



# AVEVA WORLD

ACCELERATE INDUSTRIAL INTELLIGENCE

CONNECT



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# Architecting Digital Twins on CONNECT: AI-Assisted Twin Building at Scale

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# The AVEVA Digital Twin

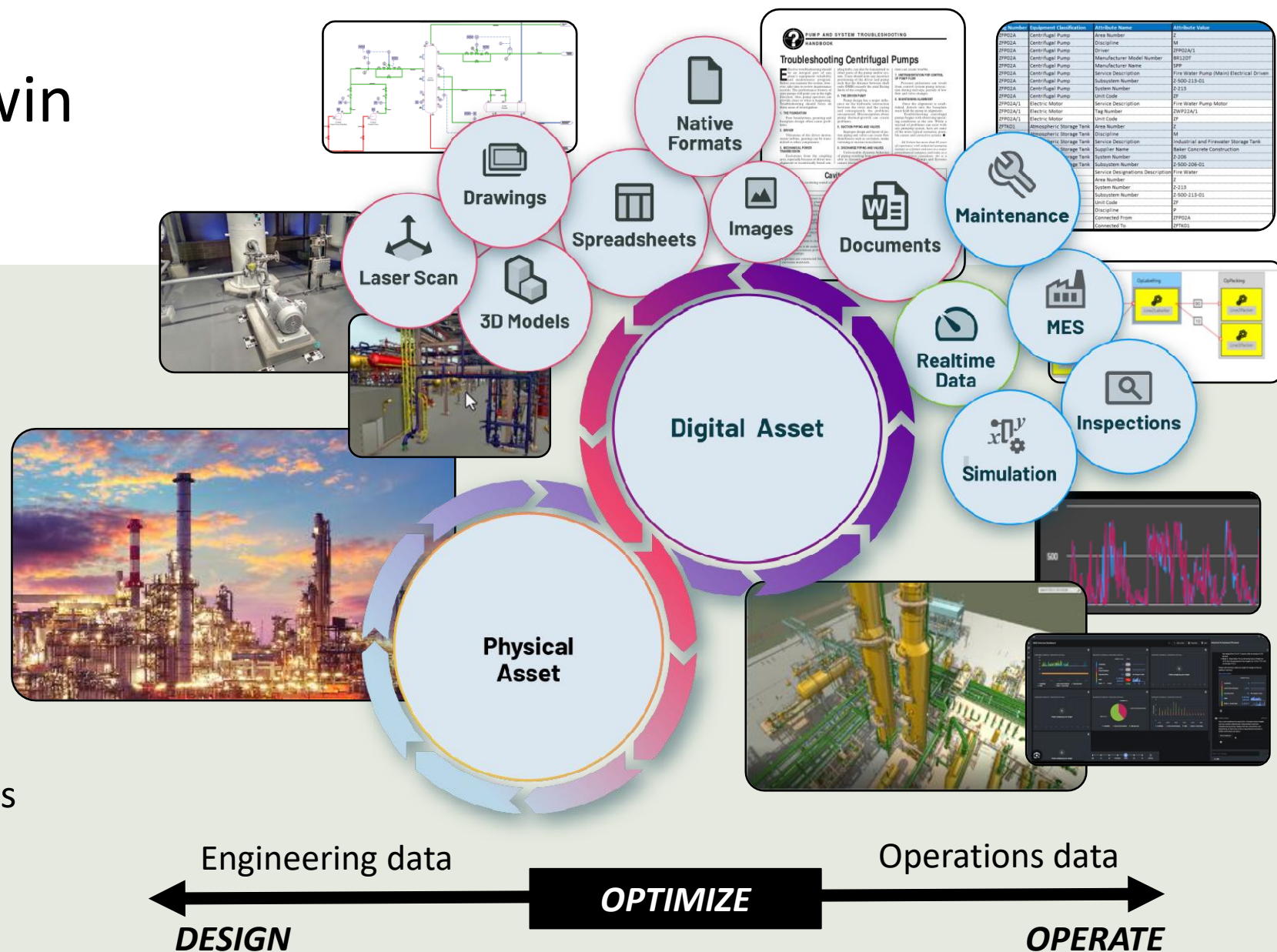
## For ALL your industrial data

## Harmonize, contextualize and visualize data



## Enabling:

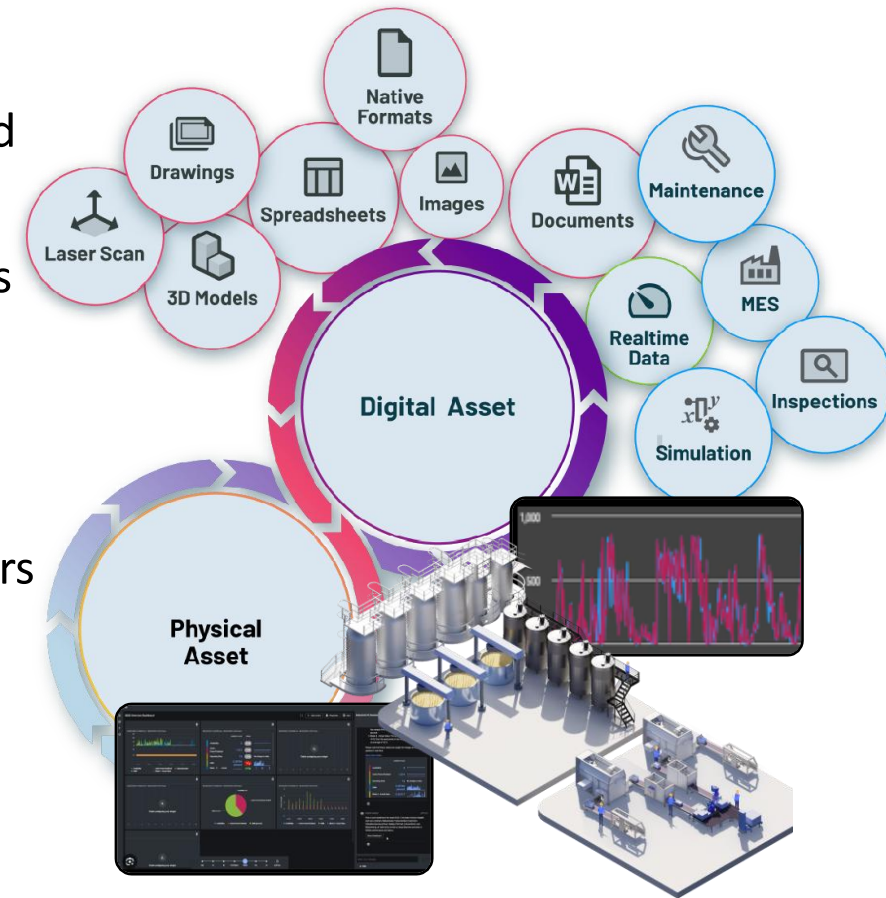
- **Rapid** access to information
- **Proactive** action and optimizations
- **Informed** decision making





# Research Findings: 7 ways a Digital Twin provides value

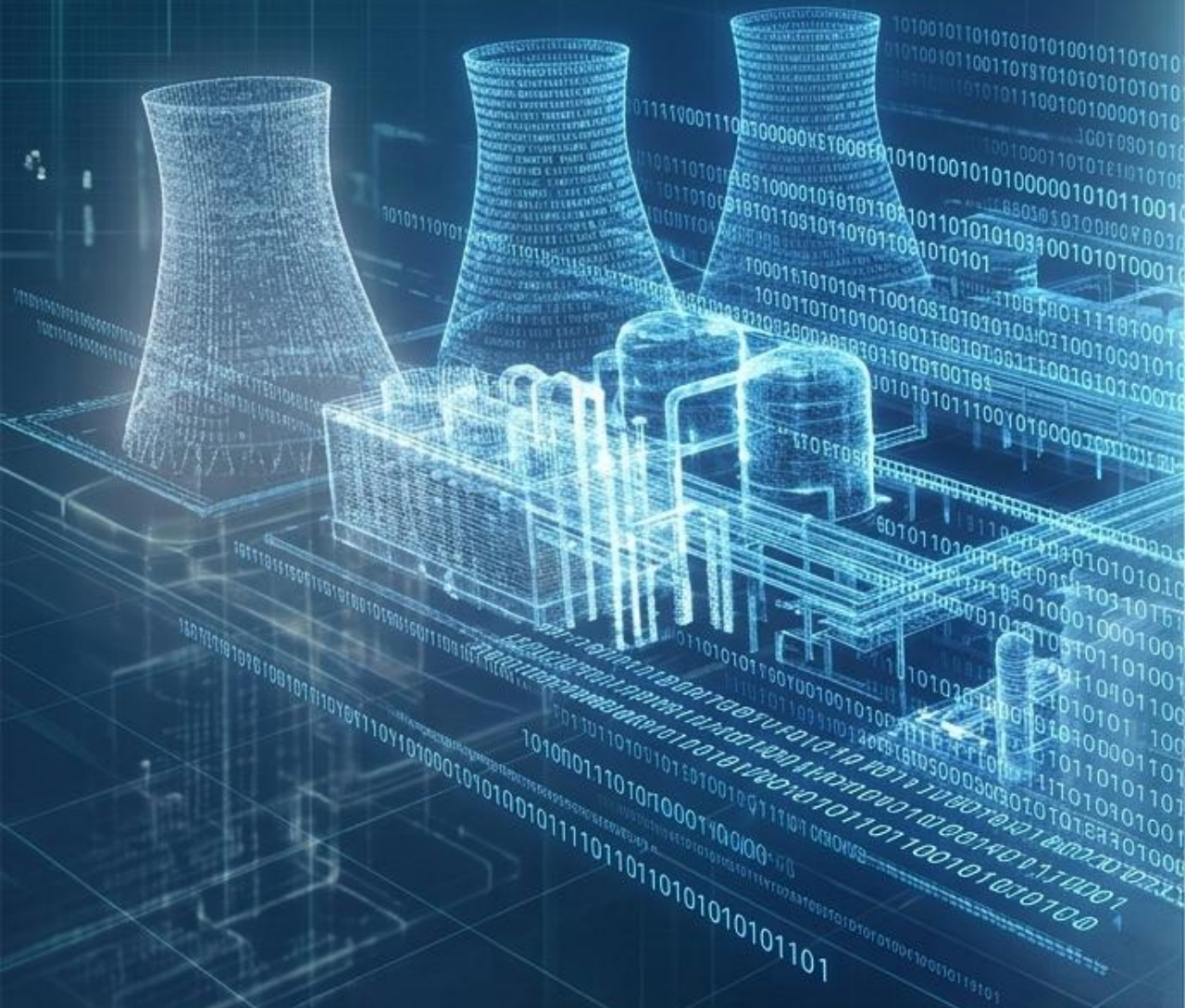
1. **Process Simulation and Optimization:** Simulate changes in processes without the need for physical modifications.
2. **Easy Access to Industrial Data:** Easy and fast access to previously siloed data, including asset 1D, 2D and 3D, events and real time data.
3. **Faster Decision-Making:** Rapid decision-making in response to changes in the environment or system conditions.
4. **Improved Plant Reliability:** Reduce downtime - both planned and unplanned and supports maintenance, inspection, and turnarounds.
5. **Training, Safety and Knowledge Retention:** Especially for new operators and site visitors.
6. **Reduce Travel to Site:** Cost, sustainability and safety benefits.
7. **Exposing and Resolving Data Issues:** By bringing disparate data of unknown quality together, issues can be identified and resolved.







# DESIGN



# OPERATE

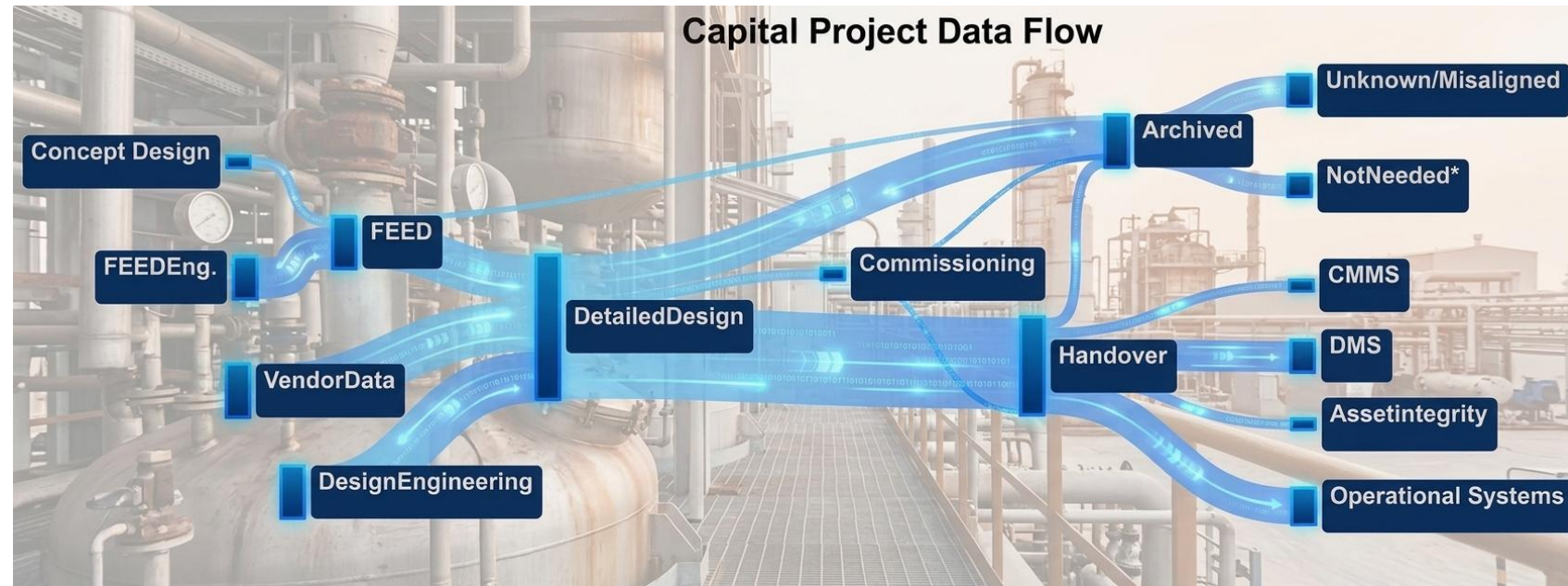




# Why is it hard?

## Why data ends up in silos

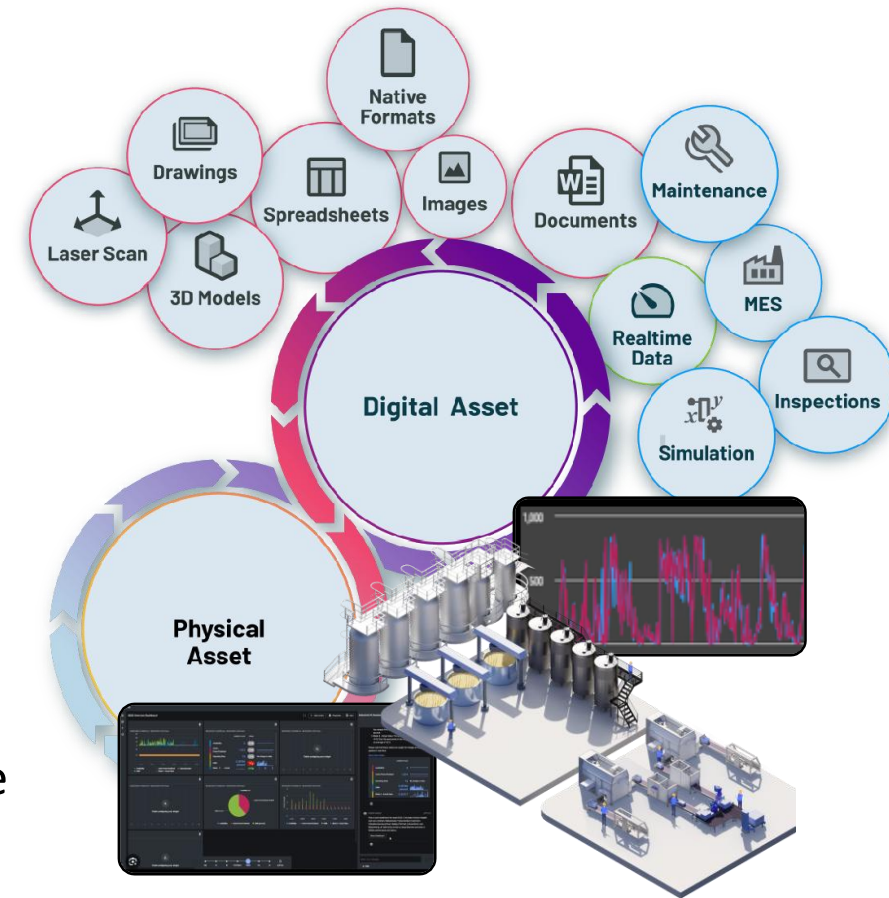
- Unclear Operational requirements
- Poor handover between Asset Lifecycle phases
- Poor Information Management Practices
- Poorly Defined\Poorly Understood Reference Data Libraries\Data Model
- Insufficient QA checking of deliverables
- Poor Change Management practices
- Disconnected Target Silos with Siloed focus





# Research Findings: Top 5 challenges in building a Digital Twin

1. **Cost, time and resources** - Companies often see a digital twin as a 'nice to have' and are not prioritised.
2. **Data Quality** - Brownfield data is often of poor quality and difficult to manage.
3. **Data Access** - Administrators of source systems can be over-protective about data and systems are silo-ed.
4. **Cultural and organizational issues** - Different sites and teams often have their own approaches and tools, leading to a lack of standardization and collaboration.
5. **Being too ambitious** - Like with many IT projects, companies have been guilty of trying to do too much, too fast.







# Data Islands

## The challenge of building bridges

- Siloed systems have imposed formats:
  - Greenfield in existing region system imposed mask
  - Brownfield sites may have existing tagging standards
- Digital Twins were never a consideration
  - Single system for a specific purpose
  - No thought given to bringing siloed systems together
- On the Roadmap, but...
  - Too costly
  - Lack “available” expertise
  - Uncertain Data
- Management of Change Issues
  - Process not managed
  - Focus on Documentation and Not Data





# DATA DISCREPANCY: PRV-101 (Set Pressure Mismatch)



DATA MISMATCH DETECTED FOR VALVE PRV-101 IN PROCESS SYSTEM.



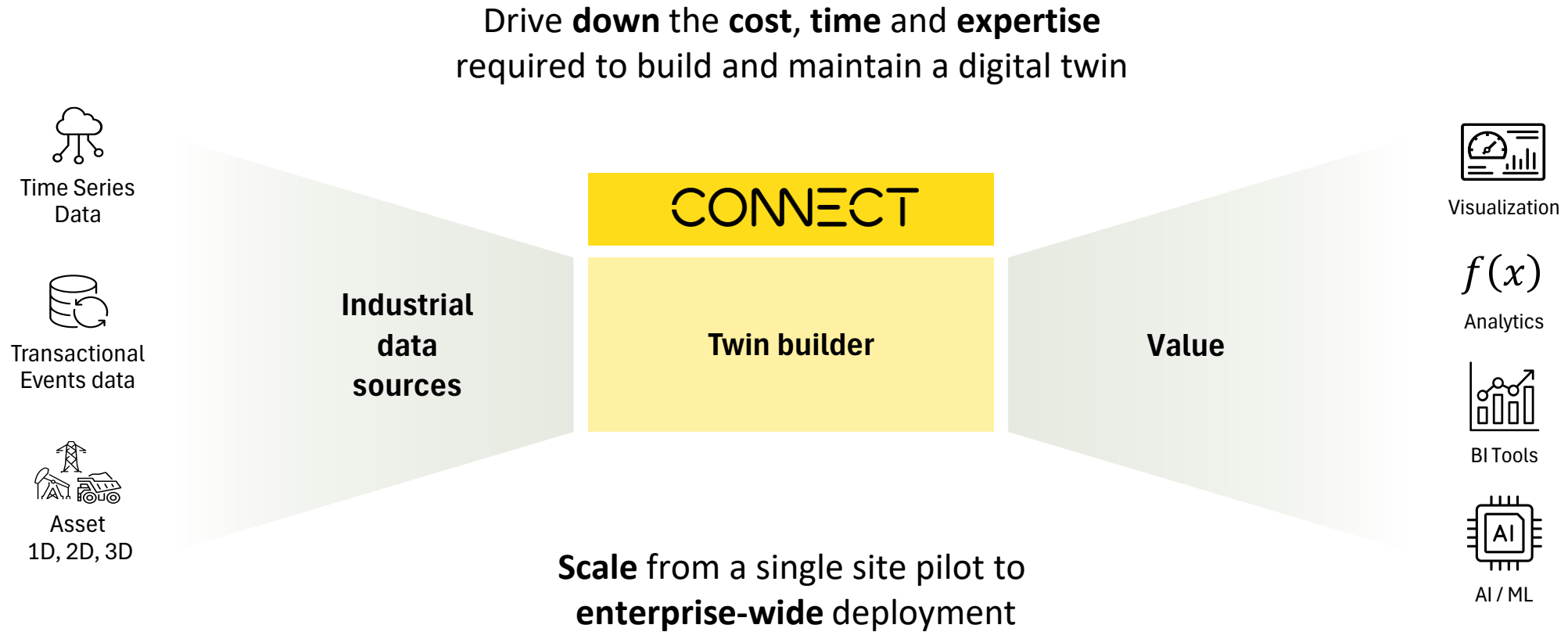


# Twin builder



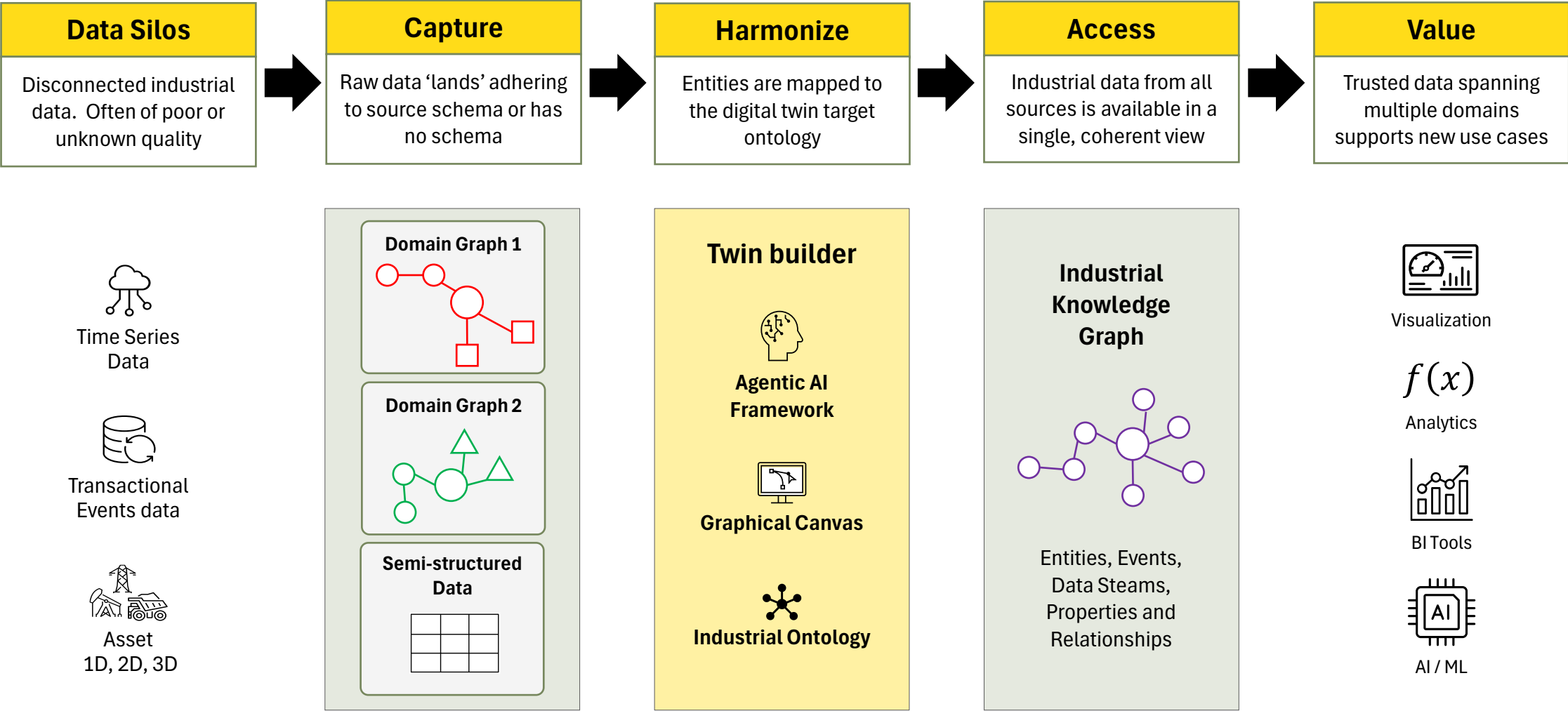
# CONNECT's Twin builder

Making the creation and maintenance of a Digital Twin viable for **ALL** organizations

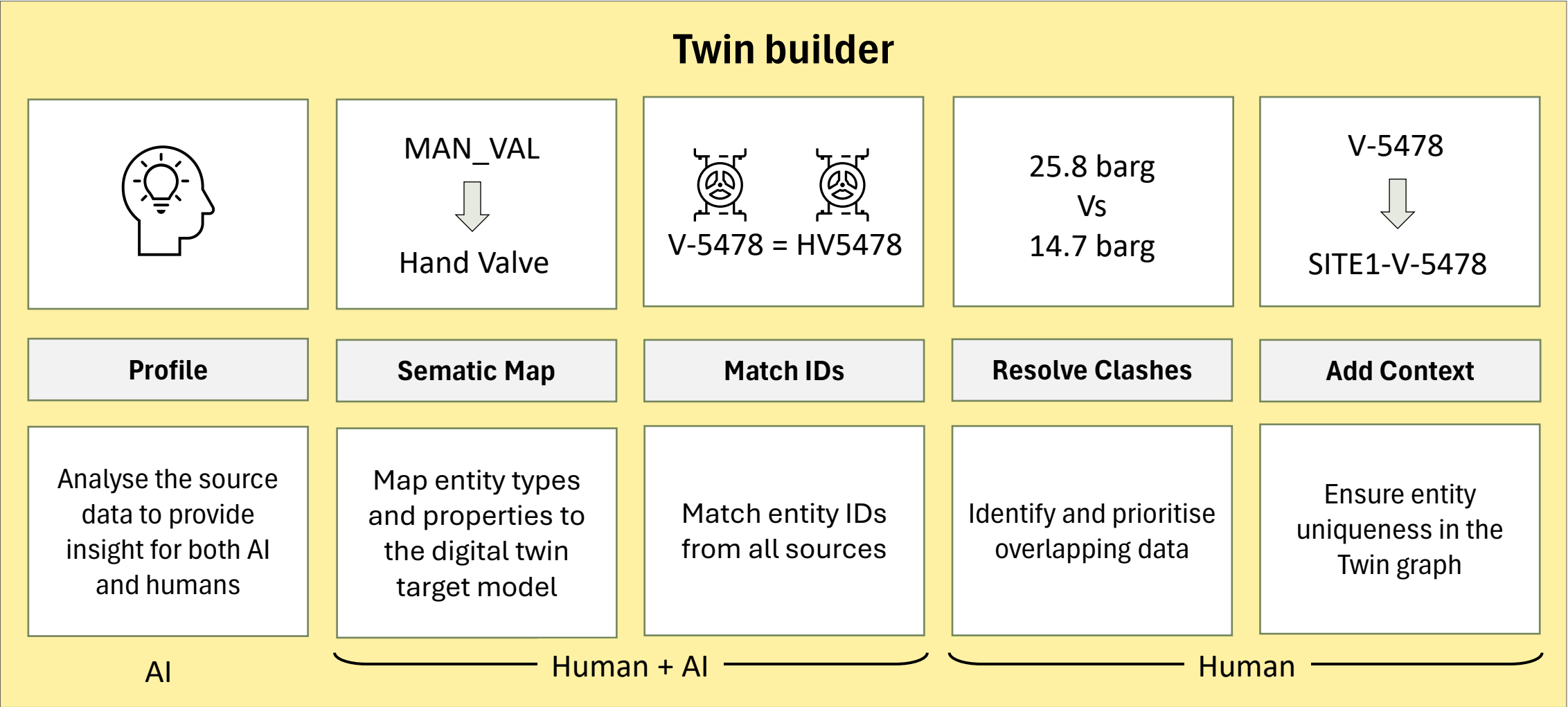




# Twin builder information flow



# Agentic AI framework

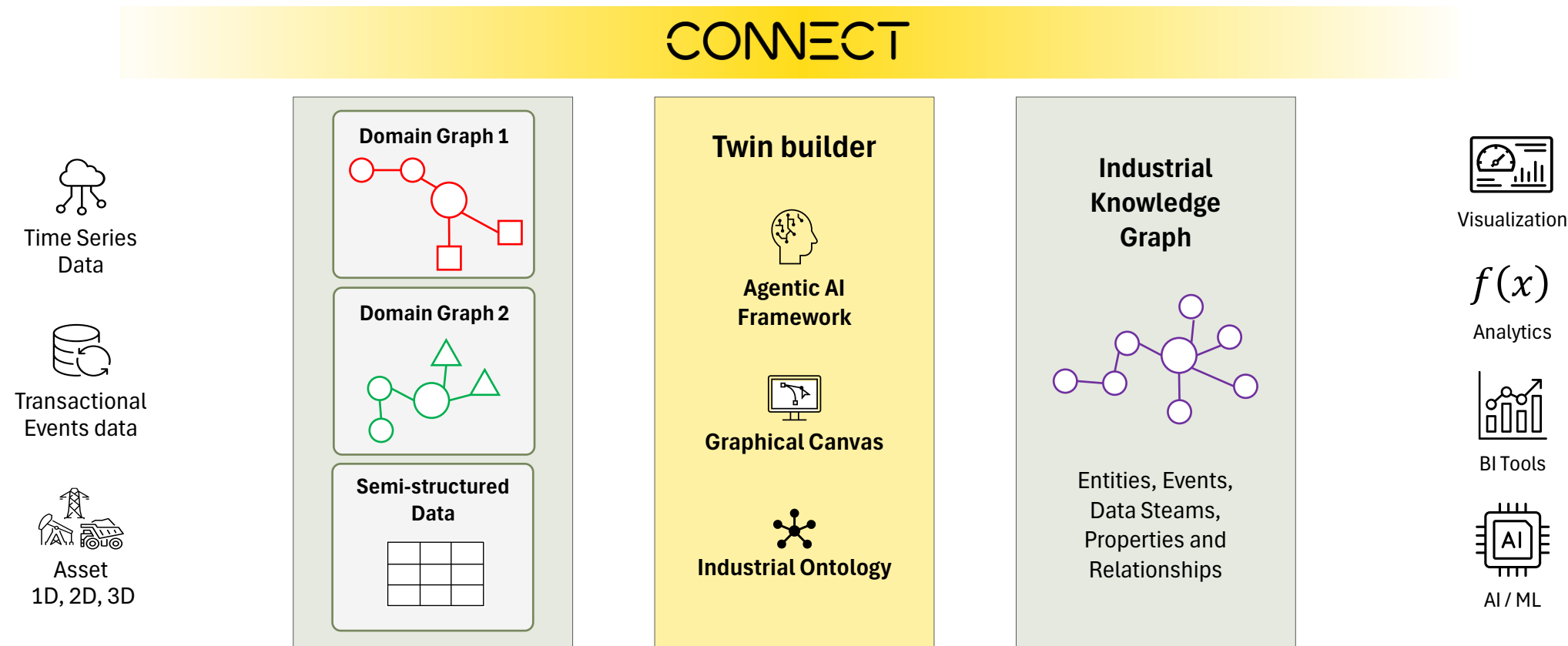






# CONNECT

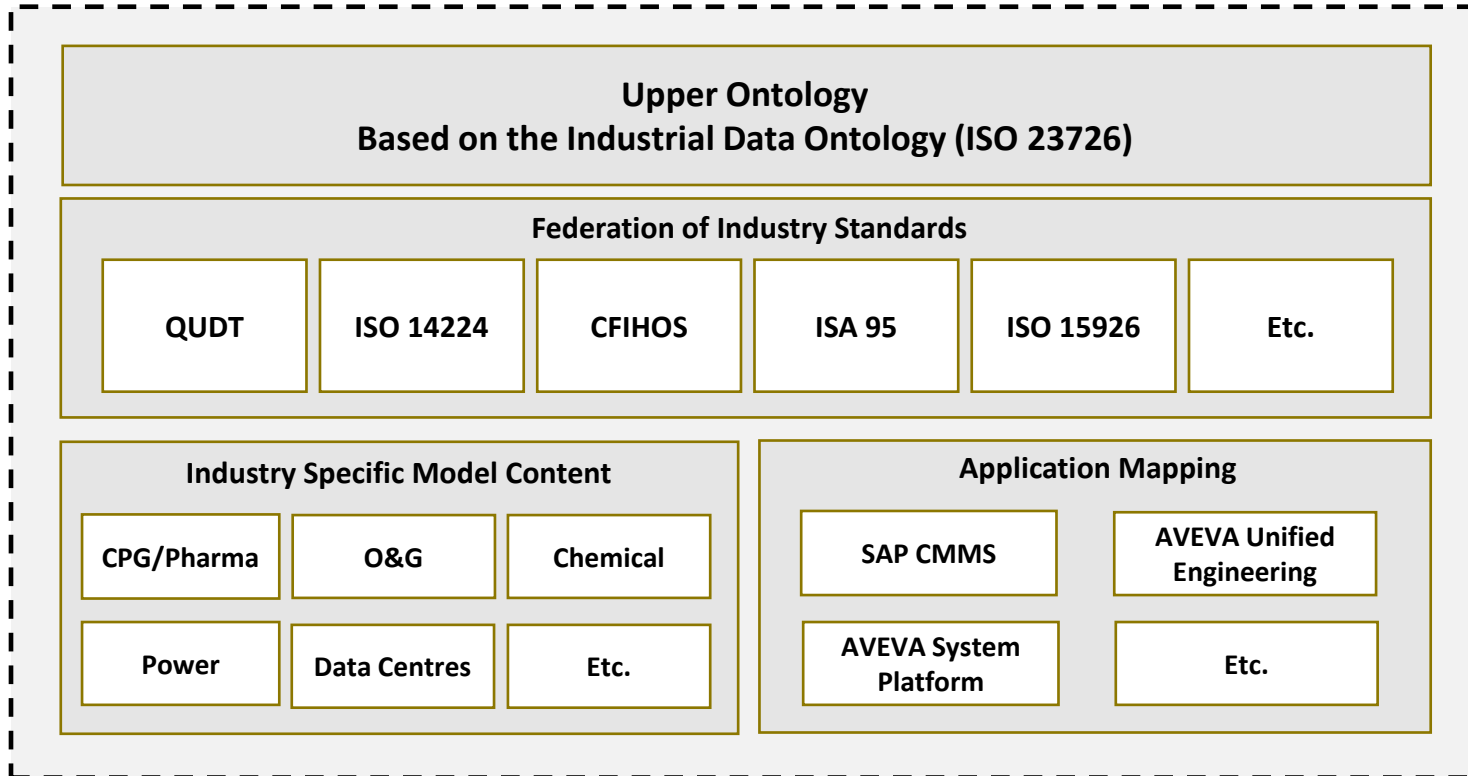
# Twin builder





# Industrial Ontology

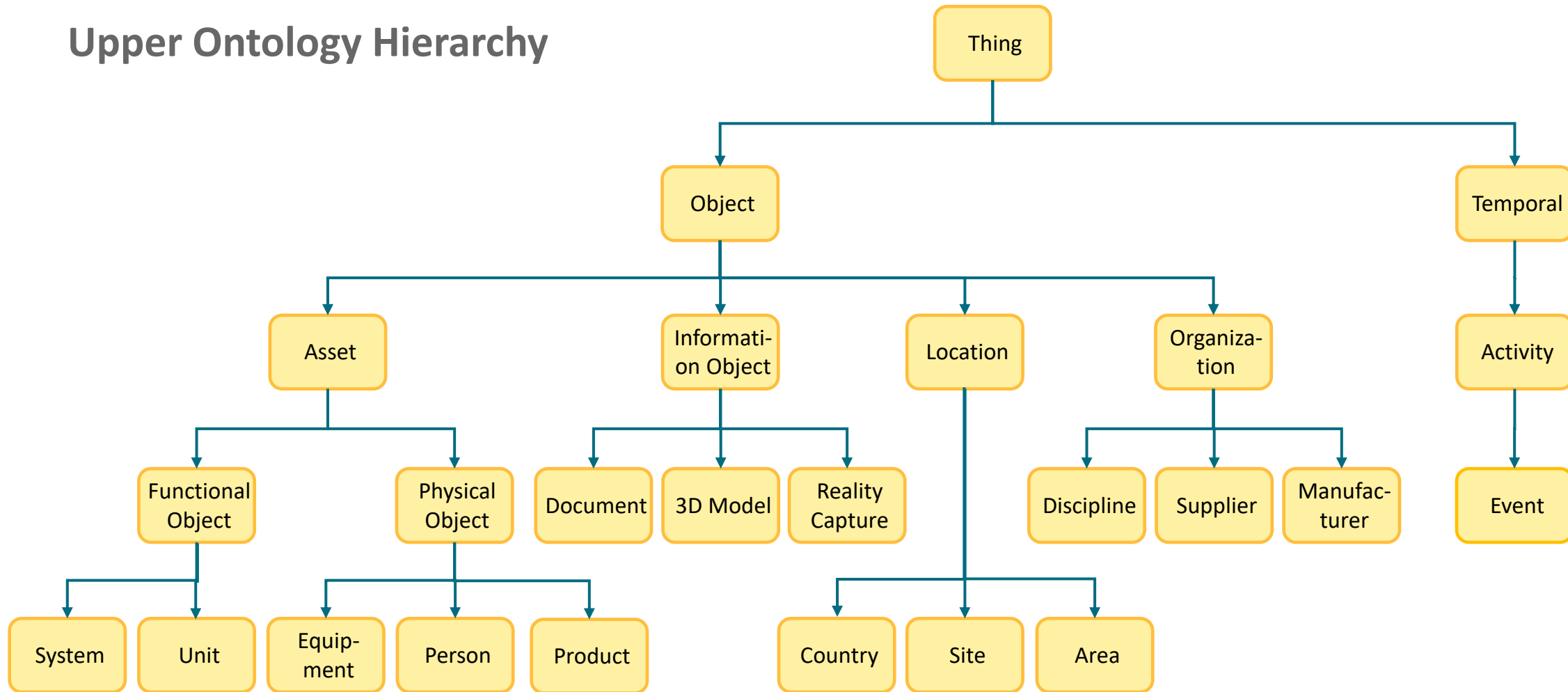
## The common industrial language



- A **standards-based** ontology
- Defines industrial object **classes**, their **properties**, and **relationships**
- Defines best-practice **Templates**
- Provides a common, **unambiguous data language** across AVEVA and third-party applications
- Accelerates **digital twin** delivery and enables **interoperability**

# ISO 23726: Industrial Data Ontology

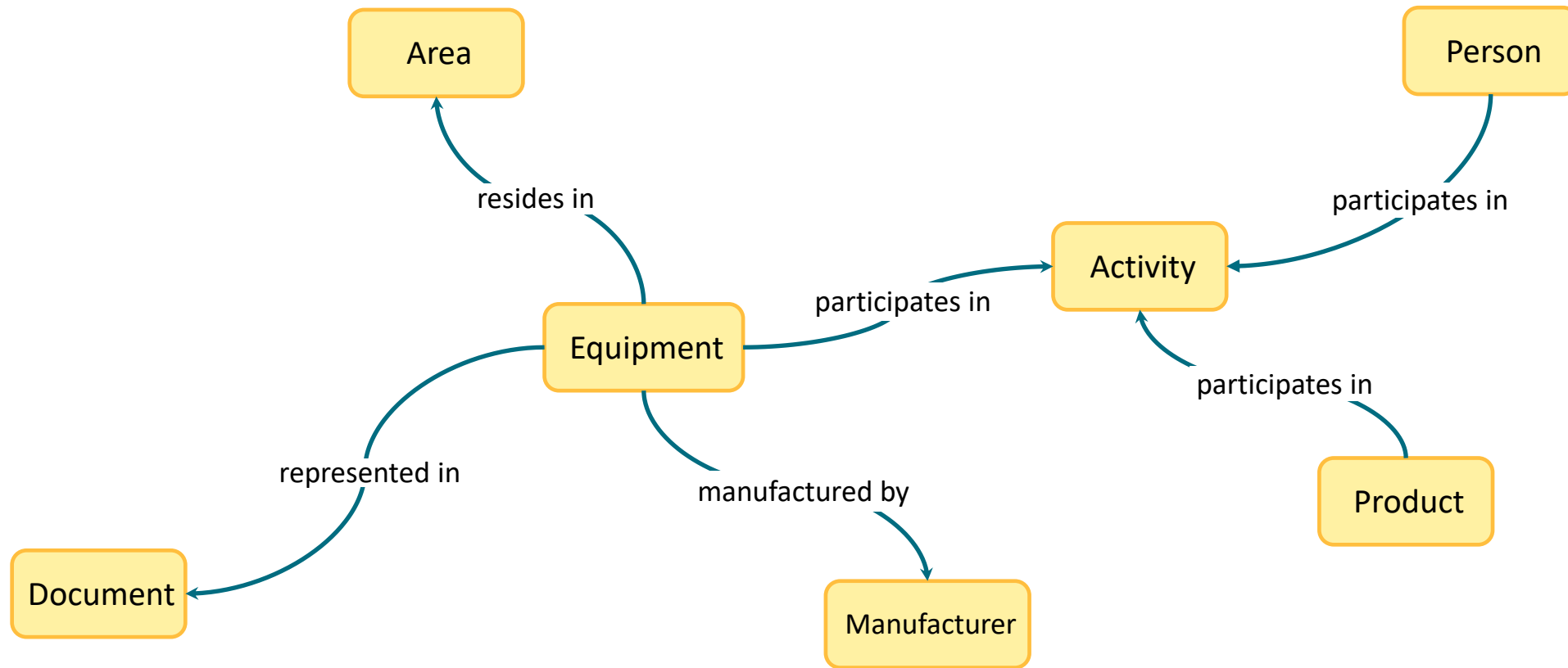
## Upper Ontology Hierarchy



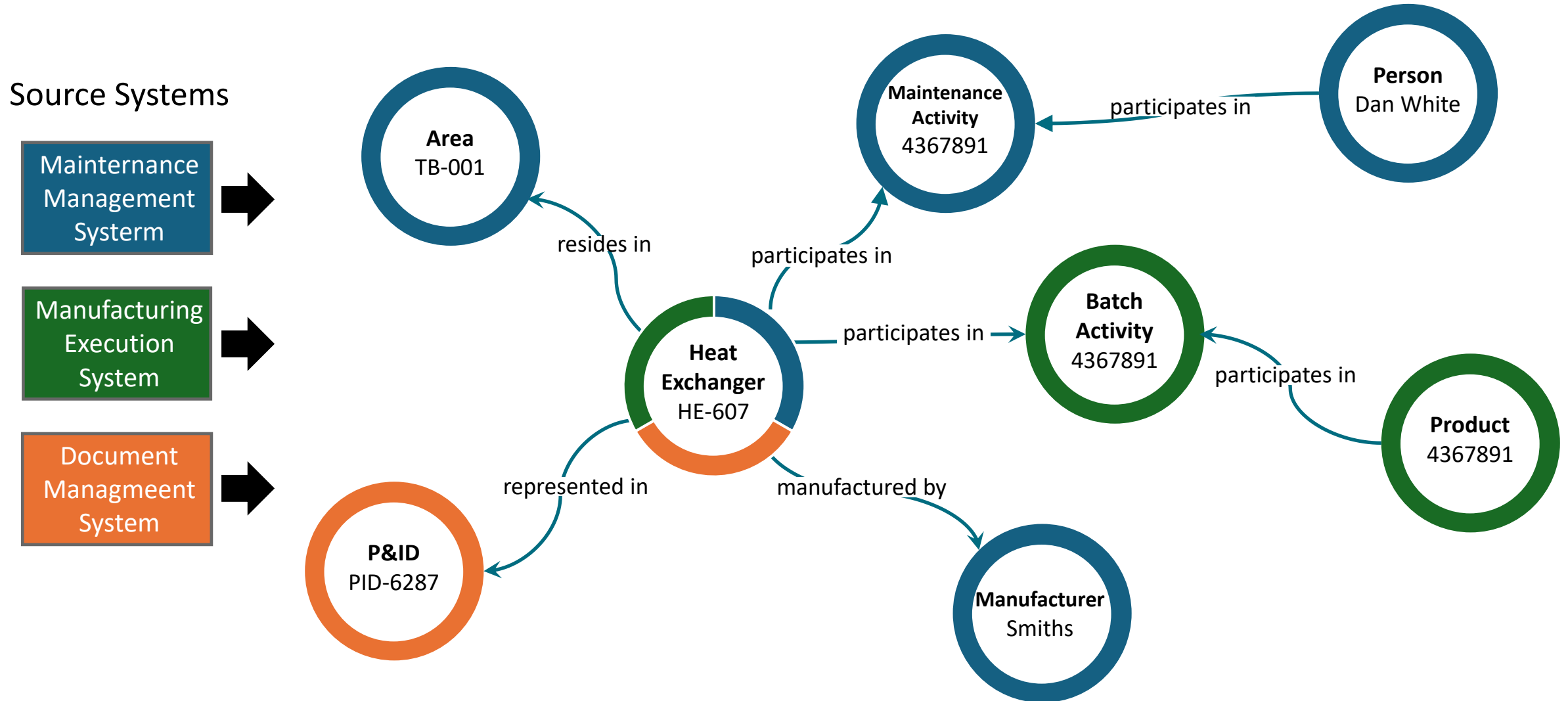


# ISO 23726: Industrial Data Ontology

## Upper Ontology Permissible Relationships

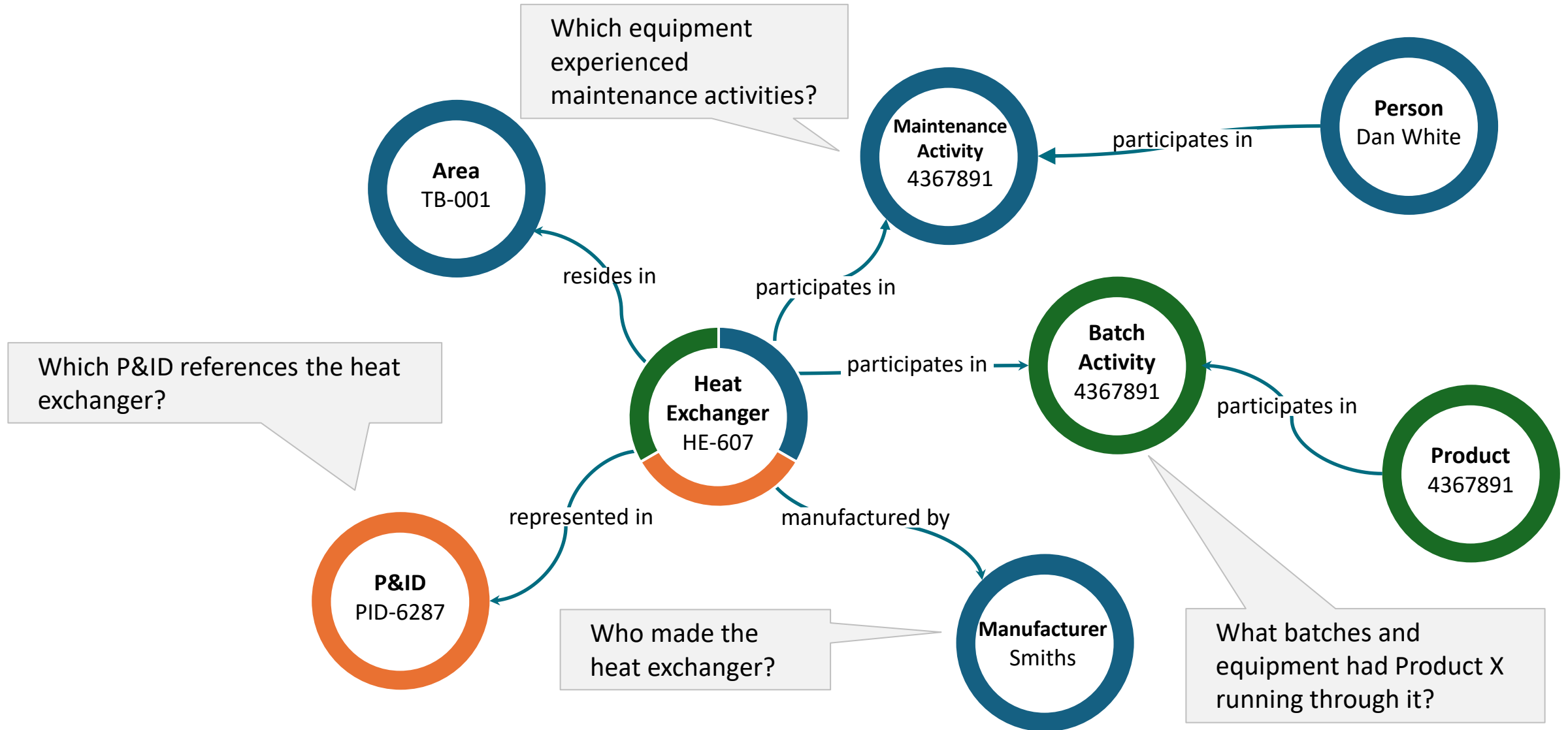


# Ontology based industrial knowledge graph





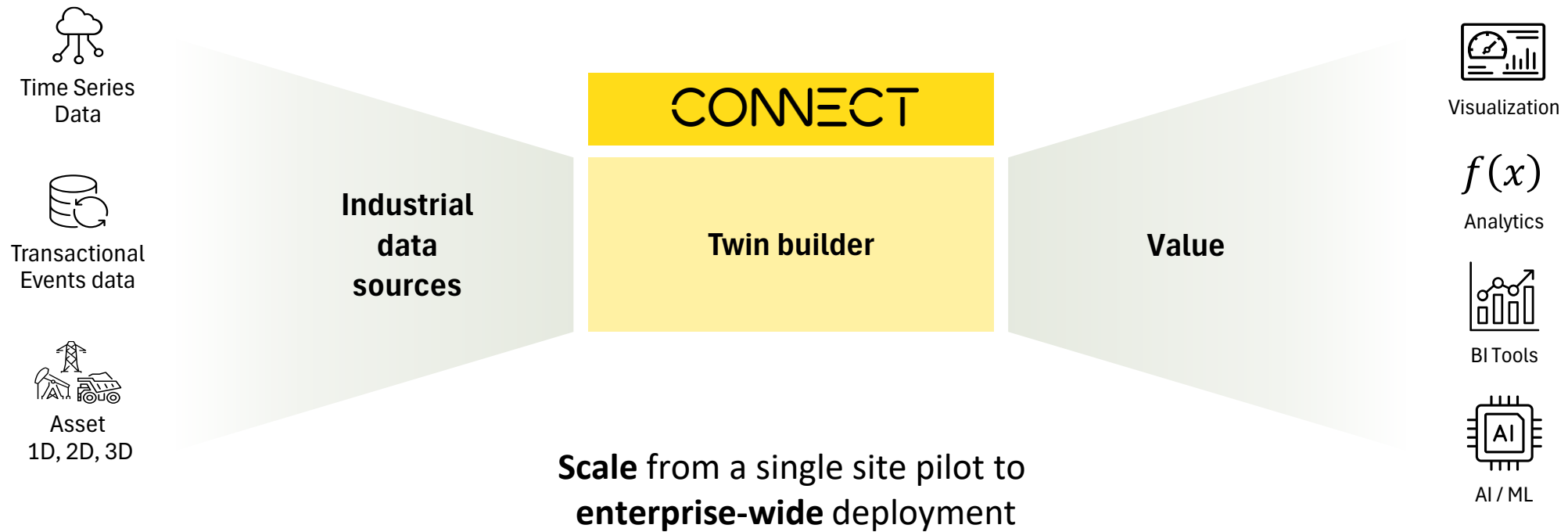
# Ontology based industrial knowledge graph



# CONNECT's Twin builder

Drive down the cost, time and expertise required to build and maintain a digital twin

AI fails when it ignores discipline knowledge. AVEVA's advantage is simple:  
**we understand how industry works**



## Join our Early Access Waitlist

Sign up and be the first to see  
and experience the new Twin  
Builder capabilities coming this  
year.

[aveva.com/getCONNECT](https://aveva.com/getCONNECT)



# CONNECT





# Innovation Zone

Accelerate your industrial intelligence

► Visit the CONNECT area

- *Featuring demos and product experts*
- *Try CONNECT yourself!*

► Attend the CONNECT Lounge

- *20-minute technical presentations*
- *Product managers & development staff*



CONNECT

# Questions?



- Please wait for the microphone
- State your name and company

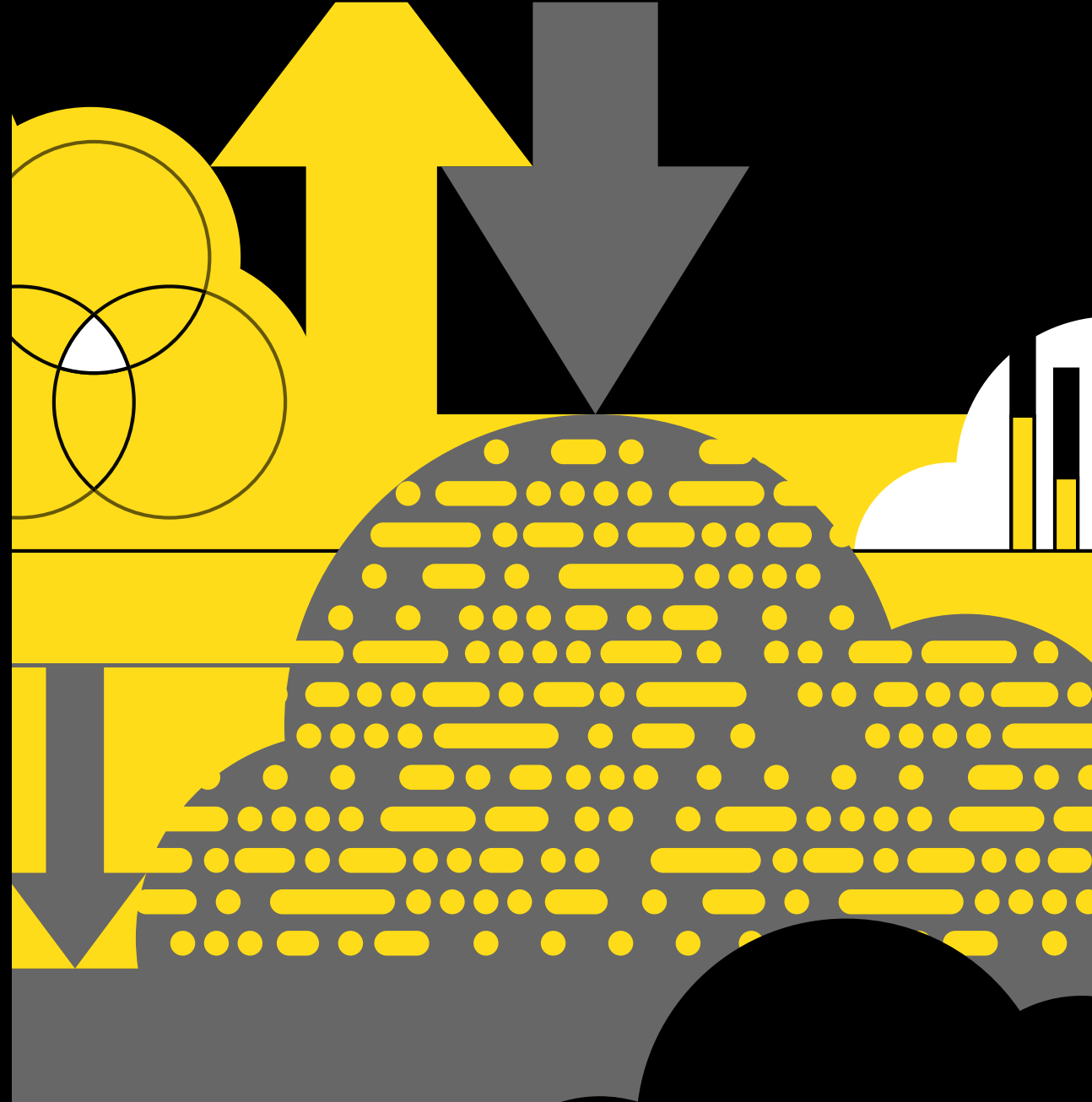
Please remember to...

Navigate to this session in the mobile app to complete the survey

**Visit us at the CONNECT booths in the Innovation Zone**

Thank you!

# Thank You!





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AVEVA is a world leader in industrial software, providing engineering and operational solutions across multiple industries, including oil and gas, chemical, pharmaceutical, power and utilities, marine, renewables, and food and beverage. Our agnostic and open architecture helps organizations design, build, operate, maintain and optimize the complete lifecycle of complex industrial assets, from production plants and offshore platforms to manufactured consumer goods.

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. The company is headquartered in Cambridge, UK.

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