Independent Project Analysis

IPA-MIMOSA OIIE Capital Projects Working Group 2-15-22 Meeting Minutes

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OIIE Capital Project Working Group: 2-15-22 Meeting Agenda

- 2021 Summary / 2022 Plans
- Sub-team updates:
  - Cost Estimating
  - RFI/ RFI Response
  - Asset Installation
- OIIE Pilot Update/ 2022 Plans
- Key Issue Discussion:
  - What are our 2022 Priorities?
- Define OIIE Capital Project WG Next Steps

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

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.

Meeting Slides For all Previous Meetings Can Be Found on:
https://www.ipaglobal.com/services/digitalization/digitalization-working-group/

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.]

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Advancing The Capital Projects Industry's Digitalization Efforts

MEETING ARCHIVE

- November 4, 2020 – Meeting Minutes
- December 17, 2020 – Meeting Minutes
- February 16, 2021 – Meeting Minutes
- March 16, 2021 – Meeting Minutes
- April 20, 2021 – Meeting Minutes
- May 18, 2021 – Meeting Minutes
- June 15, 2021 – Meeting Minutes
- July 20, 2021 – Meeting Minutes | Recording
- August 17, 2021 – Meeting Minutes | Recording
- September 28, 2021 – Meeting Minutes | Recording
- October 19, 2021 – Meeting Minutes | Recording
- November 17, 2021 – Meeting Minutes | Recording

New Link

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https://www.ipaglobal.com/services/digitalization/digitalization-working-group/

In Lower Left Hand Corner
Of Web Page

Sub- Team Report Outs

Sub-teams 1&2 – Cost Estimating – (Mark Pyatt/ Luke Wallace)

IPA/MIMOSA OIIE Capital Project Team Cost Estimating Sub-Team Tiger Team Charter

- The intent of this team's 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.

---------- Update on 11/16/21 ----------

- Challenging main work demands in 4th Quarter
- Subteam - Meeting 11/17/21 – Mark Pyatt will pick up Von’s role for 3-4 months
- **AACE discussions on tactics continue – MOU discussion in progress**
- Will develop 2022 Work plan

----------2/15/22 ----------

- Bring in Project Controls SME’s from Owner/ EPC’s Companies – Develop a “Call for Subteam Members” to members - (Martin, George, Alan and Mark)

IPA/MIMOSA OIIE Capital Project Team Cost Estimating Sub-Team Tiger DRAFT User Story Listing

User Story Theme: **Cost Estimation**

	As an **Actor / Role** (Who - People & Systems)	I want to **Activity / Task / Goal** (What)	so that **Reason** (Why)	when **Triggering Event** (When - Optional)
1	Cost Estimation System	have database of past projects	AI can be realized/leveraged	new projects are planned
2	Estimator	perform a scope & estimate review	I can validate completeness and accuracy of the estimate	first draft or preliminary estimate
3	Gatekeeper	ensure completeness of scope definition	I can ensure the project has met objectives	Project gate review process FEL 1, 2, 3 reviews
4	Project/Lead Estimator	Material take-offs from the P&IDs pose the greatest level of accuracy (combination of parametric and expert judgement)	Parametric estimating is likely the best case scenario since it is data intensive and considered highly accurate (deterministic and probabilistic)	FEL 3 Stage Gate Review
Also Considered				
a	Estimator (Construction manager input)	workforce transperancy, relates to cost estimate, availability, quantity, productivity (internal or external)	predictibility and accuracy while building of cost estimate	creation of execution phase of estimate for successful installation
b	Estimator (Global Lead) Benchmarking	access accurate and standardized scope information for the purpose of building benchmark and estimate triggering vendors	when the need for an estimate arises	pro-active, IPA style cost modeling
c	Procurement	approved vendor list	expedite or shorten the cycle and reliable quotation	standard compliant
d	Procurement Leader	collect info and provide vendor costing info	I can provide up to date quotes	as the estimate is developed and scope identified

IPA/MIMOSA OIIE Capital Project Team Cost Estimating Sub-Team Tiger Team High Level Starting Point

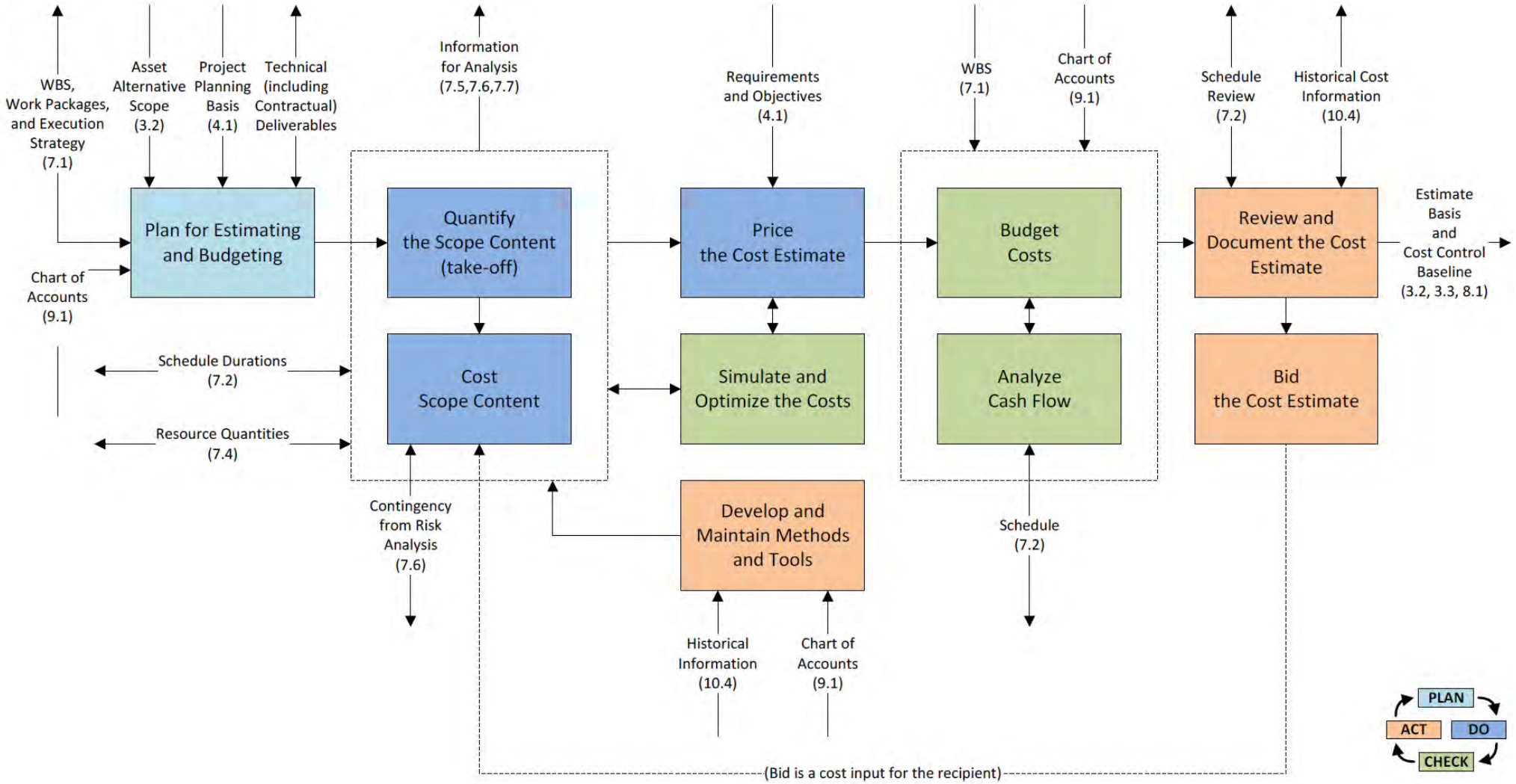


Figure 7.3-1 Process Map for Cost Estimating and Budgeting

Source: AACEi "Total Cost Management Framework, 2nd Edition, 2019"

Cost code	Description			Note
	Cost Category (Level 2)	CC	RC or MC	
	Cost Group (Level 3)			
	Cost Sub-Group (Level 4)			
1.	Construction Costs (CC)			
2.	Renewal Costs (RC)			
4.	Maintenance Costs (MC)			
	(CC, RC, and MC share the same Cost Groups below, so far as applicable. Those separated by '|' in [ ] are respective alternative terms.)			
01.	Demolition, site preparation and formation			
01.010	Site survey and ground investigation			
01.020	Environmental treatment			
01.030	Sampling of hazardous or useful materials or conditions			
01.040	Temporary fencing			
01.050	Demolition of existing buildings and support to adjacent structures			
01.060	Site surface clearance (clearing, grubbing, topsoil stripping, tree felling, minor earthwork, removal)			
01.070	Tree transplant			
01.080	Site formation and slope treatment			
01.090	Temporary surface drainage and dewatering			
01.100	Temporary protection, diversion and relocation of public utilities			
01.110	Erosion control			
02.	Substructure			
02.010	Foundation piling and underpinning: 010 – mobilisation and demobilisation020 – trial piles and caisson 030 – permanent piles and caisson040 – pile and caisson testing 050 – underpinning			

Cost code	Description			Note
	Cost Category (Level 2)	CC	RC or MC	
	Cost Group (Level 3)			
	Cost Sub-Group (Level 4)			
02.020	Foundations up to top of lowest floor slabs: 010 – excavation and disposal020 – lateral supports 030 – raft footings, pile caps, column bases, wall footings, strap beams,tie beams 040 – substructure walls and columns 050 – lowest floor slabs and beams (excluding basement bottom slabs)060 – lift pits 070 – composite or prefabricated work			
02.030	Basement sides and bottom: 010 – excavation and disposal020 – lateral supports 030 – bottom slabs and blinding040 – sides 050 – vertical waterproof tanking, drainage blanket, drains and skin wall 060 – horizontal waterproof tanking, drainage blanket, drains andtopping slab 070 – insulation 080 – lift pits, sump pits, sleeves 090 – composite or prefabricated work			
03.	Structure			
03.010	Structural removal and alterations			

Source: ICMS Coalition "Global Consistency in Presenting Construction and Other Life Cycle Costs, 2nd Edition, September 2019"

IPA/MIMOSA OIIE Capital Project Team Cost Estimating Sub-Team Tiger Team Drill Down

Cost Code	Description			
	Cost Categories (Level 2)		CC	RC, OC, MC and EC
	Cost Groups (Level 3)			
1.	Construction Costs (CC)			
2.	Renewal Costs (RC)			
3.	Operation Costs (OC)			
4.	Maintenance Costs (MC)			
5.	End of Life Costs (EC)			
1.	Construction Costs (CC)		Cost Categories CC, RC and MC use the same Cost Groups	
2.	Renewal Costs (RC)			
4.	Maintenance Costs (MC)			
01.	Demolition, site preparation and formation Scope: All necessary advance or facilitating work to prepare, secure and form the site to enable substructure [construction | renewal | maintenance]			

Source: ICMS Coalition “Global Consistency in Presenting Construction and Other Life Cycle Costs, 2nd Edition, September 2019”

Cost Code	Description			
	Cost Categories (Level 2)		CC	RC, OC, MC and EC
	Cost Groups (Level 3)			
02.	Substructure Scope: All the load bearing work underground or underwater up to and including the following (including related earthwork, lateral support beyond site formation, and non-loadbearing components and services and equipment forming an integral part of composite or prefabricated load bearing work) and as illustrated in Part 4.2: ● for buildings: lowest floor slabs, and basement sides and bottom including relatedwaterproofing and insulation ● for roads, runways and motorways: sub-base to pavements ● for railways: sub-base to rail track structures ● for bridges: pile caps, footings, bases nearest ground level or water level if constructed inwater ● for tunnels: external faces of structural tunnel linings ● for tanks and the like underground: external faces of tanks ● for tanks and the like above ground: bases supporting tanks ● for pipelines underground: beds and surrounds to underground pipes ● for pipelines above ground: bases to structures supporting pipes ● for wells and boreholes: bases to structures supporting well heads ● for dams and reservoirs: seepage ditch, drainage layer/blanket, drain channels, foundation,base, footings, cut-off wall, heel and toe ● for mines and quarries: underground mines: bases to structures supporting shaft headgear;open pits: bases to structures; processes: bases to structures, tanks, and bases to major process equipment.			
03.	Structure Scope: All the load bearing work, including non-load bearing components and services and equipment forming an integral part of composite or prefabricated load bearing work, excluding those included in Substructure and Architectural works | Non-structural works.			
04.	Architectural works | Non-structural works Scope: All architectural and non-load bearing work excluding services, equipment, andsurface and underground drainage.			

Cost Code	Description			
	Cost Categories (Level 2)		CC	RC, OC, MC and EC
	Cost Groups (Level 3)			
05.	Services and equipment Scope: All fixed services and equipment required [to put the completed project into use for Construction Costs | to sustain the use after completion of construction for Renewal and Maintenance Costs], whether they are mechanical, hydraulic, plumbing, fire-fighting, transport, communication, security, electrical or electronic, excluding external surface andunderground drainage.			
06.	Surface and underground drainage Scope: All underground or external surface drainage systems excluding those insidebasement or underground construction.			
07.	External and ancillary works Scope: All work outside the external face of buildings or beyond the construction entity required to fulfil the primary function of the Project and not included in other Cost Groups.			
08.	Preliminaries | Constructors' site overheads | general requirements Scope: Constructors' site management, temporary site facilities, site services, and expenses,not directly related to a particular Cost Group, but commonly required to be shared by all Cost Groups.			
09.	Risk Allowances Scope: As defined in section 4.1 but related to [Construction | Renewal | Maintenance] Costs and not included in other Cost Groups.			
10.	Taxes and Levies Scope: As defined in section 4.1 and not included in other Cost Groups.			
11.	Work and utilities off-site Scope: All payments to government authorities or public utility companies to connect | keep connected public work and utilities to the site, or services diversions, to enable the Project, including related risk allowances, taxes and levies.			
12.	Post-completion loose furniture, fittings and equipment Scope: Those provided for the Project to perform its function close to or after completion ofconstruction, including related risk allowances, taxes and levies.			
13.	Construction | Renewal | Maintenance-related consultancies and supervision Scope: Fees and charges payable to Service Providers not engaged by the Constructors,including related risk allowances, taxes and levies.			

Cost Code	Description			
	Cost Categories (Level 2)		CC	RC, OC, MC and EC
	Cost Groups (Level 3)			
3.	Operation Costs (OC)			
01.	Cleaning Scope: Periodic, routine and specialist cleaning of internal and external works.			
02.	Utilities Scope: Fuel, including gas, electricity, fuel oil solid and other fuel; water and drainageincluding water rates, effluents sewerage drainage and other charges.			
03.	Waste management Scope: Collection, compaction, removal and disposal and/or recycling general and toxicwaste from the constructed asset.			
04.	Security Scope: Physical security (such as access control, CCTV camera) including staff or contractors involved in providing security controls via remote support centres, to the constructed asset.			
05.	Information and communications technology Scope: Information communications systems (such as Public address and Communications cabling and IT support services built as a constructed asset, as well as technology used for monitoring assets (i.e. Building Management Systems) and physical sensors.			
06.	Operators' site overheads | general requirements Scope: Operators' site management, temporary site facilities, site services, and expenses, not directly related to a particular Cost Group, but commonly required to be shared by all Cost Groups.			
07.	Risk Allowances Scope: As defined in Part 4.1 but related to Operation Costs and not included in other Cost Groups.			
08.	Taxes and Levies Scope: As defined in Part 4.1 but related to Operation Costs.			
5.	End of Life Costs (EC)			
01.	Disposal inspection Scope: Inspections carried out in connection with demolition, dilapidations or othercontractual requirements.			
02.	Decommissioning and decontamination Scope: All post-occupation activities required to render the constructed asset ready for demolition.			

Source: ICMS Coalition "Global Consistency in Presenting Construction and Other Life Cycle Costs, 2nd Edition, September 2019"

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

Open Standards for
Physical Asset Management

OIIE Use Case for Purchasing of Equipment/Instrument

Karamjit Kaur
Research Fellow, Industrial AI Research Centre
University of South Australia

Major Themes Identified

Supplier Management

- Unified view to see and manage all previous and current contracts
- Shortlist certified supplier
- Shortlist suppliers that meet quality requirements

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 quantity changes and communicated to interested parties (such as OEMs)
- Any change in requirements is registered and reflected in all the relevant systems

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 RFQ and RFQ responses
  - ✓ Any documents (both machine interpretable and otherwise) to be sent as part of these RFQ and RFQ responses
- ✓ Include the data exchanged as part of RFI/RFQ process as part of Purchase Order

Out of Scope

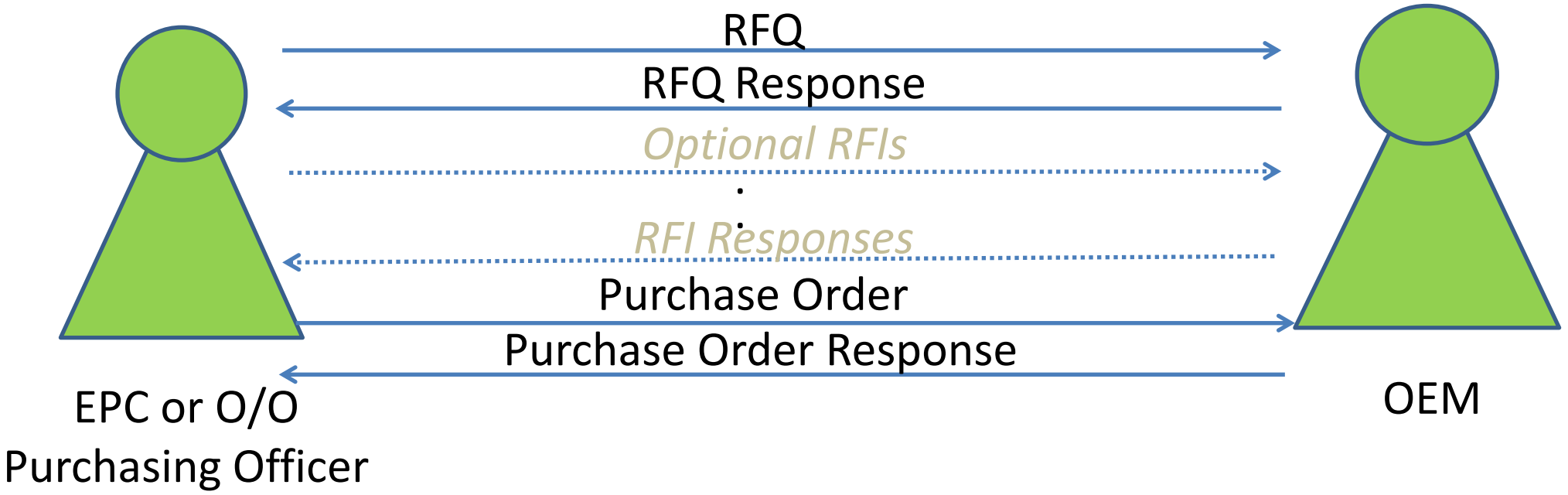
- × Make/model matchup process
- × Logistics aspect of Purchasing
- × Receiving process
- × Inspection processing
- × Cost estimation(Pricing) aspect of Purchasing
  - × RFP/RFP response
- × Payment processing
- × Change(s) in Purchase Order
- × Evaluation and Selection of quote
  - × After receiving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

OIIE Purchasing Use Case Scenarios Matrix

	OEM already a preferred/qualified Supplier	OEM NOT already a preferred/qualified Supplier
Purchasing Off the Shelf or from a Catalogue	Scenario 1 Option 1	Scenario 1 Option 2
Purchasing Custom Designed Equipment	Scenario 2 Option 1	Scenario 2 Option 2

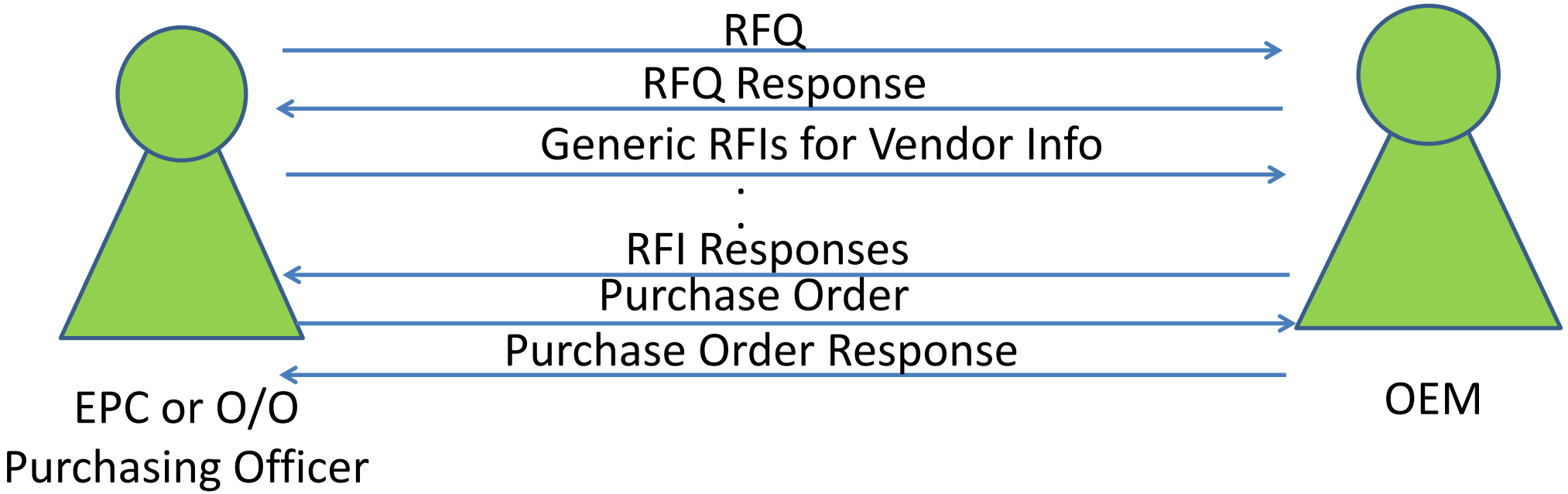
OIIE Purchasing Use Case Scenarios (s1 o1)

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



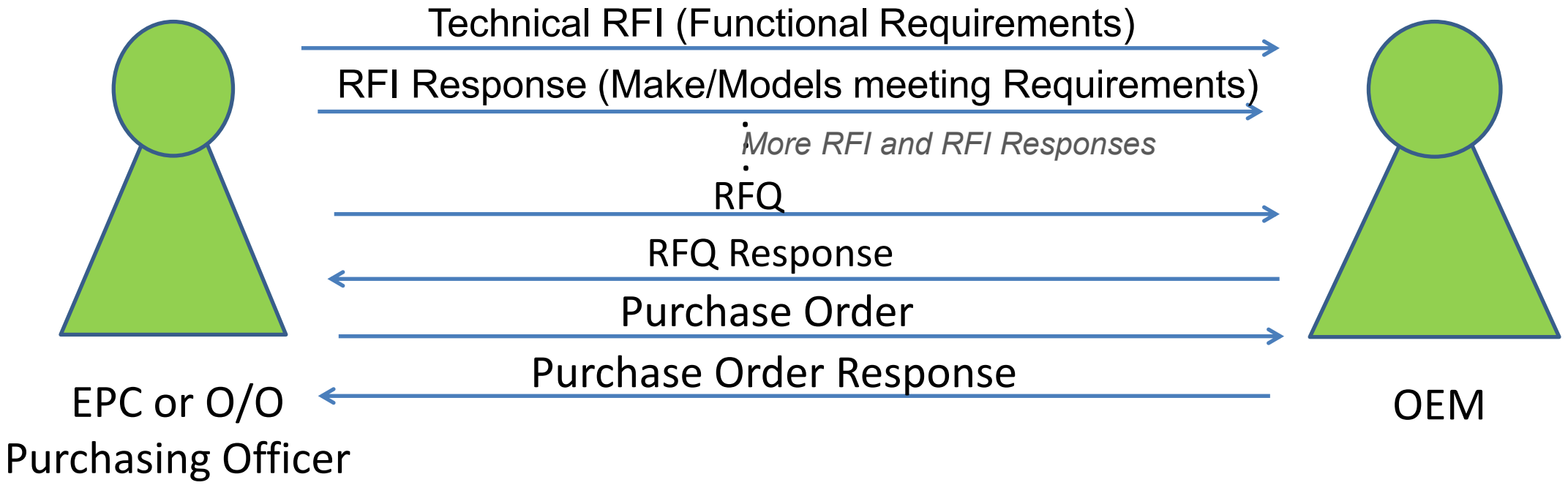
OIIE Purchasing Use Case Scenarios (s1 o2)

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



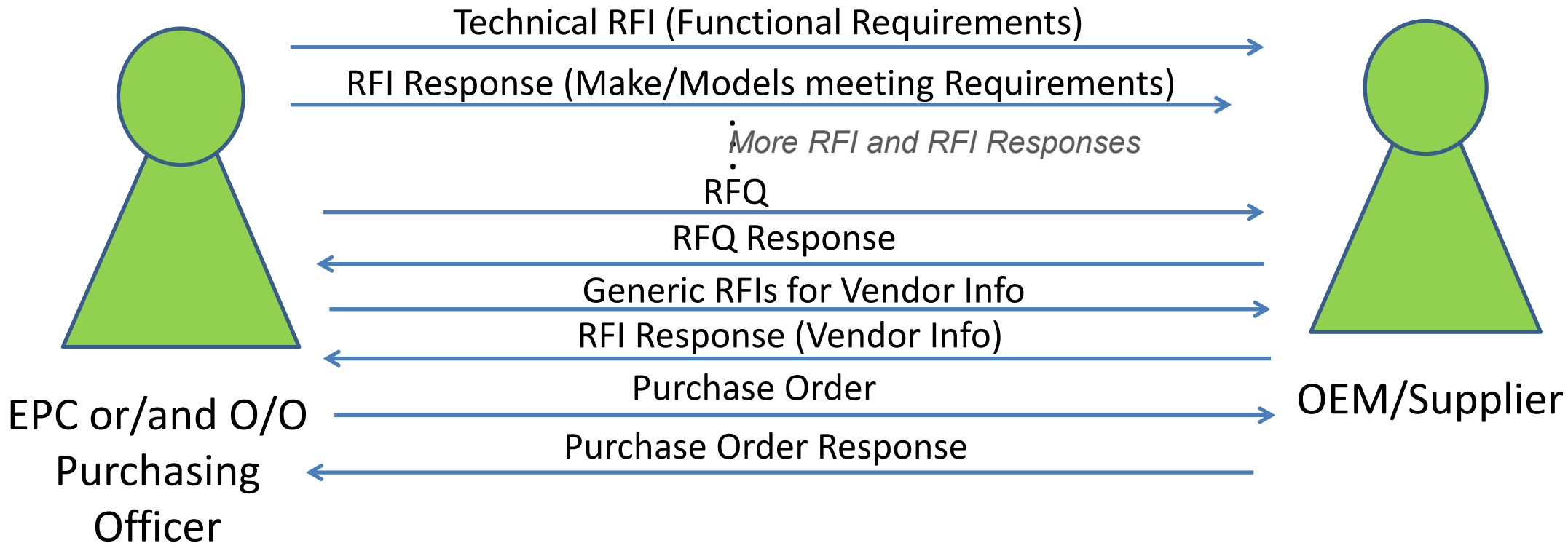
OIIE Purchasing Use Case Scenarios (s2 o1)

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

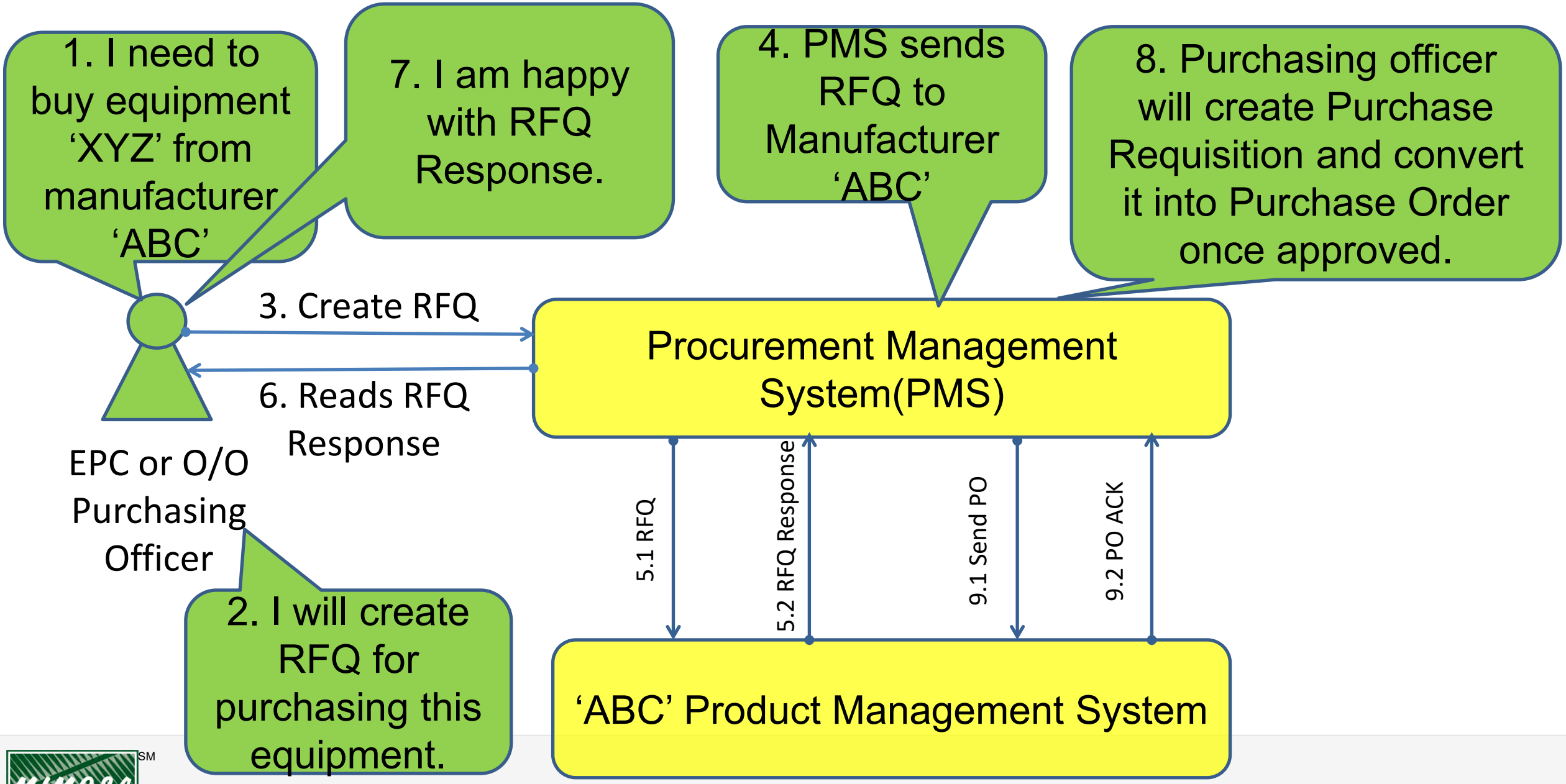


OIIE Purchasing Use Case Scenarios (s2 o2)

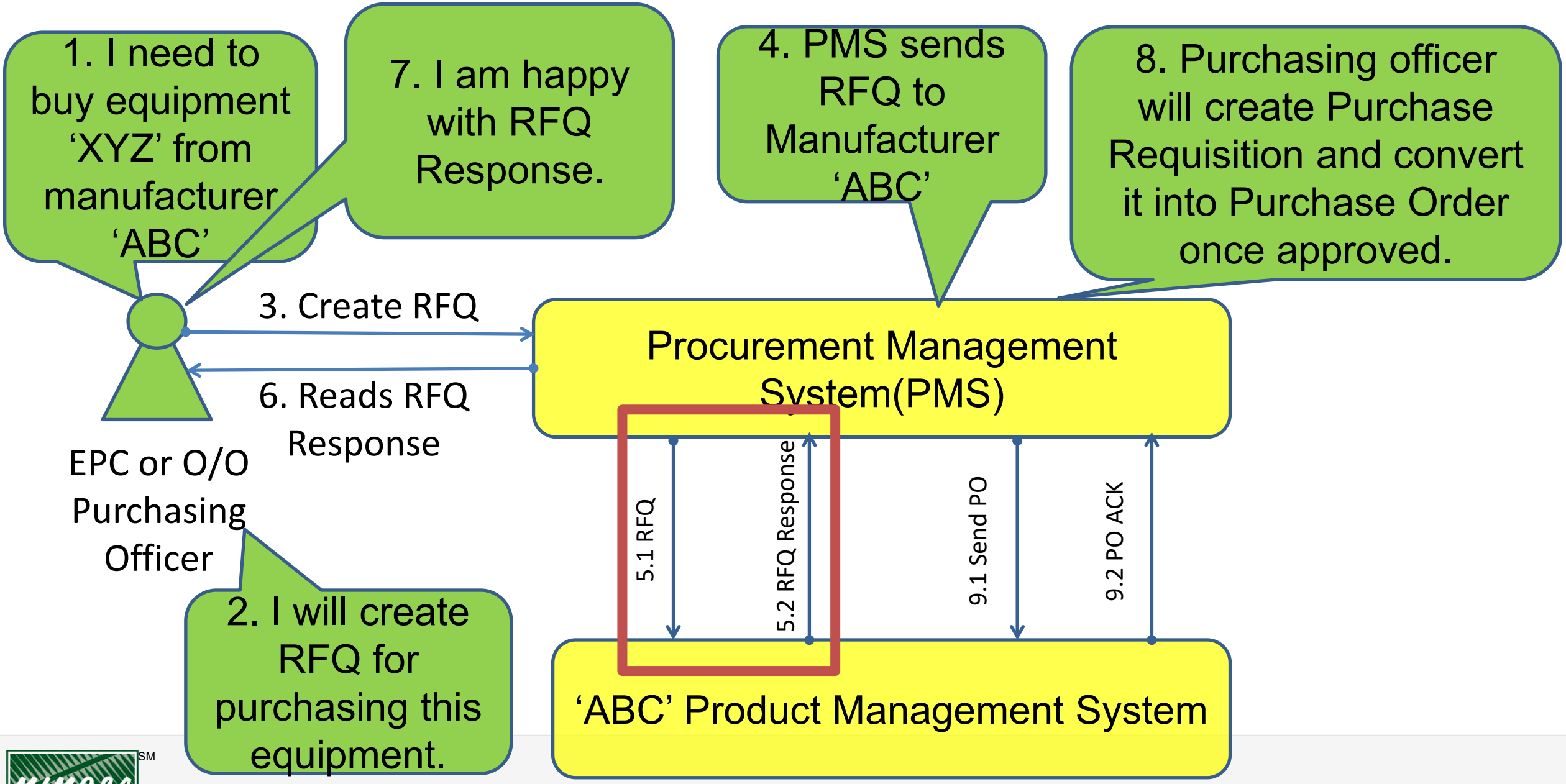
- Scenario 2 – Purchasing Custom Designed Equipment
  - Option 2 – *OEM **NOT** already a preferred/qualified Supplier*



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



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



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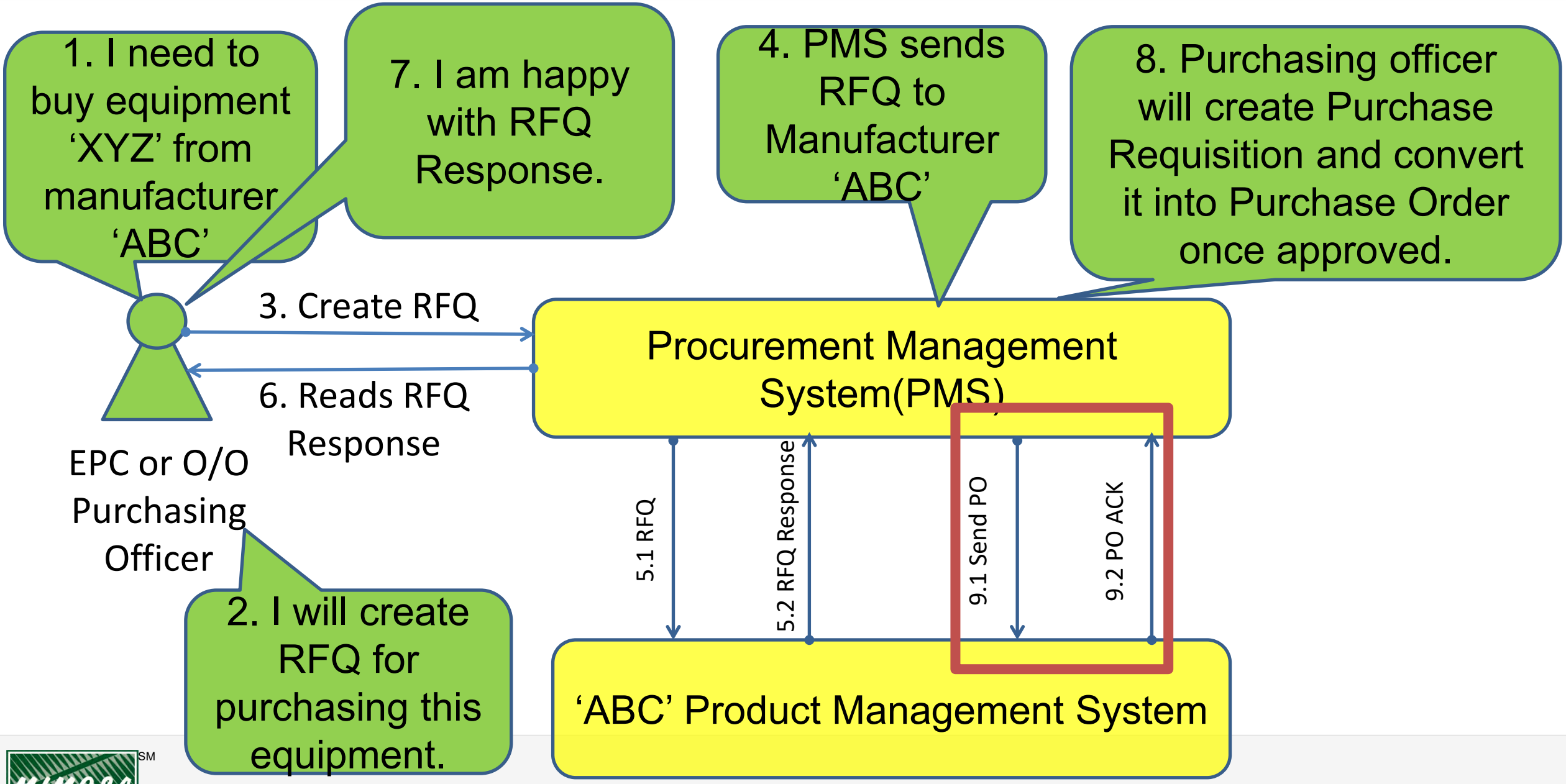
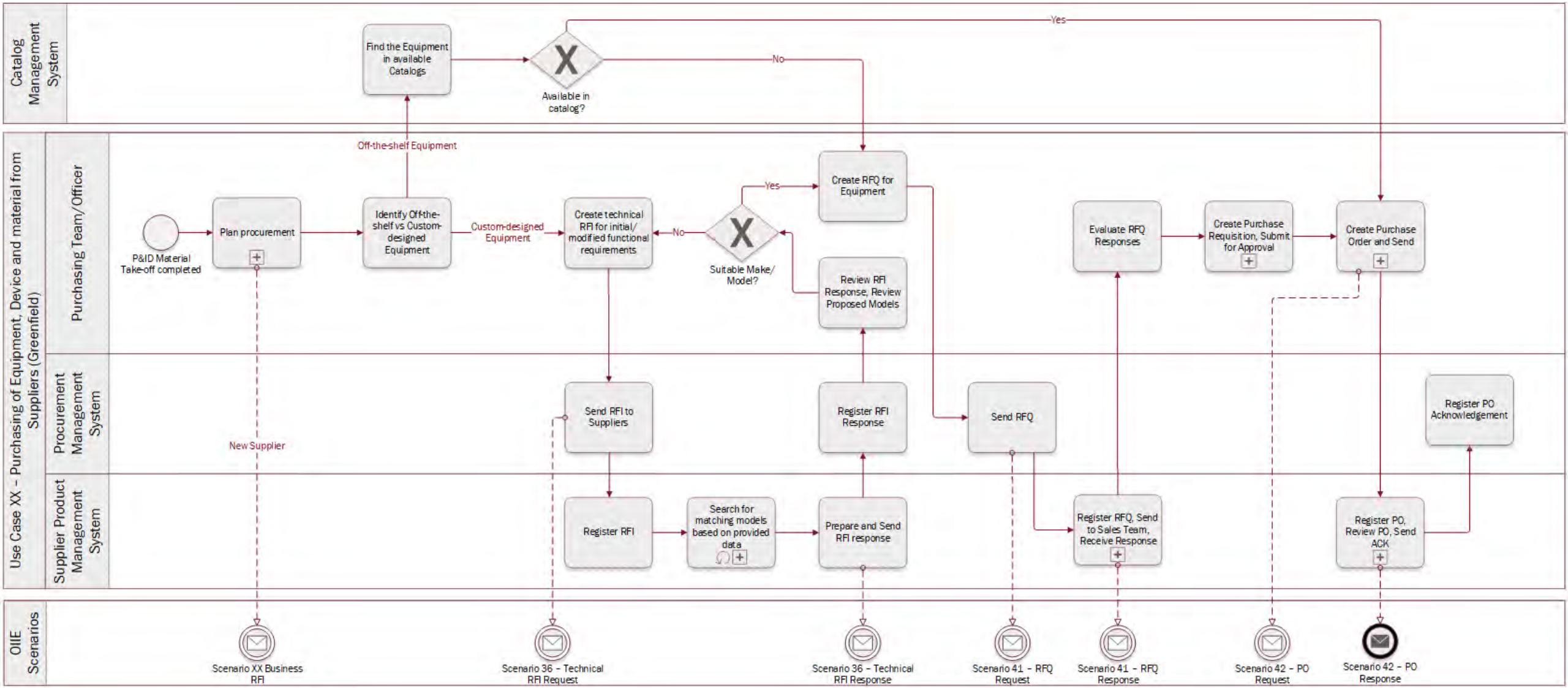


OIIE Purchasing Use Case – Process Diagram



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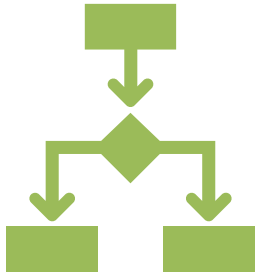
OIIE Purchasing Use Case



Identified OIIE Scenarios

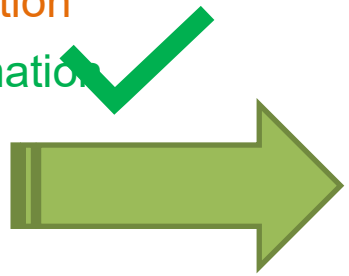
Push Request for Business Information

Push Request for Catalog Information

Push Request for Technical Information

Publish Request for Quotation

Push Purchase Order



Detailing OIIE Scenarios

- System Actors (MATERIALS, OEM PRODUCT, ..)
- Data Content
- Data Formats
- Reference Types
- Infrastructural Components
- System Interoperability Events
- Event Sequence

RFQ & RFQ Response - Structure

RFQ

- Request (Metadata)
- RFQ Header
- RFQ Line 1 – Item details
- RFQ Line 2 – Item details
- …
- Tag/Functional Location
  - Metadata
  - Functional Requirements Datasheet (JIP33 Datasheet **Low Voltage Motor**)
- Document 1
- Document 2
- …

RFQ Response

- Request (Metadata)
- RFQ Header
- RFQ Line 1 – Item Pricing details
- RFQ Line 2 – Item Pricing details
- …
- Tag/Functional Location
  - Metadata
  - Functional Requirements Datasheet (JIP33 Datasheet **Low Voltage Motors**)
- Document 3
- Document 4
- …

RFQ and RFQ Response – Data Contents

RFQ Header

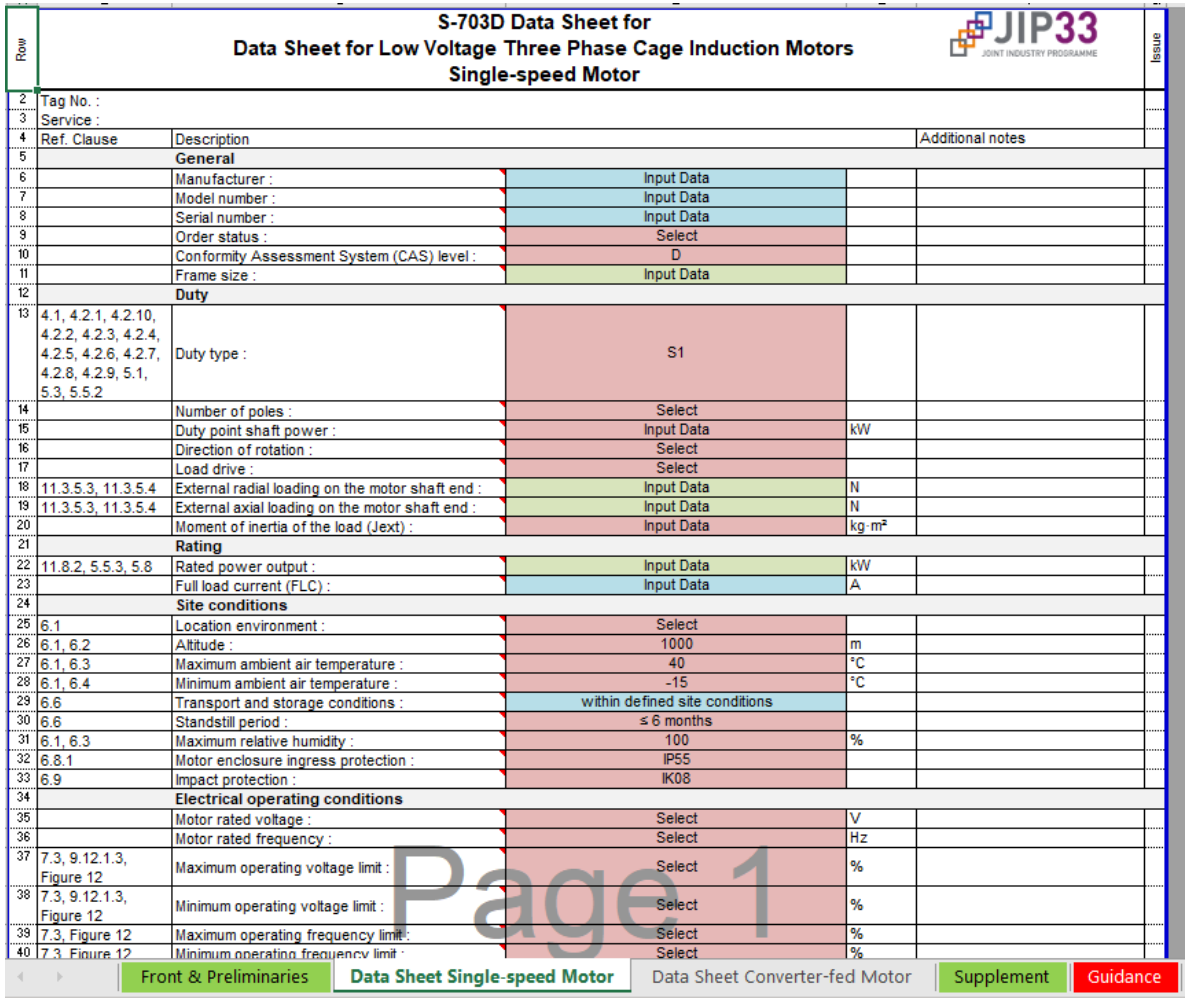
- Project Details
- Note
- Issue Date
- Due Date
- Validity Period
- Billing Address
- Delivery Address
- Delivery Terms
- Payment Terms
- Currency Code (ISO 4217)
- Destination Country (ISO 3166)
- Partial Shipment Allowed Indicator
- Tax Exempted
- Catalogue Reference
- Contract Reference
- Document Reference(s)
- Total Amount
- Signature
- Line Count

RFQ Line

- Item Number
- Tag Number
- Size/Measurements/Dimensions
- Quantity
- UoM
- Lead Time
- Unit Price
- Total Price
- Required Delivery Date
- Partial Shipment Allowed Indicator
- Delivery Address
- Optional Item
- Transportation Terms
- License Information
- Catalogue Reference
- Item Details

Sub-set of UBL (ISO/IEC 19845)

Using IOGP JIP 33 Procurement Specification



S-703D Data Sheet for
Data Sheet for Low Voltage Three Phase Cage Induction Motors
Single-speed Motor

JIP33 JOINT INDUSTRY PROGRAMME

Row	Ref. Clause	Description			Additional notes	Issue
2		Tag No. :				
3		Service :				
4	Ref. Clause	Description			Additional notes	
5		**General**				
6		Manufacturer :	Input Data			
7		Model number :	Input Data			
8		Serial number :	Input Data			
9		Order status :	Select			
10		Conformity Assessment System (CAS) level :	D			
11		Frame size :	Input Data			
12		**Duty**				
13	4.1, 4.2.1, 4.2.10, 4.2.2, 4.2.3, 4.2.4, 4.2.5, 4.2.6, 4.2.7, 4.2.8, 4.2.9, 5.1, 5.3, 5.5.2	Duty type :	S1			
14		Number of poles :	Select			
15		Duty point shaft power :	Input Data	kW		
16		Direction of rotation :	Select			
17		Load drive :	Select			
18	11.3.5.3, 11.3.5.4	External radial loading on the motor shaft end :	Input Data	N		
19	11.3.5.3, 11.3.5.4	External axial loading on the motor shaft end :	Input Data	N		
20		Moment of inertia of the load (Jext) :	Input Data	kg·m²		
21		**Rating**				
22	11.8.2, 5.5.3, 5.8	Rated power output :	Input Data	kW		
23		Full load current (FLC) :	Input Data	A		
24		**Site conditions**				
25	6.1	Location environment :	Select			
26	6.1, 6.2	Altitude :	1000	m		
27	6.1, 6.3	Maximum ambient air temperature :	40	°C		
28	6.1, 6.4	Minimum ambient air temperature :	-15	°C		
29	6.6	Transport and storage conditions :	within defined site conditions			
30	6.6	Standstill period :	≤ 6 months			
31	6.1, 6.3	Maximum relative humidity :	100	%		
32	6.8.1	Motor enclosure ingress protection :	IP55			
33	6.9	Impact protection :	IK08			
34		**Electrical operating conditions**				
35		Motor rated voltage :	Select	V		
36		Motor rated frequency :	Select	Hz		
37	7.3, 9.12.1.3, Figure 12	Maximum operating voltage limit :	Select	%		
38	7.3, 9.12.1.3, Figure 12	Minimum operating voltage limit :	Select	%		
39	7.3, Figure 12	Maximum operating frequency limit :	Select	%		
40	7.3, Figure 12	Minimum operating frequency limit :	Select	%		

Page 1

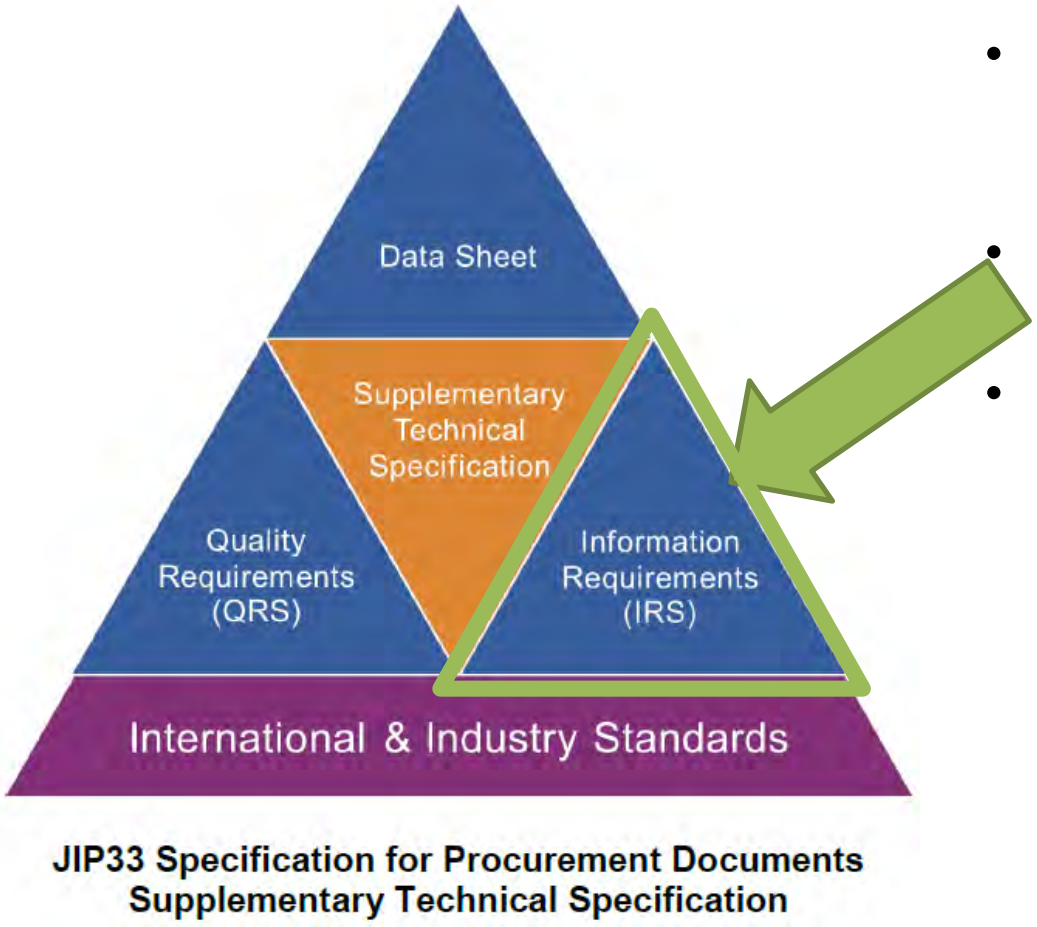
Front & Preliminaries | Data Sheet Single-speed Motor | Data Sheet Converter-fed Motor | Supplement | Guidance

Select	Supplier/manufacturer completed, pick list of pre-defined values (may be pre-populated with a default value).
Input data	Supplier/manufacturer completed data entry.
Select	Purchaser/user completed, pick list of pre-defined values (may be pre-populated with a default value).
Input data	Purchaser/user completed data entry.
Select	Either supplier/manufacturer or purchaser/user completed, pick list of pre-defined values.
Input Data	Either supplier/manufacturer or purchaser/user completed data entry.
Select	Selection of units from a pre-defined pick list.

- Building example dataset for OIIE OGI Pilot 3.3
- Exchange JIP 33 equipment datasheet digitally in MIMOSA CCOM XML format - ISDD (Industry Standard Datasheet Definition)

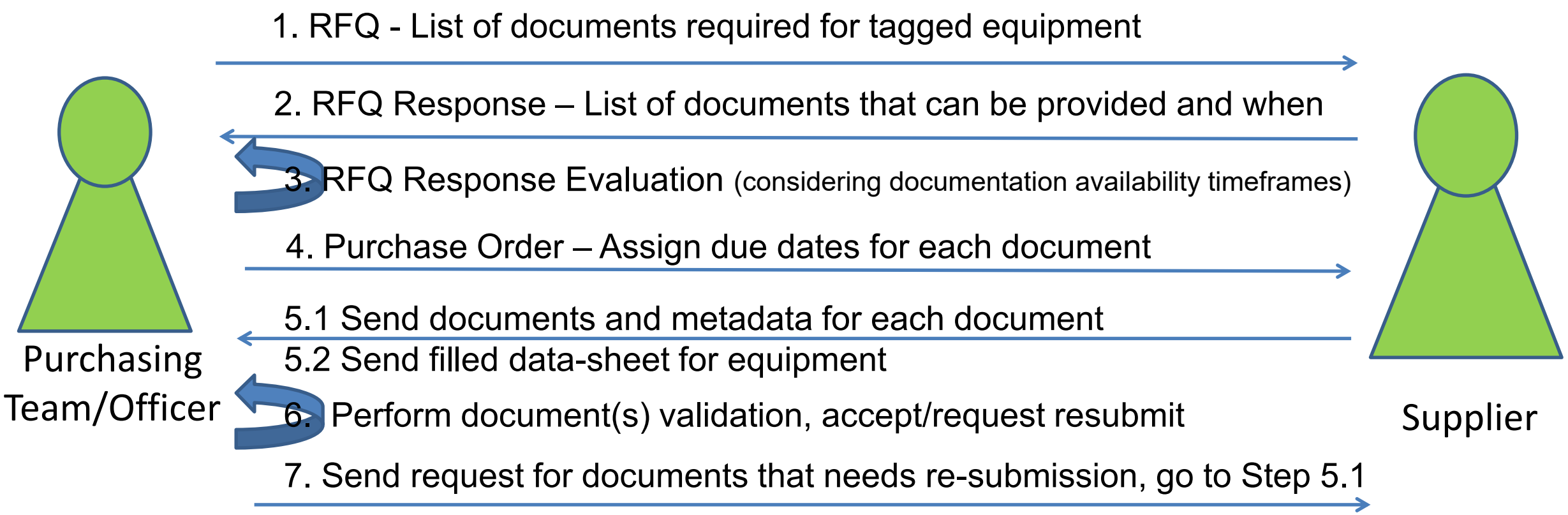
MIMOSA SM

VIRF (Vendor Information Requirement Form)



- VIRF – List of documentation required to support project delivery process and operations
- VIRF = JIP33 Information Requirements (IRS)
- Demonstrate ability to
  - view and edit Excel at both ends, while exchanging digitally using structured data models
  - view data in registry at both ends

VIRF (Vendor Info Requirement Form) Use Case



2022 Plans

- Demo 15th/17th March – OIIE OGI Pilot 3.3
  - ❑ Send RFQ for Motor to multiple Suppliers
    - ❑ Demo use of ISBM 2.1 inter-enterprise update
    - ❑ Use datasheet published by IOGP JIP33 for low voltage motor (IEC 60034-1)
    - ❑ Include VIRF/IOGP JIP 33 IRS (Information Requirements) in RFQ (OIIE OGI Pilot 3.4)
      - ❑ Update User Stories, process diagram etc. to include VIRF details
  - ❑ Receive RFQ Responses, mock-up RFQ Response evaluation
  - ❑ Send PO, Receive PO Acknowledgment (OIIE OGI Pilot 3.4)

- Work on new OIIE Use Case for documents handover, validation etc. with the purchasing sub-team

Acknowledgements

- JGC Holdings Corporation, Japan – Hiroshi-san, Toru-san
- Dow Chemical, USA – Gwen, Cathy, Manoj
- Sarawak Energy, Malaysia – Tiew-Hua, Bong, Soomin
- Syncrude Canada Ltd. – George
- MIMOSA – Alan
- UniSA – Matt

Subteam 4- Asset Installation – Capital (Matt Selway)

Putting together an example IWP minimum dataset perform mapping to issue and then track progress (Excel and CCOM)

Request: Owner to supply a real capital project IWP example Sample in https://www.coaa.ab.ca/library/advanced-work-packaging-summary/

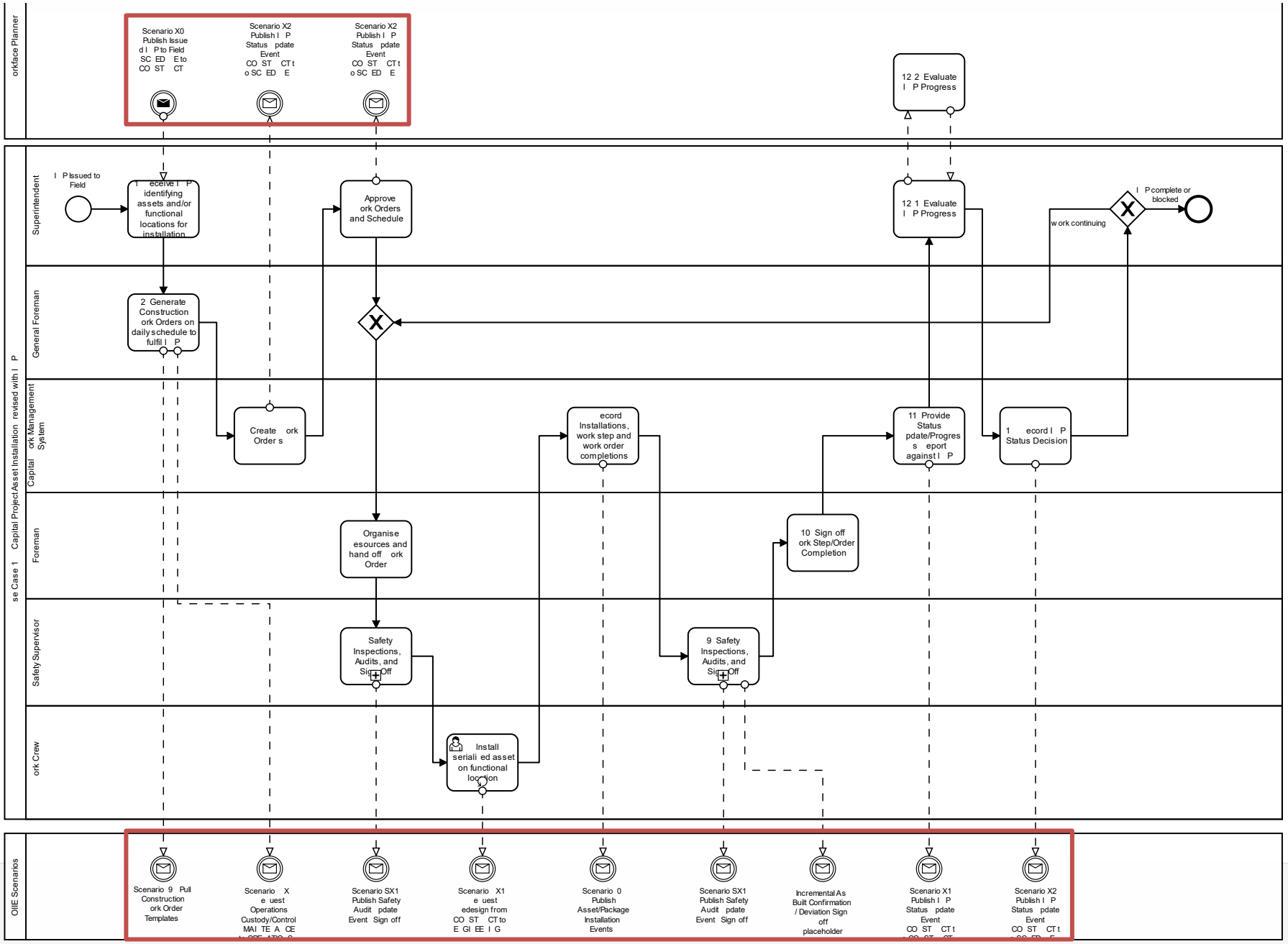
Back-End Sub Team Progress: Capital Asset Installation Use Case Update

Incorporating:

- IWP issuance as trigger;
- breakdown into daily work;
- scenarios for safety audits and sign-offs; and
- IWP evaluation and status updates

Identified large number of scenarios (system interactions):

- Taking 3 to pilot
- IWP Issuance to Field (entry point)
- IWP Status Updates (internal)
- IWP Status Updates (to scheduling/planning)



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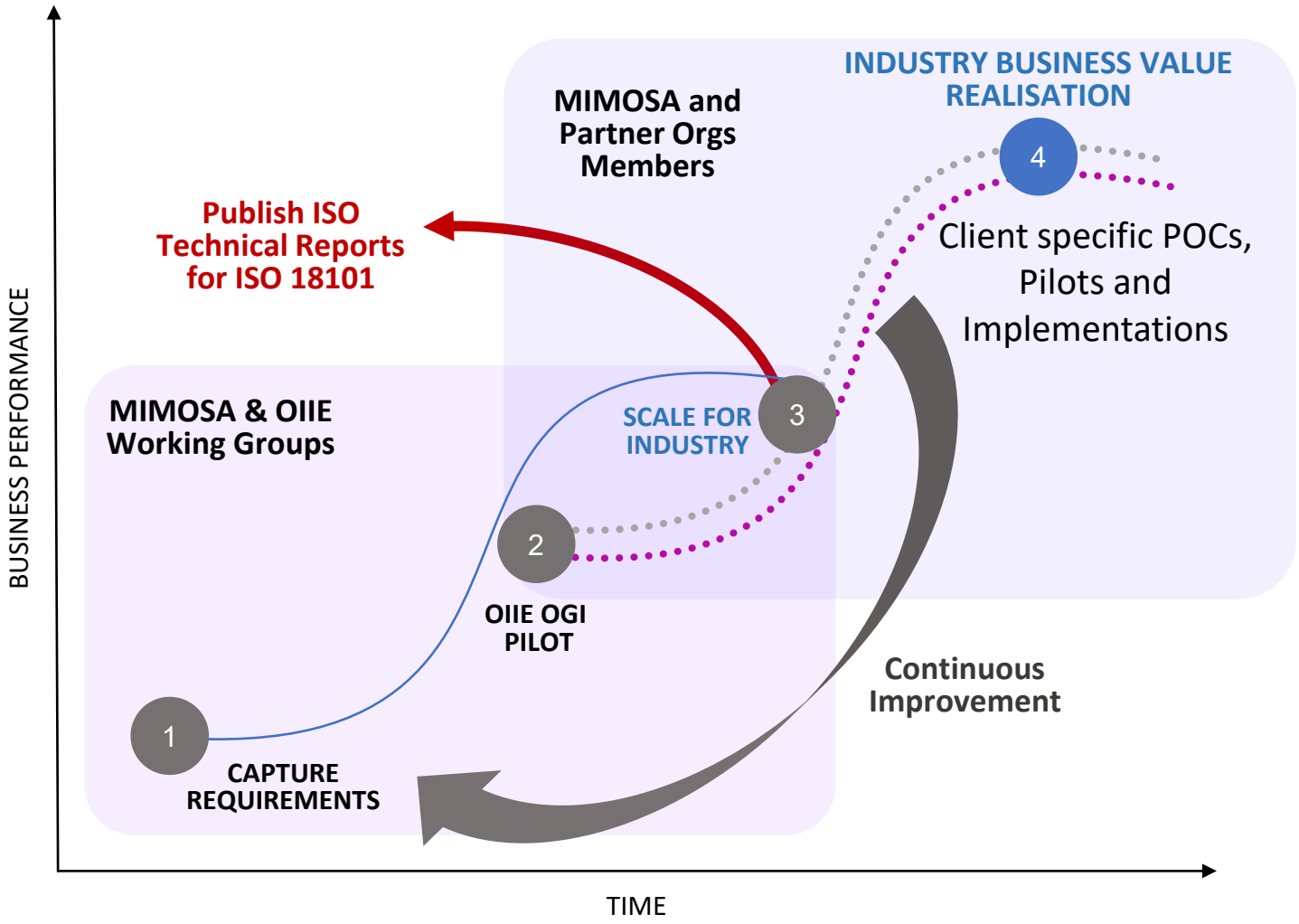
Back-End – Asset Installation - Sub Team Progress: Next Steps

- Continue detailing out IWP Issuance scenario
  - Key scenario as it provides the input into the Use Case
  - Incorporating relevant AWP data requirements
  - Mapping to MIMOSA CCOM
    - Work Requests, Work Orders, and their Work Steps; Documents and other related
    - Reference Data Mapping and Creation (where necessary)
  - Generate example data set for pilot

- Detail out the other 2 selected scenarios:
  - IWP Status Updates (construction-to-construction systems)
  - IWP Status Updates (construction-to-scheduling/planning systems)
  - These will be similar and should have good reuse

Open Industrial Interoperability Ecosystem (OIIE)™ OGI Pilot
Phase 3.3/3.4 Update
AT Johnston

The OIIE R&D Program Drives Industry Digital Transformation and Business Value Realization Sharing Costs, Risks and Standards



4 **Industry Business Value Realization**
- Participant/Client Specific Solutions
- Client Ecosystem and Interdependencies
- Industry participants assemble their own interoperating OIIE systems of systems using intranets and extranets

3 **Scale for Industry**
Industry participants build supported implementations of OIIE elements for industry use in OIIE systems of systems

2 **OIIE OGI Pilot** (Currently Phase 3.3)
- Develop prototype OIIE use cases and software
- Validate use cases and software in industry pilot
- Publish version managed standards and specifications (use cases, scenarios, events…)

1 **Capture Industry Requirements**
Process of capturing industry user stories and prioritizing them for the OIIE OGI Pilot

OIIE OGI Pilot 3.3 Demonstration
MIMOSA Open Meeting March 15 and 17: 6-8 AM CST

OIIE Purchasing Use Case

- ❑ Send RFQ for Motor to multiple Suppliers
  - ❑ Demo use of ISBM 2.1 inter-enterprise update
  - ❑ Use datasheet published by IOGP JIP33 for low voltage motor (IEC 60034-1)
  - ❑ Include VIRF/IOGP JIP 33 IRS (Information Requirements) in RFQ (OGI Pilot 3.4)
- ❑ Receive RFQ Responses, mock-up RFQ Response evaluation
- ❑ Send PO, Receive PO Acknowledgment (OGI Pilot 3.4)

OIIE Use Case 15 Extended

- ❑ Demo Capital Project Asset Installation for Motor
  - ❑ Demo sending of IWP (Installation Work Package) to field and subsequent IWP status updates

OIIE Use Case 1 Extended

- ❑ Demo Handover of As-Built Data to SAP including CFIHOS RDL Properties for Motor

Planning for 2022

- OpenO&M (With ISA 95)
  - ISBM 2.x update - Identifier Management, e.g., standardising interaction with OpenID Connect protocol
  - CIR Update
  - Service Directory Update - Capability Modelling, ISA-95 Part 5, 6.2.4 Transaction Profiles
- OIIE Use Cases development and Piloting
  - **Purchasing Use Case**
  - **VIRF Use Case**
  - **Risk model development, usage and linkages Use Case**
- OIIE OGI Pilot 3.4
- FEnEx CRC Analytics Project Pilot
- OIIE AuWG
  - Hydrogen cluster, SME participation/OIIE Adoption
- MIMOSA CCOM
  - v4.2 update, JSON, ISDD, CCOM SDK reference implementation
- OSA-CBM update
  - Aligned with EU projects
- OIIE for other sectors like AECO
  - BIM
- Documentation Update
  - Technical documents and examples, Non-technical documentation
- MIMOSA work-stream management

Subteam 5 -- Prioritization and Value Case Definition – D. J. McNeil

Sub-Team 5

Subteam 5 -- Prioritization and Value Case Definition – enablers –
Deb McNeil
Goal- to stay focused on right priorities- identify economy of scale areas

- ✓ See August 2021 Meeting Minutes for where $ and time are actually spent on Industry Projects and current industry average performance

IPA-MIMOSA 2022 Planning

2021 Activities
Cost Estimating Framework
Purchasing (RFI/RFI Response)
Asset Installation
Pilot 3.3

2022 Plans

Cost Estimating

- Complete Use Cases for 3.5 Pilot

RFI/ RFI Response

- Complete Use Cases for 3.4 Pilot; Define 3.5

Asset Installation

- Complete Use Cases for 3.4 Pilot; Define 3.5

Pilot 3.4

Phase 3.4 (2021-2022) – Planning for Next Phase (2021 - Q4 Start)

- Include more requirements established with OIIE Capital Projects WG, FEnEx CRC, CFIHOS, CII, and **NOW AACE**
- Cross-Sector alignment for Critical Infrastructure Risk Management
- Generate Technical Report to be used as input for ISO 18101
- Shared Costs, Risks and Benefits – Requirements from Members and Sponsors are Prioritized
- Alignment with FEnEx CRC Project on Interoperable Analytics provides matching funds for R&D/Testing
- Prepare for internal Production Pilots and Production Use in mid 2022 and beyond

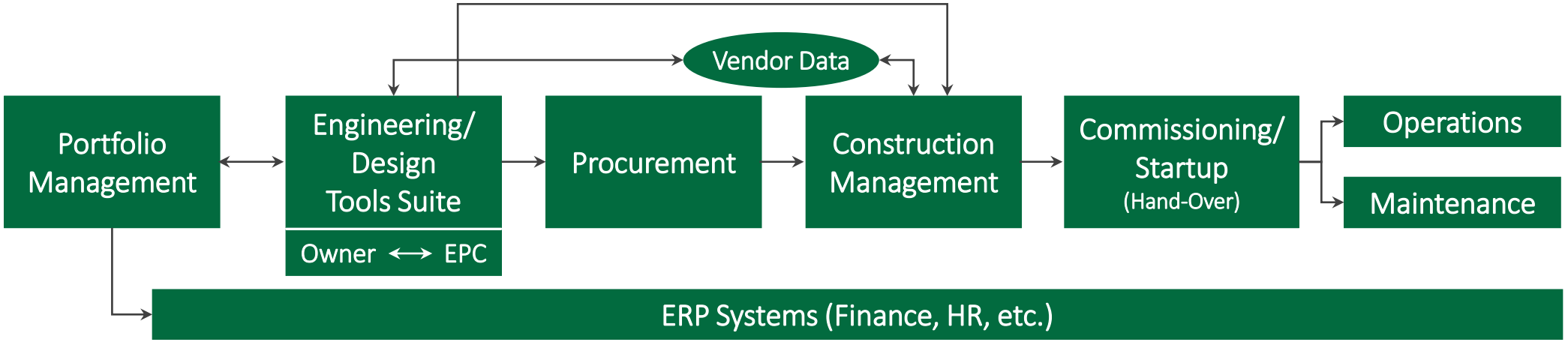
Optional Priorities for OIIE OGI Pilot Phase 3.4 and Beyond

- IPA-MIMOSA OIIE Capital Project Use Cases
  - Cost Estimating
  - Supply Chain (Capital RFI/Purchasing)
  - Asset Installation
- CFIHOS 1.4.1 Based Handover –
  - Critical Path items for end of 2021?
- Supply Chain Management Digital Transformation
  - Critical Path items for Q1/Q2 2022?
- AWP/CWP/IWP for Capital Projects
  - Critical Path items for Q2/Q2 2022?
- BIM/IFC and OIIE Convergence
  - Relative importance for different industry sectors?

Key Issues- 2022 Priorities

Digitalization

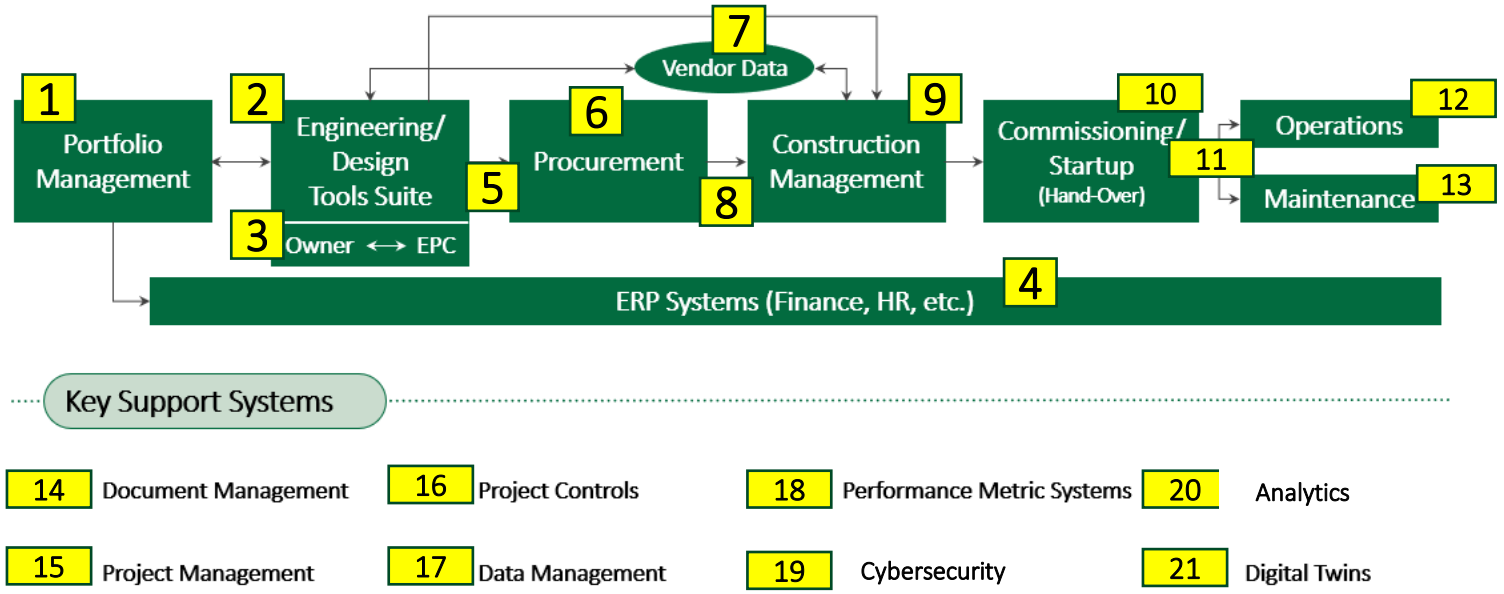
Entering Data Once and Having It Where and When You Need It



Key Support Systems

Document Management	Project Controls	Performance Metric Systems	ERP Systems
Project Management	Data Management	Cyber Security	Digital Twins

2022 Industry Digitalization Efforts



Q1: In which opportunity areas do you have 2022 planned improvements?

Q2: What are your Top 5 opportunity areas?

Area	OPPORTUNITY AREA
1	Portfolio Planning
2	Design Tools
3	EPCm Interface
4	ERP System
5	Eng- Procurement Interface
6	Procurement/ Materials Management
7	Vendor Interfaces
8	Materials Management
9	Construction Management
10	Commissioning
11	Info Hand-off to Ops
12	Operating Systems
13	Maintenance Systems
14	Document Management
15	Project Management
16	Project Controls
17	Data Management
18	Performance Metrics
19	Cybersecurity
20	Analytics
21	Digital Twins

Next Steps

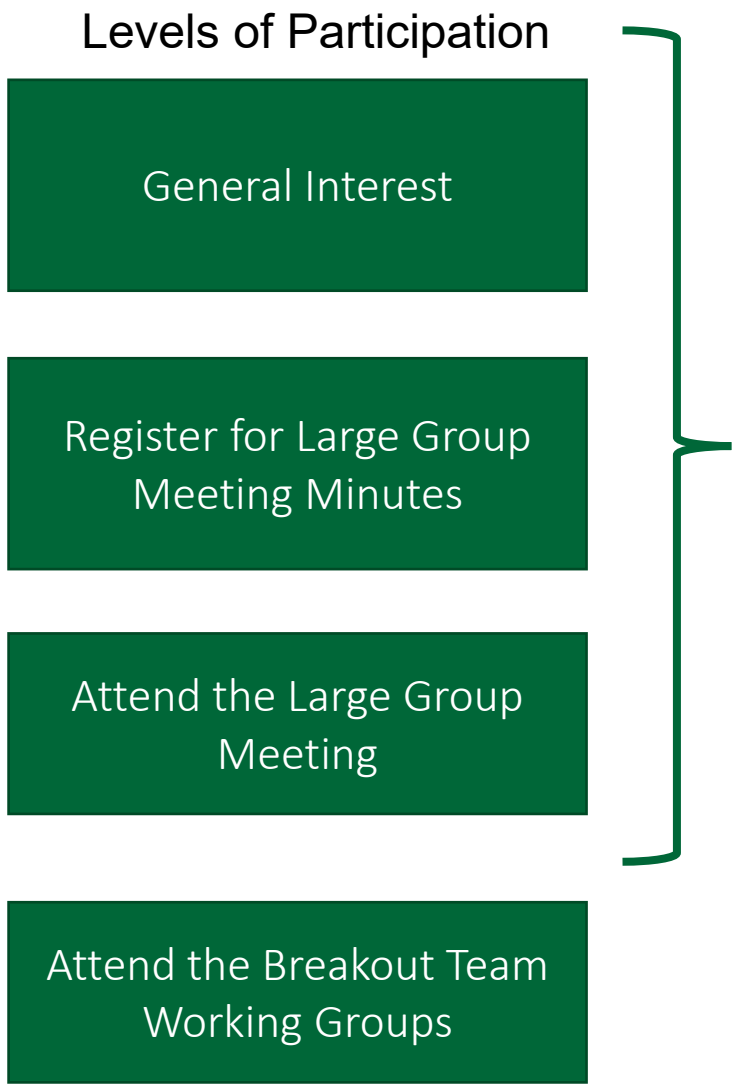
Check-

Access to MIMOSA TEAMS work area –

Anyone needing an invitation contact Matt Selway:

Matt.Selway@my.unisa.edu.au

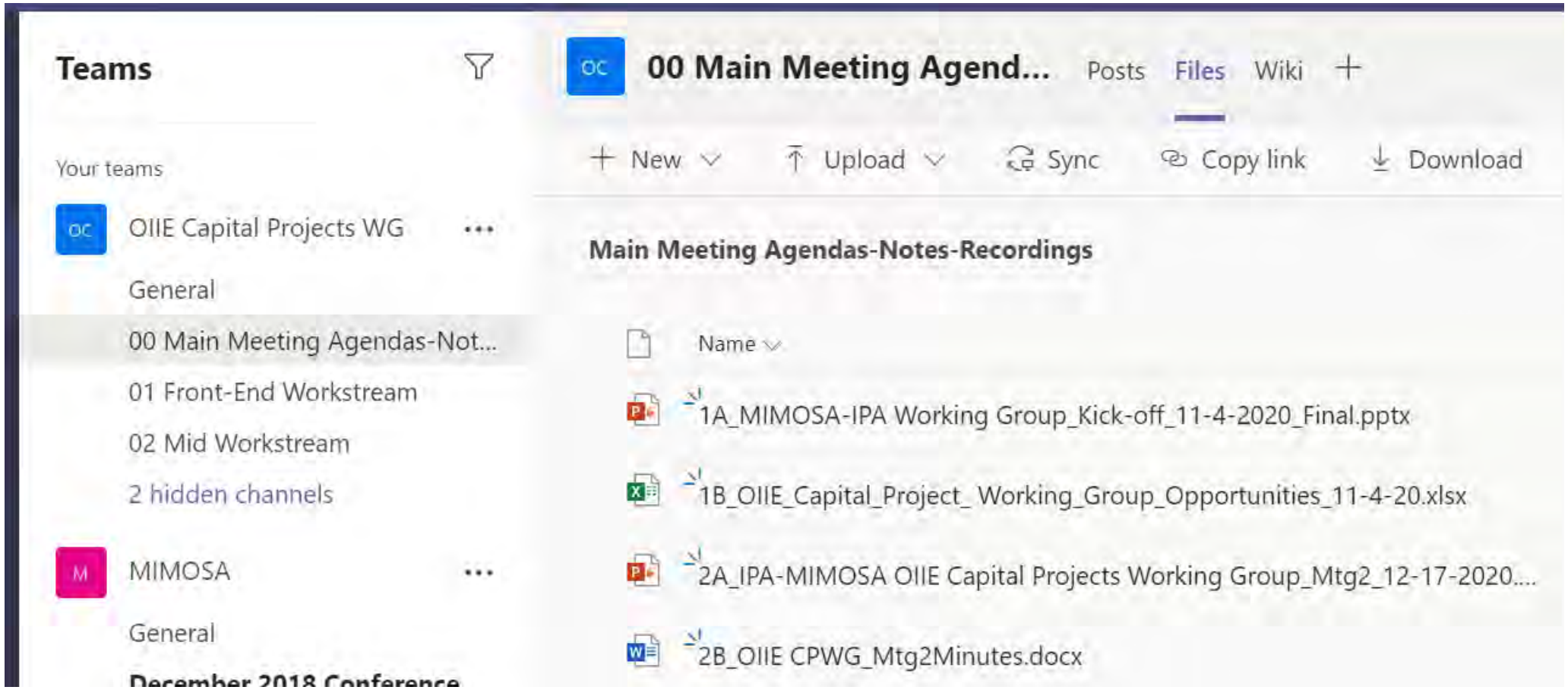
IPA – MIMOSA OIIE CPWG



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…



Next Steps:

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

a) If not already a member, you will be invited to the MIMOSA TEAMS workspace to continue development of the Use Cases

b) 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)

c) Contact Alan Johnston (atjohn@comcast.net) to get more info on MIMOSA membership and access to the solutions already in place for your company to use

d) The Main Team will meet once a month on the 3rd Tuesday from 7 to 8 am EDST 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 or Register on the IPA Website

THANK YOU