

ISO 19008:2016 Standard cost coding system

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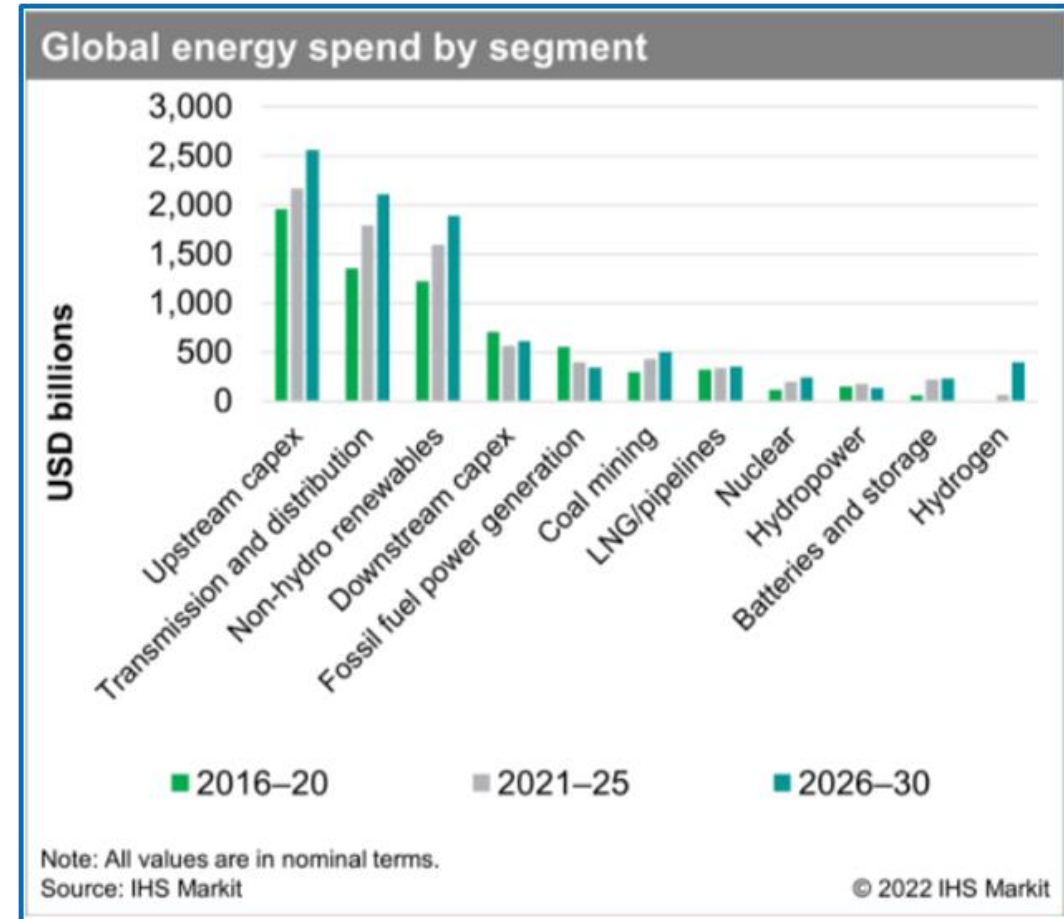
Setting the scene

“Global energy sector spend is forecast for **18%** growth in 2021-2025 compared to the previous five-year period.”

“Capital efficiency is required throughout the entire asset lifecycle from strategy through execution.”

“A key element of measuring capital project performance at project, project component or portfolio level is having sufficient granularity of data (cost, schedule, quantity, etc.) and integrated reporting and analysis tools. “

How to standardize and structure data, with quality, for efficient use?



What is a standard cost coding system (SCCS)?

The Standard Cost Coding System (**SCCS**) is a standard system for **classification and coding** of cost according to:

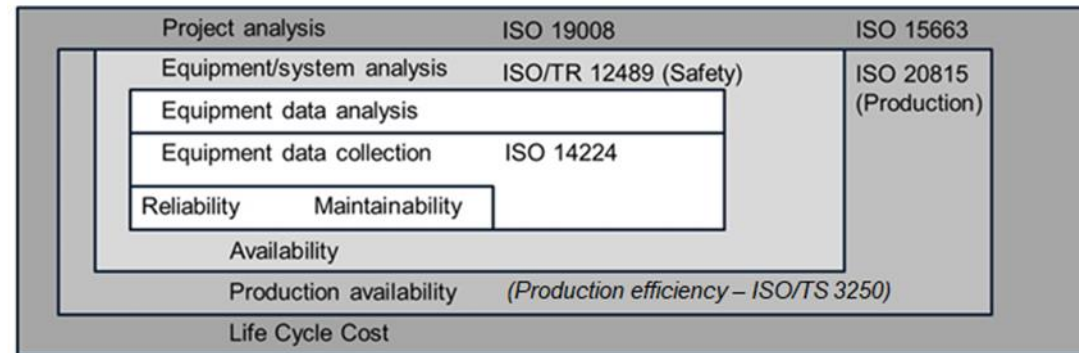
- Entities (physical units)
- Activities (durations)
- Physical quantities (like weight, length, volume, flow rate, power duty, etc.)

Covers the life cycle of oil and gas production and processing facilities. Does also cover offshore wind.



Ref. ISO 19008, Clause 1

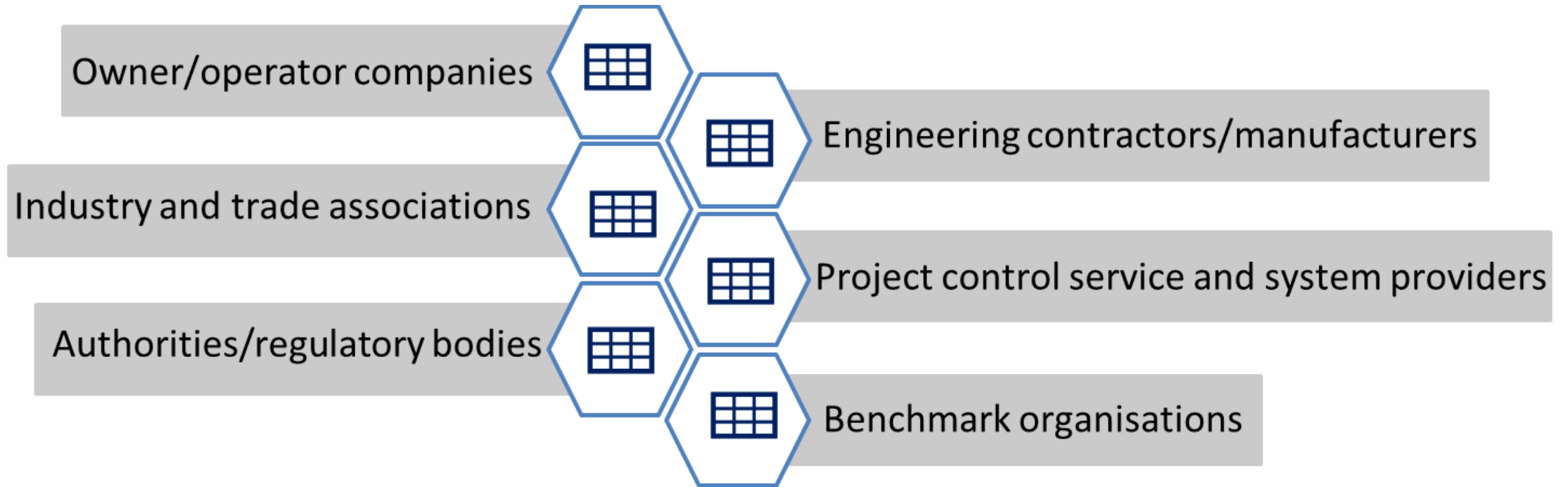
ISO/TC67/WG4 Standards Portfolio – Reliability and cost related standards



Source: ISO 20815:2018, Figure D.2. Adjusted to also reflect new ISO/TS 3250:2021

- [ISO 14224:2016](#) “Collection and exchange of reliability and maintenance data for equipment”
- [ISO 20815:2018](#) “Production assurance and reliability management”
- [ISO/TR 12489:2013](#) “Reliability modelling and calculation of safety systems”
- [ISO 15663:2021](#) “Life cycle costing”
- ➔ [ISO 19008:2016](#) “**Standard Cost Coding System for oil and gas production and processing facilities**”
- [ISO/TS 3250:2021](#) “Calculation and reporting production efficiency in the operating phase”

Intended Users



How ISO 19008 is structured

The ISO 19008 Standard is organized in:

ISO 19008 content

Main part (normative)

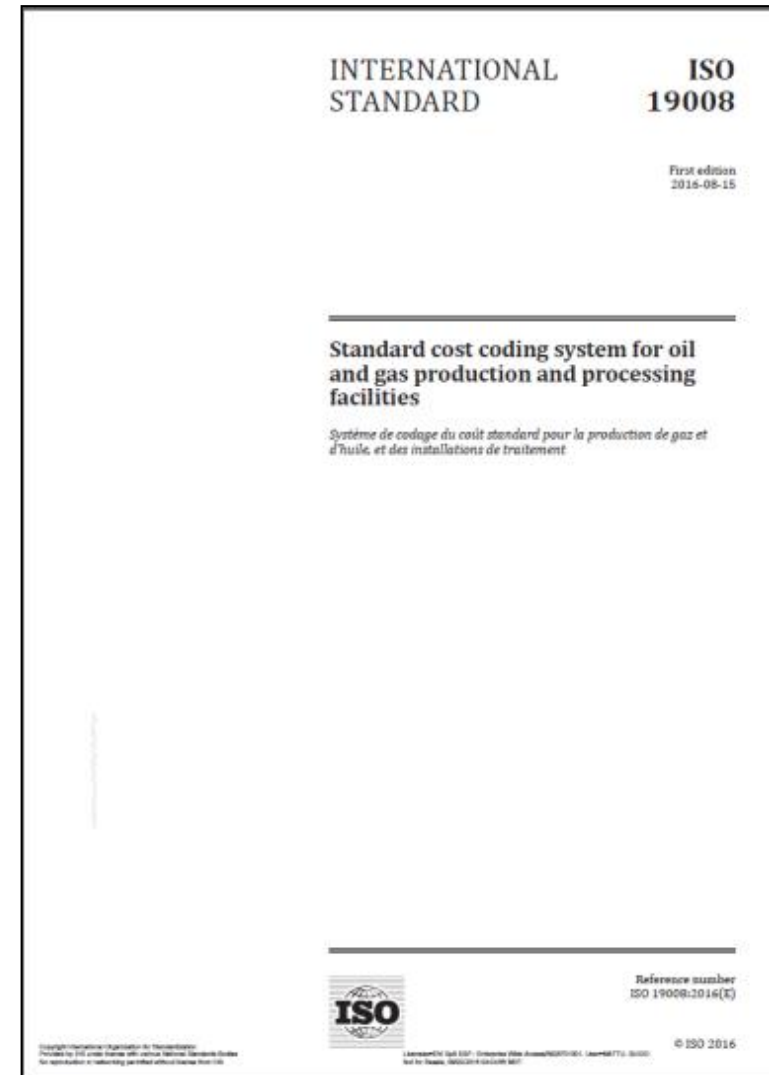
1. Scope
2. Terms and definitions
3. Abbreviated terms
4. Application
5. Conformance

Annexes

- A. Physical breakdown structure – PBS codes (normative)
- B. Standard activity breakdown – SAB codes (normative)
- C. Cost of resource – COR codes (normative)
- D. Example of use

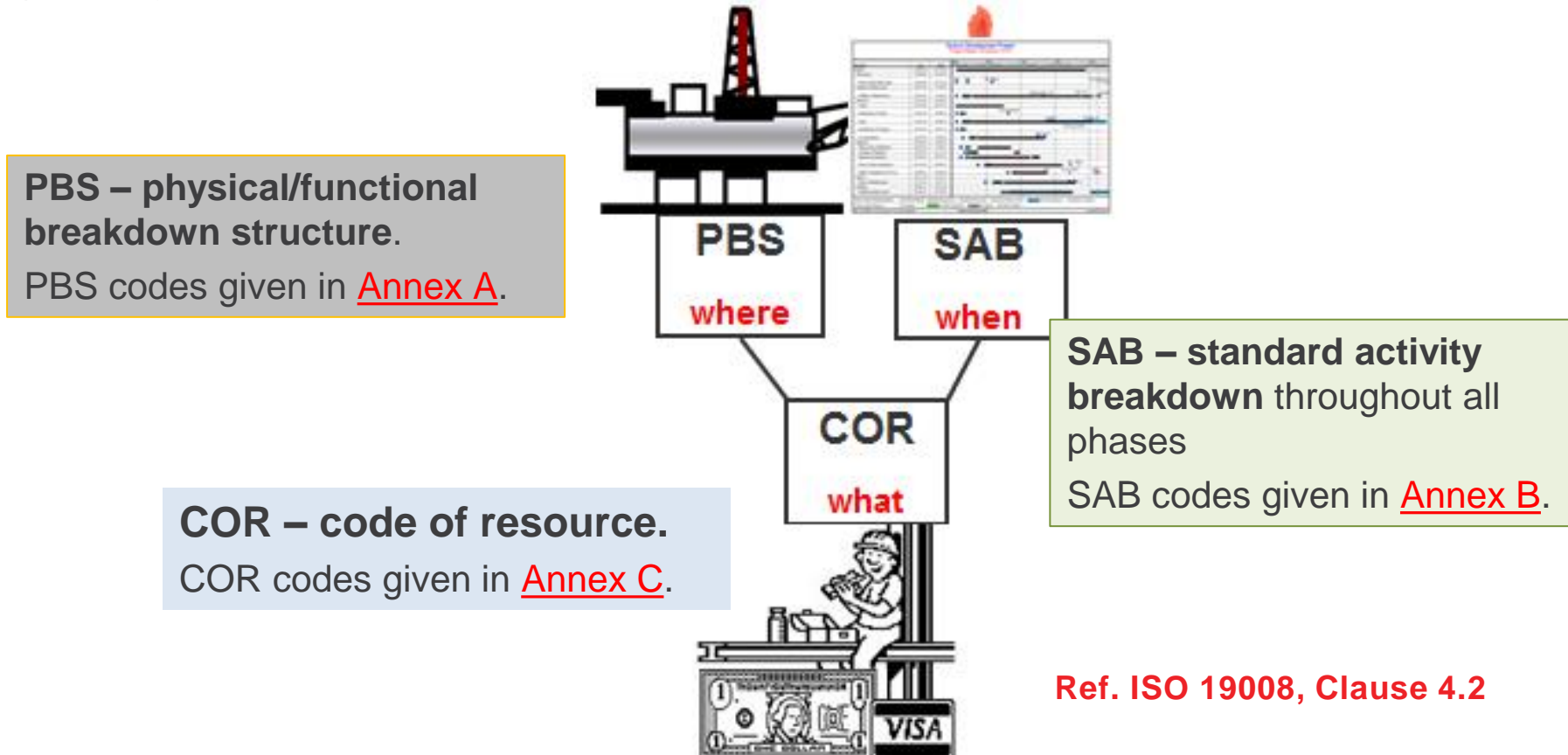
Bibliography

- [Main part](#)
- [ISO Standards Maintenance Portal](#)



How ISO 19008 is organized and where codes can be found

ISO 19008 consists of 3 individual hierarchical classification structures (facets) listed and described in 3 Annexes.



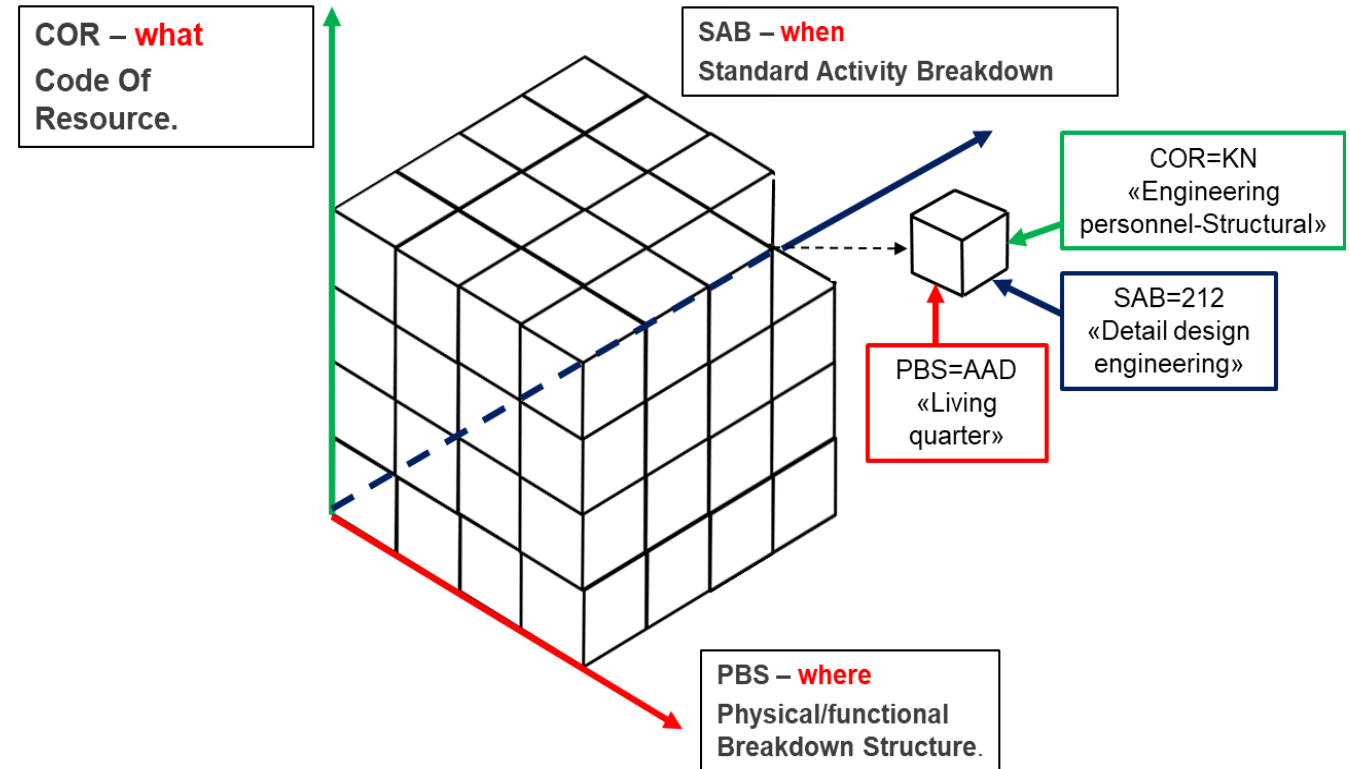
The Standard Cost Coding System

Classification system – 3 facets:

PBS – Physical Breakdown Structure

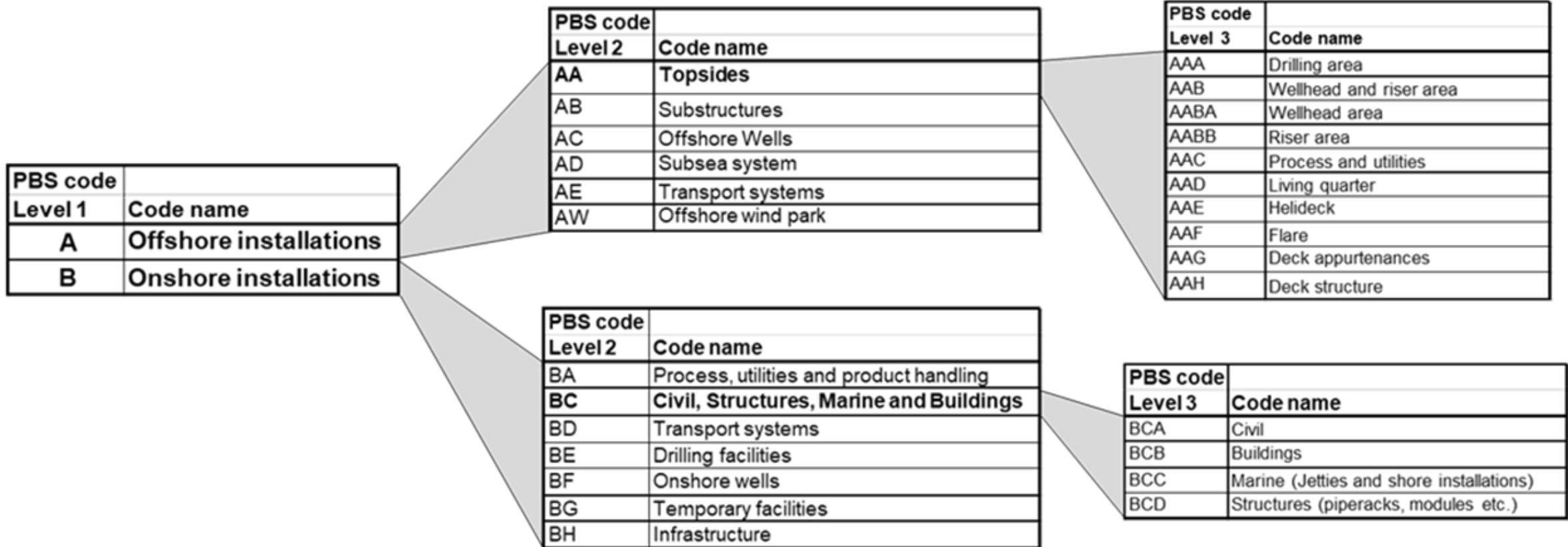
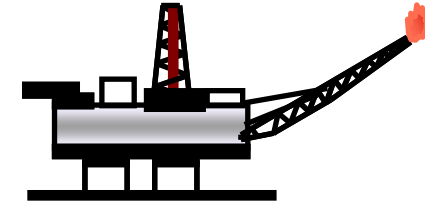
SAB – Standard Activity Breakdown

COR – Code Of Resource



PBS - Physical Breakdown Structure

Hierarchical breakdown



Ref. ISO 19008, Annex A

SAB – Standard Activity Breakdown

Hierarchical breakdown



SAB code	Code name
Level 1	Code name
1	Management
2	Engineering and procurement
3	Equipment and Bulk Supply
4	Construction
5	Installation, Transport and Logistics
6	Other activities
7	General activities
8	Well Operations

SAB code	Code name
Level 2	Code name
21	Engineering
22	Procurement

SAB code	Code name
Level 3	Code name
211	Pre-execution engineering
212	Detail design engineering
213	Construction / fabrication / installation engineering
214	Follow on engineering

SAB code	Code name
Level 2	Code name
41	Onshore construction
42	Atshore construction
43	Inshore construction
44	Offshore construction

SAB code	Code name
Level 2	Code name
51	Land based installation
52	Marine operations
53	Logistics

SAB – phase prefix	
E	Exploration
A	Appraisal
D	Development
P	Production
S	Shutdown and decommissioning
R	Removal

Ref. ISO 19008, Annex B

COR – Code Of Resource Hierarchical breakdown



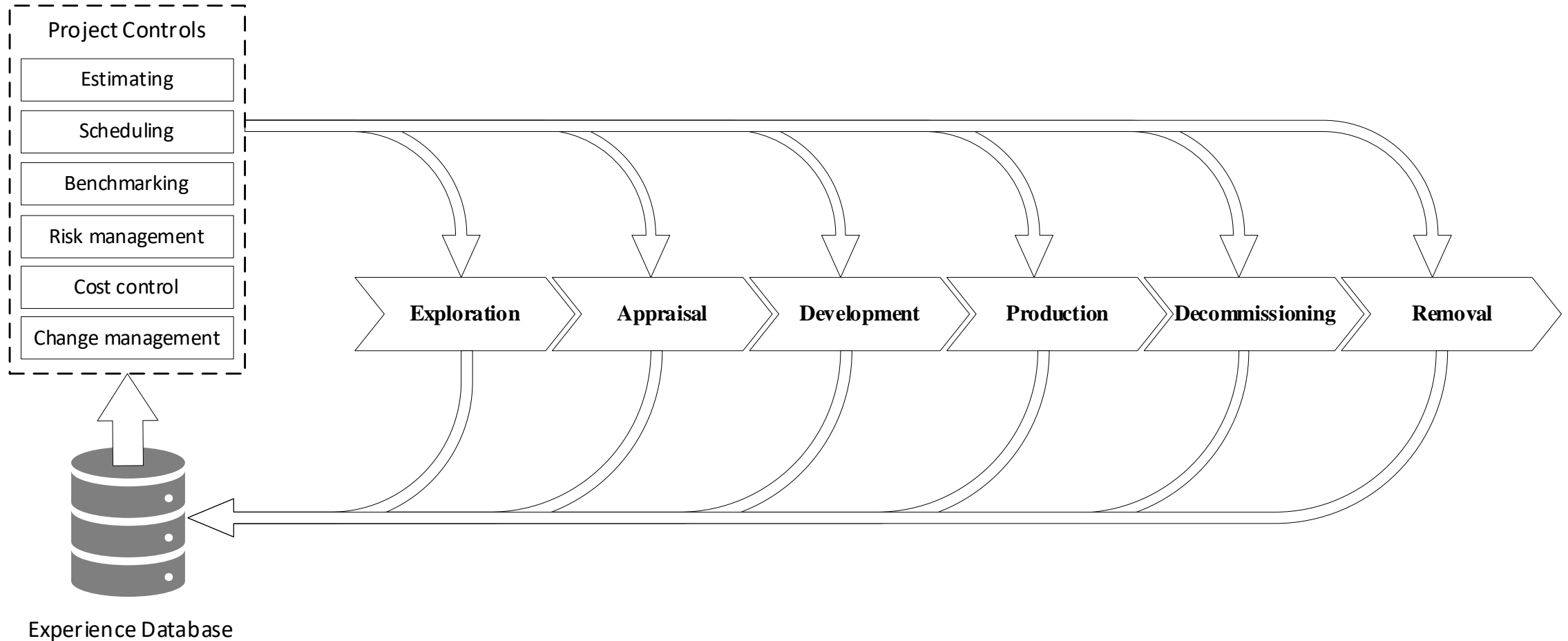
COR code	Code name
Level 1	Code name
COR code	Code name
A	General costs
E	Equipment
B	Bulk materials
K	Engineering personnel
R	Engineering overheads
L	Direct labour
M	Indirect labour
C	Construction overheads
H	Company personnel
Q	Company personnel overheads
S	Unit work
X	Marine operations and logistics
Y	Land based plant and equipment

COR code	Code name
Level 2	Code name
EA	Architectural equipment
ED	Drilling equipment
EE	Electrical equipment
EG	Heating, ventilation and air conditioning (HVAC) equipment
EJ	Instrumentation equipment
ER	Mechanical equipment
ES	Safety/escape and firefighting equipment
ET	Telecommunication equipment
EU	Subsea equipment
EV	Mooring and marine equipment
EY	Transfer and control equipment

COR code	Code name
Level 3	Code name
ERC	Miscellaneous mechanical equipment
ERD	Drivers and power transmissions
ERF	Heaters, boilers, furnaces and flares
ERH	Heat transfer equipment
ERK	Compressors, blowers and expanders
ERM	Material and product handling equipment
ERN	Mechanical equipment – solids
ERP	Pumps
ERT	Storage tanks/containment equipment – atmospheric
ERV	Vessels and columns – pressurised
ERX	Miscellaneous package units

Ref. ISO 19008, Annex C

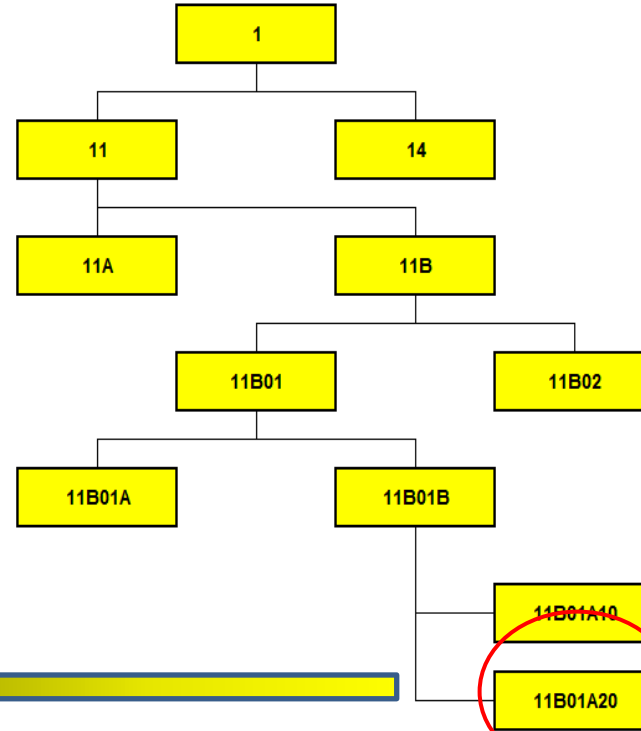
Project life cycle data flow



Example: of use of ISO 19008 in a project development phase



**Project WBS
structure
(project specific)**



**WBS Data
Input level**

**SCCS - valid
across projects**

WBS ID	PROJECT WBS ITEM DESCRIPTION	MUSD
11B01A10	DECK Electrical Fabrication	1.308



PBS	PBS NAME	SAB	SAB NAME	COR	COR NAME
AAC	Process and utilities	4142	Installation/assembly/erection	LE	Electrical direct labour



Ref. ISO 19008, Clause 4.3

Example: benchmarking

What we hope to achieve:



What we try to avoid:



Where we usually end up:



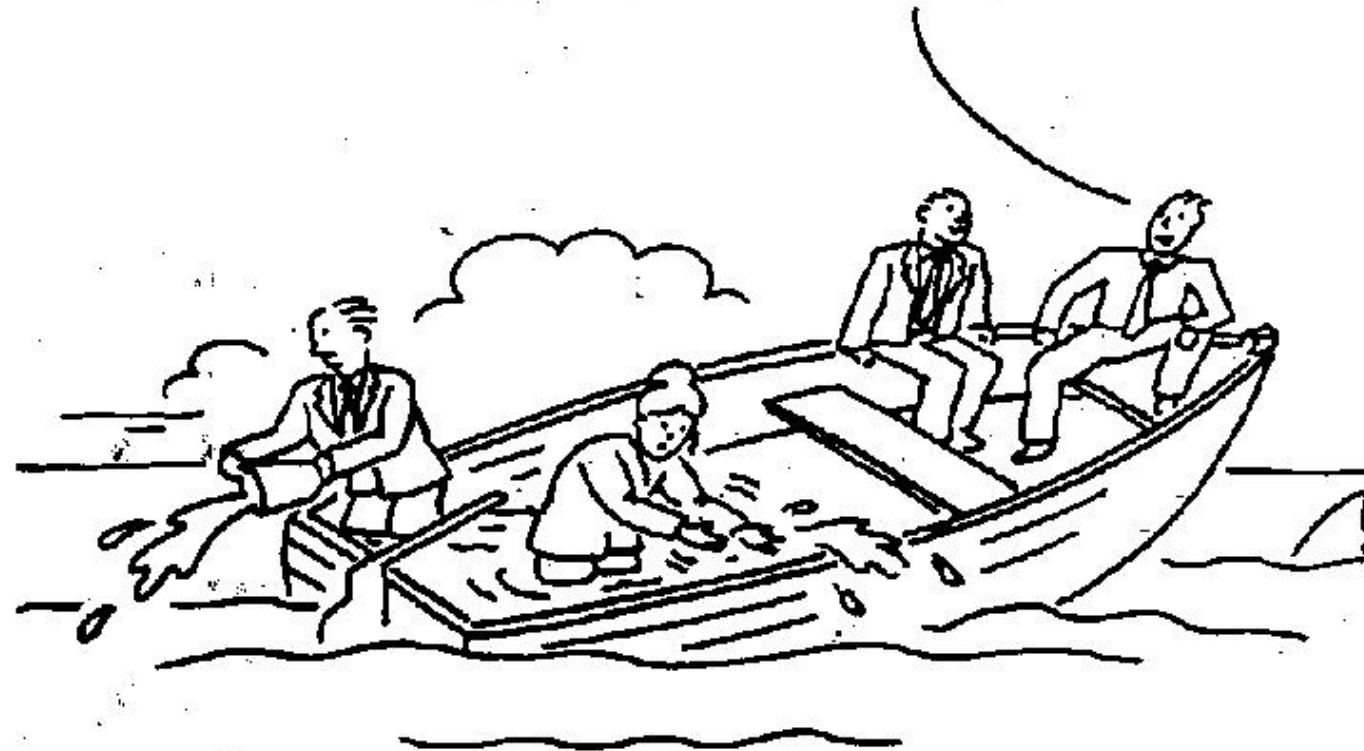
Analysis and context

- Experience transfer is required for organisational learning
- Quantitative benchmarks don't tell the full story
- Qualitative experience required to provide context



Reliable experience data require common effort and collaboration!

*Thank goodness the hole's
at their end!*



Benefits

Improved data quality
All the data elements are clear and defined. This intrinsically improves the data quality by error and uncertainty reduction.

Improved cycle times
Through automation of activities and having data readily available for further analysis the cycle time of project deliverables is improved.

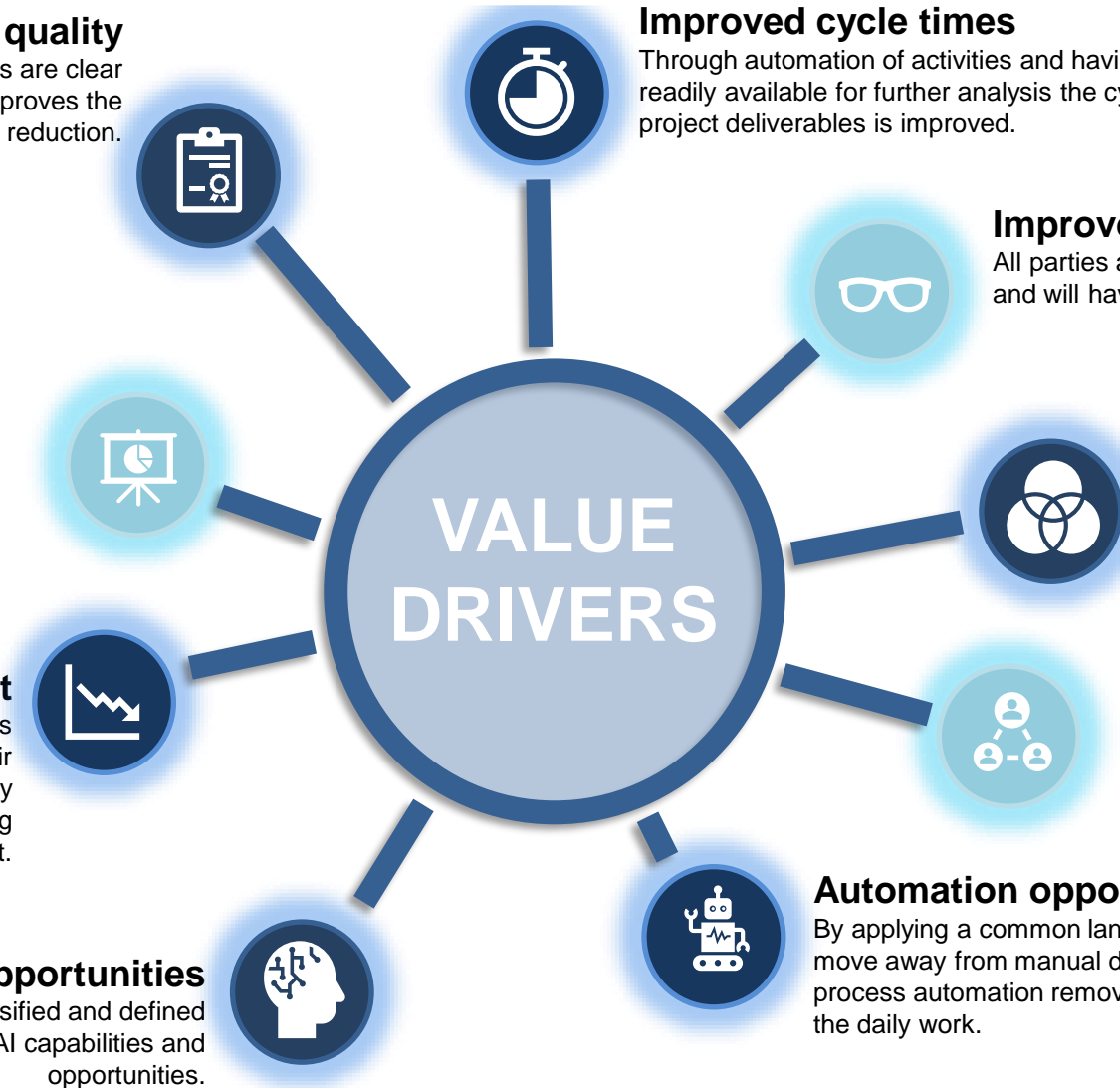
Improved data transparency
All parties are using the same definitions and will have the same interpretation.

Streamline reporting
achieve consistent acquisition of data for reporting in a system independent way. Collect the data once and use it many times.

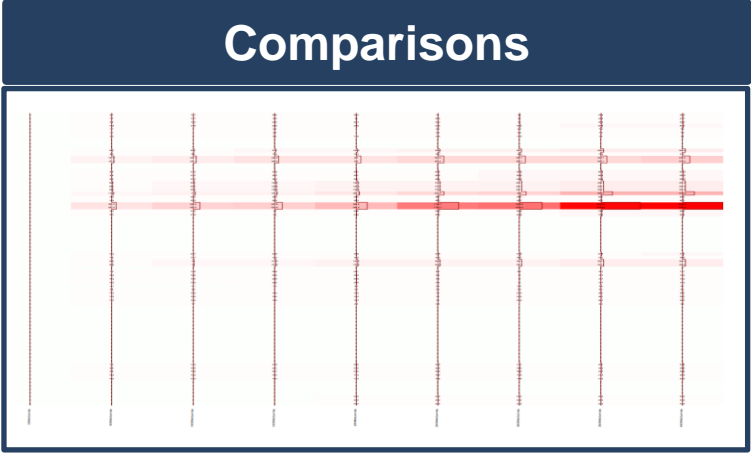
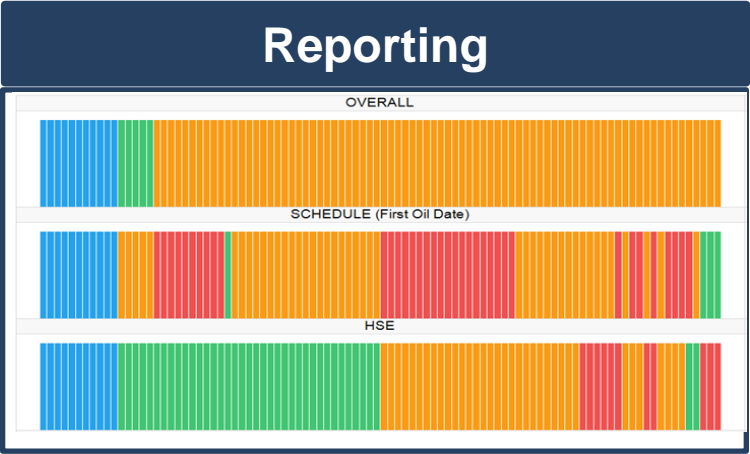
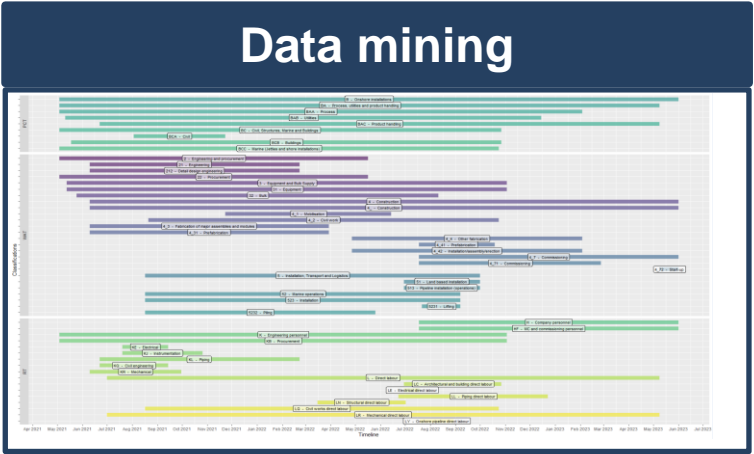
Reduced IT cost
The use of data standards enables reusability of data elements and their metadata that can reduce redundancy between systems, thereby improving reliability and reducing cost.

AI opportunities
Having data classified and defined increases the AI capabilities and opportunities.

Automation opportunities
By applying a common language like ISO 19008 companies can move away from manual data transformation and allow for process automation removing the non-value adding activities from the daily work.

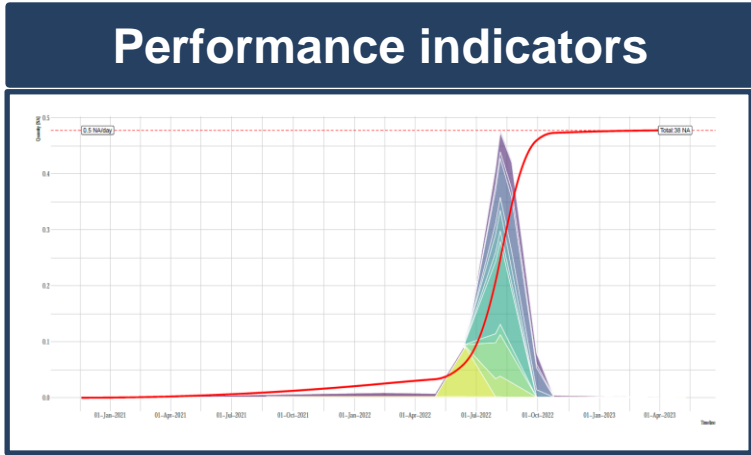
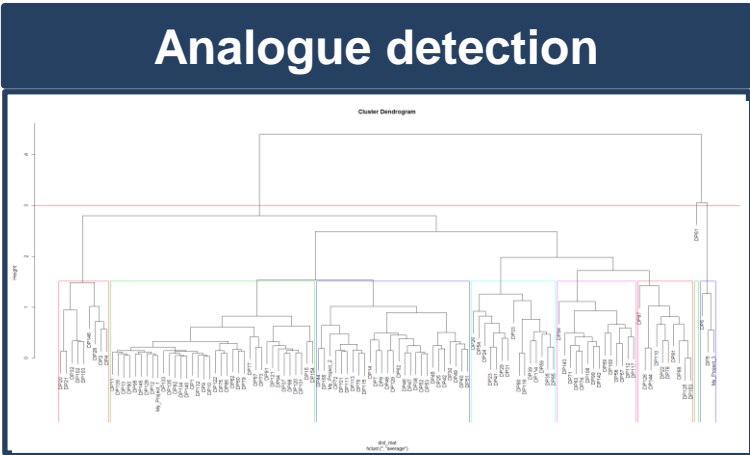


Example of use cases



Benchmarking

Bulks - Piping Material Cost vs TIC	2.836055	USD	4.126471	-31.27%
Bulks - Structural steel Material Cost vs EPC Cost	4.719439	USD	2.114752	123.17%
Bulks - Structural steel Material Cost vs Process equipment cost	4.719439	USD	2.661312	77.34%
Bulks - Structural steel Material Cost vs TIC	4.719439	USD	1.610364	193.07%
Civil & Structural engineering hours / piece of process equipment Vs Piece of process equipment	619.578947	h	213.546856	190.14%
Civil & Structural Engineering Hours vs Piece of process equipment	23544.000000	h	8114.780519	190.14%
Civil labor hours vs Bulks - Civil Material Cost	616226.000000	h	668615.038586	-7.84%
Concrete Cost vs Volume of Concrete	1.331071	USD	11.295093	-88.22%
Construction - Indirect Cost Vs Construction Cost	15.573297	USD	8.464653	83.98%
Construction - Indirect Cost Vs TIC	15.573297	USD	12.485535	24.73%



Concluding remarks

- The use of international standards developed by the Oil & Gas industry is a responsibility for the industry and the associated stakeholders
- The ISO 19008 standard is a key ISO standard for achieving business objectives and unlocking business opportunities within standardization
- Experiences from the Oil & Gas industry should be utilized in the energy transition towards lower carbon energy production

ISO/TC67 Vision

