

19 MAY 2022

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

893701

Barry Holton and Mark Crombie

AVEVA

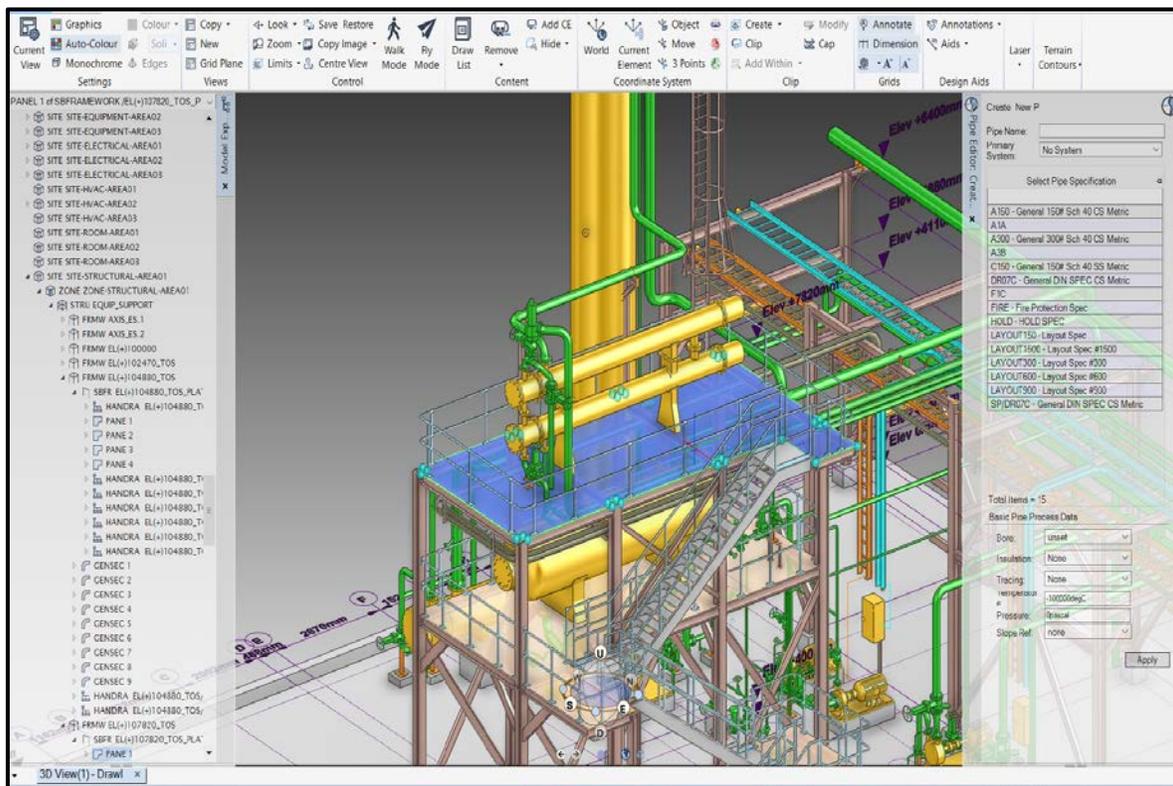
Born out of the 3D Design World

- 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

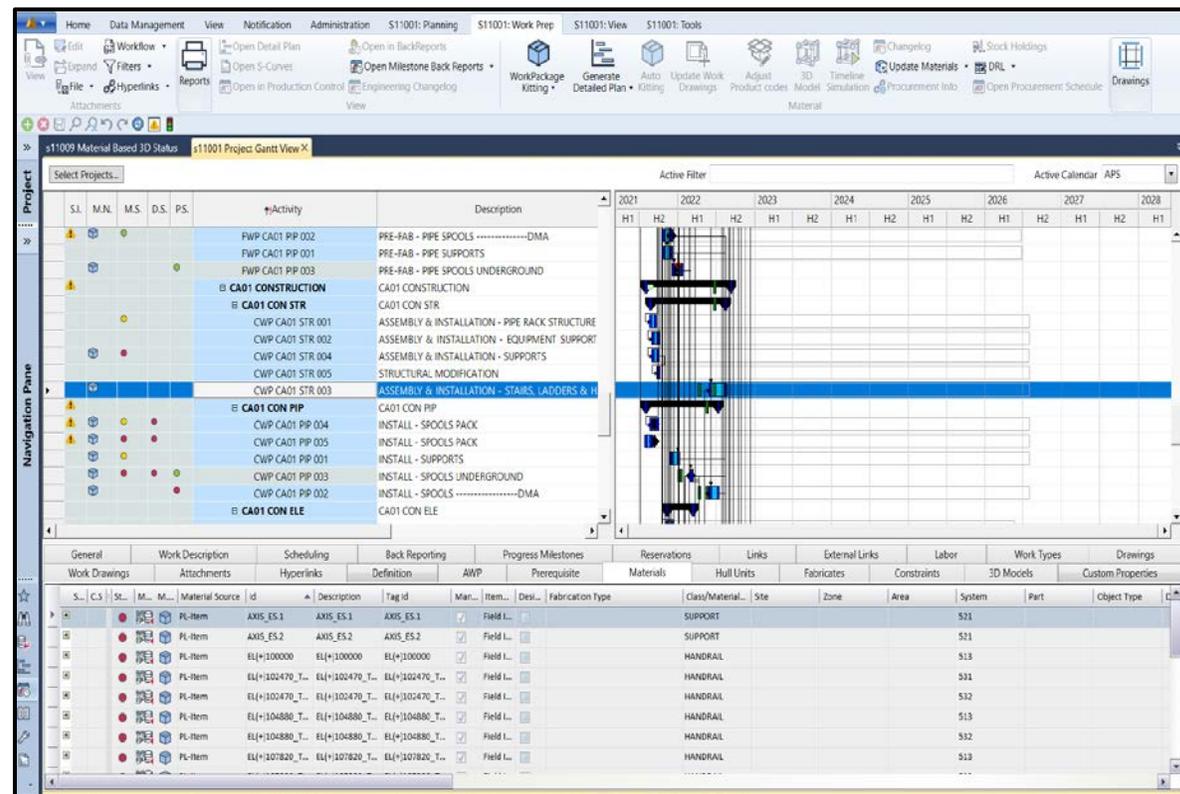
AVEVA

Integrating Two Key Tools for Industrial Capital Projects

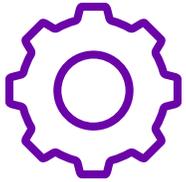
AVEVA E3D Design



AVEVA Enterprise Resource Management (ERM)



Tightly Integrated Tools Deliver Savings



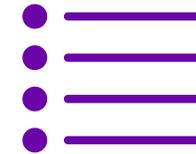
Challenge

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

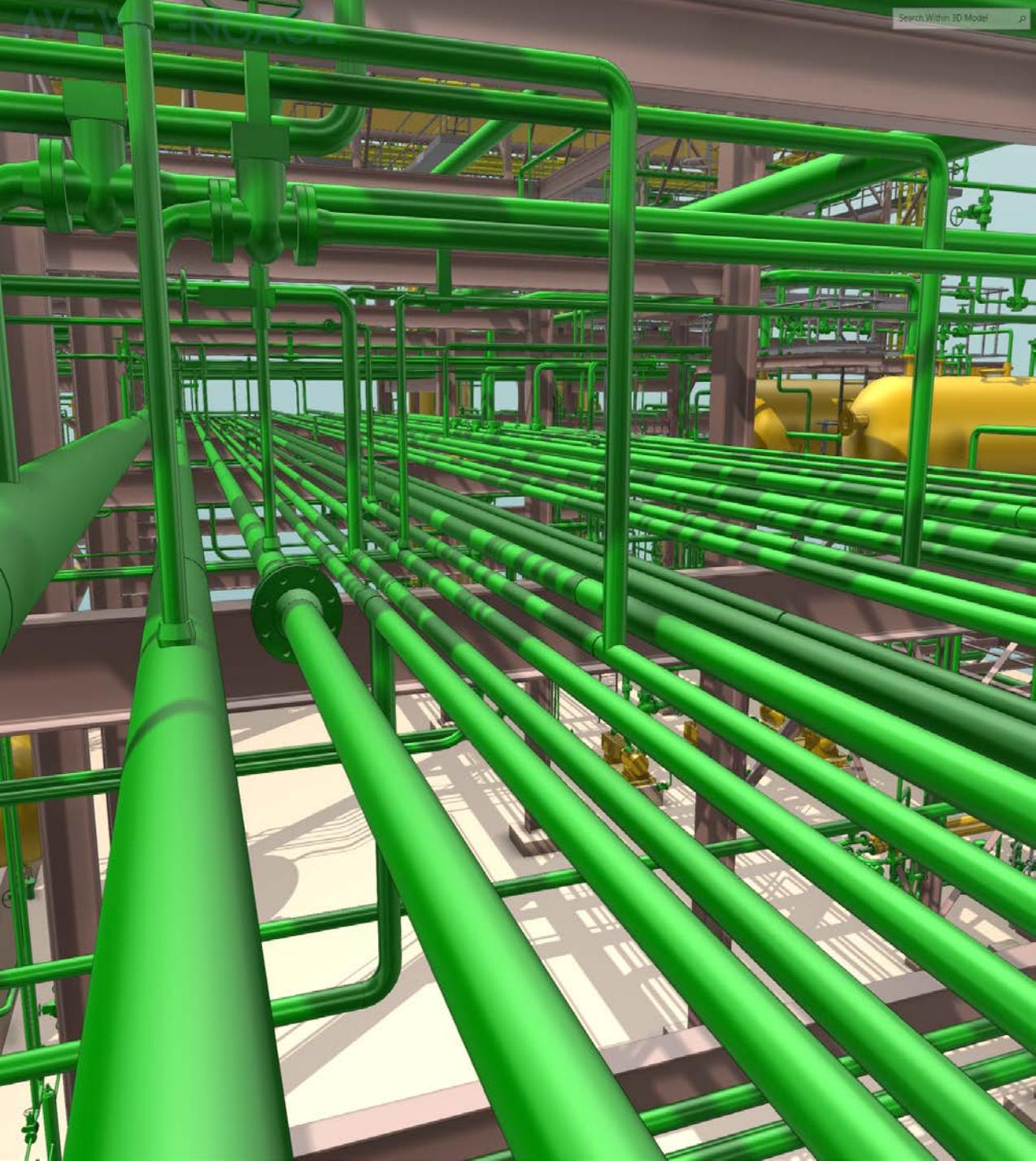


Benefits

- 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

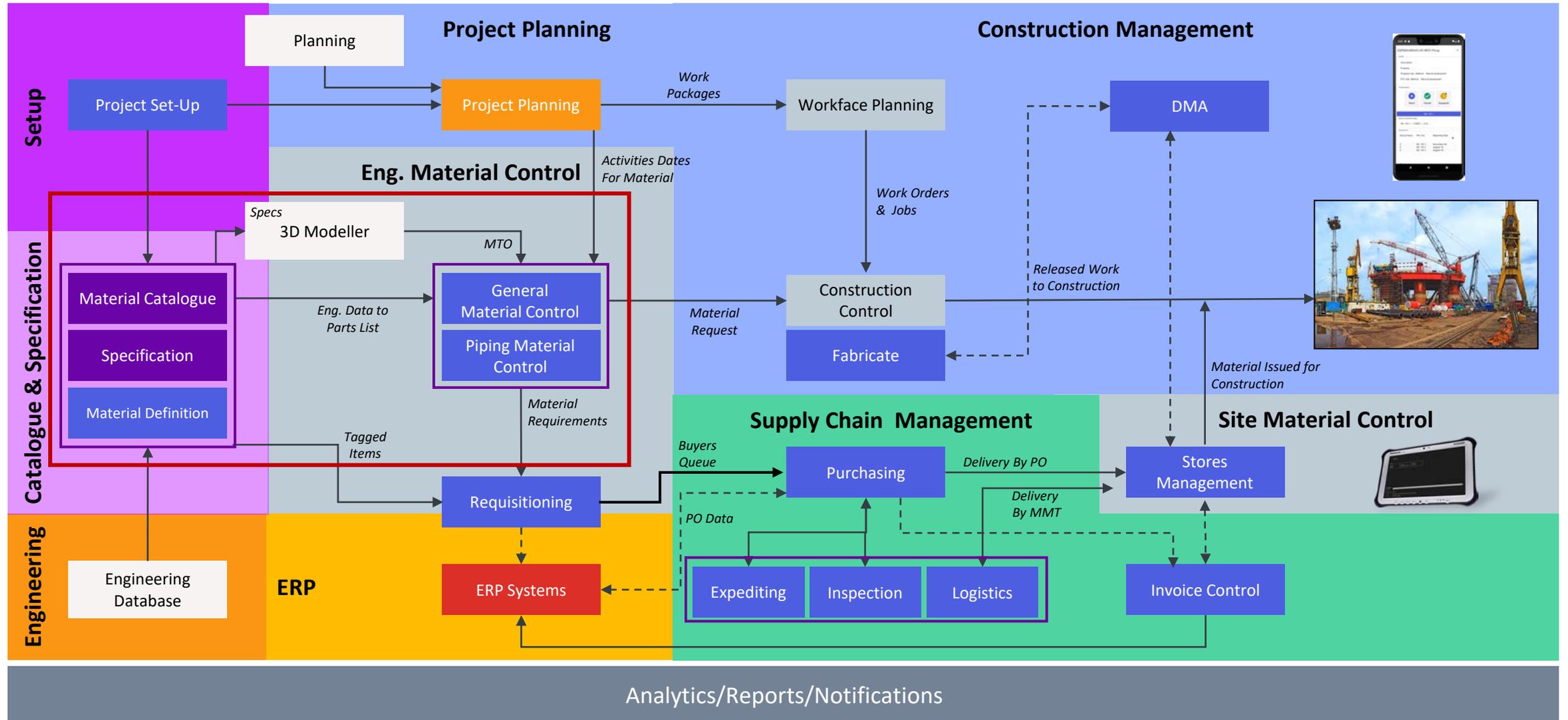
Fast track project will involve changes

- 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

Workflow between AVEVA Enterprise Resource Management and AVEVA E3D Design



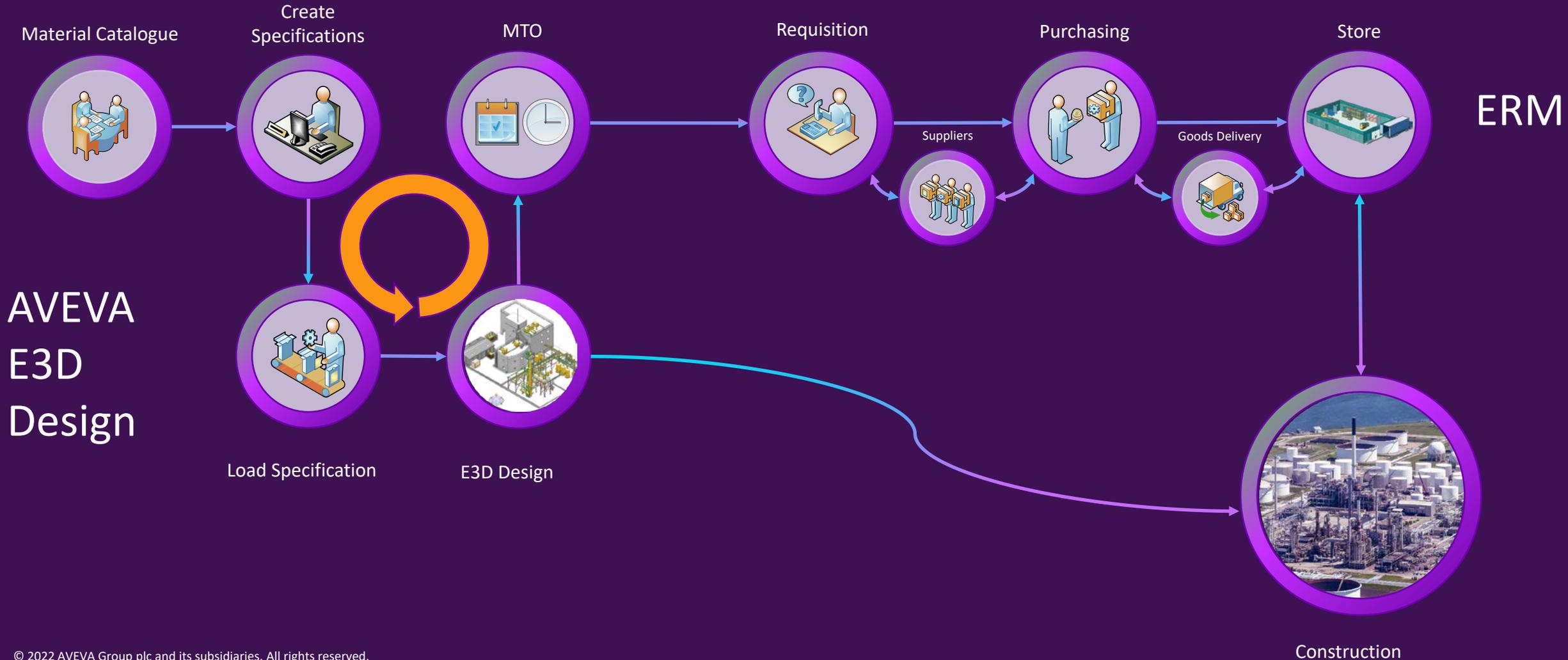
Project Execution Process Lifecycle in AVEVA Enterprise Resource Management



“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

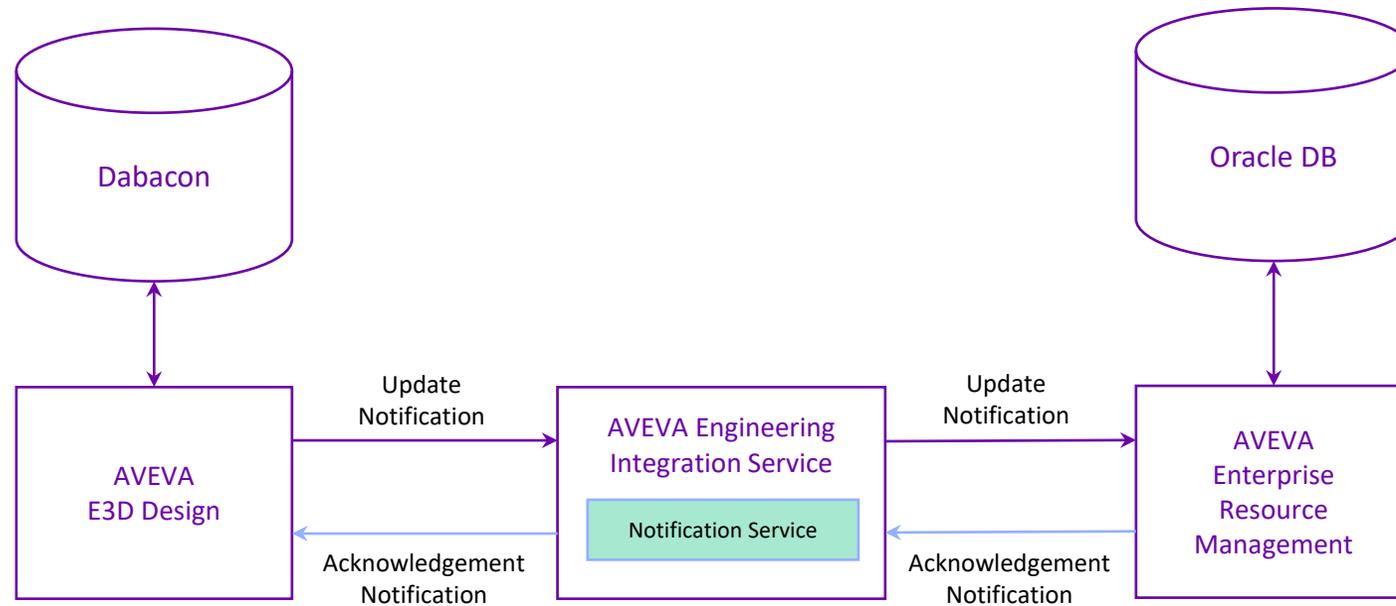
AEIS Integration

- 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

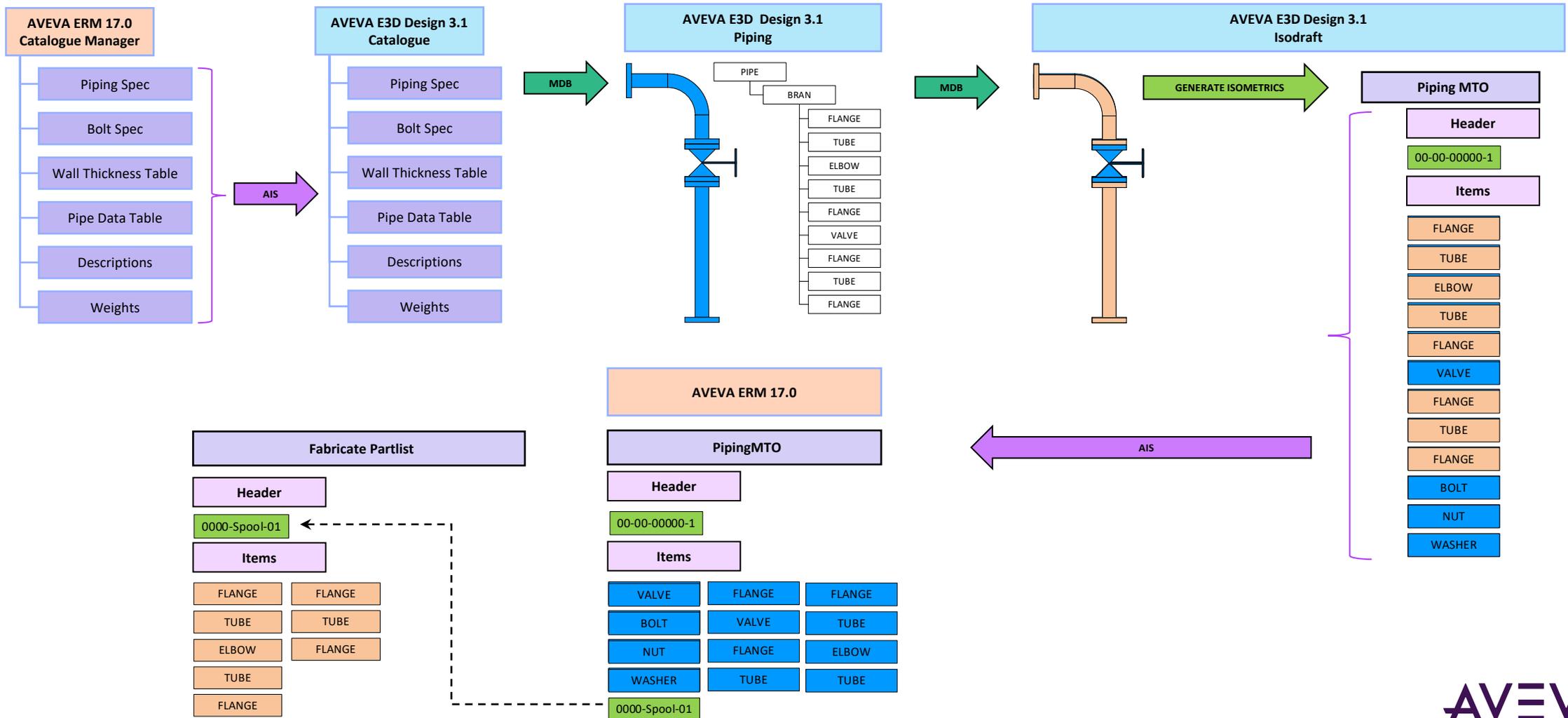
ERM Design Integration Mechanism

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



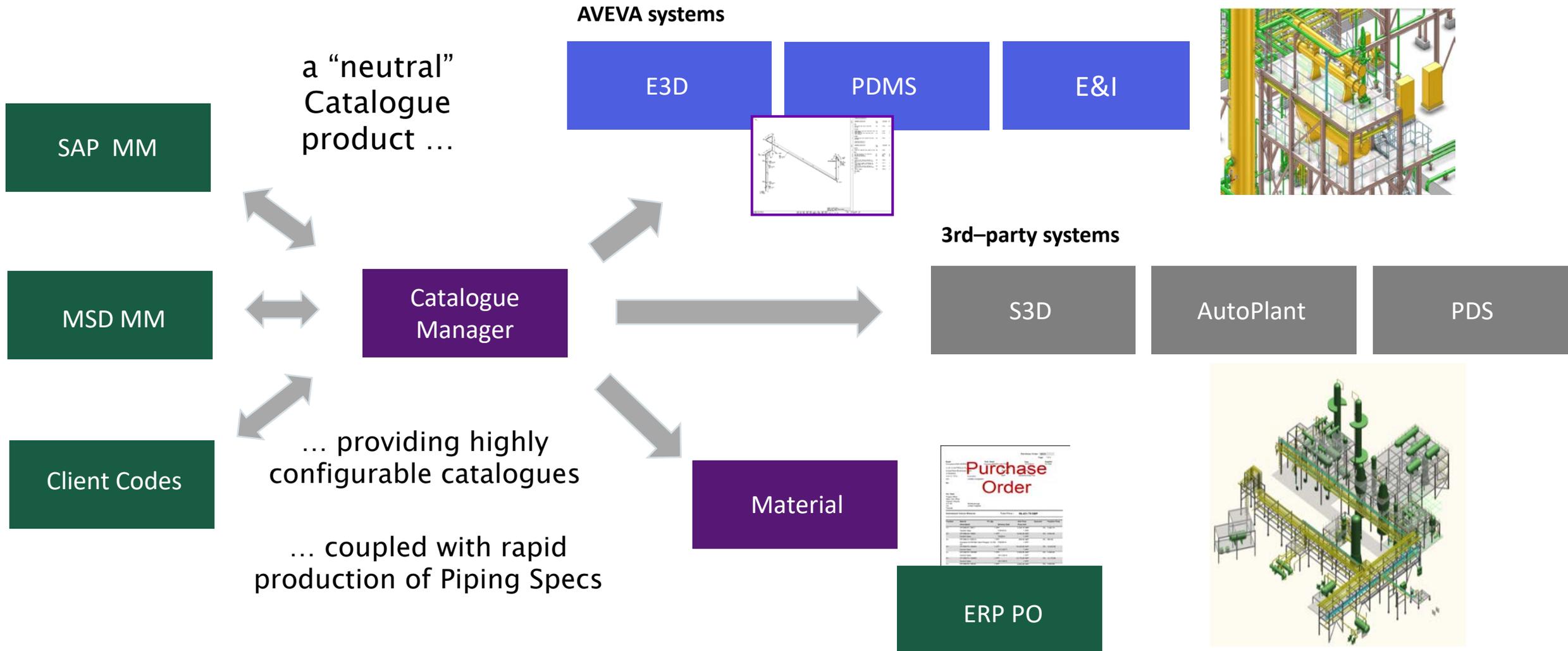
Impact and savings

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

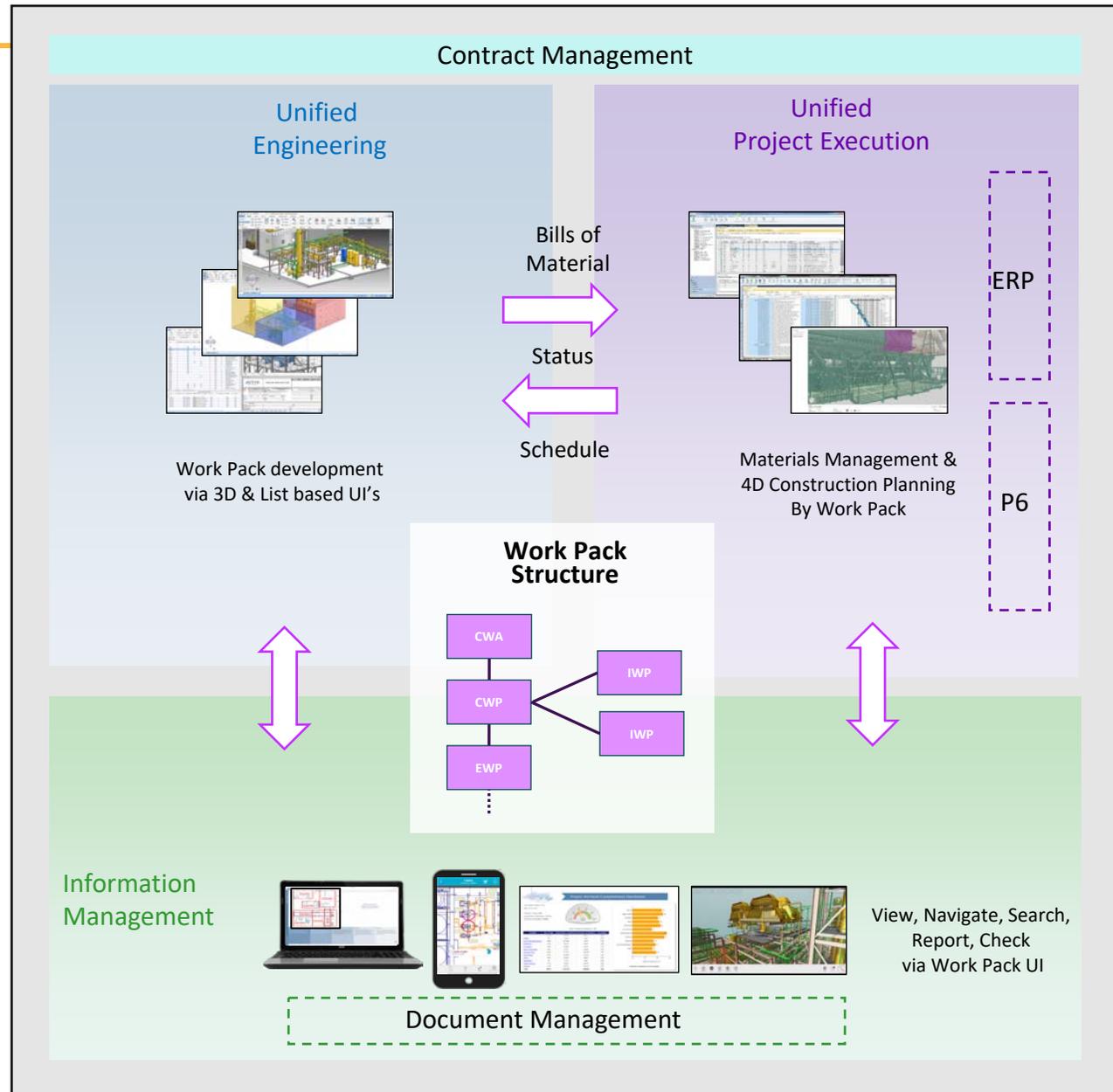


Trend to Adopt AWP

AVEVA Integration to support AWP Adoption



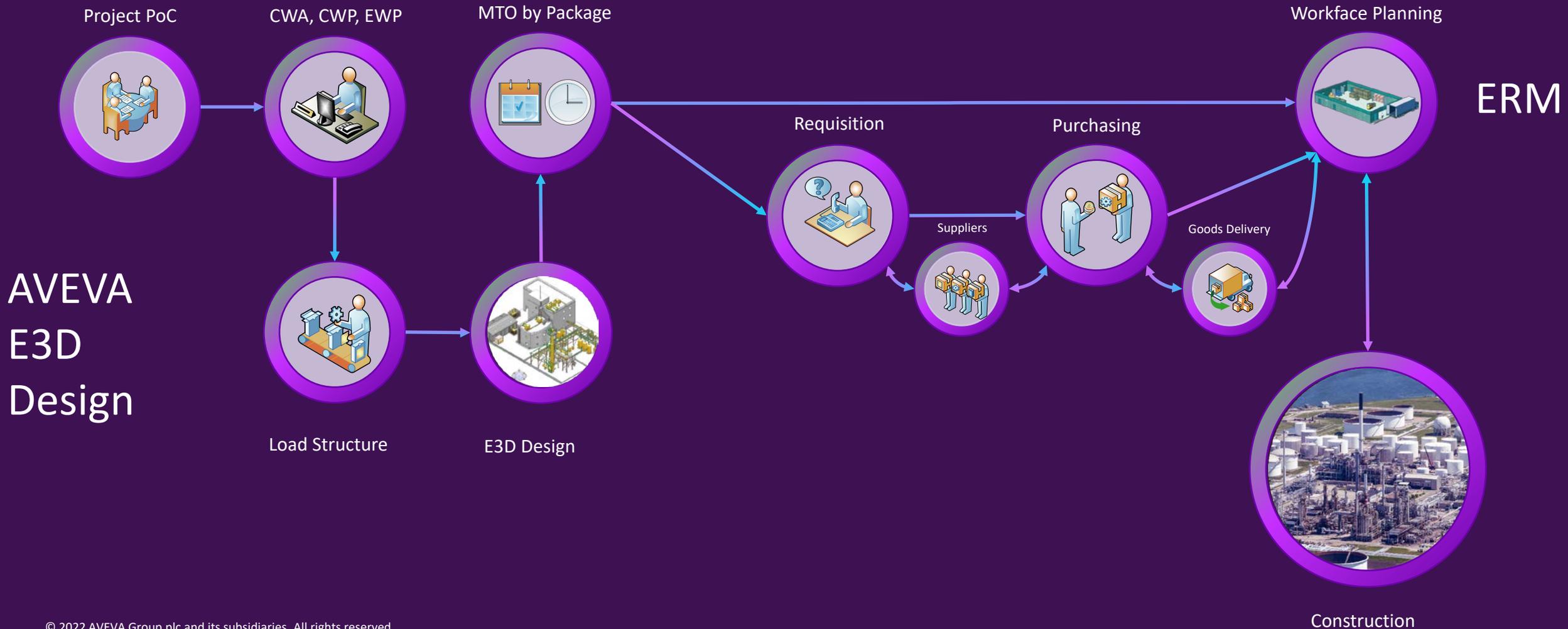
Advanced Work Packaging with AVEVA



Open, Flexible, Configurable



AWP between AVEVA Enterprise Resource Management and AVEVA E3D Design

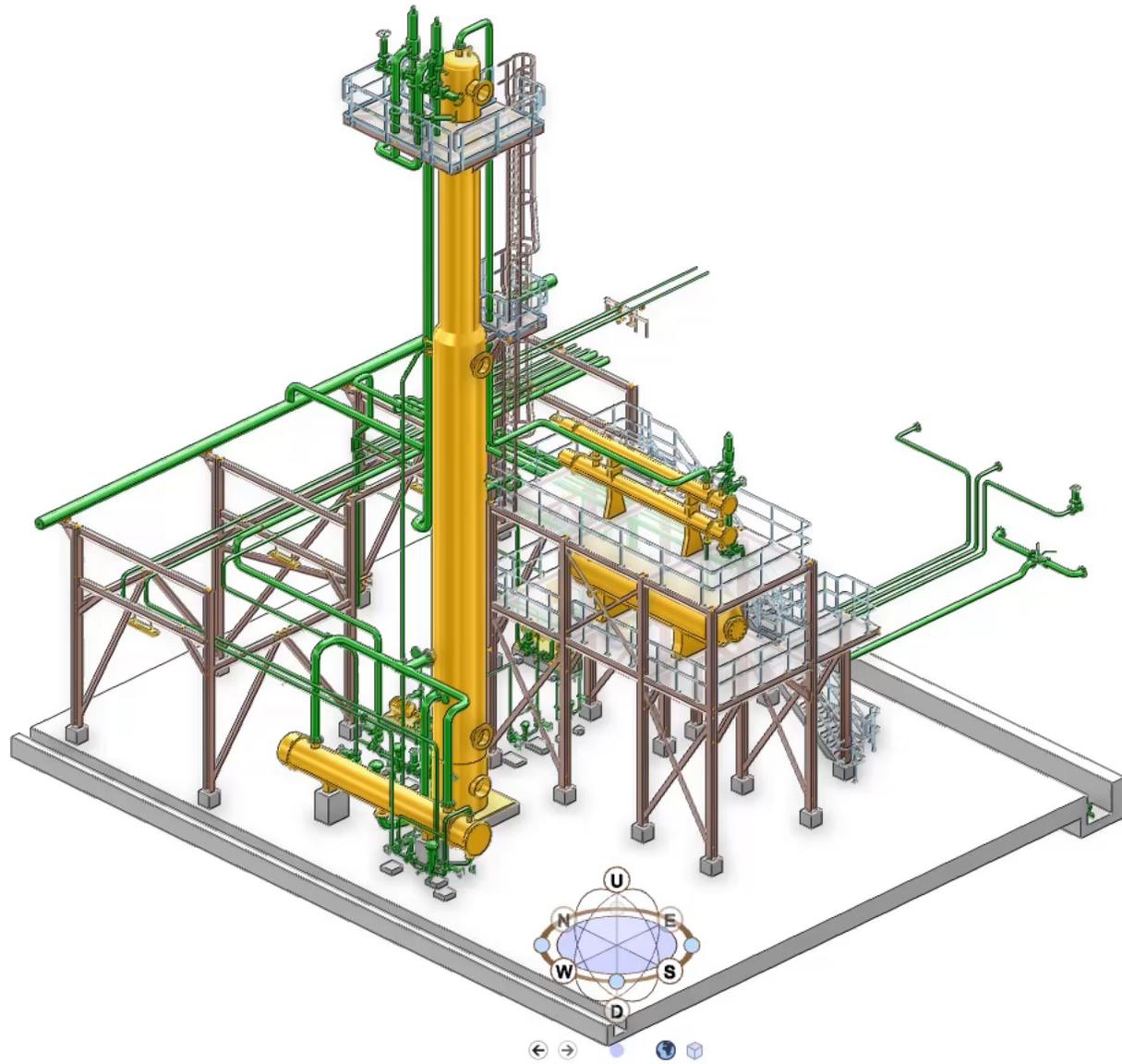


AWP Integration between AVEVA Enterprise Resource Management and AVEVA E3D Design

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

Type	ID	Description	
1	EWP CA01 PRO 001	PROCESS - P&ID	
2	EWP CA01 PRO 002	PROCESS - LINE LIST	
3	EWP CA01 PRO 003	PROCESS - DATA SHEETS	CWP CA01 GEN001
4			
5			
6	EWP CA01 STR 002	STRUCTURAL - EQUIPMENT SUPPORT DRAWINGS	CWP CA01 STR 002
7	EWP CA01 STR 003	STRUCTURAL - STAIRS, LADDERS & HANDRAILS	CWP CA01 STR 003
8	EWP CA01 STR 001	STRUCTURAL - PIPE RACK STRUCTURE	CWP CA01 STR 001
9	EWP CA01 STR 004	STRUCTURAL WORK - CONSTRUCTION DRAWINGS	CWP CA01 STR 004
10			
11	EWP CA01 PIP 001	PIPING - PLOT PLAN	
12	EWP CA01 PIP 002	PIPING - PIPE ISOMETRICS & SUPPORTS	CWP CA01 PIP 002
13	EWP CA01 PIP 004	PIPING WORK - SPOOL DRAWINGS UNDERGROUND	CWP CA01 PIP 004
14	EWP CA01 PIP 003	PIPING WORK - SPOOL DRAWINGS	CWP CA01 PIP 003
15			
16	EWP CA01 ELE 002	ELECTRICAL & INST - CABLE SCHEDULE	CWP CA01 ELE 002
17	EWP CA01 ELE 001	ELECTRICAL & INST - EQUIPMENT LIST	CWP CA01 ELE 004

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



Barry Holton

Senior Strategy Manager (ERM)

- AVEVA
- barry.holton@aveva.com



Mark Crombie

Senior Technical Success Manager

- AVEVA
- mark.crombie@aveva.com

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

Piping Engineer – Worley UK

THANK YOU

謝謝

DZIĘKUJĘ CI

NGIYABONGA

TEŞEKKÜR EDERİM

DANKIE

TERIMA KASIH

GRACIES

WHAKAWHETAI KOE

DANKON

TANK

TAPADH LEAT

SALAMAT

SPASIBO

GRAZIE

MATUR NUWUN

ХВАЛА ВАМ

MULŢUMESC

PAKMET CIZGE

고맙습니다

GRAZIE

شكرا

FAAFETAI

ESKERRIK ASKO

GO RAIBH MAITH AGAT

HVALA

HVALA

БЛАГОДАРЯ

GRACIAS

MAHADSANID

TI БЛАГОДАРАМ

TEŞEKKÜR EDERİM

TAK DANKE

DANKJE

EΥΧΑΡΙΣΤΩ

GRATIAS TIBI

OBRIGADO

MAHALO IĀ 'ŌE

TAKK SKALDU HA

МЕРЦИ

RAHMAT

MERCI

GRAZZI

PAKKA PÉR

ありがとうございました

DI OU MÈSI

ĎAKUJEM

HATUR NUHUN

PAXMAT CAĠA

SIPAS JI WERE

TERIMA KASIH

CẢM ƠN BẠN

UA TSAUG RAU KOJ

TI БЛАГОДАРАМ

СИПОС

WAZVIITA

FALEMINDERIT

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 global leader in industrial software, driving digital transformation and sustainability. By connecting the power of information and artificial intelligence with human insight, AVEVA enables teams to use their data to unlock new value. We call this Performance Intelligence. AVEVA's comprehensive portfolio enables more than 20,000 industrial enterprises to engineer smarter, operate better and drive sustainable efficiency. AVEVA supports customers through a trusted ecosystem that includes 5,500 partners and 5,700 certified developers around the world. The company is headquartered in Cambridge, UK, with over 6,500 employees and 90 offices in over 40 countries.

Learn more at www.aveva.com