

# IPA-MIMOSA OIIE Capital Projects Working Group Meeting #7 – 6/15/2021 Meeting Minutes

Deborah J. McNeil (Independent Project Analysis, Inc.)

Alan Johnston (MIMOSA)

Dr. Matt Selway (University of South Australia)

Dr. Karamjit Kaur (University of South Australia)

Von Gusa (GUSA Consulting Services)

Luke Wallace (Independent Project Analysis, Inc.)

# OIIE Capital Project Working Group: 06-15-2021 Meeting Agenda

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- Share the OIIE Capital Project Working Group Purpose
- Brief Overview of where we've been - Review Meeting #1 - #6 Results
- Sub-team updates:
  - Cost Estimating
  - RFI/ RFI Response
  - Asset Installation
- Update on MIMOSA Pilots – 3.3 and 3.4
- Key Issue Discussion
- Define OIIE Capital Project WG Next Steps

# OIIE Capital Project Working Group Leaders

## IPA



### Deborah J. McNeil

Director, IPA Capital Solutions  
And Digitalization  
[dmcneil@ipaglobal.com](mailto:dmcneil@ipaglobal.com)



### Luke Wallace

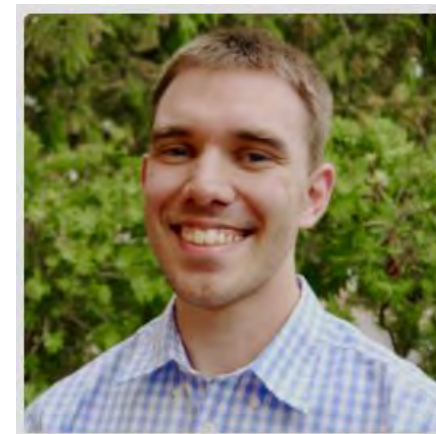
Senior Consultant  
[lw Wallace@ipaglobal.com](mailto:lw Wallace@ipaglobal.com)

## MIMOSA



### Alan Johnston

President, MIMOSA  
[ajohn@mimosa.org](mailto:ajohn@mimosa.org)



### Dr. Matt Selway

Research Fellow,  
University of South Australia  
[Matt.Selway@unisa.edu.au](mailto:Matt.Selway@unisa.edu.au)

## Open Industrial Interoperability Ecosystem (OIIE) Capital Project Working Group Purpose

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This working group will meet **monthly** to help **align the efforts of owner companies**; engineering, procurement, and construction (EPC) firms; industry standardization organizations (e.g., IOGP/CIFHOS, ISA, MIMOSA) and international standards organizations (ISO, IEC, etc.).

All participants will work together to set the owner/EPC firm priorities for **interoperability** solution delivery to enable pragmatic industry digital transformation on a timely basis.

# Activities To Date

Began Monthly Meetings

Kick-off 11-4-20		Meeting #2 12-17-20		Meeting #3 2-22-21		Sub-Team Meetings 3/9/21		Meeting #4 3-16-21		Meeting #5 4-20-21	
Participation	#	Participation	#	Participation	#	Participation	#	Participation	#	Participation	#
Invited	380	Invited	380	Invited	380	Invited	290	Invited	290	Invited	290
Registered	218	Registered	79	Registered	188	Registered	111	Registered	152	Registered	100
Attended	103	Attended	34	Attended	111	Attended	40	Attended	39	Attended	38

- Charter Review
- Challenge Description
- Methodology Overview
- Initial Opportunity Identification
- Detailed Methodology Presentation
- Detailed Brainstorming Breakouts
- **180 Opportunities ID'd**
- Detailed Methodology Presentation
- **Began work on Top 3 Opportunities** (Breakouts)
- **Continued work on Top 3 Opportunities in Sub-teams**
- **Dug Deeper on Business Use Case Deliverables**
- Shared sub team progress
- Discussed scope of OIIE OGI Pilot Phase 3.3

Meeting Slides For all Previous Meetings Can Now be Found on:

<https://www.ipaglobal.com/event/digitalization-ipa-mimosa-oiie-capital-project-working-group-meetings/>

# Activities To Date

~57 Owner Companies  
Across Multiple Industries

Meeting #6 5-18-21		Meeting #7 6-15-21					
Participation	#	Participation	#	Participation	#	Participation	#
Invited	290	Invited	290	Invited		Invited	
Registered	100	Registered	110	Registered		Registered	
Attended	33	Attended	22	Attended		Attended	

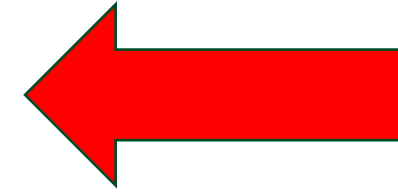
- Sub-team Update
  - Deliverables Discussion
  - Next Steps
  - Sub-team Update
  - MIMOSA Pilots 3.3 and 3.4 Update*
  - Next Steps

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### 2021 MEETING SCHEDULE

- November 4, 2020 – [View Meeting Minutes](#)
- December 17, 2020 – [View Meeting Minutes](#)
- February 16, 2021 – [View Meeting Minutes](#)
- March 16, 2021 – [View Meeting Minutes](#)
- April 20, 2021 – [View Meeting Minutes](#)
- May 18, 2021 – [View Meeting Minutes](#)
- June 15, 2021
- July 20, 2021
- August 17, 2021
- September 21, 2021
- October 19, 2021
- November 17, 2021
- December 21, 2021

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Of Web Page



Sub- Team Report Outs



# Sub-Team Updates as of 6/15/21

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## Subteams 1&2 – Cost Estimating – (Von Gusa/ Luke Wallace)

The intent of this teams focused effort is to create a “strawman” of the industry good practice regarding the cost estimating process at a level of detail (granularity) to allow for identification of data and data management that can be improved (both internally to the company or industry and externally).

At the same time these industry good practices need to be at the right level to allow for adoption across the industry and represent what your company’s, industry, group or other entity you are presently doing regarding practices and processes. Therefore, this group will be leveraging the individual team members and publicly available representations and existing industry good practices and processes to develop the strawman.

Will use AACE work process as the framework – Tiger team Framework development) will kick-off in June

# Sub-Team Updates as of 6/15/21

## Subteam 3 – RFI/RFI Response- Capital Supply Chain (Karamjit Kaur)

Have had 7 sub-team meetings –

Meeting every other Tuesday

See Slides in Appendix ...

### OIIE Purchasing Use Case Scope

#### In Scope

- ✓ Process of Purchasing up to the point where Purchase Order (Digital version) is submitted and ACK is received containing estimated shipment date etc.
- ✓ Identify contents to be sent as part of the RFI and RFI responses
  - ✓ Any documents (both machine interpretable and otherwise) to be sent as part of these RFI and RFI responses
- ✓ Include the data exchanged as part of RFI process as part of Purchase Order

#### Out of Scope

#### (separate OIIE Use Cases)

- × Make/model matchup process
- × Logistics aspect of Purchasing
- × Receiving process
- × Inspection processing
- × Cost estimation(Pricing) aspect of Purchasing
  - × RFP/RFP response
- × Payment processing
- × Change(s) in Purchase Order
- × Evaluation and Selection of quote
  - × After receiving RFQ Responses
- × Supplier Management
  - × Managing list of preferred suppliers etc.

## Sub-Team Updates as of 5/18/21

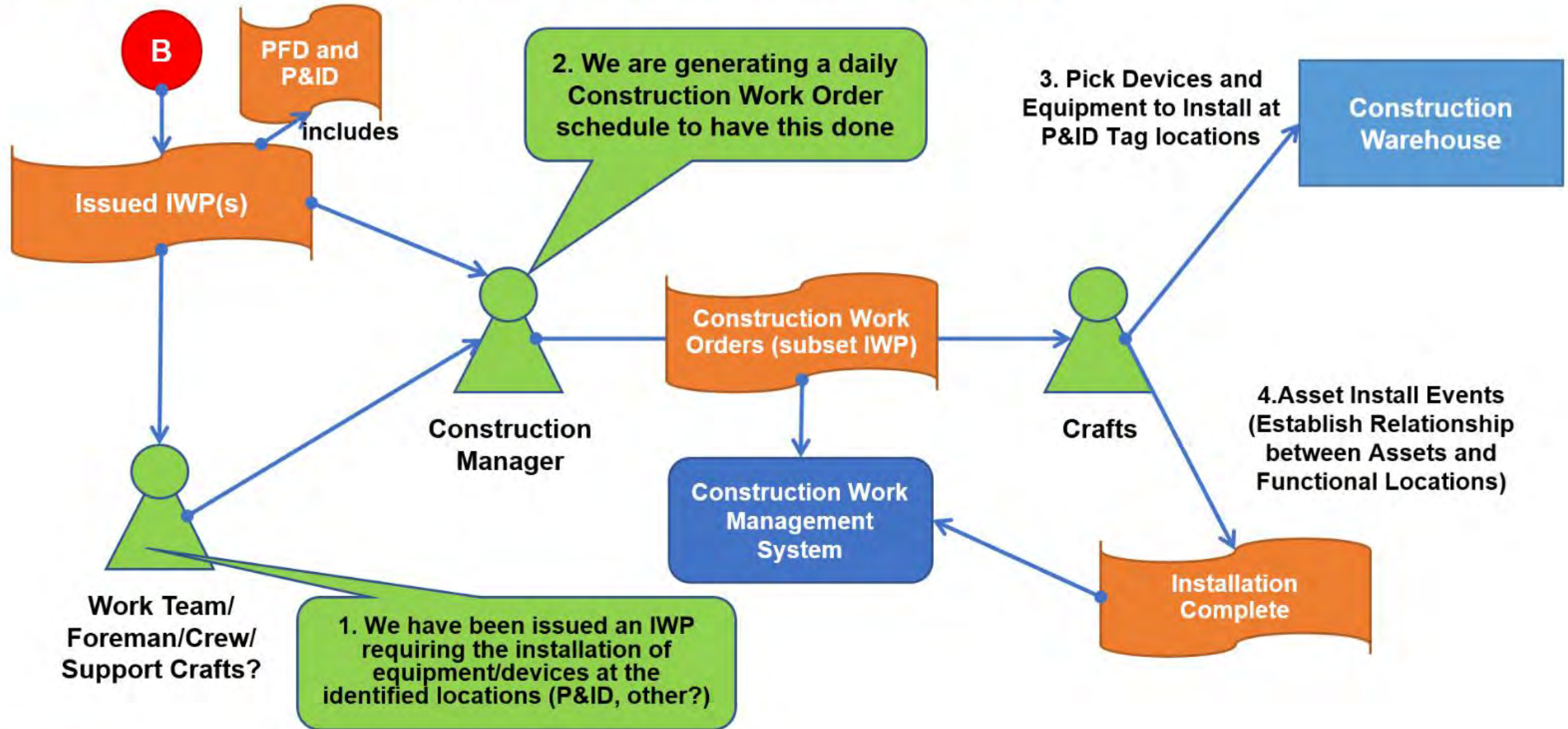
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### Subteam 4- Asset Installation – Capital (Matt Selway)

- ✓ Have end to end workflow defined –
- ✓ Identified user stories across the flow
- ❑ Working through defining priorities –
- ❑ discussion underway on where to focus first

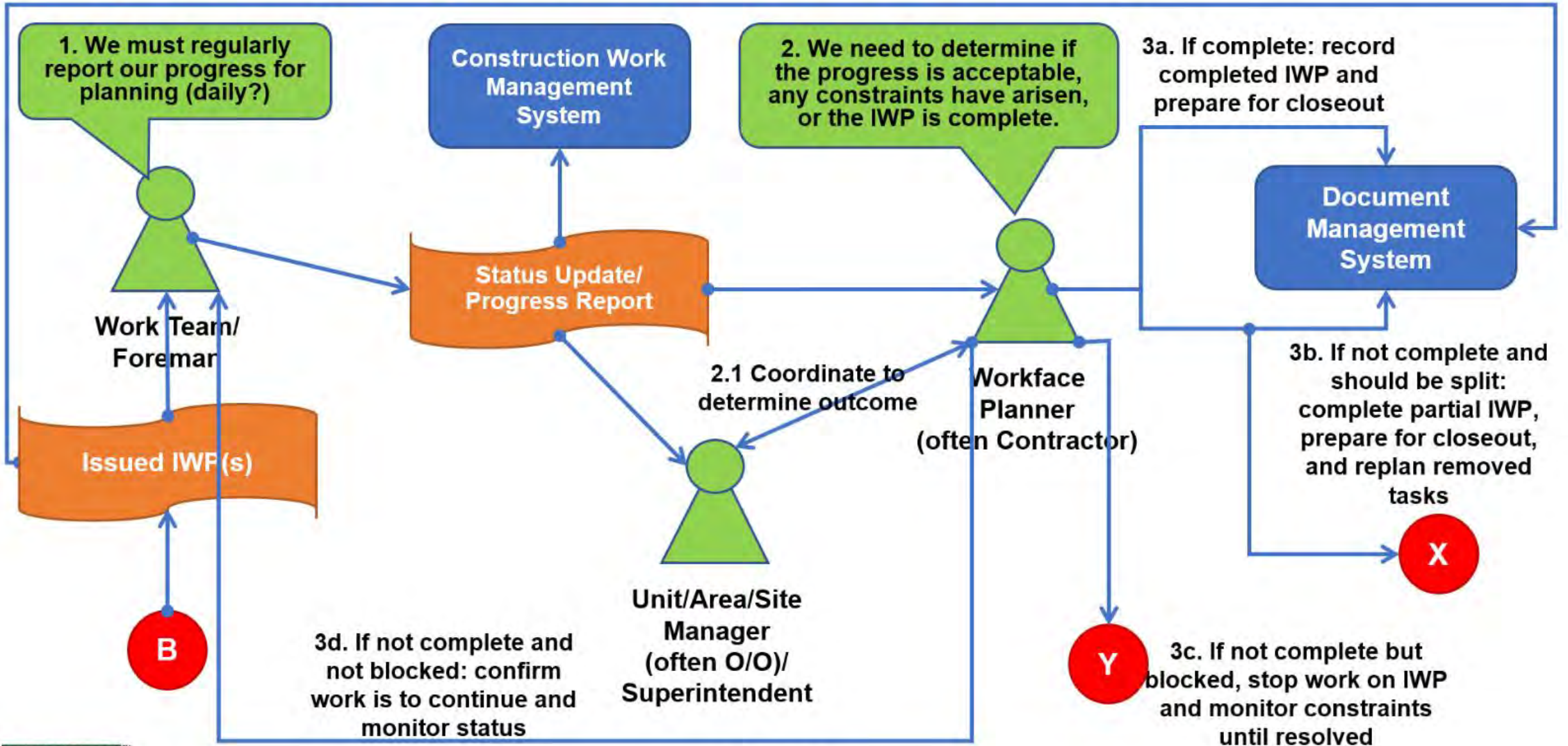
Tuesday – 8 am EST every other Tuesday – 5/25 next meeting

# Field Execution (Install Equipment and Devices)





# Story: Monitor Completion Status in the Field



## Sub-Team Updates as of 5/18/21

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New – Subteam 5 -- Prioritization and Value Case Definition – enablers –  
Deb McNeil

Goal- to stay focused on right priorities- economy of scale areas

Initial Meeting being scheduled in early July

Check-

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Access to MIMOSA TEAMS work area –

Anyone needing an invitation contact Matt Selway:

Matt.Selway@my.unisa.edu.au

# Current Activities



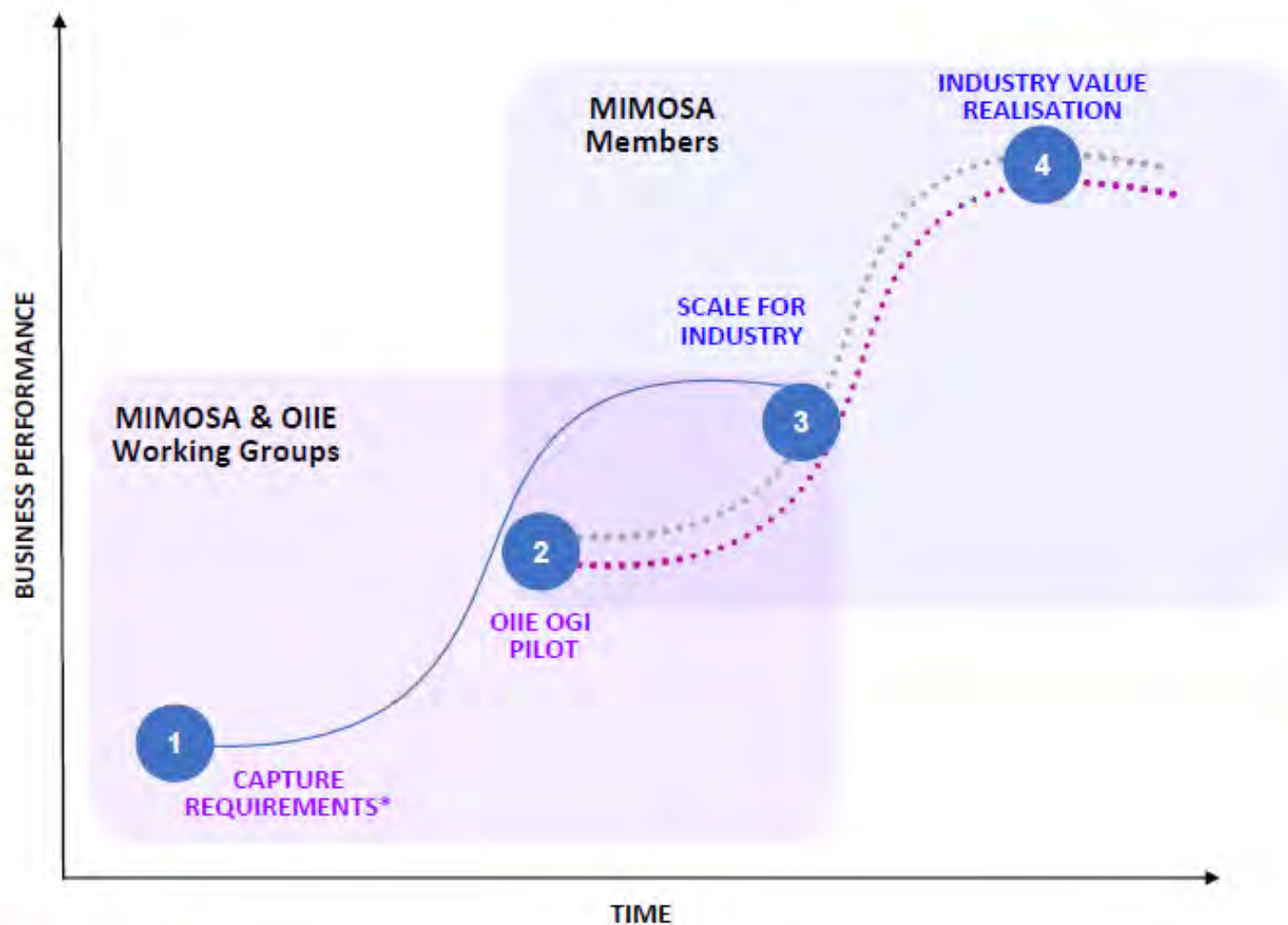
# Open Industrial Interoperability Ecosystem (OIIE)<sup>™</sup>

## OGI Pilot Phase 3.3 Overview

For OIIE Capital Projects Working Group

June 15, 2021

# THE OIIE INTEROPERABILITY PROGRAM IS THE PRIMARY PROCESS TO DRIVE INDUSTRY DIGITAL TRANSFORMATION



- 1 Capture Industry Requirements**  
Process of capturing industry user stories and prioritizing them for the OIIE OGI Pilot
- 2 OIIE OGI Pilot**
  - Develop **prototype OIIE use cases** and associated software
  - Validate use cases and **software** in industry pilot
  - Publish version managed **standards** and specifications (use cases, scenarios, events...)
- 3 Scale for Industry**  
Industry participants **build supported implementations** of OIIE elements for industry use in OIIE systems of systems
- 4 Industry Value Realization**  
Industry participants assemble their own interoperating OIIE systems of systems using intranets and extranets

\* Industry requirements defined. Next step to validate the client specific requirements.

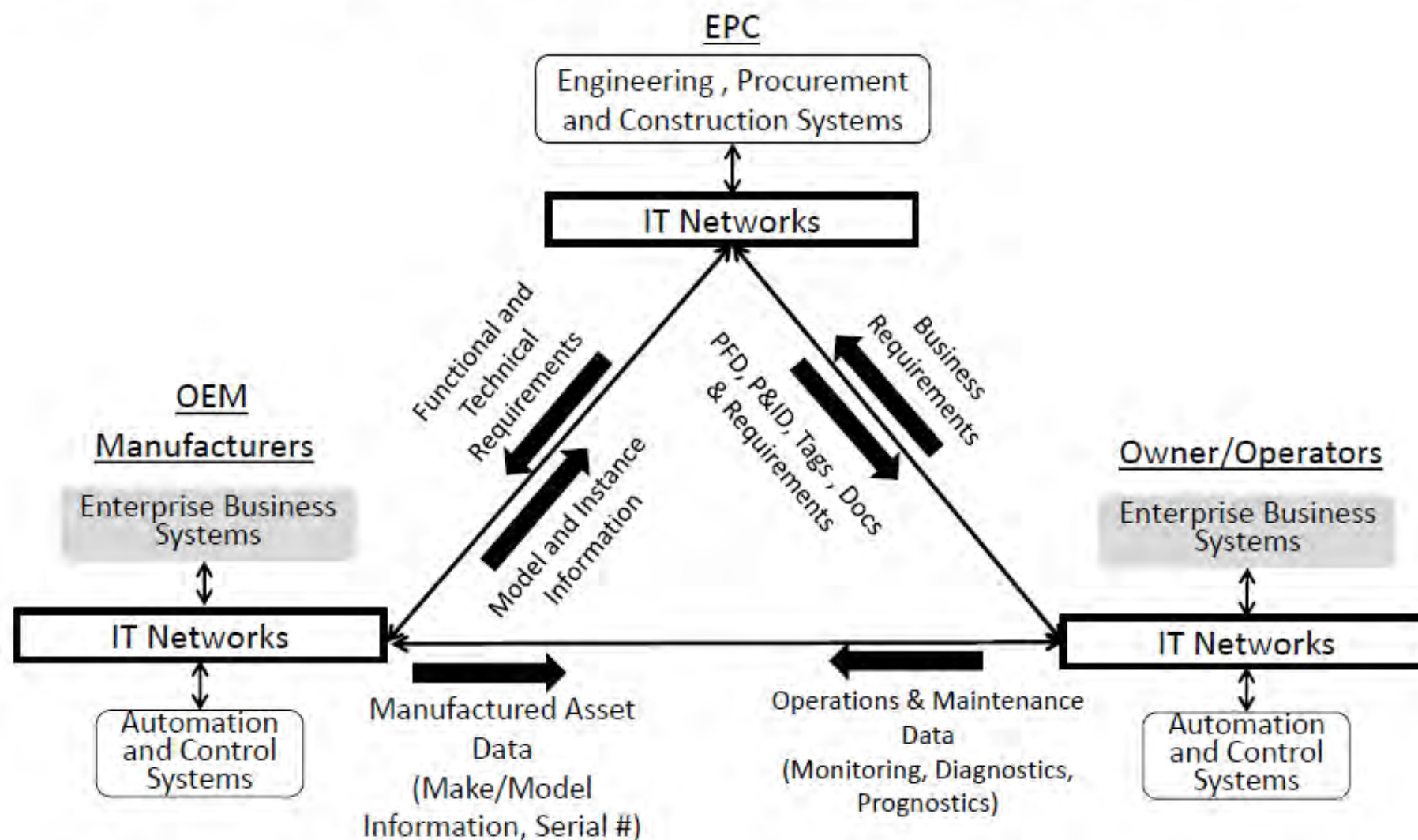
# Background

Phases of the **OIIE OGI Pilot** incrementally develop, improve and validate OIIE Use Cases which are used to capture requirements and interoperability solutions specifications defining the OIIE. Validated OIIE Use Cases are then published for royalty free use and inclusion in ISO TS 18101 via TRs and TSs.

- **Phase 3.1 (2018-2019)** - Major new pilot series reflecting technology changes.
  - Starts with specifications from prior 2.x OGI Pilot Series
  - Phase 3.1 follows the lifecycle model previously defined in the ISO MAMI Task Force
  - Includes a set of OIIE Use Cases developed using the formal OIIE Use Case Architecture
- **Phase 3.2 (2019-2020)** – Refined and documented multiple OIIE Use Cases
  - Refined the OIIE Use Case Development Processes-combining Agile and Waterfall methods
  - Incorporating initial requirements from Australian Energy Sector/NERA and OpenO&M ISBM 2.0
- **Phase 3.3 (2021-2021)** – Ongoing-Updating 3 existing OIIE Use Cases and add a Purchasing Use Case
  - Initial alignment with existing CFIHOS RDL, CII AWP/IWP work and OIIE Australian WG
  - Adding specifications for other Key Components to fully support OIIE
  - Capturing requirements for Managed Industry Clusters (**Initial Example-Energy Clusters**)
- **Phase 3.4 (2021-2022)** – Planning for Next Phase (2021 - Q4 Start)
  - Shared Investment and Risk – Requirements from Members are Prioritized
  - Include more requirements established with OIIE Capital Projects WG, OIIE Australian WG, FEnEx CRC, CFIHOS, and CII
  - Alignment with FEnEx CRC Project on Interoperable Analytics provides matching funds for R&D/Testing
  - Generate Technical Report to be used as input for ISO 18101

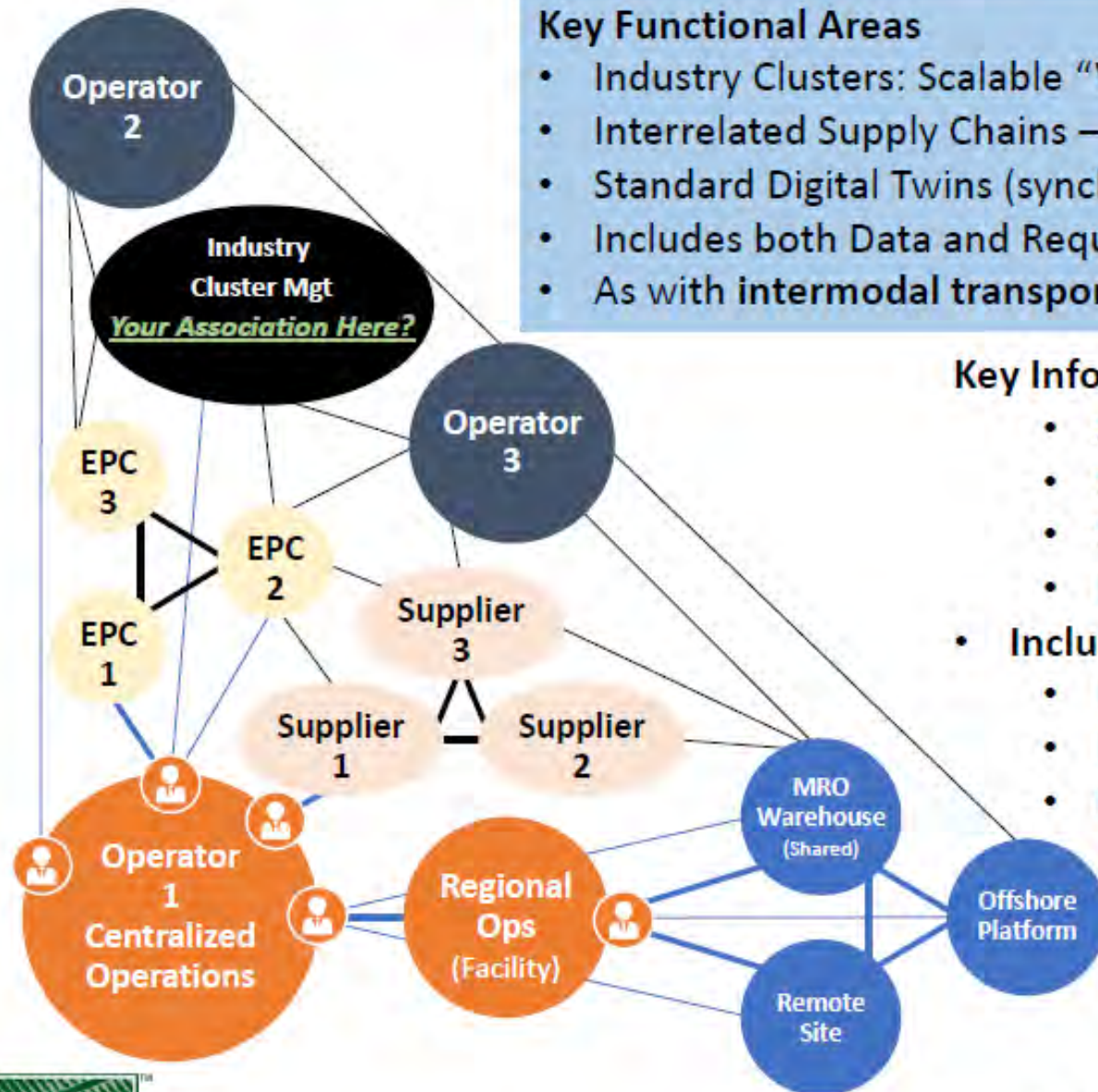


# Inter-Enterprise OIIE Digital Ecosystem



# ISO 18101 and OIIE Interoperability Framework

## Asset-centric Connected Digital Ecosystems – Industry Clusters



### Key Functional Areas

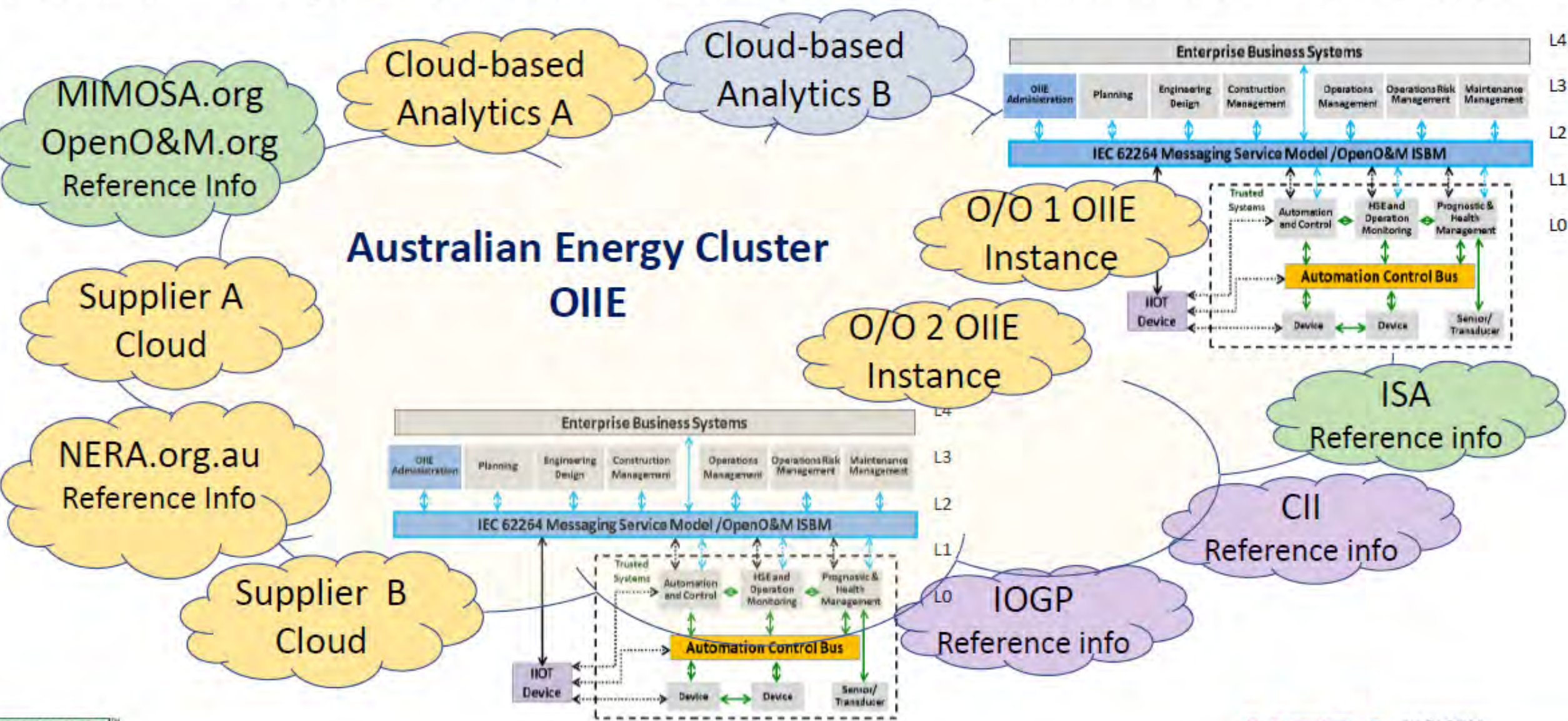
- Industry Clusters: Scalable “Virtual Hubs” without the liabilities of hub and spoke architecture
- Interrelated Supply Chains – CAPEX and OPEX
- Standard Digital Twins (synchronized across the lifecycle)
- Includes both Data and Required Documents
- As with intermodal transport, clusters standardize how payloads route between nodes

### Key Information Technology Features:

- Standard OIIE Use Cases
- Standard APIs, Directories & Registers
- Standard Data Containers (BODS), Data Models and Reference Data
- ISO 8000 based Data Quality
- Includes Specifications For:
  - Industry Standard Digital Utility Services
  - ID Management, Systems/Services of Record
  - Networks and Breakdown Structures



# The Open Industrial Interoperability Ecosystem (OIIE) and ISO 18101 Australia Energy Sector OIIE Network (Subnet of AU Critical Infrastructure)





# OIIE OGI Pilot Phase 3.3 - Starts Adding AWP (IWP) and CFIHOS

The plan is to update 2 existing OIIE Use Cases and inserts a new OIIE Use Case focused on Purchasing, then follow the existing OIIE Use Cases shown here.

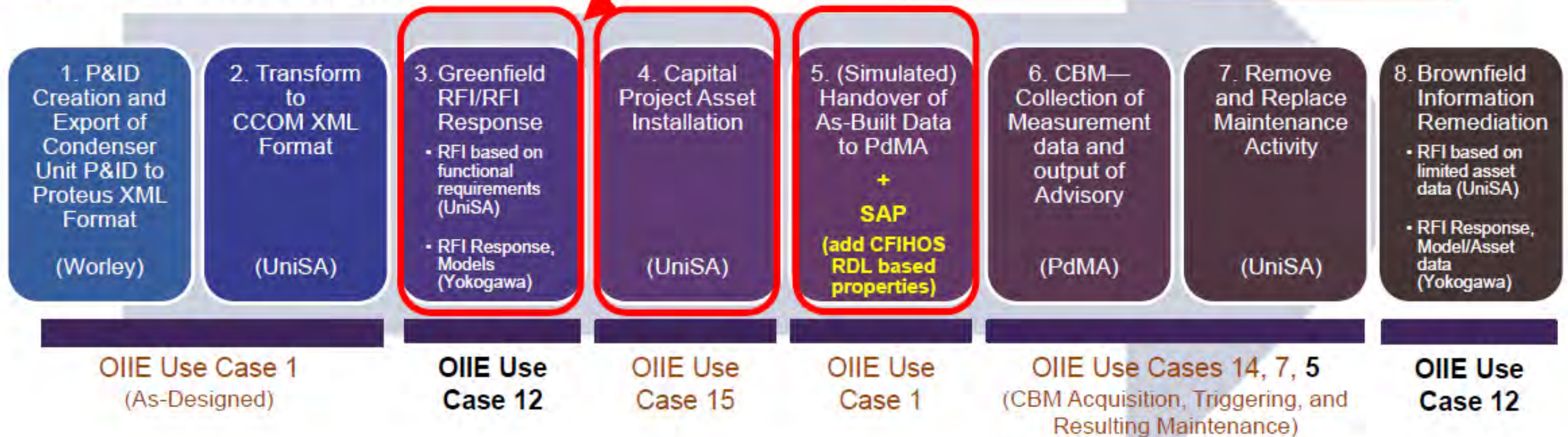
**Relevant CFIHOS RDL is being added along with AWP requirements for IWPs.**

**Insert New OIIE Use Case**

1. Purchasing

**IEEE Std 841/IOGP - JIP33 S-733D**

Low Voltage Electric Motor and ISA Spec Instrument





# Planned Sprints

Sprint 0 Task	Status
2. CFIHOS RDL 1.4.1 Analysis done by MIMOSA	Awaiting CFIHOS review

Sprint #	Backlog Tasks			Task Short Description
Sprint 1	1	4	3	1. Purpose of CFIHOS RDL for pilot 3. Review CFIHOS RDL based ISDD for Diff. Press Trans. 4. Generate CFIHOS RDL based ISDD for Motor 9. Extend OIIE Handover Use Case for CFIHOS ISDDs 10. Demo extended OIIE Use Case 1
(June 2021)		9		
		10		
Sprint 2	7	6.1	8	6.1 ISBM 2.1 Specification update (AMQP) 7. New OIIE Use Case for Purchasing 8. Extend OIIE Use Case 15 with IWP
(July 2021)				
Sprint 3	5	6.1	6.2	5. Generate JIP 33 based ISDD for LV Electric Motor 6.2 Service Directory 2.1 Specification update (Capabilities and Cluster)
(Aug 2021)				

NOTE: Backlog tasks 11, 12, 13 will be covered in future sprints.



# Backup Material

# Marks

- All marks are the property of their respective owners.
- MIMOSA, OpenO&M, Open Industrial Interoperability Ecosystem, OIIE and ISBM are marks of MIMOSA.



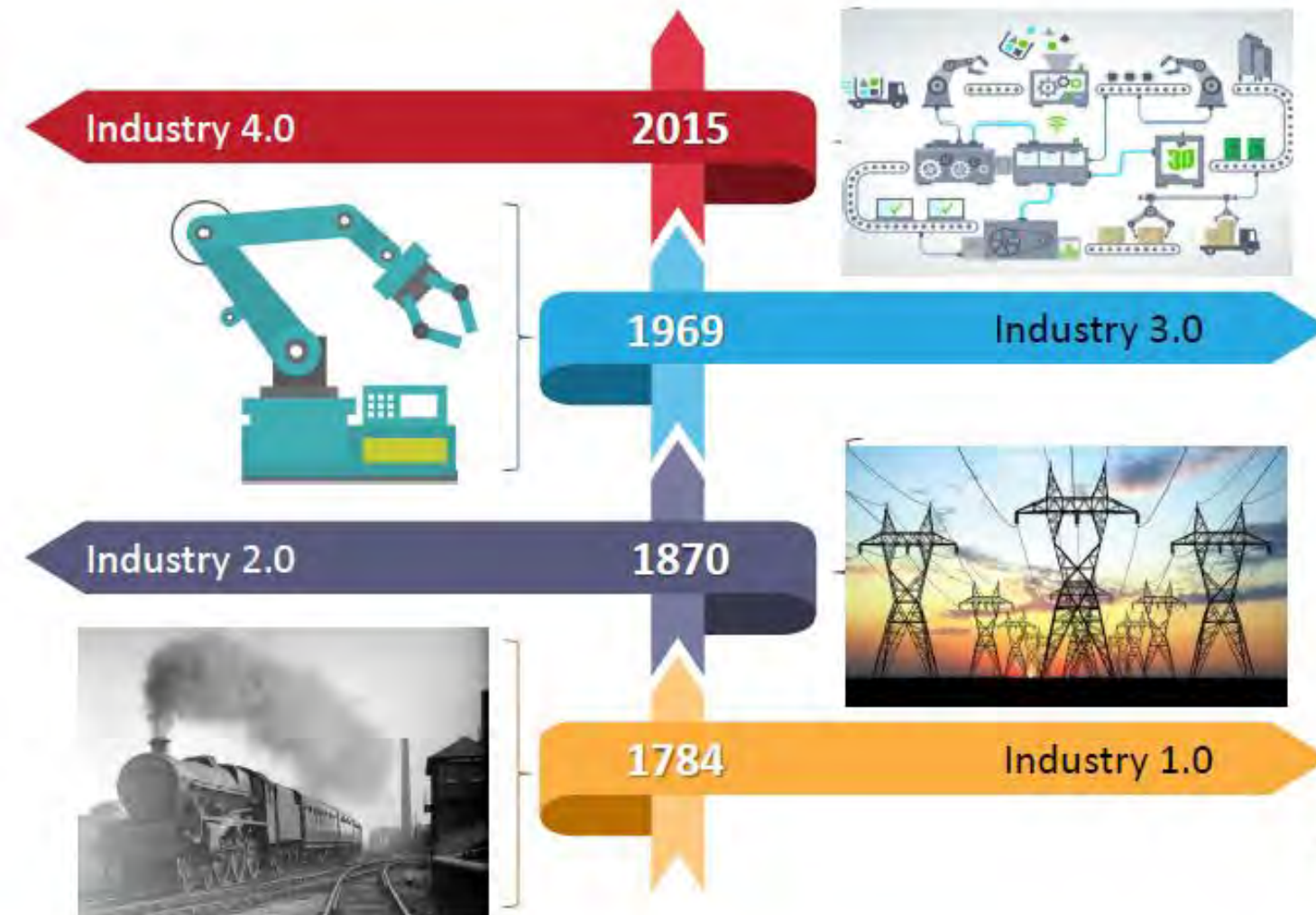
# Collaborations

- **OIIE Australia Working Group**
  - NERA Sponsored
  - Initial Webinars held in April 2020
  - ISO mirror committee process-Collecting Industry Letters-Now
  - Discussions with NERA and Hydrogen Cluster Team-Now
  - OIIE AU WG R&D Instance, STD Endpoints –Now
  - Workshops being scheduled for SMEs in April/May 2021
  - Joint Release to Announce Workshops-Under Development
- **OIIE Capital Project Working Group**
  - led by IPA
  - Informative webinar in Nov, followed by breakout group discussions in Dec 2020
  - Aim to identify and prioritise OIIE Use Cases for Capital Projects
  - Industry workshops under way in Q1 2021
- **OIIE O&M Working Group, OpenO&M Initiative (with ISA, MESA, OPC, OAGi)**
  - Overall collaboration on the OIIE with special focus on ISBM
  - ISA leading Operations Management Stream
  - ISA Datasheets for ISDDs- 1<sup>st</sup> Set Pending ISA Review
  - Start OIIE Services Directory effort, initially based on MIMOSA Services Dir 1.0
  - Workshops being scheduled for Q2 2021
- **CII/MIMOSA Interoperability JWG**
  - Developing joint OIIE use cases based requirements developed by CII
  - Initially focused on Advanced Work Packaging (AWP)
  - Meeting series now doing joint analysis prior to joint development
- **IOGP CFIHOS/MIMOSA Joint Working Group**
  - Use of OIIE/ISO 18101 as preferred interoperability/digitalization framework for CFIHOS RDL
  - Help coordinate OIIE Use Case Development in related industry sectors
  - Conversion of CFIHOS RDL V 1.4.1 to Co-branded ISDDs- Q2 2021
  - Developing joint plan to enhance 2 existing OIIE Use Cases and Add 1 new OIIE Use Case focused on Purchasing – Q1 2021
- **Future Energy Export Cooperative Research Centre**
  - Australian based with international participation
  - Industry Operators, Suppliers and Academic Members
  - MIMOSA is the member SDO
  - Digital Technologies and Interoperability Program
  - OIIE Interoperability Lab at University of South Australia
  - Matching funds for approved R&D projects
  - 1st Project Approved-Interoperability for Analytics (Including AI) Q1 2021



# Industrial Revolution Phases and Common Principals

## Gaining Business Efficiency from Modularity, Interoperability and Standardization



- In Industry 4.0
  - Supply chains need to be fully integrated across many industries
  - Sharing industrial internet and AI
  - Modular, standardized & interoperating industrial digital ecosystems
- **All industrial revolution phases** have included various aspects of modularity, interoperability & standardization enabling businesses to specialize, scale and cooperate for **major business efficiency gains**
  - Standard gauge railroads, screw thread
  - Electrical/Utility standards
  - Mechanical standards
- **Intermodal Transport** provides a useful physical analogy for what we are now doing in the digital world

# Interoperability Definition: ISO TS 18101-1

## Paragraph 3.1 - Terms and Definitions

### **interoperability**

capability of two or more entities to exchange items in accordance with a set of rules and mechanisms implemented by an interface in each entity, in order to perform their specified tasks

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**Note 1 to entry:** Examples of entities include devices, equipment, machines, people, processes, applications, computer firmware and application software units, data exchange [systems \(3.2\)](#) and enterprises.

**Note 2 to entry:** Examples of items include [services \(3.7\)](#), information, material in standards, design documents and drawings, improvement projects, energy reduction programs, control activities, [asset \(3.5\)](#) description and ideas.

**Note 3 to entry:** In this context, entities provide items to, and accept items from, other entities, and they use the items exchanged in this way to enable them to operate effectively together.

[SOURCE: ISO 18435-1:2009, 3.12, modified — The word “respective” has been replaced with “specified”, Notes 1 and 2 to entry have been modified and Note 3 to entry has been added.]

Next Steps

# IPA – MIMOSA OIIE CPWG

## Levels of Participation

General Interest

Register for Large Group  
Meeting Minutes

Attend the Large Group  
Meeting

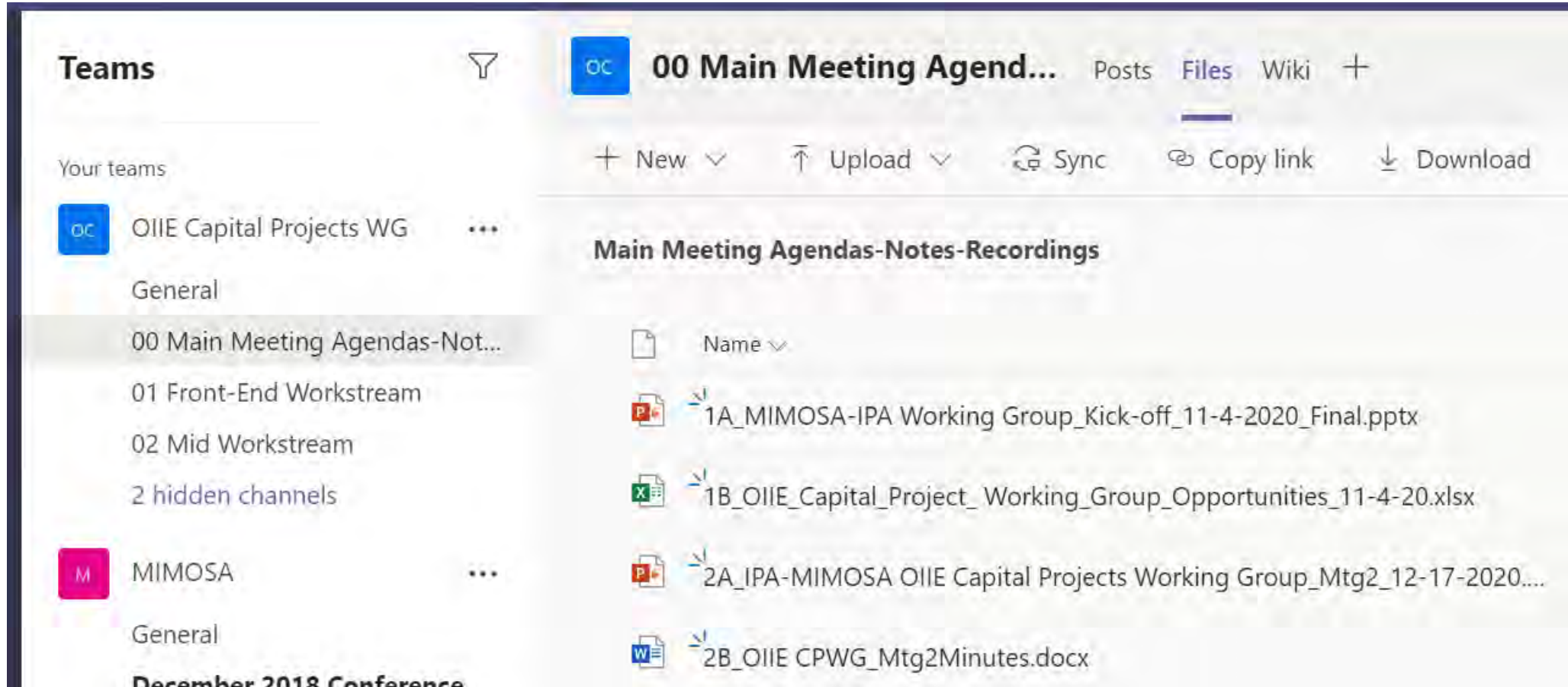
Attend the Breakout Team  
Working Groups

You'll be invited to join the TEAMS site.

You can then sign up for participation in one  
Or more of the Break-out Groups



# Join us on TEAMS and let's get to work...



The screenshot displays the Microsoft Teams interface. On the left, the 'Teams' sidebar shows 'Your teams' with two entries: 'OIIE Capital Projects WG' (selected) and 'MIMOSA'. Under 'OIIE Capital Projects WG', there are channels: 'General', '00 Main Meeting Agendas-Not...' (highlighted), '01 Front-End Workstream', '02 Mid Workstream', and '2 hidden channels'. The main area shows the selected channel '00 Main Meeting Agend...' with tabs for 'Posts', 'Files', and 'Wiki'. The 'Files' tab is active, displaying a list of files under the heading 'Main Meeting Agendas-Notes-Recordings'. The files are:

- 1A\_MIMOSA-IPA Working Group\_Kick-off\_11-4-2020\_Final.pptx
- 1B\_OIIE\_Capital\_Project\_Working\_Group\_Opportunities\_11-4-20.xlsx
- 2A\_IPA-MIMOSA OIIE Capital Projects Working Group\_Mtg2\_12-17-2020....
- 2B\_OIIE CPWG\_Mtg2Minutes.docx

A red arrow points to the '00 Main Meeting Agendas-Not...' channel in the left sidebar.



## Gathering Input on 3 Use cases

### Sub-Teams-

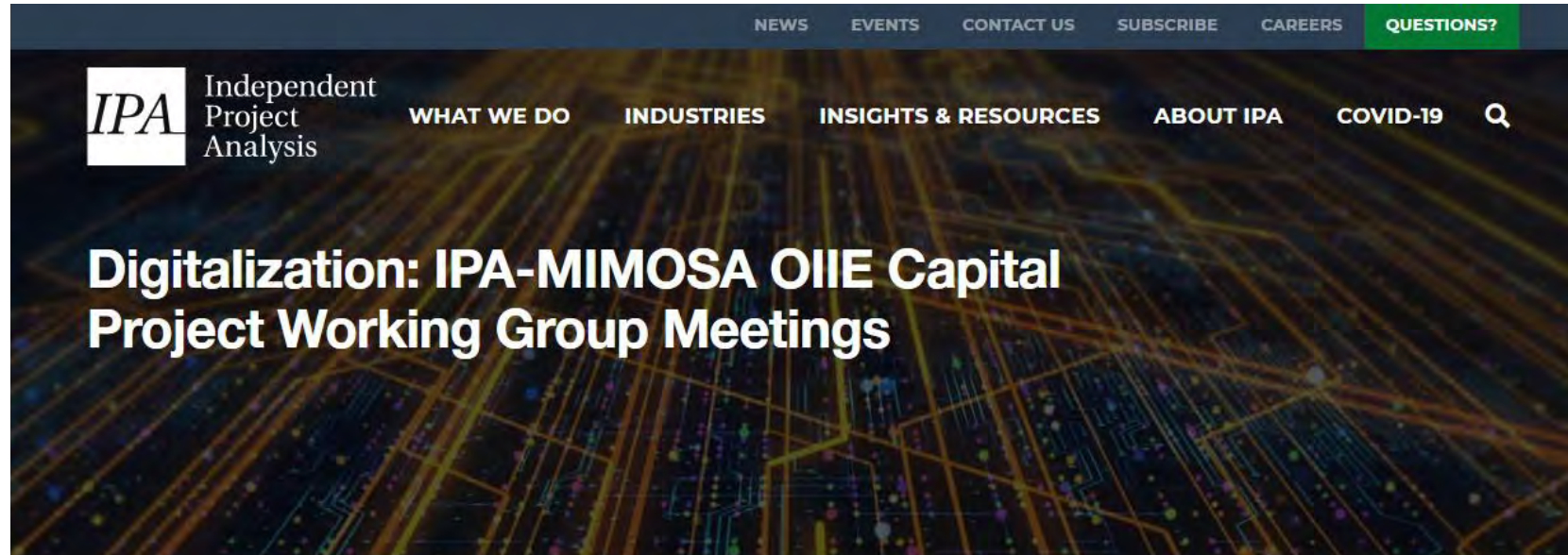
Cost Estimating – Will restart meetings in July

RFI and Asset Installation Teams – meeting every other Tuesday  
8 to 9 am EDT – Next Meeting is 6/29/21

Break Out Group	Facilitator	Meeting Link
Middle - RFI/ RFI Response (Greenfield project)	Karamjit Kaur	<a href="#">Click here to join the meeting</a>
Back end - Capital Project Asset Installation	Matt Selway	<a href="#">Click here to join the meeting</a>

Next Main (Large) Group May Meeting – July 20, 2021 7 – 8 am EDT

# New Member Registration



## SUMMARY

[REQUEST INFO](#)

Join us in helping to solve interoperability challenges and move the capital project industry's digitalization efforts forward.

The IPA-MIMOSA Open Industrial Interoperability Ecosystem (OIIE) Capital Project Working Group is focused on defining the high value

## EVENT DETAILS

[REGISTER NOW](#)[ADD TO CALENDAR](#)

<https://www.ipaglobal.com/event/digitalization-ipa-mimosa-oiie-capital-project-working-group-meetings/>

## Next Steps:

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1. Identify Members willing to share your digitalization journey
2. Register on IPA Website:

<https://www.ipaglobal.com/event/digitalization-ipa-mimosa-oiie-capital-project-working-group-meetings>

1. If not already a member, you will be invited to the MIMOSA TEAMS workspace to continue development of the Use Cases
2. Please participate in the sub-team meetings to generate the industry input to the Pilot Project and the Industry Standards work  
(each sub-team will set it's own meetings)
3. Contact Alan Johnston ([atjohn@comcast.net](mailto:atjohn@comcast.net)) to get more info on MIMOSA membership and access to the solutions already in place for your company to use
4. The Main Team will meet once a month on the 3<sup>rd</sup> Tuesday from 7 to 8 am EDT to report on progress, share industry knowledge, set priorities and continue the knowledge sharing and dialog.

If you need new meeting invitation – please email [dmcneil@ipaglobal.com](mailto:dmcneil@ipaglobal.com) or Register (See Slide 29) on the IPA Website

5. Meeting Minutes are published on the IPA Website.

## Appendix- Sub-Team 3 Work to-date

# OIIE Use Case for Purchasing of Equipment/Instrument (as of 6/15/21)

Karamjit Kaur  
Industrial AI Research Centre  
University of South Australia

# Major themes identified from User Story Statements

- Supplier management
  - Shortlist certified supplier
  - Shortlist suppliers that meet quality requirements
  - Unified view to see and manage all previous and current contracts
- Project Control Manager
  - Identify equipment with long lead times - should be pre-ordered as soon as design is completed
  - Monitor and control delivery schedule – no delays
- Order Change Management
  - PMS is up to date w.r.t. any design or qty changes and communicated to interested parties (such as OEMs)
  - Any change in requirements is registered and reflected in all the relevant systems and actors

# OIE Purchasing Use Case Actors

## **Business Actors**

- Purchasing Team/Officer
- Project Control Manager
- Manufacturer sales team
- Manufacturer Engineer

## **System Actors**

- Material/Procurement Management System
- OEM Product Management System
- Order Change Management System
- Supplier Management System

# OIIE Purchasing Use Case Scope

## In Scope

- ✓ Process of Purchasing up to the point where Purchase Order (Digital version) is submitted and ACK is received containing estimated shipment date etc.
- ✓ Identify contents to be sent as part of the RFI and RFI responses
  - ✓ Any documents (both machine interpretable and otherwise) to be sent as part of these RFI and RFI responses
- ✓ Include the data exchanged as part of RFI process as part of Purchase Order

## Out of Scope

### (separate OIIE Use Cases)

- × Make/model matchup process
- × Logistics aspect of Purchasing
- × Receiving process
- × Inspection processing
- × Cost estimation(Pricing) aspect of Purchasing
  - × RFP/RFP response
- × Payment processing
- × Change(s) in Purchase Order
- × Evaluation and Selection of quote
  - × After receiving RFQ Responses
- × Supplier Management
  - × Managing list of preferred suppliers etc.



# OIE Purchasing Use Case Conditions

## Pre conditions

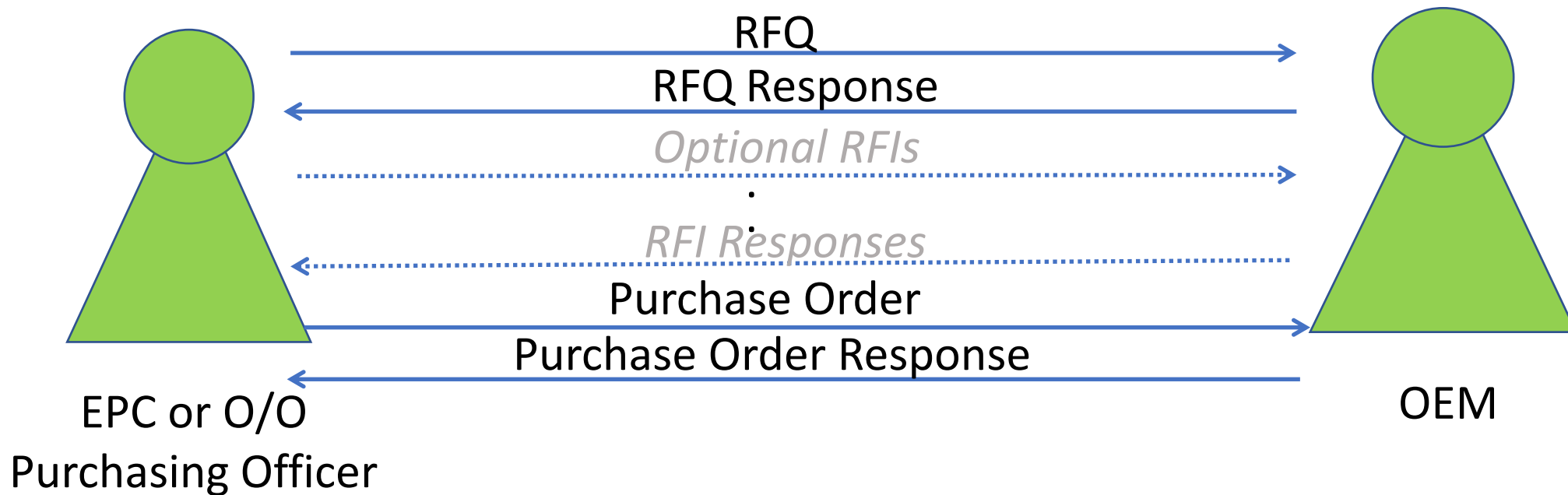
- Completion of OIE Use Case 12  
*(RFI and RFI Response for  
Models Meeting Functional  
Requirements)*

## Successful End Condition

- The EPC or Owner/Operator issues purchase order to manufacturers to procure identified assets.
- Receiving Acknowledgment of Purchase Order

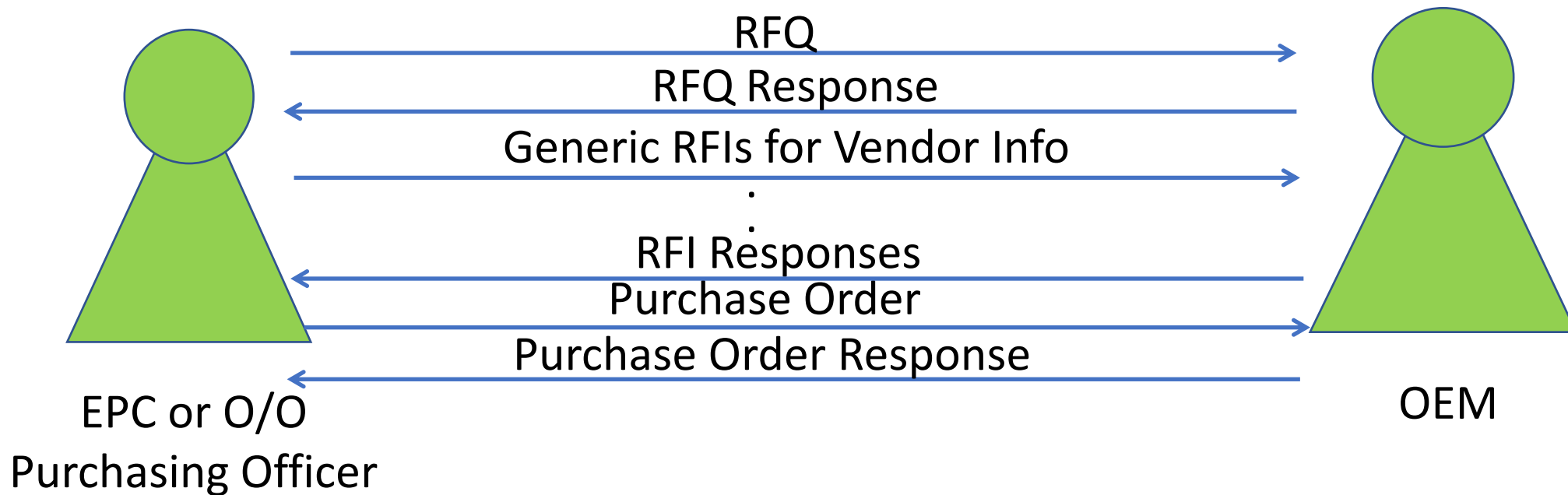
# OIE Purchasing Use Case Scenarios

- Scenario 1 – Purchasing Off the Shelf or from a Catalogue
  - Option 1 – OEM already a preferred/qualified Supplier



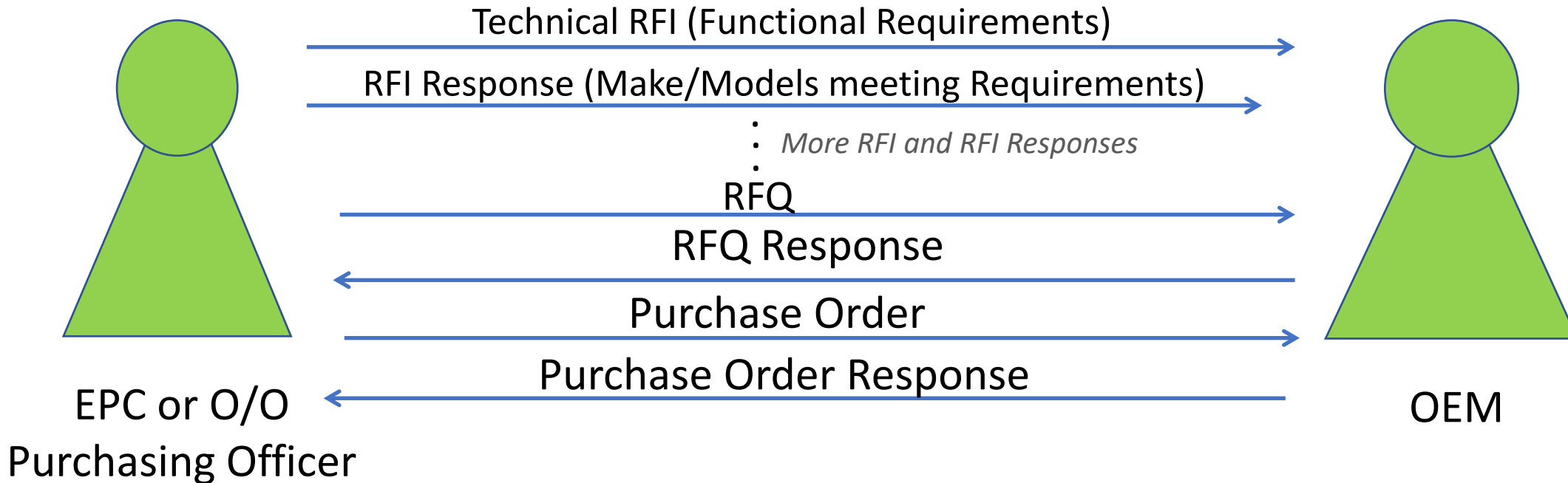
# OIE Purchasing Use Case Scenarios

- Scenario 1 – Purchasing Off the Shelf or from a Catalogue
  - Option 2 – OEM **NOT** already a preferred/qualified Supplier



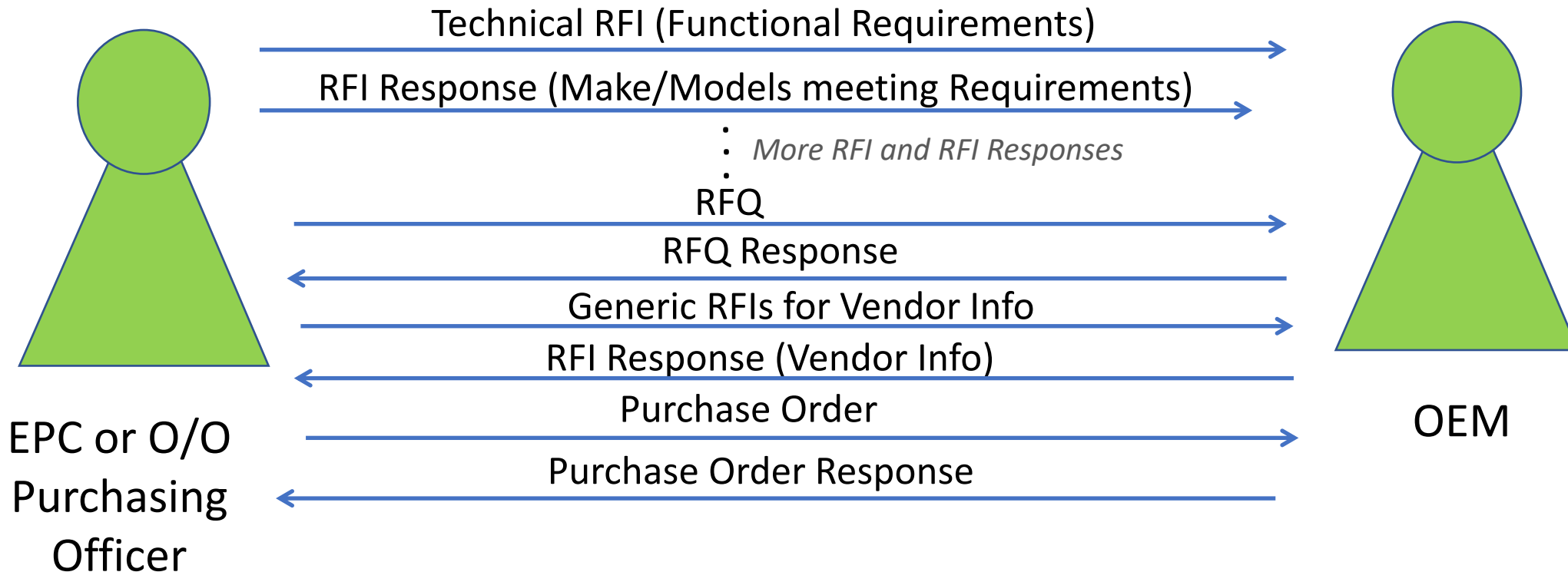
# OIE Purchasing Use Case Scenarios

- Scenario 2 – Purchasing Custom Designed Equipment
  - Option 1 – OEM already a preferred/qualified Supplier



# OIE Purchasing Use Case Scenarios

- Scenario 2 – Purchasing Custom Designed Equipment
  - Option 2 – OEM **NOT** already a preferred/qualified Supplier



# Story M130: Purchasing Off-The-Shelf Equipment or from a Catalog

1. I need to buy equipment 'XYZ' from manufacturer 'ABC'

7. I am happy with RFQ Response.

4. PMS sends RFQ to Manufacturer 'ABC'

8. Purchasing officer will create Purchase Requisition and convert it into Purchase Order once approved.

3. Create RFQ

6. Reads RFQ Response

Procurement Management System(PMS)

EPC or O/O  
Purchasing  
Officer

2. I will create RFQ for purchasing this equipment.

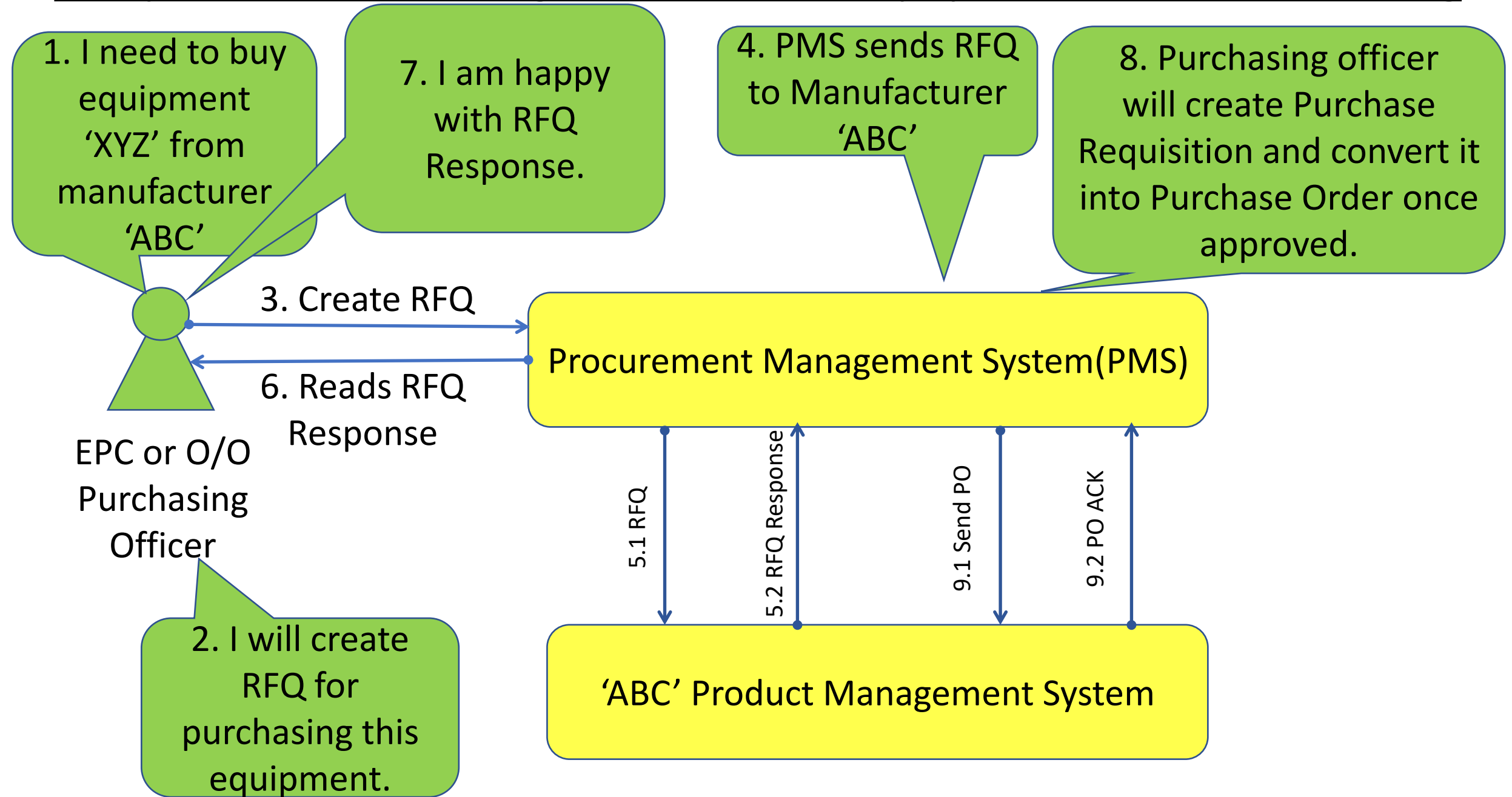
5.1 RFQ

5.2 RFQ Response

9.1 Send PO

9.2 PO ACK

'ABC' Product Management System



# RFI Contents

- List of Model(s) meeting functional requirements
  - One RFI consisting of multiple Models or one RFI for each Model?
- Engineering data sheets containing functional requirements for each location
- Model data sheets containing model specific properties
- Allowable deviations or customizations from specified functional requirements
- Respond by – Date
- Requested by – Person/Team/System



# RFI Response Contents

# Purchase Order Contents

- Material Code?
- KKS Code?

# Purchase Order ACK Contents

# OIE Purchasing Use Case Triggers

- ?

# OIIE Purchasing Use Case Development Concerns

- Multitude disjoint systems used during the process
- Systems that create and manage RFIs are separate than one that create PO
- Purchase of Equipment vs Instrument

THANK YOU