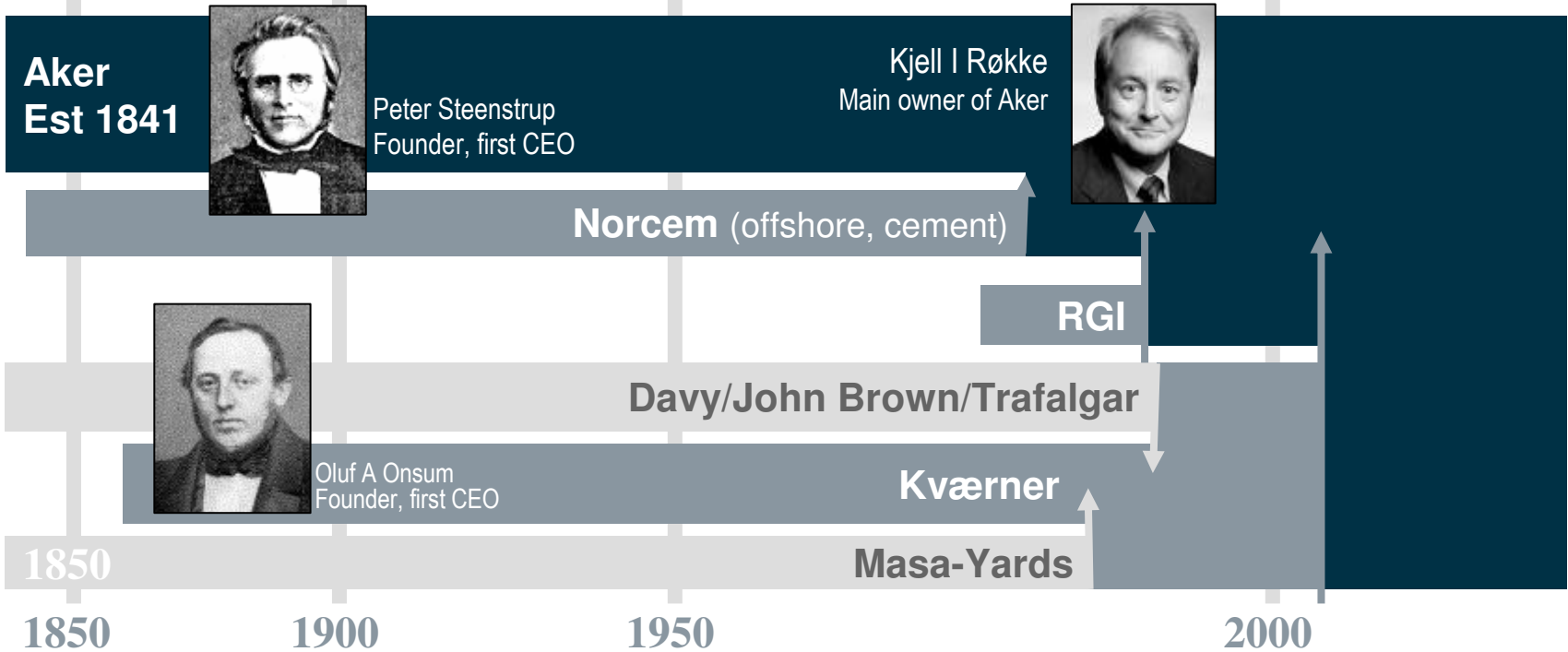
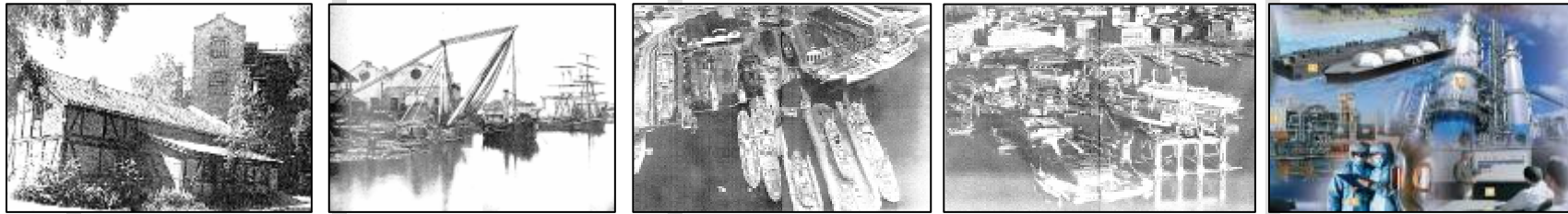


# PCA Forum & Members Meeting Aker Solutions and ISO15926

Jann K. Slettebakk  
VP CIO

# Our history

Generations of innovation

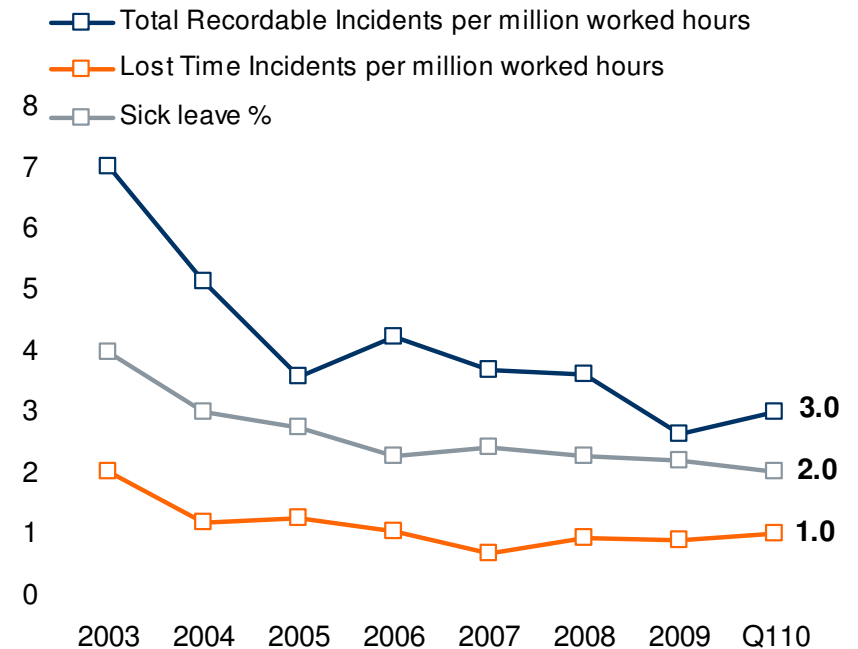


# Health, Safety and Environment

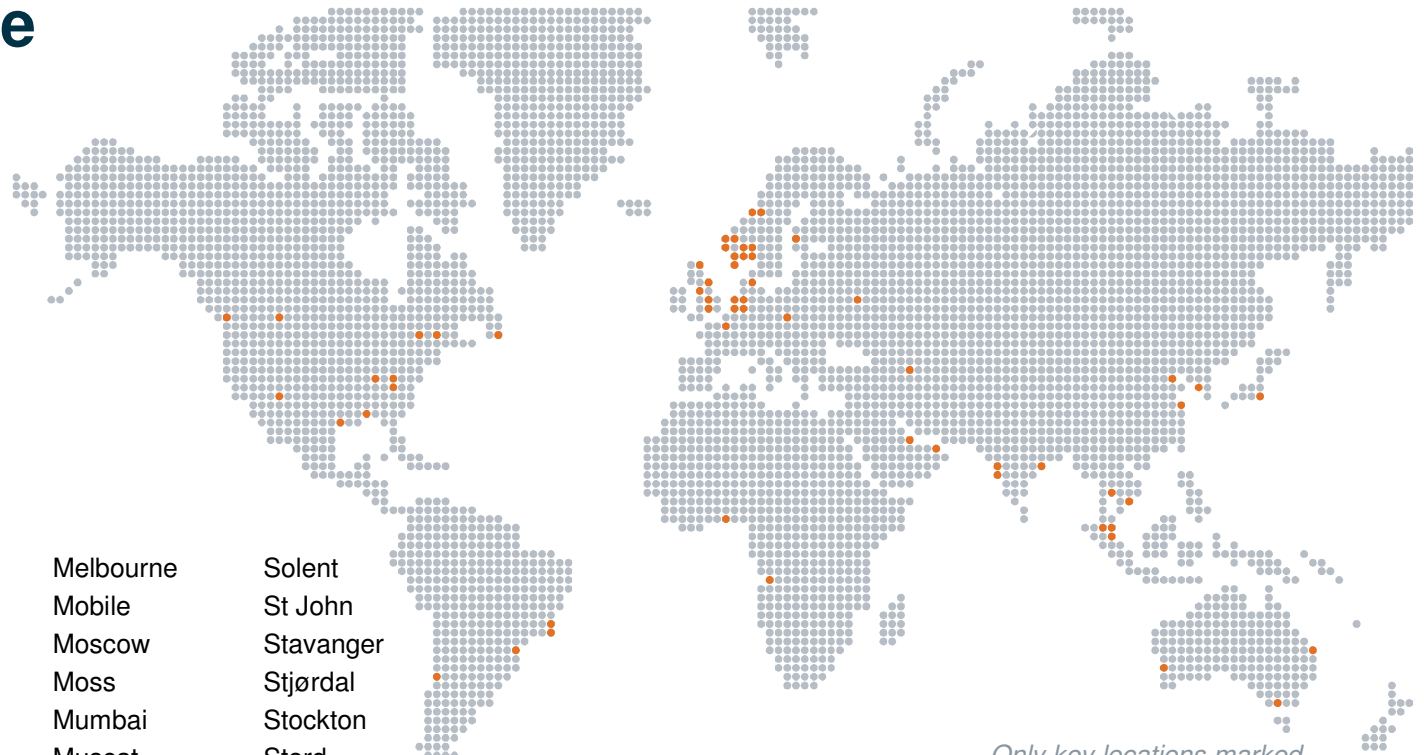
- In Q1 2010 LTIF and TRIF are both up from 2009 level, but same level as Q1 2009. Finger injuries and slippery ice are the main causes. Reduction in sick leave from both 2009 year end level and Q1 2009 level.



## HSE performance



# Where we are



*Only key locations marked*

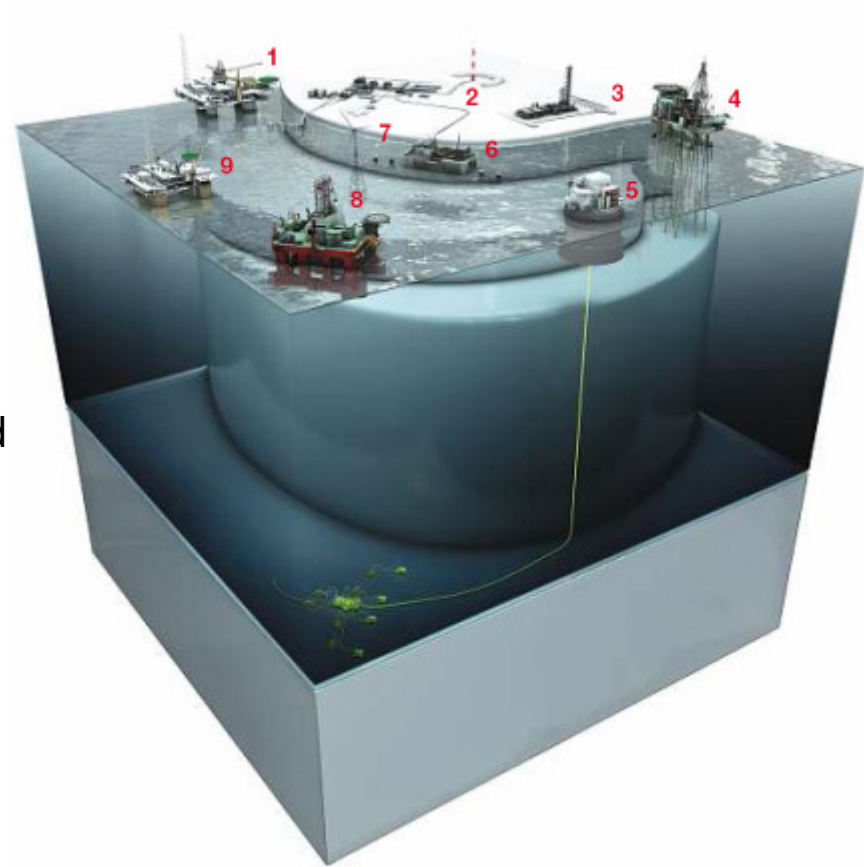
Aberdeen	Durban	Melbourne	Solent
Ågotnes	Egersund	Mobile	St John
Arendal	Erkelenz	Moscow	Stavanger
Arkhangelsk	Horten	Moss	Stjørdal
Baku	Houston	Mumbai	Stockton
Barcelona	Kakinada	Muscat	Stord
Batam	Köln	Oslo	Tokyo
Beijing	Krakow	Paris	Toronto
Bergen	Kristiansand	Perth	Tranby
Brisbane	Kristiansund	Porsgrunn	Tucson
Calgary	Kuala Lumpur	Pune	Ulvila
Canonsburg	Kyungnam	Pusan	Vancouver
Charleston	Lagos	Raesfeld	Verdal
Copenhagen	Linz	Rio de Janeiro	Warrington
Curitiba	Louisville	Santiago	Zoetermeer
Dhahran	Luanda	Seoul	
Dubai	Macaé	Shanghai	

Who we are and what we do



# Energy development and services

1. Tension leg platform for production and drilling
2. Onshore gas receiving, processing and export plant
3. CO<sub>2</sub> capture plant of flue gas from power production
4. Jacket structure for shallow waters, with drilling and production facilities
5. Harsh environment CONDEEP™ MonoFloater, with production facilities and storage capacity
6. Concrete structure ConGas, supporting LNG storage and an LNG regasification plant
7. Wind turbine foundations for shallow water locations
8. Aker H-6e, the world's largest and most advanced drilling semisubmersible
9. Semisubmersible production platform extreme water depths - may include drilling facilities



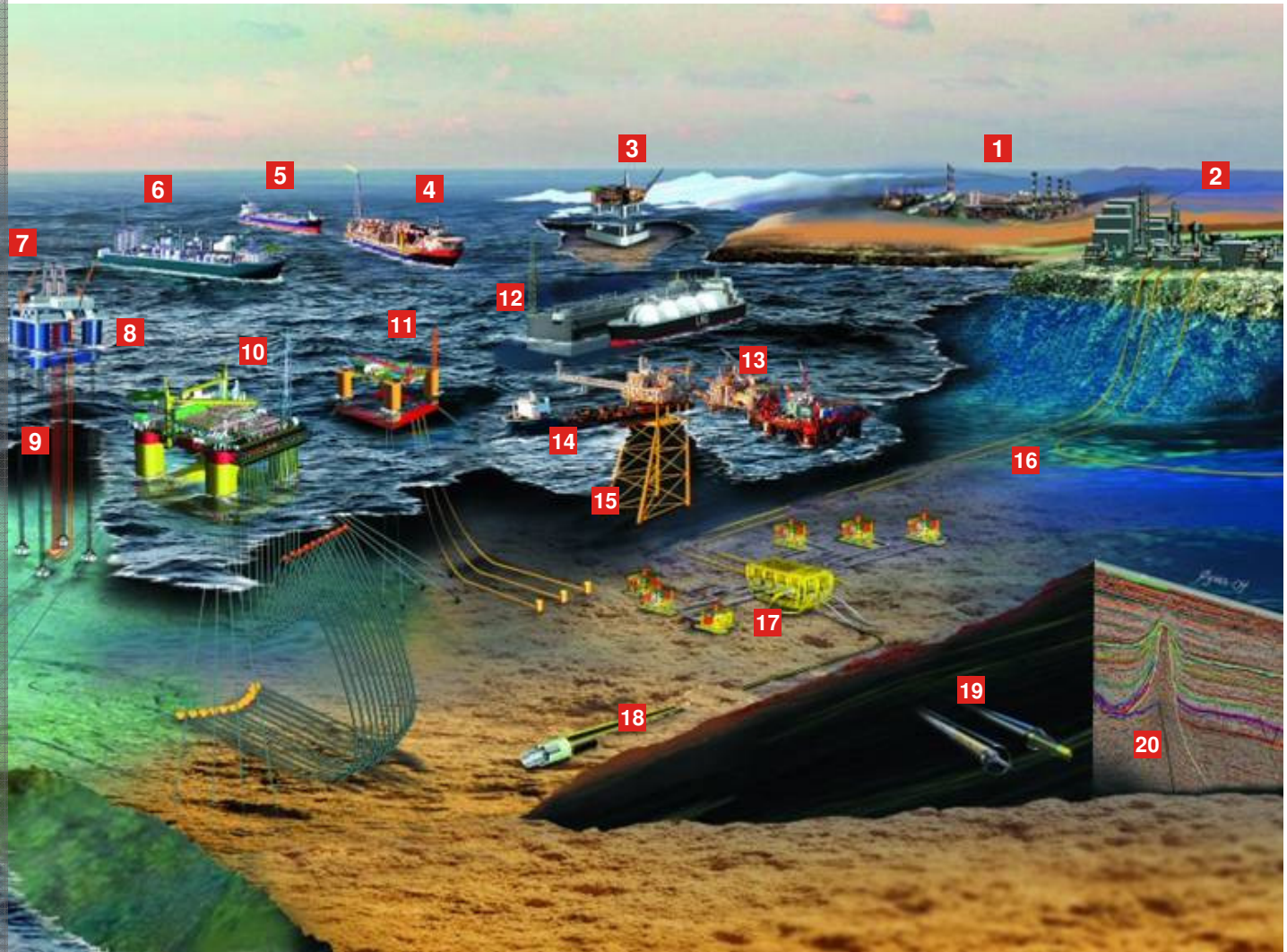
Who we are and what we do

 **AkerSolutions™**



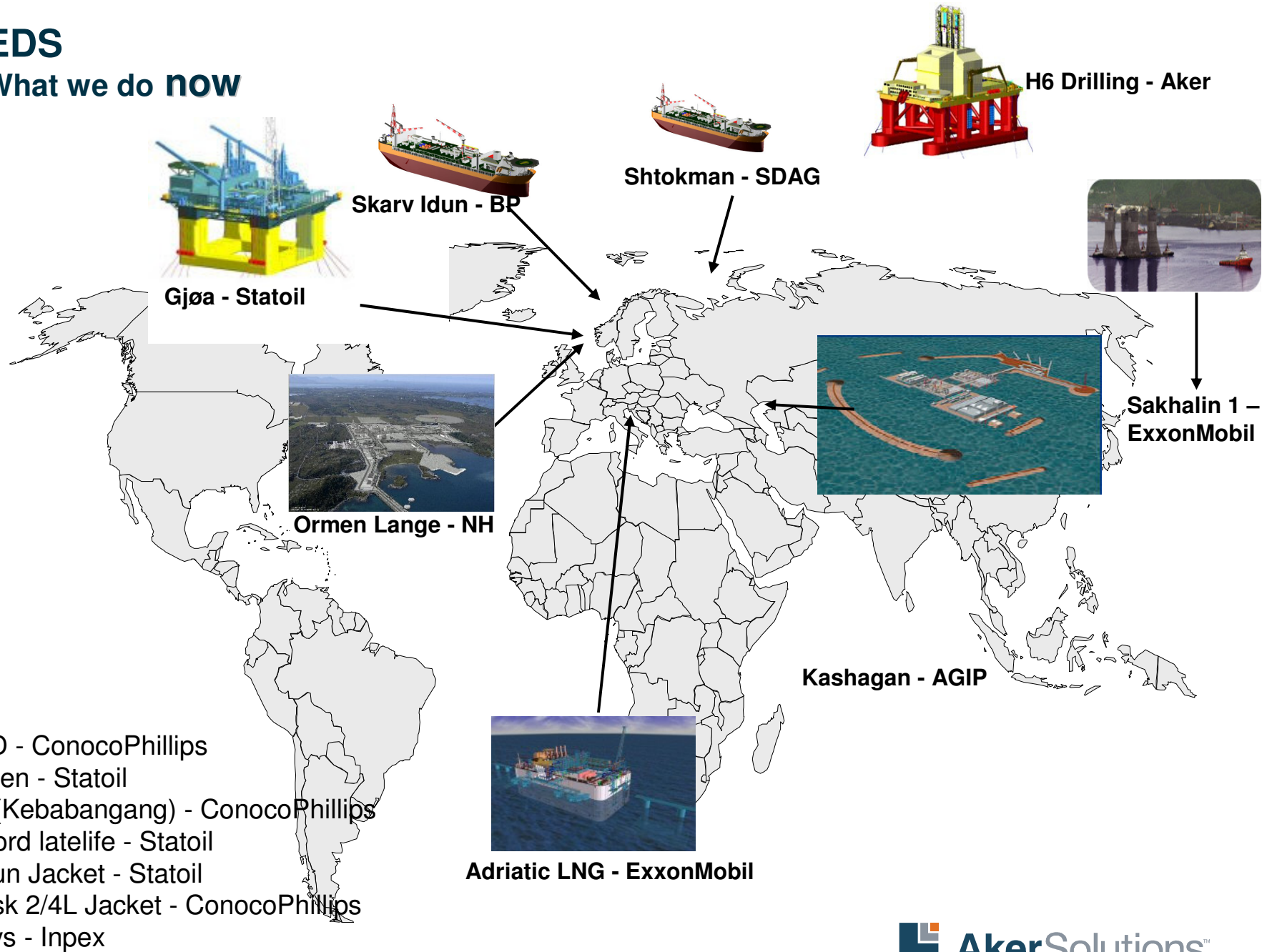
# Oil & Gas - From reservoir to processing facility

- 1** Land-based production and processing
- 2** Terminals
- 3** Marine concrete structures for harsh environments
- 4** Floating production, storage & offloading (FPSO) vessels
- 5** Mooring and transfer systems
- 6** Floating LNG and methanol systems
- 7** Drilling systems
- 8** Tension Leg Platforms (TLP)
- 9** Riser and tether technologies
- 10** Semisubmersibles
- 11** Deep draft semisubmersibles
- 12** LNG terminals, onshore and offshore
- 13** Topsides and modules
- 14** Installation and removal (floatover/mating)
- 15** Jacket technology
- 16** Pipelines and flow assurance
- 17** Subsea solutions
- 18** Umbilicals and flowlines
- 19** Downhole technologies
- 20** Reservoir modelling and interpretation



# EDS

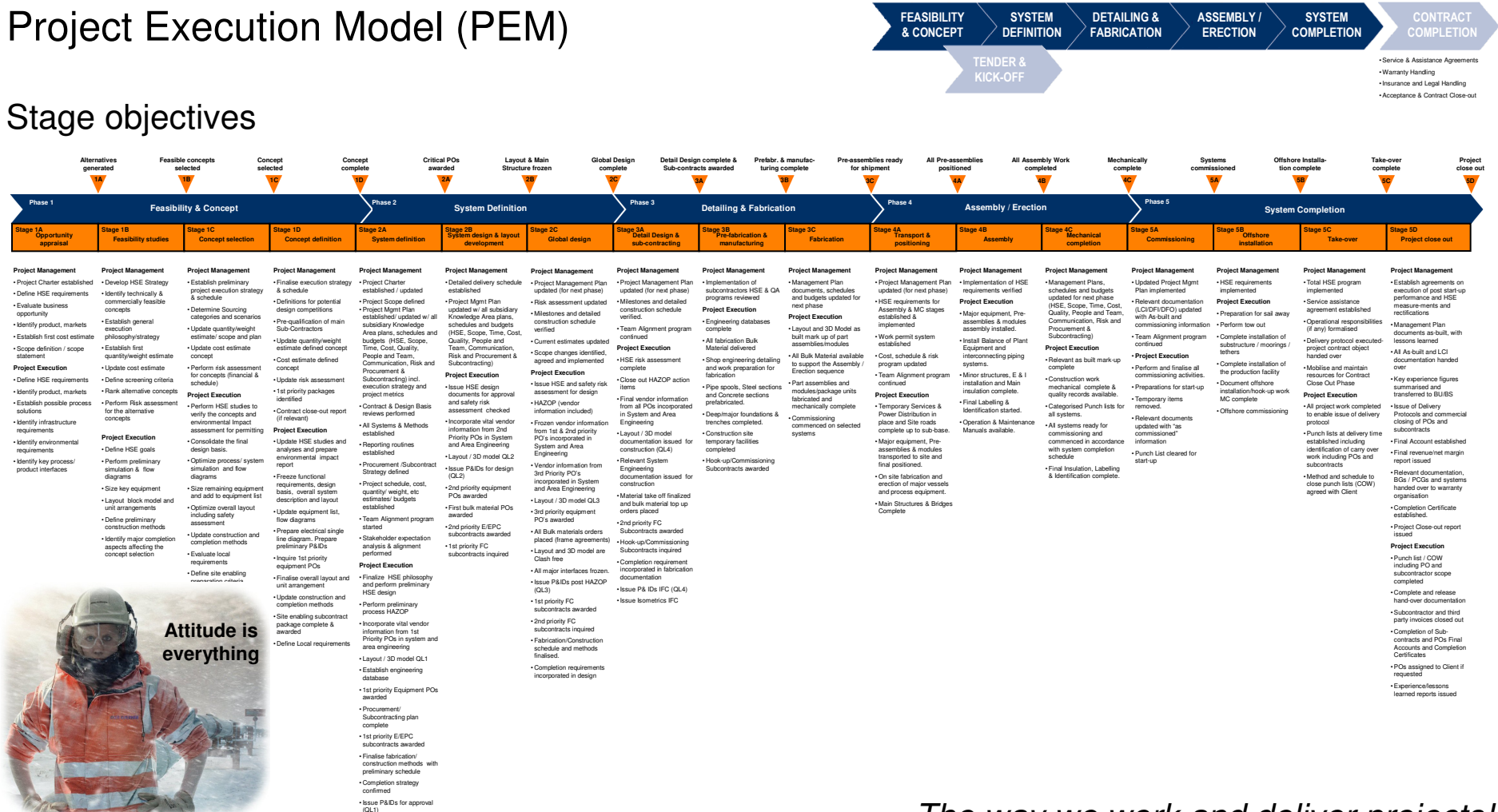
## What we do NOW





# Project Execution Model (PEM)

## Stage objectives



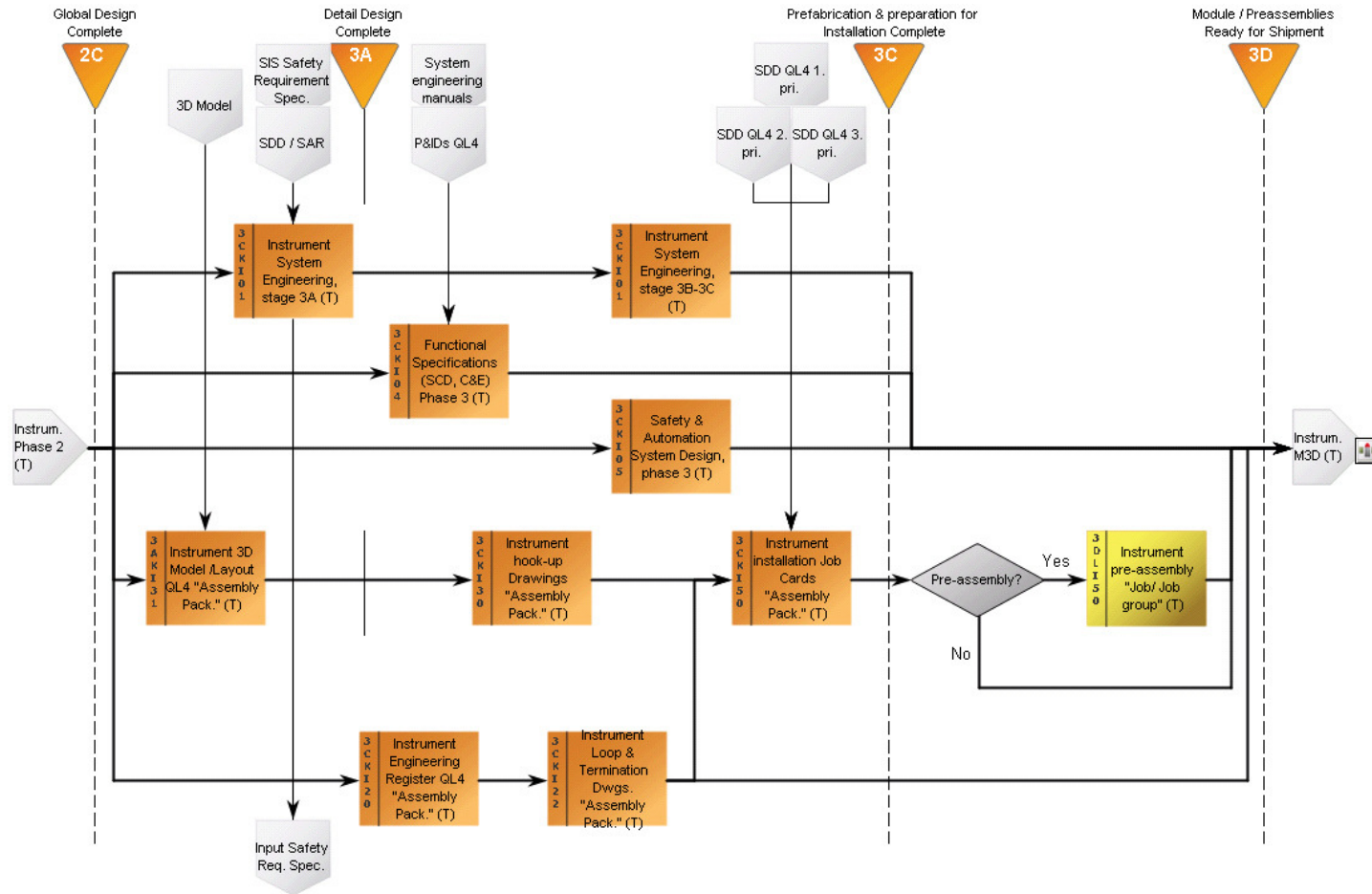
Attitude is everything

The way we work and deliver projects!





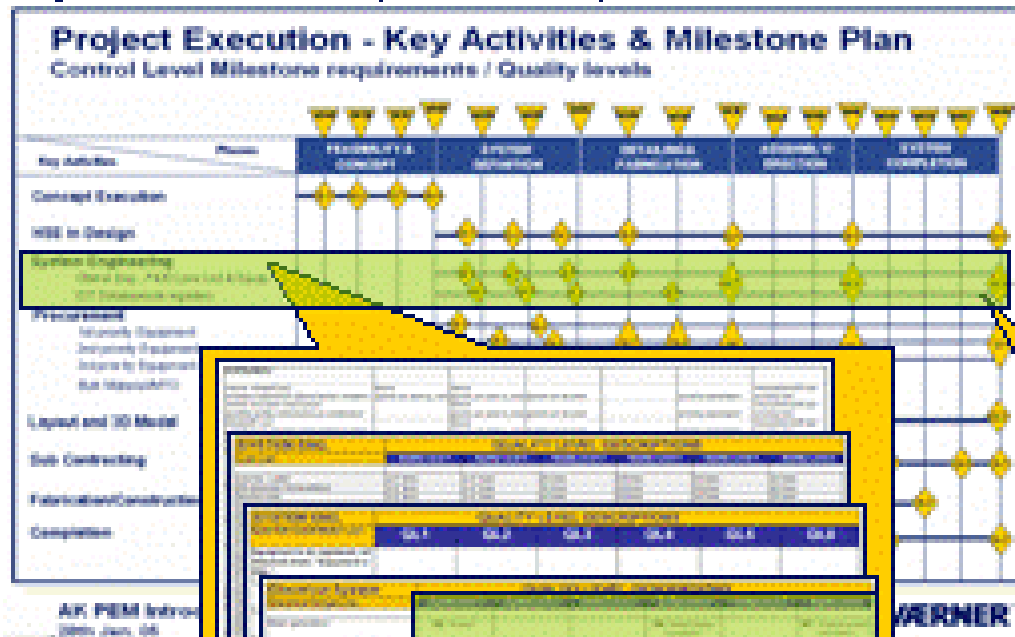
# PEM Execution Level – M2C – M3D Instrument Discipline Flowshhets and activity description



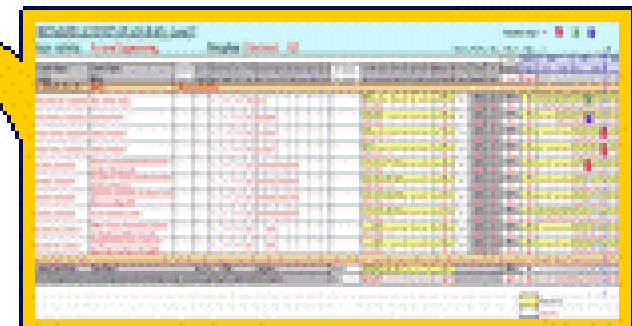
# Link between Control level and Execution Level

- ■ ■ ■ Summary: Quality assurance in time, interface & detailed planning

Major milestones and Key deliverables (procedure)



Detailed Activity Plan (DAP)

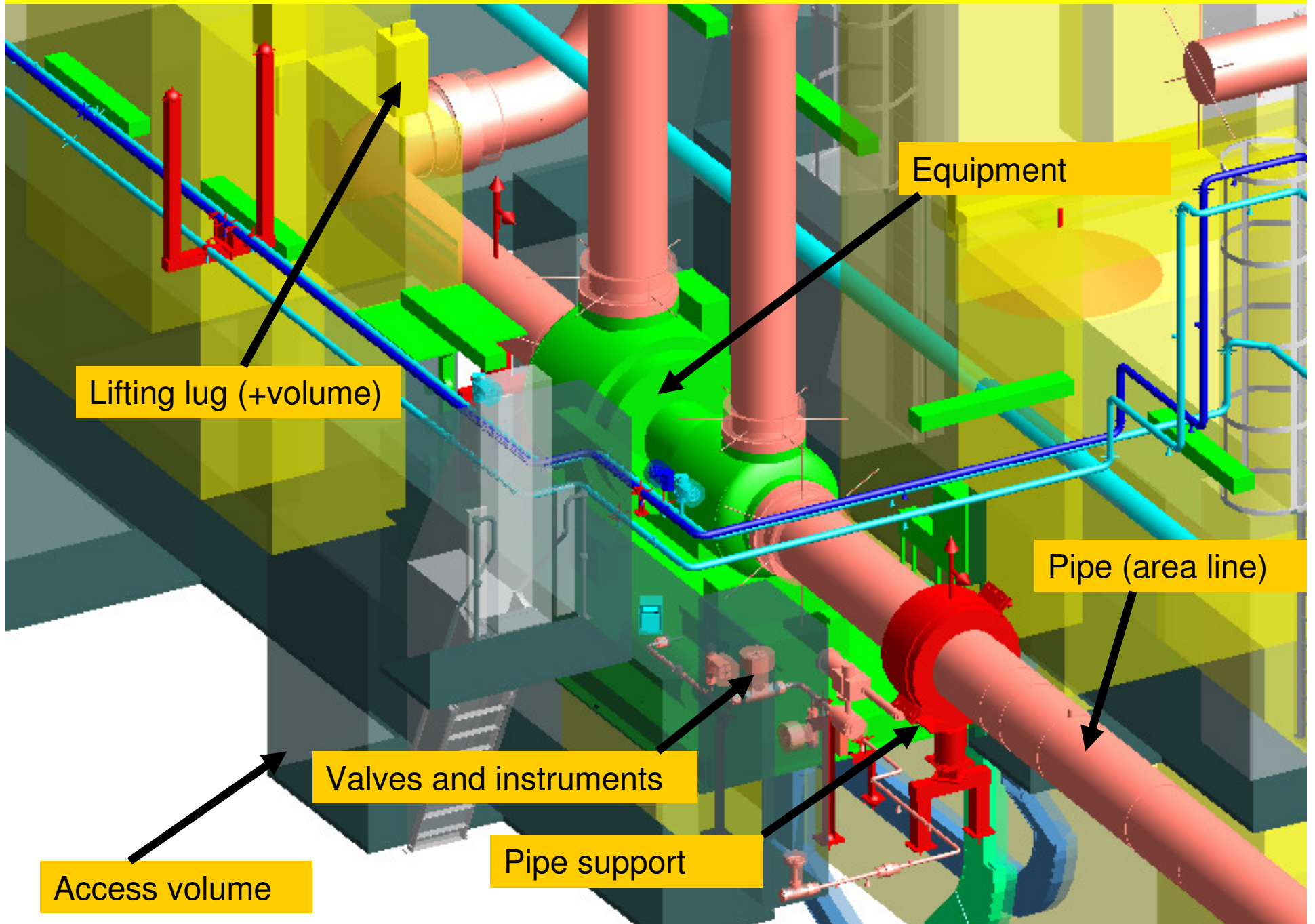


Quality Level (QL) descriptions

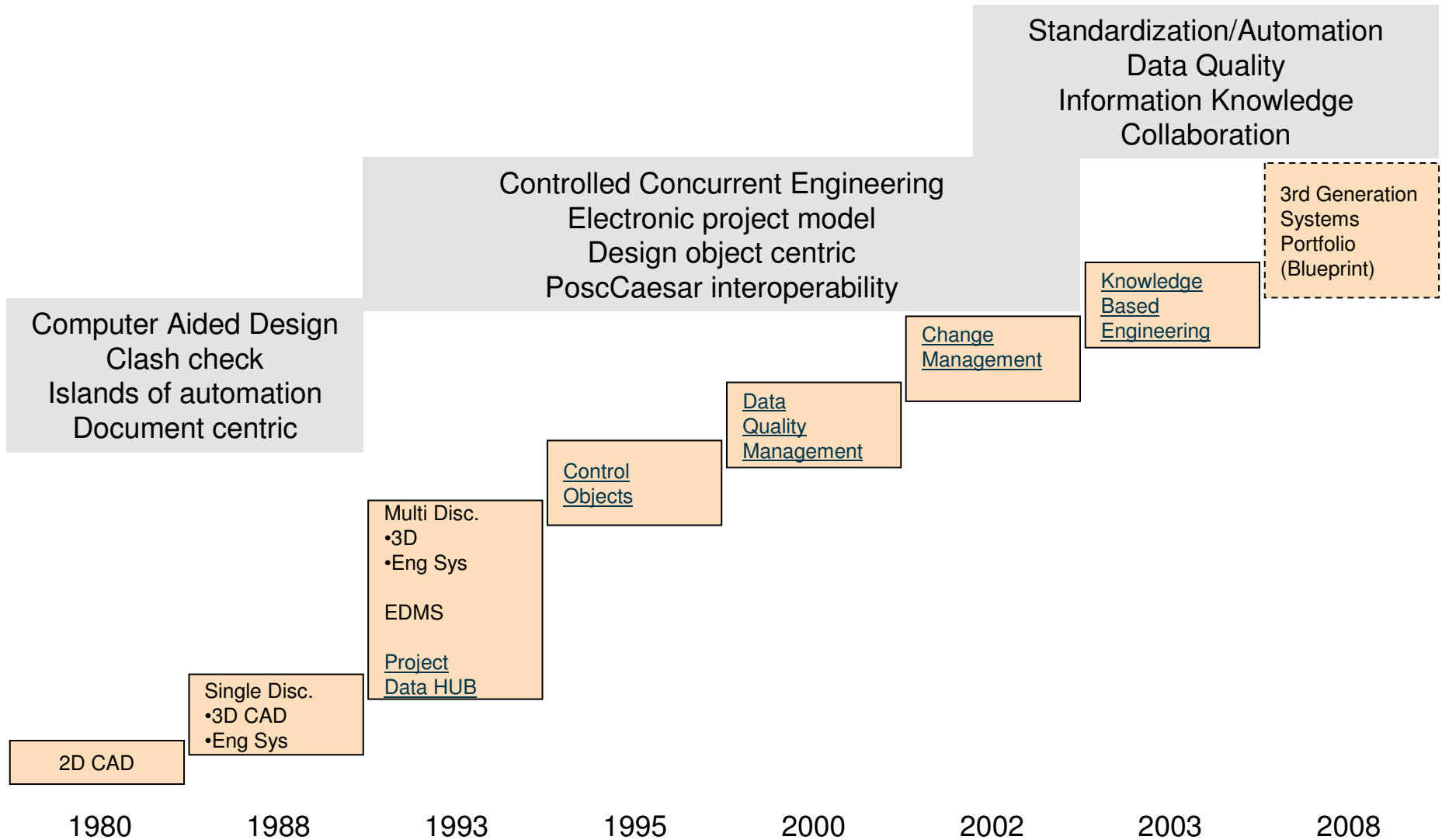


Status Check Lists (work instructions)

# Examples of Piping & Layout's Control Objects

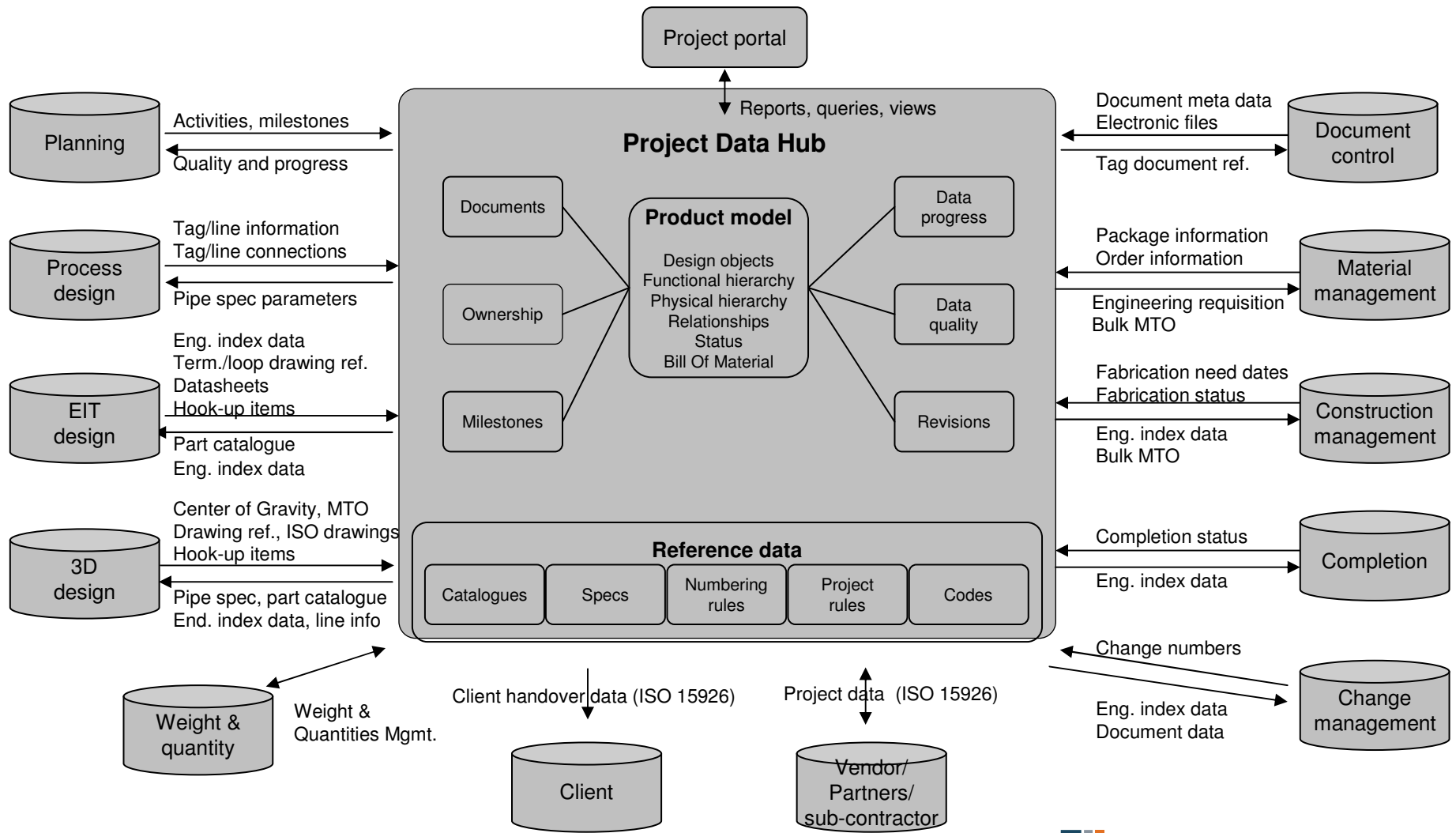


# AK FD Methods & Tools – Step changes



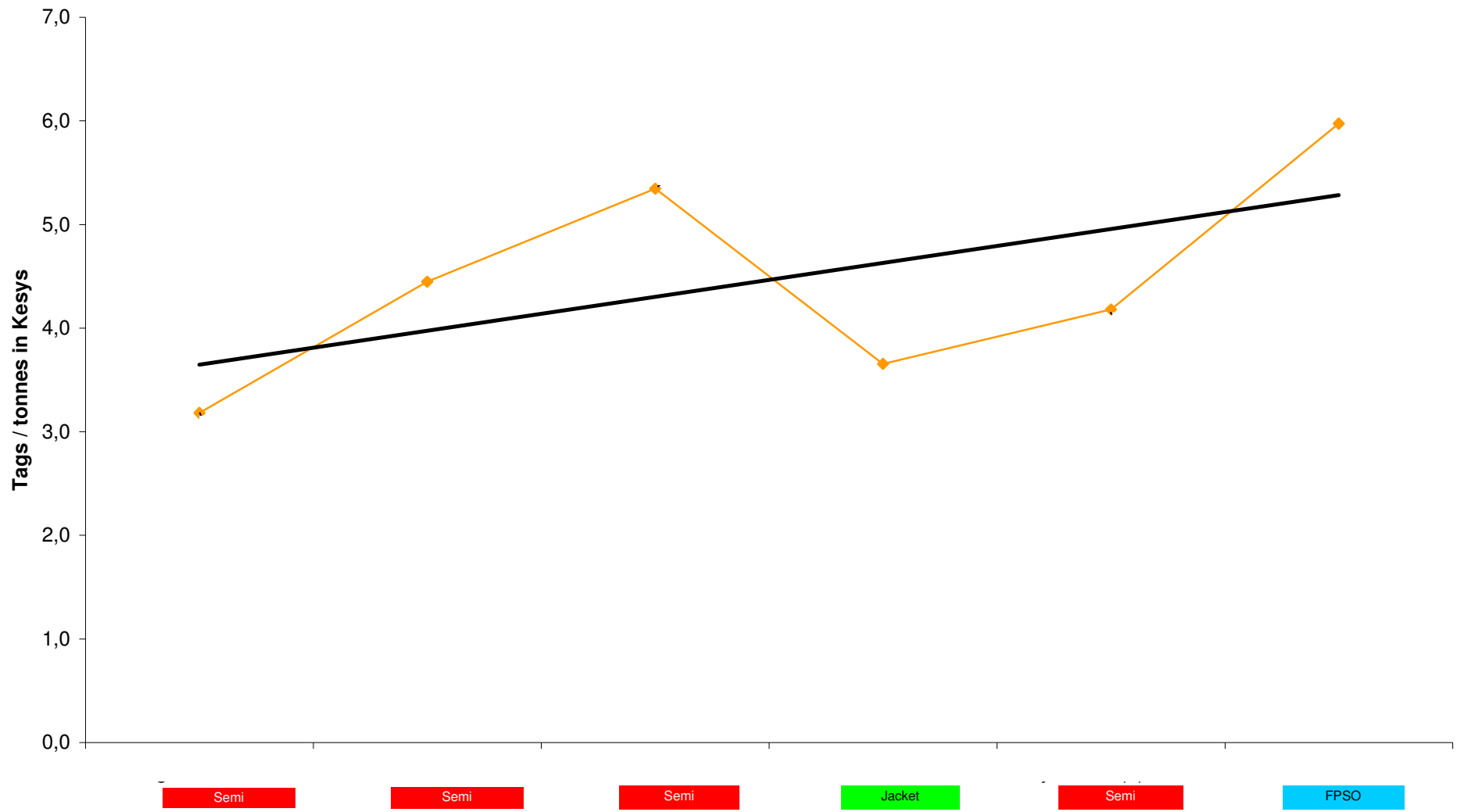


# Aker Solutions Conceptual Data Model

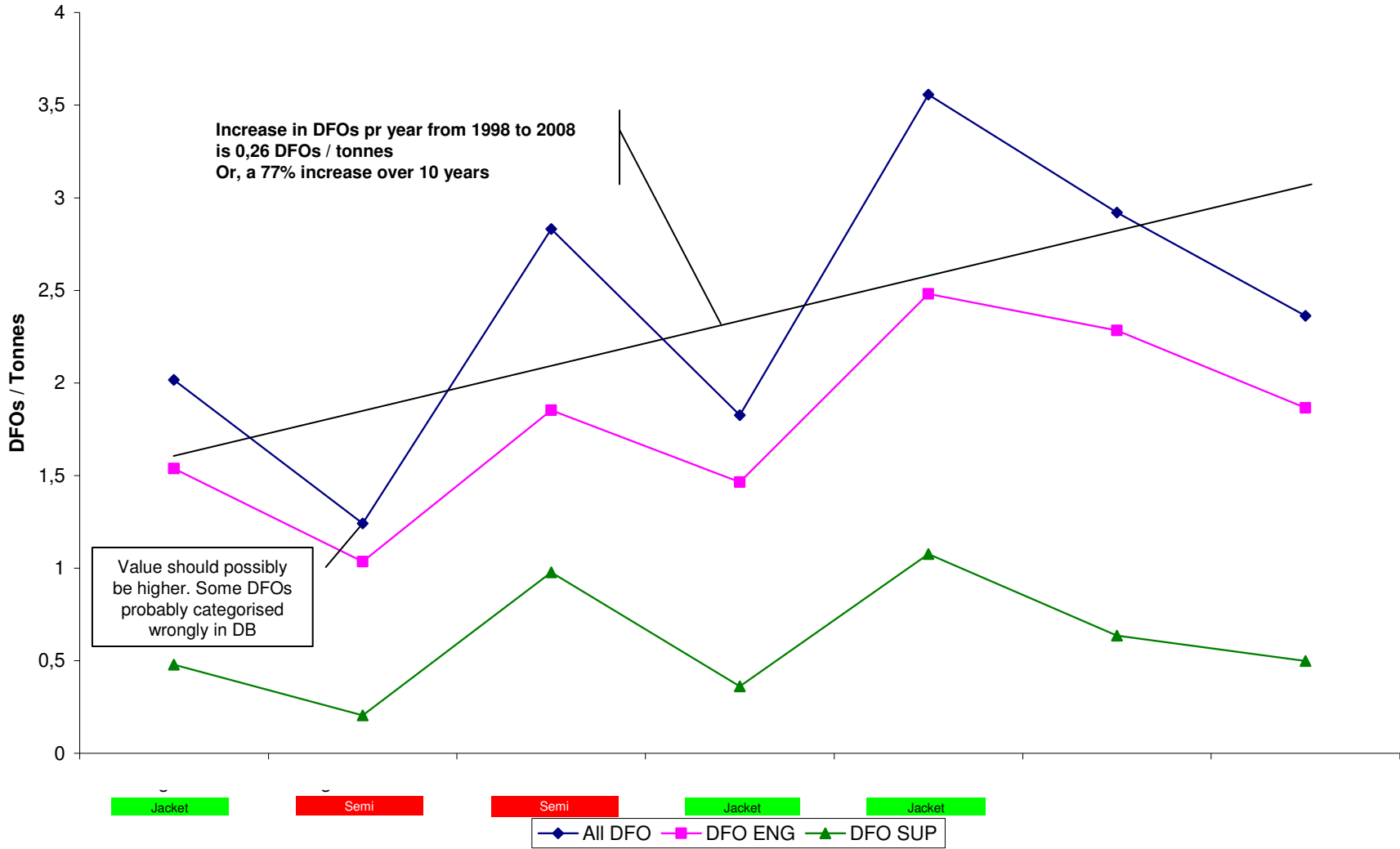


# Number of tags/tonnes in Engineering Registers

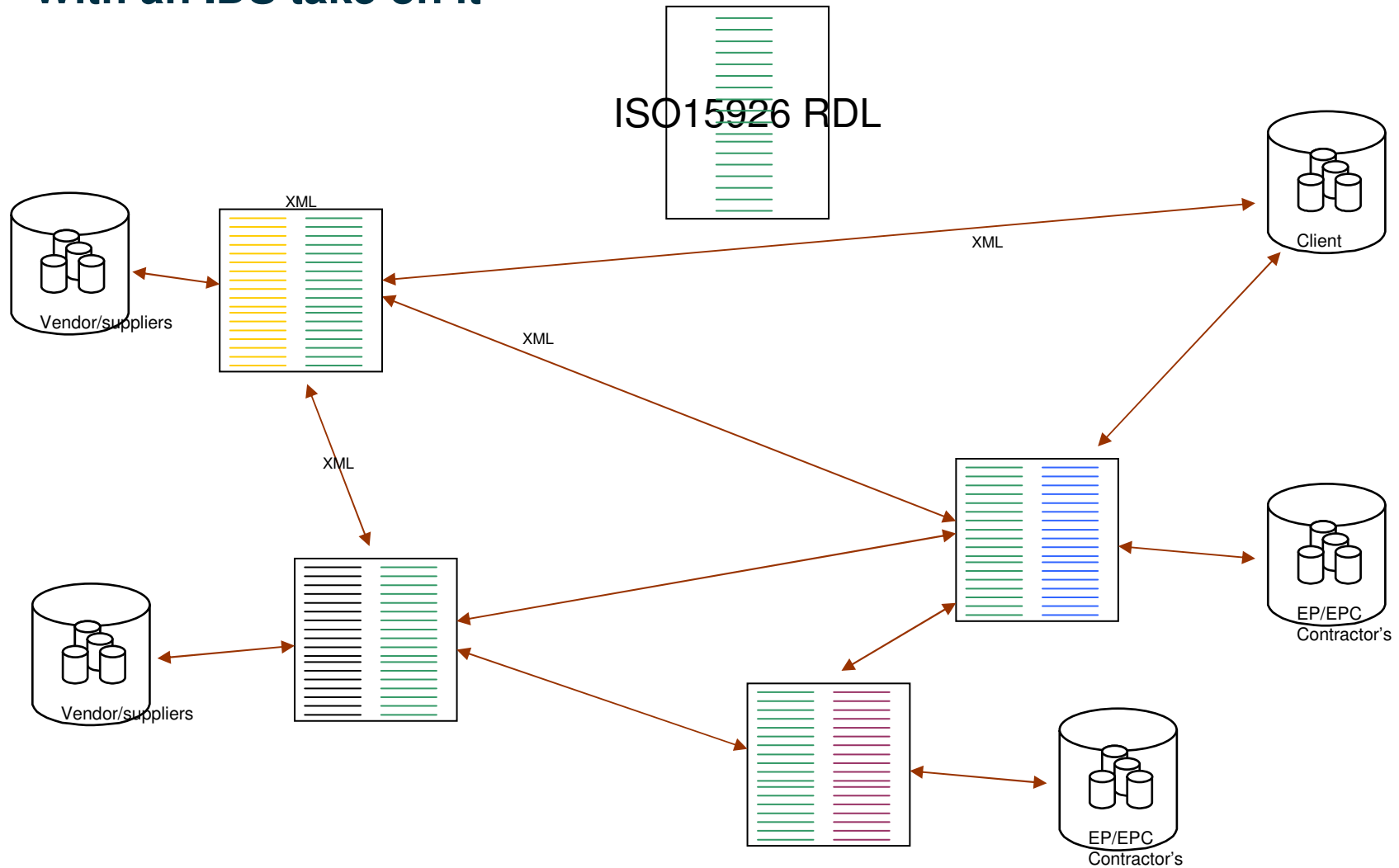
## Trendline shows a 45% increase over 11 years



# Number of DFO documents/tonnes have increased by 77% from 1998->2010



# “Word Book” (ISO15926 RDL) in the industry With an IDS take on it

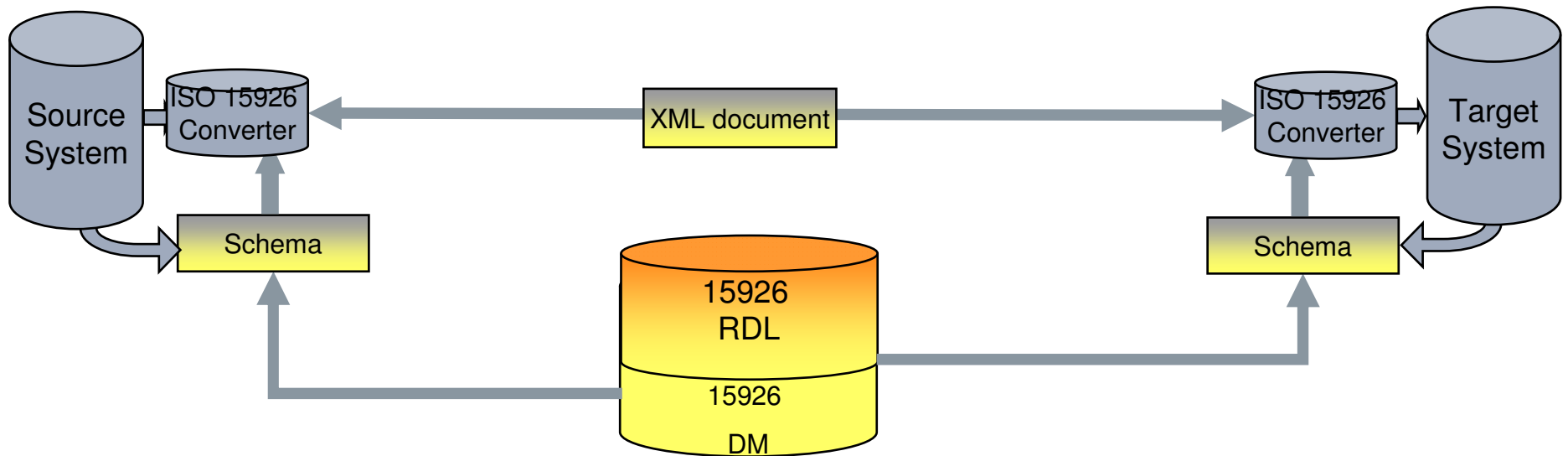




# Aker Solutions Take on ISO 15926

- Aker Solutions internal “data model” to be “RDL compliant”
- Procurement ITT’s to specify delivery of information on ISO 15926 “RDL format”
  - Clients (Owner/Operators) to support EPC contractors (specify ISO 15926) in the industry adoption process
  - Coordination between EPC companies is required
- Further development of ISO 15926 product domains is of key importance
- Aker Solutions is investing in knowledge and work processes for data exchange on ISO 15926

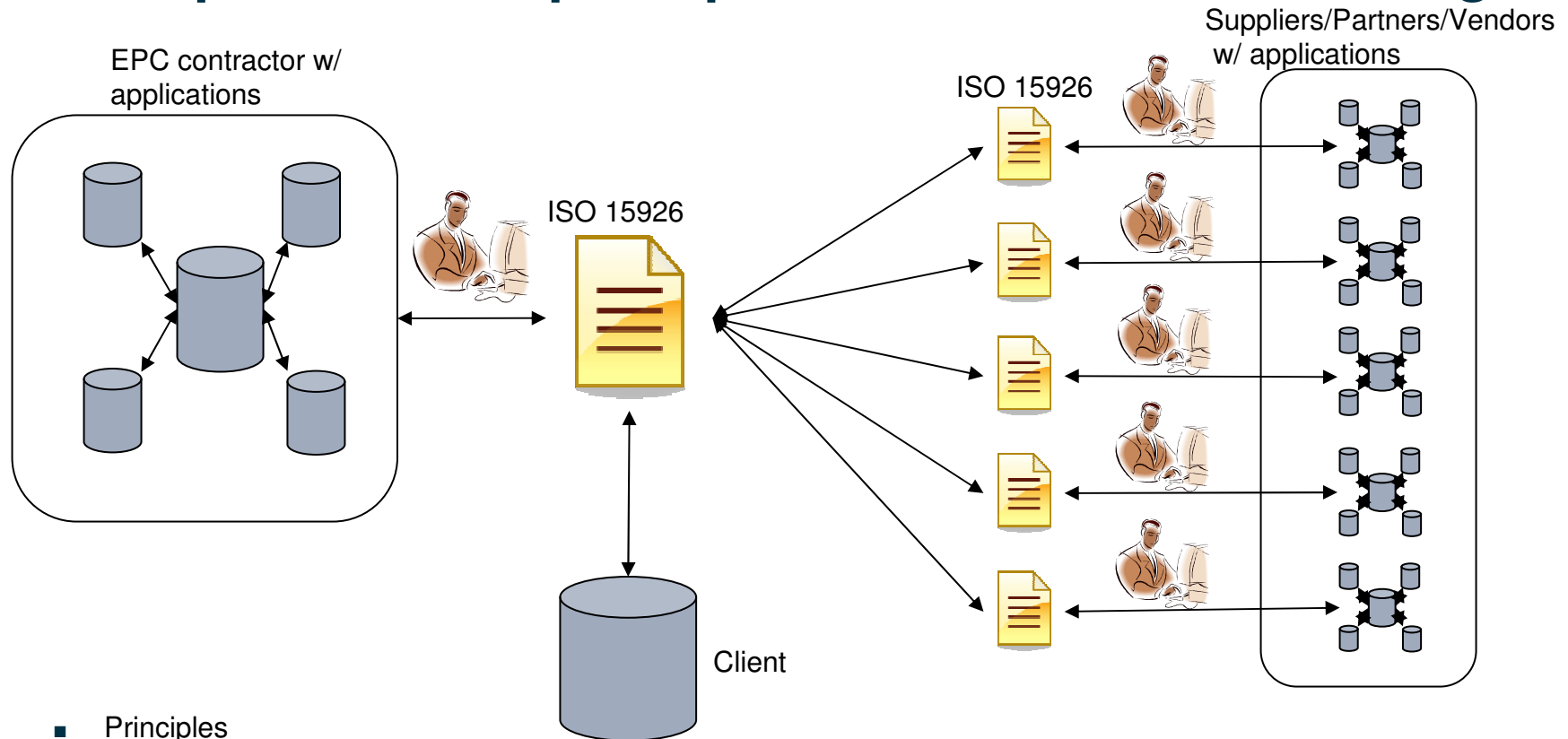
# Aker Solutions View on ISO 15926 Data Exchange



## ■ Main principles

- The value of ISO 15926 is closely linked to the exposure of the standard into “neutral” ISO 15926 XML formats
- Source and target systems to be able to exchange information directly between each other based on “neutral” ISO 15926 XML format
- “Neutral” ISO 15926 XML format to be compliant with ISO 15926 RDL and data model
- Aker Solutions will try to adapt to the ISO 15926 RDL in their own information systems as far as possible, to ease the transformation efforts during data extraction and import

# Best practice and principles for information exchange



## ■ Principles

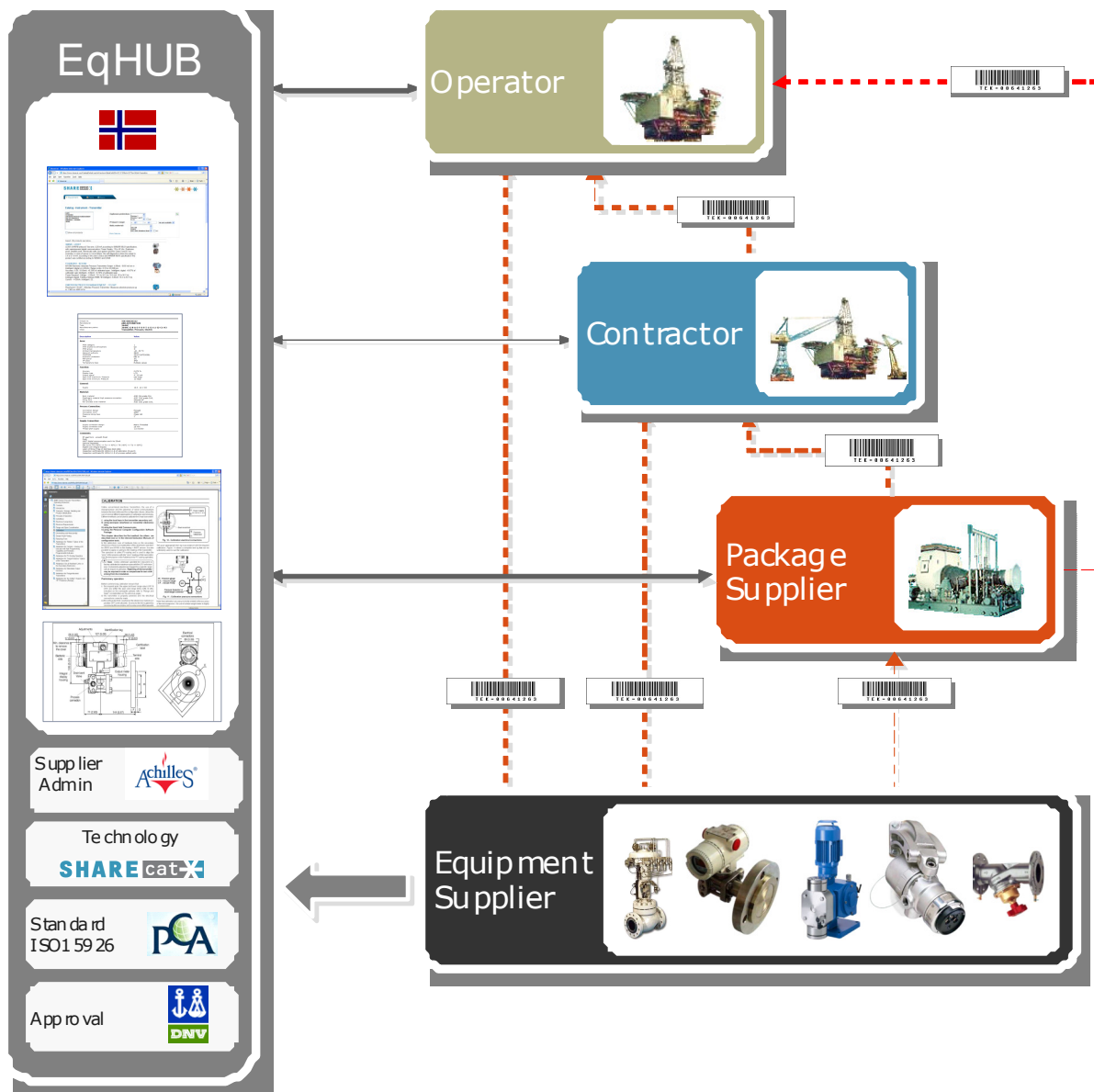
- Information exchange between parties based on ISO15926 industry standard
- Human control through visualization before import info legacy databases
- Suppliers will only relate to ISO15926 within their own domains
- EPC contractor main information exchange hub

## ■ Advantages

- Client: Quality controlled data, more efficient information exchange through industry standard information format
- EPC contractor: Quality controlled data, one industry standard exchange format to relate to
- Supplier: One industry standard exchange format to relate to

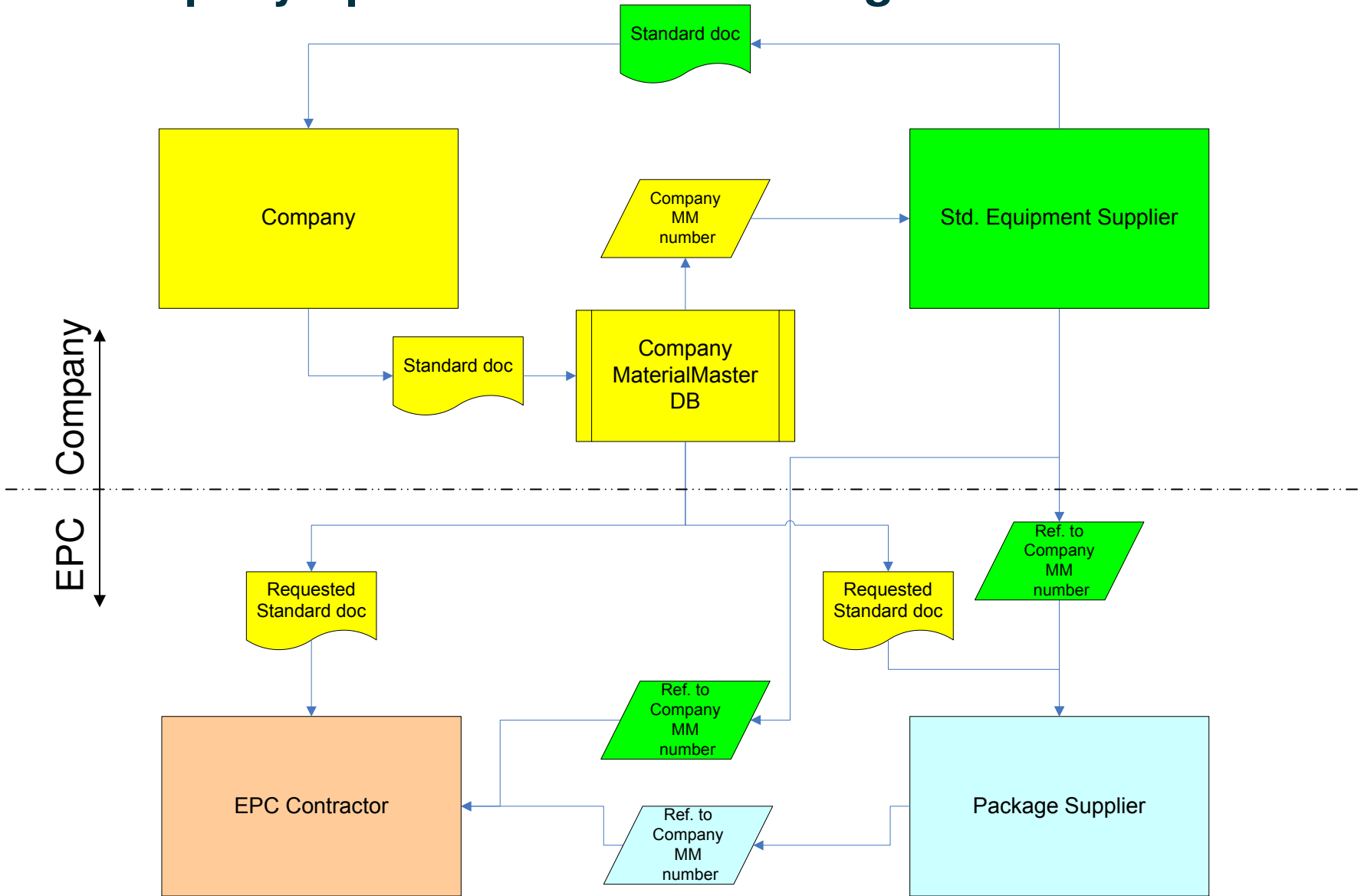
# EqHUB

pre-qualified information delivered once and for all





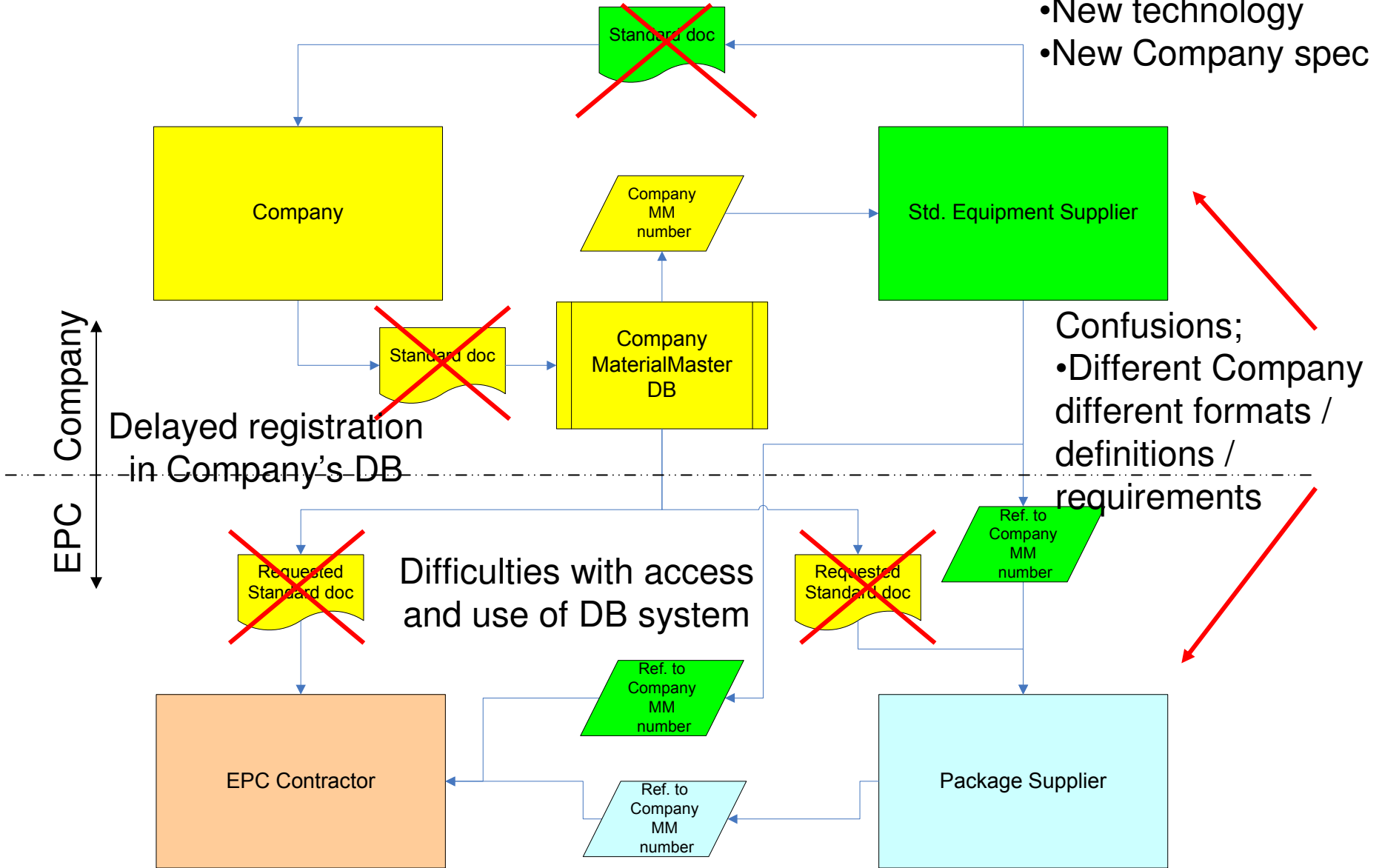
# Company Specific Material Catalogue



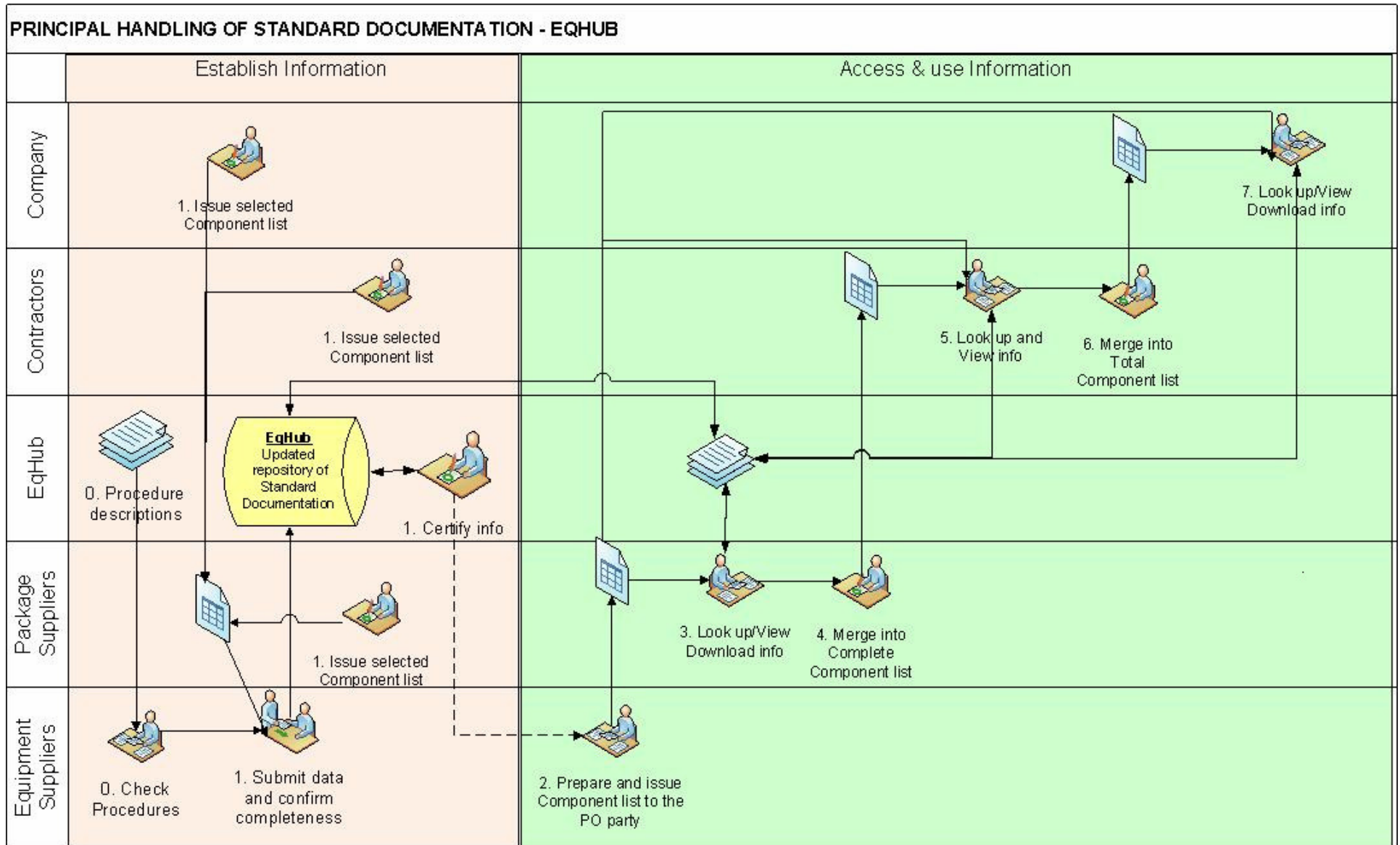
# Company Specific Material Catalogue

Some experienced challenges and obstacles

Not issued;  
 •New technology  
 •New Company spec



# EqHub implementation in projects



# Standard Component List

The Standard Component List received with the order shall be completed with the information fields required and submitted to the ordering party as soon as the standard documentation is quality approved in the EqHub repository. The search key in the EqHub repository shall be verified by the supplier and entered in the Standard Component List for each component listed.

Contractor information			Package information		True Manufacturer information				EqHub	
Contractor code	Facility code	Discipline	Package number	Suppliers name	Manufacturer Name	Part Number	Serial Number	VDS number/size	EqHub id	Standard documentation
						Blank if VDS number		Blank if Part number		<i>Hyperlink to doc/dwg stored in EqHub</i>

The list is a vital tool for ensuring priority:

- Gives the supplier list of equipment that will be required

and follow up possibilities:

- All parties may check what is expected to be found in EqHub

## Summary EqHub benefits - EPC

### If properly implemented

- Common solution with pre-validated documentation for contracts – relieved from a major burden
- Easy access through Web based access supported by an IT professional organization – relieved from struggle and annoyance
- Documentation available when needed in design – reduce risk of delayed design conclusions
- Engineers relieved from a boring task – reduce stress
- More capacity and energy on package design documentation – enhanced control and quality of the total design

## Status – EqHub implementation

### 42 Frame Agreements' (FA's) of relevance in progress

27 FA's Eq delivery

- ❖ 14 off OK no impact
- ❖ 2 off OK with cost impact
- ❖ 11 off in negotiation process
- ❖ 0 off not accepted

15 FA's Package delivery

- ❖ 6 off OK no impact
- ❖ 4 off OK with cost impact
- ❖ 4 off in negotiation process
- ❖ 1 off not accepted

Main challenge for EqHub “roll out” is to find a fair pricing model



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Thank You!