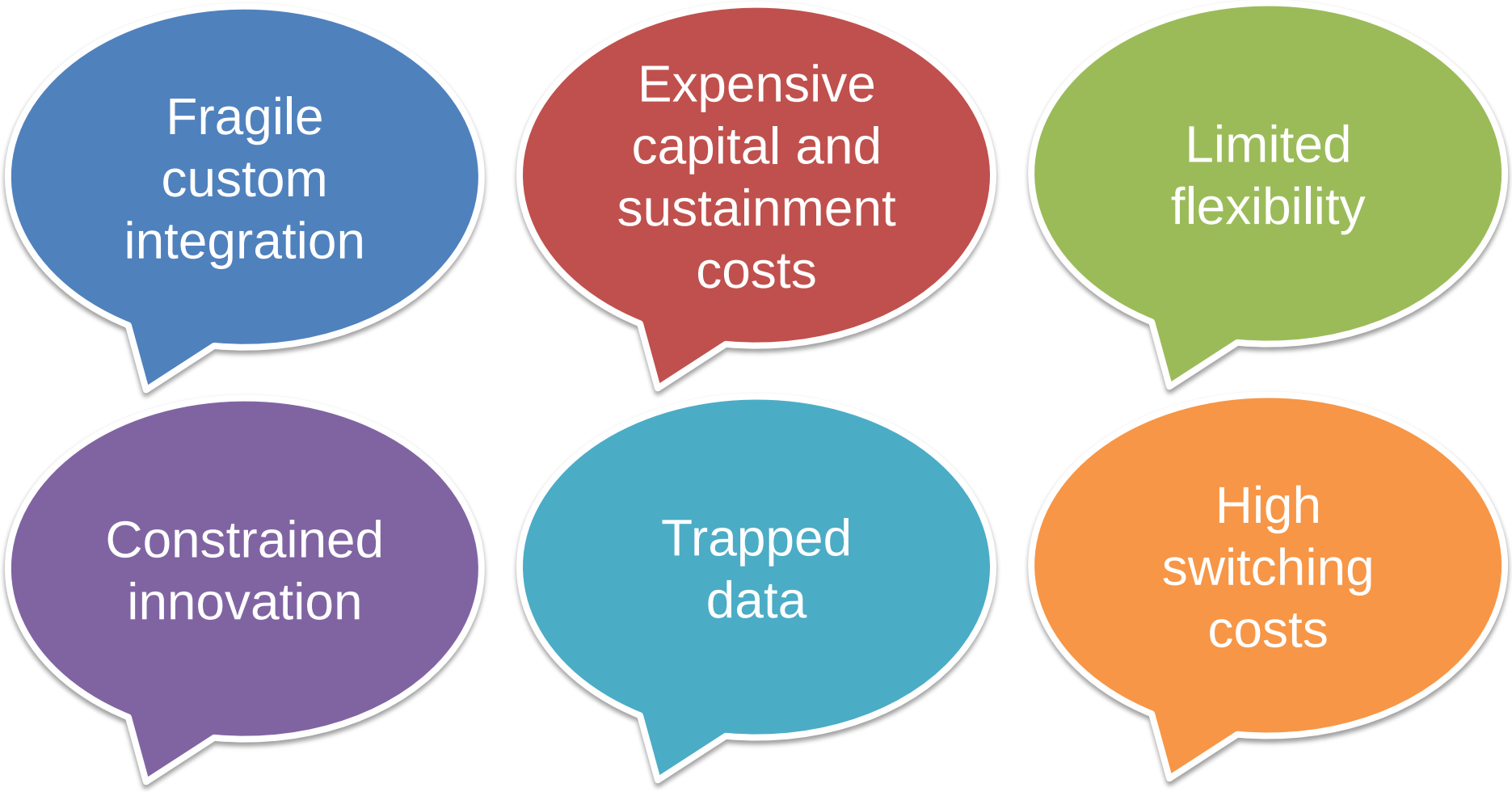
An Operations and Maintenance
Information Open System Alliance

The Oil and Gas Interoperability (OGI) Pilot: Technology Report

Today's Problems

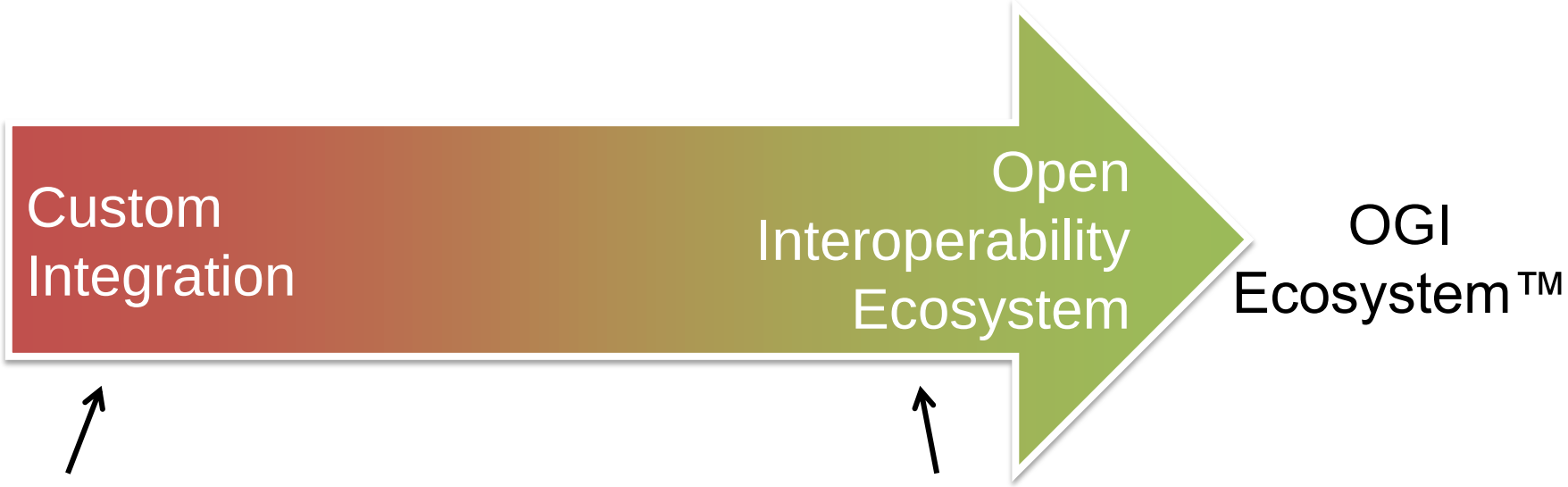


Transforming the Oil and Gas Industry Solutions Model

Interoperability

- IEEE: The capability…
  - of two or more systems or elements to exchange information and to use the information that has been exchanged.
  - for units of equipment to work together to do useful functions.
  - that enables heterogeneous equipment, generally built by various vendors, to work together in a network environment.
  - of two or more systems or components to exchange information in a heterogeneous network and use that information.
- SEI: The ability of a set of communicating entities to…
  - exchange specified state data
  - operate on that state data according to specified, agreed-upon, operational semantics

Transforming the Oil and Gas Industry Solutions Model



Custom development
Specific data adapters
Owner/operator responsible for sustainment

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

OGI Principles

OGI Solutions Process™

- Industry requirements-driven solution methodology
- All working documents and results openly published on the MIMOSA website

OGI Pilot

- Public piloting and assessment
- Focus on COTS products

OGI Ecosystem

- Based on supplier-neutral international and industry standards incorporated by reference
- “Fully dressed” use cases
- Semantics, objects, event-driven architecture


amec
AVEVA
Assetricity
Bentley
bp
Chevron
Fiatech
IBM
INTERGRAPH
Microsoft
MIMOSA
NOUMENON CONSULTING LIMITED
OSIsoft
POSC Caesar Association
Rockwell Automation
SOUTHERN COMPANY
University of South Australia
WorleyParsons

Purdue Enterprise Reference Architecture

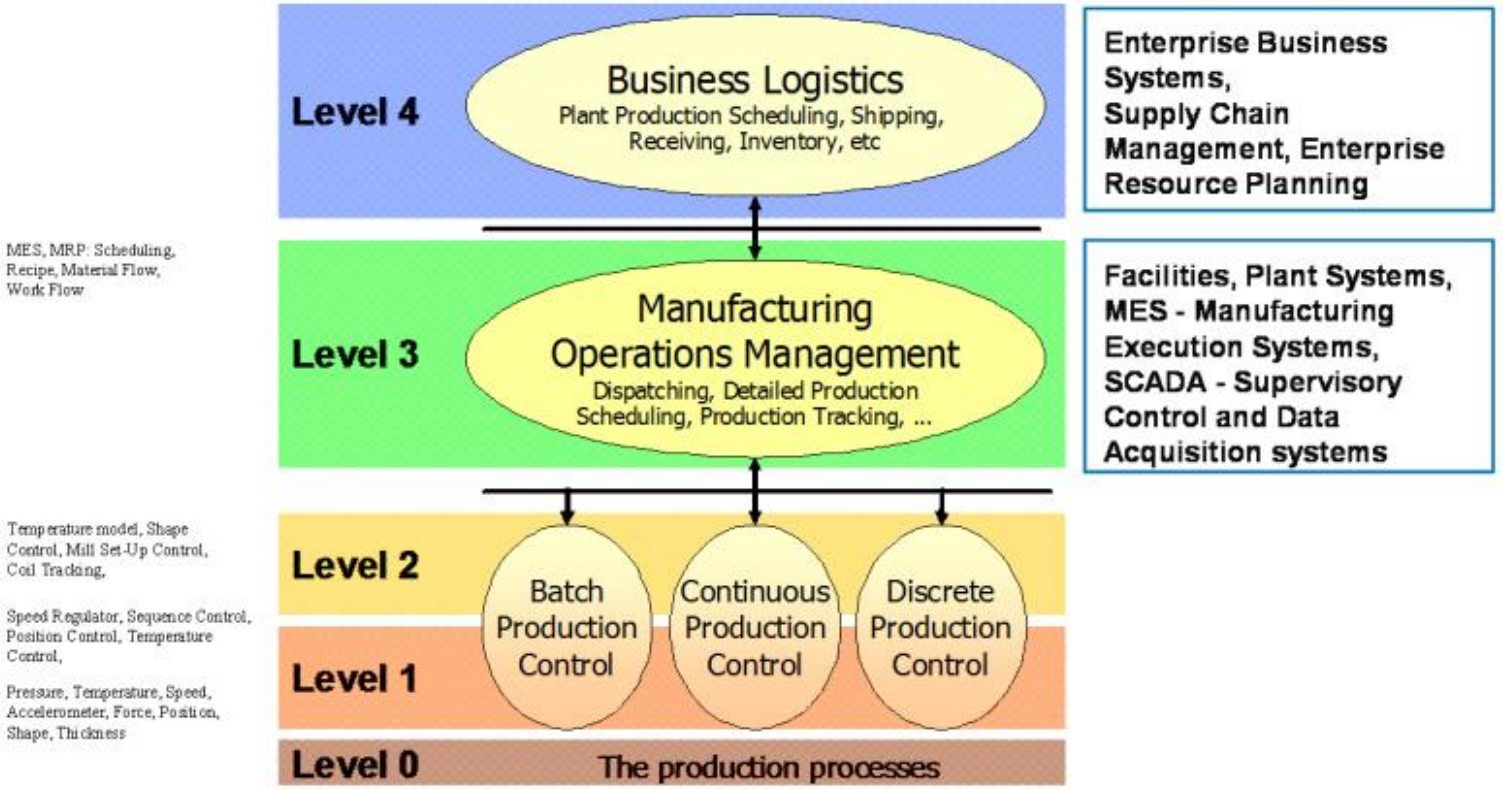
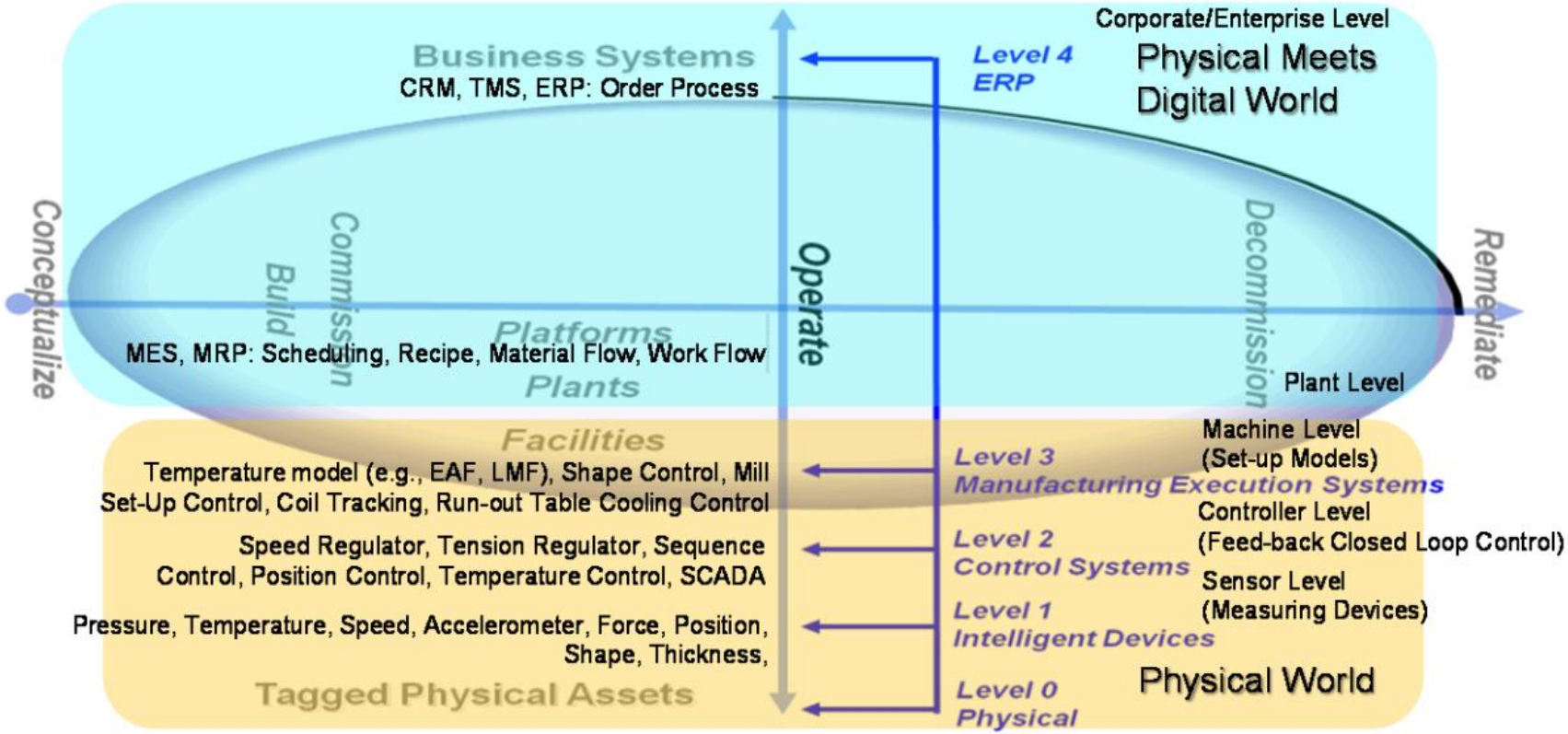
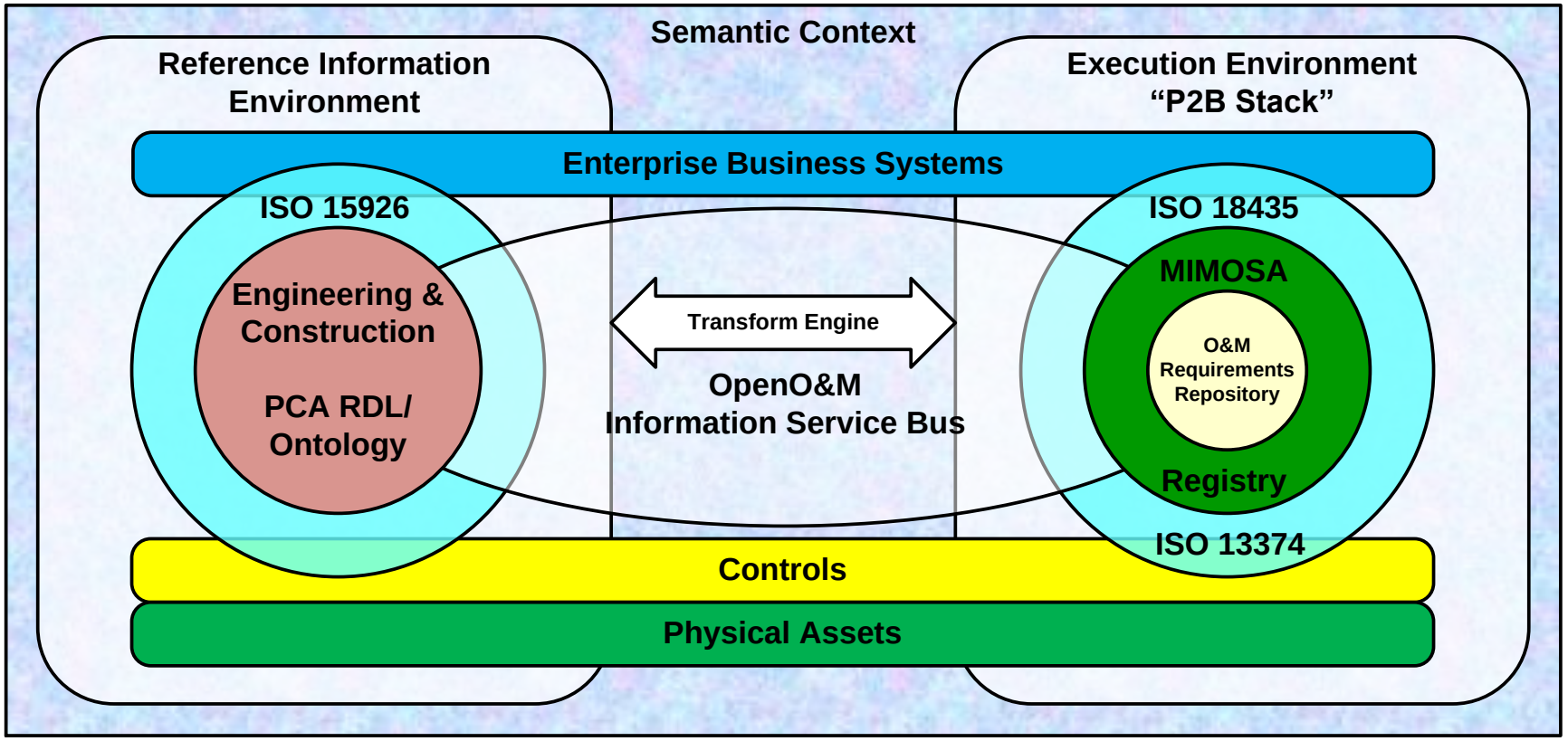


Figure 2.8: The Purdue Enterprise Reference Architecture (PERA)

Digital Asset Lifecycle PERA Model



Context for Collaboration



PCA-MIMOSA Reference Architecture – Technology Configuration

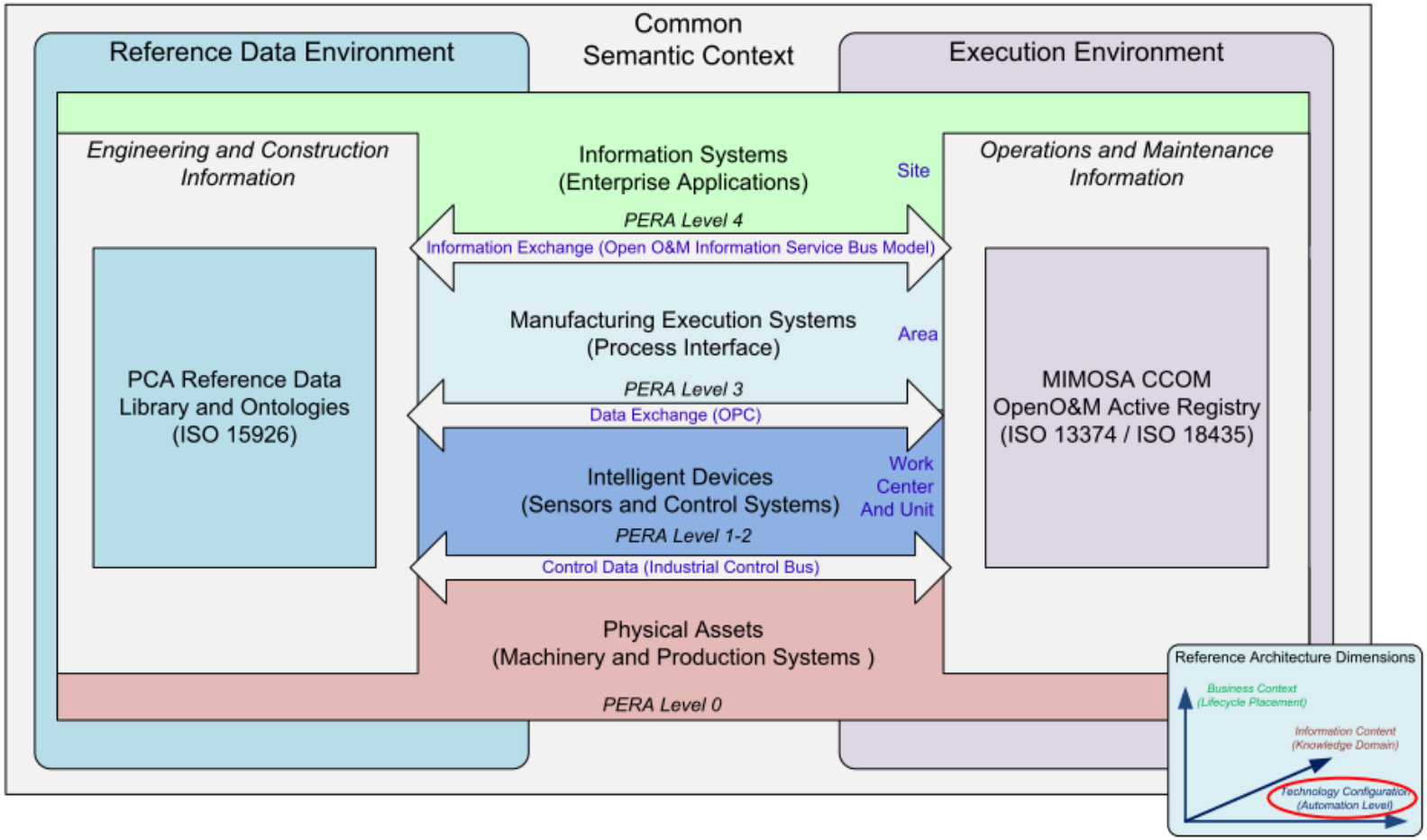


Figure 2.9: Technology Configuration in the PCA-MIMOSA Reference Architecture Framework

PCA-MIMOSA Reference Information Technology Stack

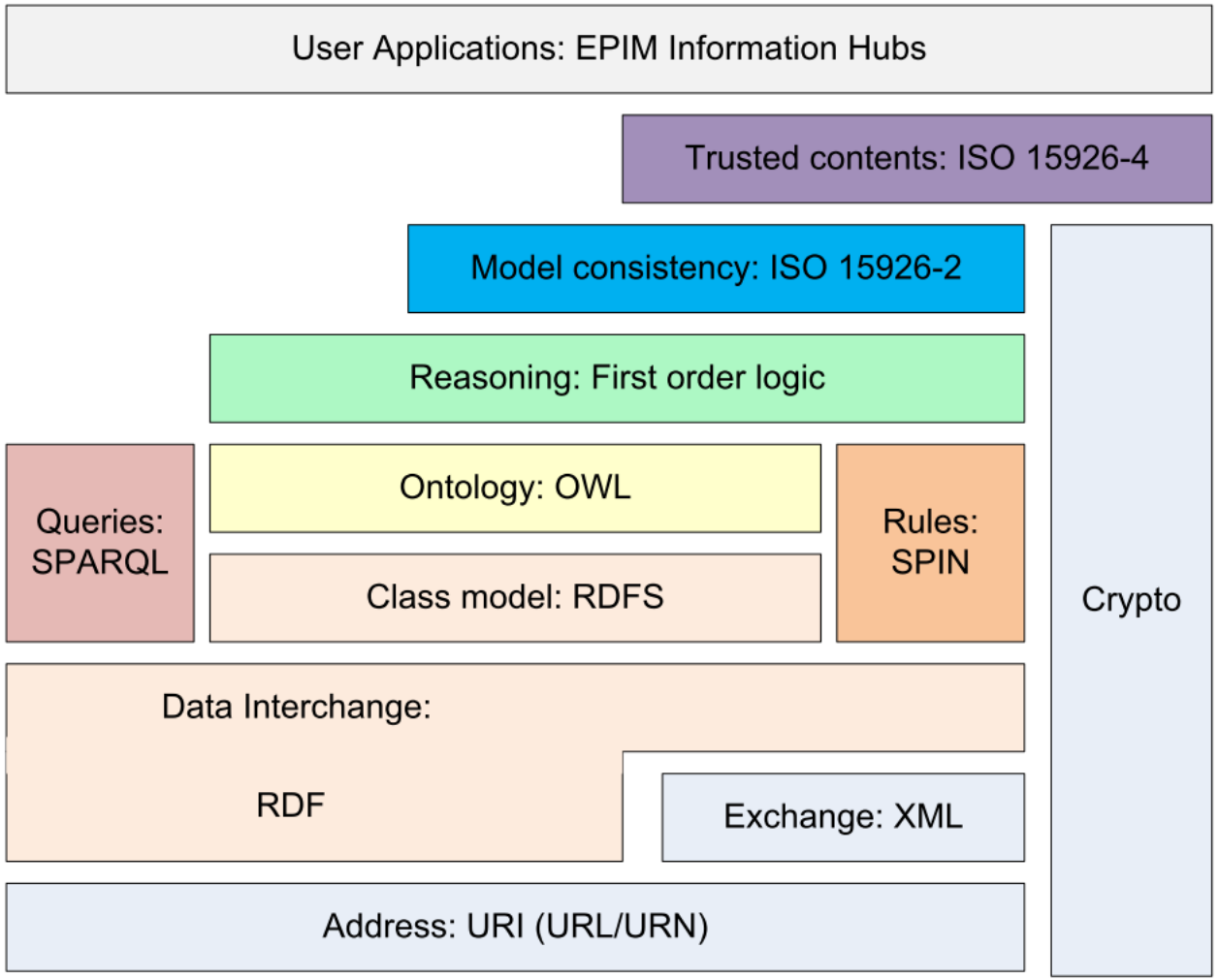


Figure 3.11: The PCA-MIMOSA Reference Information Technology Stack

PCA-MIMOSA Execution Environment Technology Stack

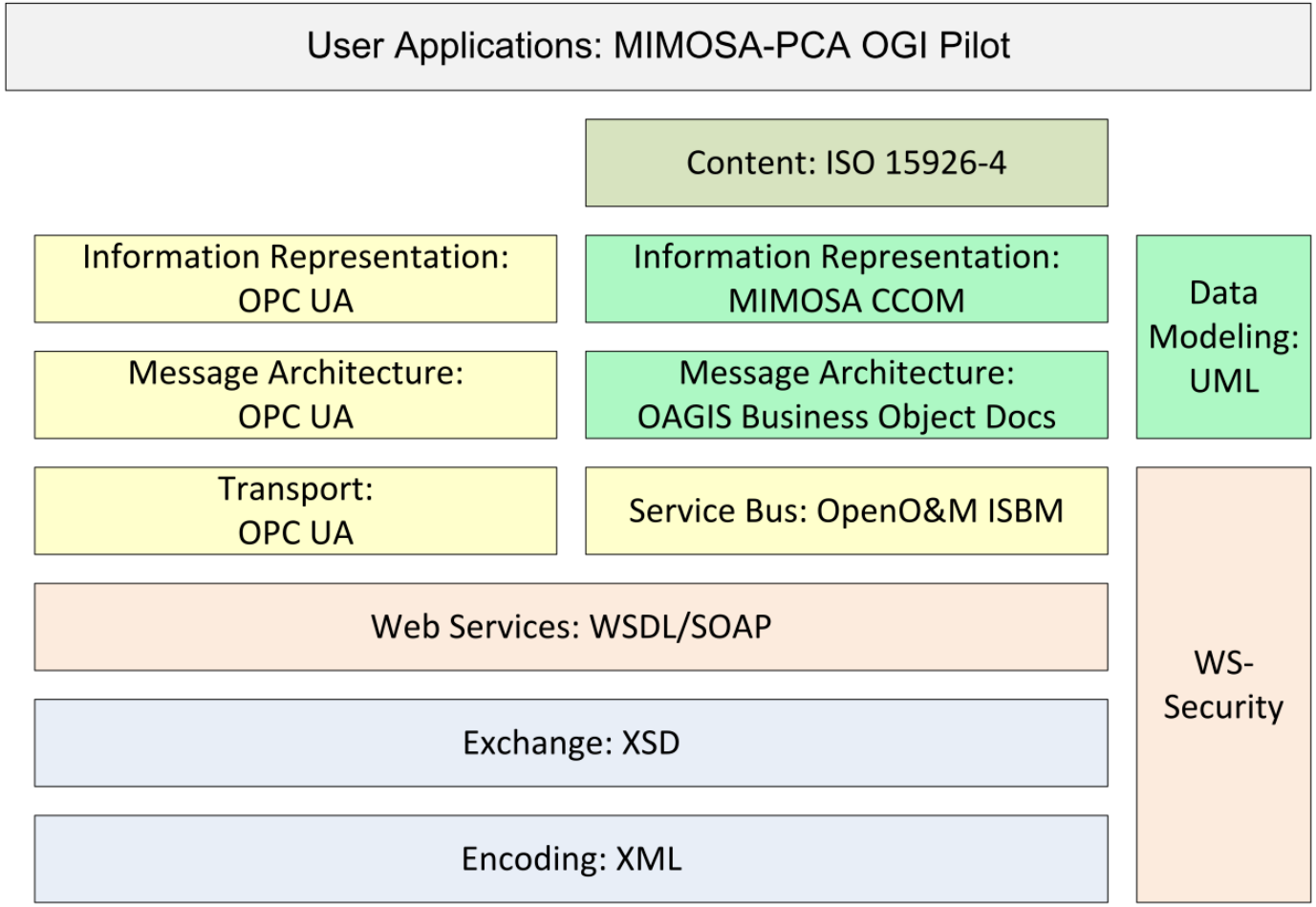
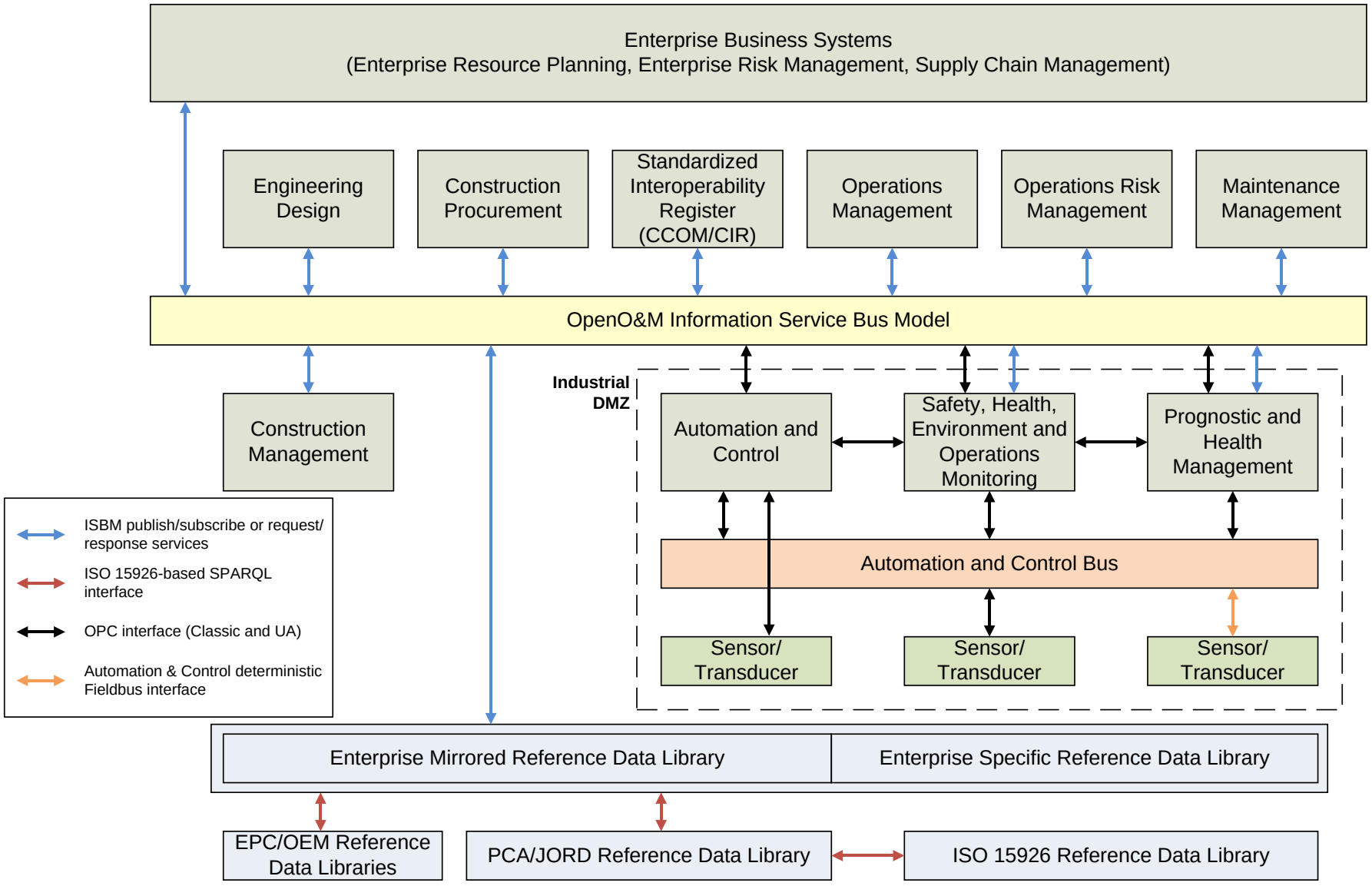


Figure 3.12: The MIMOSA-PCA Execution Environment Technology Stack

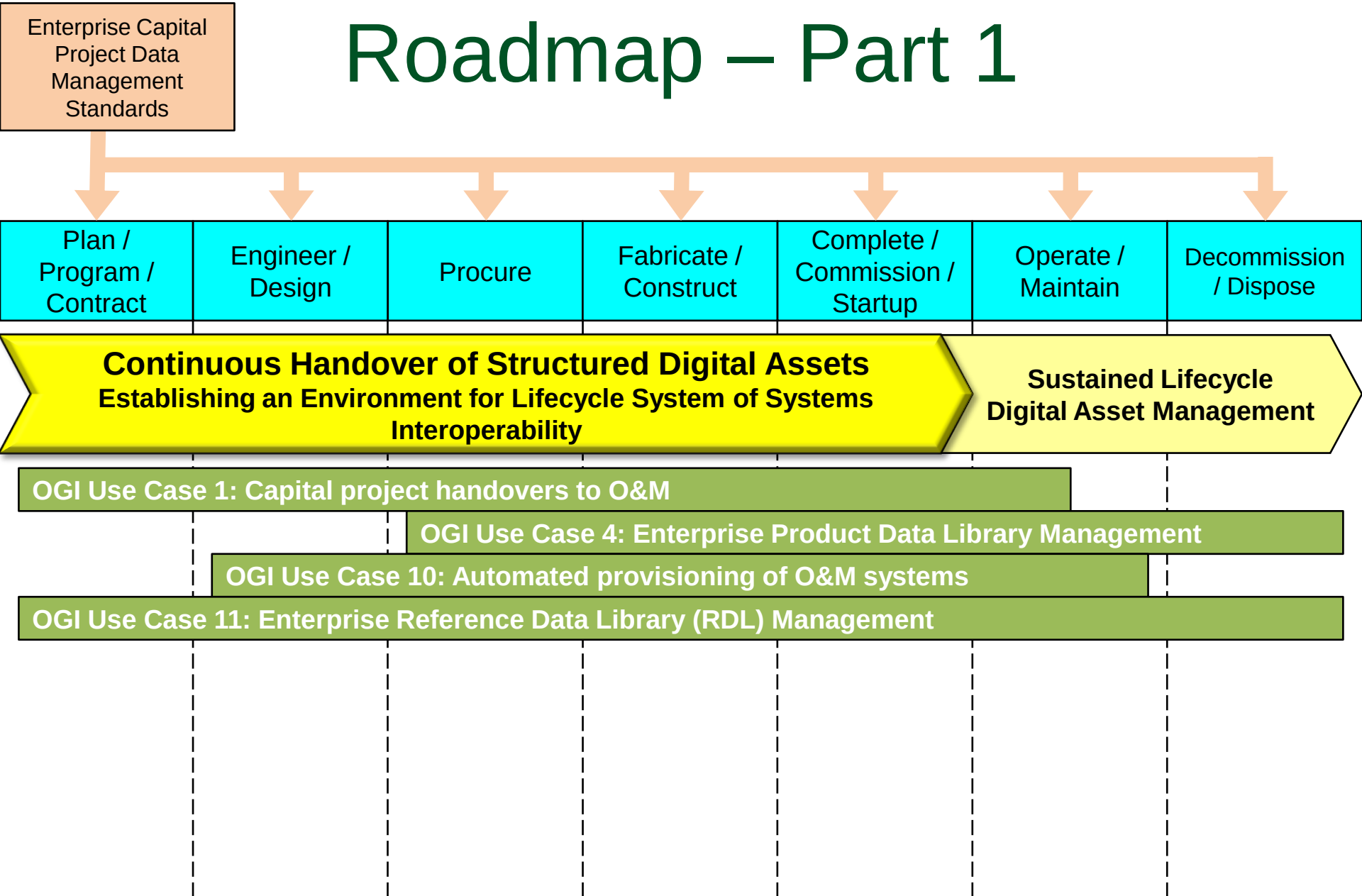
High-Level System Architecture



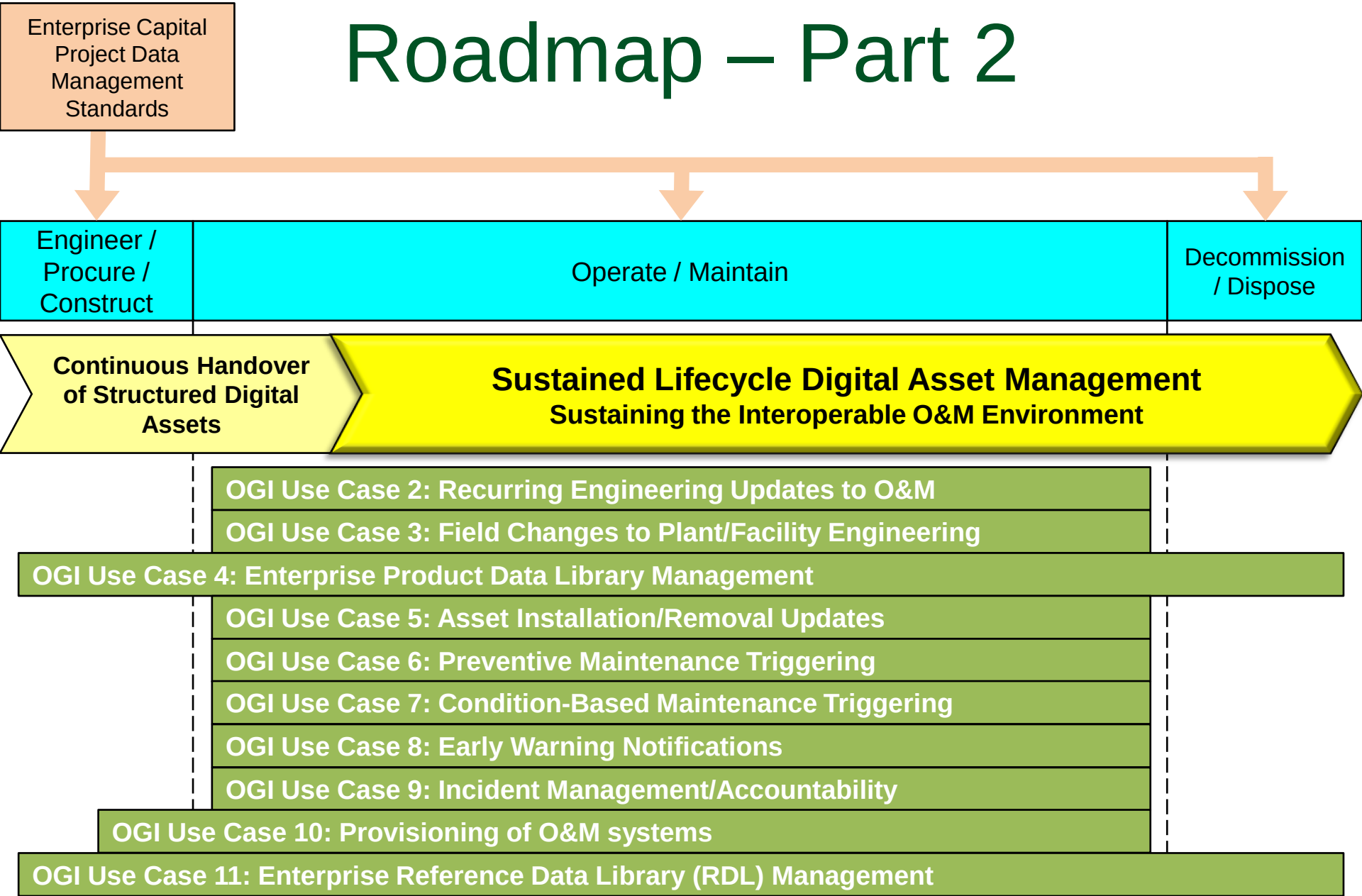
Prioritised Use Cases

Use Case 1	Information Handover from EPC to O/O
Use Case 2	Recurring Engineering Updates to O&M
Use Case 3	Field Changes to Plant/Facility Engineering
Use Case 4	Online Product Data Library
Use Case 5	Asset Configuration Updates
Use Case 6	Preventive Maintenance Triggering
Use Case 7	Condition-Based Maintenance Triggering
Use Case 8	Early Warning Notifications
Use Case 9	Incident Management/Accountability
Use Case 10	Information Provisioning of O&M Systems
Use Case 11	Enterprise Reference Data Library Management

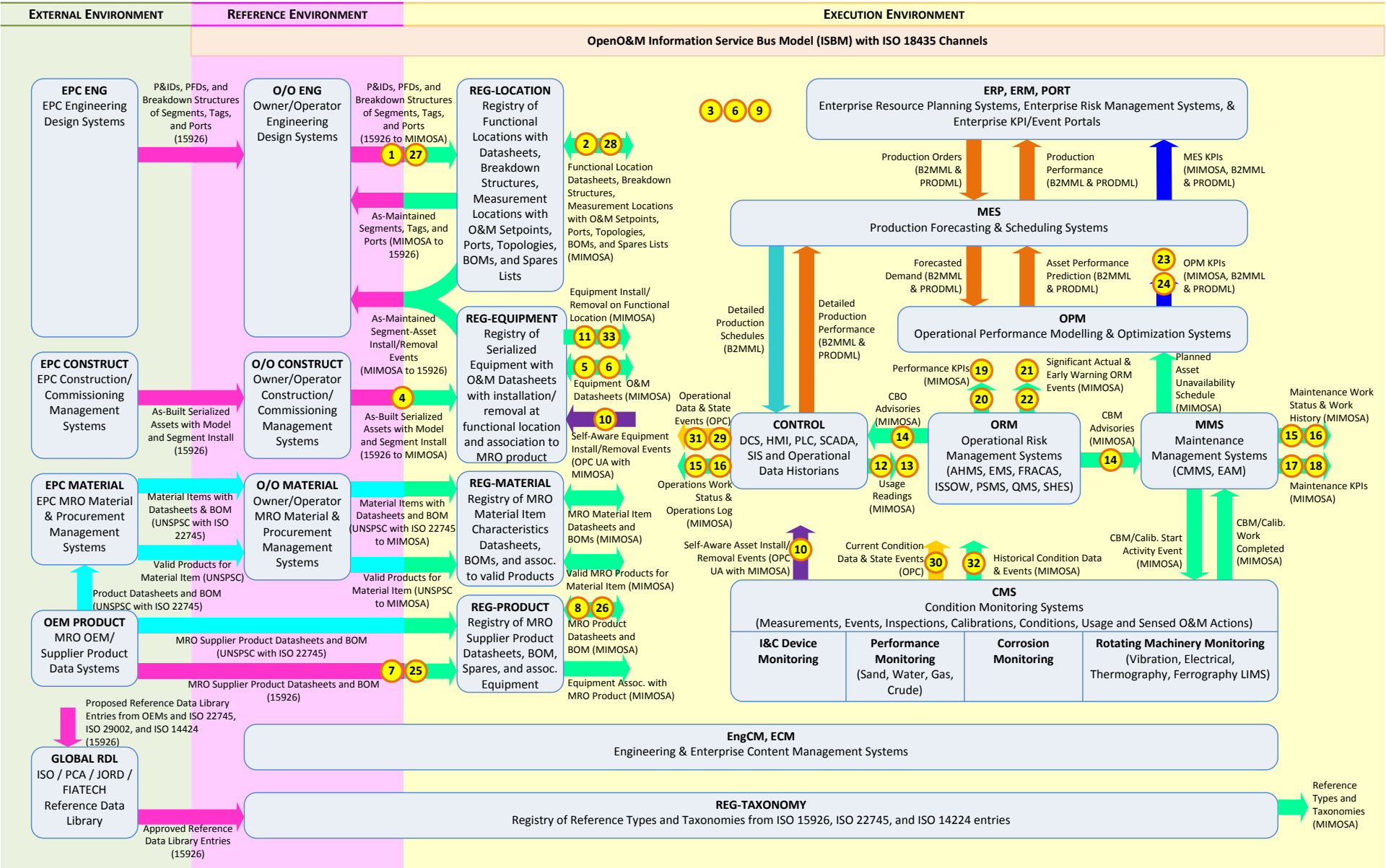
OGI Pilot Business Use Cases Roadmap – Part 1



OGI Pilot Business Use Cases Roadmap – Part 2

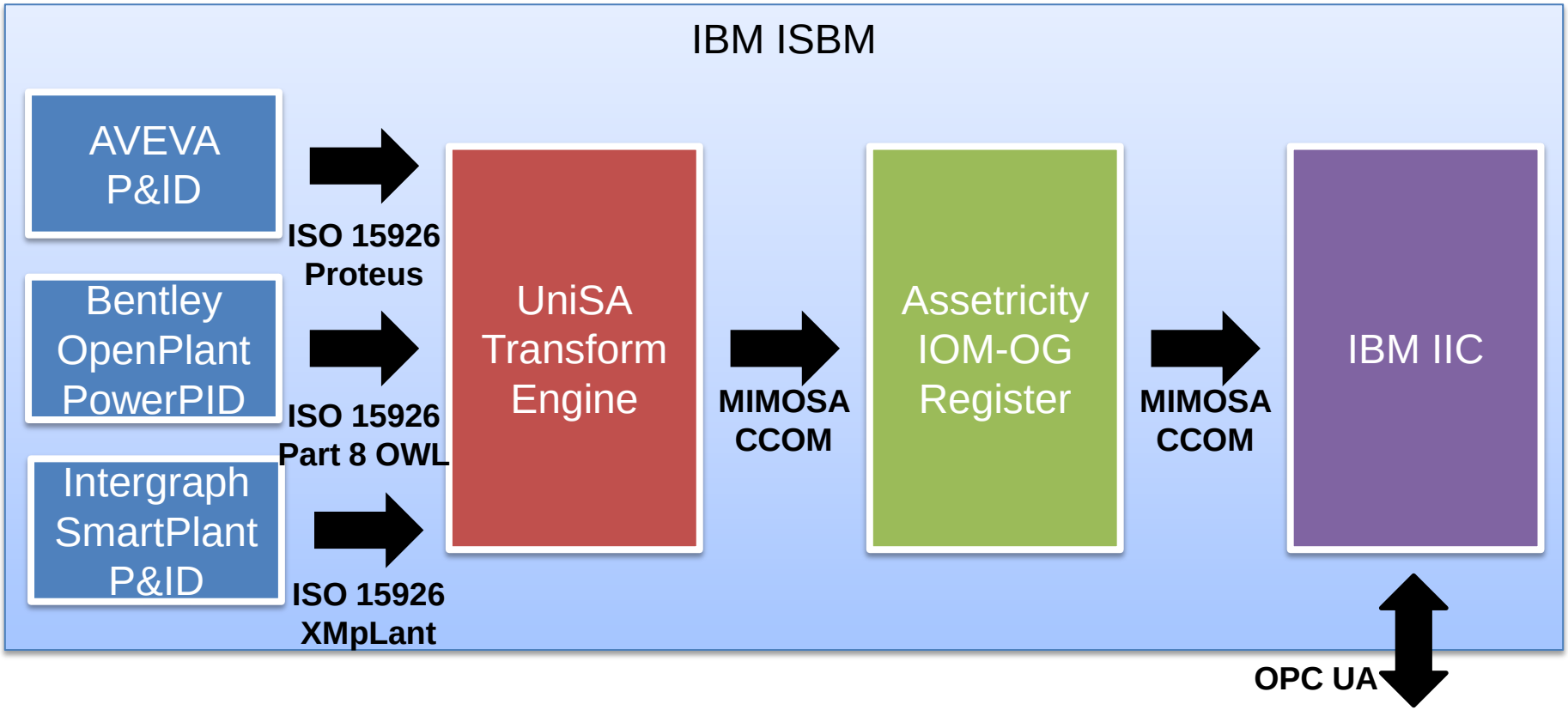


Systems Landscape Data Flow Diagram



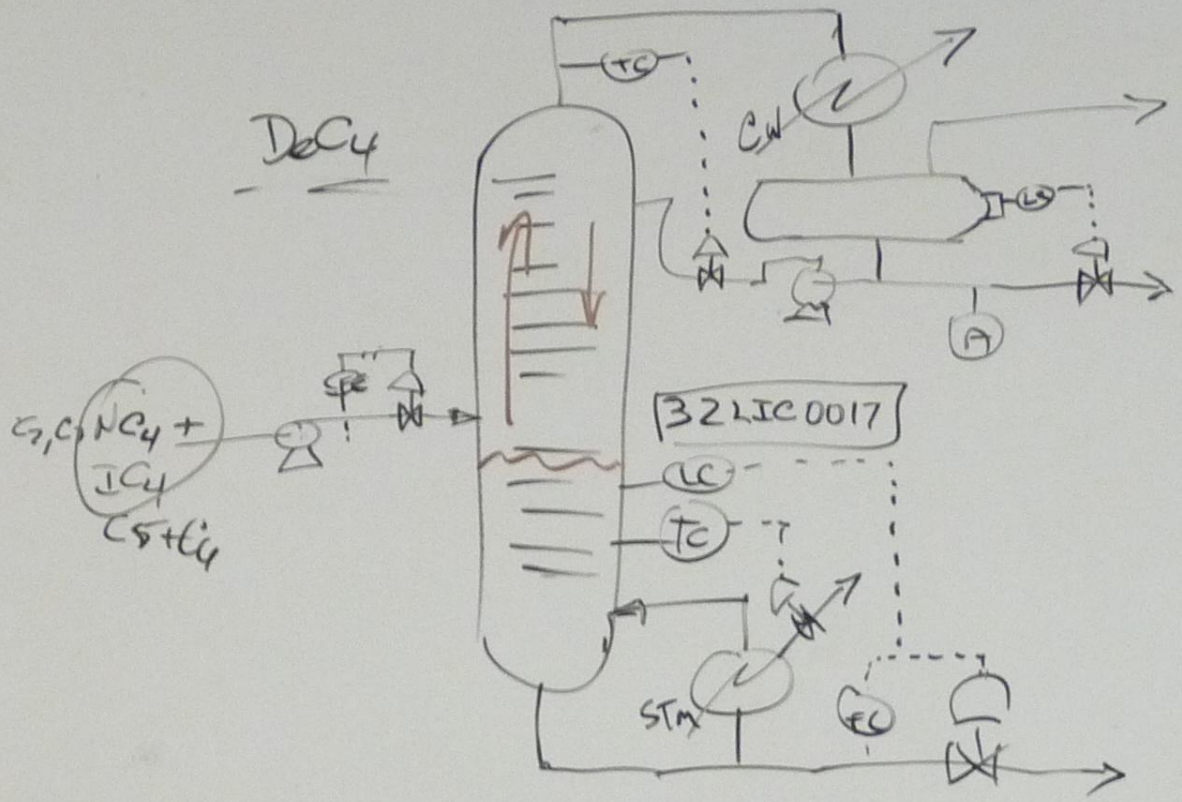
Phase 1 Demo

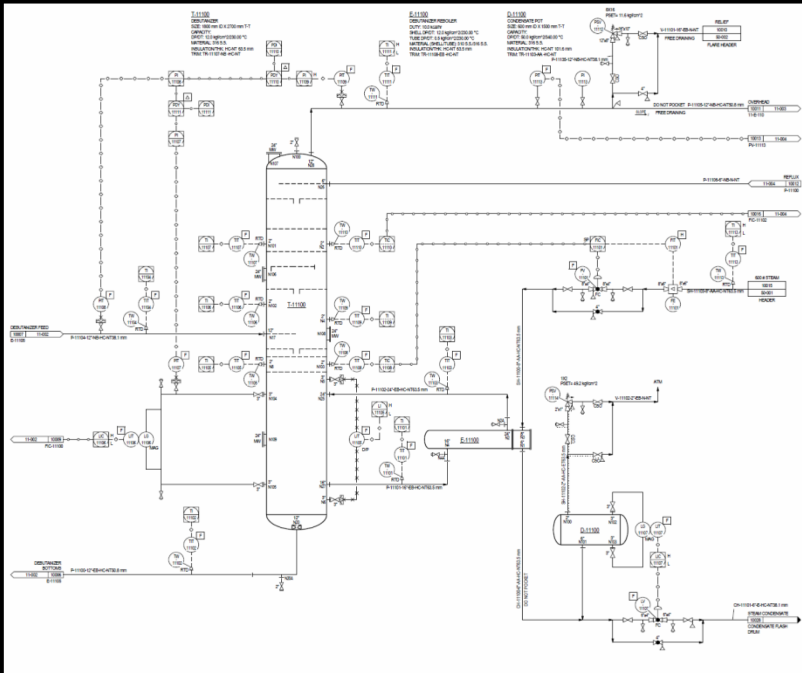
ISA Automation Week 2012



DeButanizer Fractionator

Flow Sheet (PFD)





NOTES:

1. This drawing was prepared for MIMOSA to support the OGI Pilot, see the www.MIMOSA.org site for details, stakeholders can register, participate and access the OGI Pilot data from this location.
2. For P&ID Legend Symbols and General Notes see drawings:
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   - 00-003 - PIPING SYMBOLS
   - 00-004 - INSTRUMENT LETTER DEFINITION CHART
   - 00-005 - INSTRUMENT SYMBOLS SHEET 1
   - 00-006 - INSTRUMENT SYMBOLS SHEET 2
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REV	DATE	DESCRIPTION
B	12-Sept-12	ADDED PROCESS DATA
A	23-Aug-12	ISSUE FOR REVIEW

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MIMOSA OGI Pilot - Phase 1

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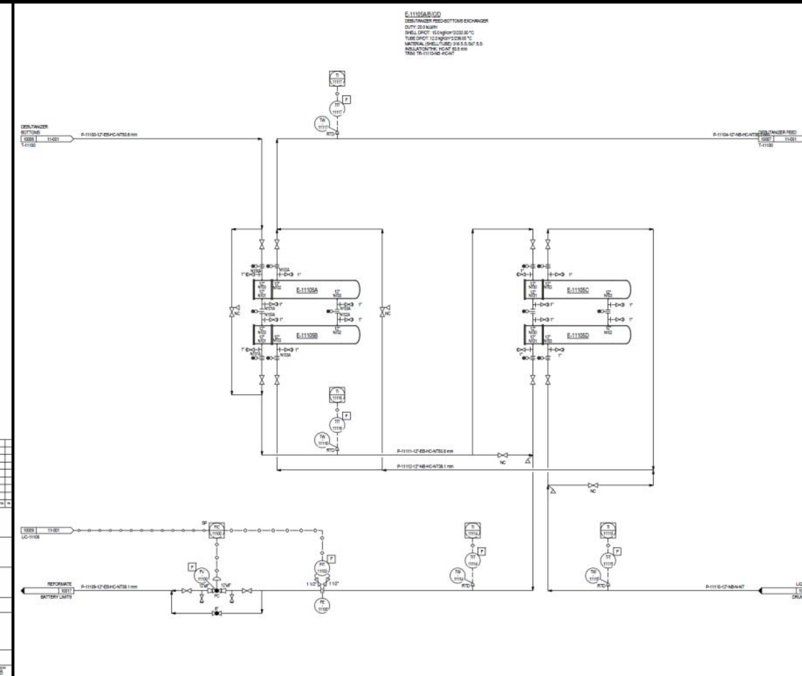
DWG. NO.: 11-001 REVISION: B



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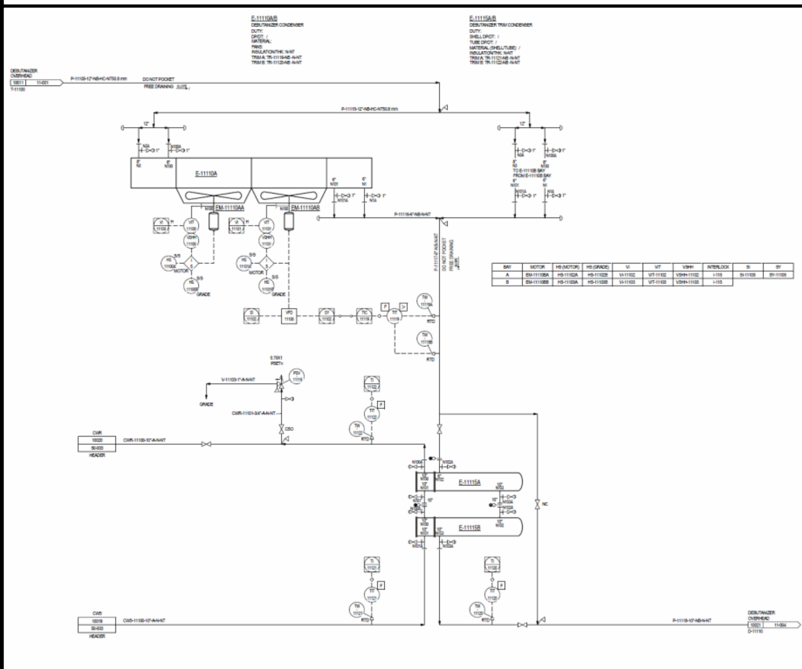
PIPING AND INSTRUMENT DIAGRAM
DEBUTANIZER FEED-BOTTOMS

SCALE: NONE
DWG. NO.: 11-002 REVISION: B



BAY	MOTOR	HS (MOTOR)	HS (GRADE)	VI	VIT	VSHH	INTERLOCK	SI	SY
A	EM-11110BA	HS-11102A	HS-11102B	VI-11102	VIT-11102	VSHH-11102	I-115	SI-11105	SY-11105
B	EM-11110BB	HS-11103A	HS-11103B	VI-11103	VIT-11103	VSHH-11103	I-115		

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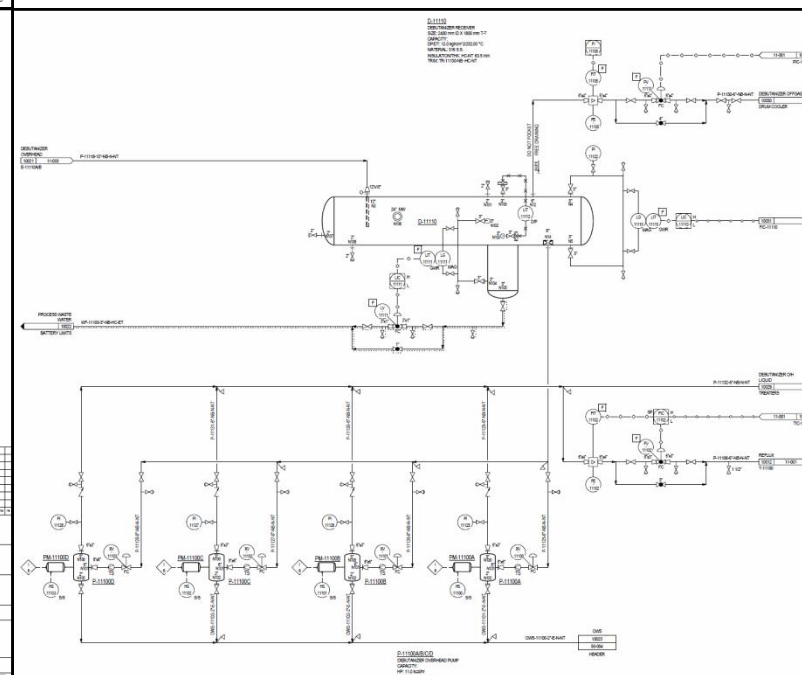
SCALE: NONE
DWG. NO.: 11-003 REVISION: B



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   - 00-003 - PIPING SYMBOLS
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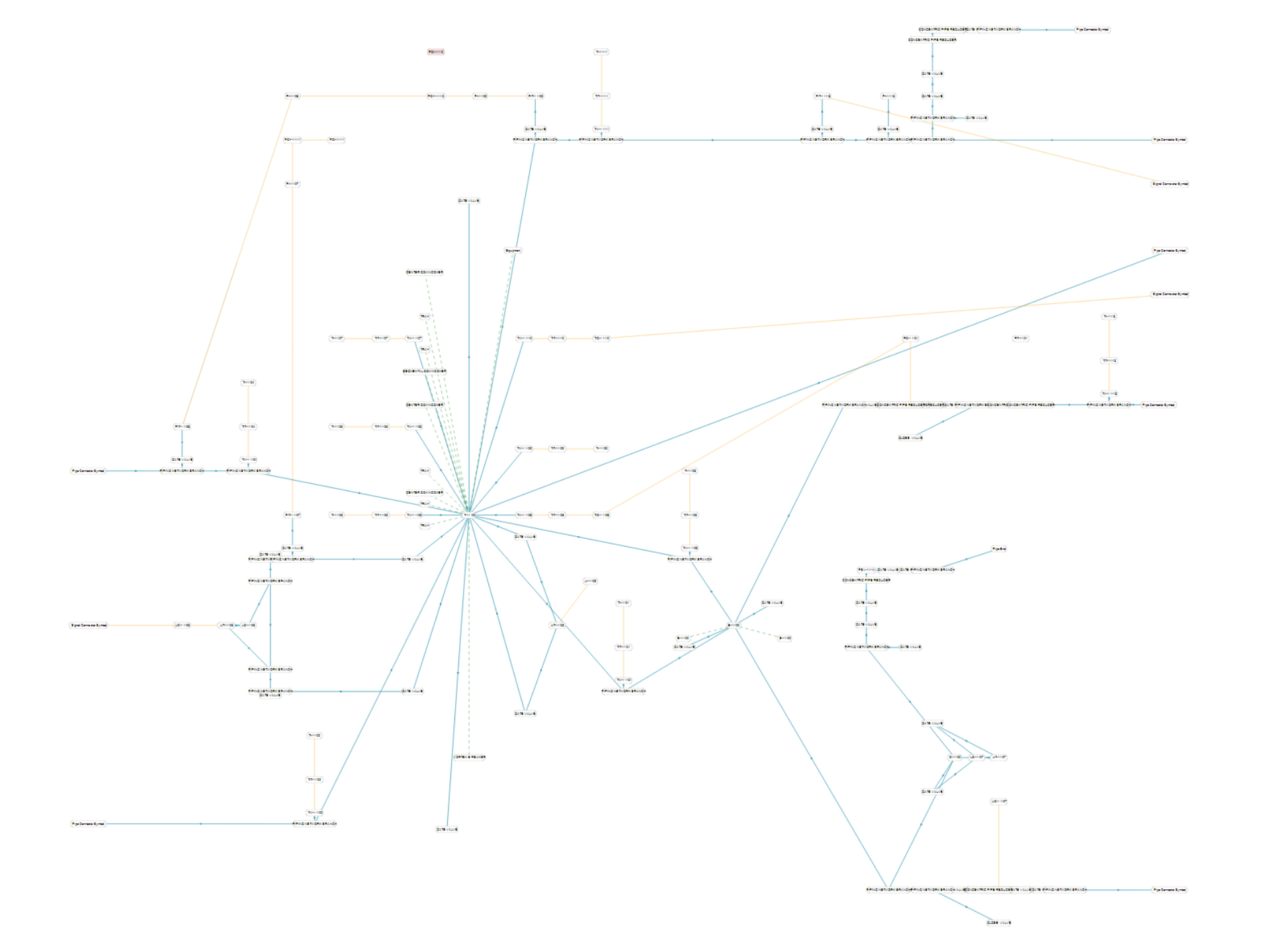
MIMOSA OGI Pilot - Phase 1

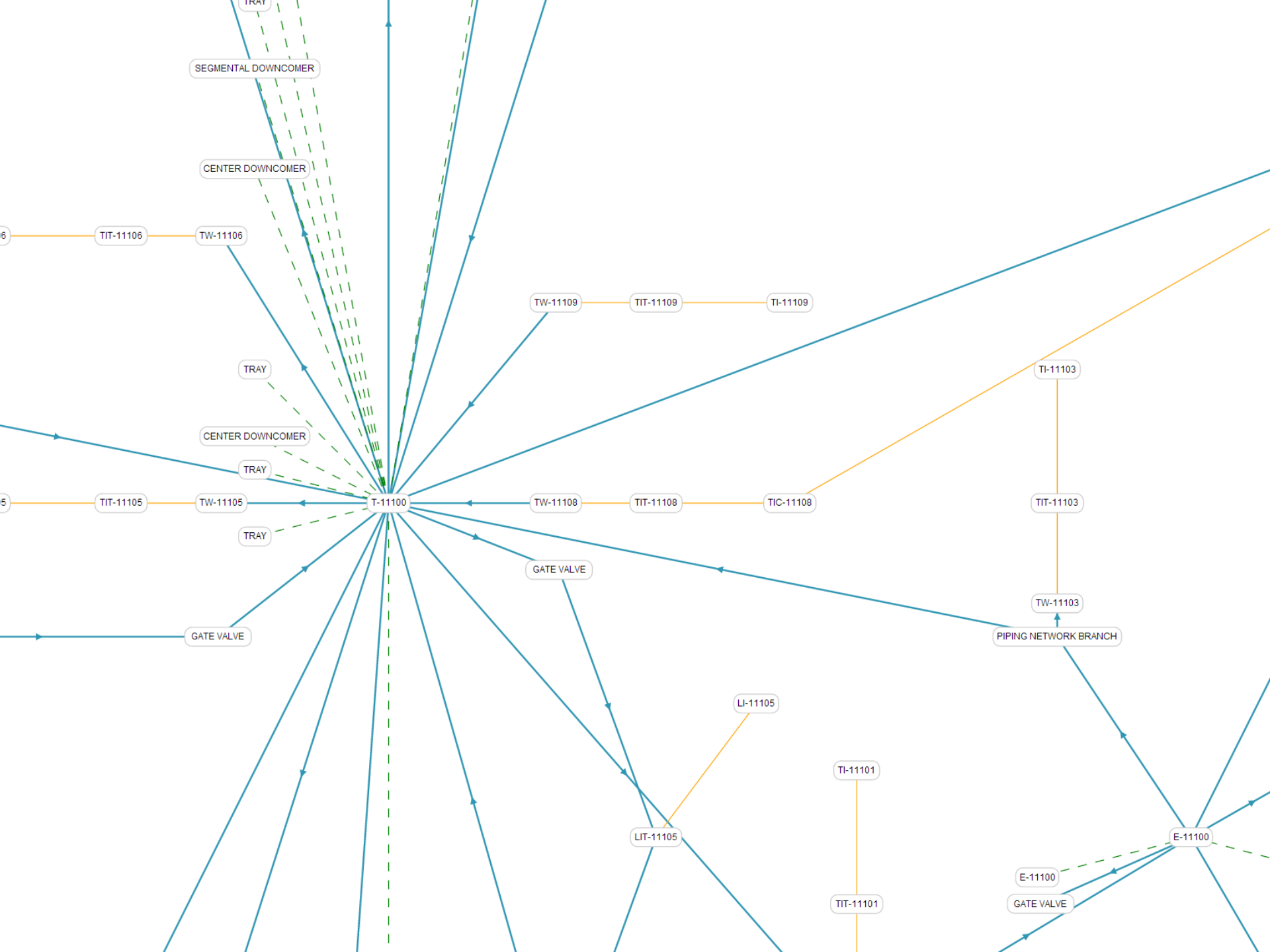
PIPING AND INSTRUMENT DIAGRAM
DEBUTANIZER RECEIVER

SCALE: NONE
DWG. NO.: 11-004 REVISION: B

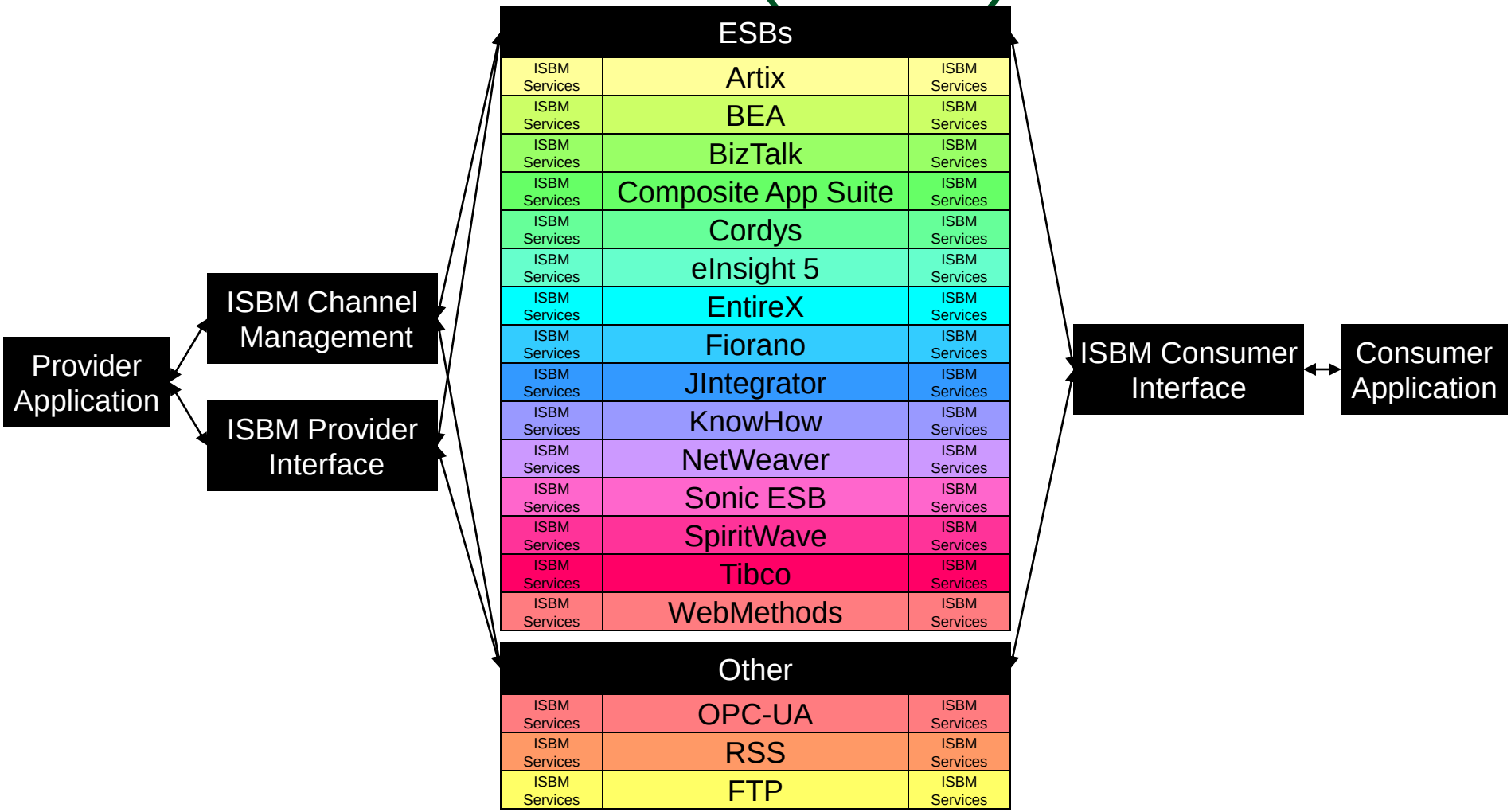
P&ID Information

- Functional location, identifier, tag and classification
- Engineering properties
- Transmitter OPC tag
- Transmitter range and unit of measure
- Plant breakdown structure
- Nozzles/ports and classification
- Directed connections between nozzles/ports
- Canvas dimensions
- X, Y coordinates for functional locations
- Symbol orientation




TRAY
SEGMENTAL DOWNCOMER
CENTER DOWNCOMER
TIT-11106
TW-11106
TW-11109
TIT-11109
TI-11109
TRAY
TI-11103
CENTER DOWNCOMER
TRAY
TIT-11105
TW-11105
T-11100
TW-11108
TIT-11108
TIC-11108
TIT-11103
TRAY
GATE VALVE
TW-11103
GATE VALVE
PIPING NETWORK BRANCH
LI-11105
TI-11101
LIT-11105
E-11100
E-11100
TIT-11101
GATE VALVE

OpenO&M Information Service Bus Model (ISBM)



Information Service Bus Model

- Defines a minimal set of requirements for a message middleware:
  - Messaging Patterns (async publish/subscribe, request/response)
  - Message Delivery (channels and topics)
  - Message Content (XML)
  - Security (tokens based on WS-Security)
  - Services (WSDL/SOAP)

Phase 2

- Development of depropanizer P&IDs and Upstream examples
- Include O&M Use Cases
- Planning meeting in December
- Smart Fields Summit

How To Get Involved

- Observer
  - Access to OGI Resources on MIMOSA website
- Contributor
  - Standing fortnightly call at 7am Friday
  - Indicate desired level of participation

Subscribe to updates

ISO/NP TS 18101

Oil and Gas asset management and operations and maintenance interoperability (OGI)

General information | Revisions | Corrigenda / Amendments

Edition: 1
ICS: 25.040.40; 75.020
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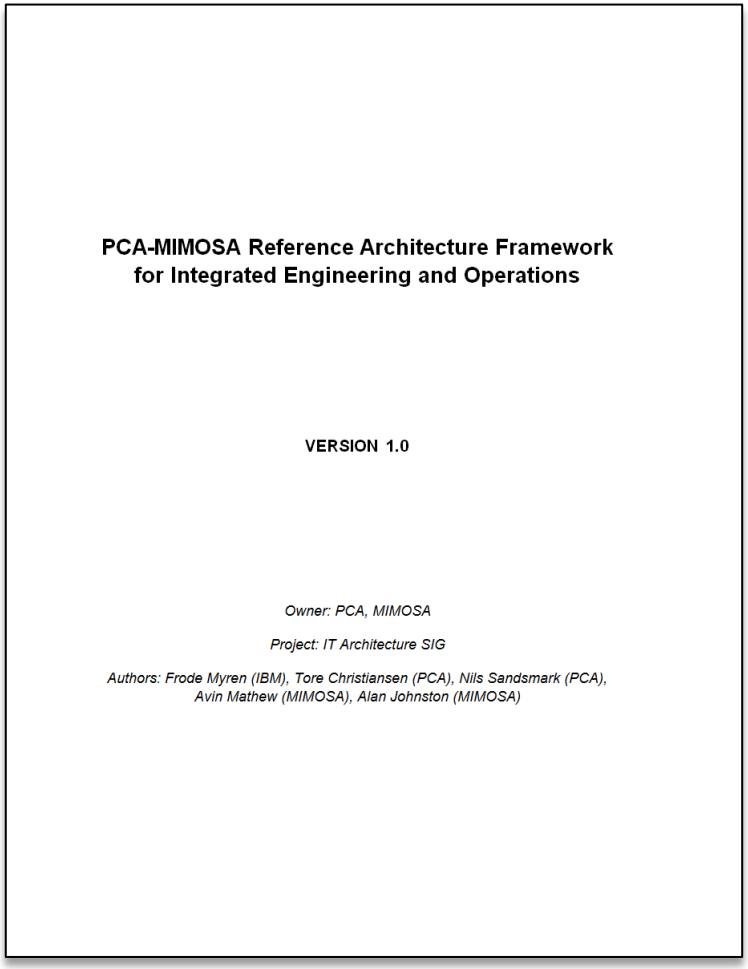
Stage: 10.99 (2012-05-25)
TC/SC: ISO/TC 184
Number of Pages:

PCA-MIMOSA Joint IT Architecture Special Interest Group



PCA-MIMOSA Reference Architecture Framework for Integrated Engineering and Operations

VERSION 1.0

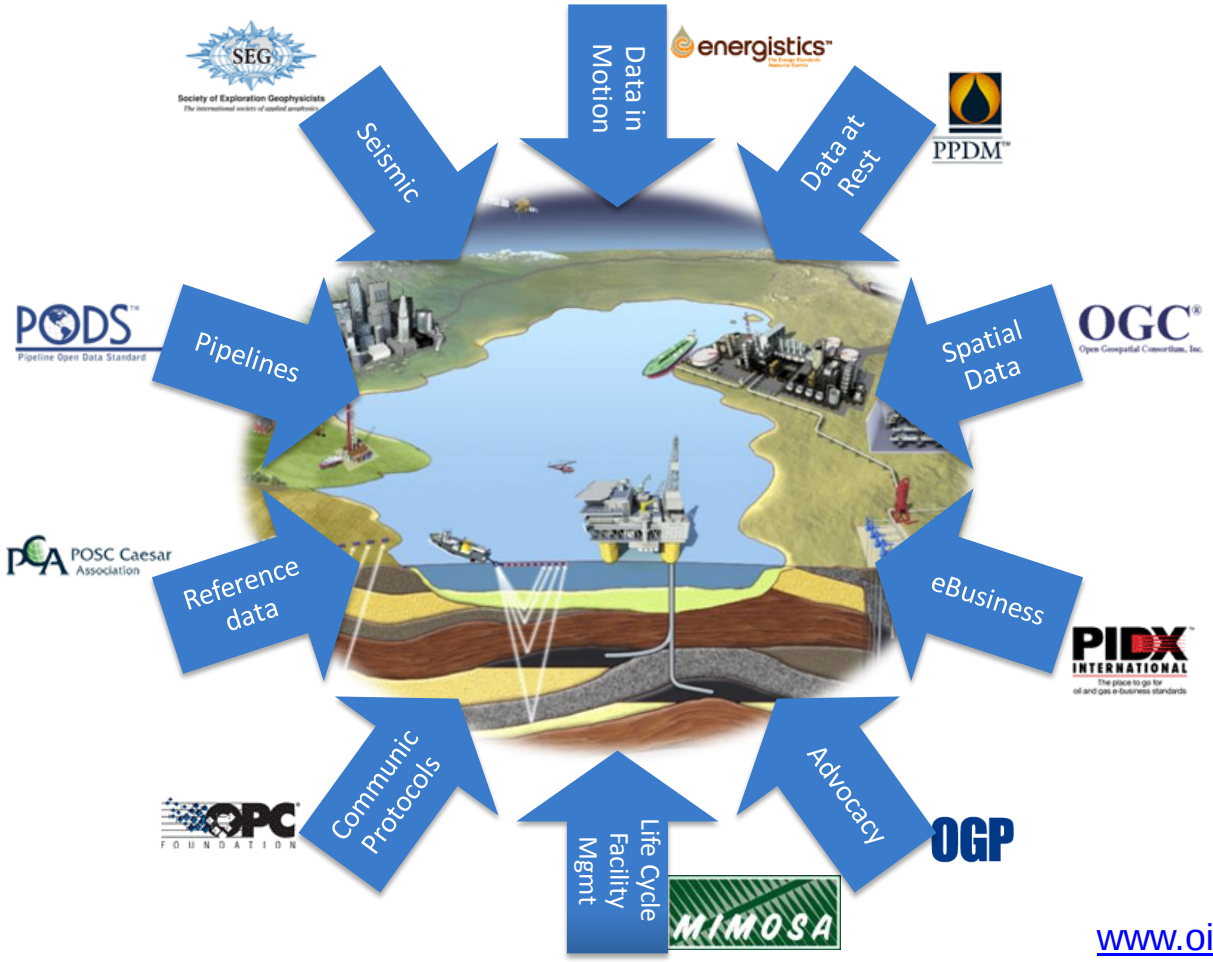
Owner: PCA, MIMOSA

Project: IT Architecture SIG

Authors: Frode Myren (IBM), Tore Christiansen (PCA), Nils Sandsmark (PCA), Avin Mathew (MIMOSA), Alan Johnston (MIMOSA)

www.posccaesar.org/wiki/SigIT

Standards Leadership Council



www.oilandgasstandards.org

Dr. Avin Mathew
Technical Lead
MIMOSA
amathew@mimosa.org

Alan Johnston
President
MIMOSA
atjohn@mimosa.org

www.mimosa.org
www.posccaesar.org