

NOVEMBER 14- 16, 2022

Digitalize SBM Offshore Engineering

The reality about the journey and transformation required to digitalize Engineering Data for Major Oil & Gas EPC Project

Cyrille TENET & Pierre MARCHALOT

AVEVA

Digitalizing SBM Offshore Engineering





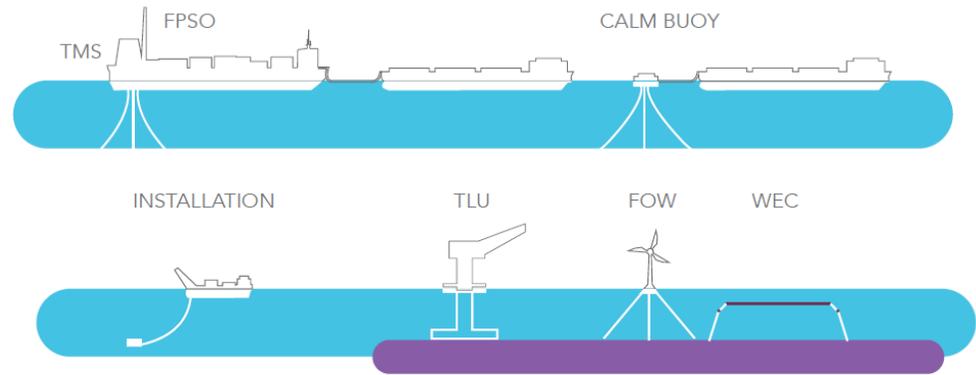
SBM Offshore believes the oceans will provide the world with **safe, sustainable** and **affordable energy** for generations to come.

We share our experience to make it happen

About SBM Offshore



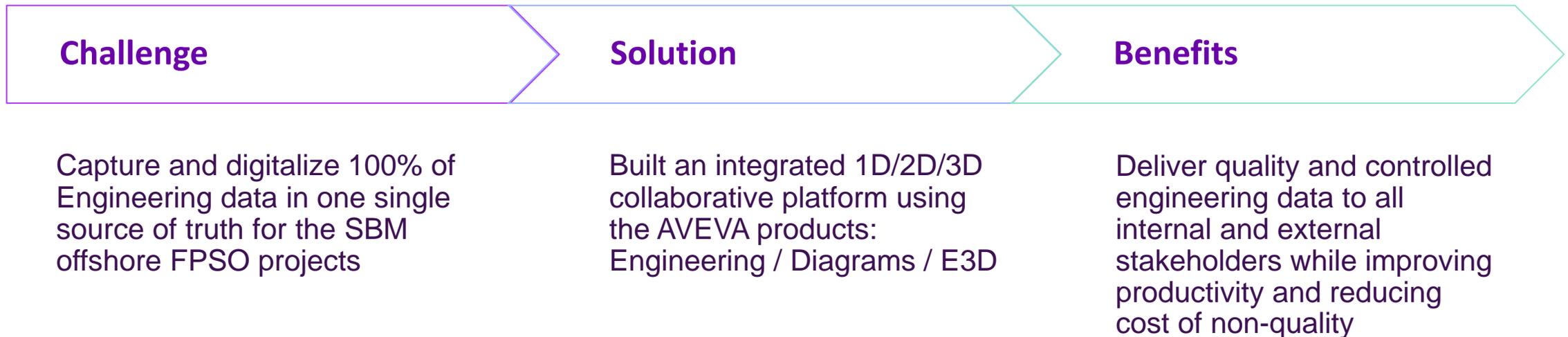
SBM OFFSHORE ACTIVITIES



- | | | | |
|------------------|--|------------|-----------------------|
| CALM Buoy | Catenary Anchor Leg Mooring Buoy | TLU | Tower Loading Unit |
| FOW | Floating Offshore Wind | TMS | Turret Mooring System |
| FPSO | Floating Production Storage and Offloading | WEC | Wave Energy Converter |



Digitalizing SBM Offshore Engineering



Our Challenges and Ambition

Our Vision... on HOW to digitalize FPSO Engineering information

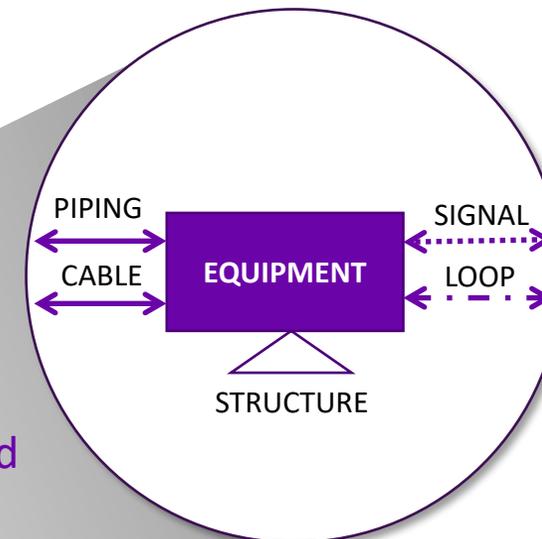
>150,000 tags

>10 millions data

>40 millions data entries



Focus on
Digital Object
and associated
data



Our Ambition:

- From document to data /digital object centric
- Built one engineering referential, the single source of truth
- Ensure digital continuity to data consumers
- Enable collaboration works

From Ambition... to Strategy... to Tactics

Big bang or step-by-step development ?

Strategy Principles

Core principles for Solution development

- **Robust foundation** = product breakdown and data structure
- **Breakdown per piece** = identify all items
- **Simple data exchange** = data Integration
- **Think generic** = principle applicable to any product



Ensure **data quality**

Execution Tactics

Phased approach with deep digital capabilities

- **Start small perimeter** = focus on P&IDs only and associated components
- **In depth data management process** = all Topsides Engineering disciplines with their full scope

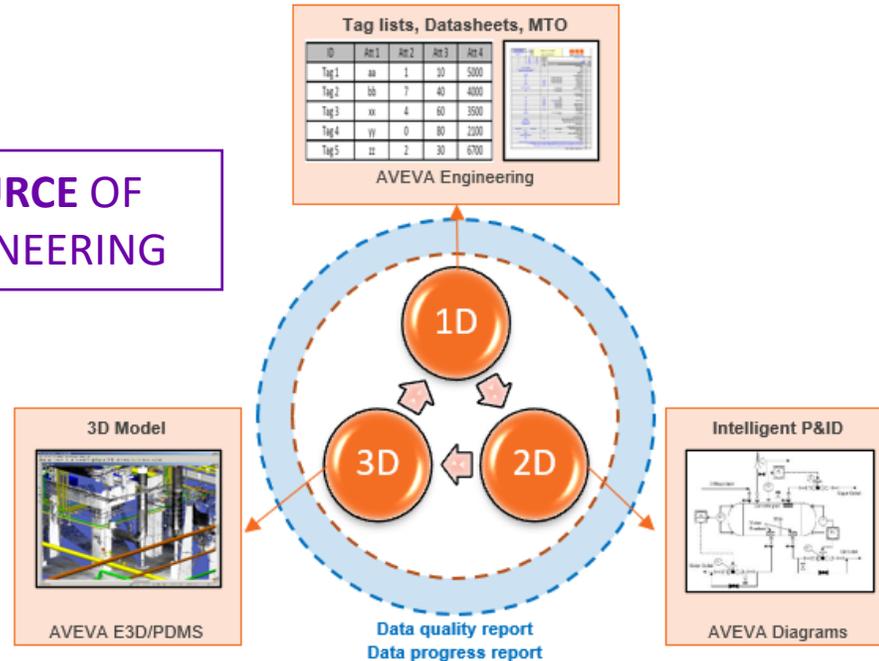


Maximize **implementation success**
while testing new Ways of Working

The SBM Offshore Solution

Engineering Collaborative Environment, built from AVEVA Products

One **SINGLE SOURCE OF TRUTH** FOR ENGINEERING



1D: AVEVA Engineering, contains :

- Tag lists (equipment, line, valves, etc.)
- Equipment datasheets
- MTO
- Weight Reports

2D: AVEVA Diagrams, contains :

- Intelligent P&IDs

3D: E3D Design, contains:

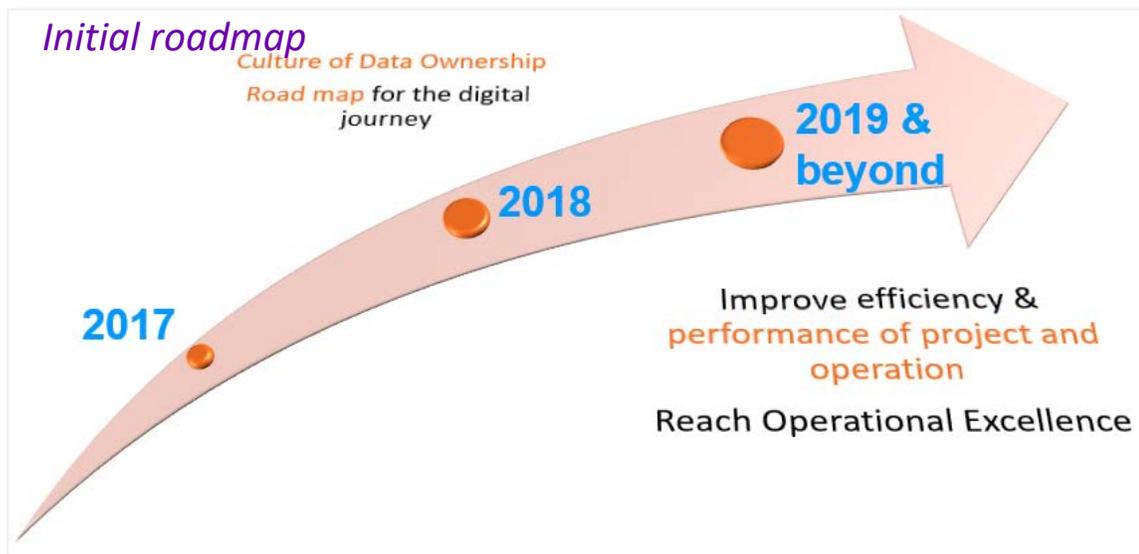
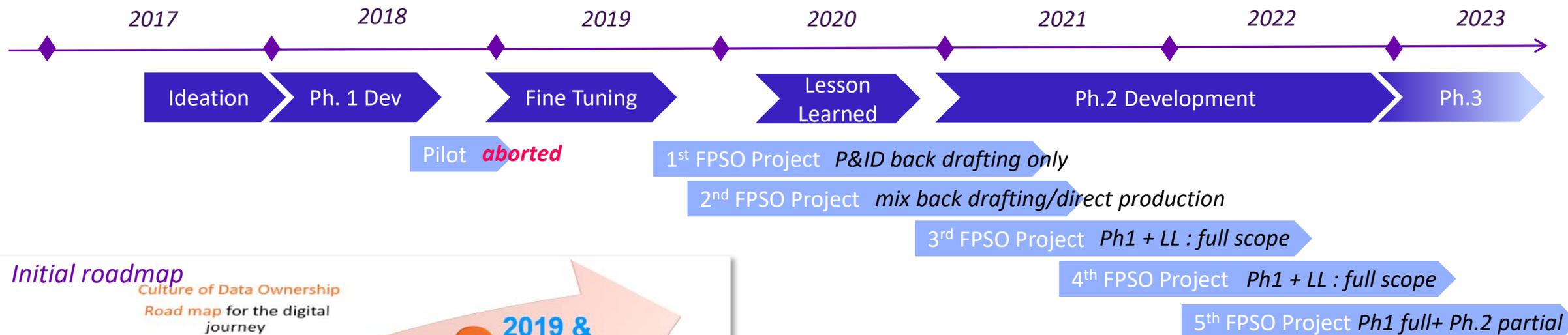
- 3D model
- Isometrics and pipe supports
- Cables and trays

Key Features:

- ✓ Create & manage tags only once in 1D/2D/3D and propagate
- ✓ Populate tag attributes once in 1D/2D/3D and propagate
- ✓ Generate deliverables automatically
- ✓ Control data quality and monitor data progress

Journey Timeline

Expectation Vs. Reality



CHALLENGE OF 1ST DEPLOYMENT ON MAJOR EPC PROJECTS :

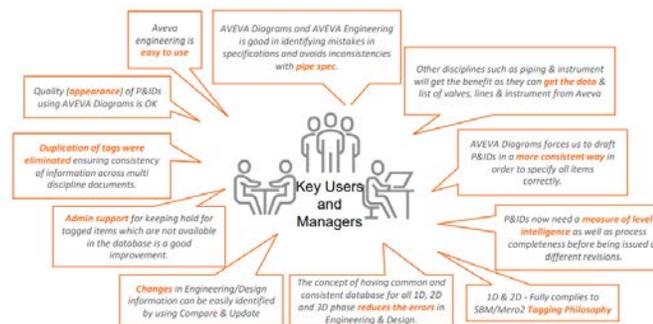
- Step by step to limit risk on delivery
- Strongly linked to projects start/timeline

Deployment and Adoption

The Change Management...

Phase 1 Share a Vision

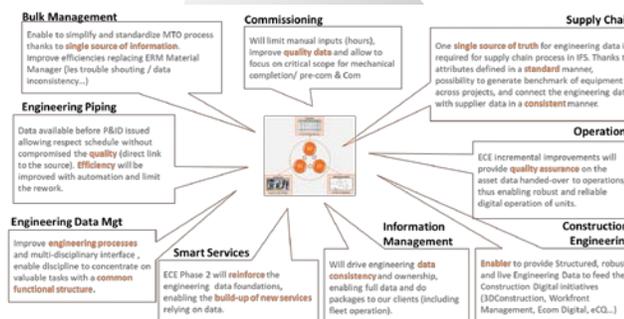
- Spread Vision/strategy = communications, videos
- Processes and Guidelines @ Day 1
- Management Engagement sessions
- Users Training sessions
- Dedicated Feedback / Lessons Learned Workshops



Users

Feedback collection and cascading

Key Stakeholders



Phase 2 Engage Users / Short Cycles

- Based on Experts / Users needs
 - Agile - Focused and specific Development/Test/Approval Cycle
-
- Communication : focus on achievements (new features / functionalities)



END USERS EXTRA EFFORTS SHALL BE PART OF CHANGE MANAGEMENT PLAN
(new and standardized ways of working, increased rigor required)

Value Creation and Return on Investment

Invest on the long term

Key benefit : **a strategic solution for SBM digital journey**

- Increased overall **Engineering quality**
- **Enabler** for SBM digital journey:
 - ✓ Comply with **Client requirements** for data delivery
 - ✓ Deliver data to all internal stakeholders (ERP, Supply Chain, Commissioning, Construction, Operations)
 - ✓ Foundation to **Digital Twin**
- Limited short-term cost & schedule benefit

Feature	Quality increase	Manhours reduction	Schedule optimization	Digital Continuity
Integrated tag manager	✓			✓
Integrated 1D/2D/3D	✓	✓		✓
Standard data model	✓			✓
Tag managed individually	✓		✓	✓
Automated deliverables	✓	✓	✓	

BENEFITS

Quality Improvement



★★★★★

Client Value



★★★★★

Man-hour Reduction



★★★★★

Schedule Acceleration



★★★★★

Digital Twin Contribution

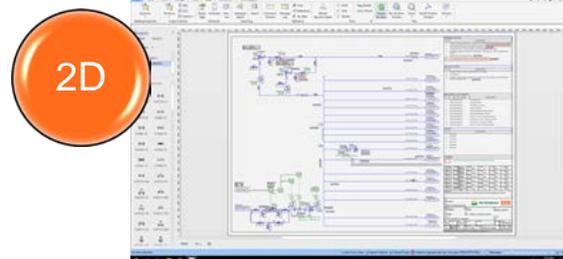


★★★★★

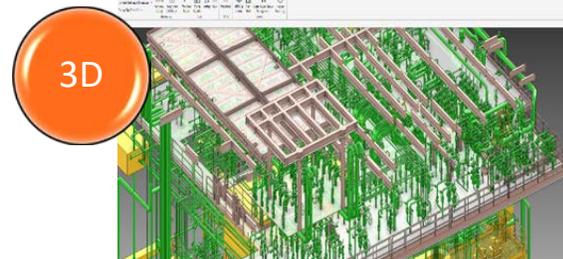
Example of value creation and benefits

Isometrics checking

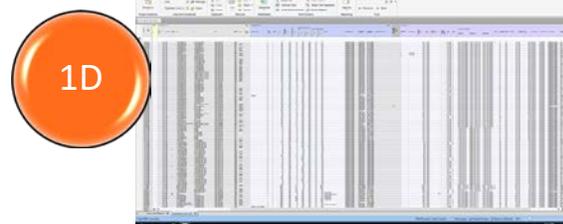
1. Prepare P&ID in AVEVA Diagram



2. Model piping in E3D Design



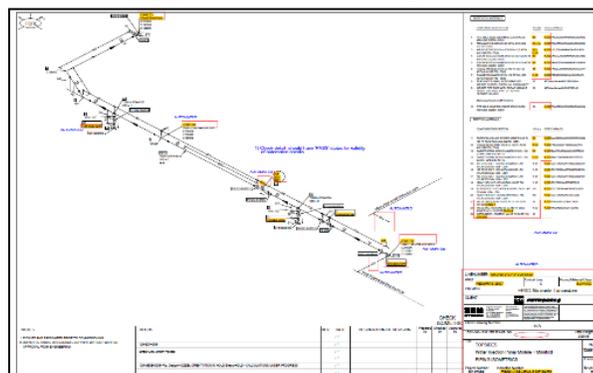
3. Transfer tag to AVEVA Engineering



4. Run Iso Check tool

Num	Result	Check Category	Check Detail	Tag/Object Definition	REF/Object Definition	Tag Revision
1	OK	P&ID and Line List	Line Number	OK	-	118 LPAI 2004_24+
2	OK	P&ID and Line List	Size	OK	-	-
3	OK	P&ID and Line List	Line Module	P&ID Module does not match in P&ID	-	-
4	OK	P&ID and Line List	Pipe Class	OK	-	-
5	OK	P&ID and Line List	Line Pipe Class per Isometric	OK	-	-
6	OK	P&ID and Line List	Verbs and Drains	Line Point Drain	-	-
7	OK	P&ID and Line List	Branch Header Orientation	Branch Header Tap	-	-
8	OK	P&ID and Line List	Shape Indication	Not Applicable	-	-
9	OK	P&ID and Line List	Equal Tag & Nozz Check	Not Applicable	-	-
10	OK	P&ID and Line List	Special Item Tag Check (1D/3D)	Not Applicable - No Special Item in 2D	-	-
11	OK	P&ID and Line List	Special Item Tag Check (3D/1D)	Not Applicable	-	-
12	OK	P&ID and Line List	Instrument Tag Check (1D/3D)	Not Applicable - No Instruments in 2D	-	-
13	OK	P&ID and Line List	Instrument Tag Check (3D/1D)	Not Applicable	-	-
14	OK	P&ID and Line List	Manual Valve Tag Check (1D/3D)	Not Applicable - No Valve in 2D	-	-
15	OK	P&ID and Line List	Manual Valve Tag Check (3D/1D)	Not Applicable	-	-
16	OK	P&ID and Line List	Insulation indication	Not Applicable	-	-
17	Pass	Drawing Body	P&ID & Iso Ref. Doc. Check	P&ID Iso Available: P&ID:PRYS122008	Iso Ref. Doc. Available: P&ID:PRYS096008	-
18	Pass	Drawing Body	Continuation on Drawing	Continuation are ok	-	-
19	Fail	Drawing Body	Is Reference Point	No Reference Point Cannot be Set: Read-Only or Locked	-	-
20	OK	Design Check	Not Standard on line name	Not Applicable	-	-
21	OK	Design Check	PNIC Specific Requirement Check	Not Applicable	-	-
22	OK	Design Check	Clash Check	Clash Check Not Done	-	-
23	OK	Design Check	Data Consistency Check	Check Data Inconsistency Error Report	-	-
24	OK	Design Check	Legend rule Check	Not Applicable	-	-
25	OK	Design Check	In-Line Item Flip check	Not Applicable	-	-

5. Extract isometric drawing



1D Checks

- ✓ Line number & size
- ✓ Piping class
- ✓ Tag & datasheet

2D Checks

- ✓ Module Location
- ✓ Insulation requirement
- ✓ Equipment nozzle

3D Checks

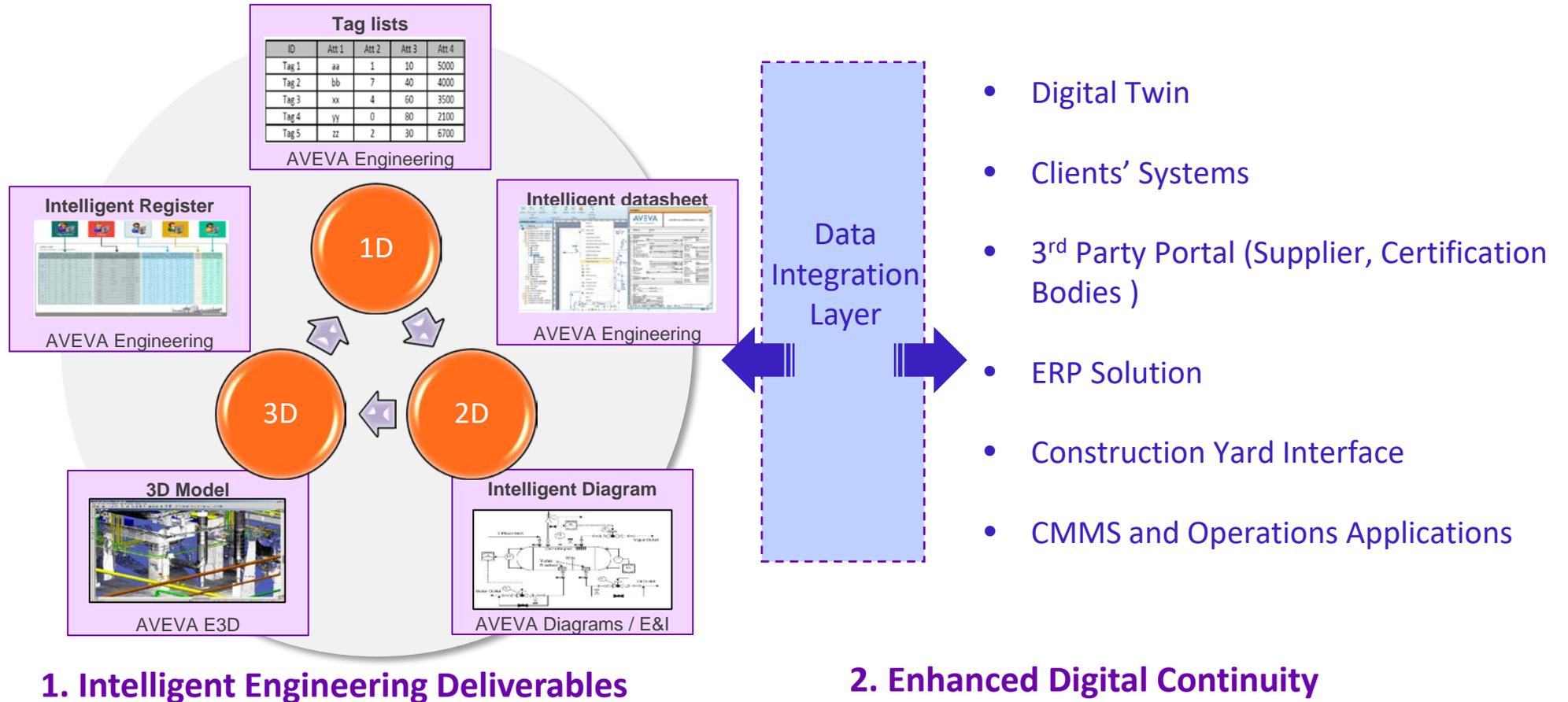
- ✓ Clash check done
- ✓ Dabacon report
- ✓ Continuation/connection

Benefits:

- Saving 15 min/isometric
- Quality improvement
- Standardization across project

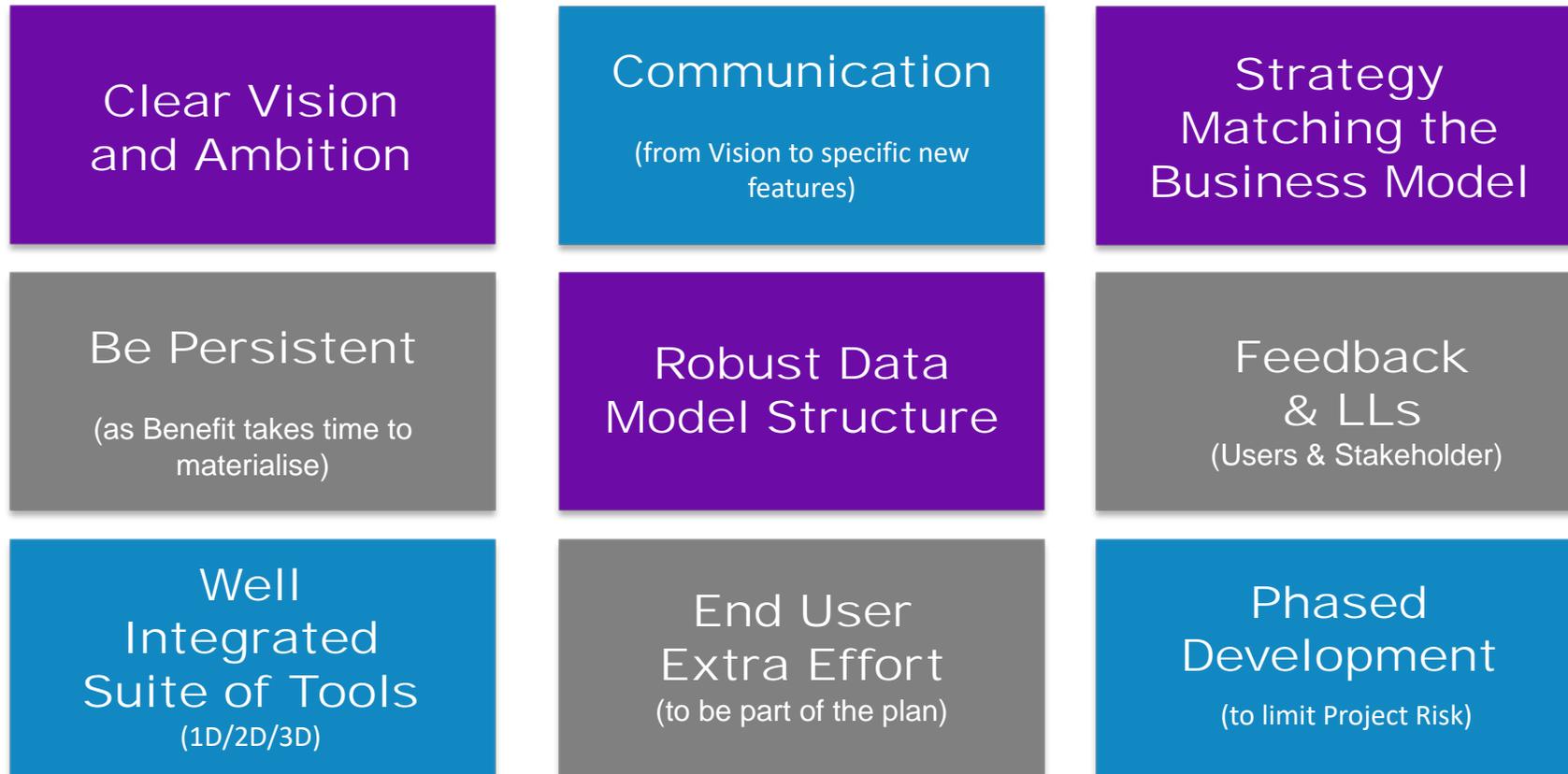
What is next?

Smarter Engineering Platform and Full Data Integration



Conclusion

Golden Rules for an effective, successful and sustainable Engineering digitalization



Digitalizing SBM Offshore Engineering





Cyrille Tenet

Global Engineering Director

- SBM Offshore
- Cyrille.tenet@sbmoffshore.com



Pierre Marchalot

Smart Win & Execution Manager

- SBM Offshore
- pierre.marchalot@sbmoffshore.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!

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, sparking ingenuity to drive responsible use of the world's resources. The company's secure industrial cloud platform and applications enable businesses to harness the power of their information and improve collaboration with customers, suppliers and partners.

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. With operations around the globe, we are headquartered in Cambridge, UK and listed on the London Stock Exchange's FTSE 100.

Learn more at www.aveva.com