

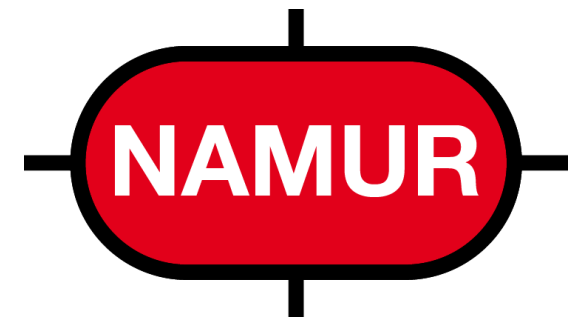
# NAMUR

User Association of Automation Technology in Process Industry

Its role in the interoperability community of the process  
Industry – General approach and some examples

Dr. Wilhelm Otten, NAMUR/DEXPI, WOtten-Consulting

Heiner Temmen, MRAIL/DEXPI



- Vision/Mission
- Organization, Facts, Cooperations
- Focus Topics – Digitalization and Modularization
- Automation Data Models related to Engineering

## Vision

**NAMUR is a leading international association representing the interests of users of automation and digitalization technologies**

## Mission

NAMUR pools the skills and know-how of automation and digitalization users in the process industry. The association contributes to the value generation of its member companies leading to

- efficient (cost, availability),
- sustainable, and
- safe processes.

# More than 170 member companies in process industry

NAMUR

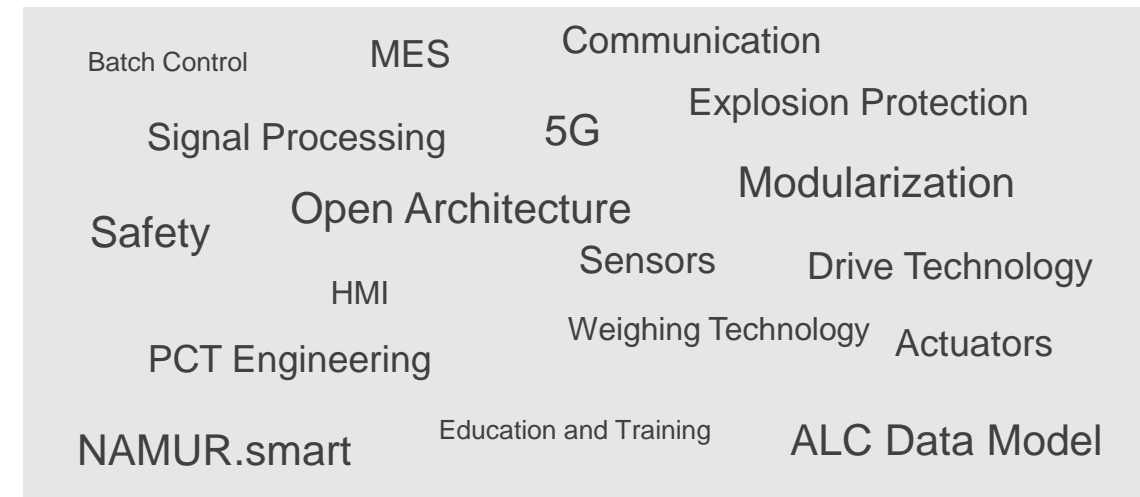


Owner operators,  
engineering companies,  
associations, no vendors

# Work areas, working groups and topics



- NAMUR work results reflect the needs of the members and are based on the **voluntary contributions** of the members. Each member is asked send representative into the NAMUR working groups to support the associations activities (about 400 WG members).
- NAMUR runs **4 work areas** (40 working groups)
  - Project Planning and Construction
  - Automation Systems for Processes and Plants
  - Electrical and Instrumentation Technology
  - Operation Support and Maintenance
- NAMUR **China** (8 WGs)
- **USA** (ACC, 2 WGs)
- The **NAMUR Annual General Meeting**, "community" of the automation technology users (650 participants)
- 100 NAMUR Recommendation and Worksheets



# Cooperations



ACHEMA



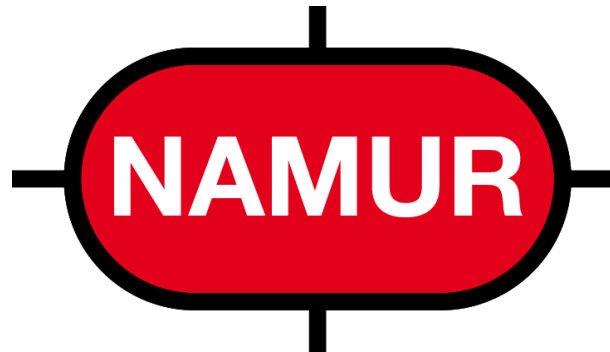
VCI



CENELEC



Gesellschaft für Chemische Technik und Biotechnologie e.V.



PROCESSNET  
EINE INITIATIVE VON DECHEMA UND VDI-GVC



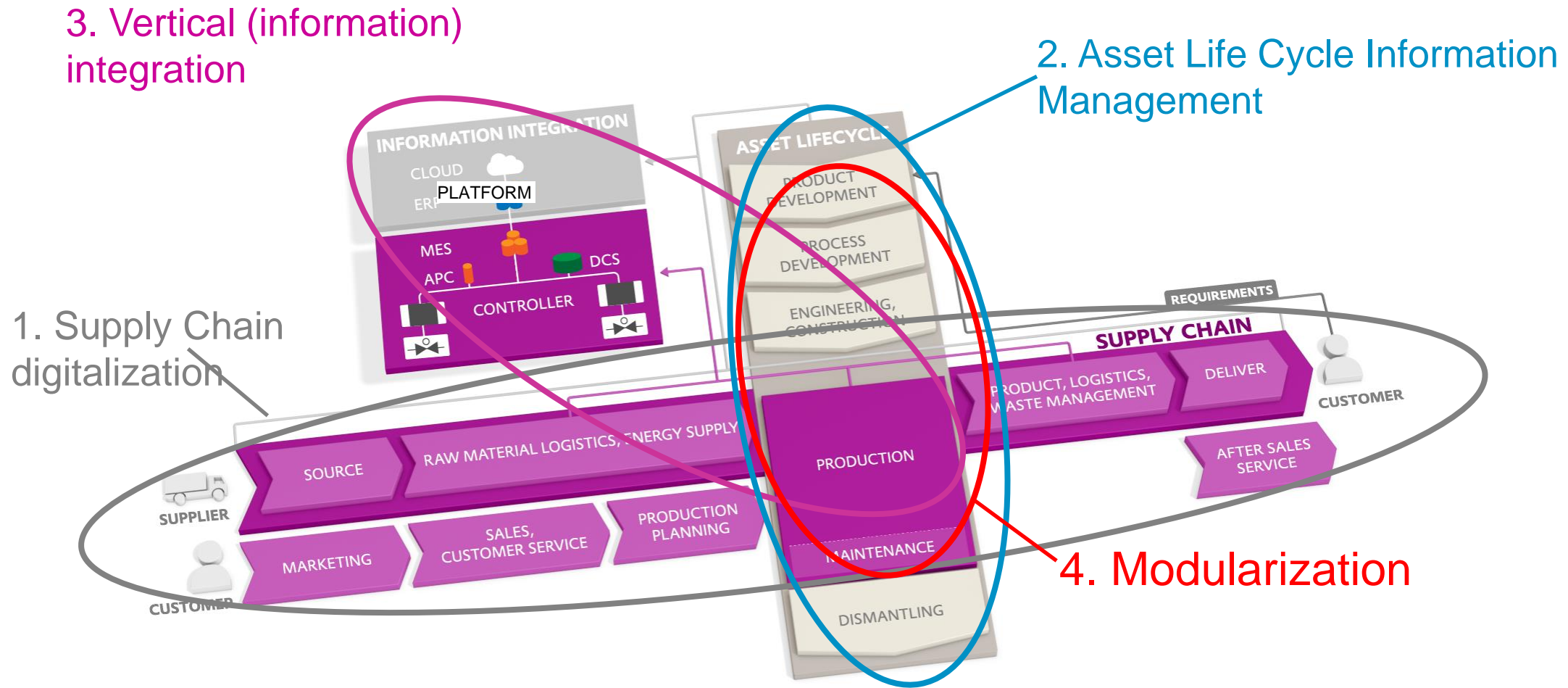
THE *Open* GROUP

VDE  
DKE  
VDE DIN





# Relevant trends and technologies to contribute to transparency and efficiency in the main business processes in the Process Industry



# Modularization

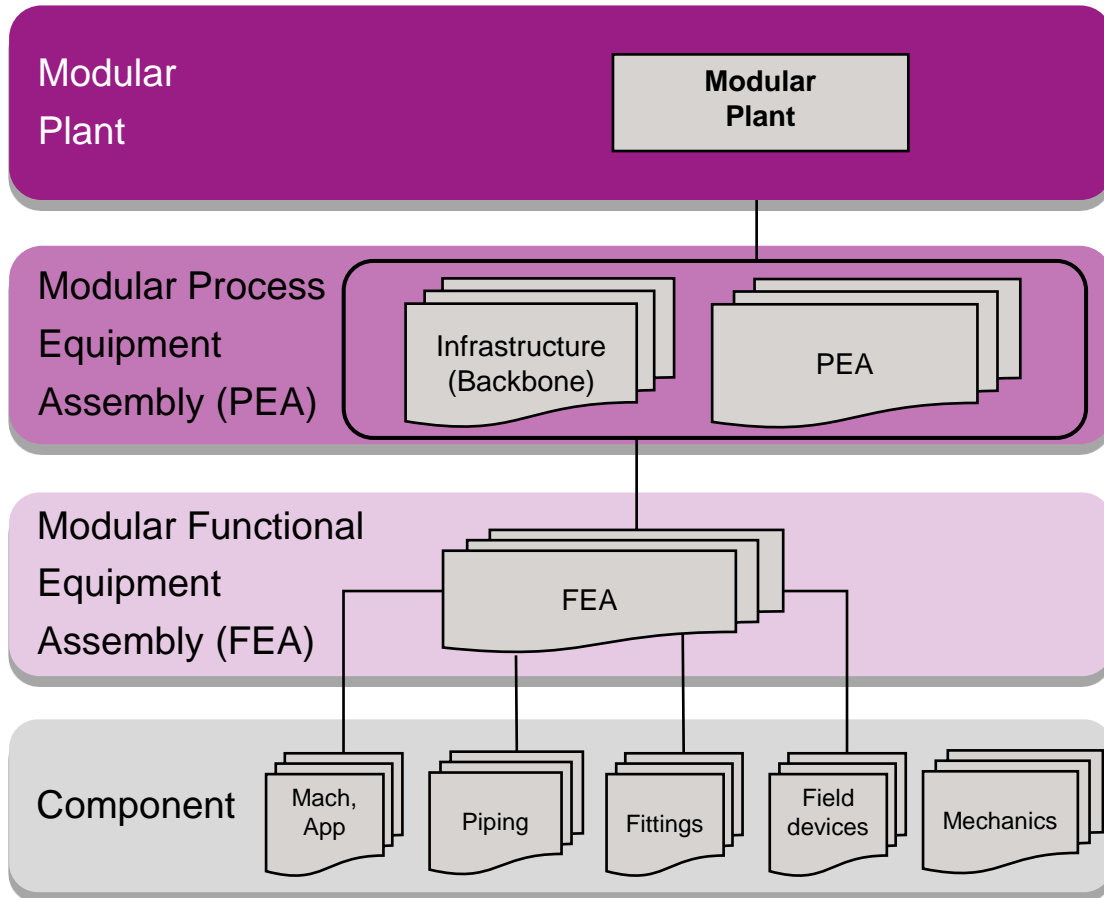


MTP-The Age of Modular Production

Increasing the flexibility of production plants is one of the answers to the fast changing market demands for chemistry and pharmaceuticals. To achieve th...

[https://youtu.be/x\\_bSiHYk4Pk](https://youtu.be/x_bSiHYk4Pk)

## Process Technology (VDI 2776)



## Automation Technology (VDI 2658/IEC 63280)

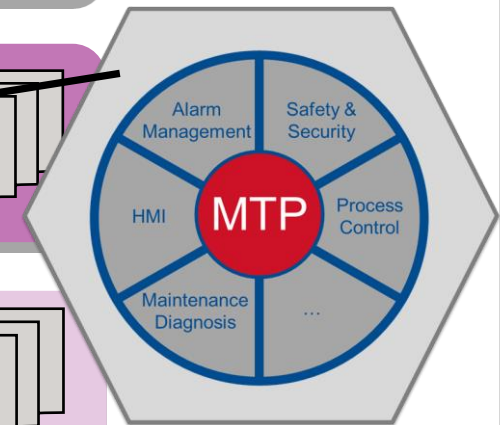


**Process Orchestration Layer**  
(Orchestration, Historical Data Alarm-/Event-Logging)

**Module Automation**  
(Microservice Oriented Architecture)

**FEA Intelligence**  
(Frequency converter, Massflow Controller, ...)

**Switch cabinet**      **Inst.-Material**



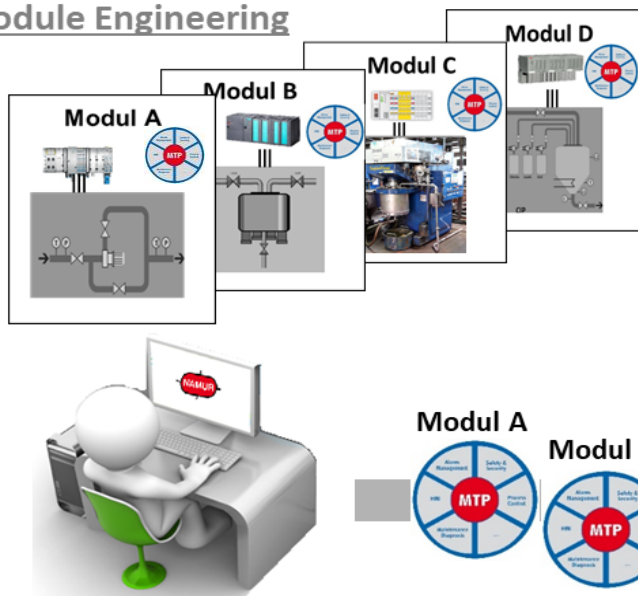


# MTP (Modular Type Package)

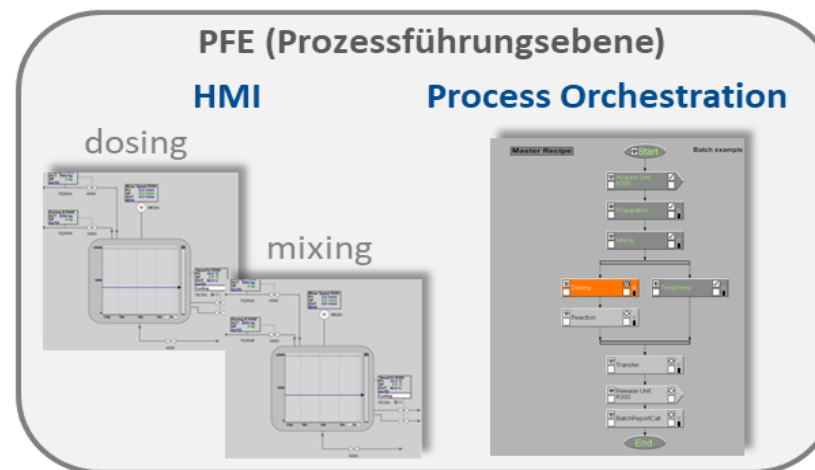
## Modular engineering project using MTP



### Module Engineering



### Plant Engineering



#### HMI:

Describe proprietary graphics in a standardized way (static & dynamic)

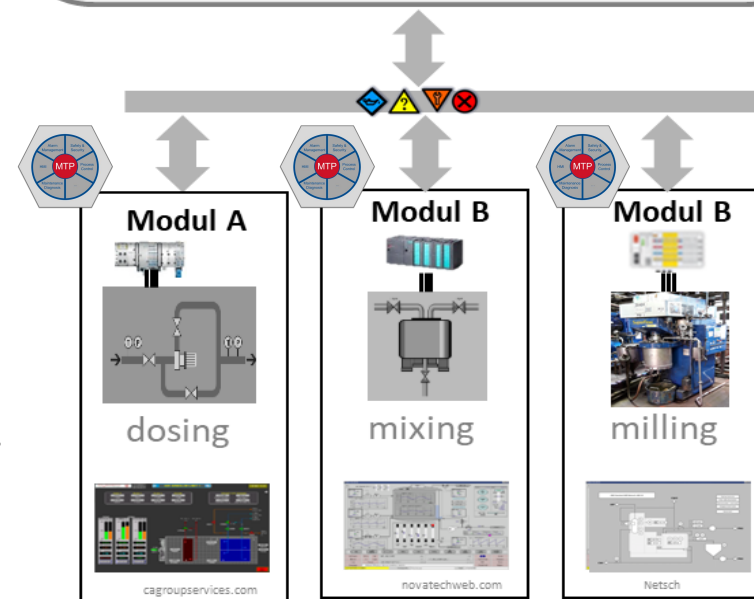
#### Process Orchestration:

Service oriented communication

- ✓ Command (e.g. tempering)
- ✓ Status (e.g. Running)
- ✓ Service properties (e.g. temperature)
- ✓ State model (ISA88)

#### Modul-Service:

#### Modul-HMI:

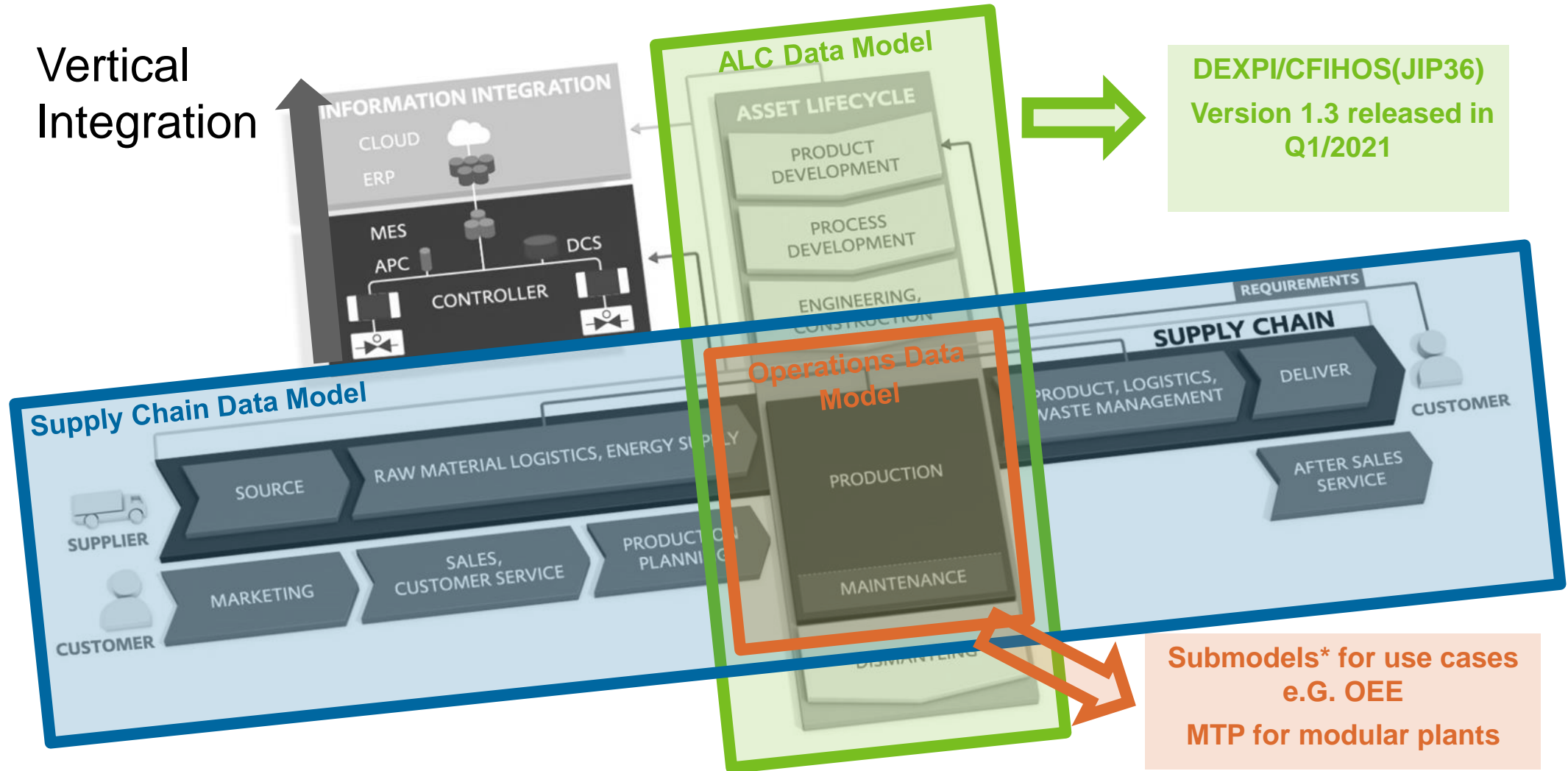


# Asset Life Cycle Information Models and Management

## Status of Data Models related to Business Processes



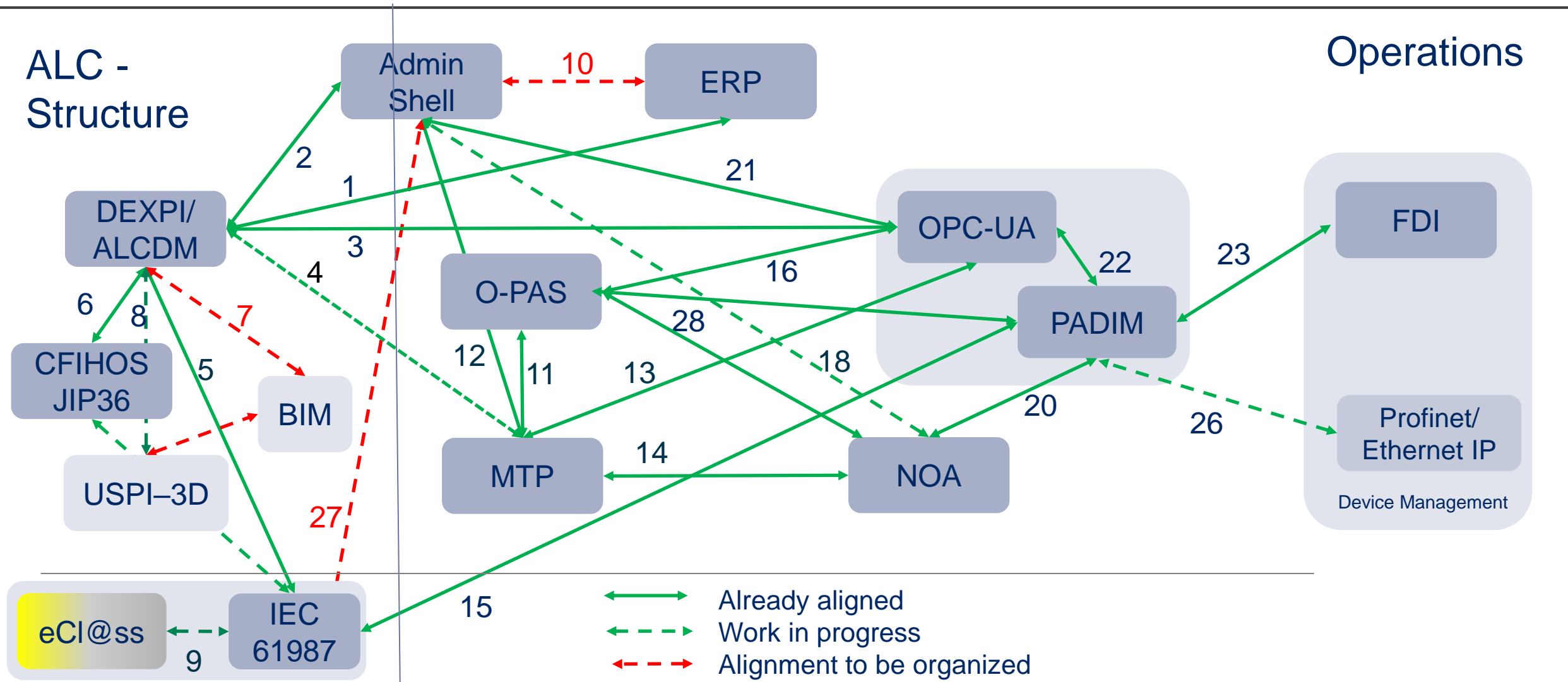
Vertical  
Integration



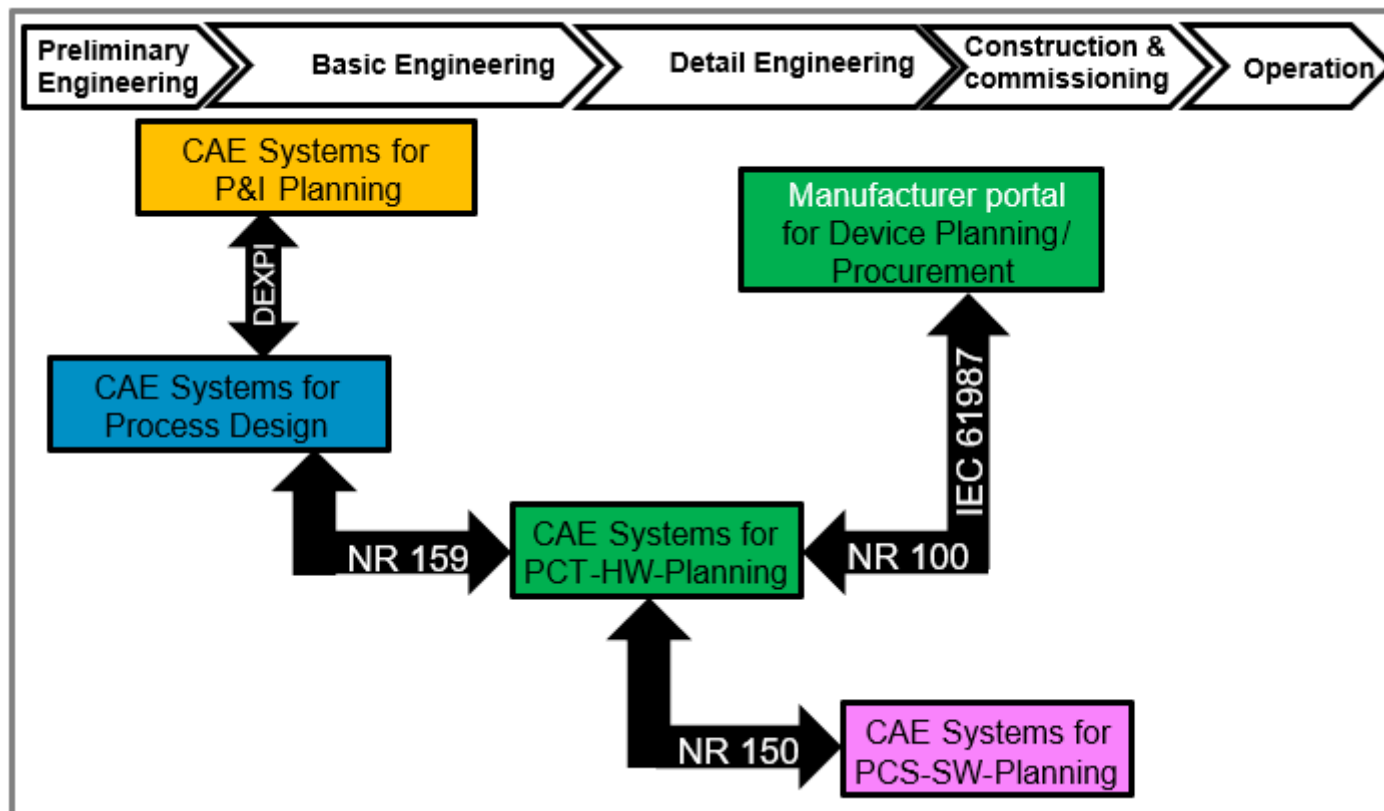
Submodels\* for use cases  
e.G. OEE  
MTP for modular plants

\* MTP is an operational model

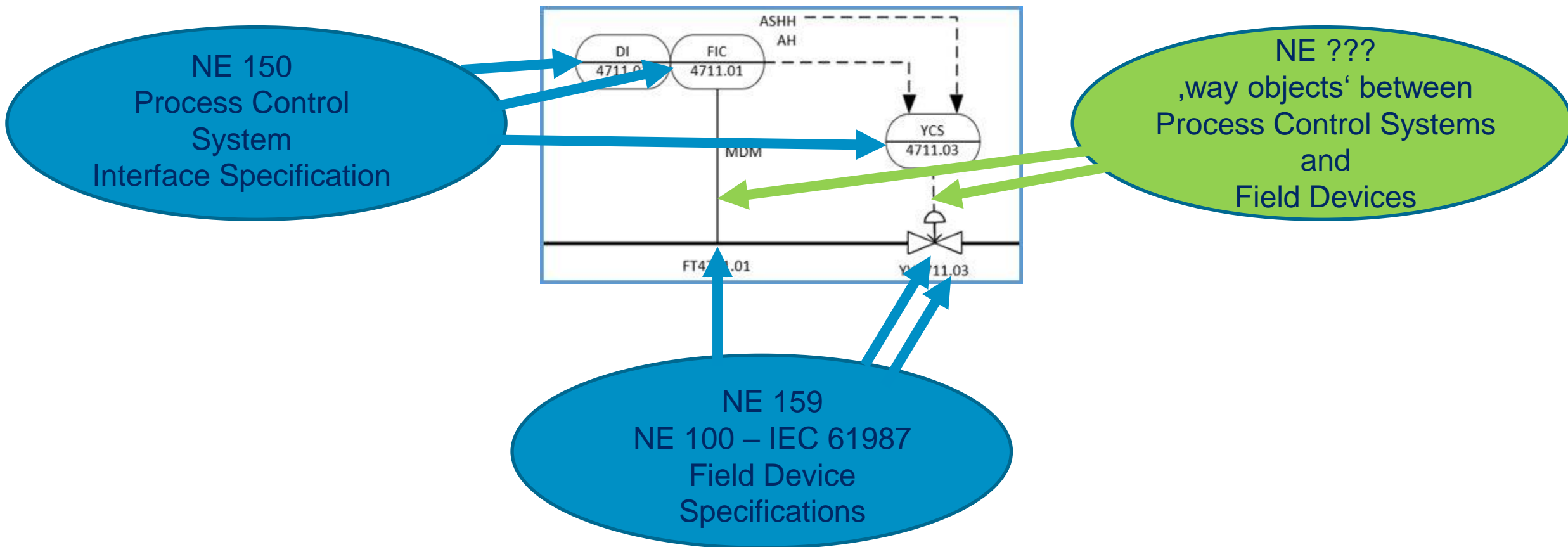
# Information Models and their interaction (updated 2021-10)



# NAMUR Recommendations - some Deliverables

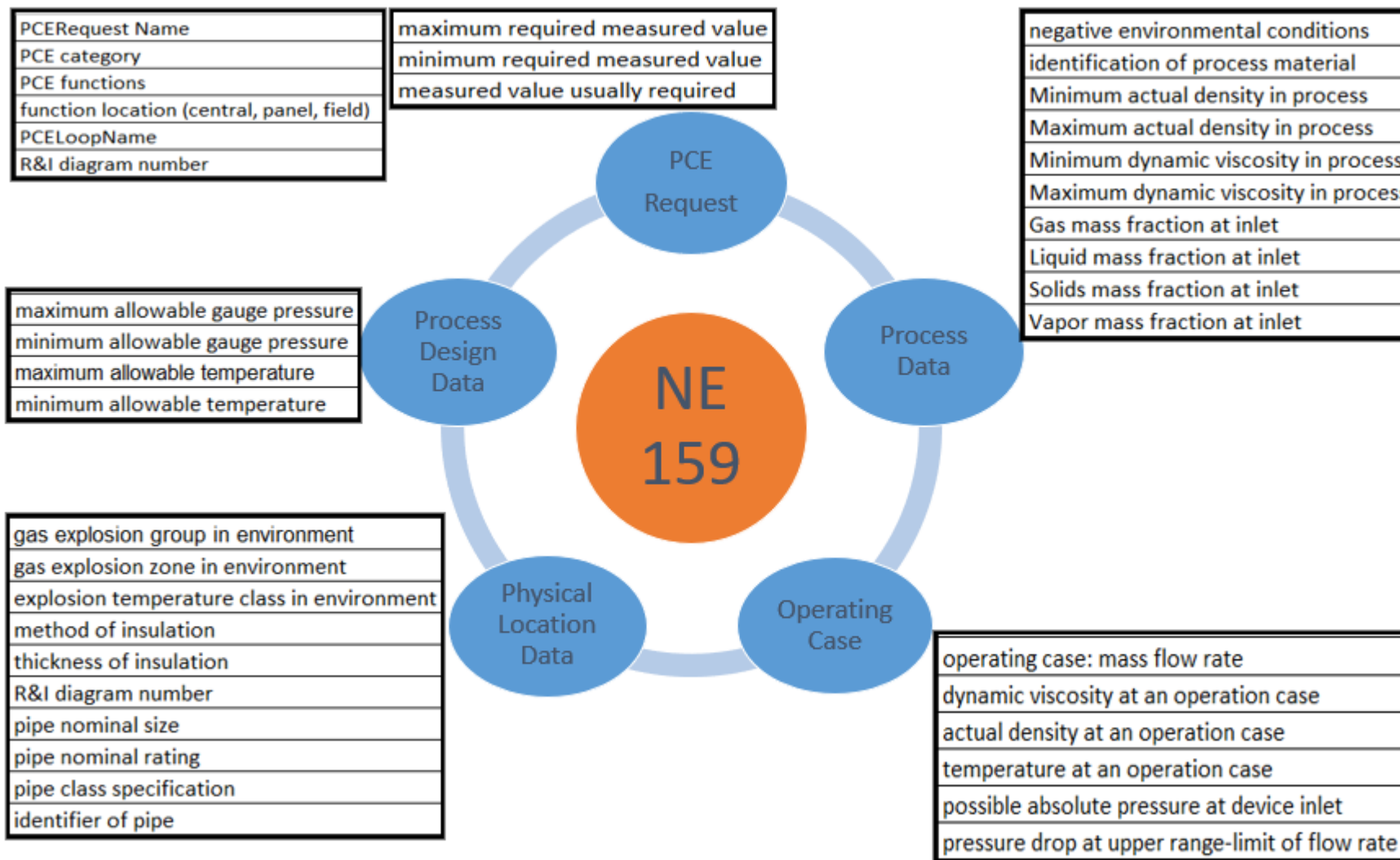


# NAMUR Recommendations – some Deliverables



# NE 159 – Process design data

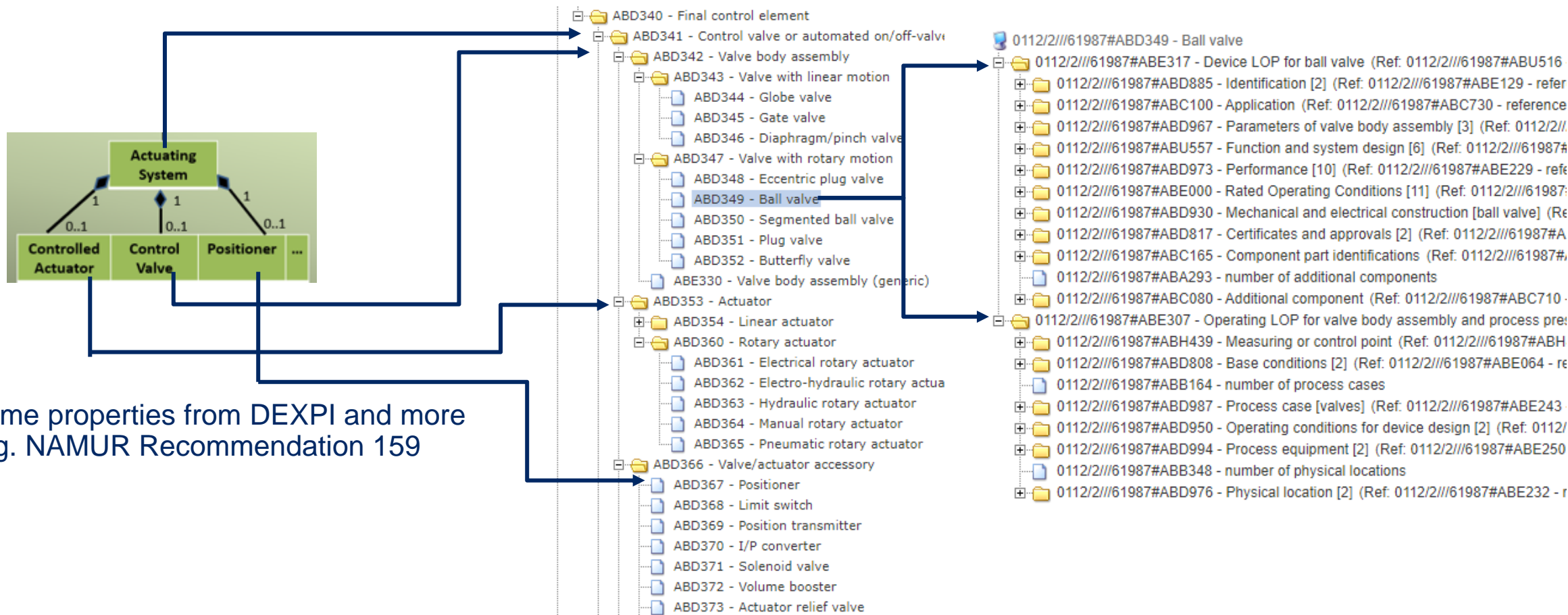
## Add on to DEXPI Functional Objects



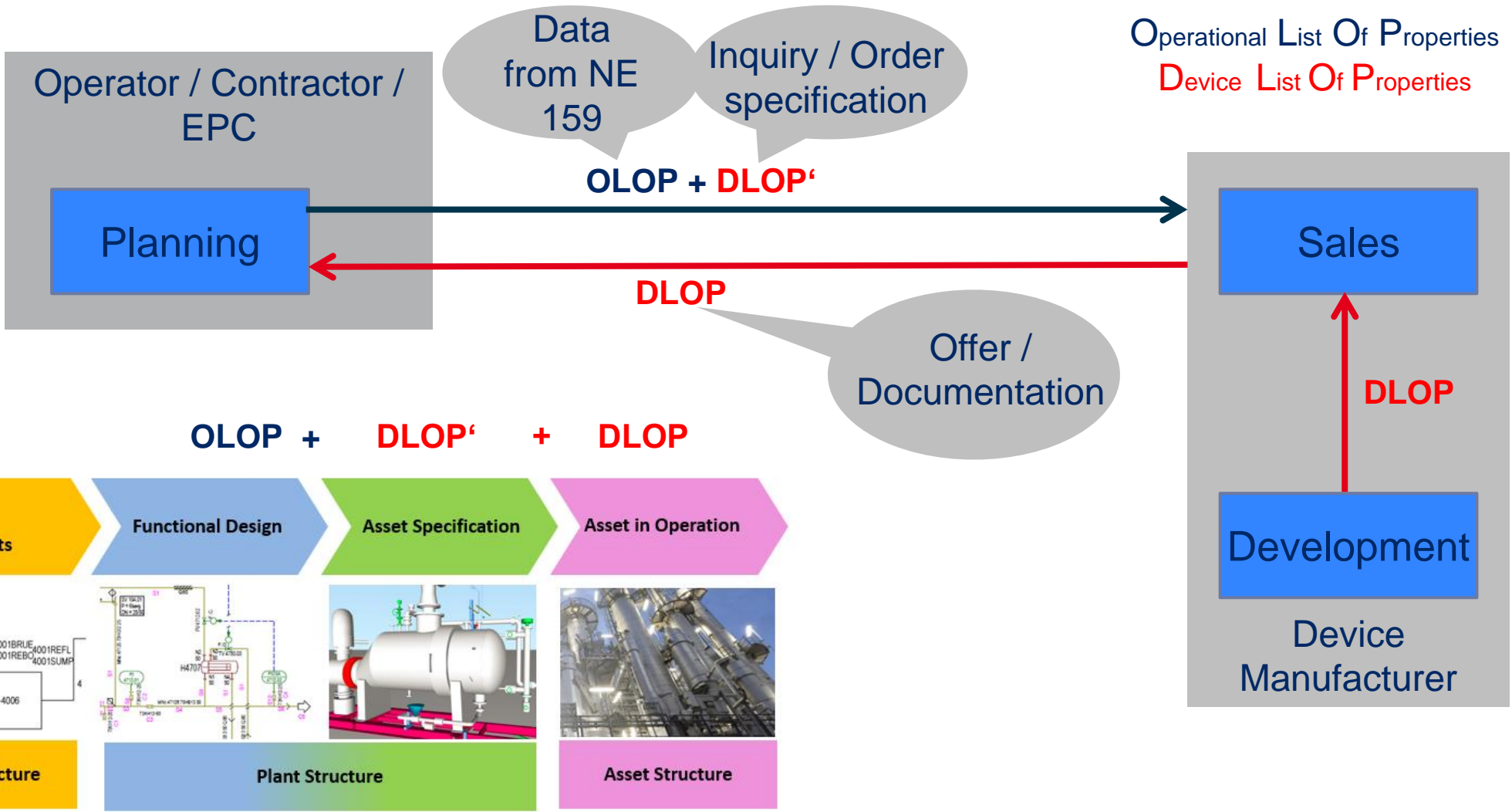


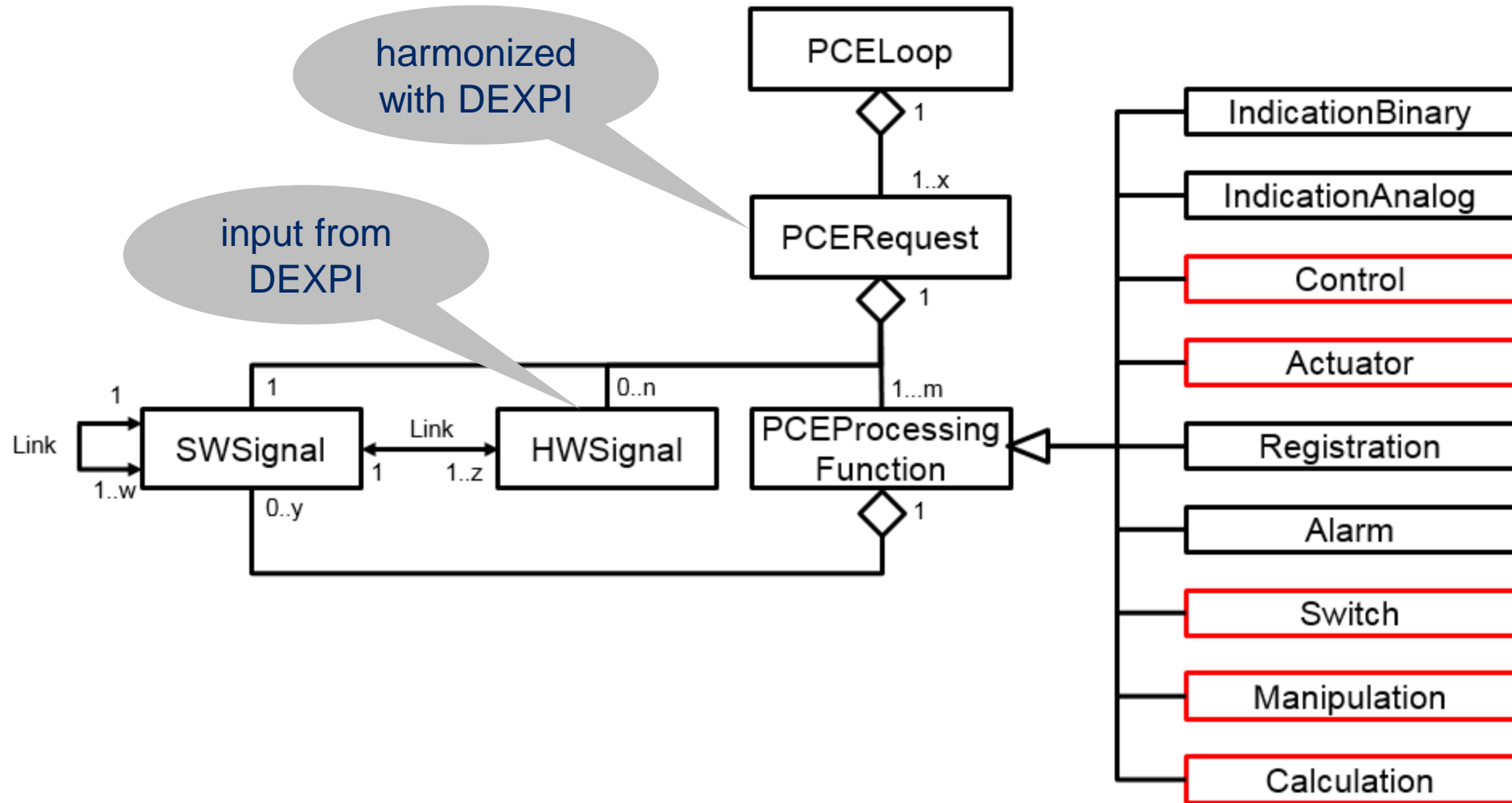
# NAMUR Recommendation NE 100 – now IEC 61987

## CDD Common Data Dictionary with Class hierarchy with Operating and device lists of properties

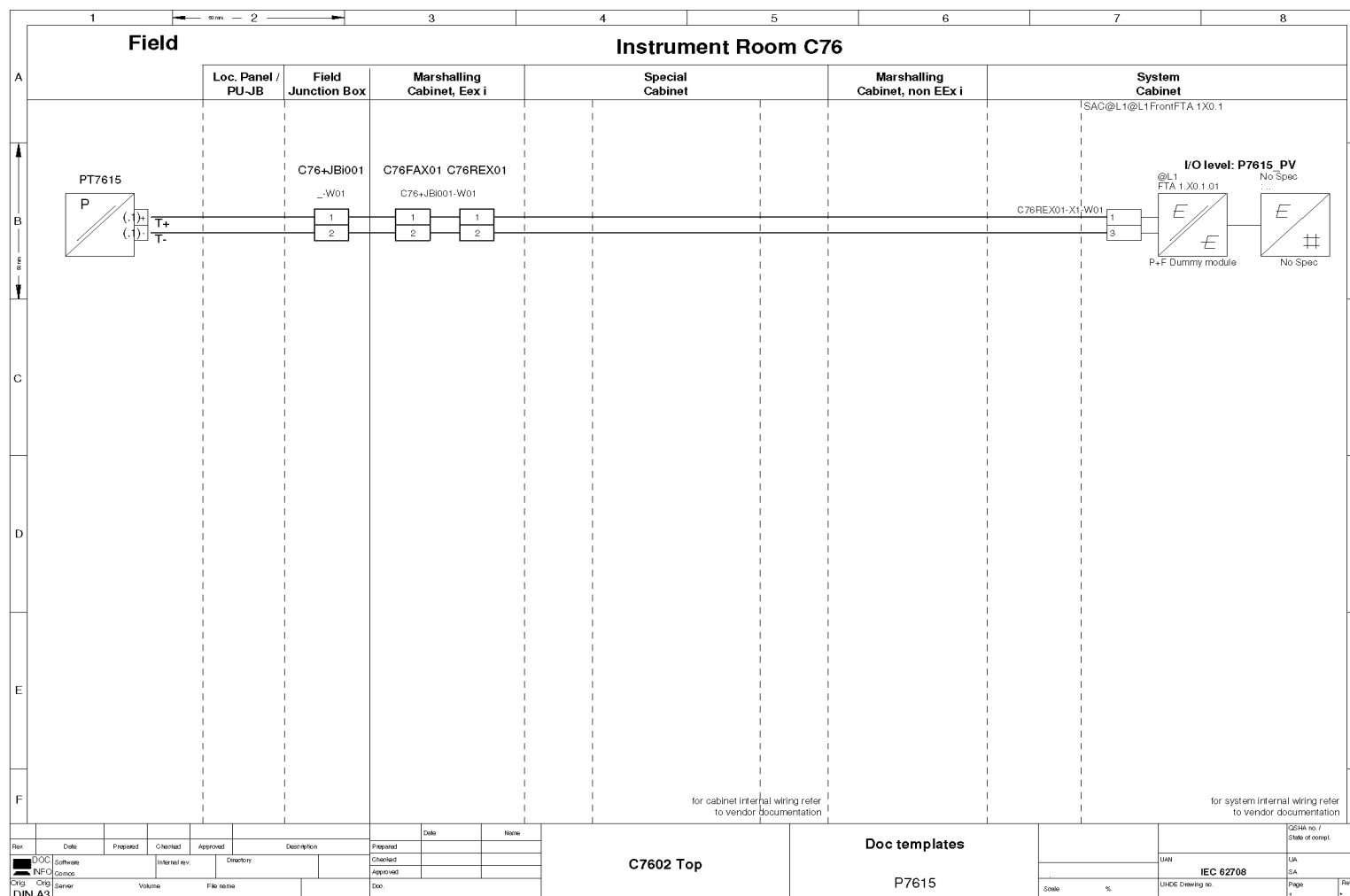


# NAMUR Recommendation 159 and 100 (IEC 61987)





# Loop diagram – document for the ‚way objects‘



## Tasks of NAMUR WG 1.3

- Identify the classes
- Identify the properties
- Model the topology
- Build an UML model

# Danke // Thanks



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NAMUR Homepage