Technical information exchange in process industry ecosystems

Teknisen tiedon vaihto prosessiteollisuuden ekosysteemeissä

THTH kevätseminaari, Pöyry, 8.5.2017

Arto Marttinen, Collaxion Oy

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Agenda

- Collaxion briefly
- From standardization to business ecosystems
- Automating information exchange
  - Why? Benefits
  - How? Development steps
- DBE Core business messages and processes briefly
  - Content
- Summary

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Collaxion briefly

O&M expertise in industrial production processes

- Active contributor in national and international forums

Strong experience in industrial information exchange and standardization

Second round in a new business role

- First trial was more like a collaboration platform (enabling some selected digitalization workflows)
- Now it is more like an integrator and information broker (allowing some selected collaborative actions)
- Focus on adding business value via technical information exchange
- Partnership with Tieto Oyj

Consulting role in DBE Core via THTH

- Technical specifications
- New pilots under preparation

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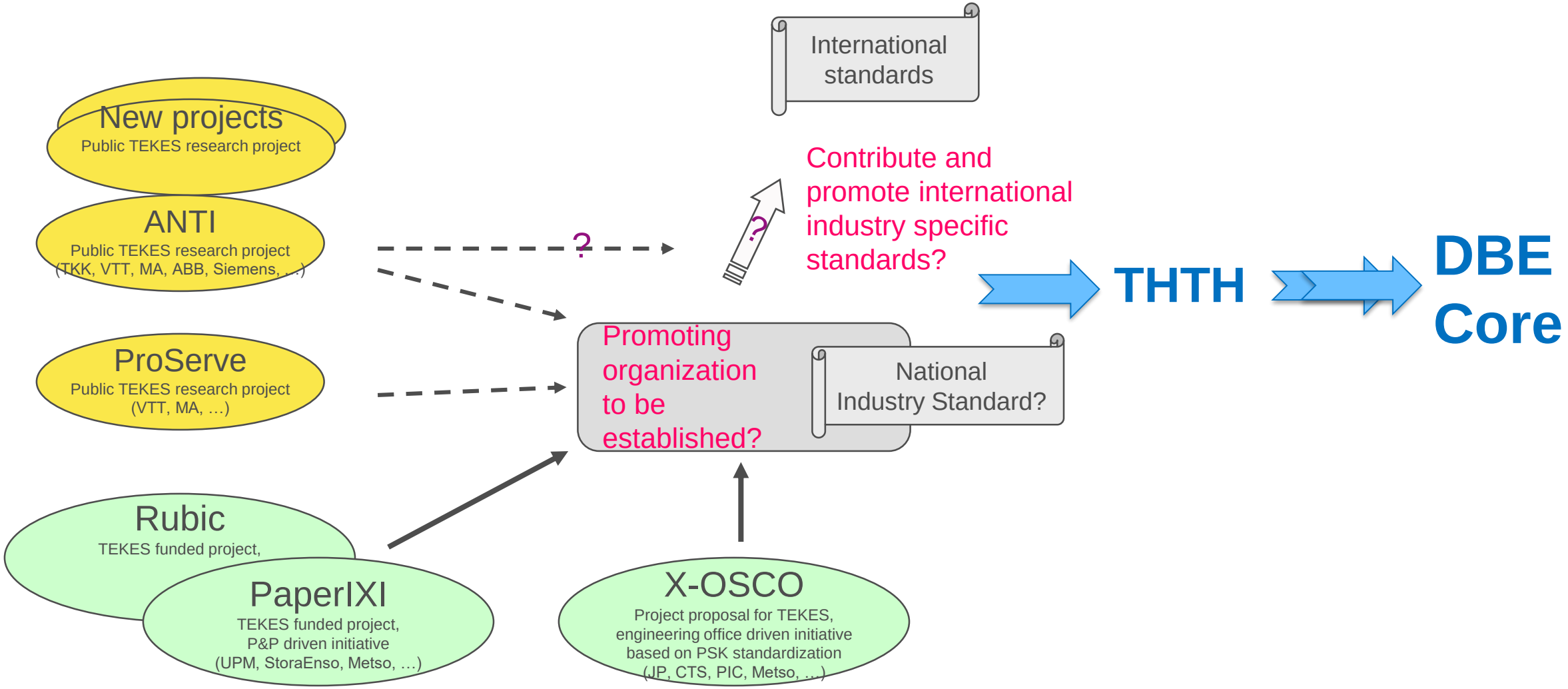
Year 2003 → THTH → Prindex/Sefram → DBE Core



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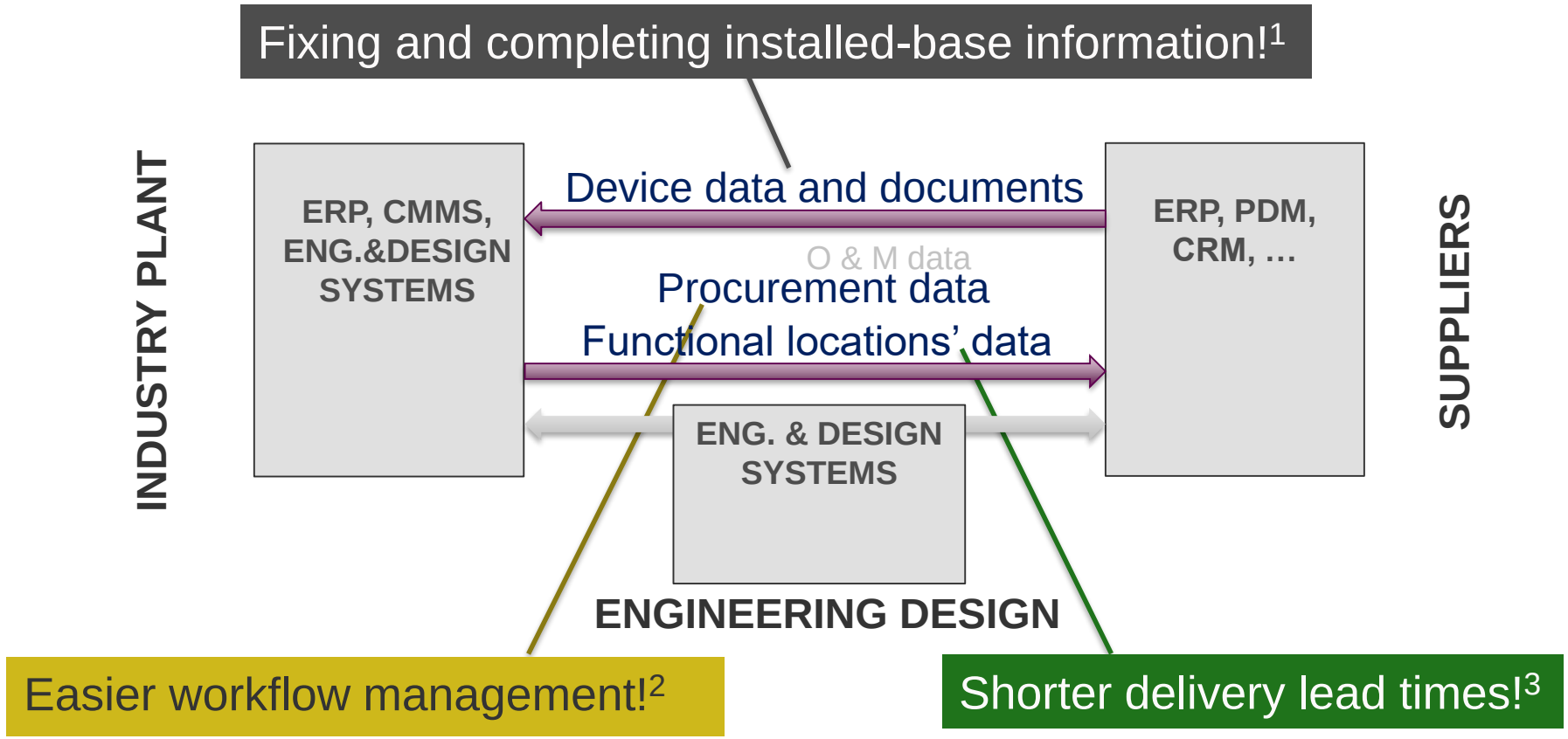
Automating information exchange



[1]Improved dependability, reduced human, environmental and plant asset risks, +1%-unit business benefits (EBIT)**

[2]Transactional costs reduced, +0,5%-unit business benefits (EBIT)**

[3]Shortened project lead times, data and documents available instantly for O&M!

**ARC 2010

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Cost Savings and Business Benefits

Equipment data and related document integrity will be improved along with the digital processes

- Data quality and accuracy will be improved – right data directly from suppliers systems
- Production dependability and reliability will be improved → improving productivity
- Data models and content can be harmonized between different mills (on corporate level)

Enhanced data availability creates transparency to work planning and workflows

- All needed data accessible for those who need it (right content in right time in right place)
- Change management will be easier
- History of transactions allows traceability

Workflows and transactions will be faster because of automation

- Needless manual work will be minimized
- Time needed for information exchange between partners will be reduced to a fraction
  → suppliers and subcontractors response faster (ecosystem benefits)

Item management will be revolutionized

- Systematical item management (harmonization) can be accomplished automatically as a part of service workflows

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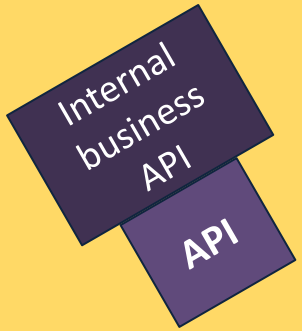
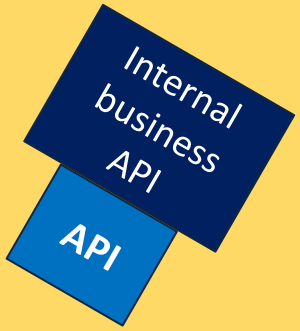
Current: No ecosystem interoperability in technical data

Banks and financiers

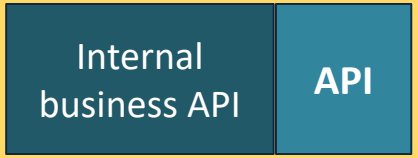




Other business partners
(analytics services, installation work, …)

Without ecosystem agreements point-to-point API development will lead operative inefficiency and more expensive solutions

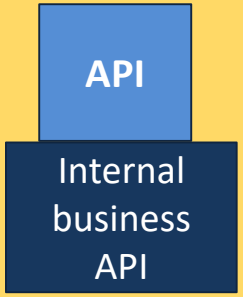
End-customers



No ecosystem interoperability
Commonly agreed data models and intercompany workflows missing

Suppliers, service providers

Ecosystem network not available
Commonly agreed intercompany workflows missing



EPC/EPCM

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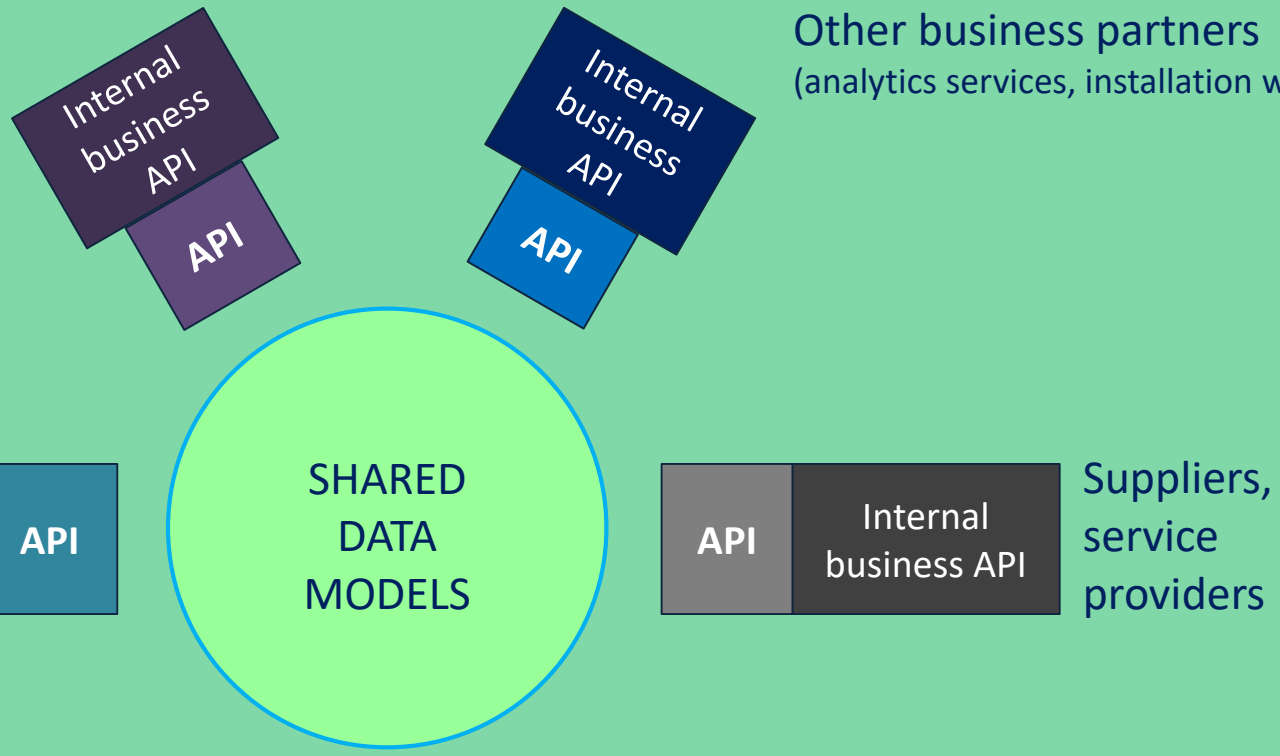
UBL READY

Step 1: Shared data models form the foundation

Banks and financiers

Other business partners
(analytics services, installation work, …)

Data models soon ready for
- **Automatic valves**
- **Pumps**
- **Automation instruments**
- **Electric motors**



→ **Standardization bodies connected**

Ecosystem network not available

Commonly agreed intercompany workflows missing

UBL 2.1 ISO/IEC-19845
ISO-15926, IEC-61987,…

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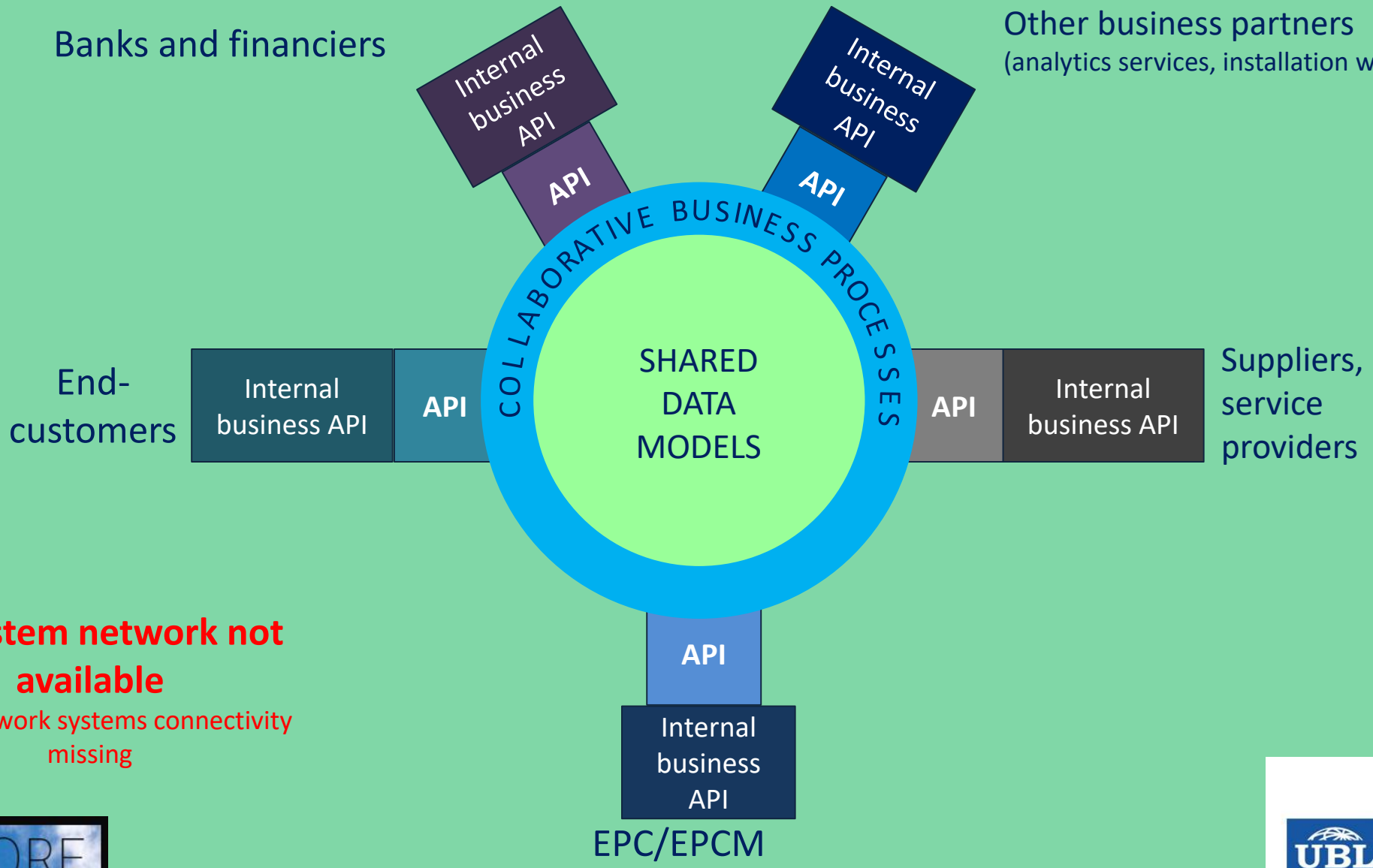
Step 2: Collaborative business processes link parties together



Ecosystem network not available

Open network systems connectivity missing

DBE CORE

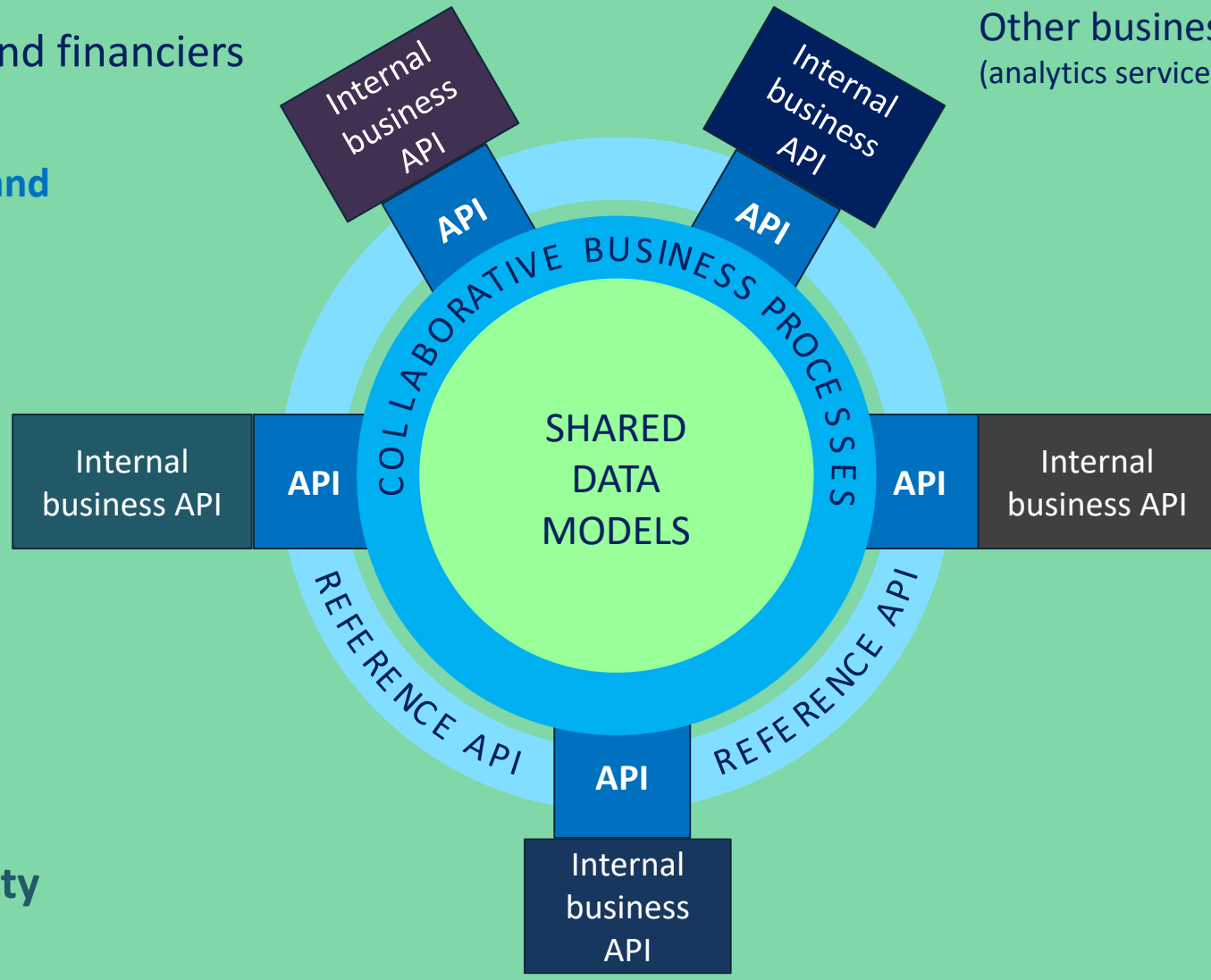
UBL READY

Step 3: Interoperability using standardized interfaces

Banks and financiers

Other business partners
(analytics services, installation work, …)

Industry commitment and pilots needed!



End-customers

Suppliers, service providers

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Ecosystem interoperability guaranteed

DBE CORE

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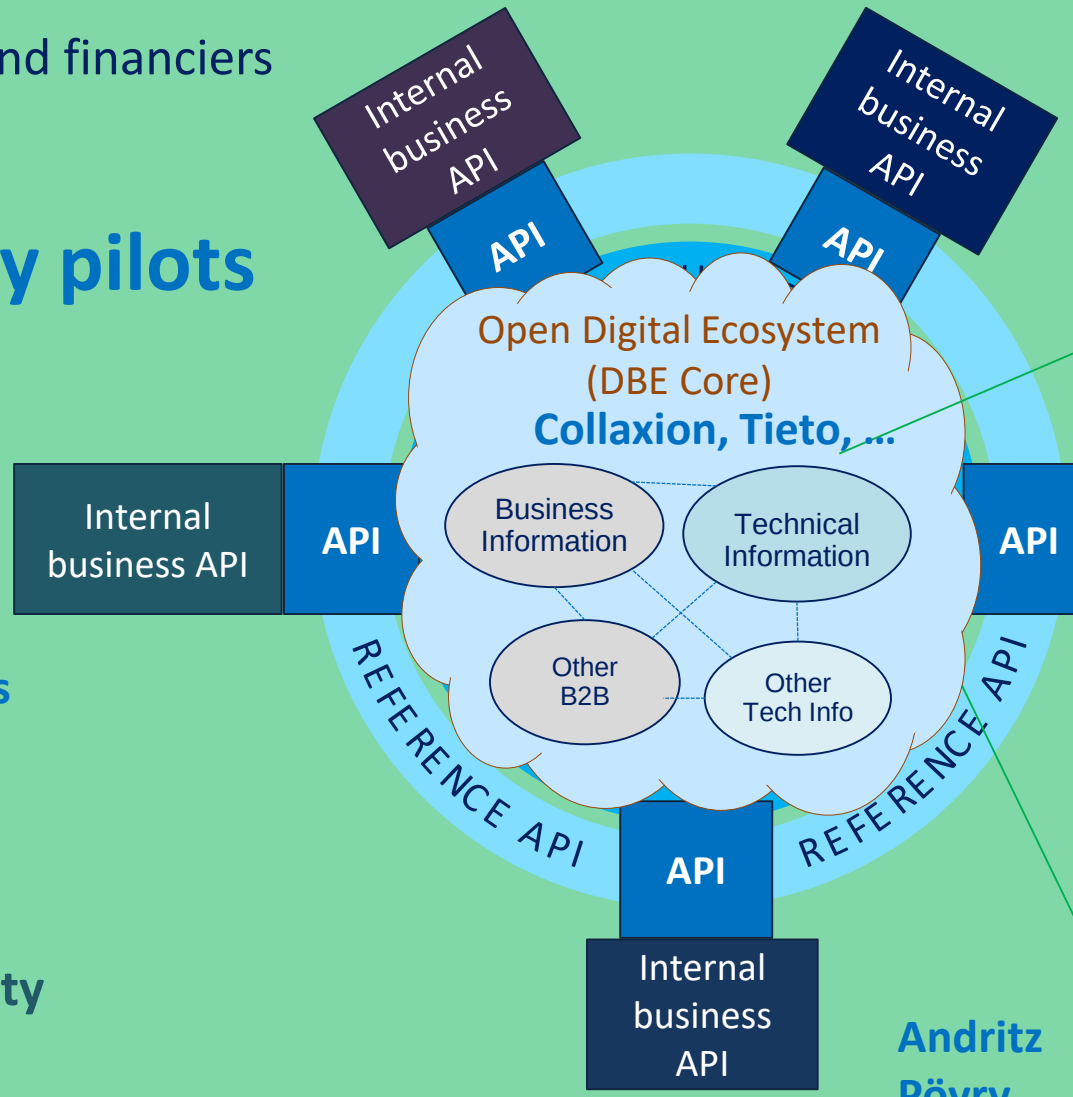
Final: Digital ecosystem based on existing and new data sharing

Banks and financiers

Other business partners
(analytics services, installation work, …)

Process industry pilots



Available messaging and operator services to be freely selected by each individual company

End-customers

Suppliers, service providers

Metso (FC)
Sulzer Pumps
Endress+Hauser
Siemens

Process industry companies

Open ecosystem information exchange between business partners according to commonly agreed rules and principles

Ecosystem interoperability guaranteed

DBE CORE

EPC/EPCM

Andritz
Pöyry
Sweco

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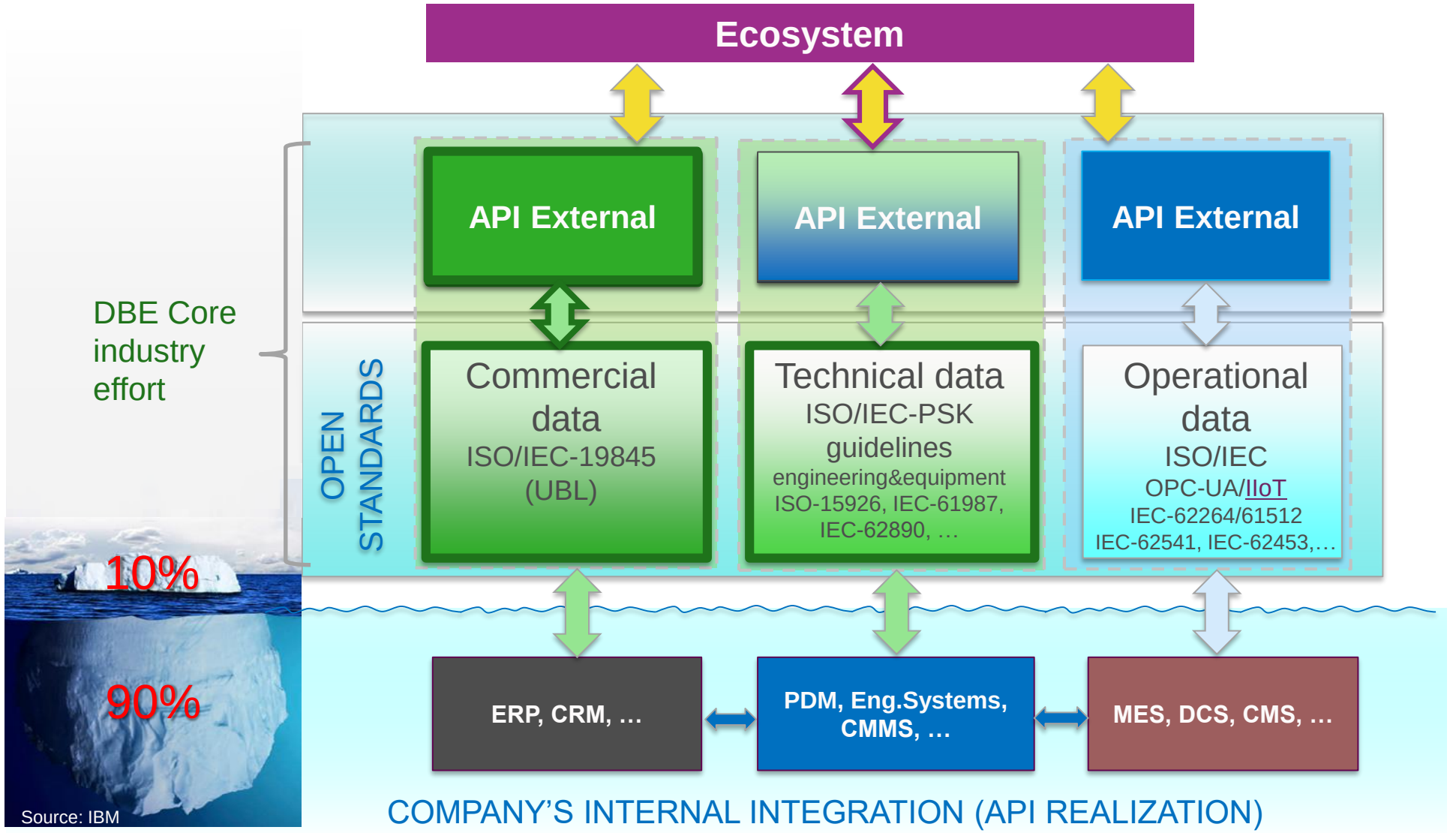
Open network is based on standards



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DBE Core business messages

1. RequestForQuotation
2. Quotation[1]
3. Order[1]
4. OrderResponse[1]
5. OrderChange[1]
6. RequestTechnicalData[2]
7. DespatchTechnicalData[2]
8. ReceiptTechnicalData[2]
9. DespatchAdvice[3]
10. ReceiptAdvice[3]
11. CatalogueRequest[3]
12. Catalogue[3]

[1] DBE Core subset from original UBL 2.2
[2] DBE Core addition to UBL 2.2
[3] Not on the scope at this moment

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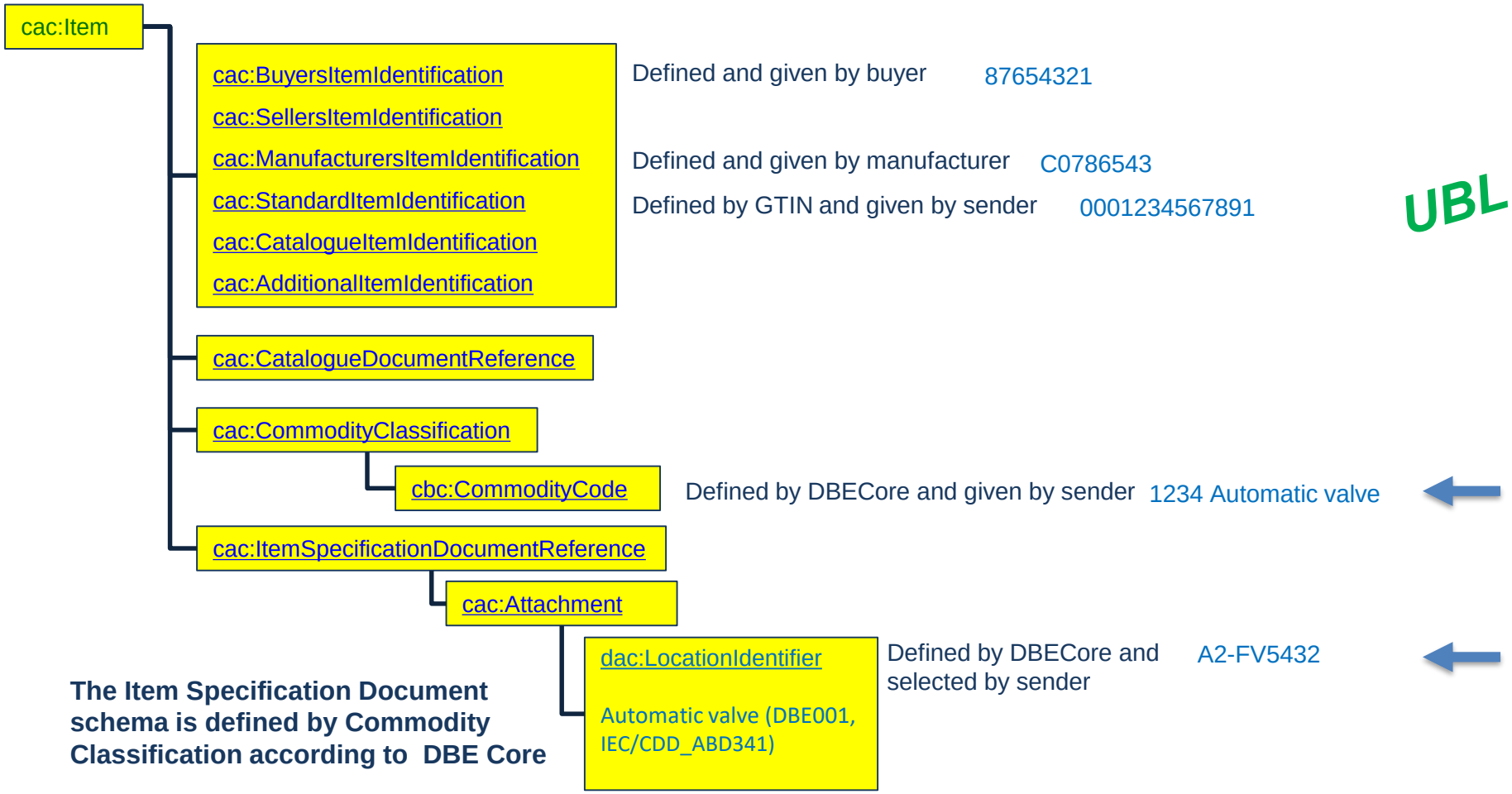
Connecting technical information exchange to UBL



UBL 2.2 compatible

The Item Specification Document schema is defined by Commodity Classification according to DBE Core

DBE CORE

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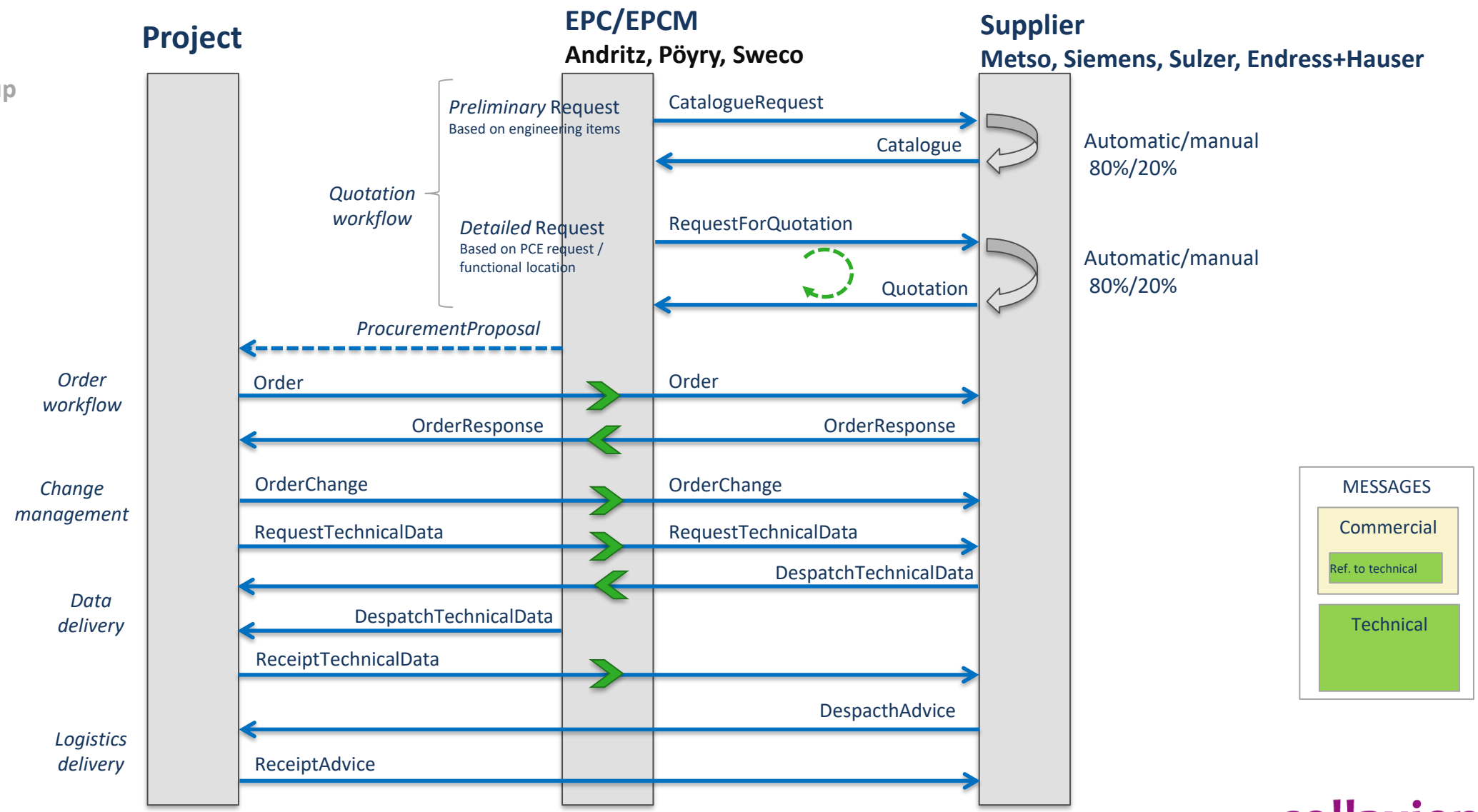
CAPEX – Workflow elements in projects

Metsä Group
Stora-Enso
UPM
Fortum
Neste
Wärtsilä
Yara
…



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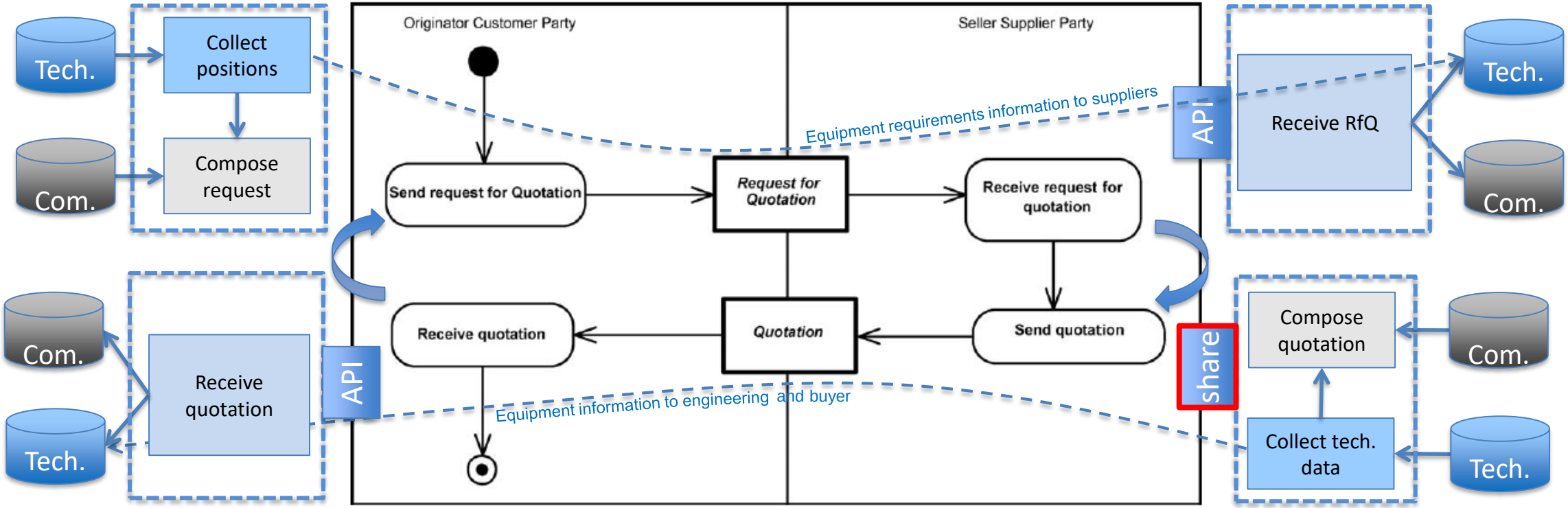
RequestForQuotation → Quotation

Buyer

Detailed use-cases to be defined with parties!

Seller



Project phase: *preliminary, detail*
Revision number: *number*
Position status: *pending/pending, final/pending, final/final*

DBE CORE

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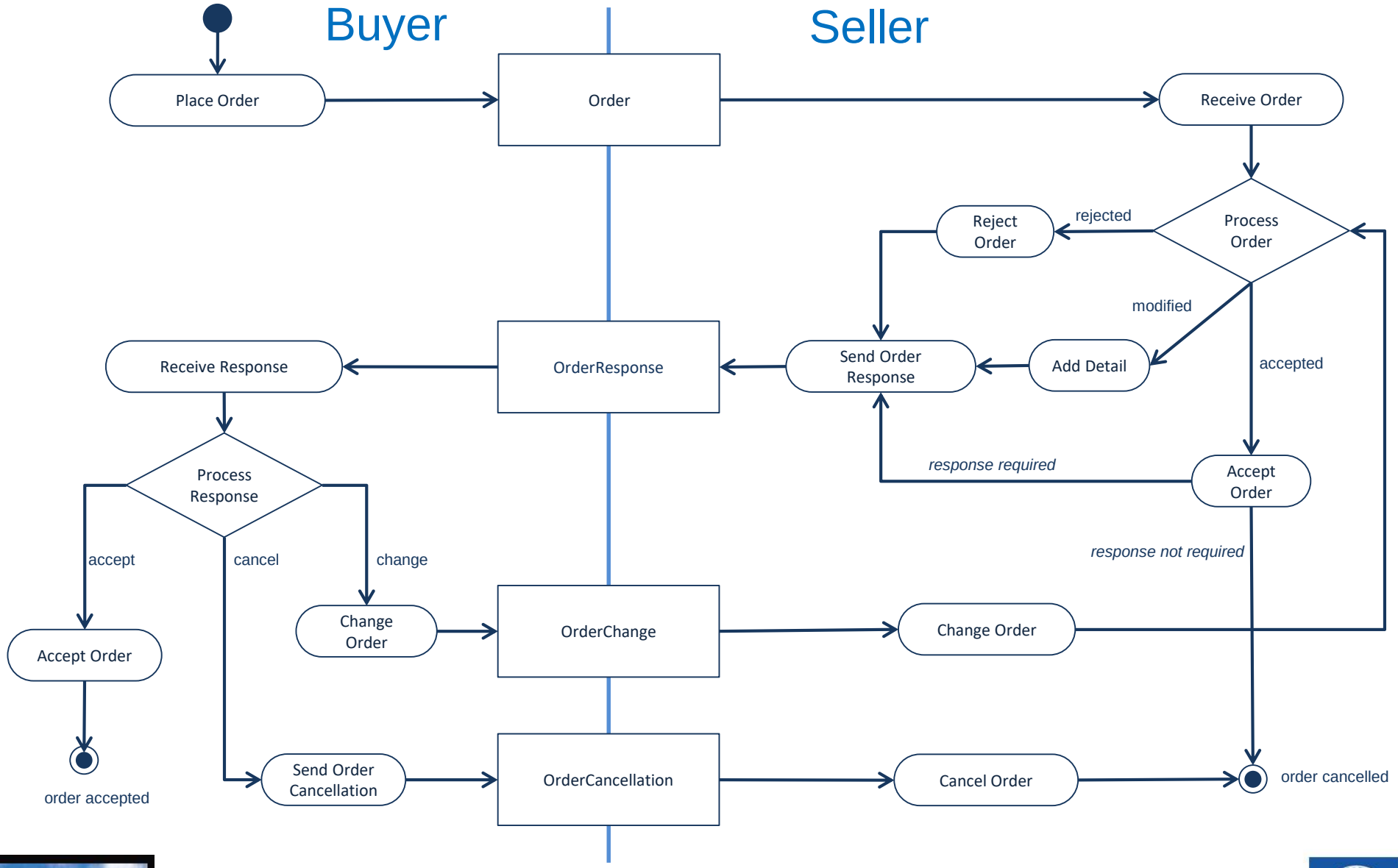
Order



Detailed use-cases to be defined with parties!

Summary

Basic DBE Core defined

- Principles of technical data modelling approved – exemplar models ready in May 2018
- Business messages defined and to be approved in May 18th (Order schema got just UBL 2.2 approval)
- Basic definitions for business processes to be approved in May 18th – detailed use-case specs to be defined
- First public API interface specs waits for companies tests and mockups from summer 2018 → feedback needed
- Target to get reference API's in use by the end of 2018

DBE Core organization model under construction (to be ready by the end of 2018)

- THTH and different standardization organizations plays important role

More company specific use-case definitions and API tests are needed!

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All together now!