OpenO&M™ and ISO 15926 Collaborative Deployment

POSC Caesar Members Meeting

Oct 20, 2009

Kuala Lumpur, Malaysia

Alan Johnston
OpenO&M Initiative Chair
MIMOSA President

MIMOSA™ FIATECH POSC Caesar Association The OpenO&M Initiative

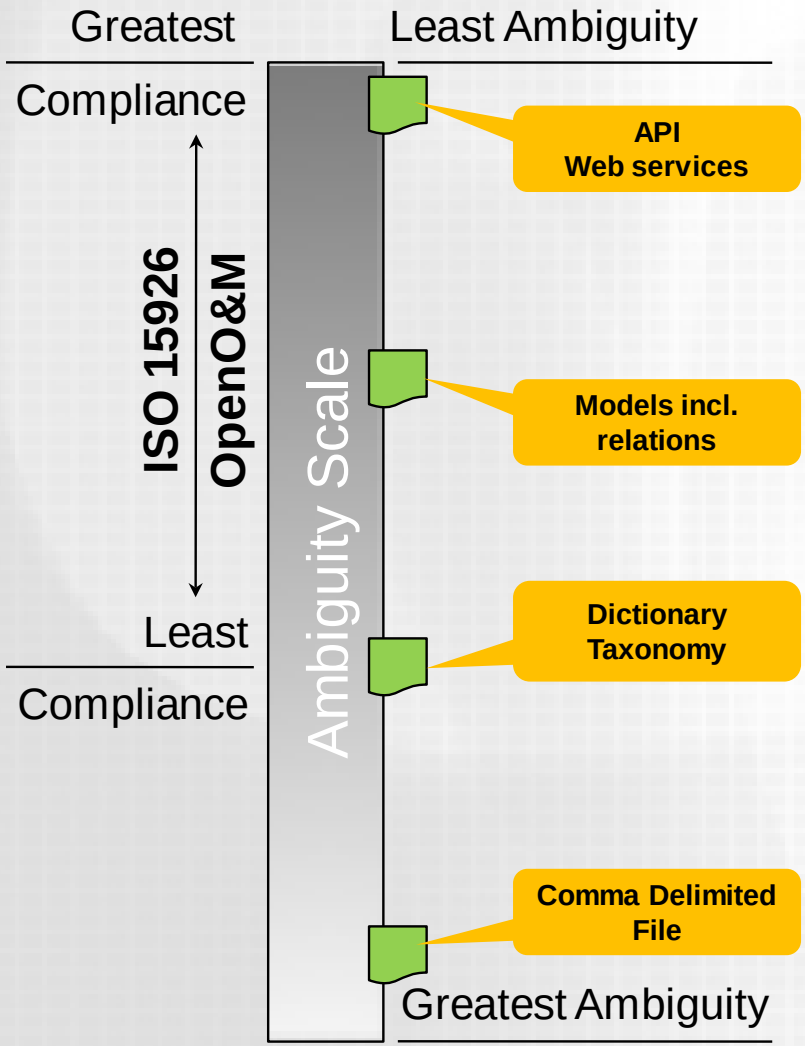
Does Interoperability Matter?

- Does your organization need more ability to systemically share/maintain information important to multiple internal functional units?
- Will you gain business value from improved systemic sharing of data and information with your key suppliers and business partners?
- Will you gain business value from sharing technology, methods and standards with other related major industry groups including aerospace/defense/military?
- Will technology and best practices evolve quicker or slower in the future versus in the past?
- Does the ability to follow evolving best practices matter to your organization?
- Will the future pace of evolution of best practices and technology be likely to result in “orphan” products with painful and/or limited migration options?
- Does the ability to systemically institutionalize organizational knowledge, information and processes matter?
- Does the ability to separate value added knowledge/information/processes from raw technology change matter to your organization?

Information Ambiguity

- Data exchanges operate most successfully when ambiguity is eliminated
- Ambiguity between exchanging partners can require significant effort (labor) to remove
- The higher the ambiguity, the higher the cost to implement effective and efficient data exchanges
- While SOA can be implemented without a common information model, this approach does little to reduce ambiguity and cost

Ambiguity = Cost



POSC Caesar and OpenO&M Collaboration

Enabling An Industry-Focused Solutions Process

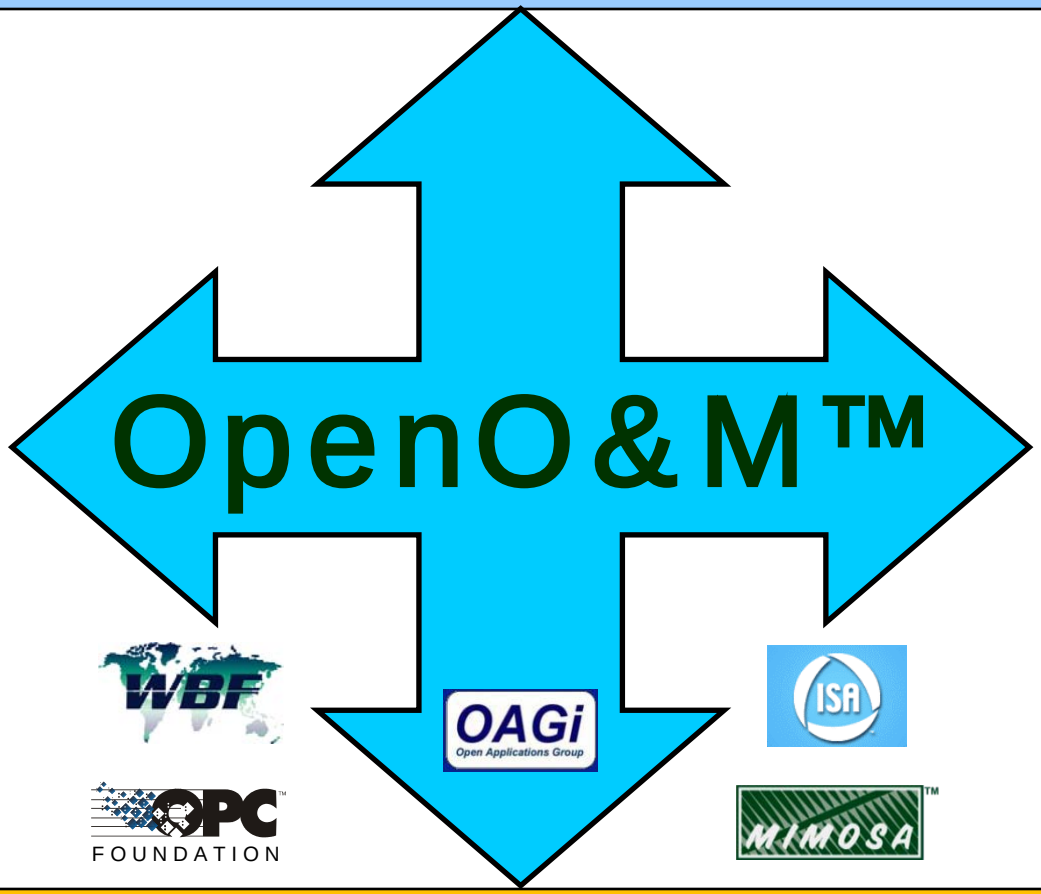
- Collaboration and Coordination with key standards organizations
- Enables an use case driven “best practices” solutions model
  - ✓ Use Cases collected from and prioritized by owner/operators
  - ✓ Not a solution looking for a problem
- Owner/Operator leadership
  - ✓ Governance
  - ✓ Prioritization and Oversight
- Supported by key suppliers
  - ✓ Automation/Controls
  - ✓ Engineering/Construction
  - ✓ Enterprise Systems (Business and IT)

The OpenO&M™ Initiative

Brings People Processes and Technology Together

Enterprise Business Systems
Enterprise Resource Planning (ERP)

Operations

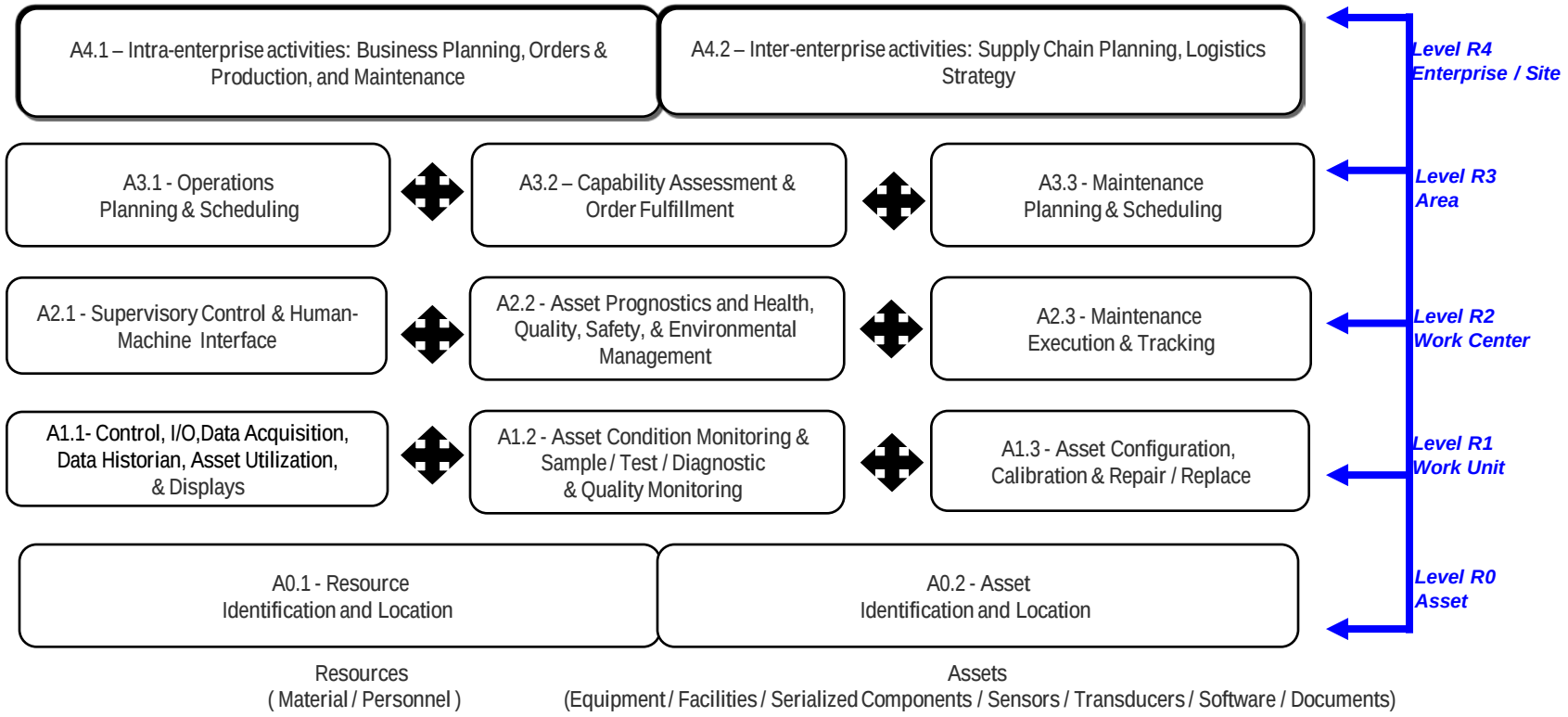


Maintenance

Physical Asset Control
Real-time Systems

ISO 18435

Application Domain Integration Diagram



Some Relevant ISO Related Activities

ISO TC 67
Materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries

ISO TC 108
Mechanical vibration and shock

ISO TC 184
Industrial automation systems and integration

SC5
Condition monitoring and diagnostics of machines

SC4
Industrial Data

SC5
Architecture, communications and integration frameworks

ISO 14224

Petroleum, petrochemical and natural gas industries -- Collection and exchange of reliability and maintenance data for equipment

ISO 13374

MIMOSA OSA-CBM

WG6

Formats and methods for communicating, presenting and displaying relevant information and data

15926- Data for Process Industries

10303-Product data representation and exchange

STEP/PLCS

OASIS

Collaborating on the deployment of an international standard for product data exchange (ISO 10303)

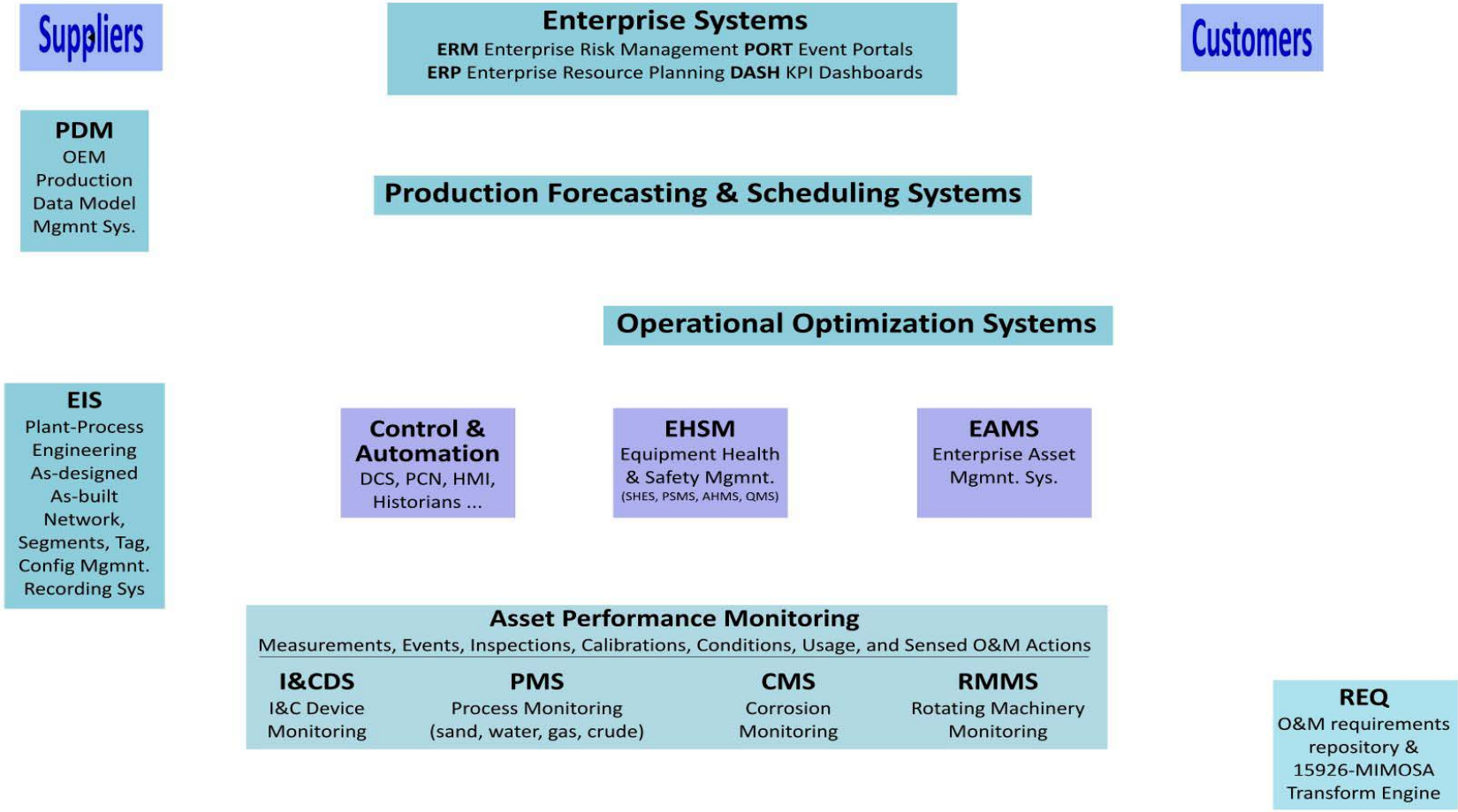
ISO 18435

MIMOSA OSA-EAI

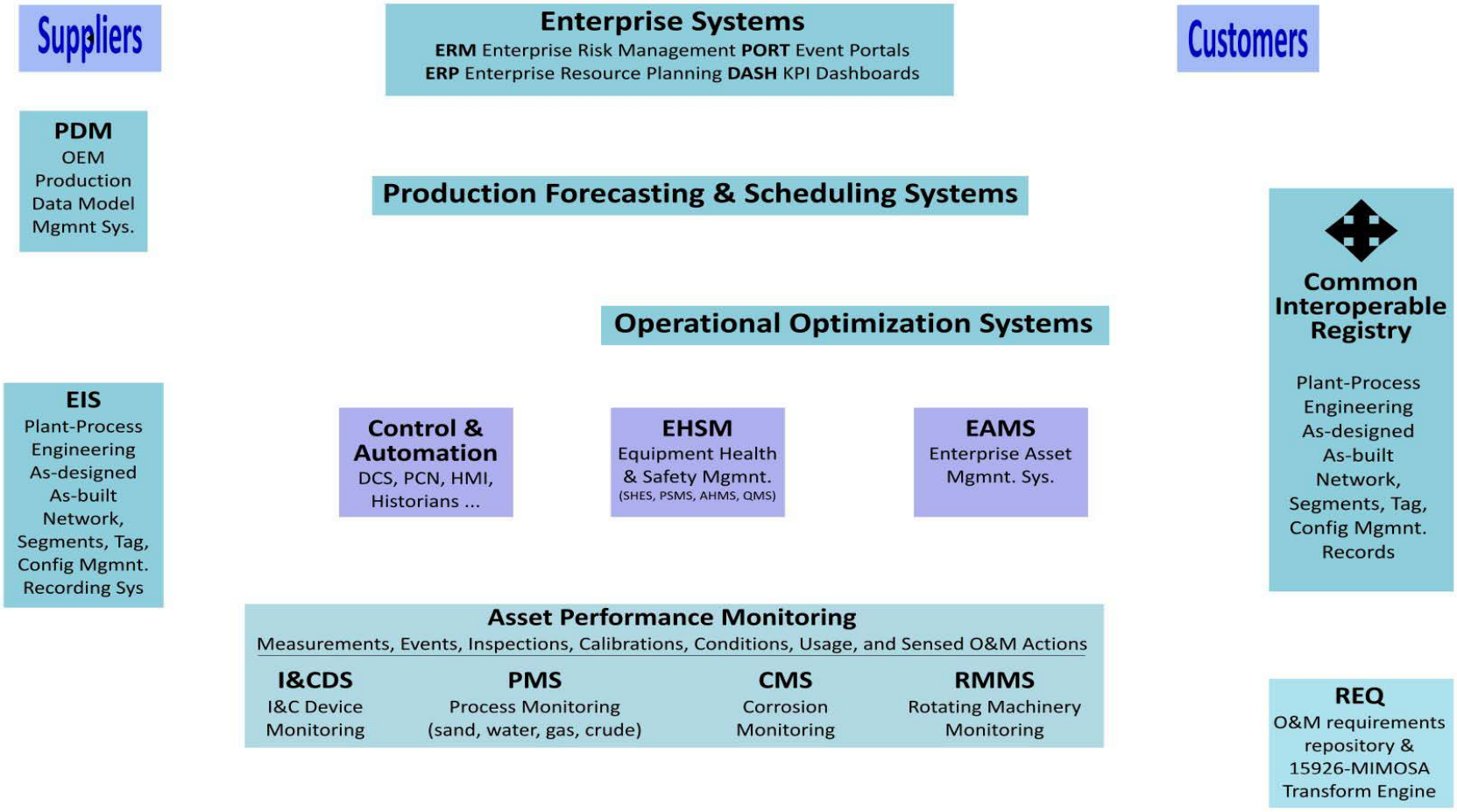
WG7

Diagnostic and maintenance applications integration

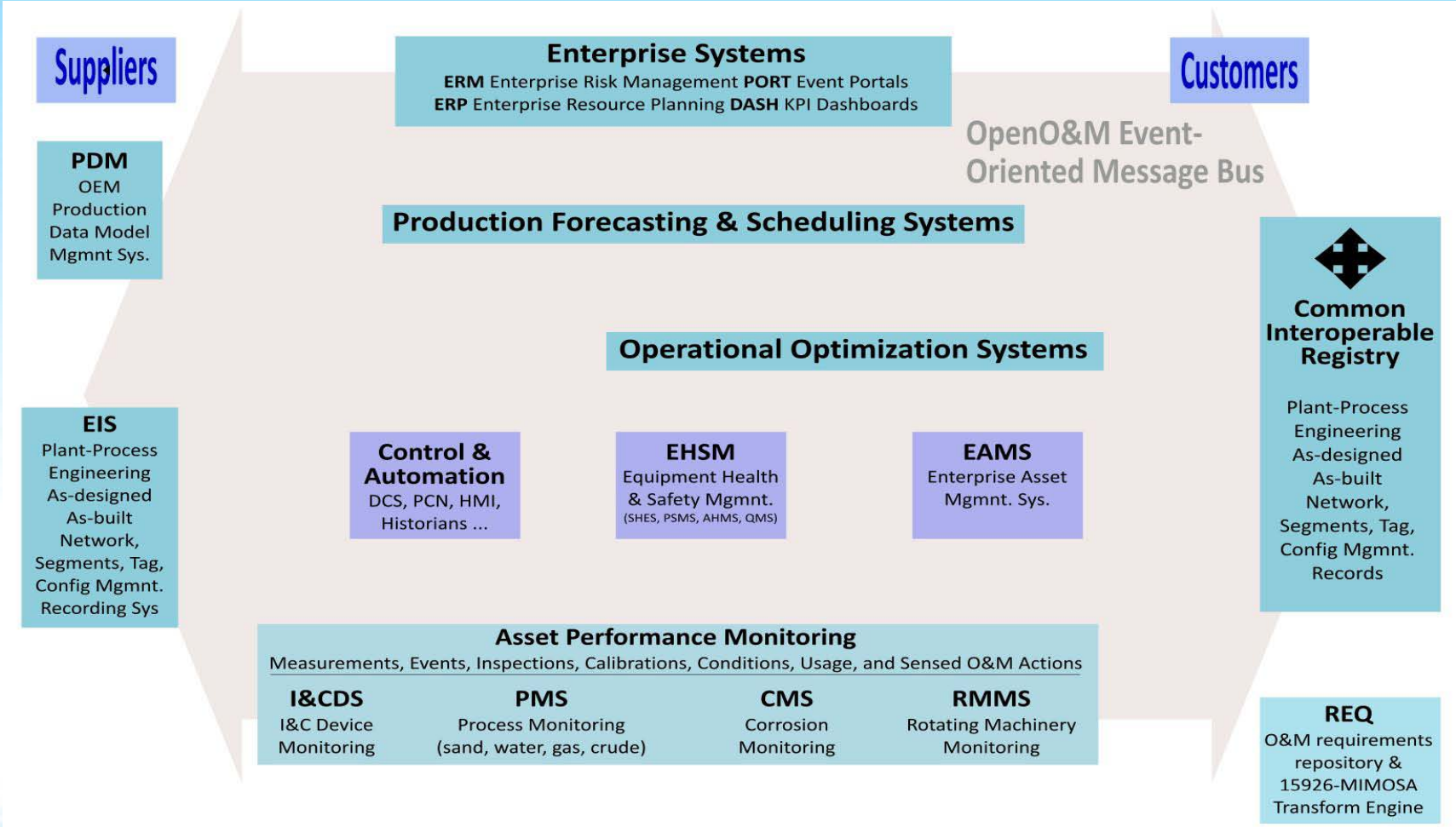
Oil & Gas Use Cases



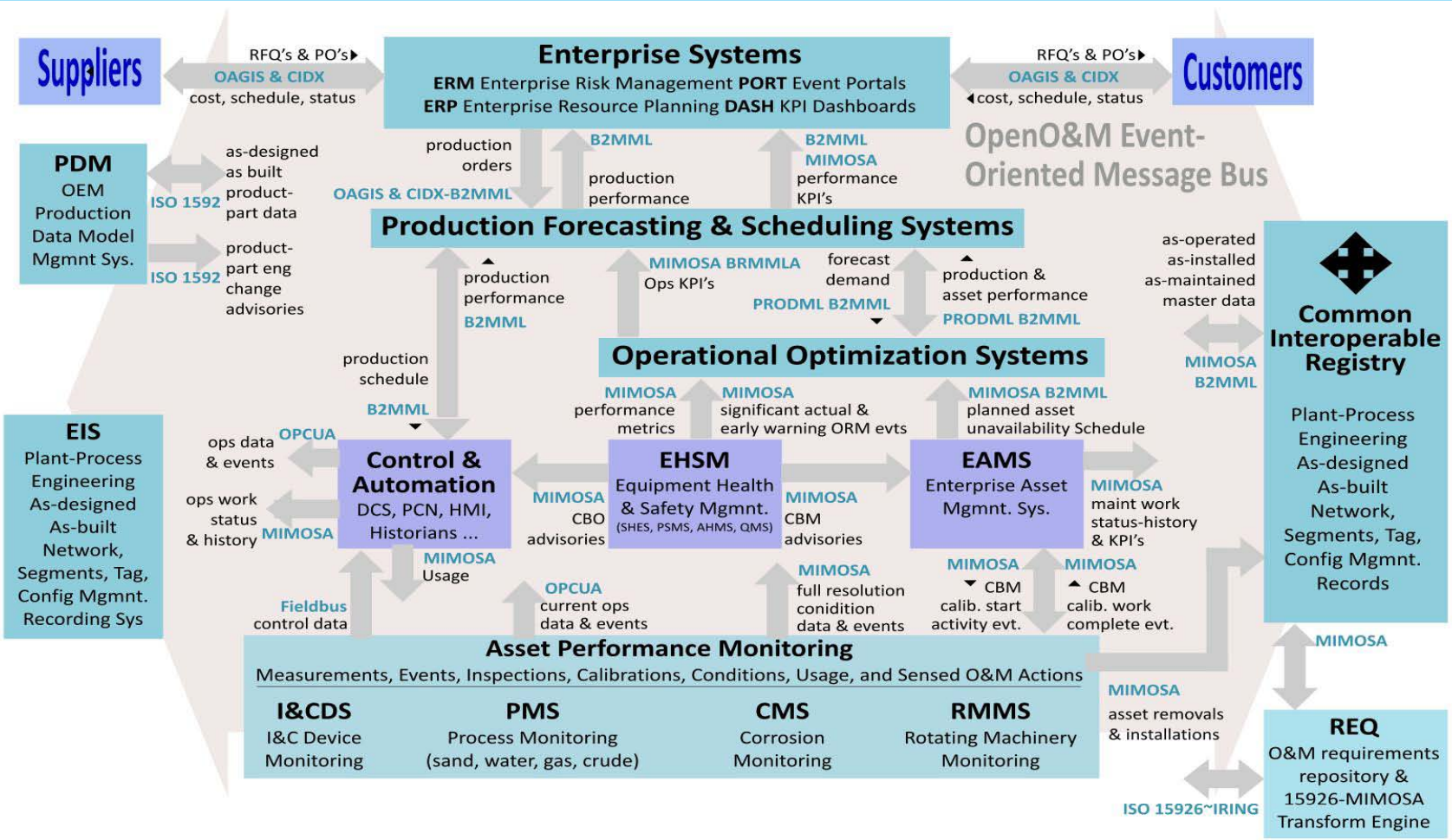
Oil & Gas Use Cases



Oil & Gas Use Cases



Oil & Gas Use Cases

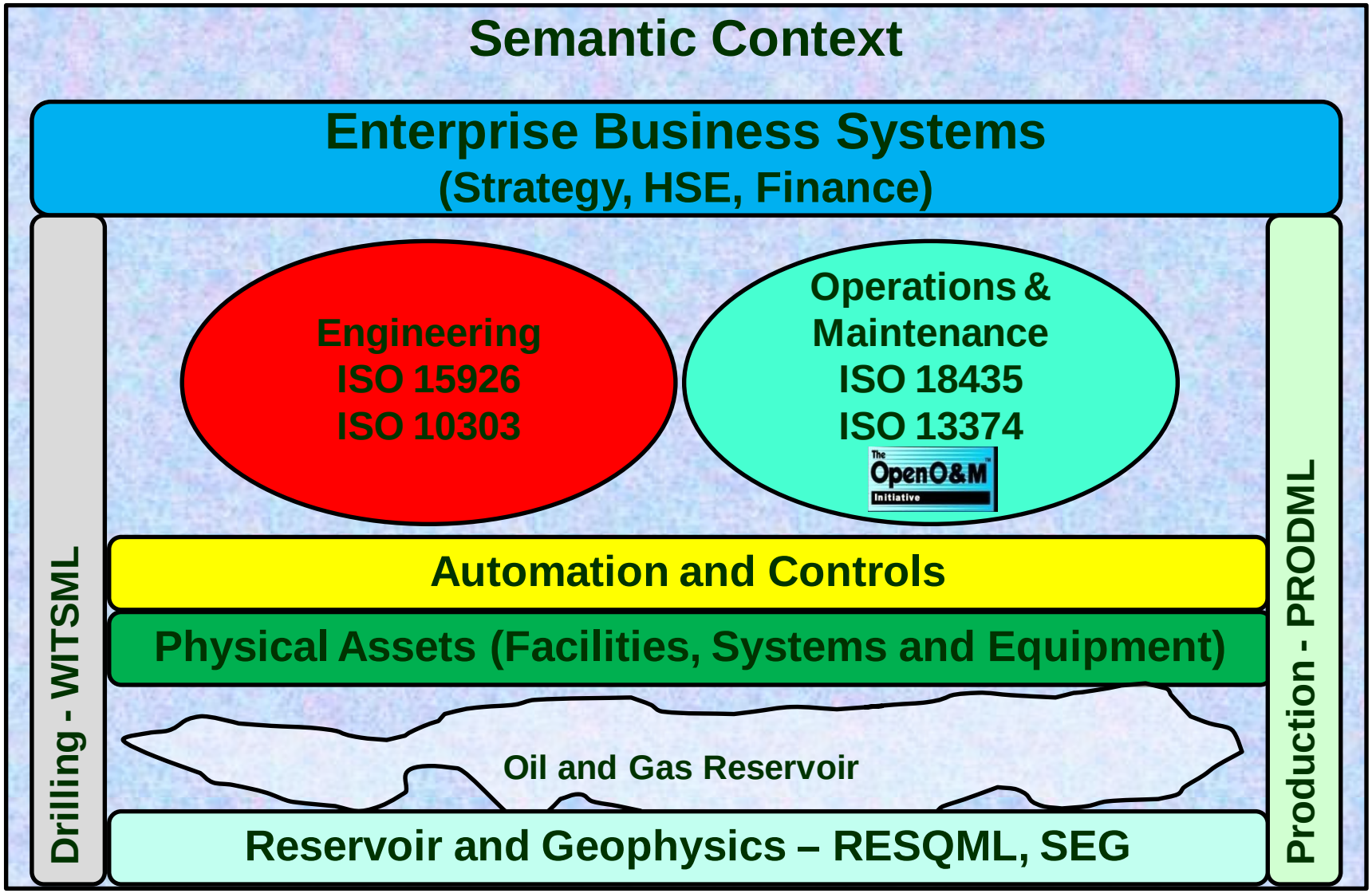


An Executable Strategy
Provides a Pragmatic Path Forward

- We do not need to chose between correctness and expedience
- Brown field friendly
- Green field enabling
- Works **now** and continuously improves for the future
- Synthesizes Top-down and Bottom-up activities with Life-cycle Management

Context for Collaboration

Bringing Enterprise Business Systems Together with Engineering and O&M Systems (Working Draft)



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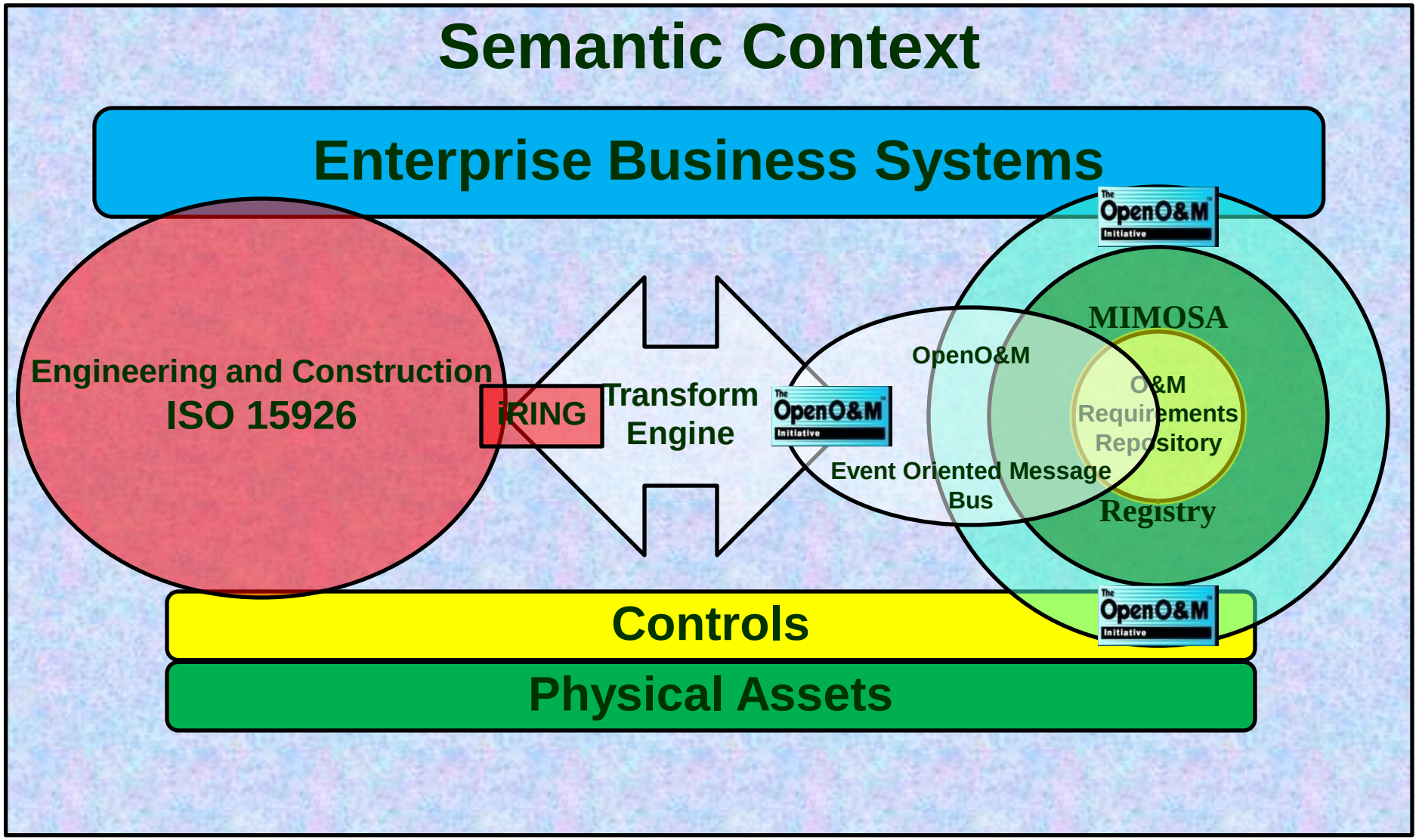
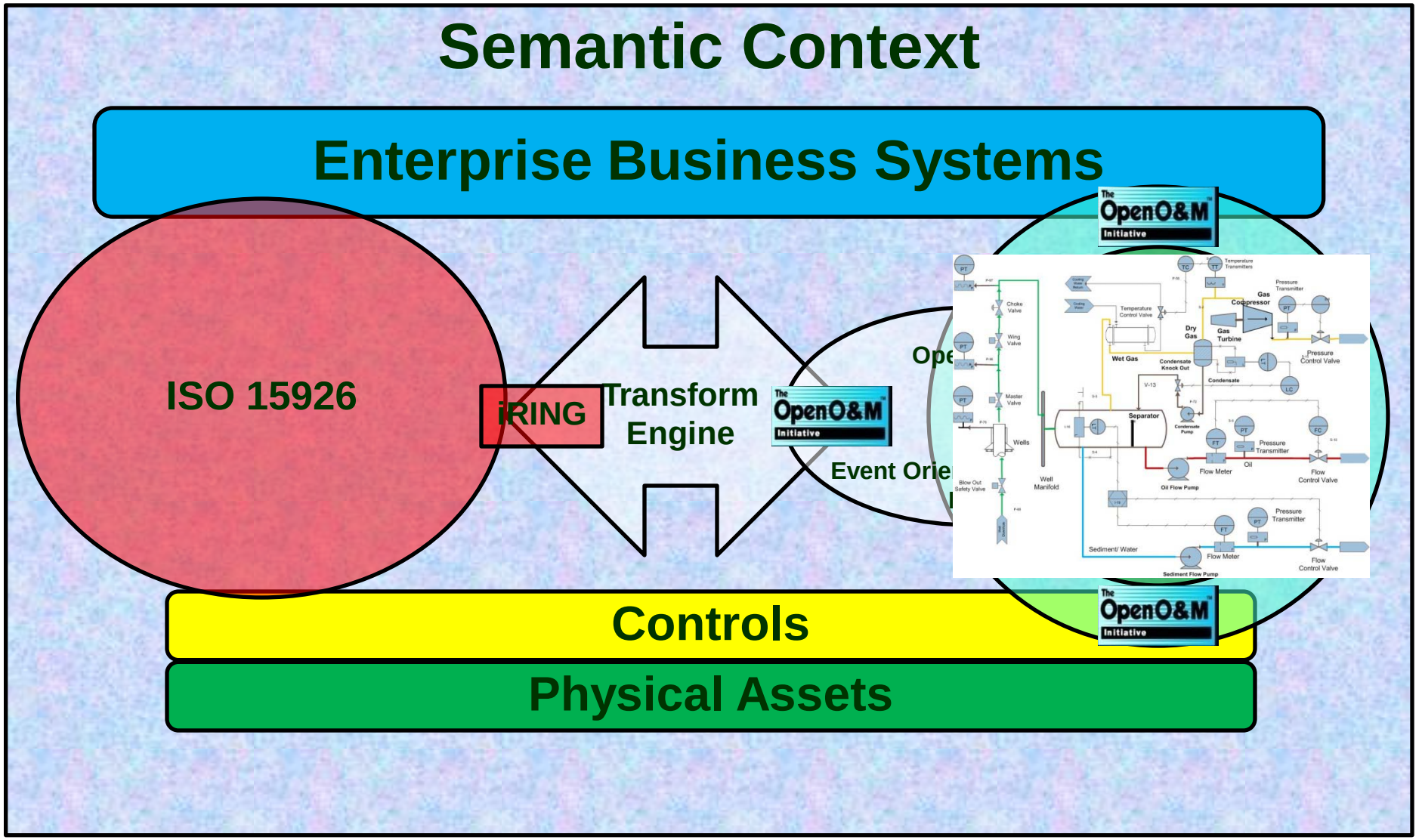
Context for Collaboration

Bringing Enterprise Business Systems Together with Engineering and O&M Systems – Oil and Gas Industry Model



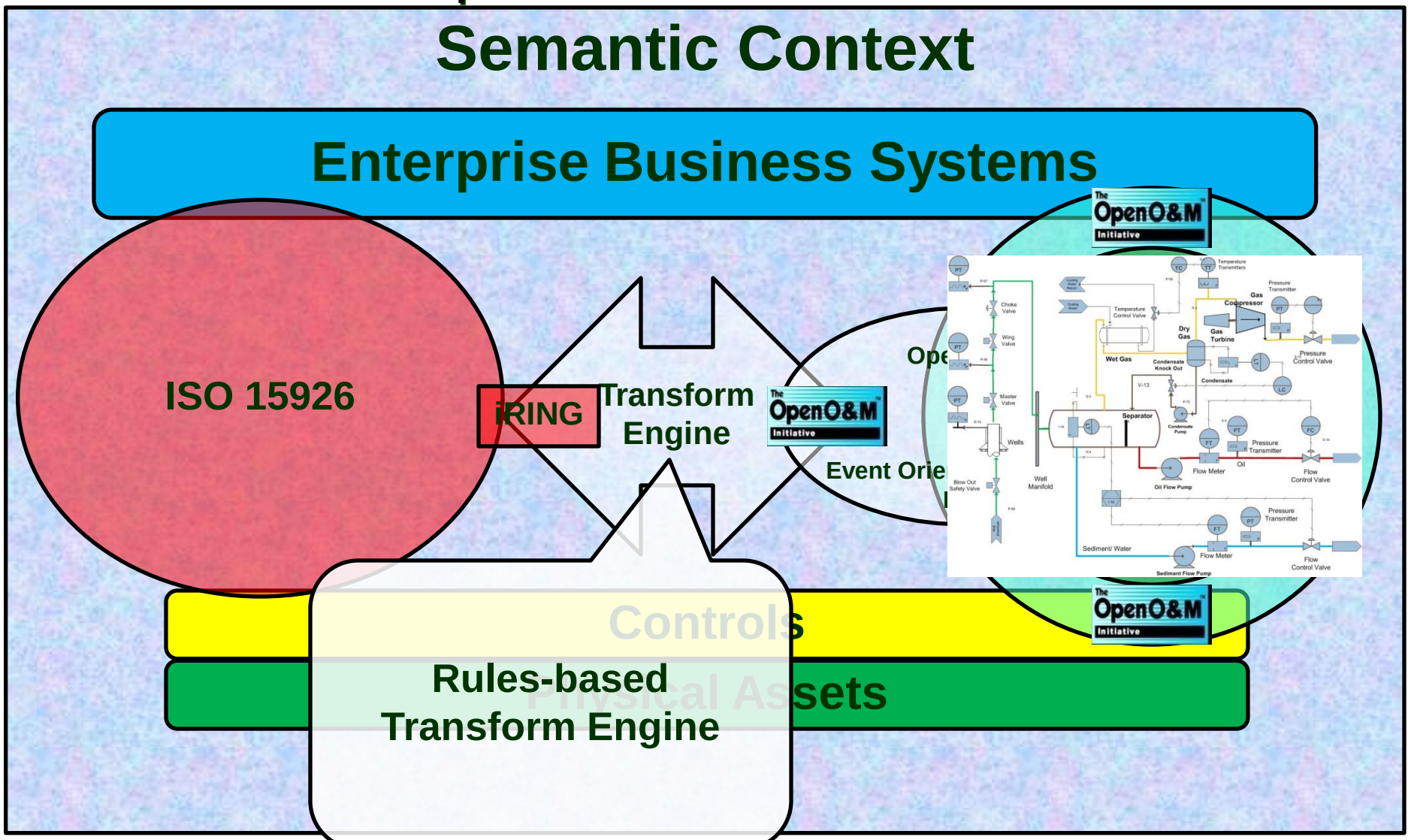
Context for Collaboration

Step 1- Capture/Model Basic As Is Topologies in OpenO&M



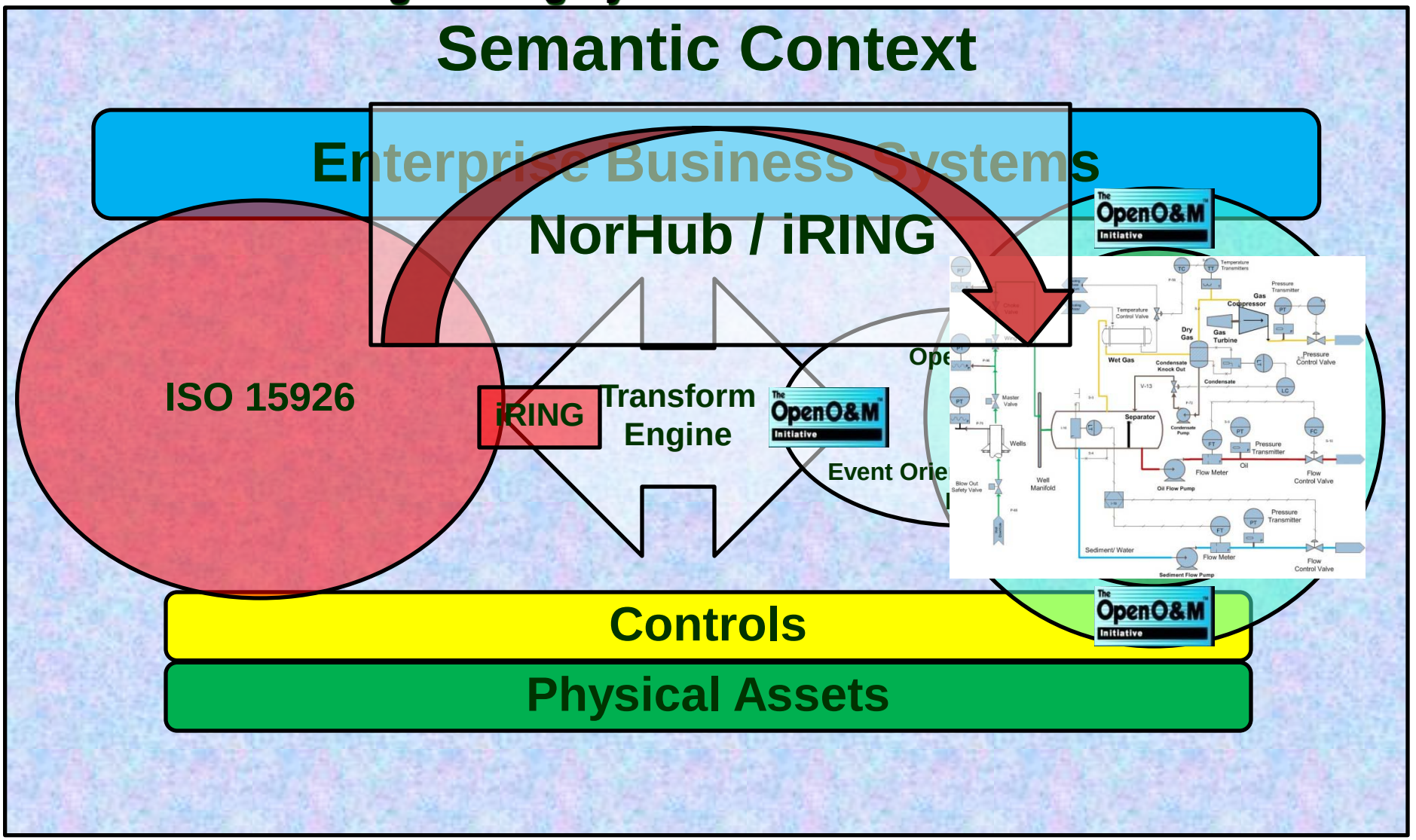
Context for Collaboration

Step 2- Link ISO 15926 and 10303 Based Engineering Systems with OpenO&M Execution Environment



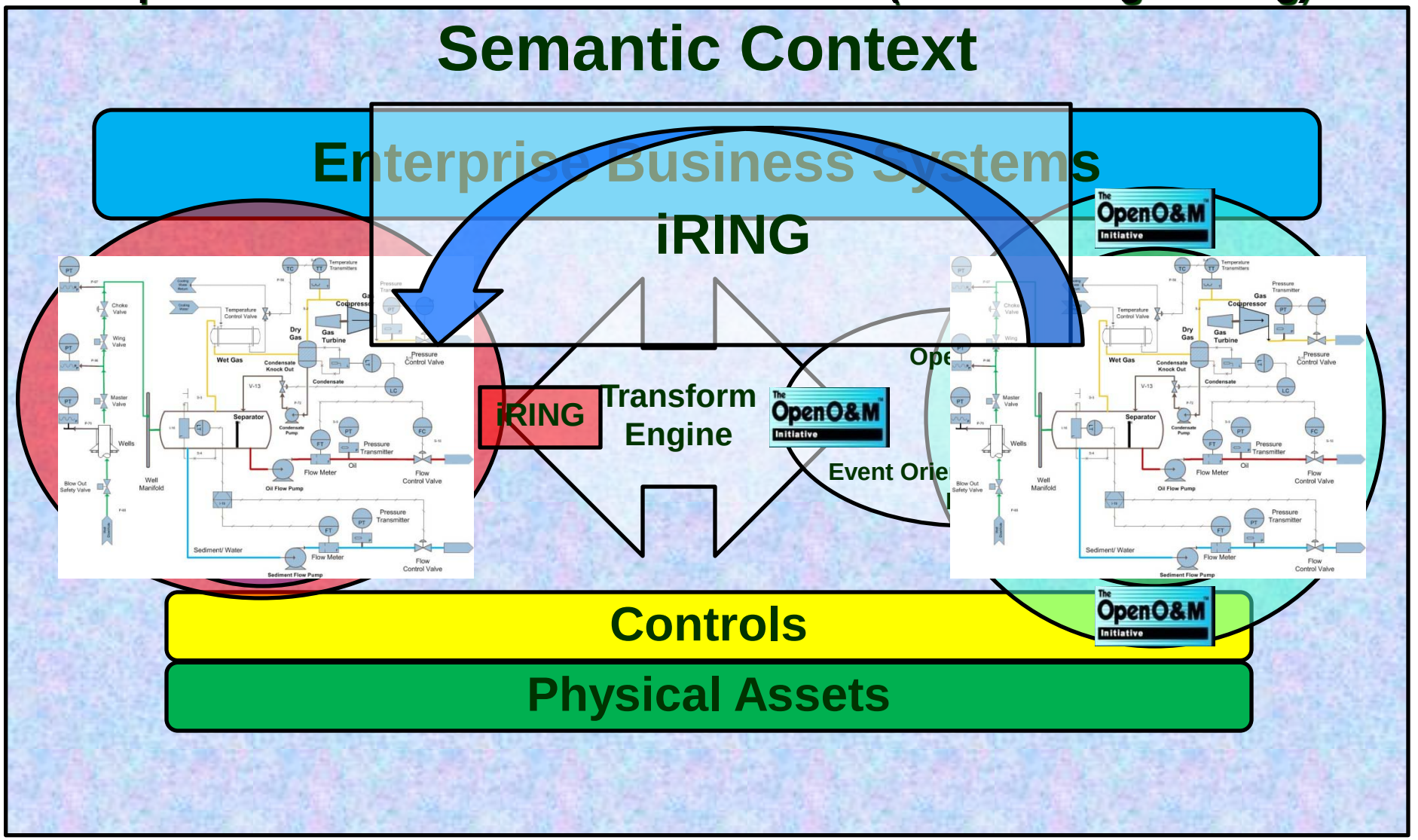
Context for Collaboration

Step 3- Pull Rich Equipment Data From ISO 15926 Based Engineering Systems – NorHub / iRING



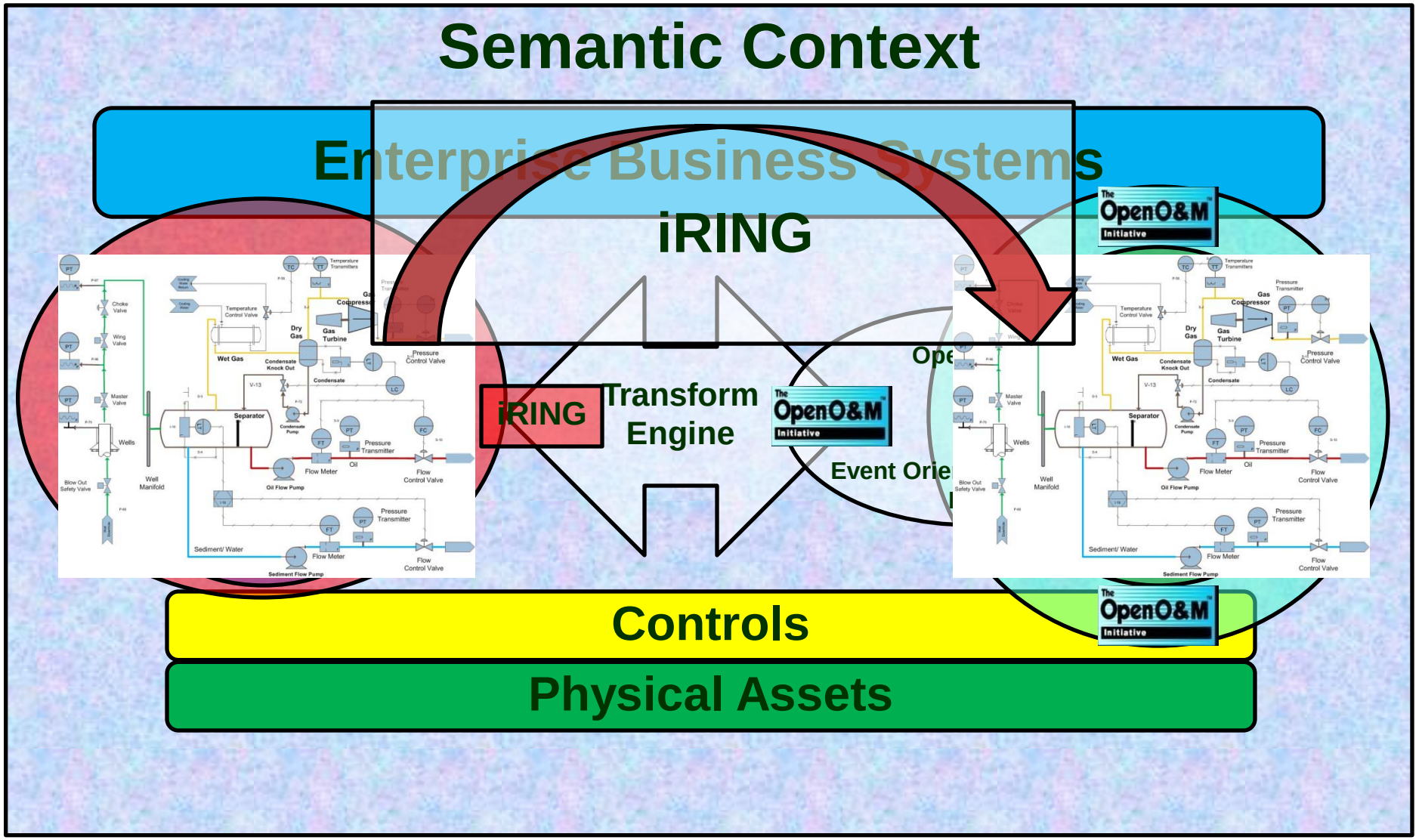
Context for Collaboration

Step 4- Pull Basic Topology and Configuration History from OpenO&M into ISO 15926 and ISO 10303 (Reverse Engineering)



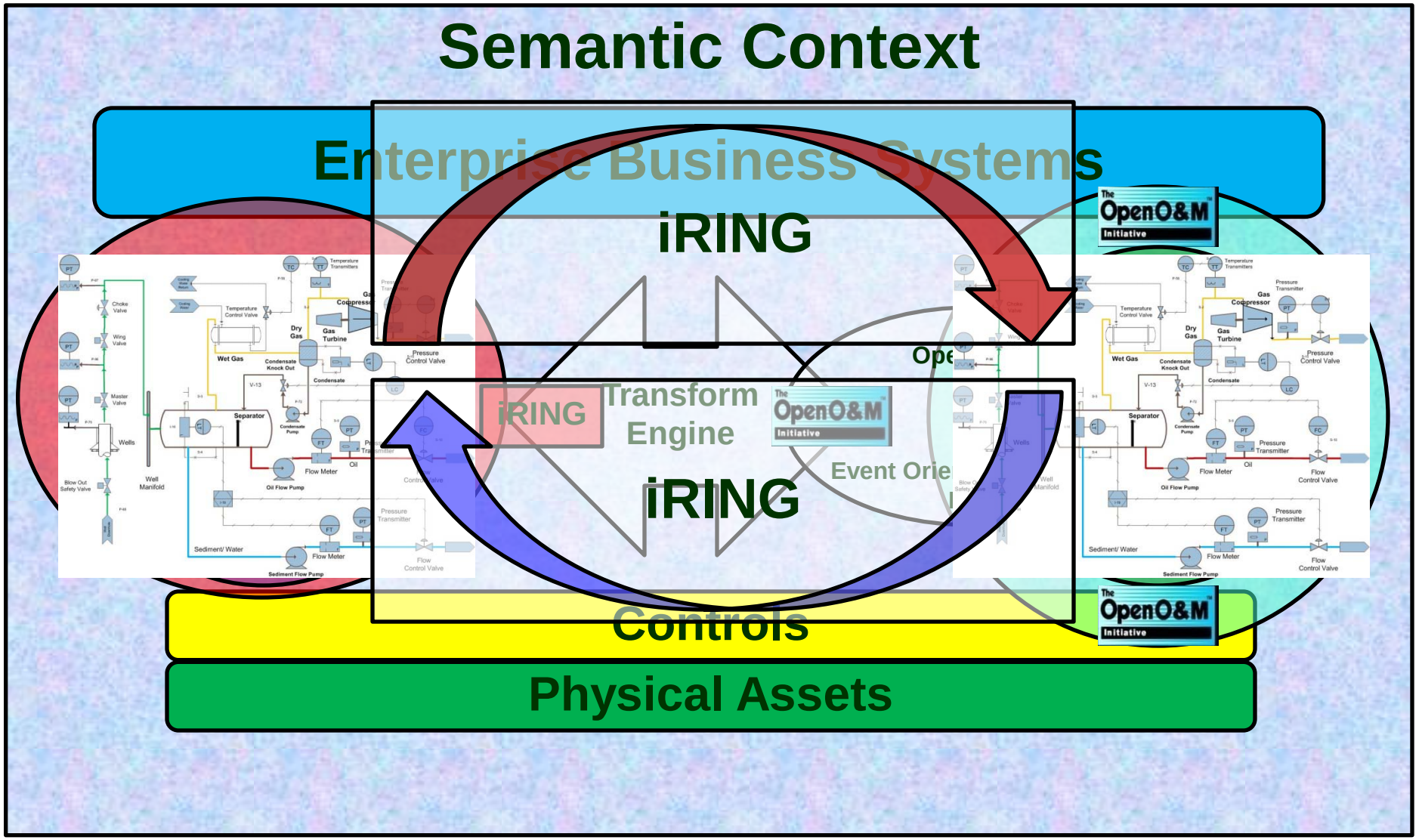
Context for Collaboration

Step 5- Round-tripping From ISO 15926 and ISO 10303 Based Engineering Systems – RING (Forward Engineering)



Context for Collaboration

Step 6- Permanent Synchronization

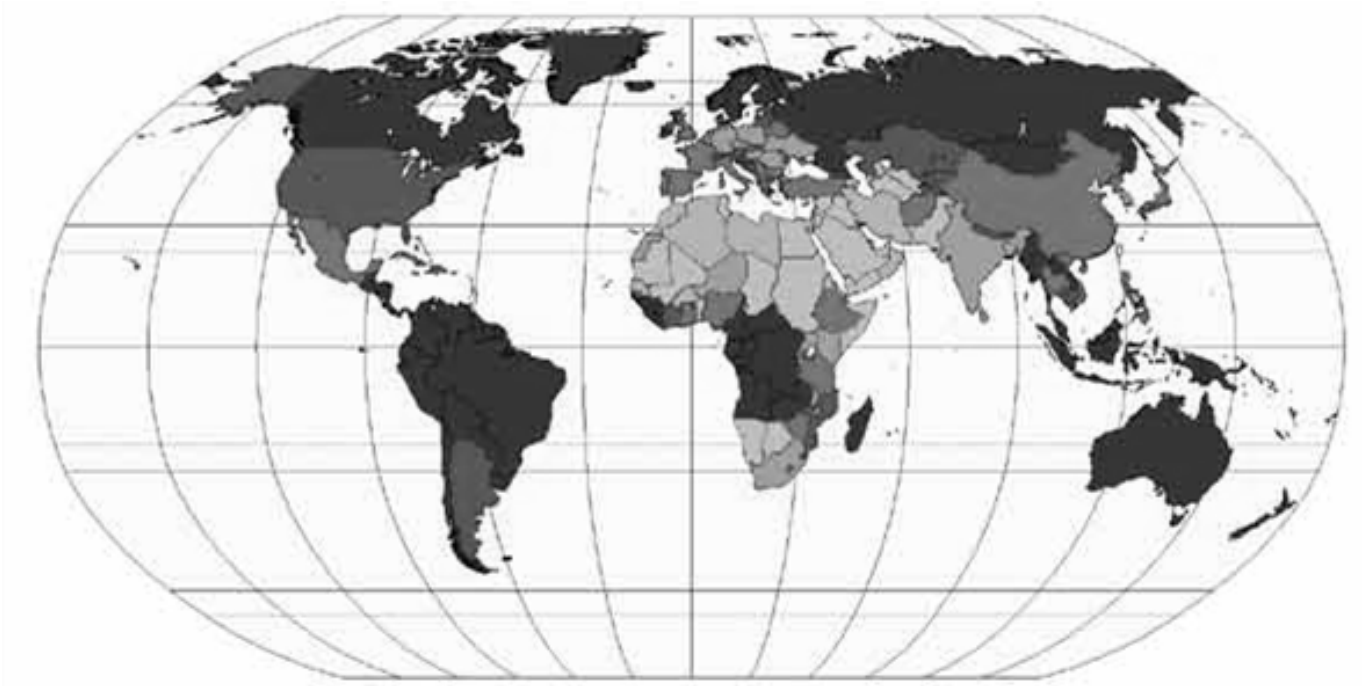


Critical Infrastructure Management
Integrated Energy, Aerospace/Defense/Military and Communications

- From an Engineering Point of View, Oil and Gas platforms are very much like Aerospace/Defense/Military platforms
- By policy, military is to follow industry
- Leverage industry standards
- Leverage COTS
- A much larger unified market producing a win/win opportunity for owner/operators and suppliers

Global Collaboration and Coordination

- MIMOSA/OpenO&M
- POSC Caesar
- CIEAM - Asia Pacific / Australia Region
- FIATECH



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OpenO&M Initiative and POSC Caesar
Major 2009 Q4 Collaboration Events

- CEAM World Congress - September 28-October 1 - Athens, Greece
- ISA EXPO 2009
  - ✓ October 6-8; Houston, Texas
  - ✓ Embedded 1/2 Day Management-level OpenO&M Executive Summit
    - (IBM, Microsoft and Rockwell Automation)
  - ✓ Enterprise Integration Conference & Interoperability Demonstration
    - Automation/Controls (Rockwell Automation and Yokogawa)
    - Engineering (INTERGRAPH, INOVx)
    - Enterprise Systems (IBM and Microsoft)
    - O&M Solutions - Mtelligence
    - Standards and Solutions Teams (OpenO&M, POSC Caesar, CIEAM)
- NPRA Technology Q&A - October 11-15 - Dallas/Fort Worth, Texas
- POSC Caesar Meeting
  - ✓ October 19-21; Kuala Lumpur, Malaysia
  - ✓ Hosted By PETRONAS
- ISO TC184 SC4 Plenary - Nov 8-12- Rotterdam, Netherlands
- Intelligent Manufacturing Systems - Nov 9-11- Geneva, Switzerland
- API Refining and Equipment Standards Meeting - Nov 9-11 – Dallas, TX

SAP Commitment to Open Standards

and MIMOSA OpenO&M Organization

- As the largest provider of Enterprise Applications across the Process Industries, SAP remains committed to extending the value of these solutions for our customers through interoperability.
- This support for open standards is further demonstrated by our continued membership in organizations such as MIMOSA.
- SAP will continue to work with its partners and OpenO&M members to find the most appropriate means to demonstrate interoperability.
- SAP continues to collaborate with customers in other interoperability initiatives such as the Integrated Operations High North consortium and POSC–Caesar.

Key Joint Projects

- Asset Globally Unique ID
  - ✓ Norwegian Continental Shelf
  - ✓ Americas
  - ✓ Malaysia ?
- Key Physical Asset Parameters
  - ✓ Global project
  - ✓ Critical Infrastructure Management
  - ✓ Initial focus on common rotating equipment and valves
- OpenO&M Event Oriented Message Bus “Intergalactic Systems Bus”
  - ✓ Use case driven - Specification for Open On-Ramps and Off-Ramps
  - ✓ With IBM, Microsoft and SAP support
- OpenO&M and ISO 15926 Topology Mapping
  - ✓ Practical bootstrapping for current projects
  - ✓ Basis for reverse engineering into ISO 15926
- Creation of standing R&D/Demonstration environment including
  - ✓ Prime IT Suppliers – IBM, Microsoft, SAP
  - ✓ Key Automation and Controls Suppliers
  - ✓ Key Engineering/Procurement/Construction Suppliers