

POSC Caesar Association Projects and Activities

MIMOSA Open Meeting, Houston 2018-12-05

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Summary

- POSC Caesar Association (PCA)
- Projects:
 - ILAP – Integrated Lifecycle Asset Planning
 - ILAC – Extending ILAP – integrating schedule, cost weight and estimation
 - READI – REquirement Asset Digital lifecycle Information
- ISO/IEC:
 - Activities on models/ontologies and reference data
 - Smart Manufacturing Reference Model(s)
- Opportunities for cooperation between MIMOSA and PCA

POSC Caesar Association (PCA)

PCA is:

- A Norwegian based standardization organization that collaborates globally

Purpose:

- PCA improves business efficiency within the industrial energy sector by connecting information

Vision:

- Connecting all information in the industrial energy sector

Value proposition:

- Information connection will reduce cost by at least 20%

Integrated Lifecycle Asset Planning



Co-operation in our interest and for our benefit

ILAP presentation
November 2018



ILAP

Co-operate to achieve a higher goal



- ConocoPhillips, ENI, Equinor and AkerBP has funded the project since 2012

- EPIM is project executer

- PCA standardize and facilitate global co-operation

- MIMOSA supports PCA and review and comment on drafts

- ILAP is a project within IOGP ISSC



Note: Every Norwegian contractor supports this initiative

We pay at least double – for less quality!



1.

ORACLE
PRIMAVERA



2.

SAP



Then punch the same data
in operator systems

Contractor establish
schedule



Excel

3.



Sometimes data needs to be
punched into other software
systems also

I Norwegian oil and gas
industry >200 persons are
payed for this work
Cost > 20 million euro

Note: Very simplified

ILAP project goals



- 1. Publish an international standard for schedule data terms, ISO15926-13**
- 2. Develop adapters that supports the standard and schedule software P6, SAP, Excel and MS Project**
- 3. Market the standard to get support and use of it**



Next software version



- **The first ILAP software was intentionally a tin can solution to avoid IT risk**
- **We have released a second version to be updated to ISO standard**
- **Currently we're working on improving adapter user interface**
- **We have started planning a server cloud solution with full automation of transfers**



Implementation in Equinor



- **ILAP has been in production from May 2018**
- **Started in Project division with brownfield projects (Safran to SAP), implemented at two contractors**
- **From late October, both the Offshore and the Onshore division has continued implementation**
- **Goal is that ILAP is fully implemented in Equinor within 31.12.2019**





- **The ILAP project is in dialogue with three different industries in Norway:**

- Railway (large projects)
- Electrical production and distribution (large projects)
- Construction (large projects)



- **The ILAP is usable for many industries like renewable, roadbuilding, ship and other**



- **This is due to that we have built the standard on common planning theory and practice**

Extending ILAP – integrating schedule, cost weight and estimation



Transformation of project control within oil and gas industry

ILAC project information presentation

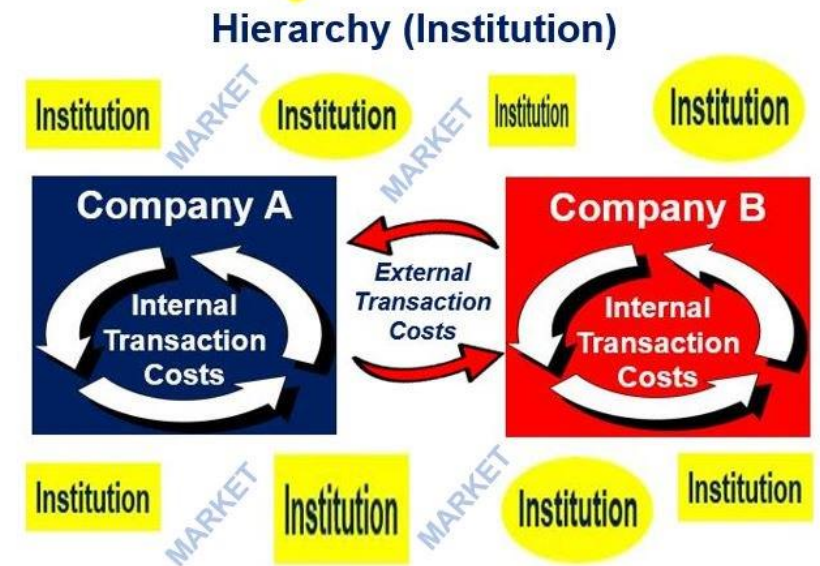
February 2018





- Converting the data language between every software creates huge transactions costs
- This “conversion” industry have an annual turnover of more than 10 billion dollar a year
- We’re paying the bill for these transaction costs
- When will we reduce it?

Theory of the Firm



Transaction Cost Theory



- 1. Publish an international standard for cost weight and estimation data terms**
- 2. Develop adapters that supports the standards ILAC standard software**
- 3. Market the standard to get support and use of it**



Co-operate to achieve a higher goal



- **ConocoPhillips, ENI, AkerBP and Equinor have done the pilot project (EPIM project)**

- **Mimosa and PCA standardize and facilitate global co-operation**

- **ILAC is presented to the IOGP ISSC**



DIGITAL SOLUTIONS

READI – REquirement Asset Digital lifecycle Information

EG-lederkonferansen 2018

Stavanger

Erik Østby

08 November 2018

Initiated by the Sector Board Petroleum



LO - Norwegian Confederation of Trade Unions

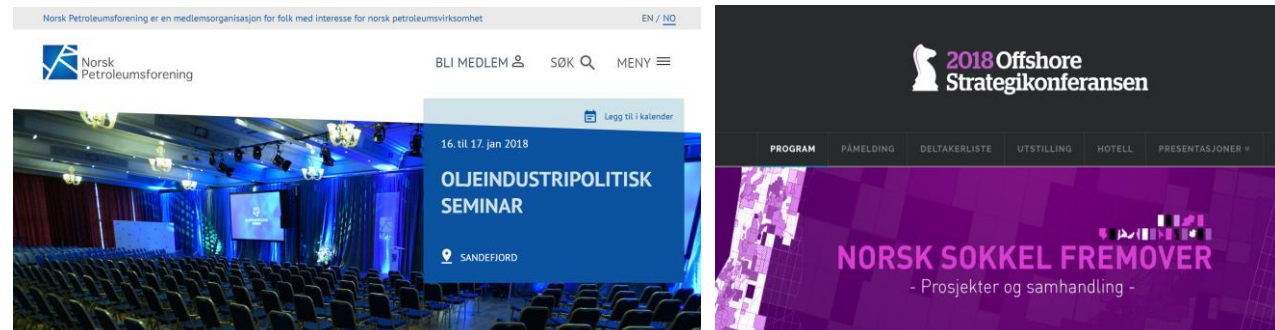


PETROLEUM SAFETY AUTHORITY
NORWAY



Confidential

Opportunities to improve quality and efficiency in existing work processes and cooperation through digitalization has not been captured widely in the industry



"This initiative is important for achieving lasting improvements. I would urge the industry to support the project."

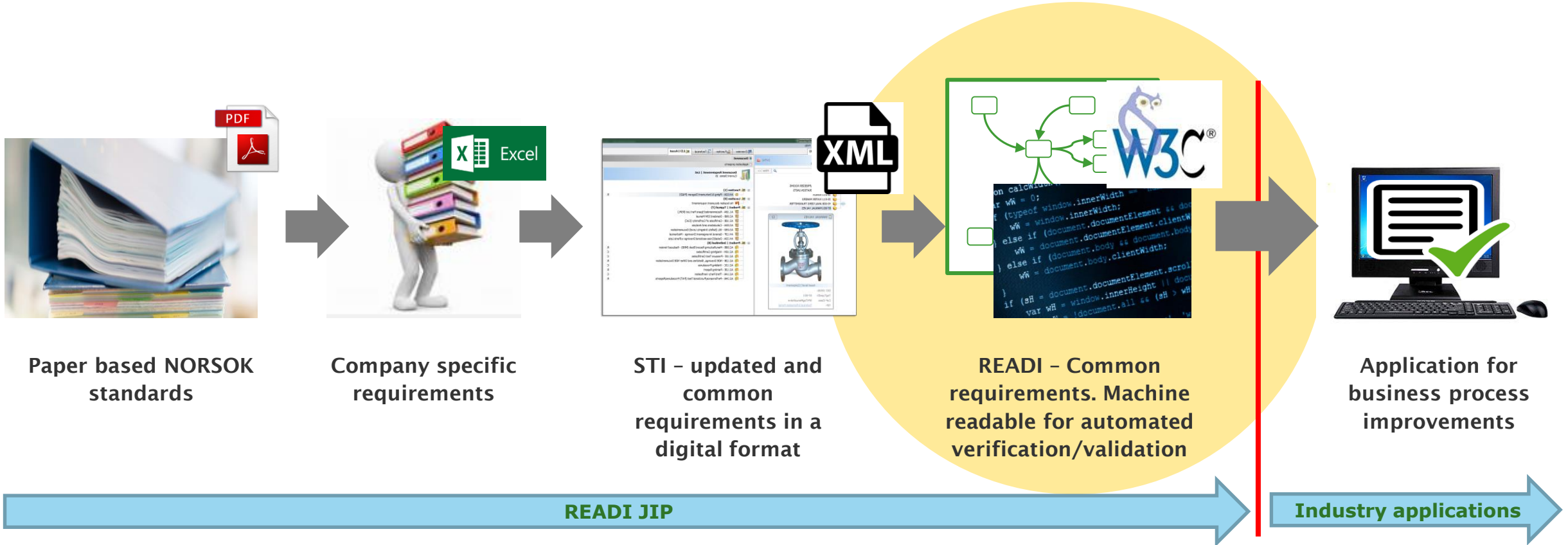
Terje Søviknes Oil and Energy Minister, Norway



Recommendations for Digital field development process

- Purpose full collaboration to harvest effects of digitalisation
- Standardised digital plant information
- ...accelerating the current digitalization of the *NORSOK* standards – particularly *NORSOK Z-TI*

The journey from paper based to "digitalized" Norsok standards



READI JIP: Knowledge base for Technical Information requirements expressed as rules.

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Means to reach the goals of cost reductions and a more competitiveness Oil & Gas industry

- Support for the definition of **machine-** and **human-readable** requirements.
- More **efficient verification** of requirements.
- Easily **discovery** of **inconsistent** requirements.
- Remove **ambiguity** in the definition of requirements.
- Better **searching** capabilities to find requirements

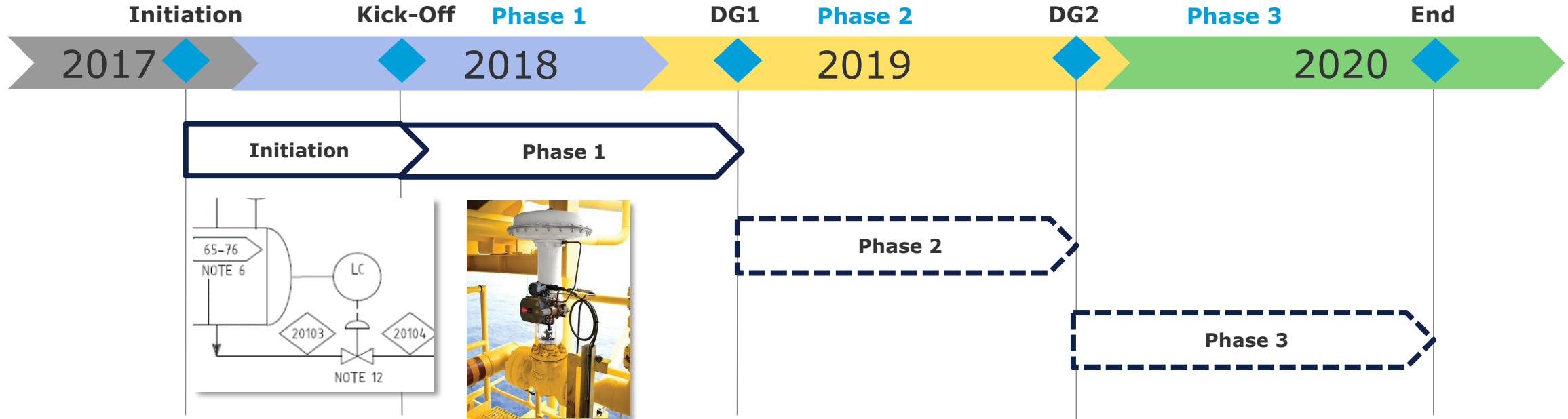


Participants

	Company	Status
Large operator	Equinor	Signed
Medium operators	ConocoPhillips	Signed
	Aker BP	Signed
	Lundin	Signed
	Shell	Signed
	Eni Norge AS	Signed
	Wintershall/DEA	Promising
EPC Contractors	TechnipFMC	Signed
	Aibel	Signed
	Aker Solution	Signed
	Kvaerner	Promising
Equipment and system vendors	ABB	Signed
	Vela/Proenco	Signed
	Computas	Signed
Others	PSA	Signed
	Standard Norge	Signed
	DNV GL	Signed
Observers	EPIM	Signed
	Sektorstyret	-
	PoscCaesar	Signed
Sub-contractors	UiO/SIRIUS/A. Waaler	Signed
	PoscCaesar	Signed

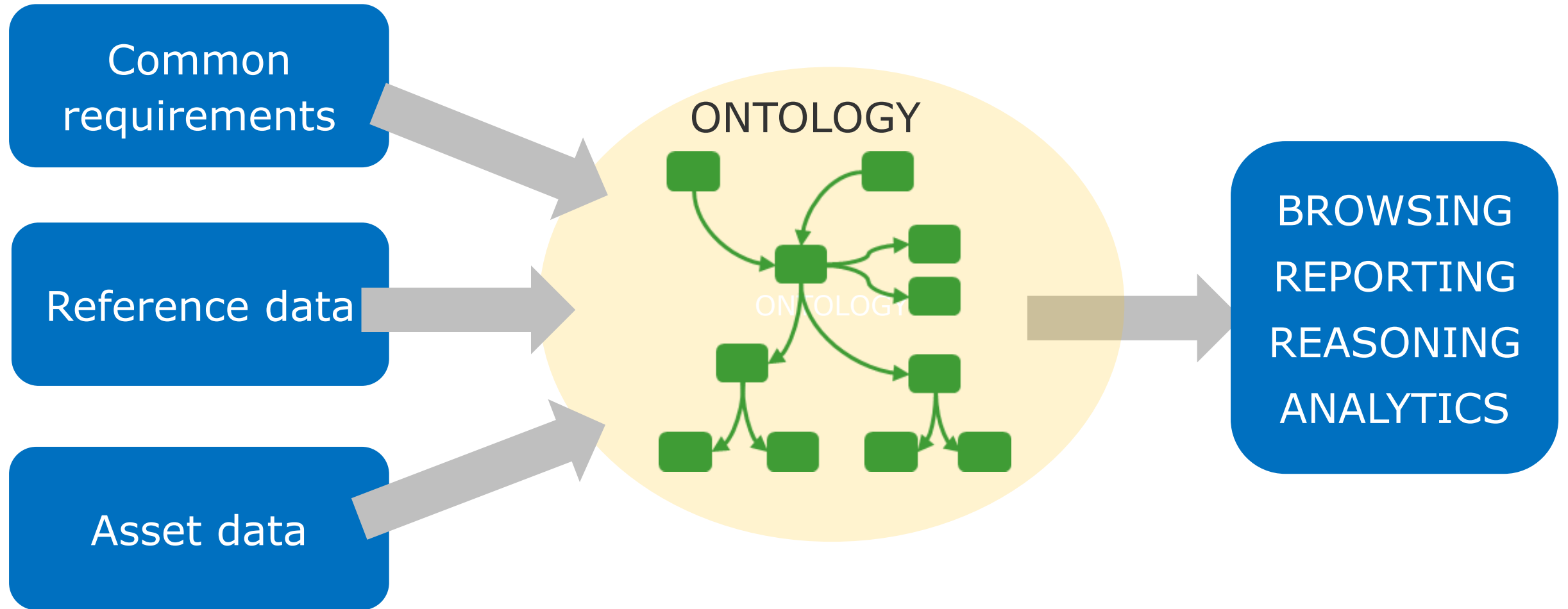
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The READI JIP will be executed in three phases



Scope for Phase 1 is information requirements to valves

Ontology – the enabler to change the industry practice



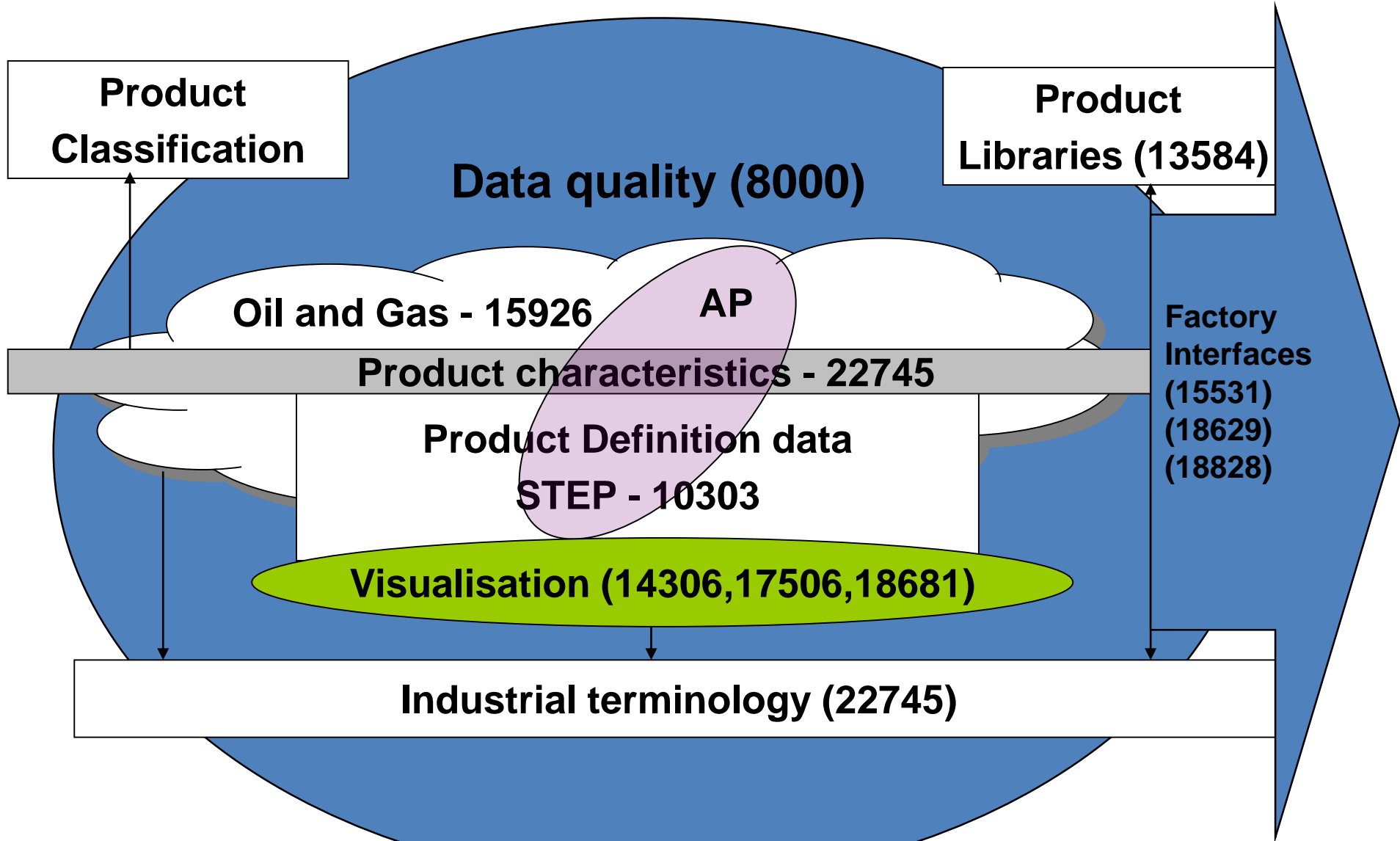
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One goal for READI

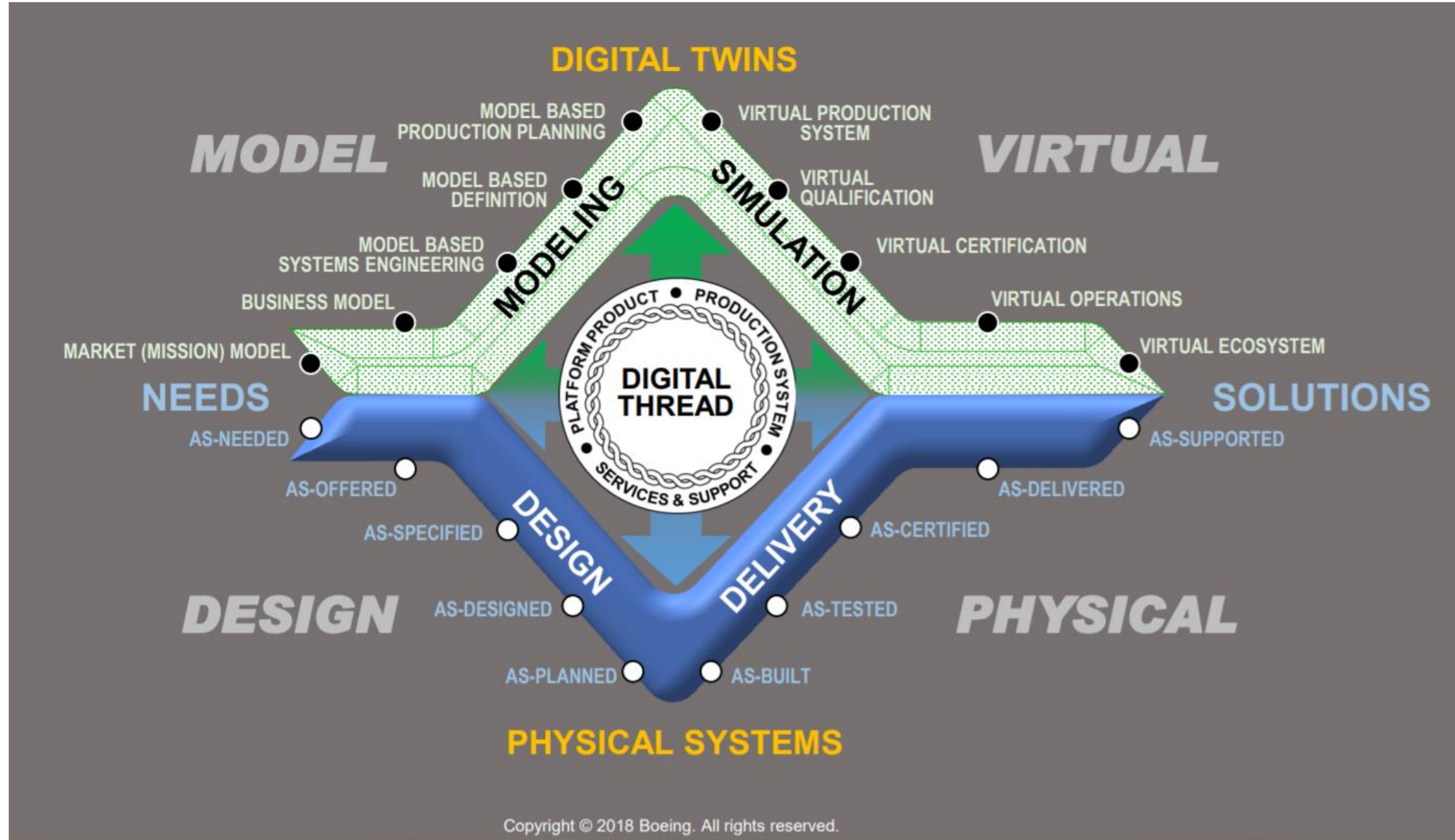
To help the industry to **write** “good” requirements that **machines** can validate and verify **automatically**



ISO/TC 184/SC4 Industrial data – Main ISO committee for PCA



Boeing: The System Engineering «V» – Is it still relevant In the Digital Age?

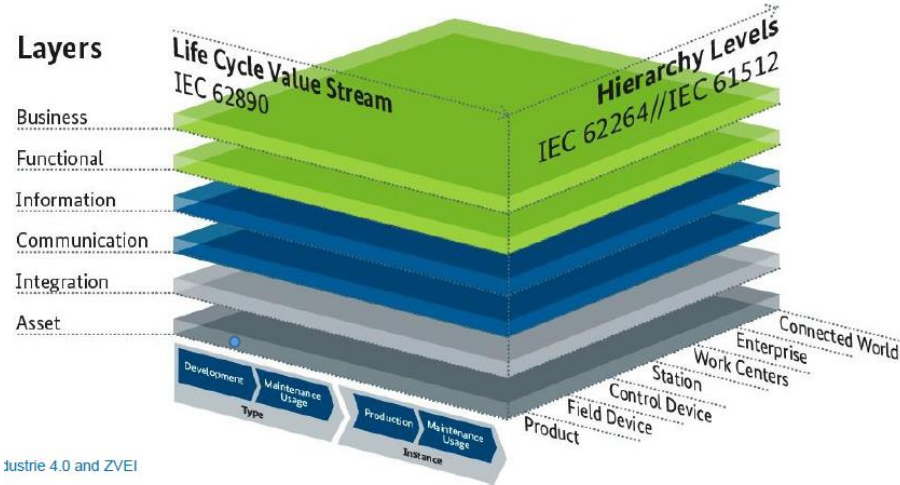


Main ISO/TC 184 activities for PCA

- WG 6 Oil and Gas Interoperability (OGI) (MIMOSA)
- SC4 Industrial Data
 - Improve ISO/TR 15926 Core RDL
 - Improvements from PCA RDL – RDL 2 (PCA)
 - Missing CFIHOS items (USPI)
 - Living Lab for triple store for reference data
 - Reference data for ISO 10303-239 & 242 (Aerospace, Defense and Automotive) and ISO 15926 (Oil, Gas, Process and Power) (PCA)
 - Core industrial data set of terms (PCA)
 - Common ontology for SC4
 - New standards
 - ILAP and ILAC (PCA)
 - ISO/TR 15926-14: *Data model adapted for OWL 2 Direct Semantics* (PCA)
 - ISO 15926-10: *Conformance testing* (USPI)
 - ISO/TS 15926-6 ed. 2: *Methodology for the development and validation of reference data* (USPI)
 - Geometry and Topology Ontology Efforts – Joint SC4 activity

PCA also participate in ISO/IEC JWG 21 Smart Manufacturing Reference Model(s)

Industry 4.0 RAMI Framework



Industry 4.0 and ZVEI

NIST Smart Manufacturing Ecosystem

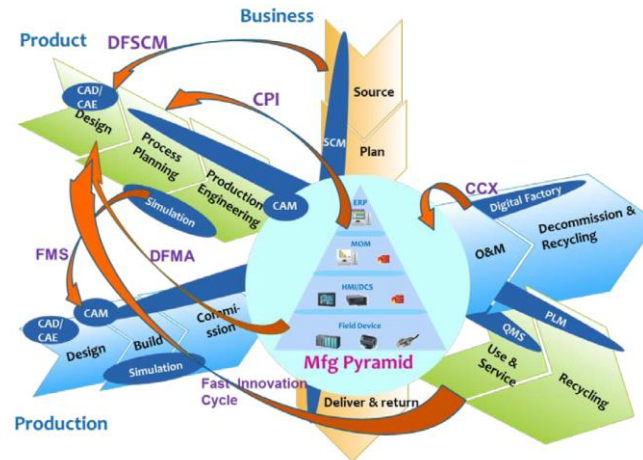


Figure 1. Smart Manufacturing Ecosystem

JWG 21 deliverables:

- An ISO/IEC Technical Report describing:
 - Objectives
 - Scope
 - Excising reference models
 - A meta modeling approach to harmonize models
- A reference model for smart manufacturing/production published as an ISO/IEC International Standard

Scandinavian Smart Industry Framework Relation to “RAMI” and “NIST”

Industry 4.0 RAMI Framework

NIST Smart Manufacturing Ecosystem

Scandinavian Smart Industry Framework (SSIF)

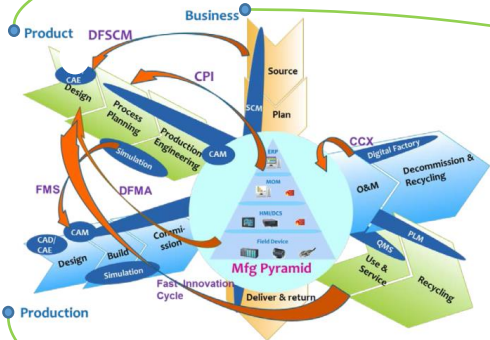
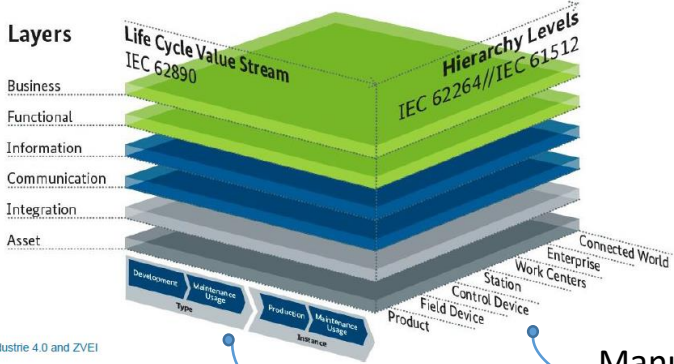
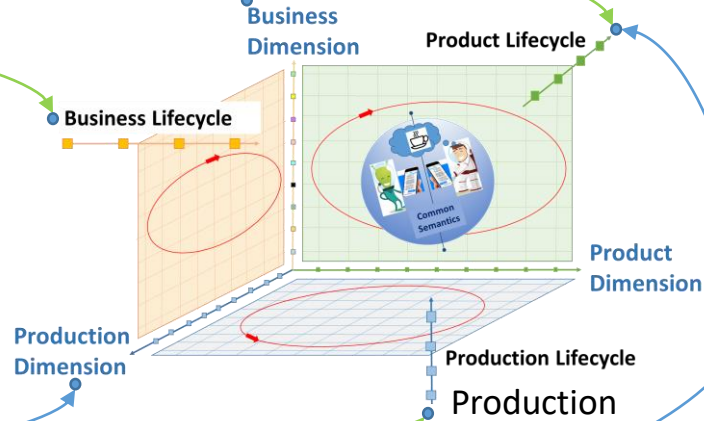
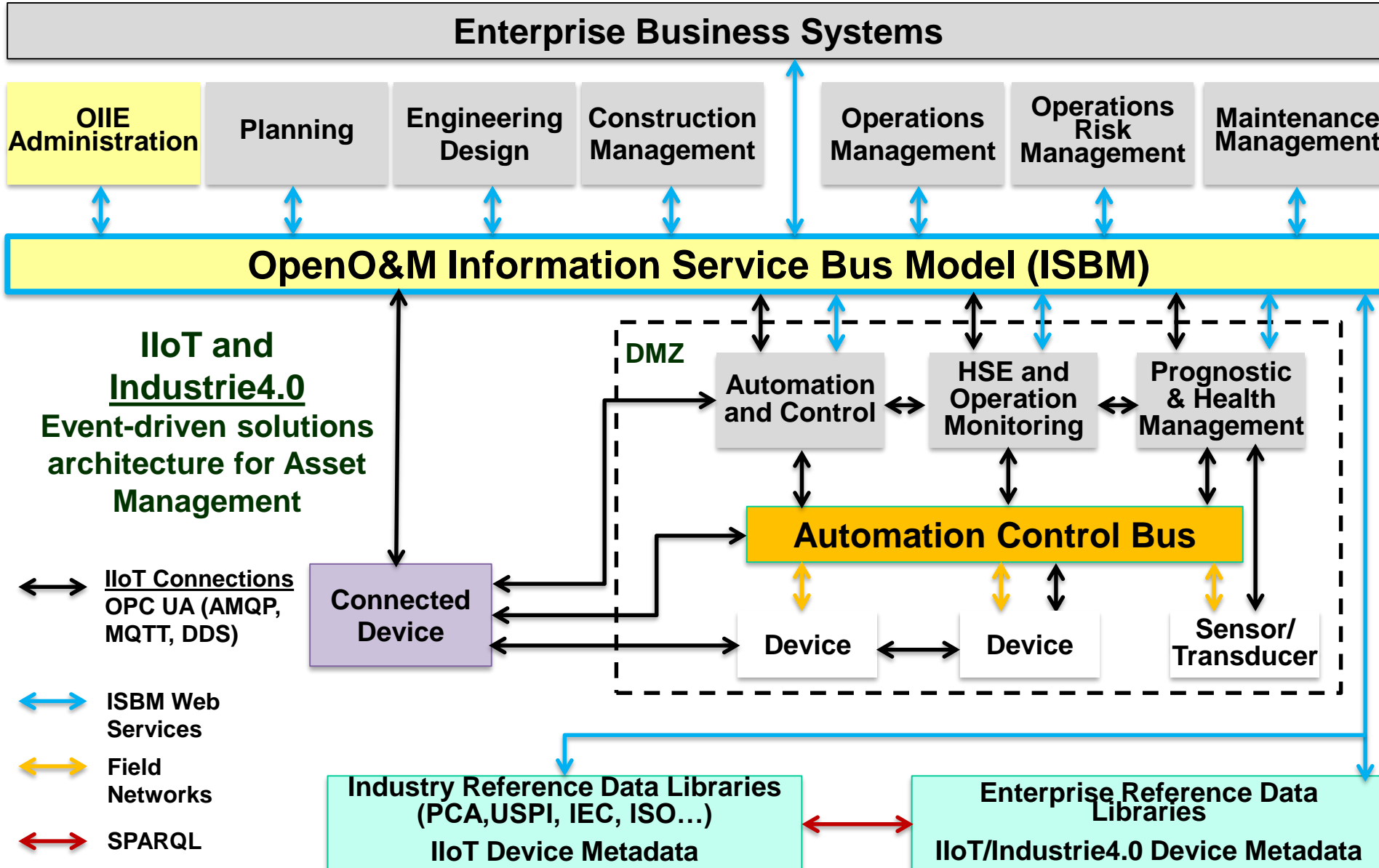


Figure 1. Smart Manufacturing Ecosystem



Manufacturing

OIIE Simplified Systems Connectivity and Services Architecture



Open Industrial Interoperability Ecosystem (OIIE) is defined by:

- Standard Use Cases
- Standard Events
- Standard Info Models
- Standard APIs
- Standard Administration

Opportunities for cooperation

- WG 6 Oil and Gas Interoperability (OGI)
 - ISO 18101 parts
 - Use Cases
 - Pilots
- Projects:
 - Mapping between ISDD and RDL 2 (“New IIMM” WG)
 - ILAC – Extending ILAP – integrating schedule, cost weight and estimation
 - ILAP – *Integrated Lifecycle Asset Planning* Ed.2

Thank you for your
attention