ONS 2022 TRUST
29 AUG – 1 SEPT STAVANGER – NORWAY

Shaping the future of digital requirements and information management in oil and gas value chains

Paal Frode Larsen, Equinor, Project Director Spine and Steering Committee Chair

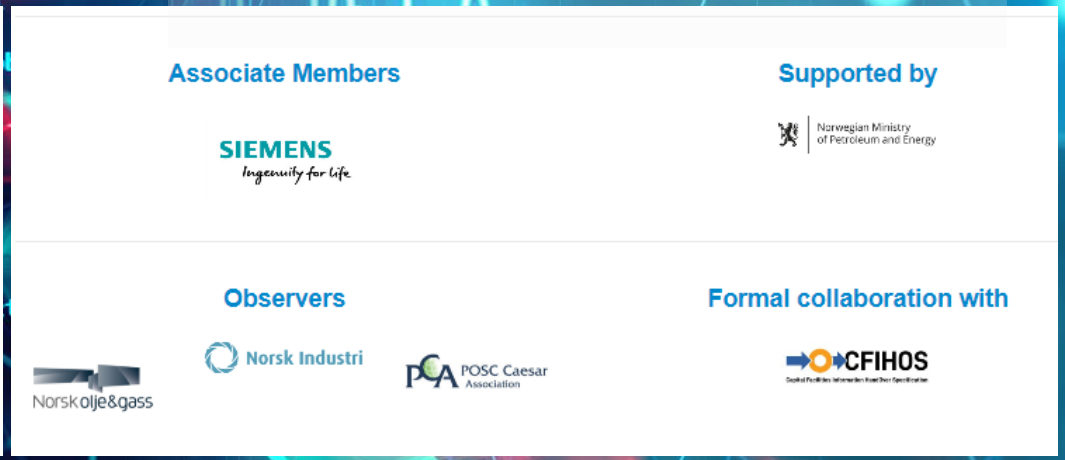
Erik Østby, DNV, Vice President and READI Project Manager

Standardization session, 30 August 2022:
Standardization accelerates value creation in the Oil and Gas Sector – Energy transition

READI

Shaping the future of digital requirements and information management in oil and gas

For more details: READI homepage



Problem statement

Too many documents

Changes take long time

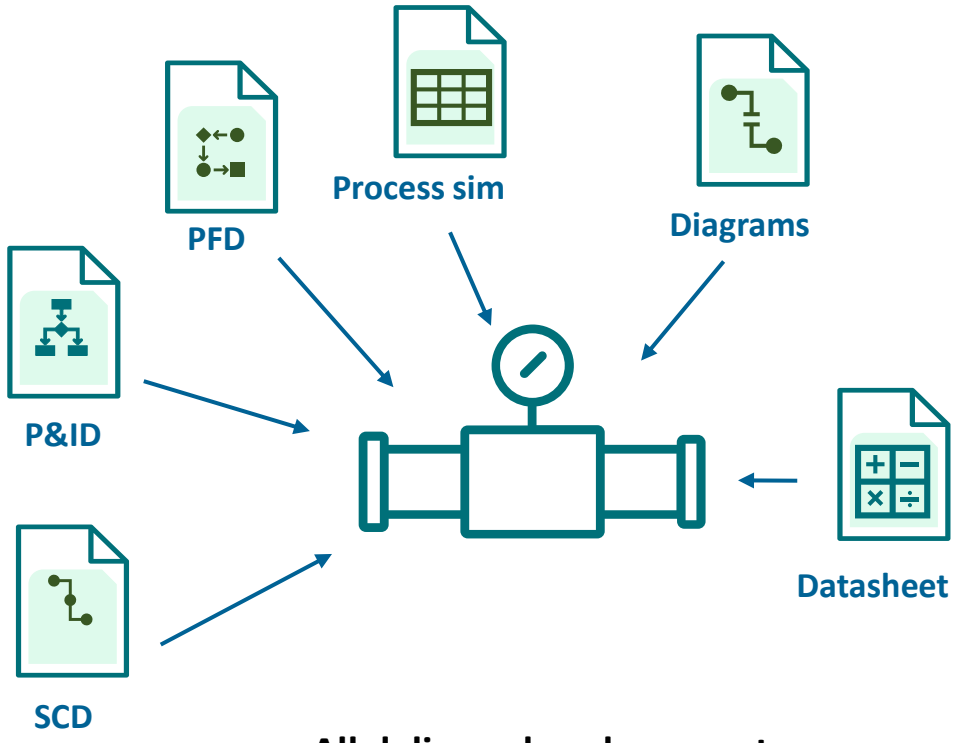
Difficult to share information and data

Lack of standardization

Lack of analyzing possibilities

No automation possibilities

Lack of prediction abilities



Strategy for the Oil and Gas industry – realization of Konkraft* recommendations

Digital **transformation of business processes** for field development and operation

We need a **common digital language and framework** enabling efficient flow of information between disciplines and work processes

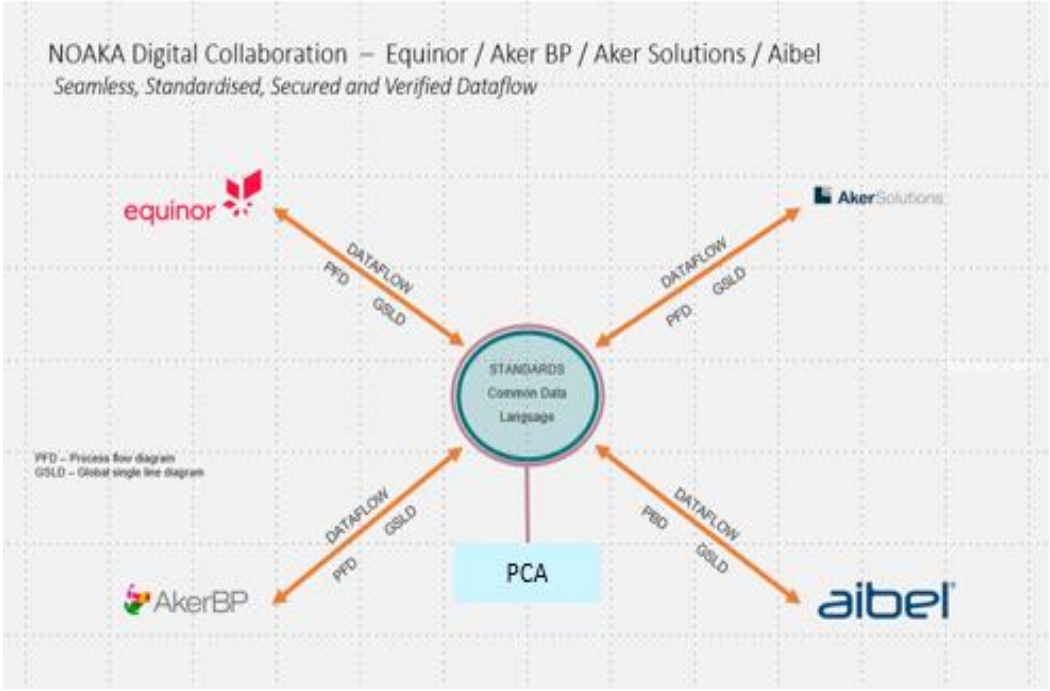
* KONKRAFT is an arena for cooperation between the key parties in the Norwegian oil and gas industry

Interoperability enablers

Basic needs of industry standards

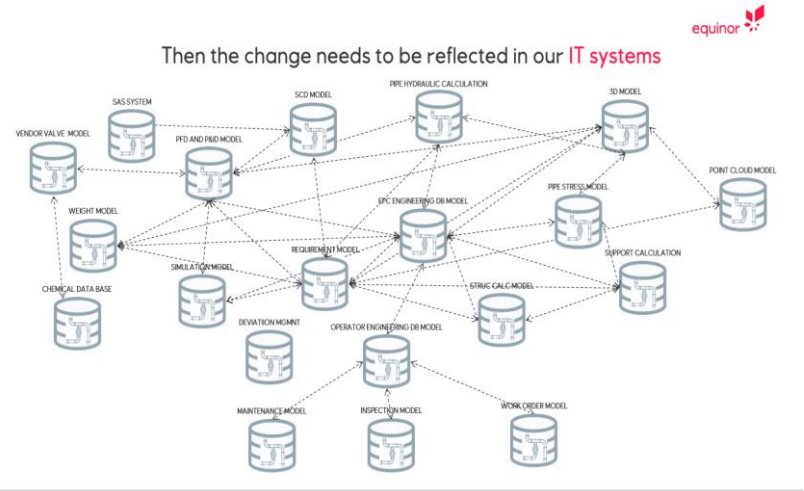
- Standardizes information requirements
- Std. asset breakdown structure
- Information modelling principles
- Machine-interpretable vocabulary
- Standards data exchange (I4.0 – AAS)

The digital language



How to get there?

Human readable



What does it take

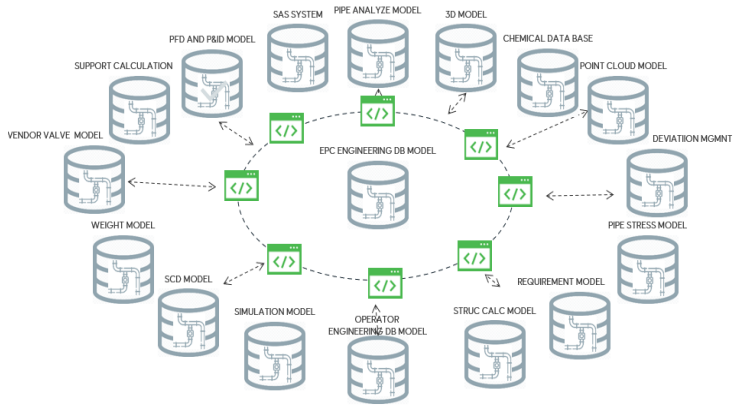
Industry standard

Common digital language

Common digital requirements

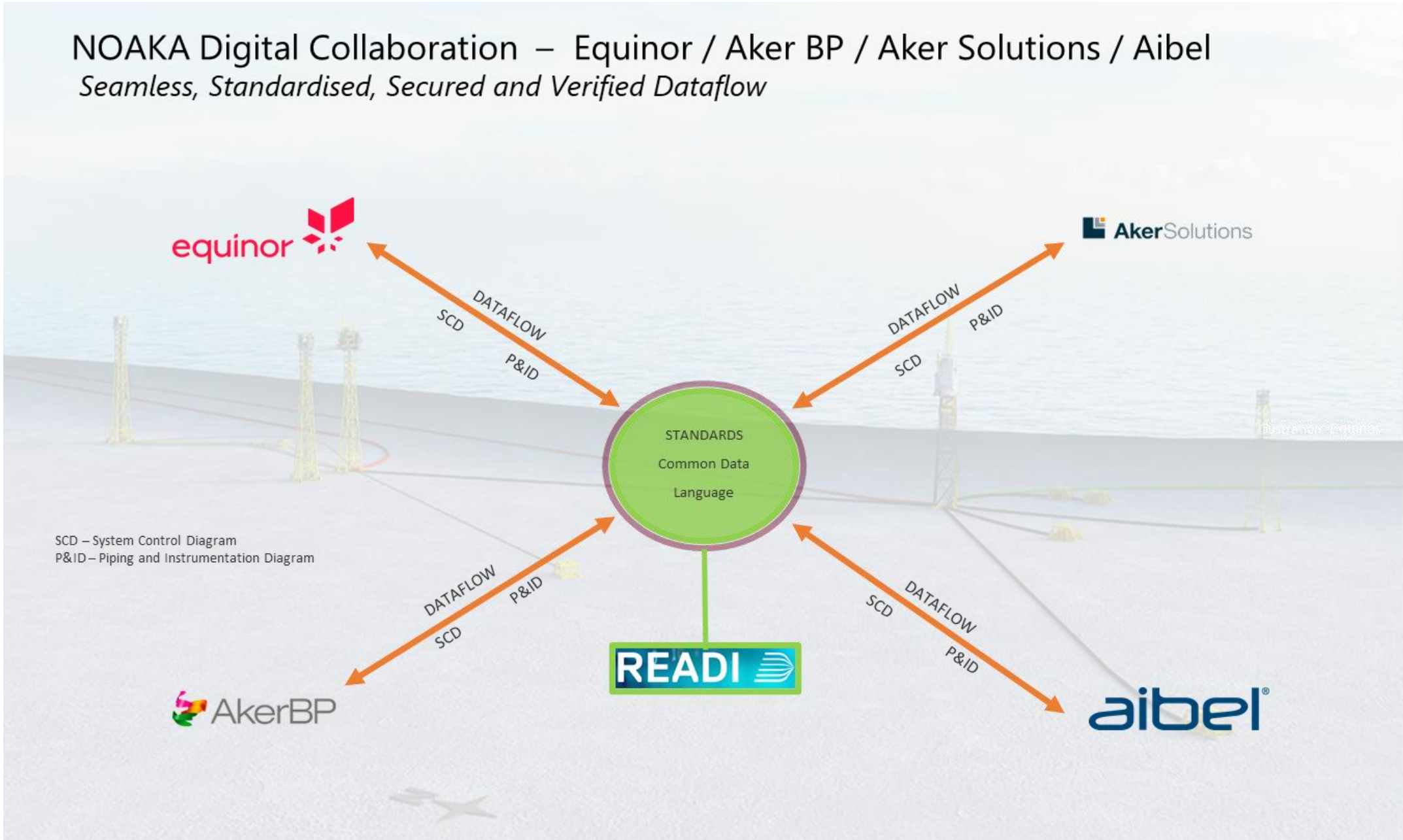
Seamless & standardized dataflow

Machine readable



NOAKA Digital Collaboration – Equinor / Aker BP / Aker Solutions / Aibel

Seamless, Standardised, Secured and Verified Dataflow

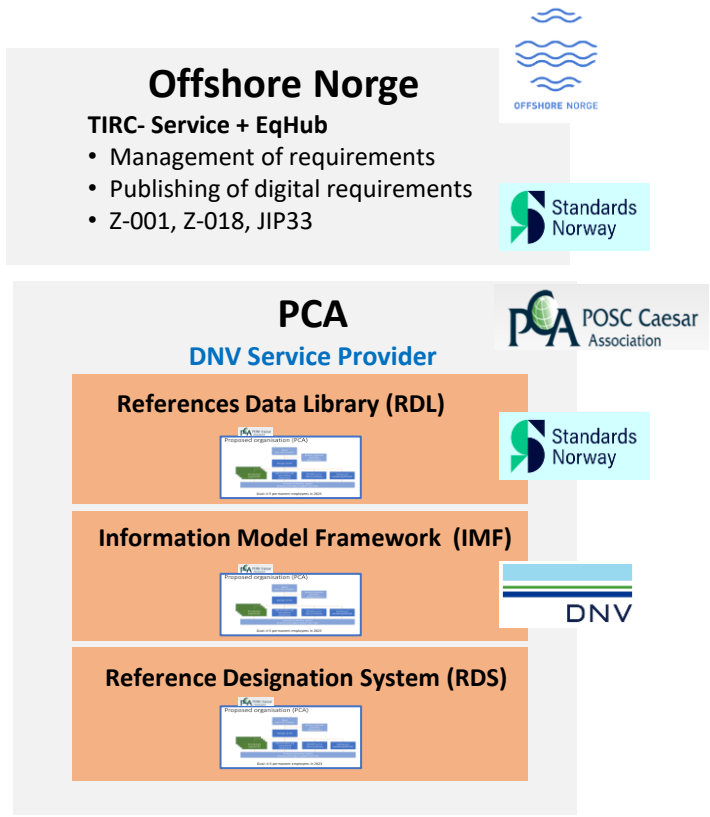


READI - Way forward
Publishing of the digital platform across industries

READI

- TIRC: Management of digital requirements
- Standardization of NORSOK Z-TI requirements

- Digital References Data Library (RDL)
- Reference Designation System (RDS)
- Information Modelling Framework (IMF)



Together with industry partners

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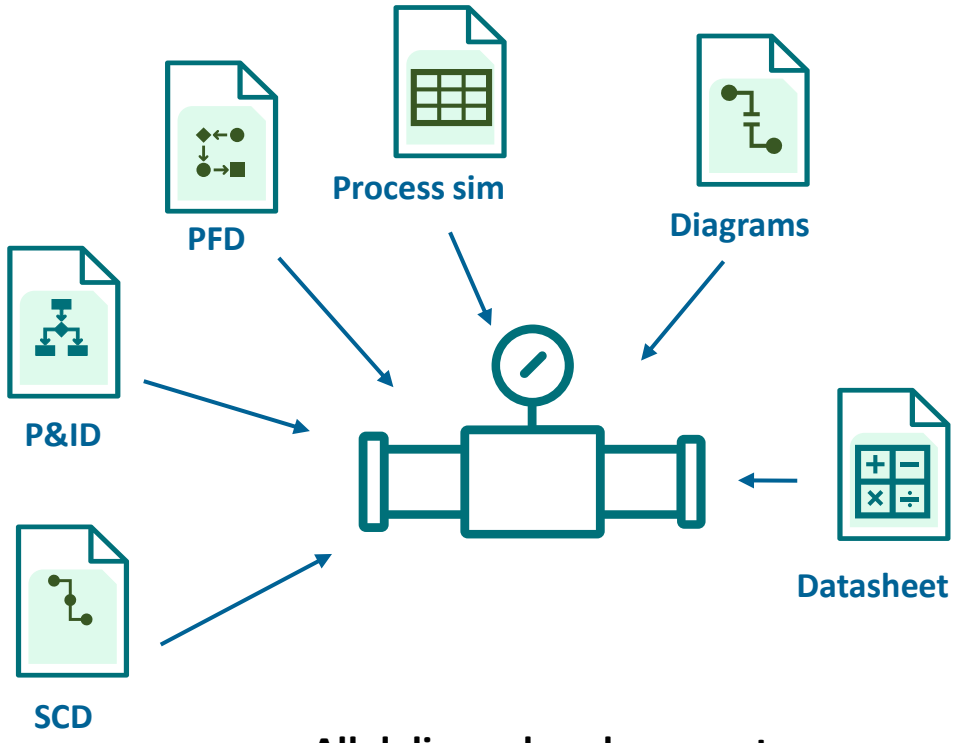
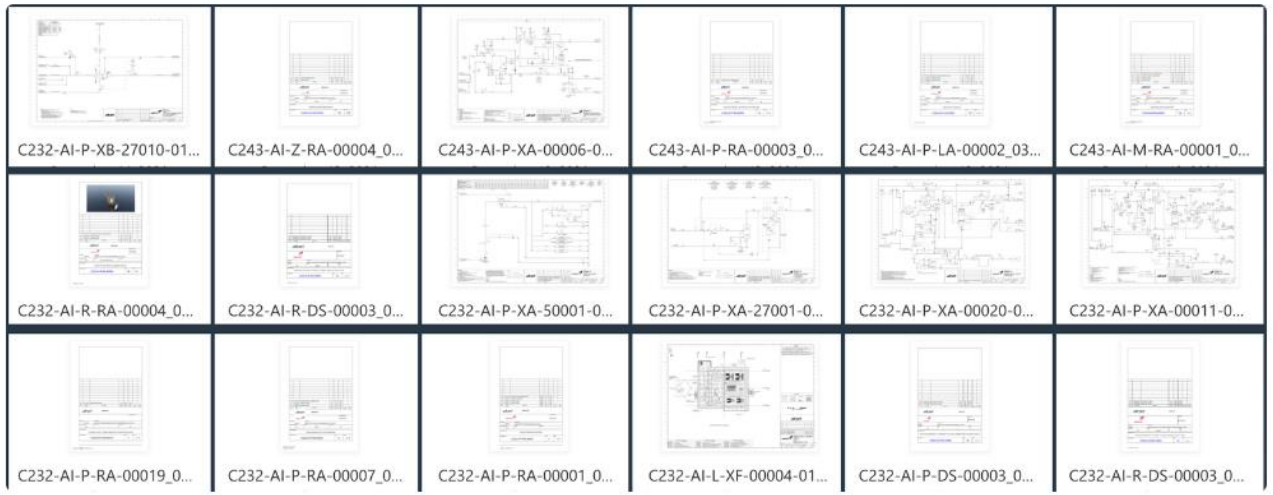


What does it mean for the Project development

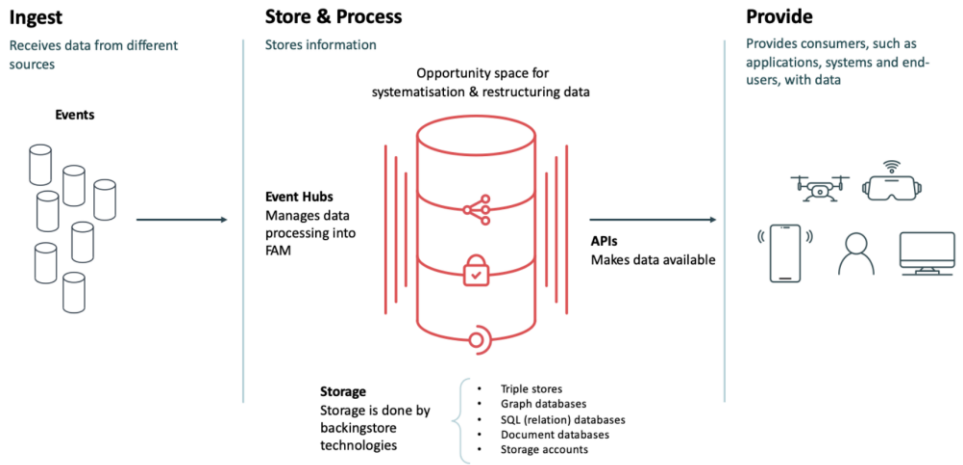
Document oriented



One tag for a 1st stage compressor suction cooler, A-27HA001, has relations to and is mentioned in 18 documents.

When the tag changes, you must update the tag and the associated data in each of the 18 documents.

Data oriented

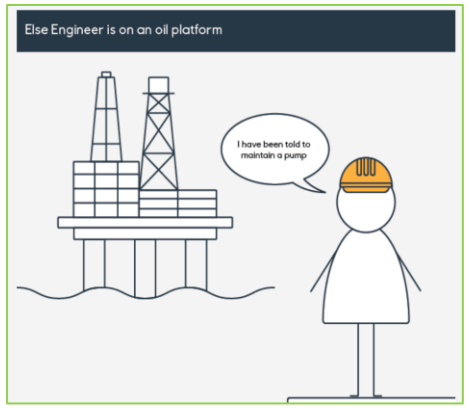


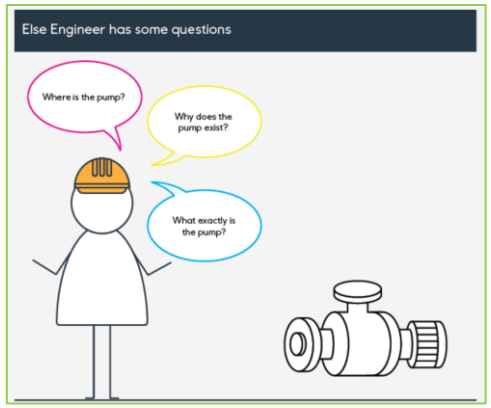
Asset information models are project deliverables.

The Asset information models are an independent single source of information, giving consumers access to the correct version of relevant information.

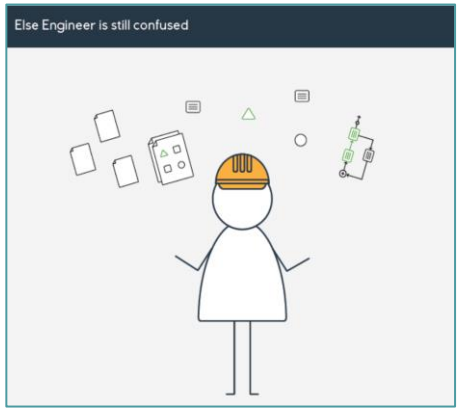
Company Asset information models are built on industry standards, enriched with knowledge and always up to date.

What does it mean for operation

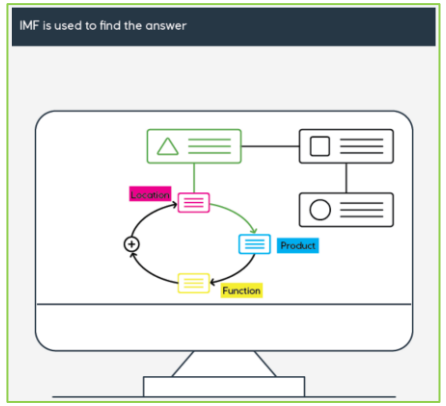


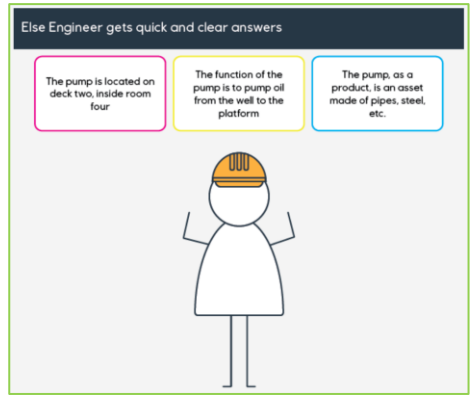


Document oriented



Data oriented





Typical end users

Projects:

- Suppliers, contractors and operator engineers doing engineering, procurement and completion, project leaders

Maintenance:

- Maintenance engineers in developing maintenance programs, planning and executing maintenance

Operation:

- Production engineers, operators on- and offshore

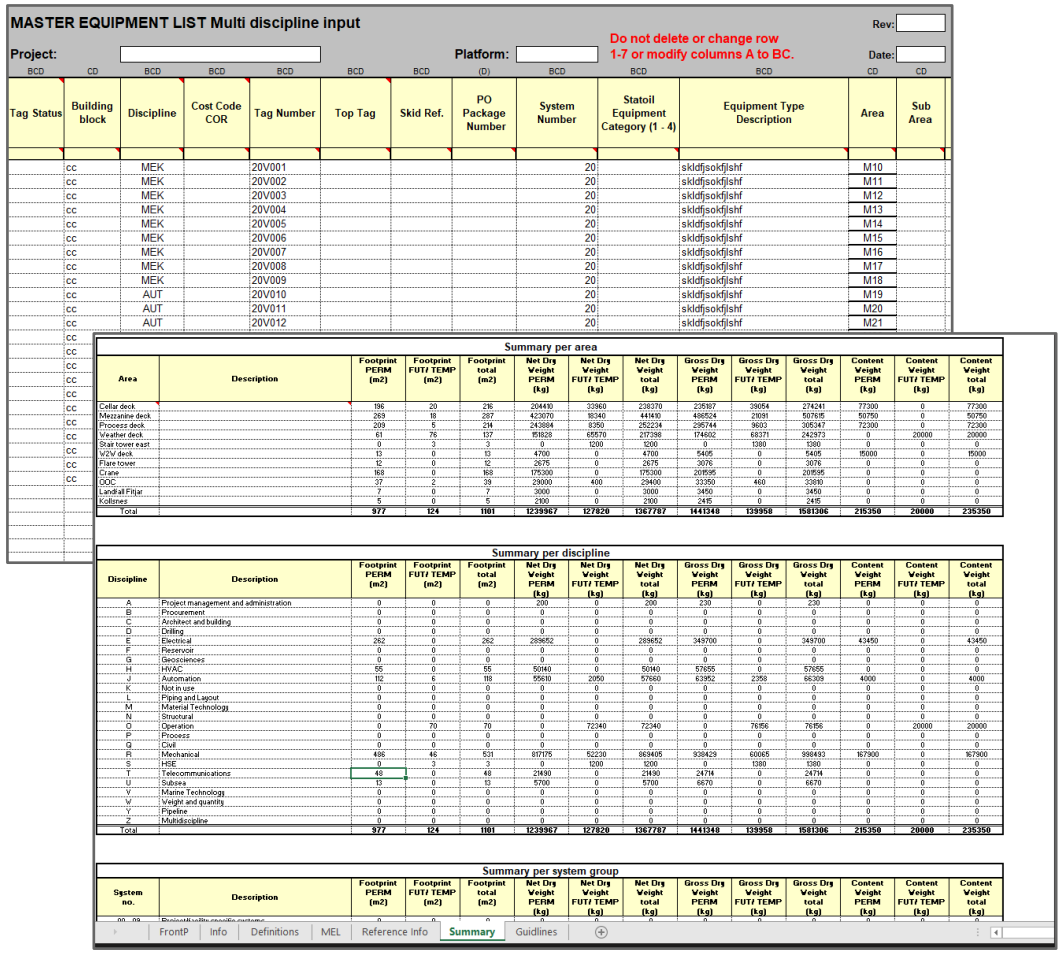
IOC:

- Optimization engineers

Technical integrity:

- Technical Integrity engineers, managers

From MEL in Excel to MEL app



MASTER EQUIPMENT LIST Multi discipline input

Rev:

Project: Platform: Date:

Do not delete or change row 1-7 or modify columns A to BC.

Tag Status	Building block	Discipline	Cost Code COR	Tag Number	Top Tag	Skid Ref.	PO Package Number	System Number	Statoil Equipment Category (1 - 4)	Equipment Type Description	Area	Sub Area
	cc	MEK		20V001				20		skldfjsokfjlshf	M10	
	cc	MEK		20V002				20		skldfjsokfjlshf	M11	
	cc	MEK		20V003				20		skldfjsokfjlshf	M12	
	cc	MEK		20V004				20		skldfjsokfjlshf	M13	
	cc	MEK		20V005				20		skldfjsokfjlshf	M14	
	cc	MEK		20V006				20		skldfjsokfjlshf	M15	
	cc	MEK		20V007				20		skldfjsokfjlshf	M16	
	cc	MEK		20V008				20		skldfjsokfjlshf	M17	
	cc	MEK		20V009				20		skldfjsokfjlshf	M18	
	cc	AUT		20V010				20		skldfjsokfjlshf	M19	
	cc	AUT		20V011				20		skldfjsokfjlshf	M20	
	cc	AUT		20V012				20		skldfjsokfjlshf	M21	

Summary per area

Area	Description	Footprint PERM (m2)	Footprint FUT/ TEMP (m2)	Footprint total (m2)	Net Dry Weight PERM (kg)	Net Dry Weight FUT/ TEMP (kg)	Net Dry Weight total (kg)	Gross Dry Weight PERM (kg)	Gross Dry Weight FUT/ TEMP (kg)	Gross Dry Weight total (kg)	Content Weight PERM (kg)	Content Weight FUT/ TEMP (kg)	Content Weight total (kg)
Cellar deck		196	20	216	204410	33960	238370	235187	39054	274241	77300	0	77300
Mezzanine deck		269	18	287	423070	18340	441410	486524	21091	507615	50750	0	50750
Process deck		209	5	214	243664	8350	252234	280744	9603	305347	72300	0	72300
Weather deck		61	76	137	151828	65570	217398	174602	68371	242973	0	20000	20000
Stair tower east		0	3	3	0	1200	1200	0	1380	1380	0	0	0
W2W deck		13	0	13	4700	0	4700	5405	0	5405	15000	0	15000
Flare tower		12	0	12	2675	0	2675	3076	0	3076	0	0	0
Crane		168	0	168	175300	0	175300	201595	0	201595	0	0	0
OOC		37	2	39	29000	400	29400	33350	460	33810	0	0	0
Landfall Finjar		7	0	7	3000	0	3000	3450	0	3450	0	0	0
Kollsnes		5	0	5	2100	0	2100	2415	0	2415	0	0	0
Total		977	124	1101	1239967	127820	1367787	1441348	139958	1581306	215350	20000	235350

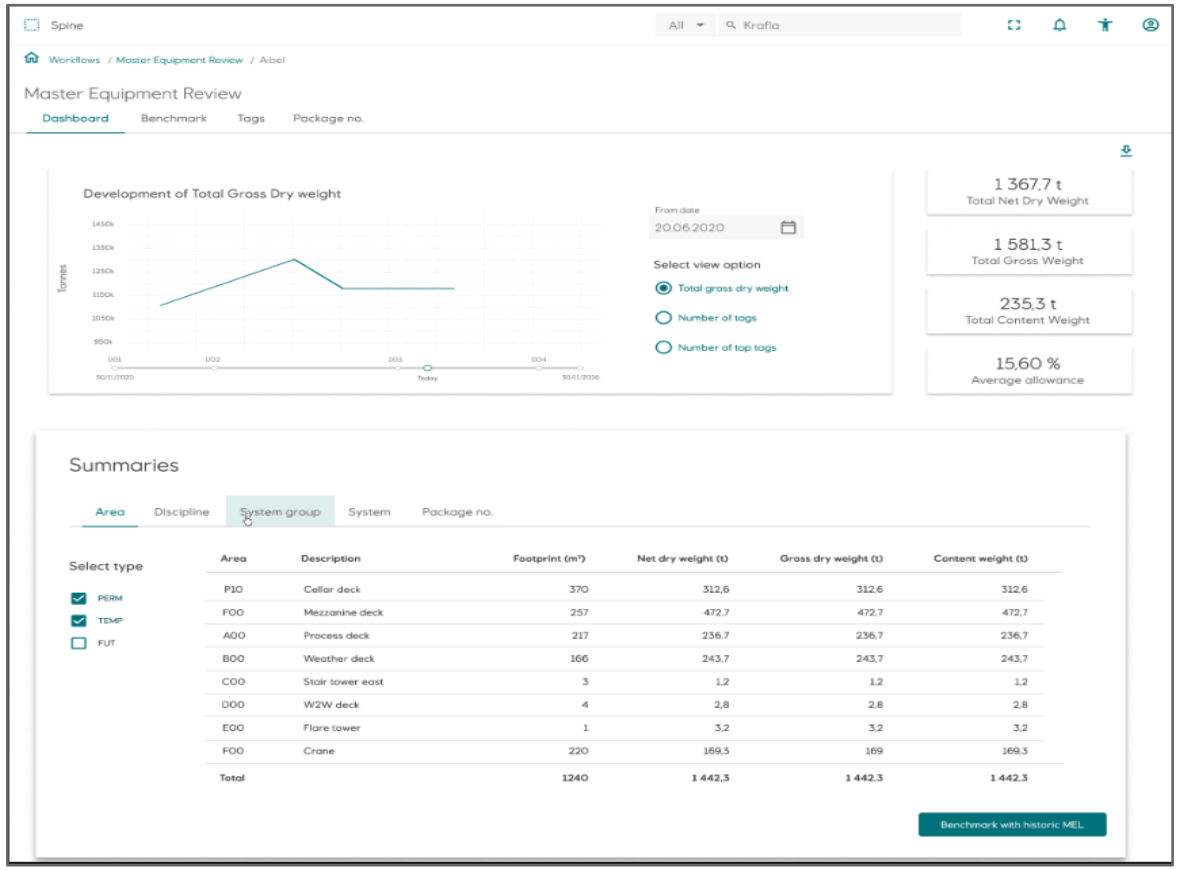
Summary per discipline

Discipline	Description	Footprint PERM (m2)	Footprint FUT/ TEMP (m2)	Footprint total (m2)	Net Dry Weight PERM (kg)	Net Dry Weight FUT/ TEMP (kg)	Net Dry Weight total (kg)	Gross Dry Weight PERM (kg)	Gross Dry Weight FUT/ TEMP (kg)	Gross Dry Weight total (kg)	Content Weight PERM (kg)	Content Weight FUT/ TEMP (kg)	Content Weight total (kg)
A	Project management and administration	0	0	0	200	0	200	230	0	230	0	0	0
B	Procurement	0	0	0	0	0	0	0	0	0	0	0	0
C	Architect and building	0	0	0	0	0	0	0	0	0	0	0	0
D	Drilling	0	0	0	0	0	0	0	0	0	0	0	0
E	Electrical	262	0	262	289652	0	289652	349700	0	349700	43450	0	43450
F	Reservoir	0	0	0	0	0	0	0	0	0	0	0	0
G	Geosciences	0	0	0	0	0	0	0	0	0	0	0	0
H	HVAC	55	0	55	50140	0	50140	57655	0	57655	0	0	0
J	Automation	112	6	118	55610	2050	57660	63952	2358	66309	4000	0	4000
K	Not in use	0	0	0	0	0	0	0	0	0	0	0	0
L	Piping and Layout	0	0	0	0	0	0	0	0	0	0	0	0
M	Material Technology	0	0	0	0	0	0	0	0	0	0	0	0
N	Structural	0	0	0	0	0	0	0	0	0	0	0	0
O	Operation	0	70	70	0	72340	72340	0	76156	76156	0	20000	20000
P	Process	0	0	0	0	0	0	0	0	0	0	0	0
Q	Civil	0	0	0	0	0	0	0	0	0	0	0	0
R	Mechanical	486	46	531	917175	52230	969405	938429	60065	998493	167900	0	167900
S	HSE	0	3	3	0	1200	1200	0	1380	1380	0	0	0
T	Telecommunications	48	0	48	21490	0	21490	24774	0	24774	0	0	0
U	Subsea	13	0	13	5700	0	5700	6570	0	6570	0	0	0
V	Marine Technology	0	0	0	0	0	0	0	0	0	0	0	0
W	Weight and quantity	0	0	0	0	0	0	0	0	0	0	0	0
Y	Pipeline	0	0	0	0	0	0	0	0	0	0	0	0
Z	Multidiscipline	0	0	0	0	0	0	0	0	0	0	0	0
Total		977	124	1101	1239967	127820	1367787	1441348	139958	1581306	215350	20000	235350

Summary per system group

System no.	Description	Footprint PERM (m2)	Footprint FUT/ TEMP (m2)	Footprint total (m2)	Net Dry Weight PERM (kg)	Net Dry Weight FUT/ TEMP (kg)	Net Dry Weight total (kg)	Gross Dry Weight PERM (kg)	Gross Dry Weight FUT/ TEMP (kg)	Gross Dry Weight total (kg)	Content Weight PERM (kg)	Content Weight FUT/ TEMP (kg)	Content Weight total (kg)

FrontP | Info | Definitions | MEL | Reference Info | Summary | Guidlines



Sum-up

- Digital Asset Information Model(IMF)
- Digital Language (PCA - RDL)
- Industrial standardized Exchange format (i.e I4.0 AAS)

Acknowledgements / Thank You / Question

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Learn more at: www.readi-jip.org/