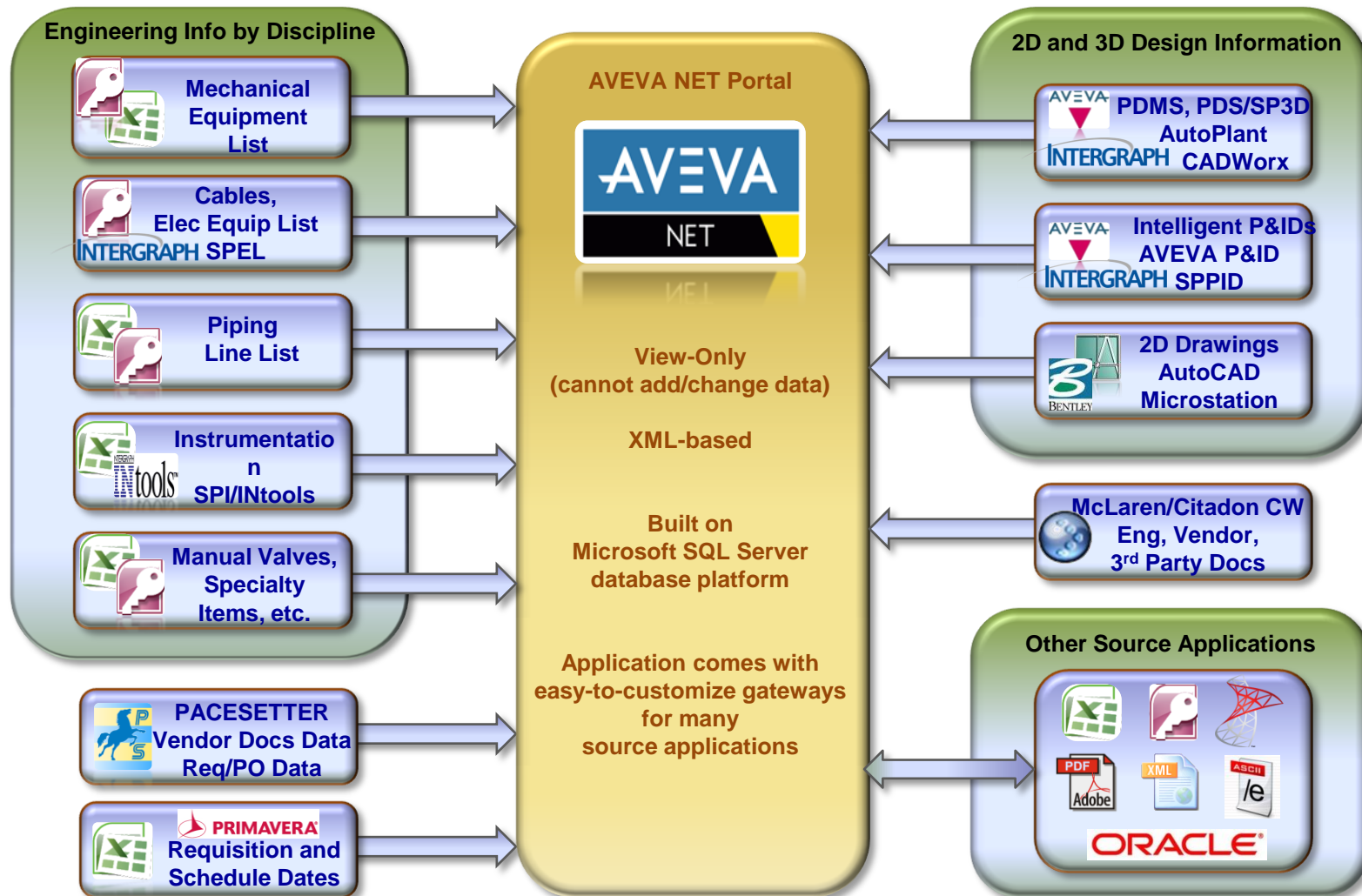


Global Wood Group  
Common





# Data Management Application



# PIM Challenges....Solutions



- Data Development:
  - Setting expectations with a Data Matrix
- System set up during early detail design
- Implement data management organization
- Progress reporting
  
- Data Surveillance:
  - Engineering Portal providing access to model, data sets etc.
  - Dashboards

# PIM Challenges....Solutions



## – Data Consistency

- Consolidation database reporting – clash management
- Data Manager working with Engineering and Vendors
- All fixes in native applications

## – Data Completeness:

- Upfront definition of attributes based on class libraries
- Reporting

# PIM Challenges....Solutions



- Data Status:
- Work in progress – Developing a phase based maturity model
- Derived status from information in the system



# Success



- Data management based on intelligent tools provides additional quality and accuracy to delivered data.
- Data mining info risks of manual interpretation and collection
- As early as FEED, collection of tags and tag attributes based on intelligent design tools provide validation of standards and specification via Asset Register (especially tagging taxonomy)

# Success



- Tag-to-Document associations provide quick tag look up for information during design, fabrication, and installation (provided the data is solid)
- Commissioning is driving Asset Register quality and completeness further toward the beginning of the project.
- Increases the need for early start and understanding of Asset Register requirements
- Accurate upload of data to Operational systems
  - CMMS – Computer Based Maintenance Systems
  - RBI – Risk Based Inspection

# Lessons Learned



- Theory vs Reality of Data Management
- Value of Reporting and Change Management
- Early Implementation
- Contracting Strategies and Organizational Support
- Progressive Handovers vs Single Data Dump
  - O&M, HUC and BU involved early
- Introduction of a Transition and Startup Engineer
- Partnership in Definition and Execution

# Questions?

