

# 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









### Problem statement

Too many documents

Changes take long time

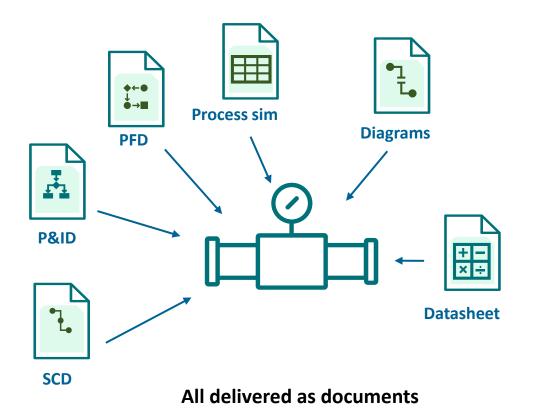
Difficult to share information and data

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





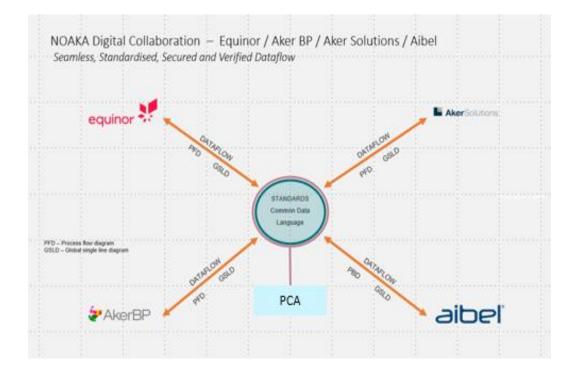
### Interoperability enablers

### Basic needs of industry standards

- Standardizes information requirements
- Std. asset breakdown structure

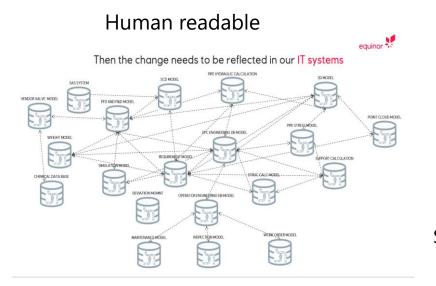
The digital language

- Information modelling principles
- Machine-interpretable vocabulary
- Standards data exchange (I4.0 AAS)





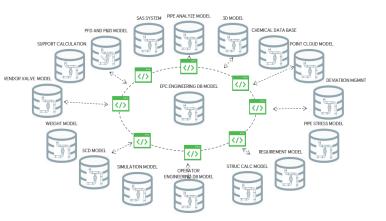
## How to get there?



### What does it take

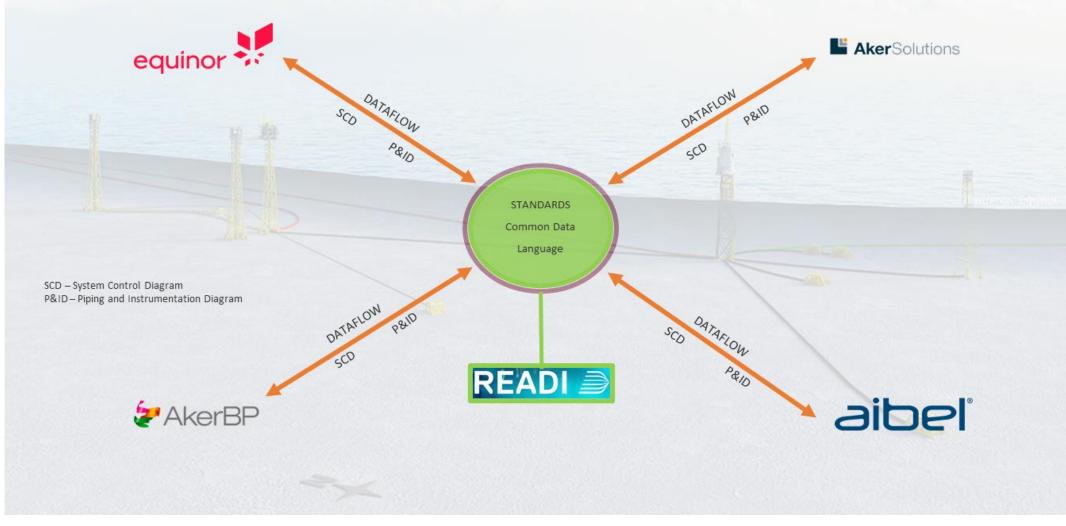
Industry standard Common digital language Common digital requirements Seamless & standardized dataflow

### Machine readable

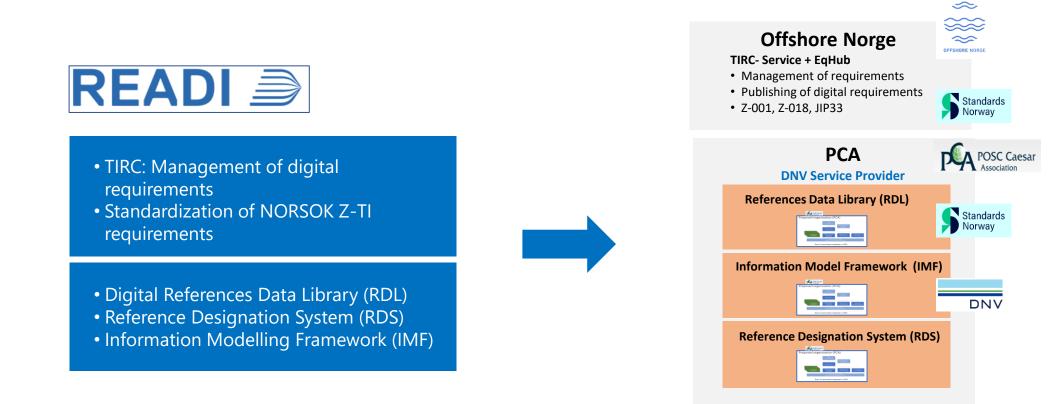




NOAKA Digital Collaboration – Equinor / Aker BP / Aker Solutions / Aibel Seamless, Standardised, Secured and Verified Dataflow



## READI - Way forward Publishing of the digital platform across industries



#### Together with industry partners



### Problem statement

Too many documents

Changes take long time

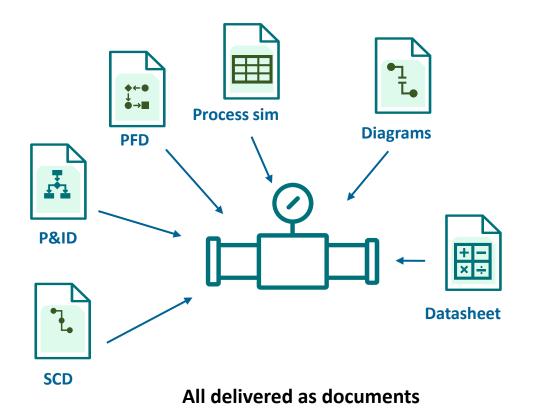
Difficult to share information and data

Lack of standardization

Lack of analyzing possibilities

No automation possibilities

Lack of prediction abilities





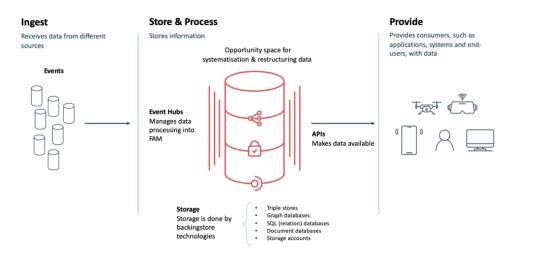
### What does it mean for the Project development

				Document onented			
C232-AI-P-XB-27010-01	C243-AI-Z-RA-00004_0	C243-AI-P-XA-00006-0	C243-AI-P-RA-00003_0	C243-AI-P-LA-00002_03	C243-AI-M-RA-00001_0		
C232-AI-R-RA-00004_0	C232-AI-R-DS-00003_0	C232-AI-P-XA-50001-0	C232-AI-P-XA-27001-0	C232-AI-P-XA-00020-0	C232-AI-P-XA-00011-0		
C232-AI-P-RA-00019_0	C232-AI-P-RA-00007_0	C232-AI-P-RA-00001_0	C232-AI-L-XF-00004-01	C232-AI-P-DS-00003_0	7. F 7. F 7. F 7. F 7. F 7. F 7. F 7. F		

#### **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.



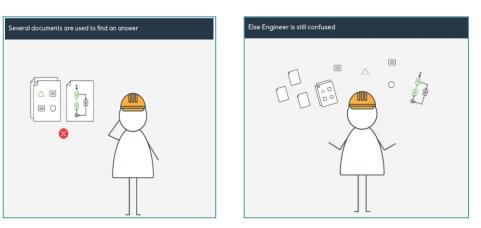
#### **Data oriented**

Asset information models are project deliverables.

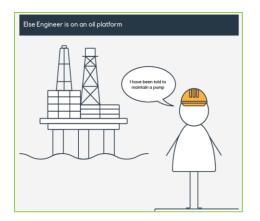
The Asset information models are an independent single source of information, giving consumers access to the correct version of relevant information.

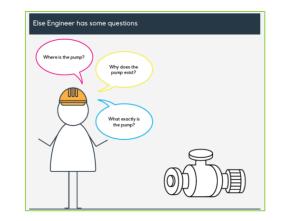
Company Asset information models are built on industry standards, enriched with knowledge and always up to date.

### What does it mean for operation



#### **Document oriented**

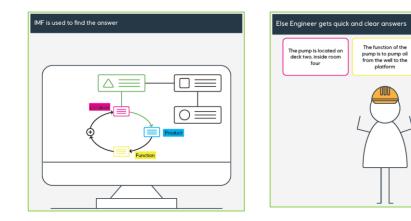




#### **Data oriented**

The pump, as a

product, is an asset made of pipes, steel,



# 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

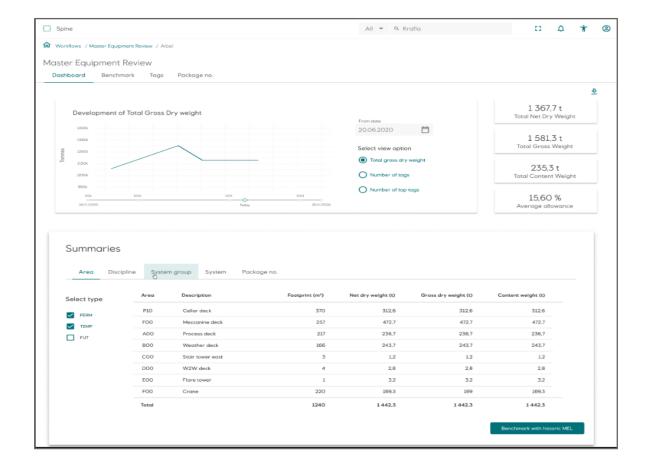
#### **Technical integrity:**

• Technical Integrity engineers, managers



### From MEL in Excel to MEL app

ject:							Platform:	-		o not dele 7 or modif				Date		
BCD	C	) B(	D BCD	BCD	BCD	BCD	(D)	BCD		7 or modif BCD	ry colum	BCD		Date CD	CD	
g Status	Build	ling Dissi	Cost Codo	Tag Number	Top Tag	Skid Ref.	PO Package Number	Syste	m Ed	Statoil quipment egory (1 - 4)	E	quipment T Descriptio		Area	Sub Area	
		M	1Z	201/004					20		- I I AF I FI	- 1-6		M10		
	cc	M		20V001 20V002					20		skldfjsokfjl skldfjsokfjl			M10 M11	-	
	cc cc	M		20V002					20		skidijsokiji skidijsokiji			M112	-	
	cc	M		20V003					20		skidijsokiji			M12		
	cc	M		20V005					20		skidfjsokfji			M13	-	
	cc	M		20V006					20		skidfjsokfji			M15		
	cc	M		20V007					20		skidfjsokfji			M16		
	cc	M		20V008					20		skidfjsokfji			M17		
	cc	M		20V009				1	20		skidfjsokfji			M18		1
	сс	A	л	20V010					20		skldfjsokfjl			M19		1
	сс	A		20V011					20		skldfjsokfjl			M20		
	сс	A	Л	20V012					20		skldfjsokfjl	shf		M21		
	CC						c.									
	CC CC				Footprin PERM	Footprint		Net Drg	Net Dry	Net Dry	Gross Dry	Gross Dry	Gross Dry	Content	Content	Content
	CC CC	Area	De	scription	PERM (m2)	FUT/ TEMF (m2)	P total (m2)	Veight PERM (kg)	Veight FUT/ TEMP (kg)	Veight total (kg)	Veight PERM (kg)	Veight FUT/ TEMP (kg)	Veight total (kg)	Veight PERM (kg)	Veight FUT/ TEMP (kg)	Veight total (kg)
	cc	Cellar deck	•		196	20	216	204410	33960	238370	235187	39054	274241	77300	0	77300
	CC	Mezzanine deck Process deck			269 209	18 5	287 214	423070 243884	18340 8350	441410 252234	486524 295744	21091 9603	507615 305347	50750 72300	0	50750 72300
	CC	Weather deck			61	76	137	151828	65570 1200	217398 1200	174602 0	68371 1380	242973 1380	0	20000	20000 0
	CC	Stair tower east W2W deck			13	0	13	4700	0	4700	5405	0	5405	15000	0	15000
	СС	Flare tower Crane			12	0	12	2675 175300	0	2675	3076 201595	0	3076 201595	0	0	0
	CC	000			37	2	39	29000	400	29400	33350	460	33810	0	0	0
		Landfall Fitjar Kollsnes			7	0	7	3000 2100	0	3000 2100	3450 2415	0	3450 2415	0	0	0
		Total			977	124	1101	1239967	127820	1367787	1441348	139958	1581306	215350	20000	235350
							C		lin alia lia a							
		Discipline	De	scription	Footprin PERM (m2)	Footprint FUT/ TEMF (m2)		Mary per o Net Dry Veight PERM (ka)	Net Dry Veight FUT/ TEMP	Net Dry Veight total (ka)	Gross Dry Veight PERM (ke)	Gross Dry Veight FUT/ TEMP (kg)	Gross Dry Veight total (kg)	Content Veight PERM (ka)	Content Veight FUT/TEMP (ka)	Content Veight total (ka)
		A	Project management and		(m2) 0		P Footprint total (m2)	Net Dry Veight	Net Drg Veight	Veight total (kg) 200	Veight PERM (kg) 230	Veight	Veight total (kg) 230	Veight PERM (kg) 0		Veight total (kg) 0
		Discipline A B C	Project management and Procurement Architect and building		(m2) 0 0	(m2)	P Footprint total (m2) 0 0	Net Dry Veight PERM (kg)	Net Dry Veight FUT/ TEMP	Veight total (kg)	Veight PERM (kg) 230 0 0	Veight FUT/ TEMP	Veight total (kg) 230 0 0	Veight PERM	Veight FUT/ TEMP	Veight total (kg)
		A	Project management and Procurement Architect and building Drilling		(m2) 0 0 0	(m2)	P Footprint total (m2) 0 0 0	Net Dry Veight PERM (kg) 200 0 0	Net Dry Veight FUT/ TEMP	Veight total (kg) 200 0 0	Veight PERM (kg) 230 0 0 0	Veight FUT/ TEMP	Veight total (kg) 230 0 0	Veight PERM (kg) 0 0 0	Veight FUT/ TEMP	Veight total (kg) 0 0 0
		A B C D E F	Project management and Procurement Architect and building Drilling Electrical Reservoir		(m2) 0 0 0 262 0	(m2)	P Footprint total (m2) 0 0	Net Dry Veight PERM (kg)	Net Dry Veight FUT/ TEMP	Veight total (kg) 200 0	Veight PERM (kg) 230 0 0 0 0 349700 0	Veight FUT/ TEMP	Veight total (kg) 0 0 349700 0	Veight PERM (kg) 0	Veight FUT/ TEMP	Veight total (kg) 0 0 0 43450 0
		A	Project management and Procurement Architect and building Drilling Electrical		(m2) 0 0 0 262 0 0 0 55	(m2)	P Footprint total (m2) 0 0 0 0 282 0 0 0 55	Net Drg Veight PERM (kg) 200 0 0 289652 0 0 0 0 50140	Net Drg Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 0 0 289652 0 0 0 0 50140	Veight PERM (kg) 0 0 0 349700 0 0 0 57655	Veight FUT/ TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 230 0 0 349700 0 349700 0 57655	Veight PERM (kg) 0 0 0 0 43450 0 0 0 0	Veight FUT/ TEMP	Veight total (kg) 0 0 0 43450 0 0 0 0
		A B C D E F G	Project management and Procurement Architect and building Delling Electrical Reservoit Geosciences HVAC Automation		(m2) 0 0 0 262 0 0	(m2)	P P Contemporating Footprint total (m2) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Net Dry Veight PERM (kg) 200 0 0	Net Dry Veight FUT/ TEMP	Veight total (kg) 0 0 289652 0 0 0 50140 57660	Veight PERM (kg) 230 0 0 349700 0 57655 63952	Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 2358	Veight total (kg) 230 0 0 349700 0 349700 0 57655 66309	Veight PERM (kg) 0 0 0 43450 0 0 0 0 0 0 0 0	Veight FUT/ TEMP	Veight total (kg) 0 0 43450 0 0 0 0 0 0 0 0 0 0 0
		A BCODEFEGH	Project management and Procurement Architect and building Delling Electrical Reservoir Beosciences HVAC Ausomation Not in use Piping and Layout		(m2) 0 0 0 262 0 0 0 55	(m2)	P Footprint total (m2) 0 0 0 0 282 0 0 0 55	Net Drg Veight PERM (kg) 200 0 0 289652 0 0 0 0 50140	Net Drg Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 0 0 289652 0 0 50140 57560 0 0	Veight PERM (kg) 230 0 0 349700 0 57655 63952 0 0	Veight FUT/ TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 0 0 0 349700 0 57855 66309 0 0	Veight PERM (kg) 0 0 43450 0 0 0 0 44000 0 4000 0 0 0	Veight FUT/ TEMP	Veight total (kg) 0 0 0 43450 0 0 0 0
		А В С О Ш Ш Ч З К Ц	Project management and Procurement Architect and building Delling Electrical Reservoir Geosciences HVAC Automation Not in use Piping and Lapout Material Ecohology		(m2) 0 0 0 262 0 0 0 55	(m2)	P Footprint total (m2) 0 0 282 0 0 0 555 1118 0 0 0 0 0 0 0	Net Drg Veight PERM (kg) 200 0 0 289652 0 0 0 0 50140	Net Drg Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 0 0 289652 0 0 0 50140 57660	Veight PERM (kg) 230 0 0 349700 0 57655 63952 0 0 0 0 0	Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 2358	Veight total (kg) 230 0 0 349700 0 0 57855 585309 0 0 0 0 0	Veight PERM (kg) 0 0 43450 0 43450 0 0 4000 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/ TEMP	Veight total (kg) 0 0 43450 0 0 43450 0 0 0 4000 0 0 0 0 0 0 0 0 0 0 0 0 0
		A BCODEFEGH	Project management and Processment Archivest and building Diriling Bestroist Reservoir Geosciences HVAC Automation Nocin use Piping and Lapout Material T-chinology Bitractural Operation		(m2) 0 0 0 282 0 0 555 192 0 0 0 0 0 0 0 0 0 0 0 0 0	(m2) 0 0 0 0 0 0 0 6 6 0 0 0 0 0 0 0 0 70	P Footprint (n2) 0 0 0 0 0 0 0 0 0 0 0 0 55 118 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Net Drg Veight PERM (kg) 200 0 0 289652 0 0 0 0 50140	Net Drg Veright FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 0 0 0 289652 0 0 0 0 50760 57760 0 0 0 0 0 0 0 0 0	Veight PERM (kg) 230 0 0 0 349700 0 0 57655 63952 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 2358 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 230 0 0 349700 0 0 57655 68509 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight PERM 0 0 0 0 0 43450 0 0 0 4000 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/ TEMP	Veight total (kg) 0 0 43450 0 43450 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
		A BCODUFE GT J K L M Z O P	Project management and Processment Architect and building Deiling Deiling Deiling Deiling Description Preservoiri Genosciences HVAC Automation Not in use Piping and Lagout Material Technology Smatural Deversion Process		(m2) 0 0 0 262 0 0 0 55	(m2) 0 0 0 0 0 0 0 0 0 0 0 0 0	P Footprint total (m2) 0 0 282 0 282 0 555 118 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Net Drg Veight PERM (kg) 200 0 0 289652 0 0 0 0 50140	Net Dry Veight FUT/TEMP (Lg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 2000 0 283652 0 0 50140 577650 0 0 0 0 0 0 0 0 0 0 0	Veight PERM (kg) 230 0 0 349700 0 0 57/655 63952 0 0 0 0 0 0 0	Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 230 0 0 0 349700 0 0 57%55 68:00 0 0 0 0 0 0 0 0 0 0 0	Veight PERM (kg) 0 0 43450 0 43450 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/TEMP 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 0 0 43450 0 0 43450 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
		A BC D E F G F J X L M Z	Project management and Processment Architect and building Deiling Deiling Deiling Described Perservoiri Genesciences HVAC Automation Not in use Piping and Lagout Material Technology Structural Deretision De		(m2) 0 0 0 282 0 55 112 0 0 0 0 0 0 0 0 0 0 0 0 0	(m2) 0 0 0 0 0 0 0 6 6 0 0 0 0 0 0 0 0 70	P Footprint foota (m2) 0 0 0 0 282 0 0 55 118 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Net Drg           Veight PERIM           (kg)           0	Net Drg           Veight           FUT/ TEMP           (kg)           0 <tr< td=""><td>Veight total (kg) 200 0 0 289652 0 0 50140 57580 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>Veight PERM (kg) 230 0 0 349700 0 0 577655 63952 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>Veight FUT/TEMP [kg] 0 0 0 0 0 0 0 2358 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>Veight total (kg) 230 0 0 349700 0 349700 0 0 57655 565399 0 0 0 0 0 0 76155 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 57655 565399 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>Veight PERM (kg) 0 0 0 0 43450 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>Veight FUT/TEMP 0 0 0 0 0 0 0 0 0 0 0 0 0</td><td>Veight total (bg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td></tr<>	Veight total (kg) 200 0 0 289652 0 0 50140 57580 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight PERM (kg) 230 0 0 349700 0 0 577655 63952 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/TEMP [kg] 0 0 0 0 0 0 0 2358 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 230 0 0 349700 0 349700 0 0 57655 565399 0 0 0 0 0 0 76155 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 57655 565399 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight PERM (kg) 0 0 0 0 43450 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/TEMP 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (bg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
		< α α α α α α α α α α α α α	Project management and Proceement Archivest and building Drilling Electrical Reservoir Geosciences HVAC Automation Nocin use Piping and Lagout Material T-cohology Structural Operation Process Civil		(m2) 0 0 0 252 0 0 55 55 12 0 0 0 0 0 0 0 0 0 0 0 0 0	(m2) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	P	Net Drg Veight PERM (kg) 200 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Net Dry Voight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 200 0 0 289652 0 0 0 50140 577650 0 0 0 0 0 72340 0 0 0 0 0 0 0 85940 0 0 0 2 859405 2 1490 2 4400 2 4400 4 4400 4 4400 4 4400 4 4400 4	Veight PERM (kg) 230 0 0 0 349700 0 57655 63952 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total           [kg]           230           0	Veight PERM (kg) 0 0 0 43450 0 0 4000 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/ TEMP (1/3) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 0 0 0 0 43450 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
		< α α α α α α α α α α α α α	Project management and Processment Architect and building Delling Electrical Electrical Electrical Reservoir More and HVXC Automation Not nuce Physica and sport Marsani Technology Ornotoral Ornotoral Ornotoral Ornotoral Mechanical HSE Telecommanications Subces		(m2) 0 0 0 0 282 0 0 55 112 0 0 0 0 0 0 0 0 0 0 0 0 0	(m2) 0 0 0 0 0 0 0 0 0 0 0 0 0	P Footprint footal (m2) 0 0 0 0 0 282 0 0 555 118 0 0 555 10 0 0 0 0 70 0 0 0 70 0 0 3 1 3 1 2	Net Drg         V-cight           V-cight         (kg)           200         0           0 <td>Net Drg           Veight           FUT/ TEMP           (kg)           0           1200</td> <td>Veight total (kg) 2000 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight PERM (kg) (230) 0 0 0 0 345700 0 0 0 345700 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 2358 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight total [ka] 230 0 0 349700 0 0 57655 65309 65309 65309 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight PERM (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight FUT/ TEMP (bg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight total (sg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td>	Net Drg           Veight           FUT/ TEMP           (kg)           0           1200	Veight total (kg) 2000 0 0 0 0 0 0 0 0 0 0 0 0	Veight PERM (kg) (230) 0 0 0 0 345700 0 0 0 345700 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 2358 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total [ka] 230 0 0 349700 0 0 57655 65309 65309 65309 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight PERM (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/ TEMP (bg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (sg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
		< BUDDUL 0 II 7 K - X Z O 0 OC0+	Project management and Processment Architect and bulking Deline g Becentral		(m2) 0 0 0 222 0 0 0 0 0 0 0 0 0 0 0 0 0	(m2) 0 0 0 0 0 0 0 0 0 0 0 0 0	P P Cootprint total (m2) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Net Drg Veight PERM (kg) 200 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Net Drg           Veight           FUT/ TEMP           (kg)           0           1200	Veight total [kg] 200 0 0 0 0 0 0 0 0 0 0 0 0	Veight PERM (kg) 230 0 0 0 0 57855 63952 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight (teg) (20) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Yeight PERM (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight Furt tEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
		dim COurtor SXL1XZOD 000000000000000000000000000000000000	Project management and Processment Avolvece and building Delling Beserveit R		(m2) 0 0 0 262 0 55 55 0 0 0 0 0 0 0 0 0 0 0 0 0	(m2) 0 0 0 0 0 0 0 0 0 0 0 0 0	P P Cootprint total (m2) 0 0 0 0 0 282 0 0 282 0 0 0 0 0 0 0 0 0	Net Drg         V-cight           V-cight         (kg)           200         0           0 <td>Net Drg           Veight           FUT/ TEMP           (kg)           0           1200</td> <td>Veight total (kg)           200           21490           7700           0</td> <td>Veight (kg) (kg) (230 0 0 0 349700 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight (big)           230           0</td> <td>Veight PERM (kg) 0 0 0 0 43450 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight FUT/ TEMP (bg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight total (kg) 0 0 0 0 43450 0 0 0 43450 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td>	Net Drg           Veight           FUT/ TEMP           (kg)           0           1200	Veight total (kg)           200           21490           7700           0	Veight (kg) (kg) (230 0 0 0 349700 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight (big)           230           0	Veight PERM (kg) 0 0 0 0 43450 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/ TEMP (bg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 0 0 0 0 43450 0 0 0 43450 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
		dim COurtor SXL1XZOD 000000000000000000000000000000000000	Project management and Processment Architect and bulking Deline g Becentral		(m2) 0 0 0 222 0 0 0 0 0 0 0 0 0 0 0 0 0	(m2) 0 0 0 0 0 0 0 0 0 0 0 0 0	P Footprint total (m2) 0 0 0 0 0 0 0 0 0 0 0 0 0	Net Drg         V-cight           V-cight         (kg)           200         0           0 <td>Net Drg           Veight           FUT/ TEMP           (kg)           0           1200</td> <td>Veight total [kg] 200 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight PERM (kg) 230 0 0 0 0 57855 63952 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight (teg) (20) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Yeight PERM (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight Furt tEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td> <td>Veight total (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0</td>	Net Drg           Veight           FUT/ TEMP           (kg)           0           1200	Veight total [kg] 200 0 0 0 0 0 0 0 0 0 0 0 0	Veight PERM (kg) 230 0 0 0 0 57855 63952 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight (teg) (20) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Yeight PERM (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight Furt tEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
		A GOLODEFE GIJJK L M N O P G R S T U V V V V	Project management and Processment Avolvece and building Delling Beserveit R		(m2) 0 0 222 0 252 0 0 0 0 0 0 0 0 0 0 0 0 0	(m2) 0 0 0 0 0 0 0 0 0 0 0 0 0	P         Formula           0         0	Net Drs         Veight           PERM         [kg]           200         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           12339867         1233967	Net Drg         Veight           FUT/1 TEMP         (kg)           0         0	Veight total (kg) 200 0 0 0 0 0 0 0 0 0 0 0 0	Veight Veight (kg) 230 0 0 0 0 249700 0 0 0 0 57855 63952 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total [kg] 220 0 0 0 0 0 0 57555 5555 65555 65555 0 0 0 0 0 0 776555 55555 65555 0 0 0 0 0 0 0 0 0 0 0 0	Veight PERM (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0	Veright FUT TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0
		A GOLODEFE GIJJK L M N O P G R S T U V V V V	Project management and Processment Chilling Electrical Protection Become Hereits Herei		(m2) 0 0 222 0 252 0 0 0 0 0 0 0 0 0 0 0 0 0	(m2) 0 0 0 0 0 0 0 0 0 0 0 0 0	P         Formula           0         0	Net Drs         Veight           PERM         [kg]           200         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           12339867         1233967	Net Drg         Veight           FUT1 TEMP         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0           0         0	Veight total (kg) 200 0 0 0 0 0 0 0 0 0 0 0 0	Veight Veight (kg) 230 0 0 0 0 249700 0 0 0 0 57855 63952 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight FUT/TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total [kg] 220 0 0 0 0 0 0 57555 5555 65559 0 0 0 0 0 776555 65559 0 0 0 0 0 776555 5555 5555 670 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight PERM (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0	Veright FUT TEMP (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Veight total (kg) 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0



### Sum-up

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





# **Acknowledgements / Thank You / Question**

### **READI** contact information:

Project manager: Erik Østby, DNV E-mail: <u>Erik.Ostby@dnv.com</u> Mobile: +47 906 74 106 Steering Committee Chair: Paal Frode Larsen, Equinor E-mail: <u>pfla@equinor.com</u> Mobile: +47 913 57 636

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





