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# Integrating AVEVA™ Enterprise Resource Management and AVEVA™ E3D Design: Cats, Specs, MTO and AWP

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# AVEVA

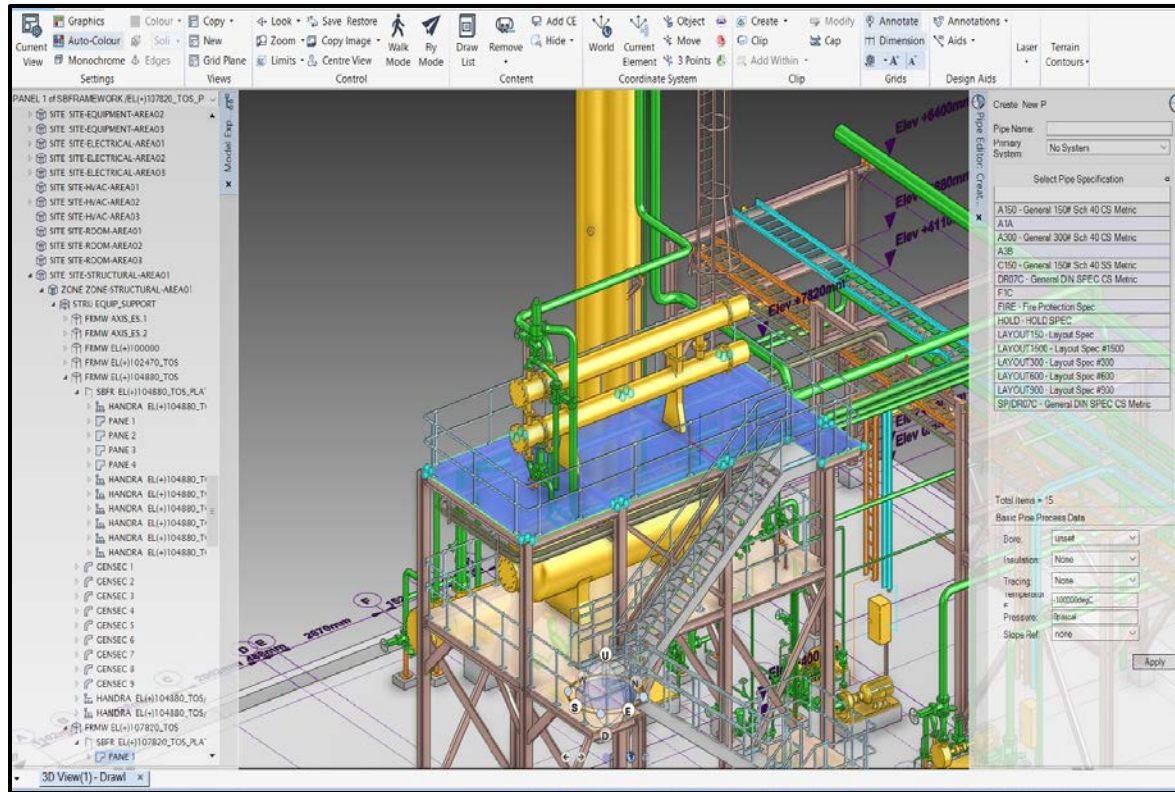
## Born out of the 3D Design World

- In 1967 the close cooperation by the UK Ministry of Technology and Cambridge University started CADCentre
- Change name to AVEVA Solution in 2001
- Key Products developed included – PDMS and VPRM (now AVEVA E3D Design and AVEVA Enterprise Resource Management)
- Expanded by acquisition of many companies and organic growth
- Merger with Schneider Industrial Software and Acquisition of OSIsoft

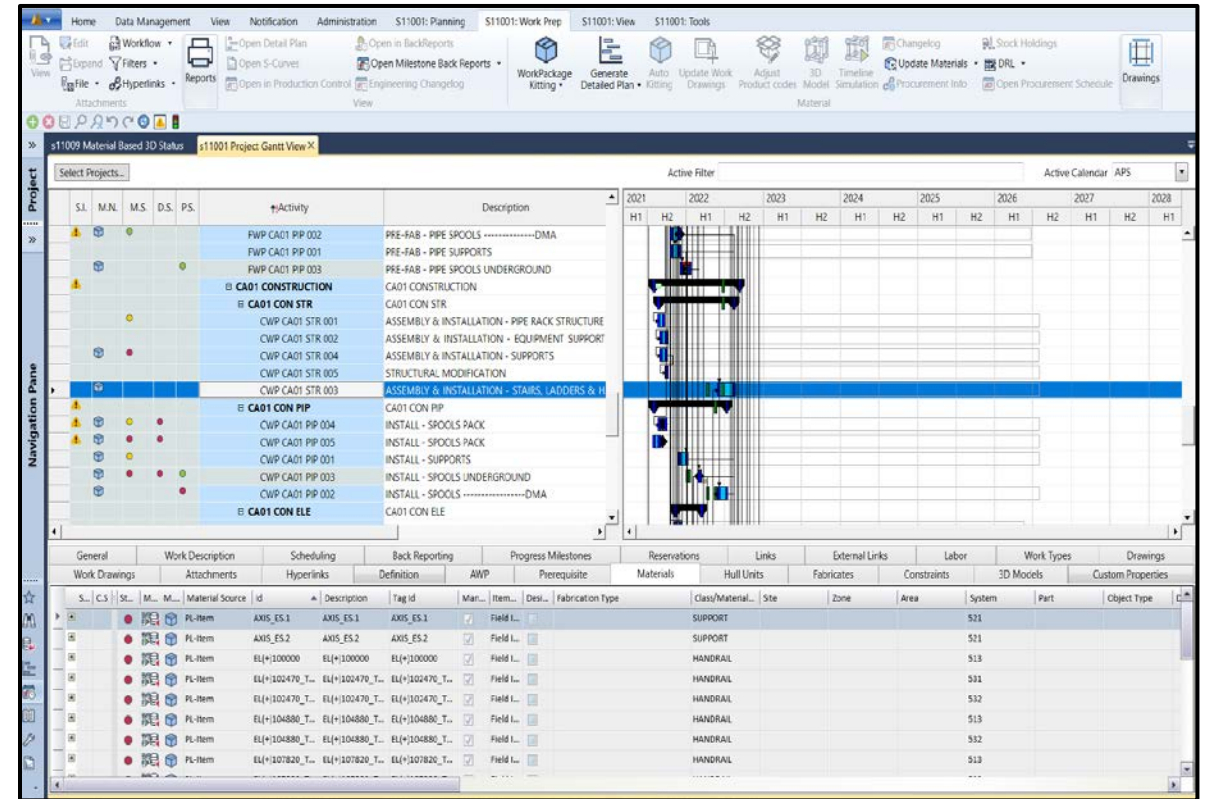
# AVEVA

# Integrating Two Key Tools for Industrial Capital Projects

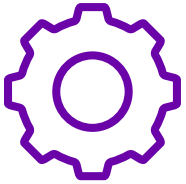
## AVEVA E3D Design



## AVEVA Enterprise Resource Management (ERM)



# Tightly Integrated Tools Deliver Savings



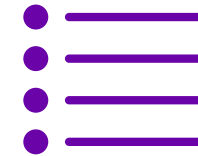
## Challenge

EPCs departments have all been working with highly specialized tools using manual integration or integration via files transfer, resulting in delays, incorrect material, re-work and lower quality of data, somethings allowing manual manipulation of data.



## Solution

AVEVA Engineering Integration Services (AEIS) provides a controlled data exchange of key data between AVEVA Enterprise Resource Management and AVEVA E3D Design. Ensuring the correct data is transferred as soon as it is available and approved with fully validation and avoiding human interference



## Benefits

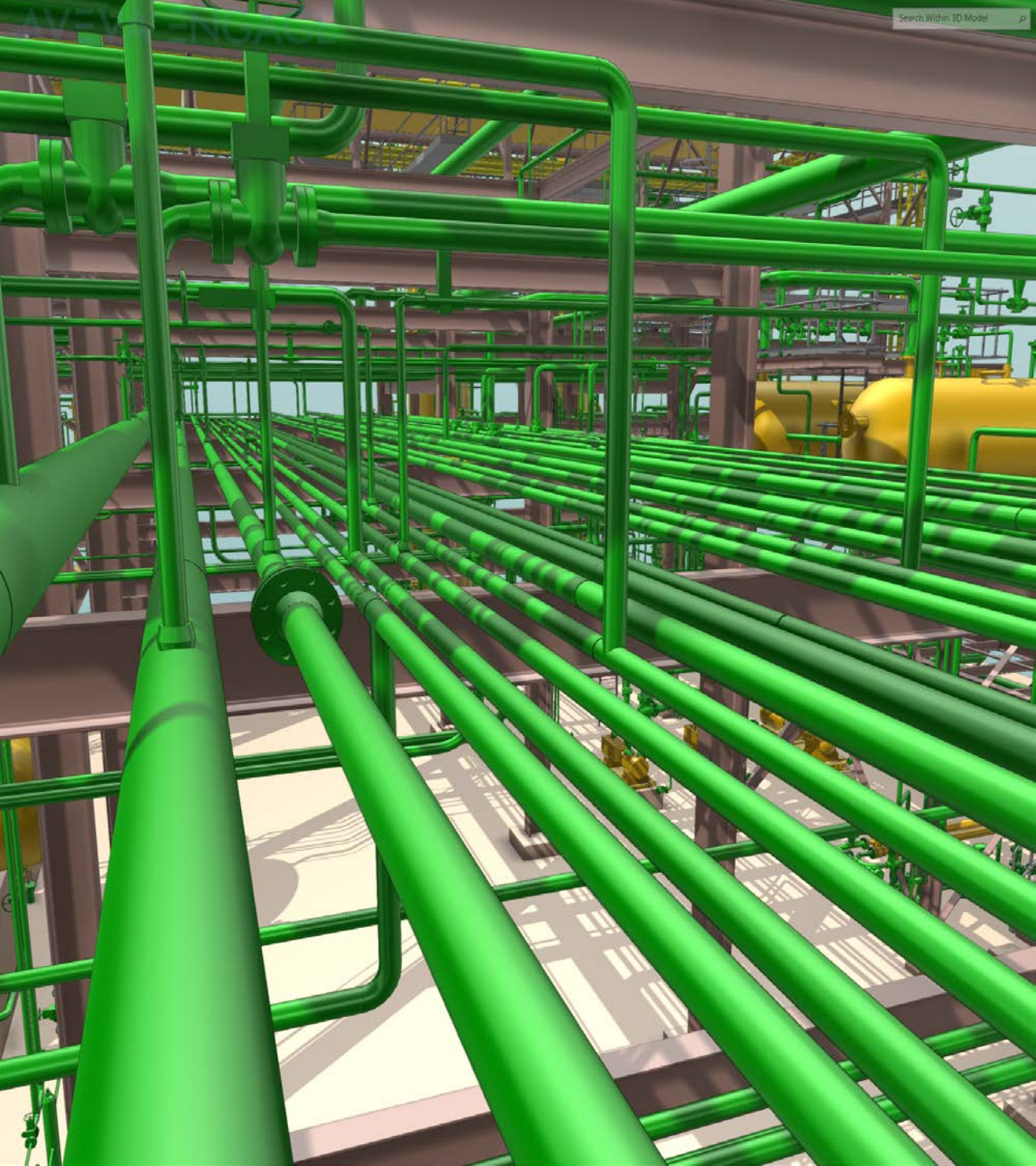
- Rapid start up for 3D modelling with revision control
- Efficient exchange of key data
- Validated data ensures integrity across the solution
- Changes are identified earlier avoiding incorrect material and rework
- Downstream savings in material costs, design and construction time



# What are the Challenges Projects Face?

Out of 7 Global EPCs surveyed these are 3 of the key issues





## Rapid start up to Model

Head of Material Control and Head of Piping  
– Major EPC

“For many disciplines the model is the source of true quantities – the faster you can get to starting modelling, the faster you develop the true requirements, **but** you have to be constantly aware of changes to specifications and design and their impact downstream,”

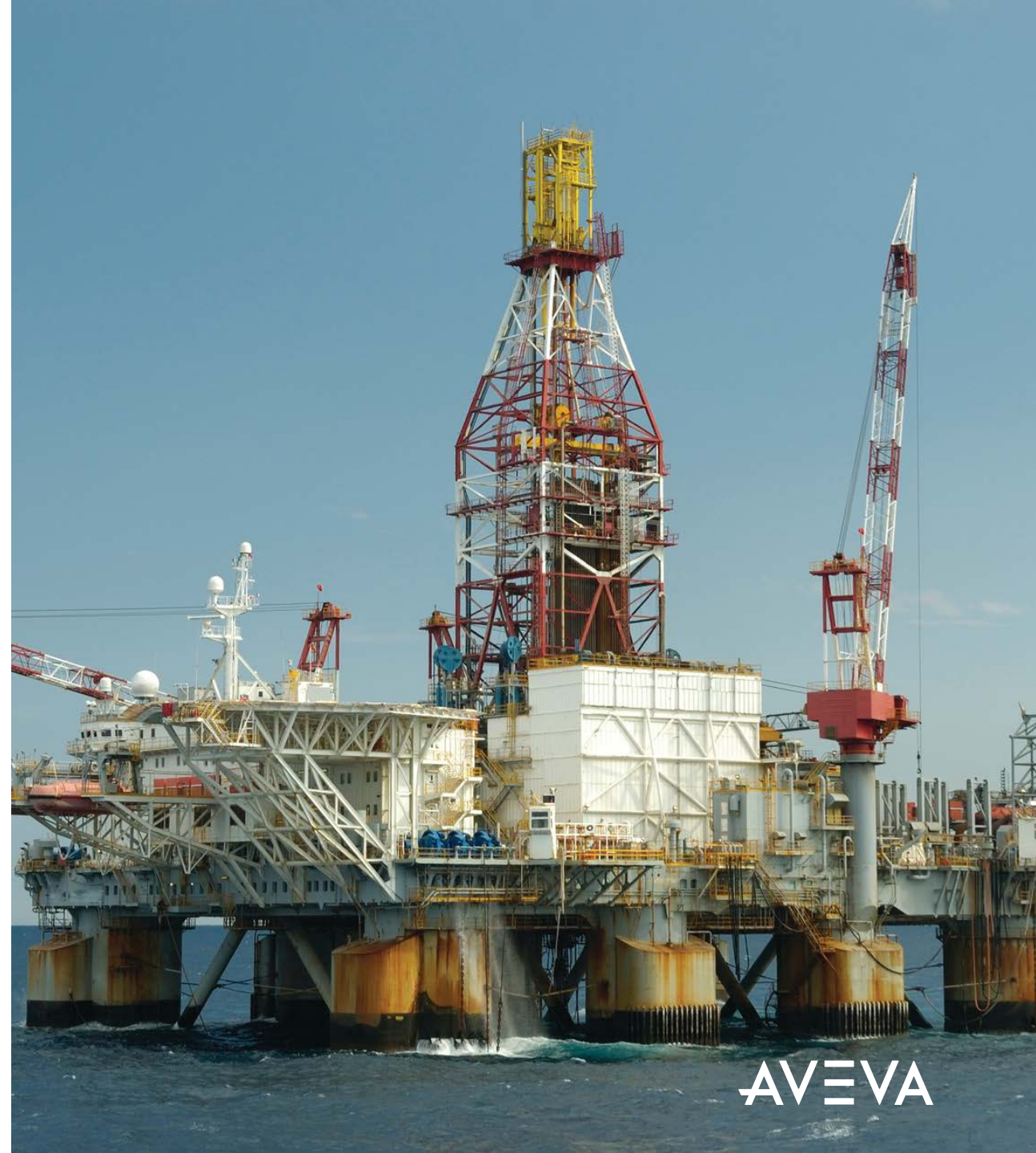


# What our clients are saying

## Major Global EPC - O&G

“On the last 2 projects we lost \$21.000.000 on bulk material that was either incorrect material, over-ordered, excess due to client changes but not charged”

Equates to **5.5%** of project budget – almost as much as the Engineering cost“







# Client Requires line size change

Fast track project will involve changes

- Line List change
- Pipe Diameter not in current specification – Specification Change
- Impact on MTO – some additional components, some different reducer requirements
- Impact on downstream purchase orders, delivery schedule, costs
- Potential impact on fabrication and construction



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# Workflow between AVEVA Enterprise Resource Management and AVEVA E3D Design



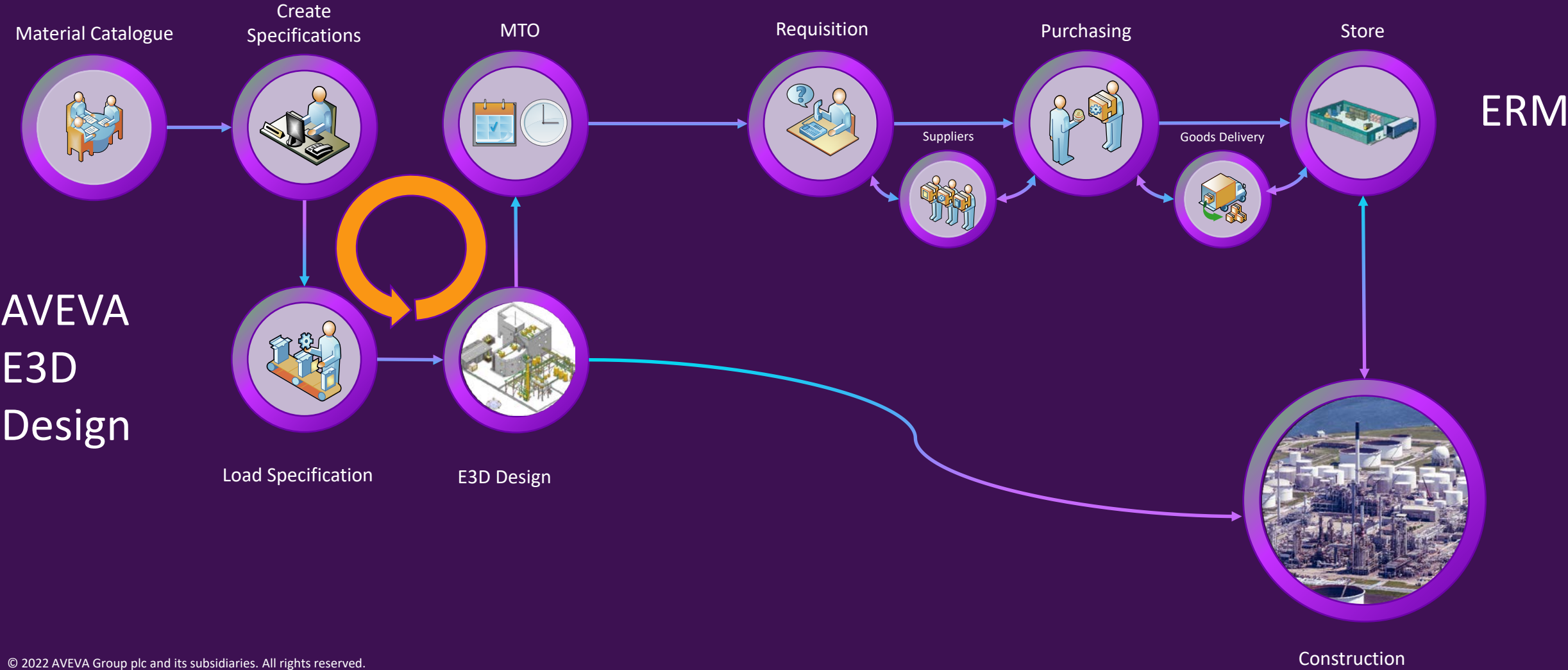


“Nothing can be more frustrating than a job delayed whilst Engineering, Procurement and Construction resolve whether item PPN07338 is the same as I8002921”

Material Controller – Kashagan Experimental Project – Personal Experience



# Processes between AVEVA E3D Design & AVEVA Enterprise Resource Management



# Comparison of Files Based Transfer and AEIS Integration

## File based transfer

- Generation of files takes time
- Less pre-transfer validation
- Does not highlight missing dimension data in AVEVA E3D Design
- Resulting in “round tripping” – consuming time
- Possible human adjustments – maybe well intended
- End to End process time is longer
- Must be supplemented with control process

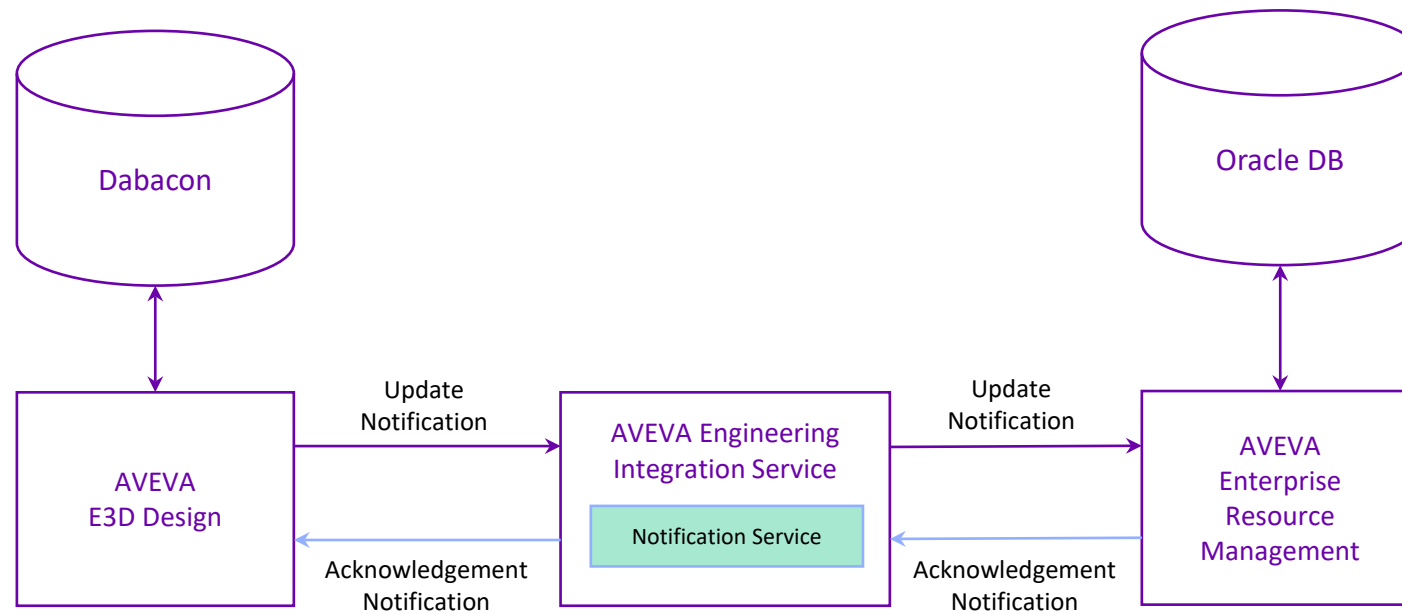
## AEIS Integration

- Generation of transfer data in fast
- Specification creation in AVEVA Enterprise Resource Management is validated against AVEVA E3D Design as the spec is created
- Eliminating the “round tripping”
- Eliminated human adjustments
- Control process is built in
- End to End process time is shorter

- Clients report up to 40% reduction in time for creating and loading specifications from AVEVA Enterprise Resource Management to AVEVA E3D Design

# ERM Design Integration Mechanism

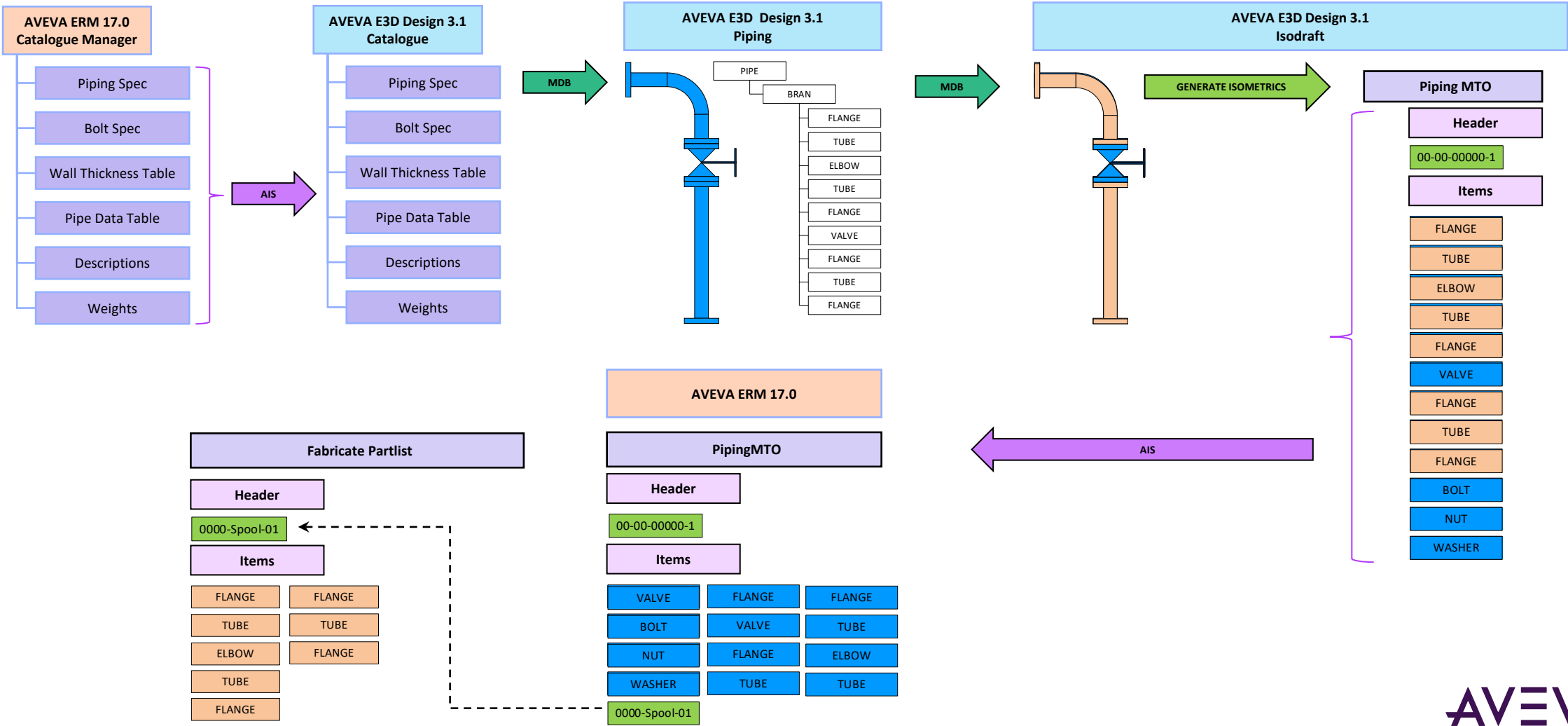
Notification workflow from AVEVA E3D Design to AVEVA Enterprise Resource Management





# AVEVA Enterprise Resource Manager - Catalogue Manager to AVEVA E3D Design

## Workflow (Piping Spec)





# Demonstration of the Process







# Additional Features to Enhance Savings

Additional Features that can assist designers in design and downstream material control

- Handling of On-Hold times
  - avoid ordering or fabricating items under clarification – identify in AVEVA E3D Design
- MTO Impact Report
  - show the impact of pending or approved specification changes before model updates
- Specification Comparison / History reports
  - know what changed and when
- Produce Project Documentation such a specification reports
  - Reduce the effort to create documentation for client / project approval



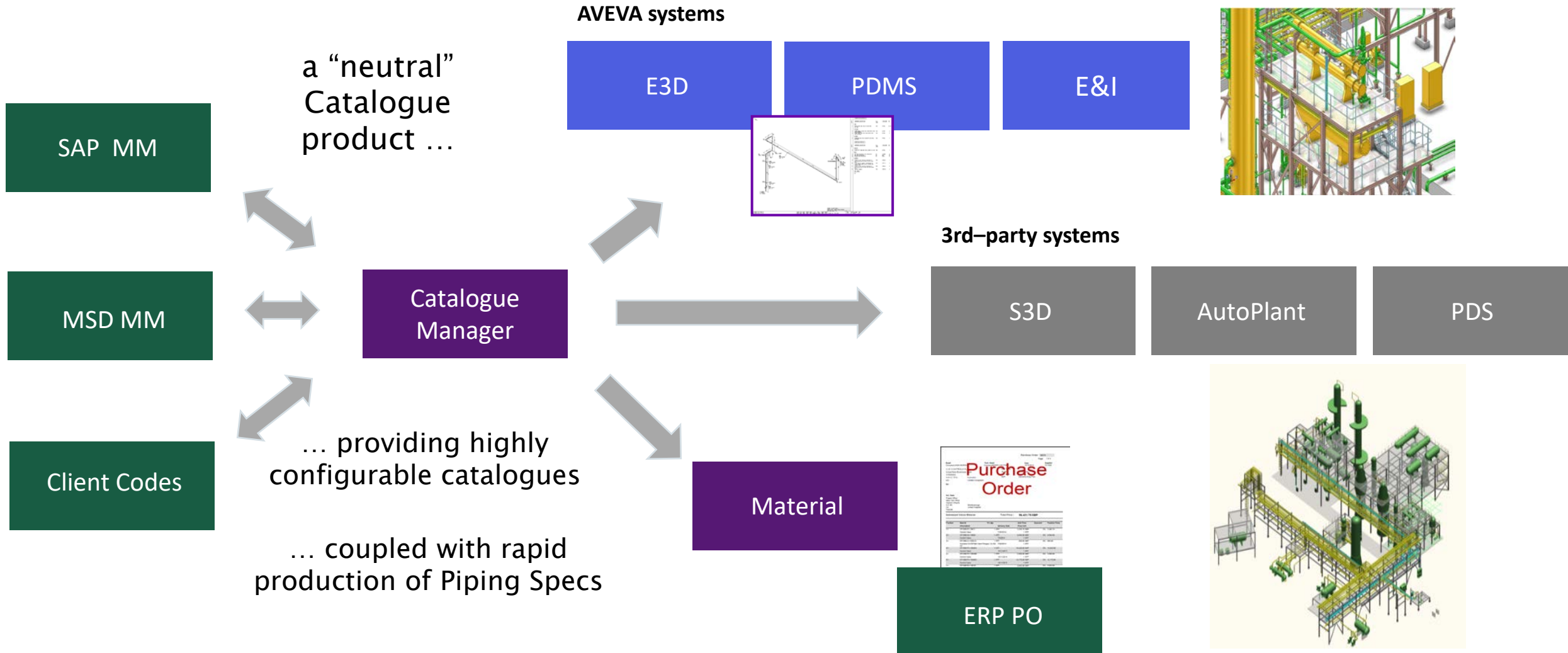
# Impact and savings

Using AVEVA Enterprise Resource Management for Specifications to AVEVA E3D Design

• 8 ... to ... 4 Rule

- Reduce time to create 50 specs from average of 8 weeks to 4 weeks
- Further reduction can be achieved using the direct integration
- Reduce wastage of material from 8 to 4% using specification revision control linked to material take off validation
- Reduce rework on fabricated spools from 8 to 4% by ensuring later changes are identified and fabrication put on hold until clarified

# AVEVA Enterprise Resource Management and other Design Tools



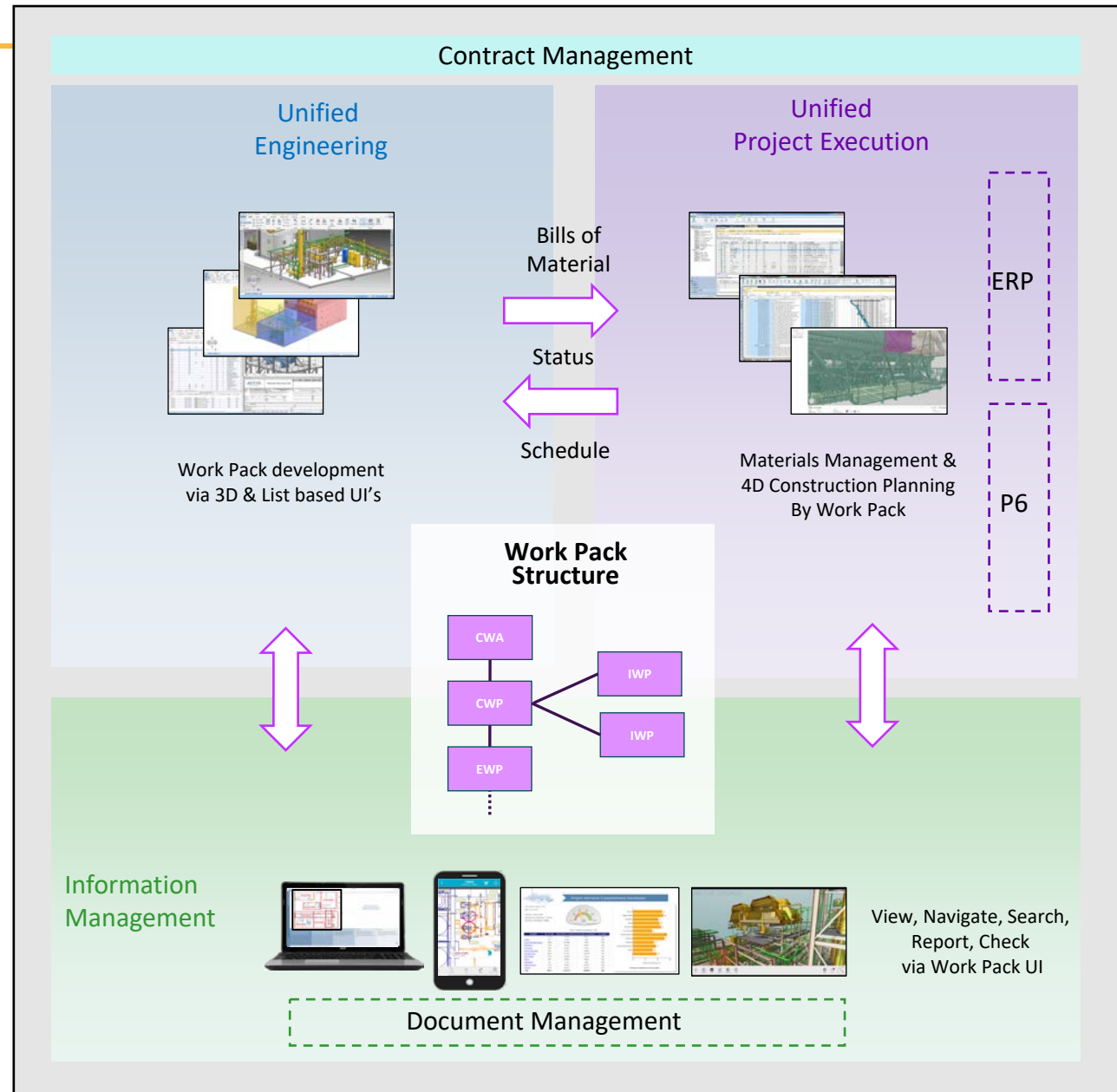


# Trend to Adopt AWP

AVEVA Integration to support AWP Adoption



# Advanced Work Packaging with AVEVA

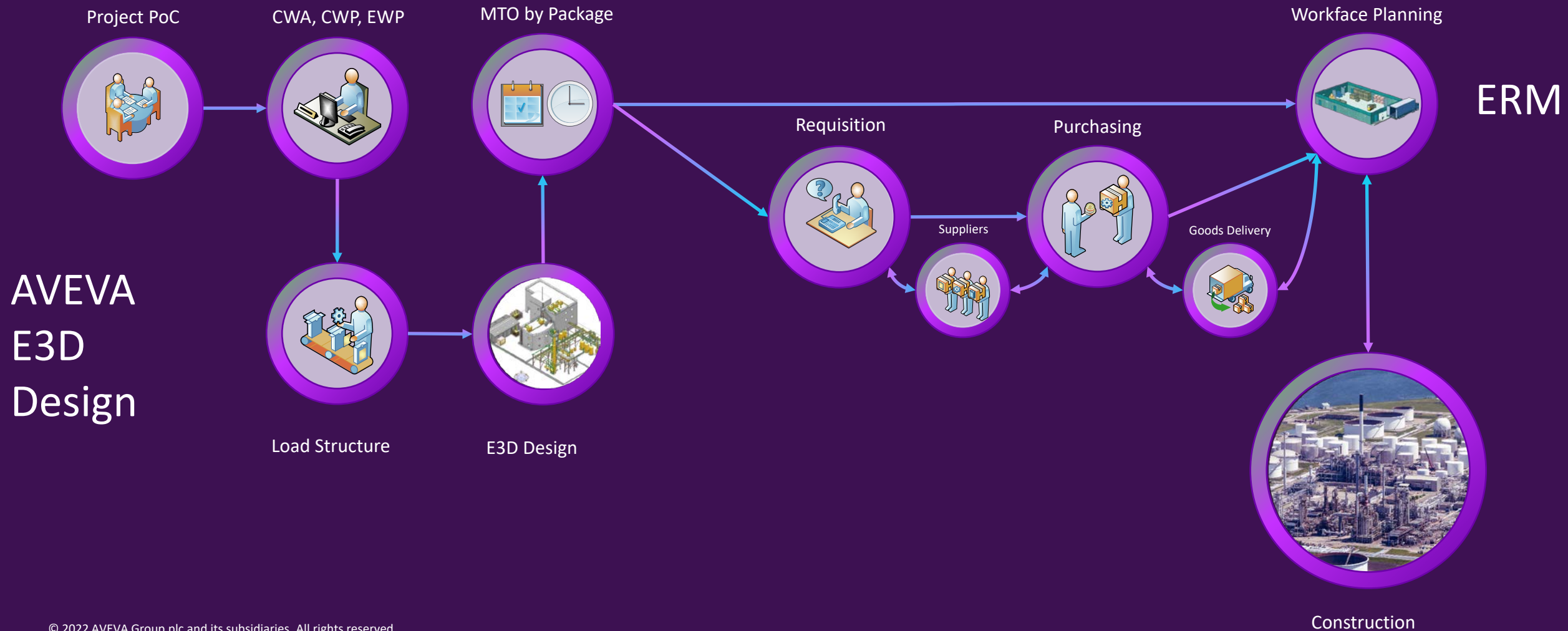


Open, Flexible, Configurable

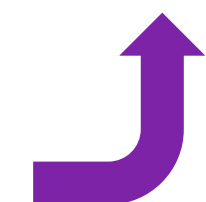
**AVEVA**



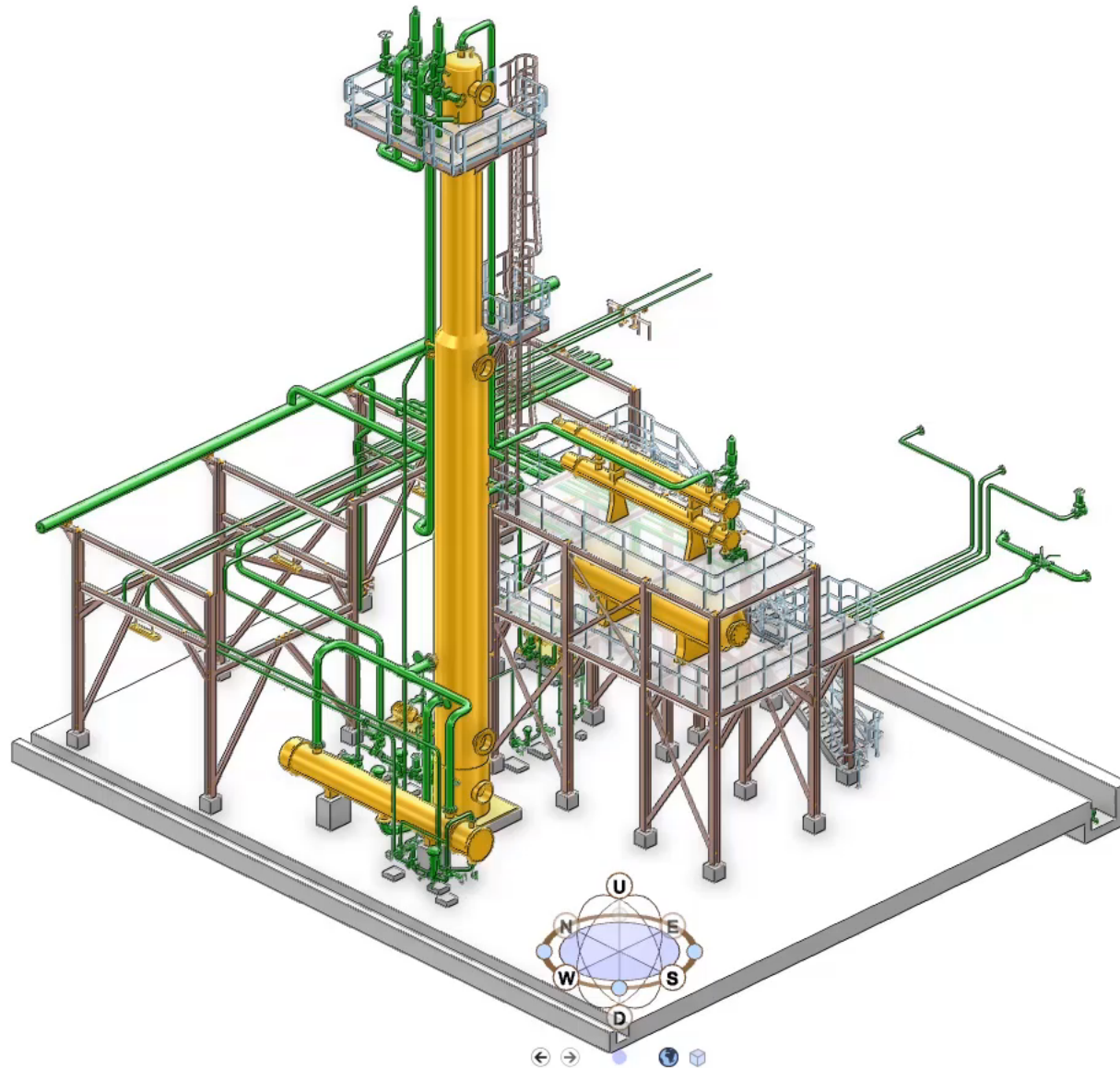
# AWP between AVEVA Enterprise Resource Management and AVEVA E3D Design



First Stage of Integration is file based to allow for integration with other tools in the industry



Model Explorer



- Work Packs Explorer
- Work Areas
    - CWA001
      - CA04
      - CA03
      - CA02
      - CA01
    - Work Packs

“Research by the Construction Industry Institute found that projects which utilise AWP decreased costs by 10% and increased productivity by up to 25%. ”

CII



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“ERM reduces the time to create revision-controlled specification to less than 50% of the time required in previous tool.”


Piping Engineer – Worley UK

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