BP Interoperability Story – Ken Dunn – December 2018

IT&S

The BP strategy

Shift to gas and advantaged oil in the upstream

Invest in new large-scale gas projects, pursue quality oil projects in core basins and seek out new opportunities in selected regions.

Market-led growth in the downstream

Build competitively advantaged businesses in manufacturing and expand our marketing businesses.

Venturing and low carbon across multiple fronts

Pursue new ventures and partnerships to meet rapidly evolving technology, consumer and policy trends, and develop cross-business solutions to create new opportunities or strengthen our existing relationships.

Modernizing the whole group

Simplify and modernize so we can continue to compete and seize new opportunities with our partners and stakeholders in a changing world.

Journey to a Digital Business

Digitization – representing items digitally

Digitalization – process is digital

Digital Transformation – delivery fundamental change

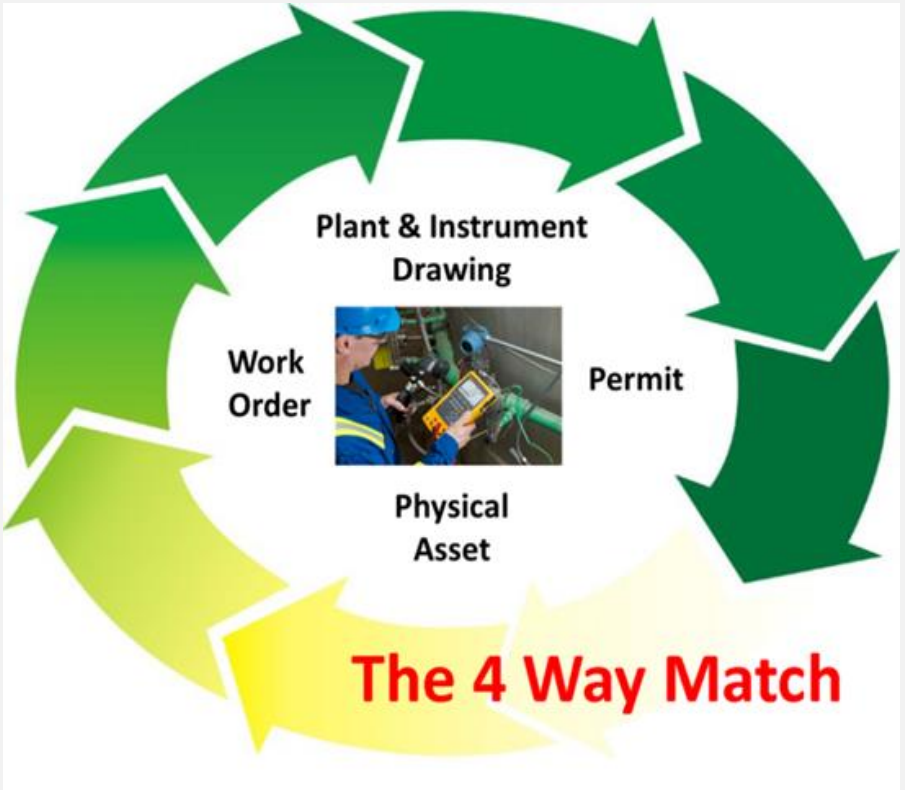
Interoperability – digital systems work seamlessly together

Interoperability Vision

- Plug and play for the exchange of asset and equipment information. No specific coding required, just registration and security setup.

- Definition: "Information need only be entered into electronic systems once, and then it is available to all stakeholders instantaneously through information technology networks on an as-needed basis." (Fiatech 2012).

Interoperability can help delivering asset integrity



Why

Consistent high-quality information about equipment is available

What

Engineering information, work management information and control of work systems are aligned to assets in the field

How

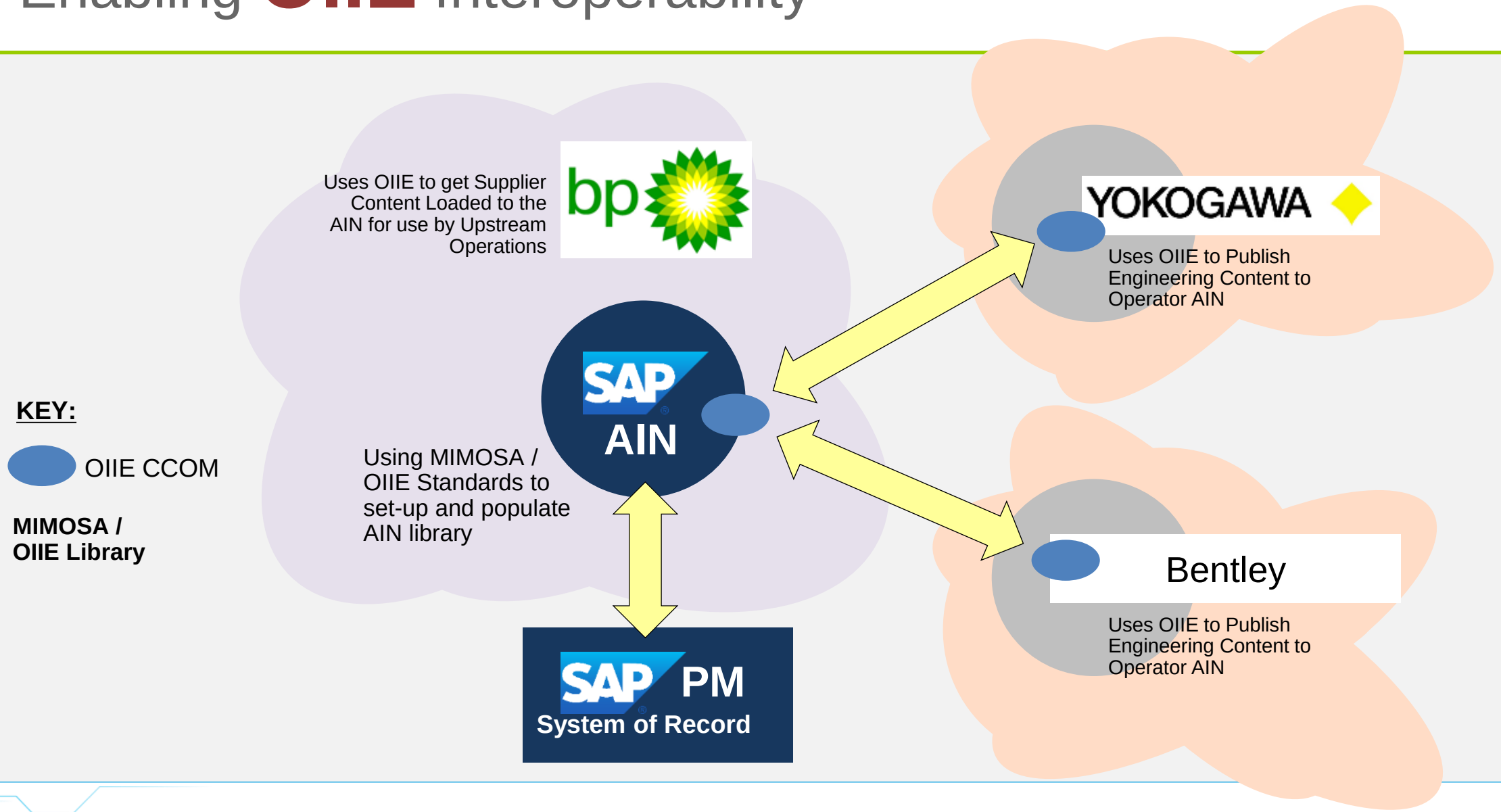
Tag and equipment data must be managed in systems that **fully interoperate** and synchronize systematically

Interoperability Challenges

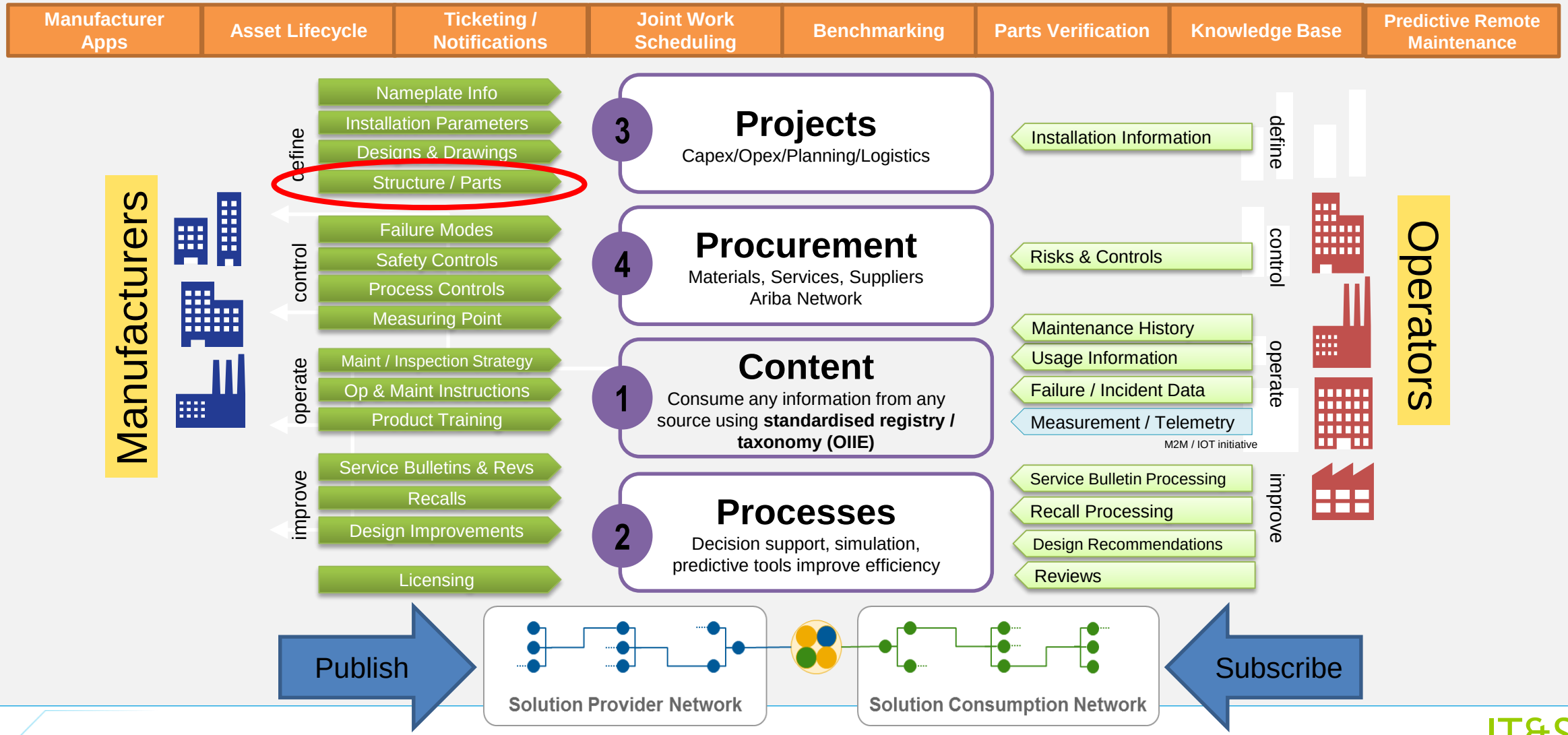
BP Interoperability Pathway

- The BP Interoperability Program will deliver integrity of asset information across a wide range of operations systems and partners
- Through collaboration with software vendors and other owner operators, drive the adoption of the **Open Industrial Interoperability Ecosystem (OIIE)** as the industry standard solution architecture
- Drive to production deployment as soon as possible through work in the **OGI Pilot** environment

Enabling **OIIE** Interoperability



SAP Asset Intelligence Network Enables Collaboration
Connects Design Manufacturers with Operating Companies



Next Steps

- Sponsor and drive the next phase of the OGI Pilot
- Work closely with Yokogawa, Bentley and SAP to ensure a workable solution out of OGI Pilot
- Develop the architecture for a production deployment
- Implement a “minimum viable product”

… BUT MORE IS REQUIRED

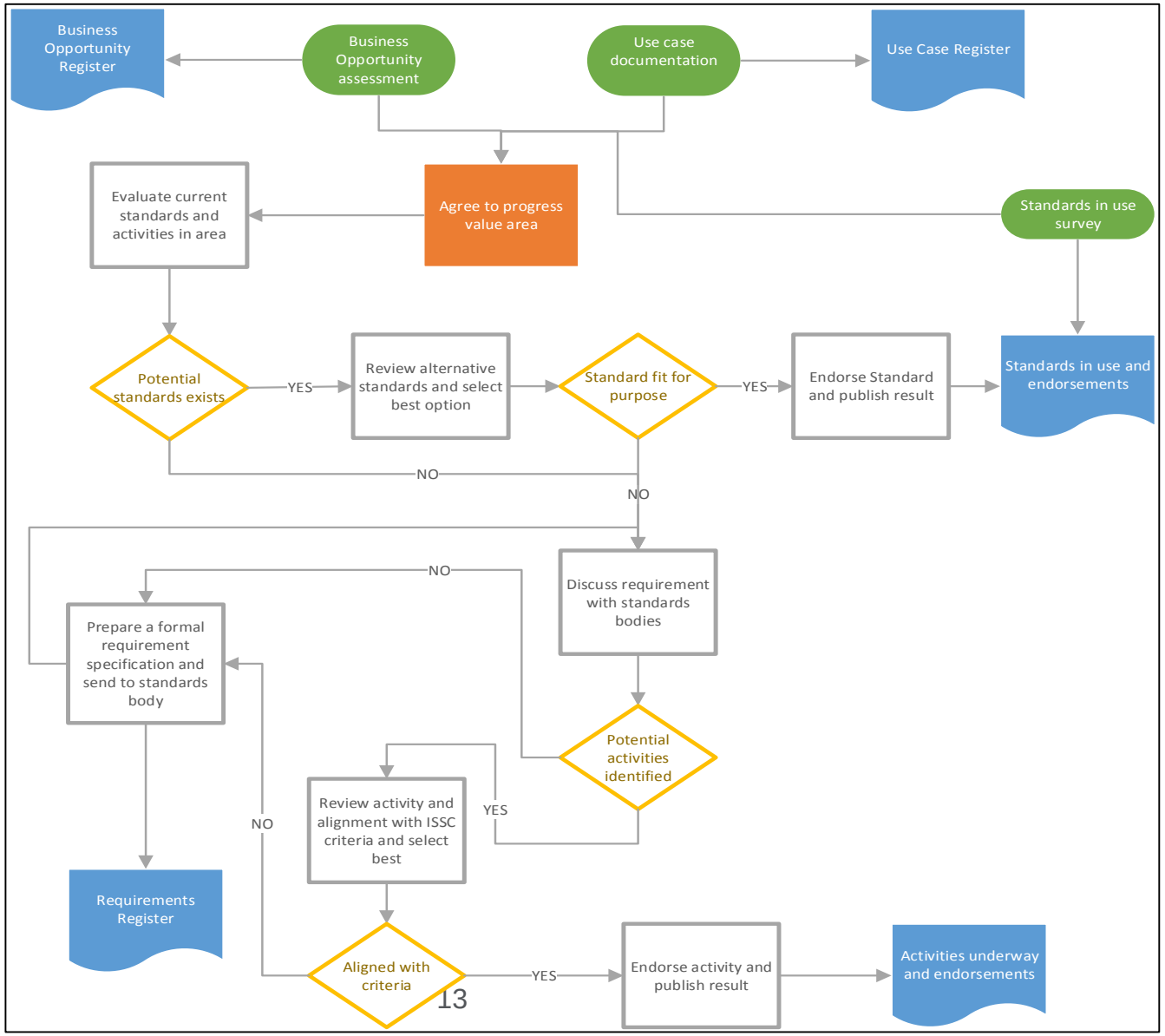
Driving Adoption of Standards

- There are too many overlapping information standards in the Oil and Gas industry, most of which are not broadly adopted
- The owner / operators have established a group to provide a unified voice of the industry on information standards and to help members adopt standards
- Group convened under the International Oil and Gas Producers (IOGP) organization
- The group is the **Information Standards Sub-Committee** (ISSC) and has been operating for 3 years

International Association of Oil & Gas Producers

ISSC Membership and Process

- BP
- Cepsa EP
- Chevron
- Eni
- Equinor
- Exxon Mobil
- North Oil Company
- PETRONAS
- Schlumberger
- Shell
- Suncor
- Total
- Woodside



International Association of Oil & Gas Producers

ISSC Objectives

1. Help to establish the fundamentals for a low cost digital business model for the O&G industry, by identifying a consistent and current set of operators preferred **Information Standards** for documents and data in the Upstream space. The initial focus will be on physical asset.

2. Define a portfolio of required information standards to accomplish efficient and effective digitalization and information exchange across the industry.

3. Act as a common voice of Oil and Gas Operators toward information standards development organizations globally, driving cooperation and avoiding duplication of activities.

International Association of Oil & Gas Producers

Backup Slides

Terminology

Digitization can be defined as creating digital versions of previously analog or physical items. An example would be creating a digital work order that was previously a paper work order. This is really the beginning step for an asset management company

Digitalization on the other hand, is the use of digital technologies to change a business model and provide new ways and opportunities of doing business; For example, utilizing data from the digital work order you produced via digitization to improve Digitalization is essentially a transformation within a company that utilizes digital technologies and data to improve the way

Digital transformation is a more holistic view, in that it not only focuses on digitizing and digitalizing, but also focuses on how to implement these changes throughout an organization. It engages the entire company and the people that make up the the data that are part of the company.

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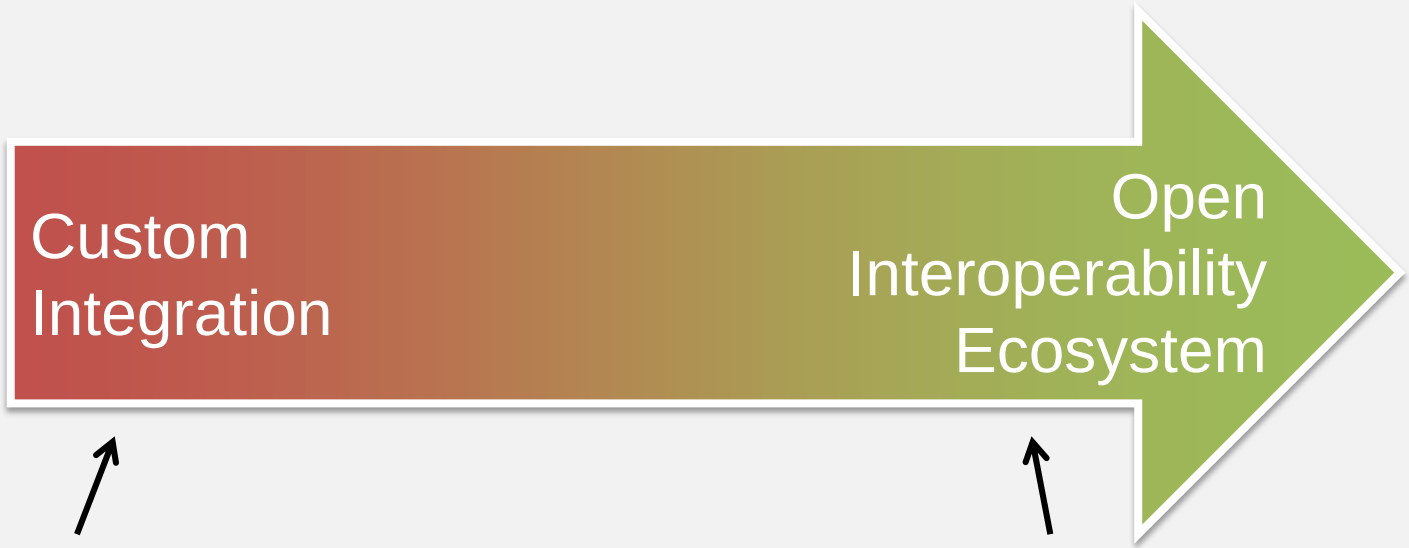
Information Standards Components

- To achieve SBII a set of compatible information standards are required operating at many different levels. For this discussion the following key components are considered:
- **Information Object Model** – this underpins all message definitions. It is converted into an XML schema, term store or other data payload definition.

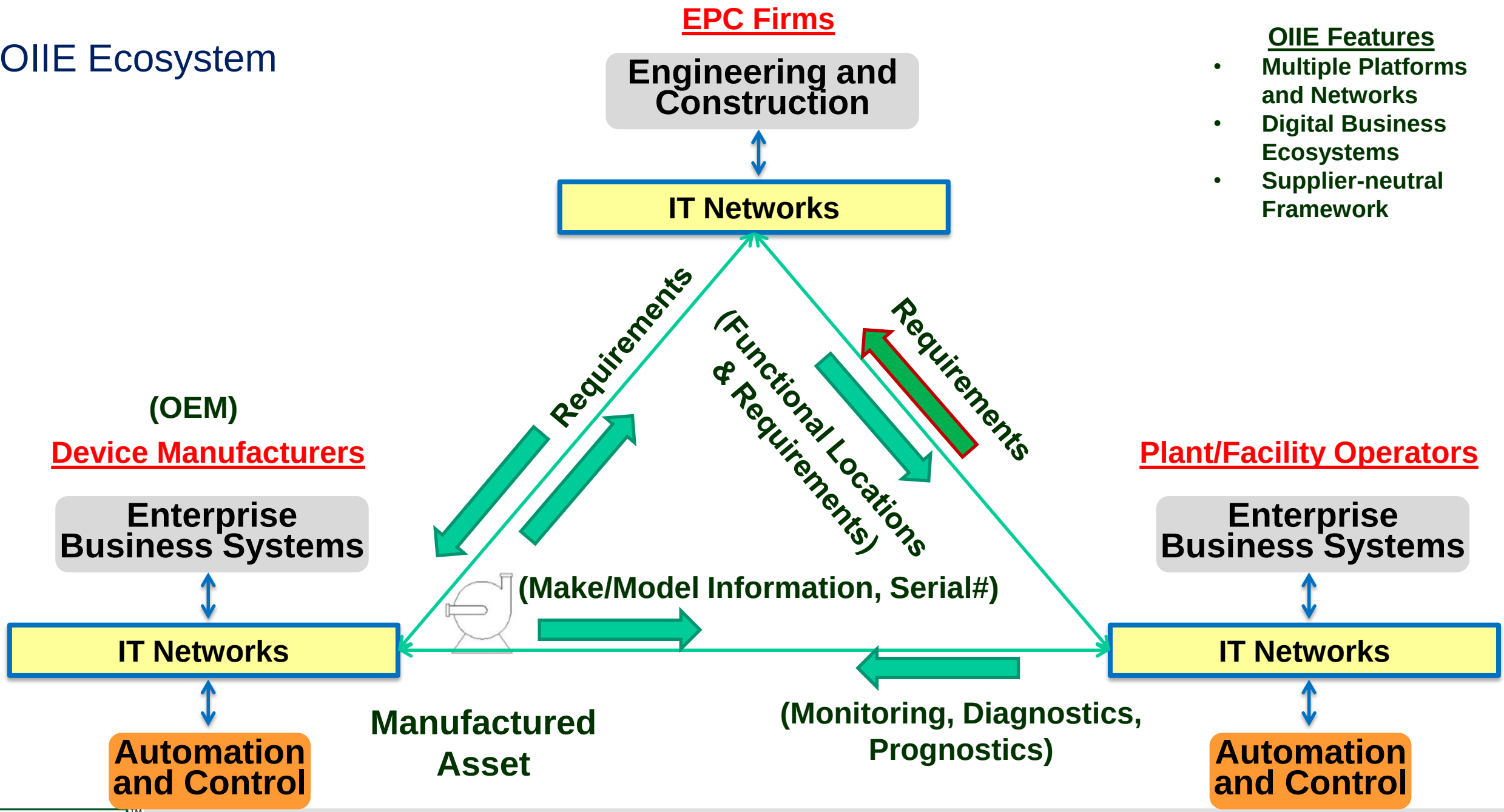
Transforming the Oil and Gas Industry



Custom development
Specific data adapters
Owner/operator responsible
for sustainment

Configuration rather than development
Based on well defined standards
Suppliers responsible for sustainment

OIIE Ecosystem

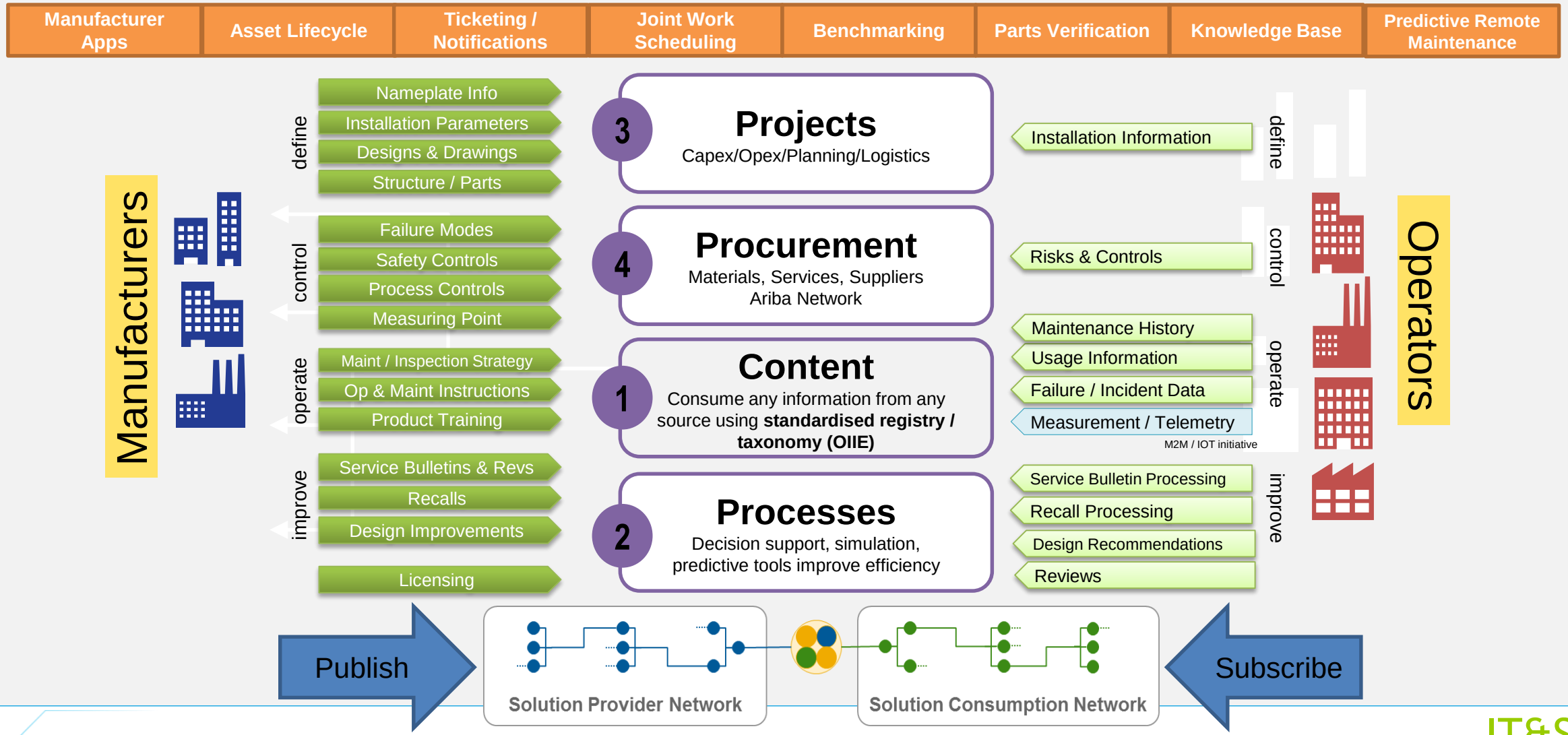


OIIE Features

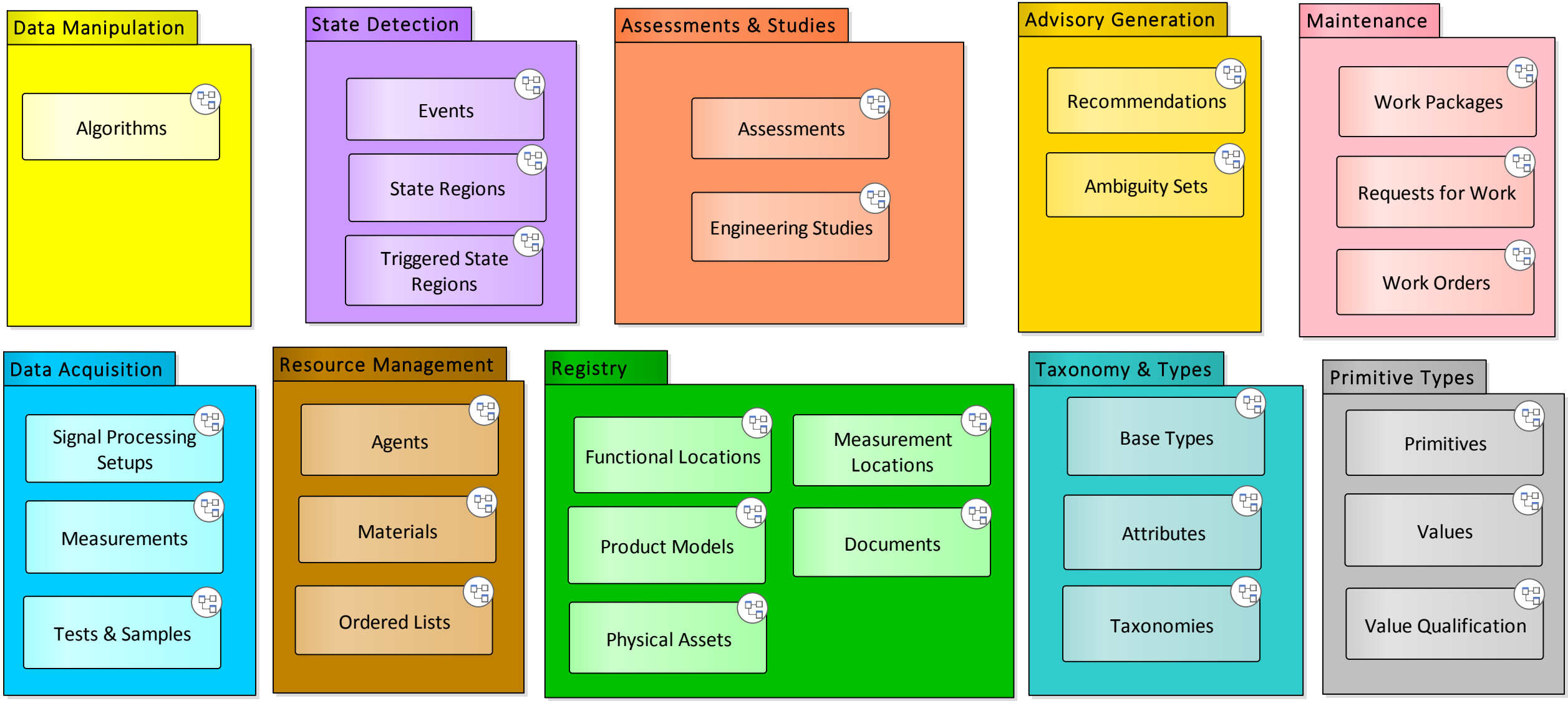
- Multiple Platforms and Networks
- Digital Business Ecosystems
- Supplier-neutral Framework

MIMOSA™

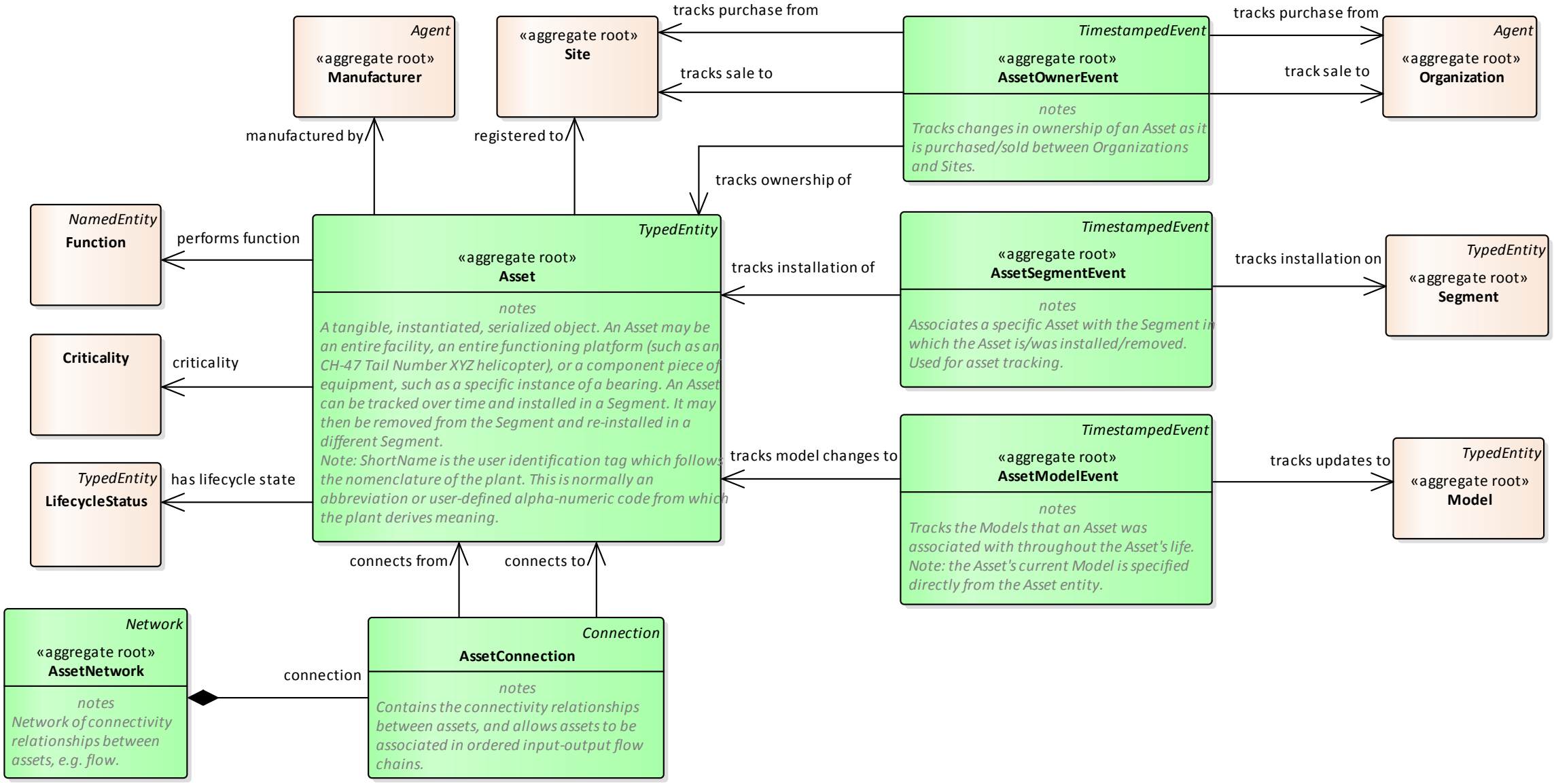
SAP Asset Intelligence Network Enables Collaboration
Connects Design Manufacturers with Operating Companies



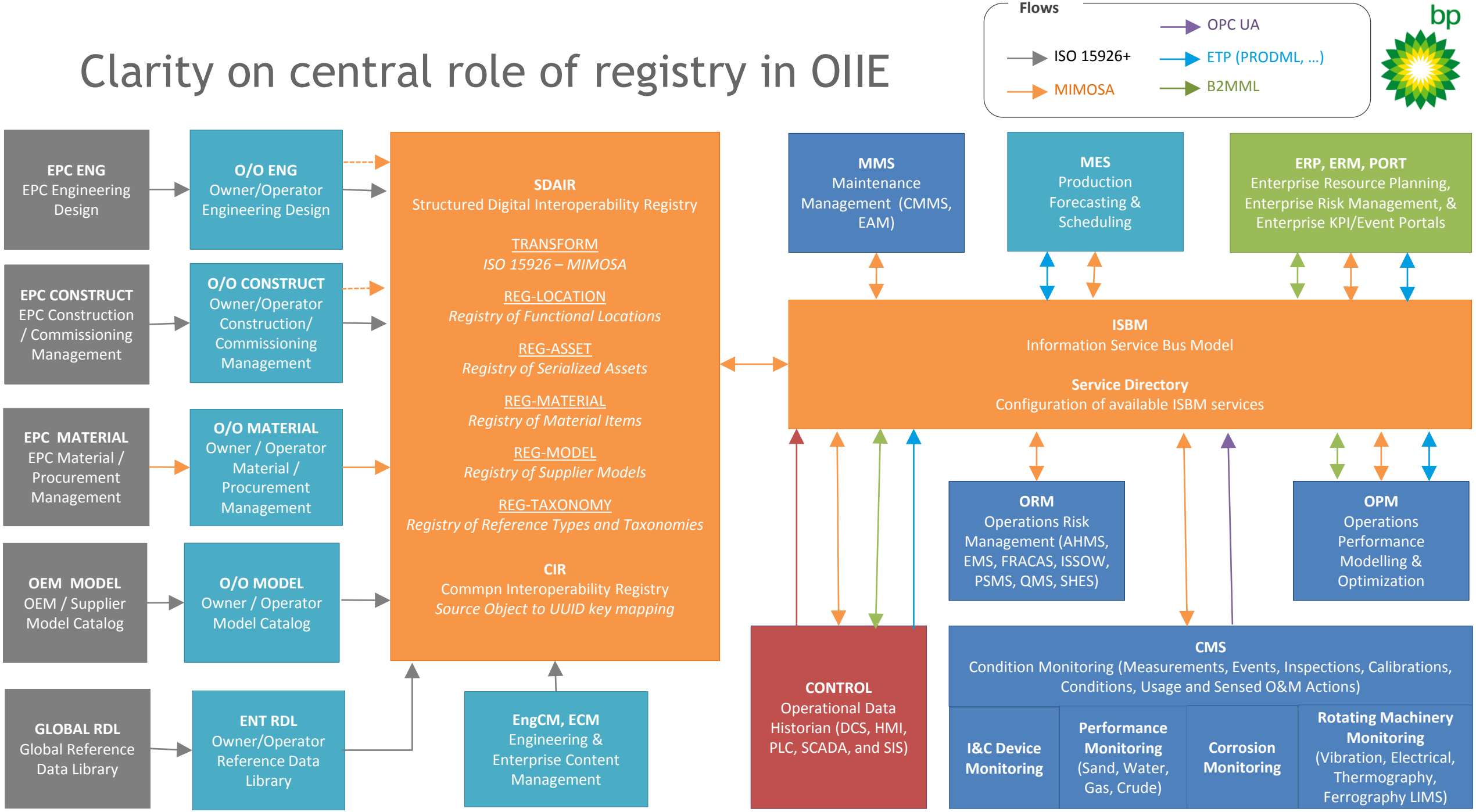
CCOM model scope and subject areas



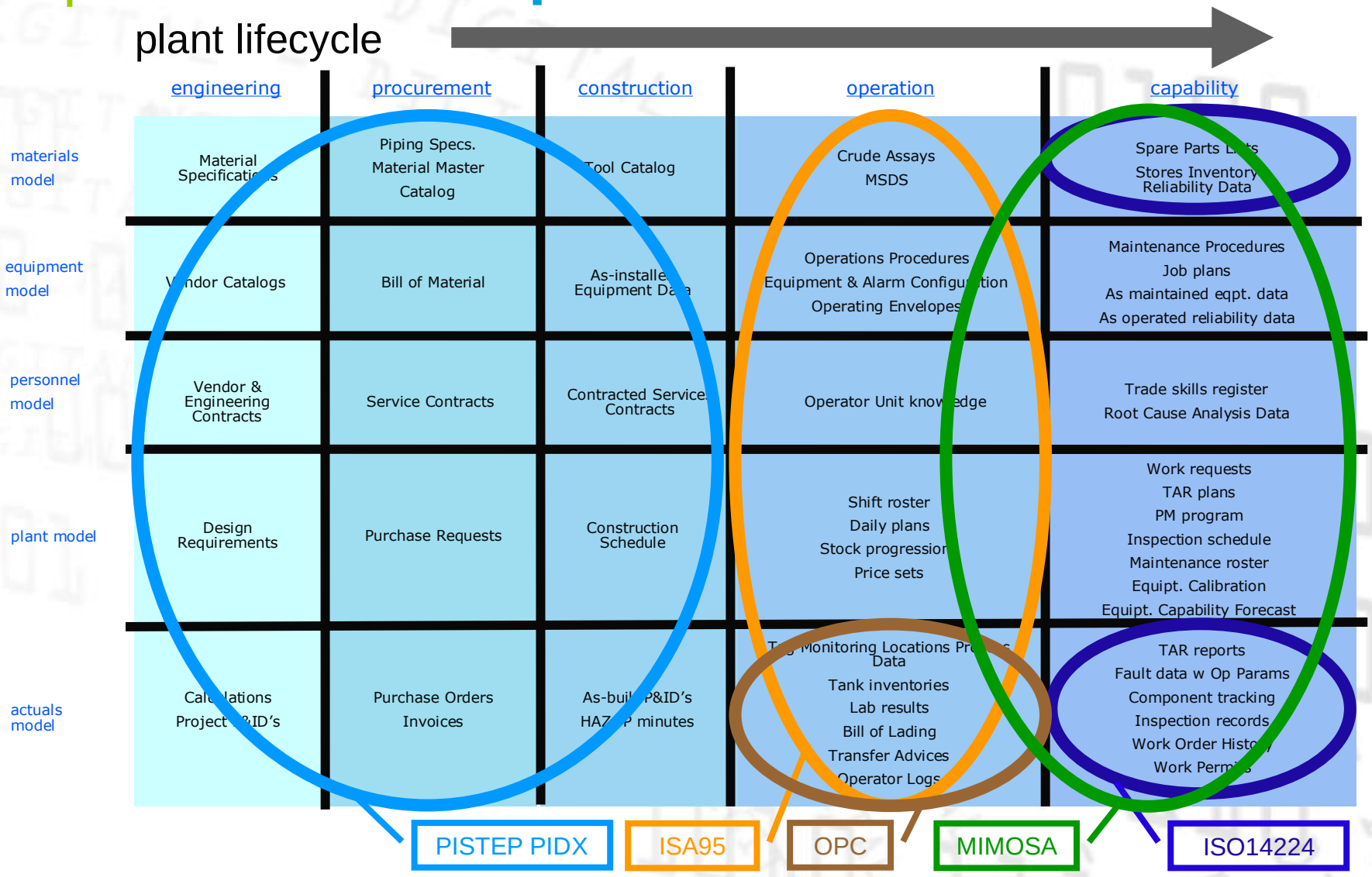
CCOM Simplified conceptual model



Clarity on central role of registry in OIIE

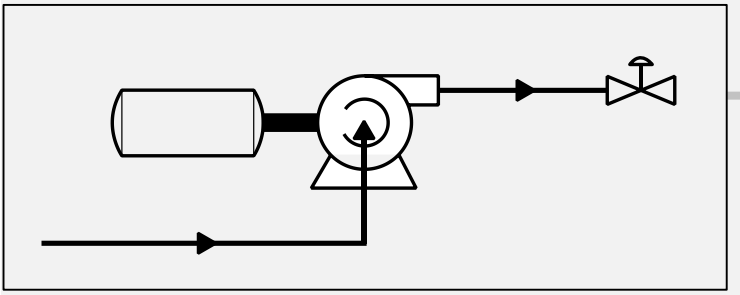


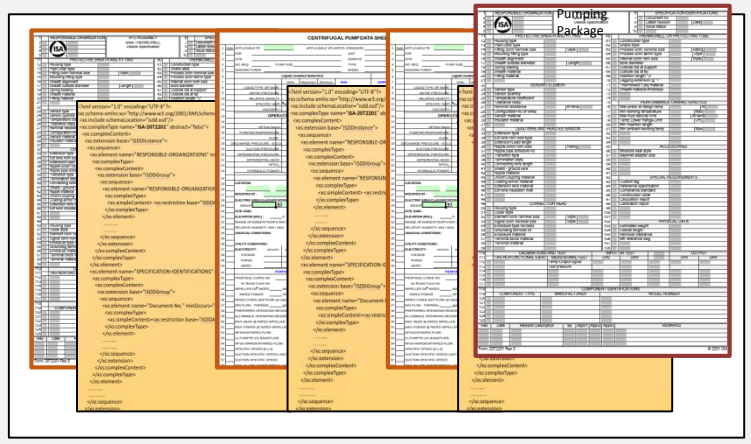
bp data model map



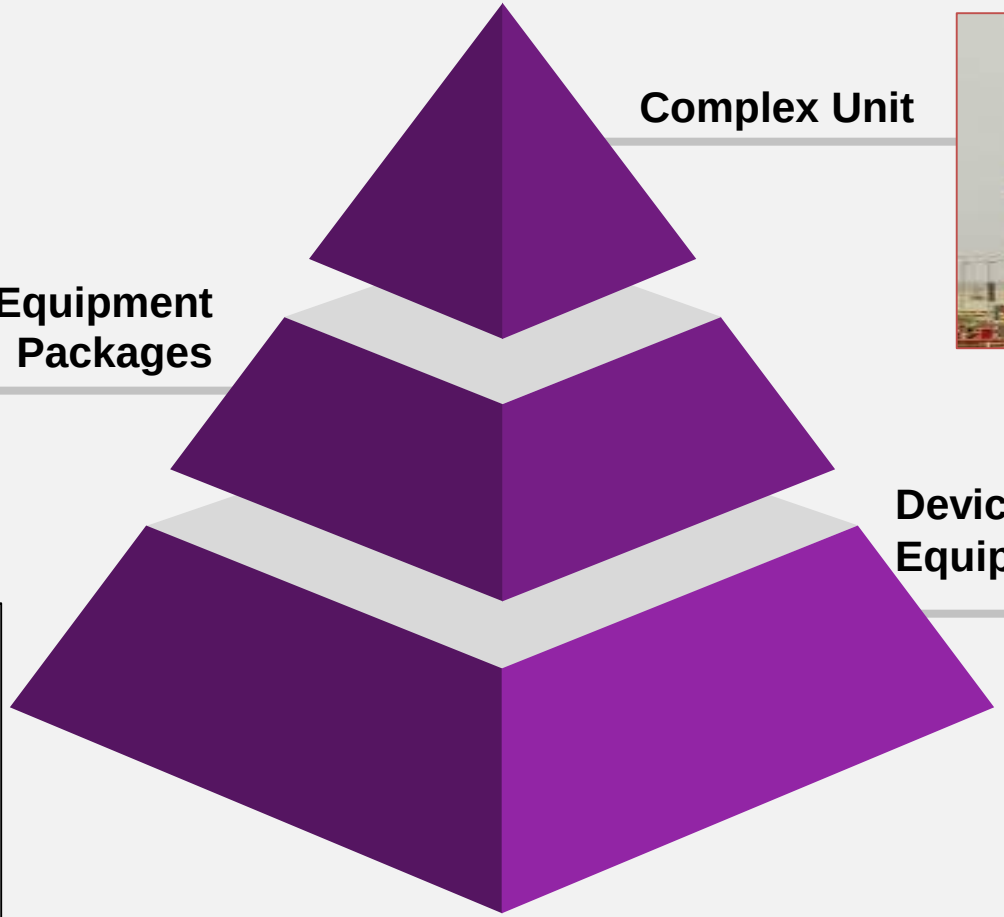
© Chevron 2007

Package ISDDs: The Bigger Picture



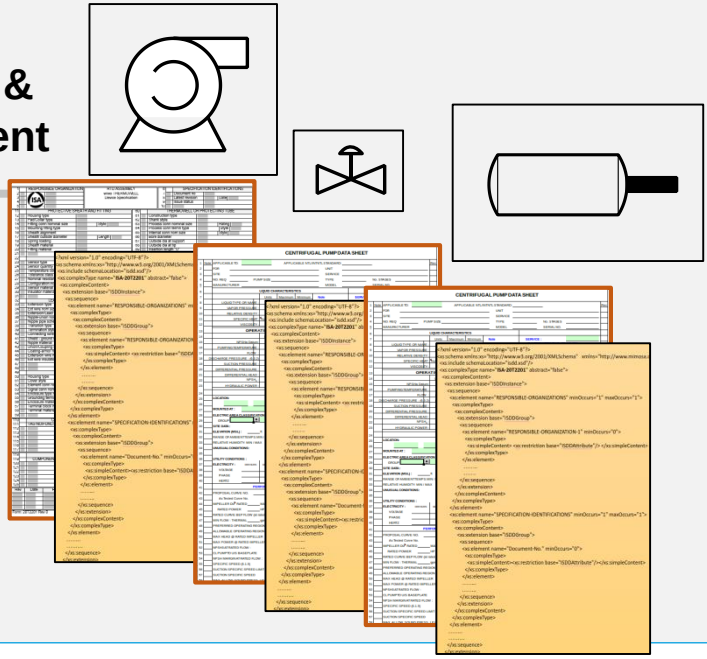


Equipment Packages



Complex Unit

Devices & Equipment



Standardised ISDD Group for Package

ISDDs for Devices & Equipment

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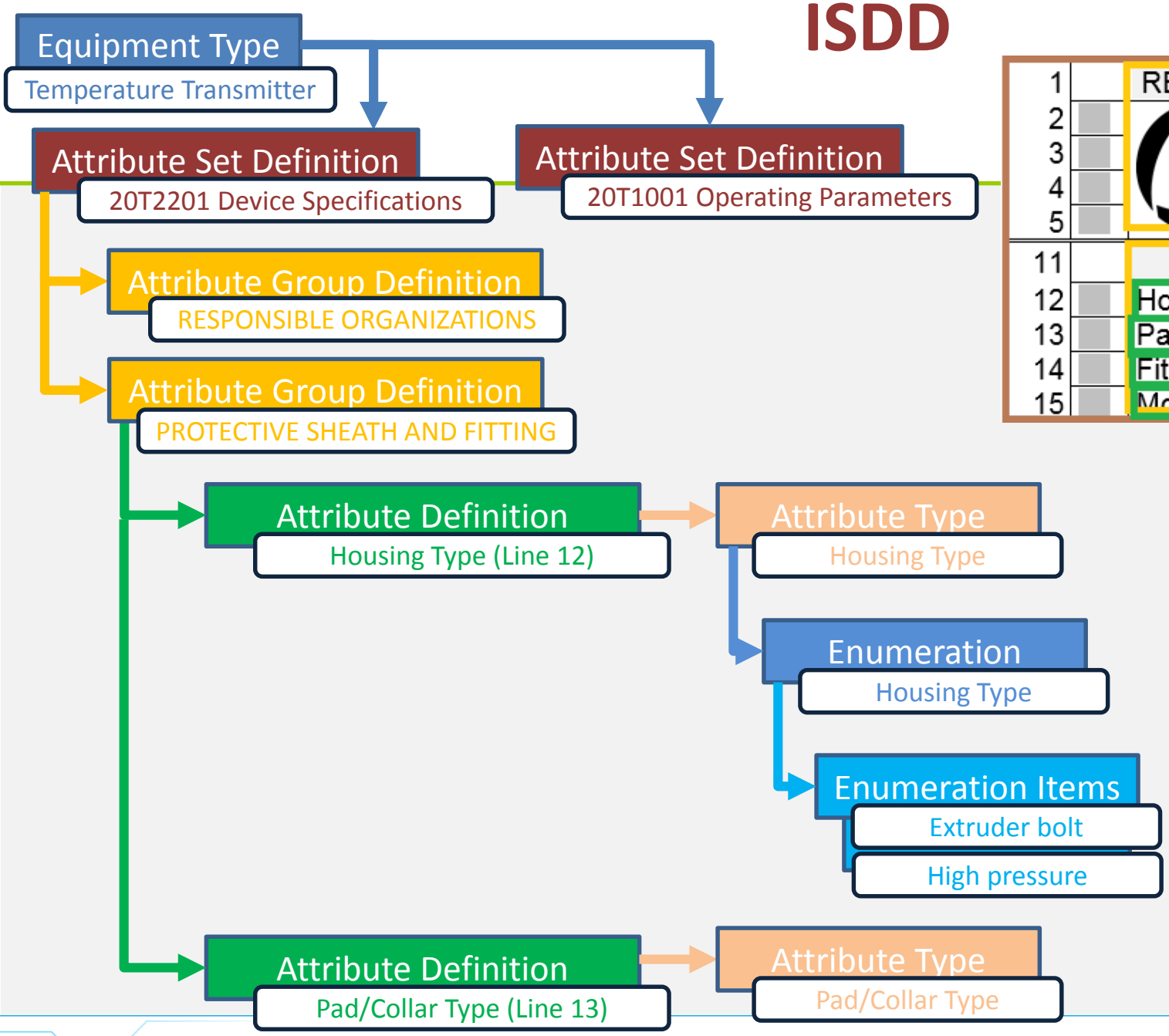
ISDD



ISA 20T2201 Datasheet

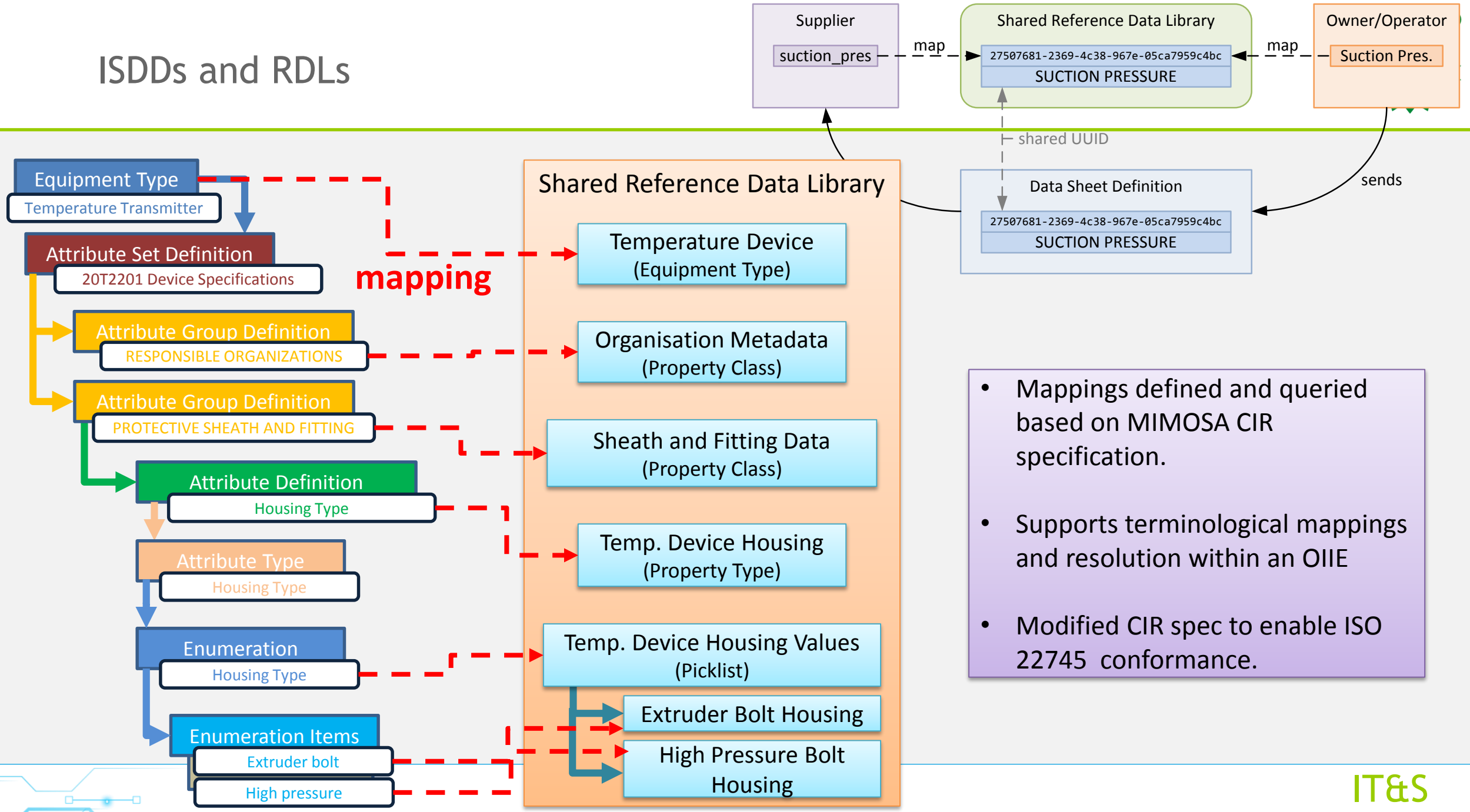
bp

1		RESPONSIBLE ORGANIZATION	RTD ASSEMBLY w/wo THERMOWELL Device Specification
2		ISA	
3			
4			
5			
11		PROTECTIVE SHEATH AND FITTING	
12		Housing type	
13		Pad/Collar type	
14		Fitting conn nominal size	Style
15		Mounting fitting type	

ISA 20T2201 Picklist

Line No	Field Prompt	Pick List Data
011	PROTECTIVE SHEATH AND FITTING	SECTION TITLE
012	Housing type	extruder bolt
012	Housing type	high pressure
012	Housing type	overbraided
012	Housing type	pad design
012	Housing type	tubular
012	Housing type	tubular,reduced tip
013	Pad/Collar type	1 3/4x1 3/4 flat parallel
013	Pad/Collar type	1/4 in x 1 1/4 in
013	Pad/Collar type	1x1 flat parallel
013	Pad/Collar type	1x1 flat perpendicular
013	Pad/Collar type	1x1 formed parallel
013	Pad/Collar type	1x1 pad w/cover
013	Pad/Collar type	3/4x3/4 flat parallel
013	Pad/Collar type	3/8 in x 1 in
013	Pad/Collar type	NA

ISDDs and RDLs



- Mappings defined and queried based on MIMOSA CIR specification.
- Supports terminological mappings and resolution within an OIIE
- Modified CIR spec to enable ISO 22745 conformance.

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