

RDS WORKSHOP

09.12.2024

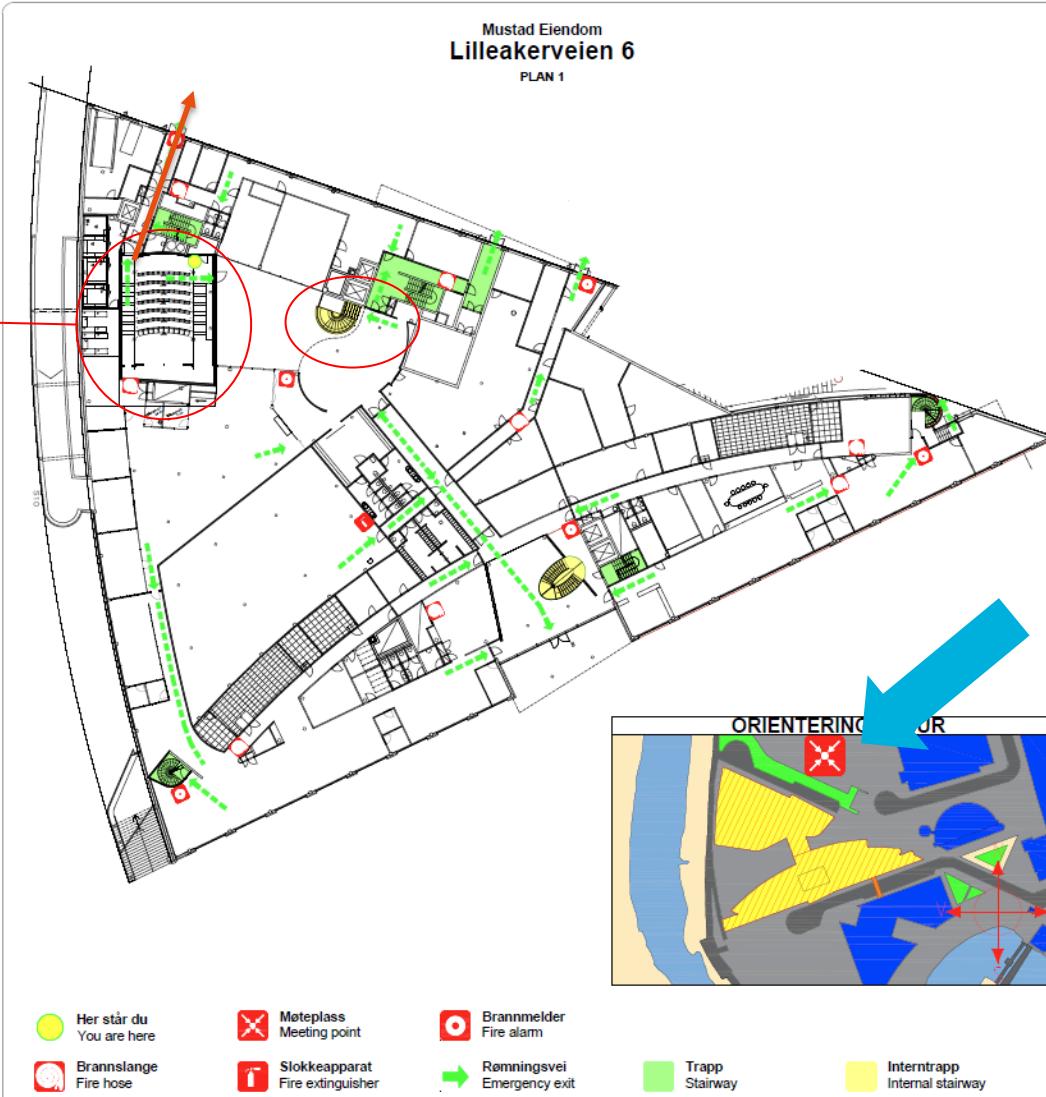




- ▶ Fire exits
- ▶ Meeting points

RØMNINGSPPLAN / EVACUATIONPLAN

You are here





- ▶ Internet
- ▶ Restrooms
- ▶ Lunch

A pleasure to meet you!
what does your company do?

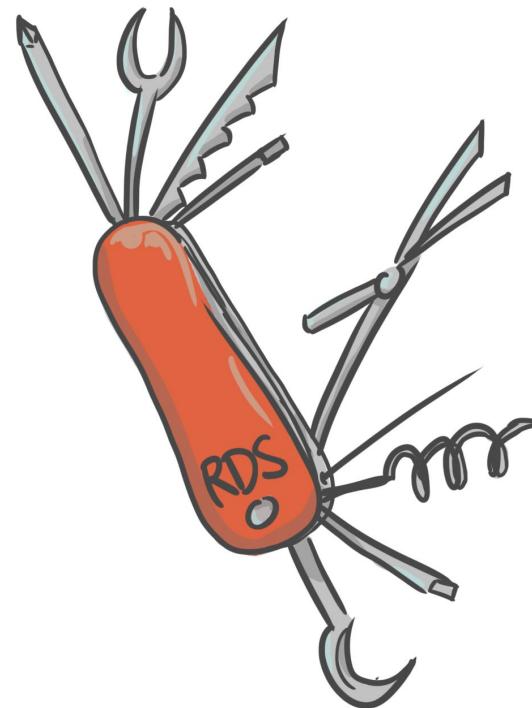
me

Skanska
SKS-Produksjon AS
Skagerak
BaneNOR
Hydro
SFE
Hafslund
Skanska
SWECO
Nortura
Nye Veier
Multiconsult
Maintech
Norconsult
Å Energi



AGENDA – day 1

- ▶ RDS
- ▶ Lunch
- ▶ Experience so far
- ▶ More RDS



REPETITION:

THE BASICS

What is RDS-PS?

Reference Designation System – Power Supply systems

IEC/ISO 81346-10 Industrial systems, installations and equipment and industrial products - Structuring principles and reference designations - Power Supply systems



EBL-kodeplan



KKS / RDS-pp

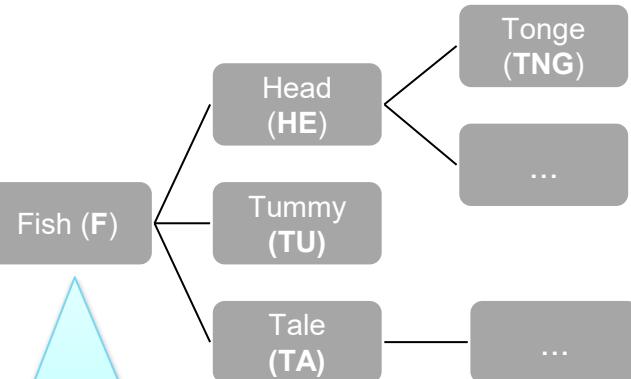


STATSBYGG

Tverrfaglig merkesystem (TFM)

What it does...

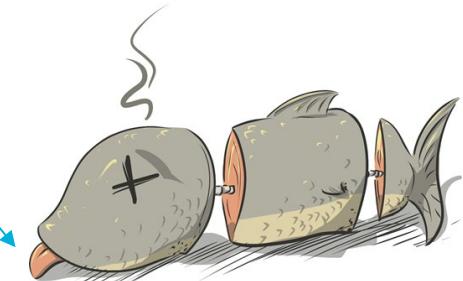
Structure
modelling principles

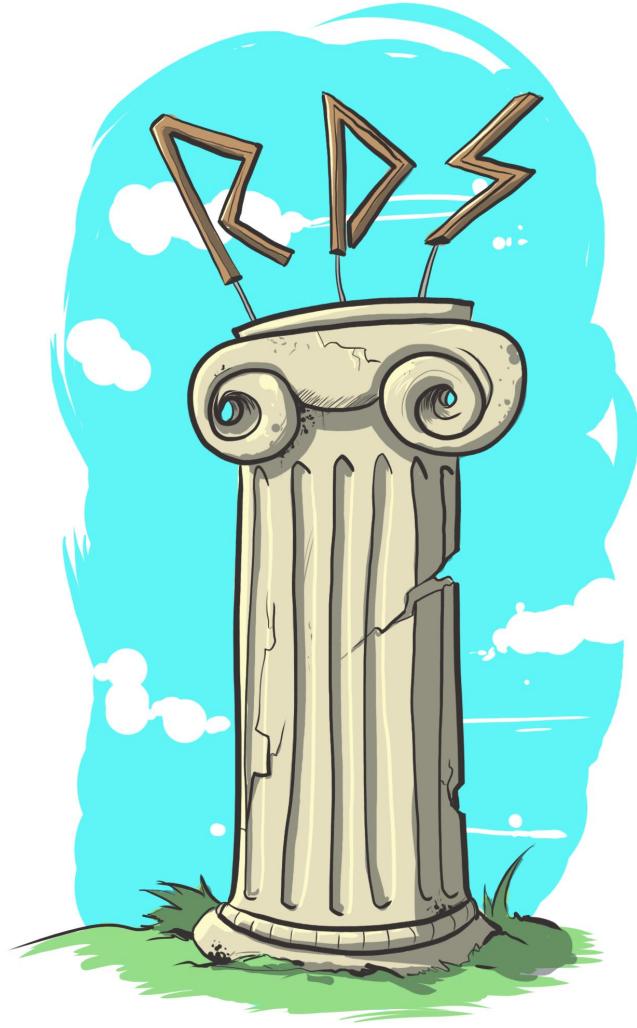


Classify
Categorise
technical systems

=F1.HO1.TUN1
(tag)

Identify





1 / 3

The Aspects

+ Location

+Plant+2floor+zone4

%Type

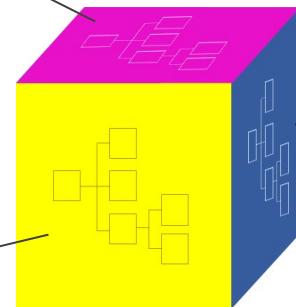
%QMA1 – Ball valve

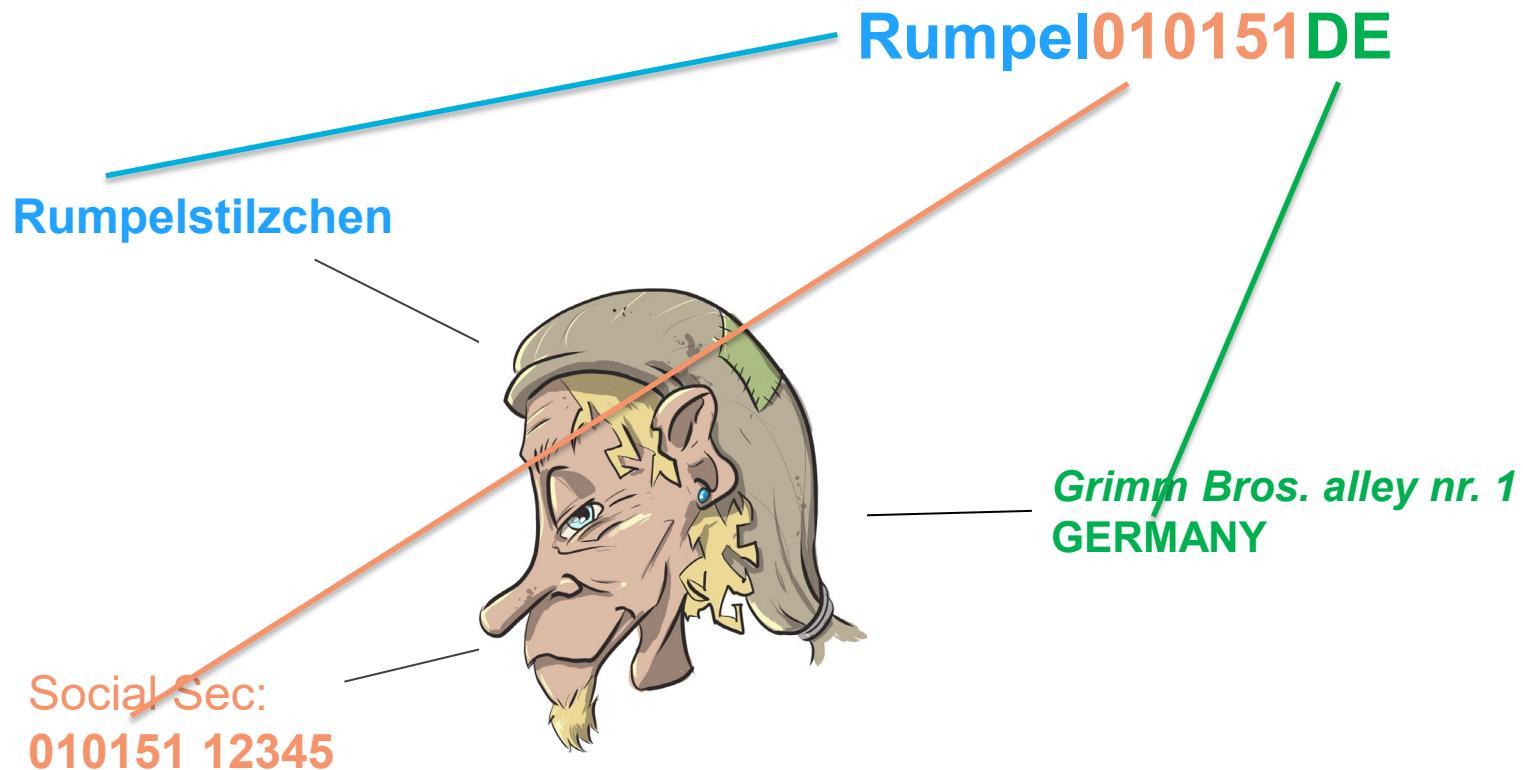
- Product

-HPHydraulics-Mod2-Filter6

= Function

=Unit1=MIV=Bypass valve

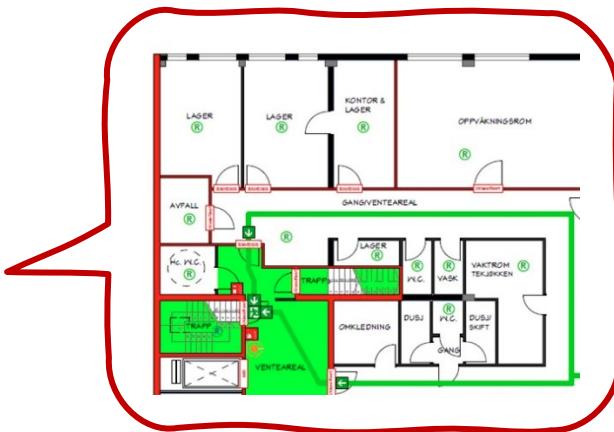




- ✗ +R2=A1-G4
- ✓ -B5.A1.LSW4
- ✓ +A2.HJ14.FG4

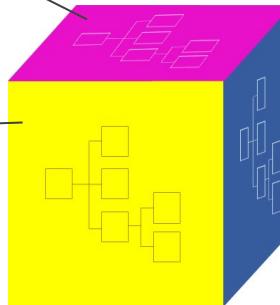
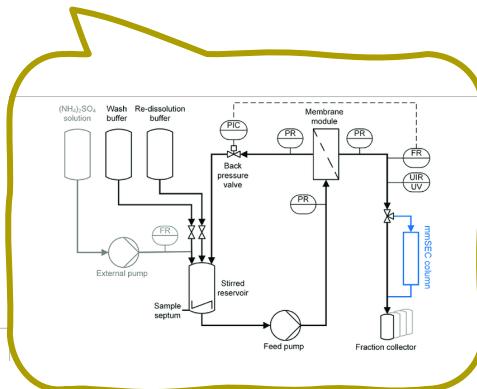
+ Location

+Plant+2floor+zone4



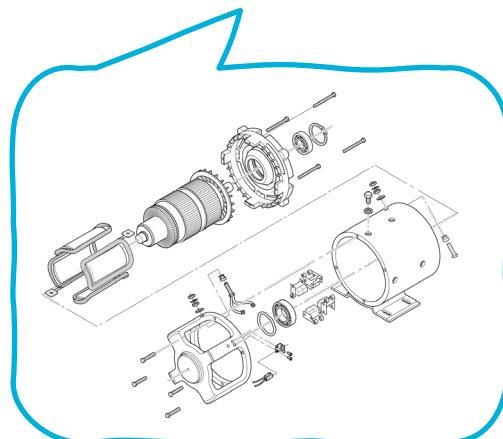
= Function

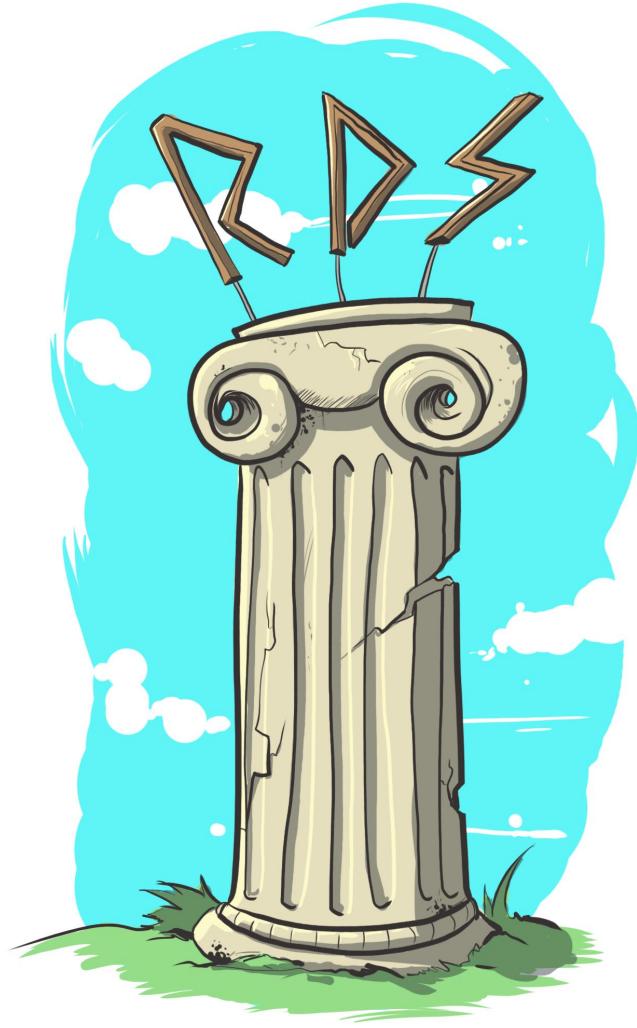
=Unit1=MIV=Bypass valve



- Product

-HPhydraulics-Mod2-Filter6





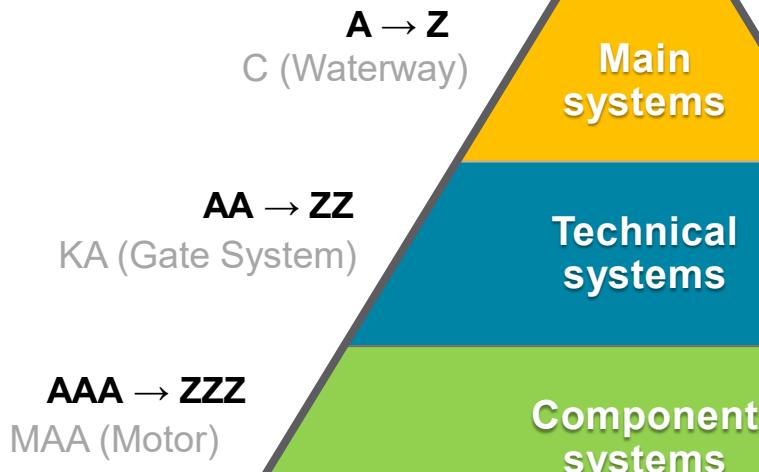
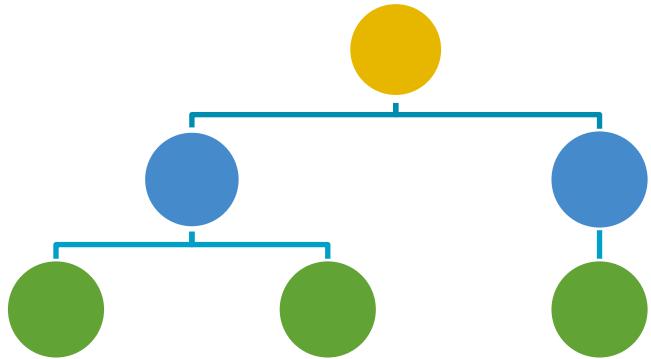
2 / 3

The Classification



Generic classes

“Call a spade a spade”



Aspect	Class	ID-number
-	X	1
=	XX	2
+	XXX	3
%		...

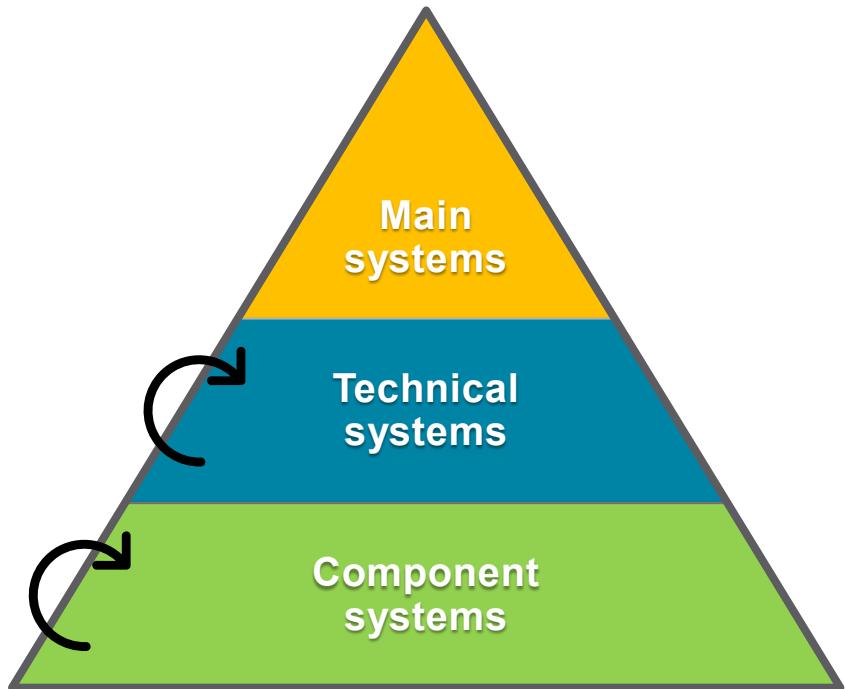
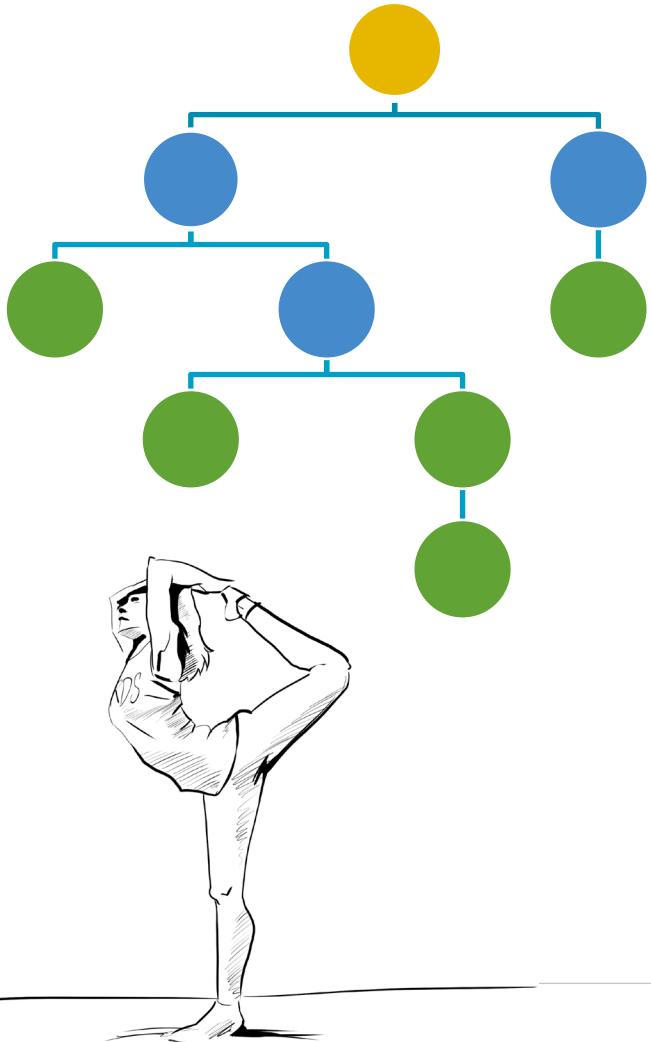
Reference
Designation

= BTA 3

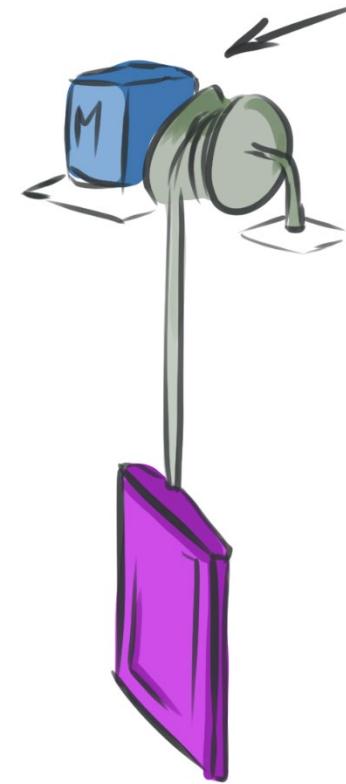
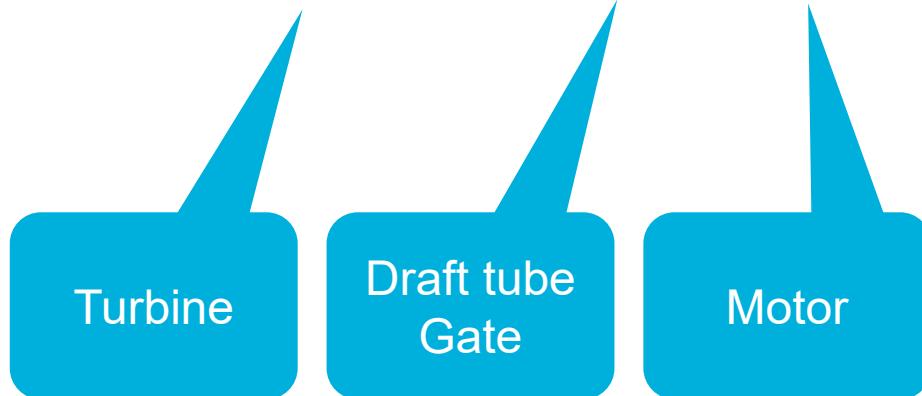


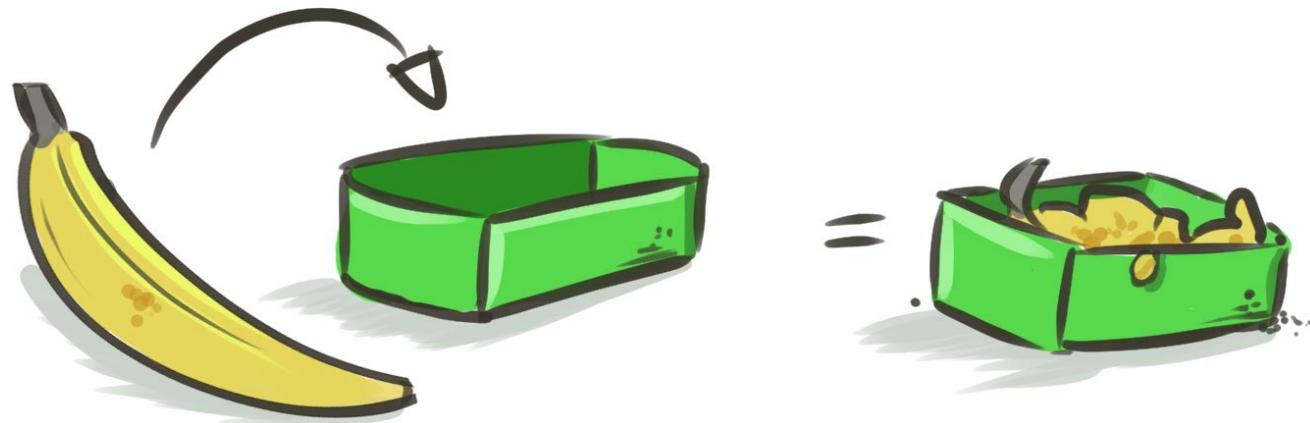
=A1.QE3.BTA1

TAG



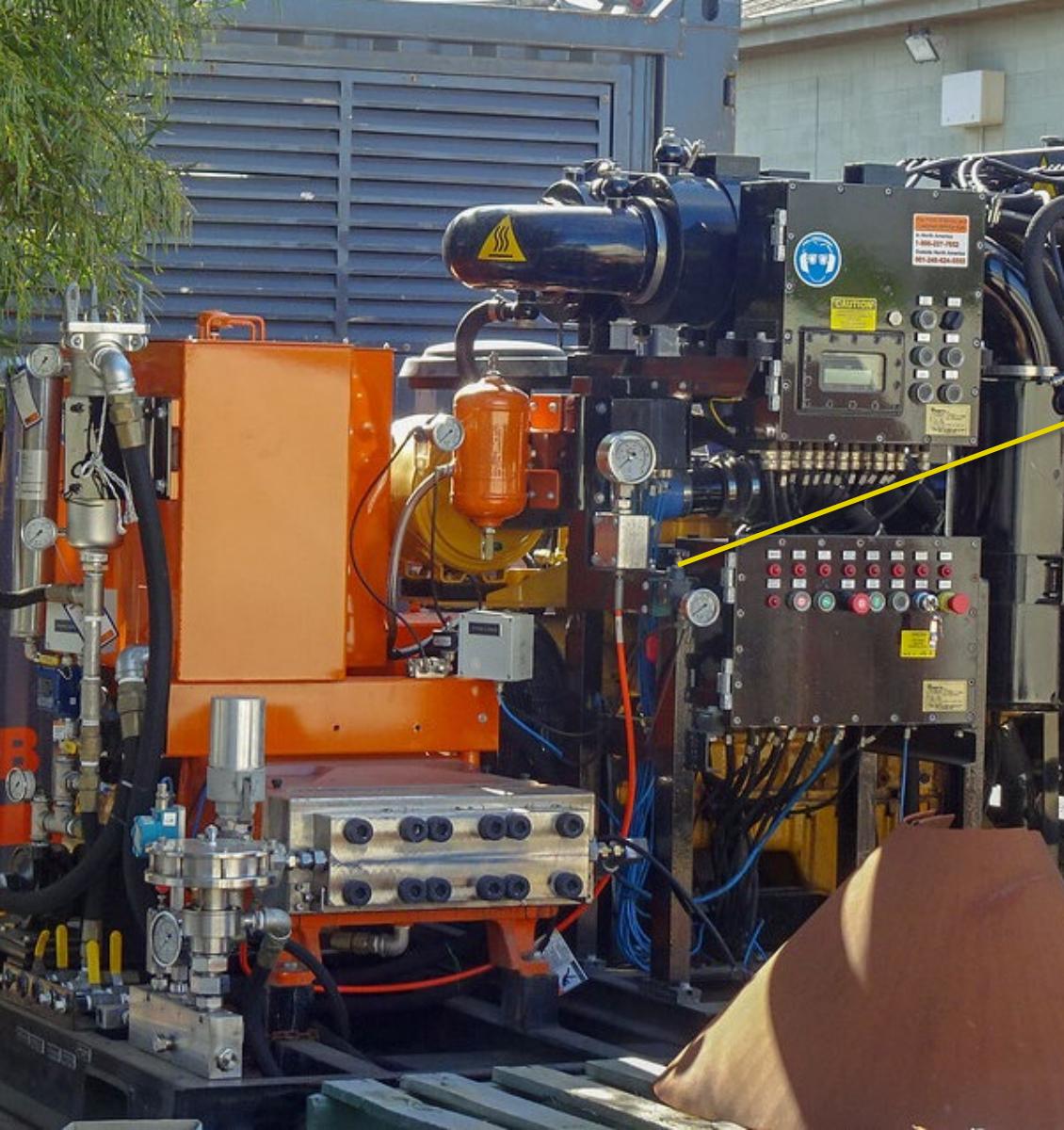
XXXX.411.001.410.112



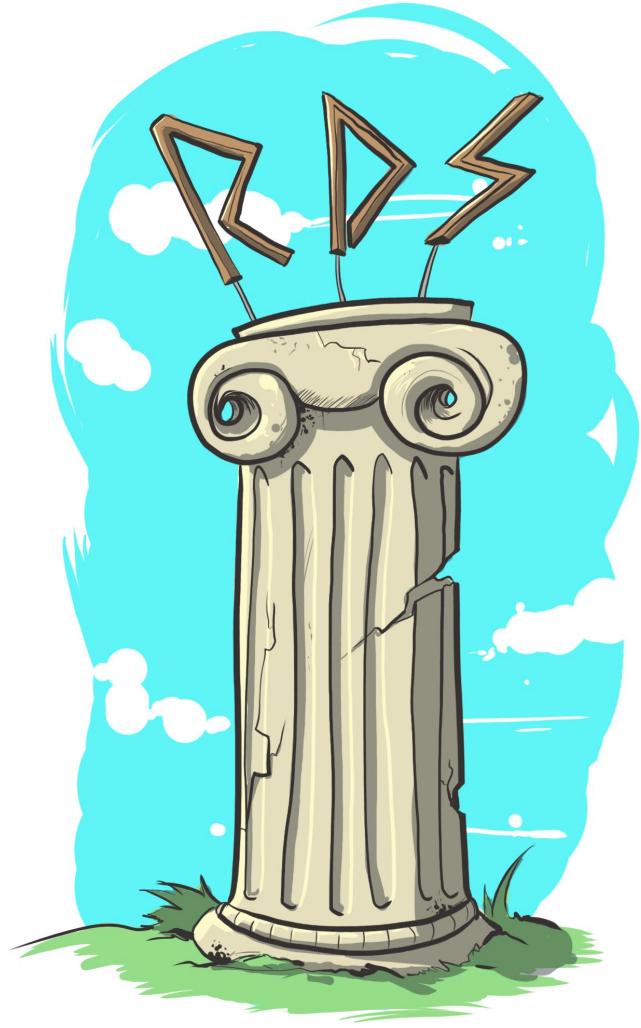




=A1.KA1.JB1.QMA1.MAA1.MMA1.BPA1



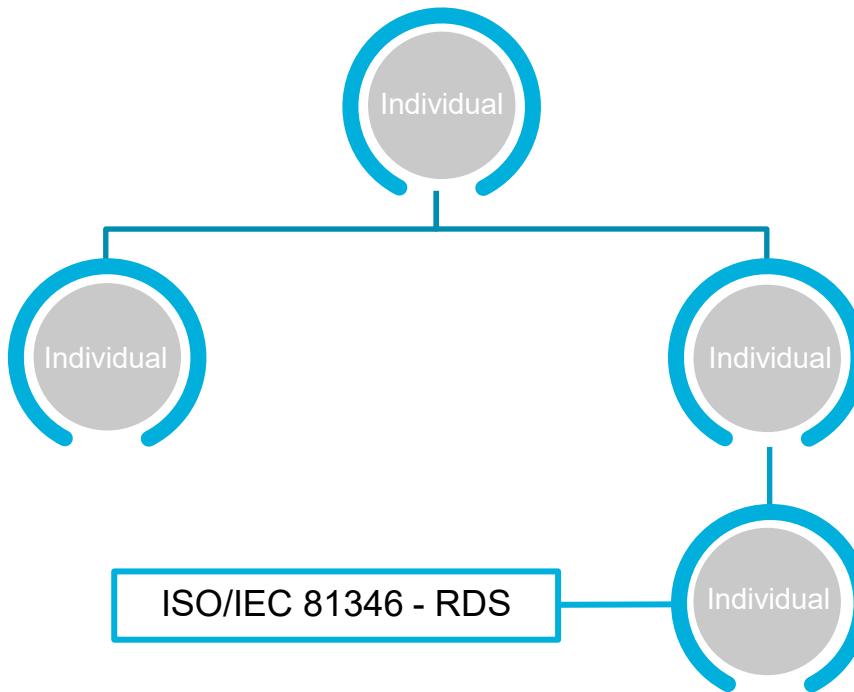
Standardized,
unambiguous tag



3 / 3

Concept:
Occurrences

The Occurrence and the individual



Centre Back



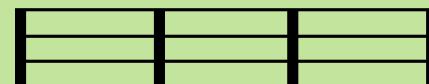
Full Back



Sweeper



Goalkeeper



RDS identifies objects within a systems

“The goalkeeper”

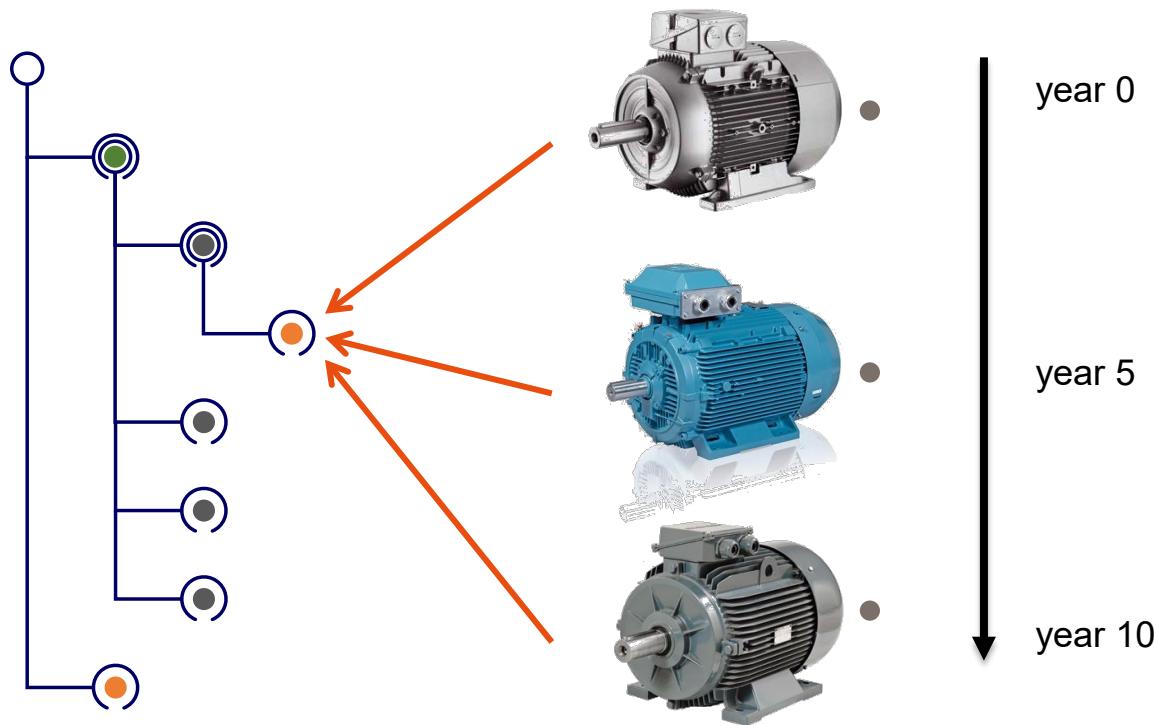


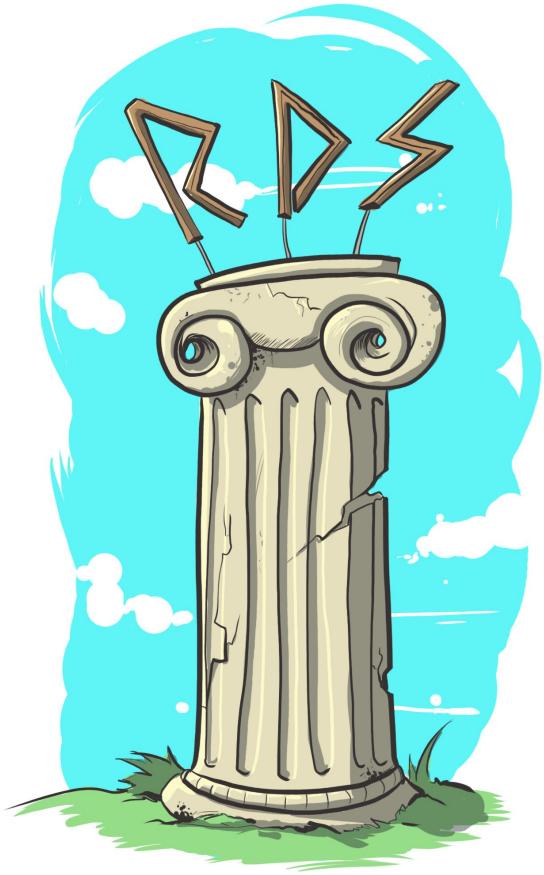
GUID identifies unique objects individuals

“Alisson Becker”

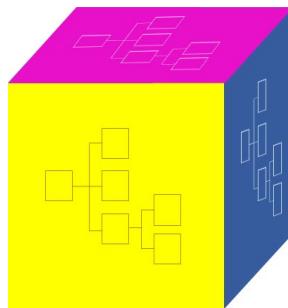


An MAA, is an MAA

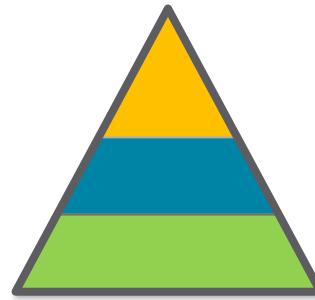




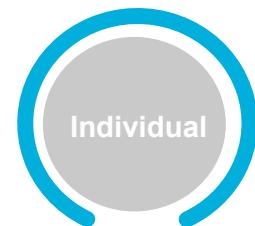
I



II



III



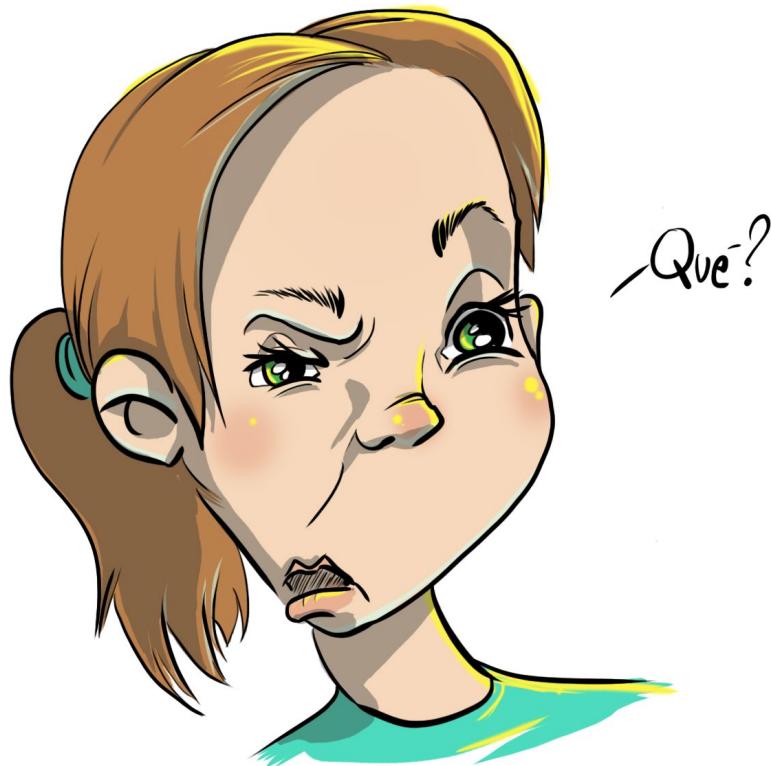
Individual

?



?

=AAAA1

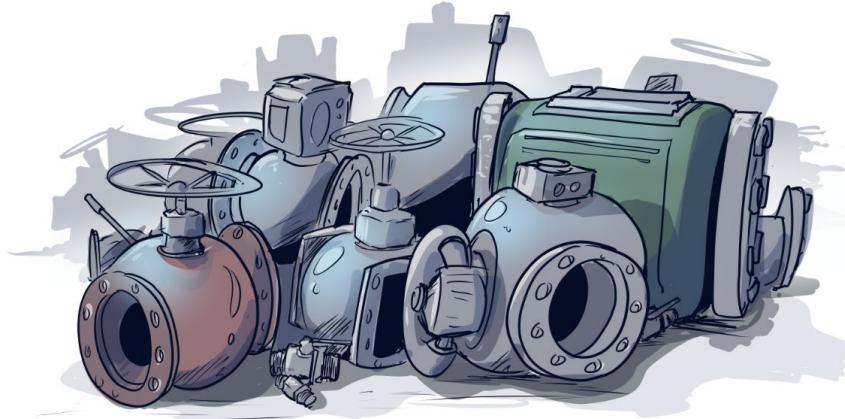




DETAILS

Top Node

The equipment manufacturer



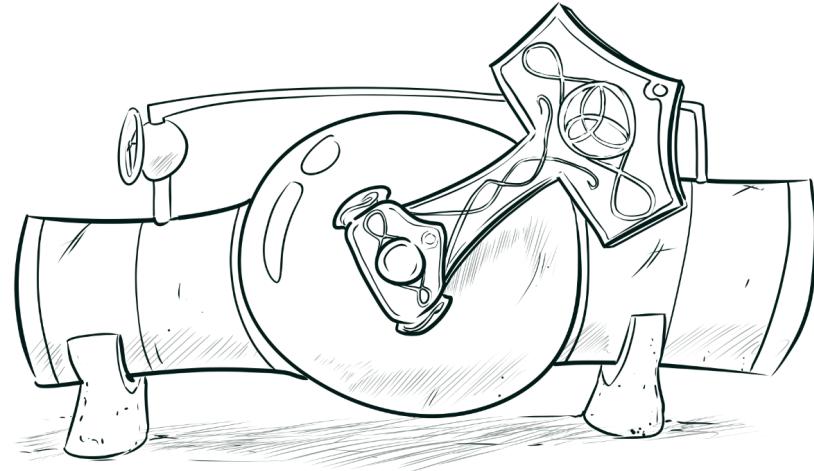
-QMA1.SGA1



Valve, handle

Top Node

The powerplant operator



-A1.KA1

Unit 1, Main Inlet valve

Top node = Context
Top node = Tool

<NO.RegS.HPP.Nore1.PS1>



The type aspect

A useful tool



HB – Liquid Matter Supply System Types

HB		
Liquid matter supply system		
%HB1	Water supply system	System supplying water
%HB2	Oil supply system	System supplying oil
%HB3	Fuel supply system	System supplying liquid fuel
%HB4	Firefighting liquid supply system	System supplying liquid for firefighting
%HB5	Other liquid supply system	System supplying other liquid
%HRn 1	High pressure	System supplying liquid at high pressure

The type aspect

A useful tool

\n

<Alta1.PS1>-D1.HB1/%HB2

<SK-Type.PS1>%HB2

<Supplier1.PS1>%HB4.HB2

HB Liquid matter supply system		
%HB1	Water supply system	System supplying water
%HB2	Oil supply system	System supplying oil
%HB3	Fuel supply system	System supplying liquid fuel
%HB4	Firefighting liquid supply system	System supplying liquid for firefighting
%HB5	Other liquid supply system	System supplying other liquid
%HRn 1	High pressure	System supplying liquid at high pressure

Liquid matter transport system

Multiple domains

<Alta1.**PS1**>=something=Sprinkler

<Alta1.**CW1**>=someotherthing=Sprinkler

► ISO 81346-10 – Power Plant (PS)

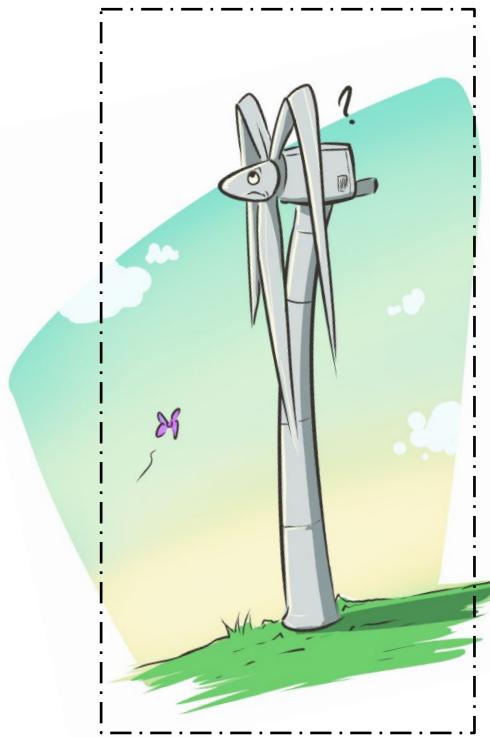
► ISO 81346-12 – Construction Works (CW)



Why?

Multiple domains

<PP2.PS1>-A1



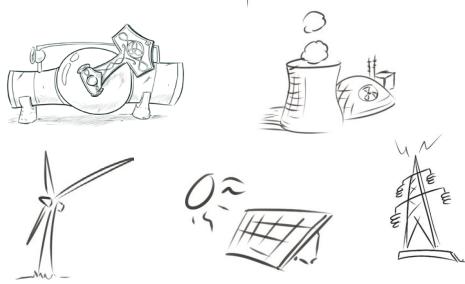
Modelling choices

- ▶ Different companies
- ▶ Different requirements & needs
- ▶ Different solutions work best

- ▶ RDS provides flexibility
- ▶ Choices must be documented



<NO.RegS.HPP.PersKraftverk.PS1>



Wind Modelling Principles



TIM Wind

Power Modelling Principles



ISO 81346-101

Statkraft Modelling Principles





How about now?



Don't fall asleep

► Backup Generator



= ___1

► Guide bearing



= ___1

► Reservoir



= _1

► Excitation system



= ___1

► Roof photovoltaic system



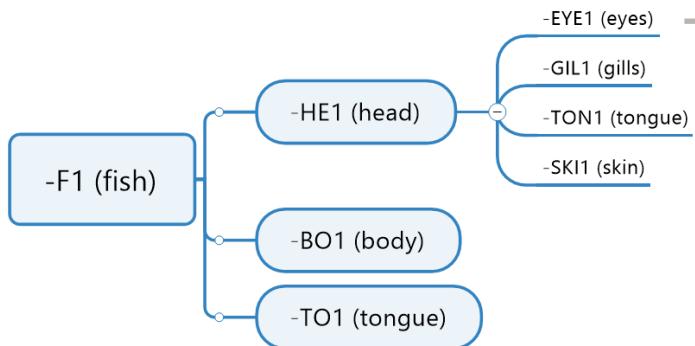
= ___1

► Gate



= ___1

RDS and friends



-F1.HE1.EYE1

Part of: Fish1, head1

Class: EYE – Seeing device

Color?

...

DIGITAL
TWIN

Knowledge Graph

BIM

Interoperability



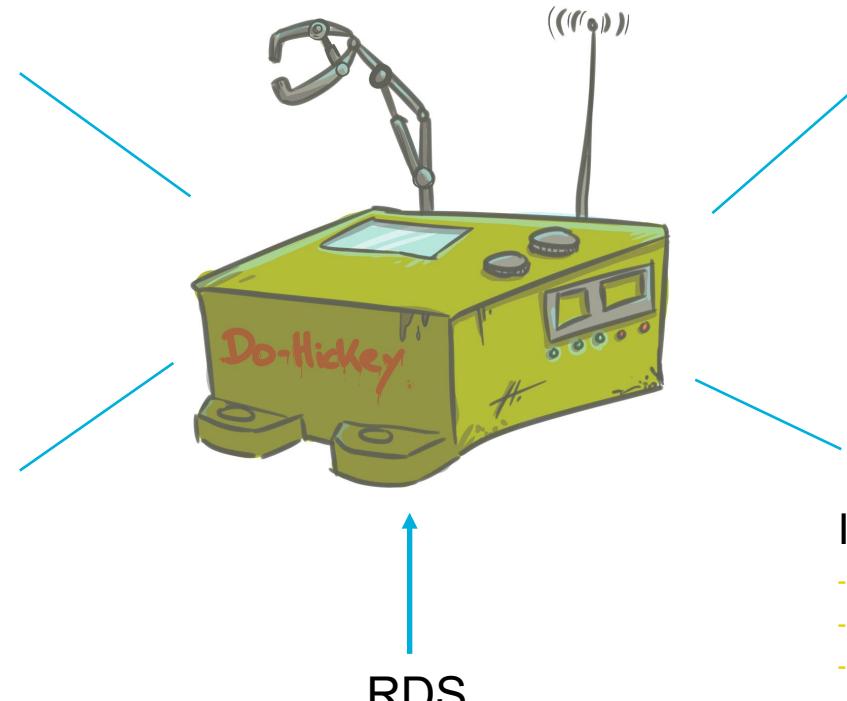
Signals and data:

- Measured values
- Control signals



Documentation:

- Assembly
- Single line diagram
- Purchasing doc.
- Warranties
- Operations instruction



Attributes:

- Serial number
- Manufacturer
- Size & weights



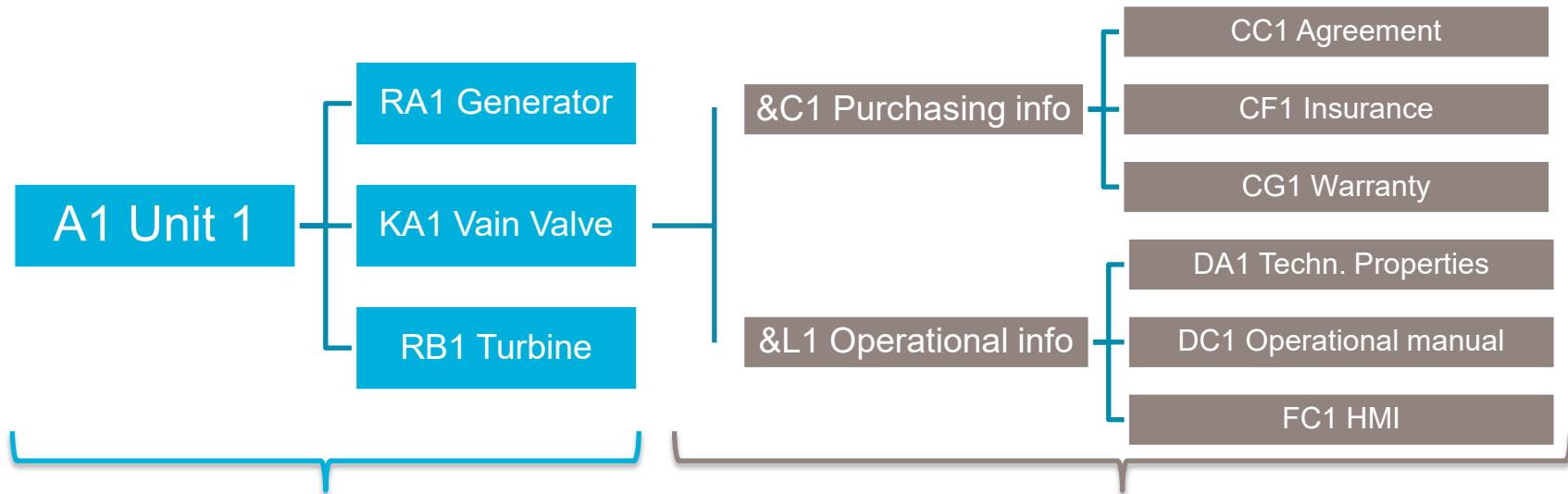
Internal information:

- Responsible unit
- Link to spare part register
- Maintenance (historical)
- Other identifiers

Doc.

A1.KA1&C1.CG1

Unit1, Main Valve Contractual warranty doc.



IEC/ISO 81346 (RDS)

Object Reference

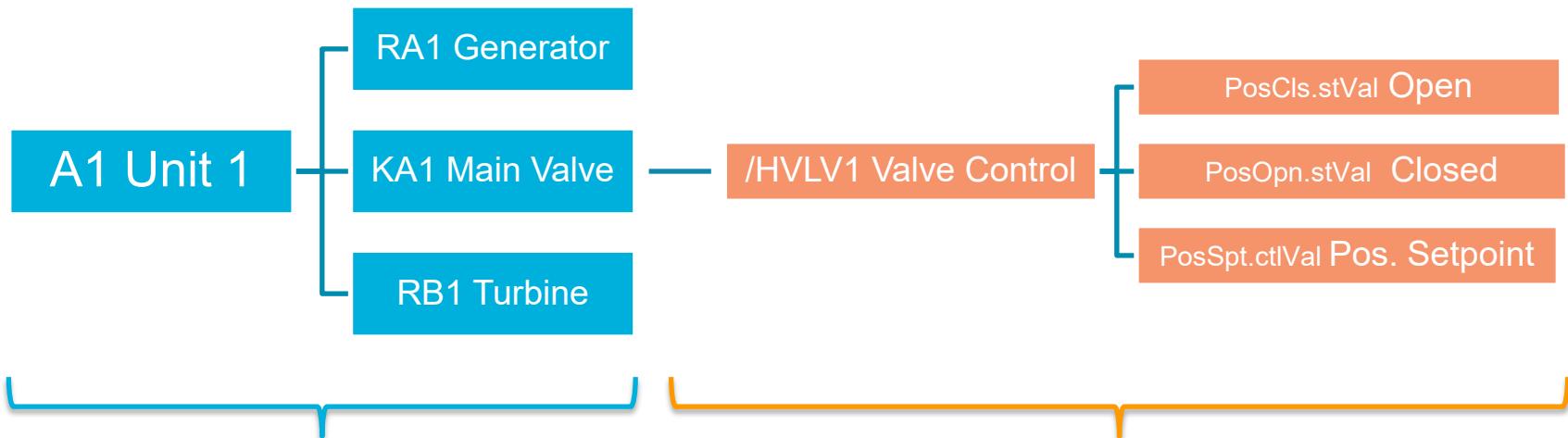
IEC 81355

Documentation

Signal

A1.KA1/HVLV1.PosOpn.stVal

Unit1, Main Valve Open State (true/false)



IEC/ISO 81346 (RDS)

Object Reference

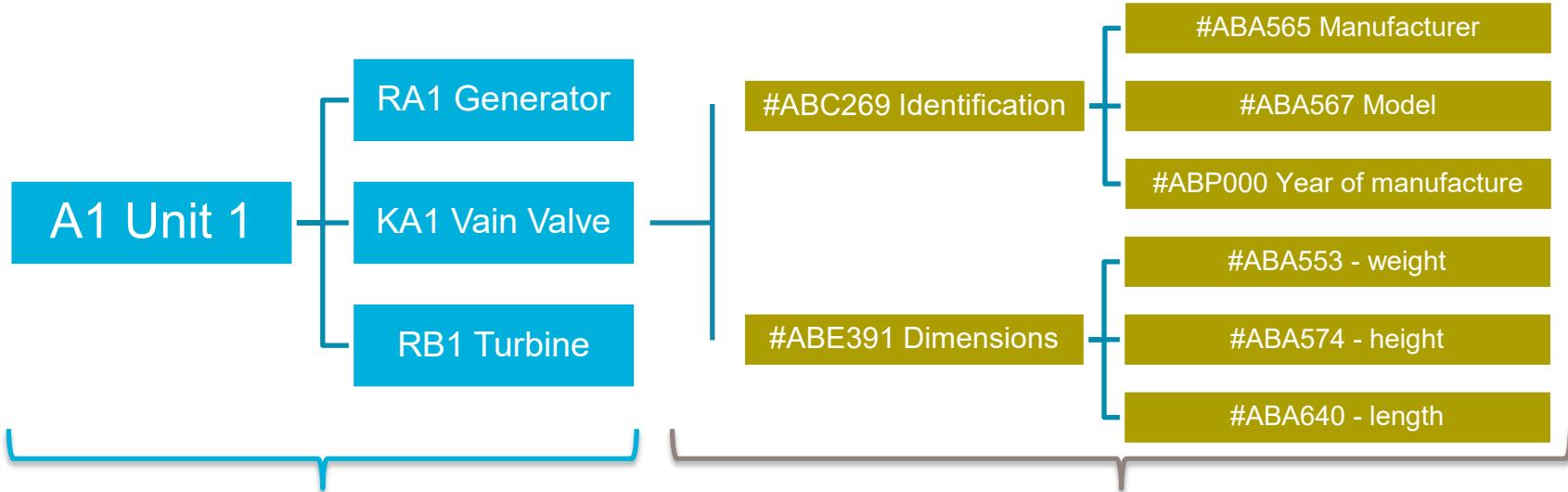
IEC 61850-7

Signal Modelling

Attribute

A1.KA1#ABA553

Unit1, Main Valve Weight



IEC/ISO 81346 (RDS)

Object Reference

IEC 61987 (CDD)

Attributes



International
Organization for
Standardization



INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

Signal

A1.KA1/HVLV1.PosOpn.stVal

Unit1, Main Valve Open State (true/false)

Doc.

A1.KA1&C1.CG1

Unit1, Main Valve Contractual warranty doc.

Attribute

A1.KA1#ABA553

Unit1, Main Valve Weight

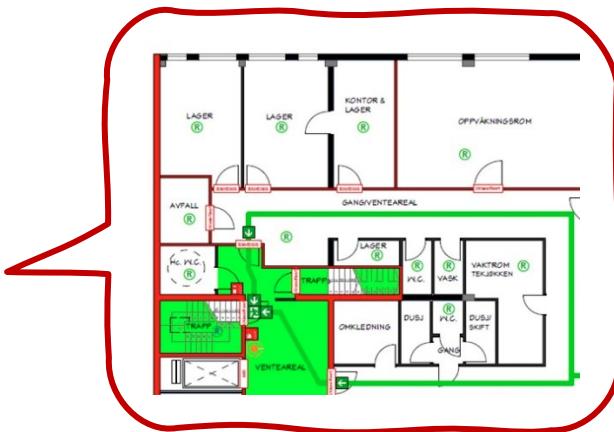




The strength of aspects

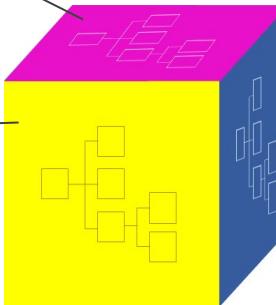
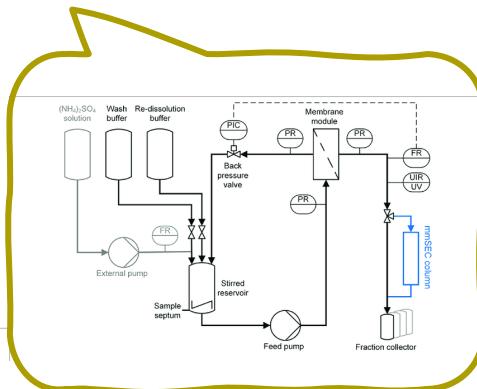
+ Location

+Plant+2floor+zone4



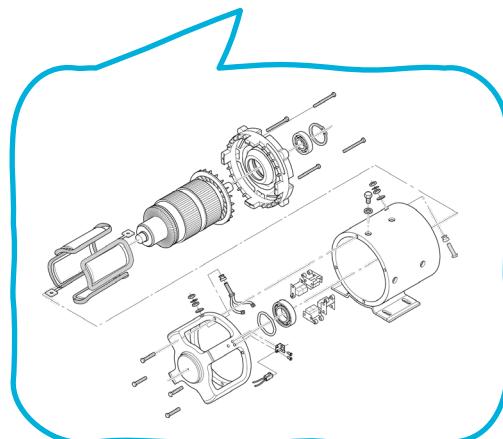
= Function

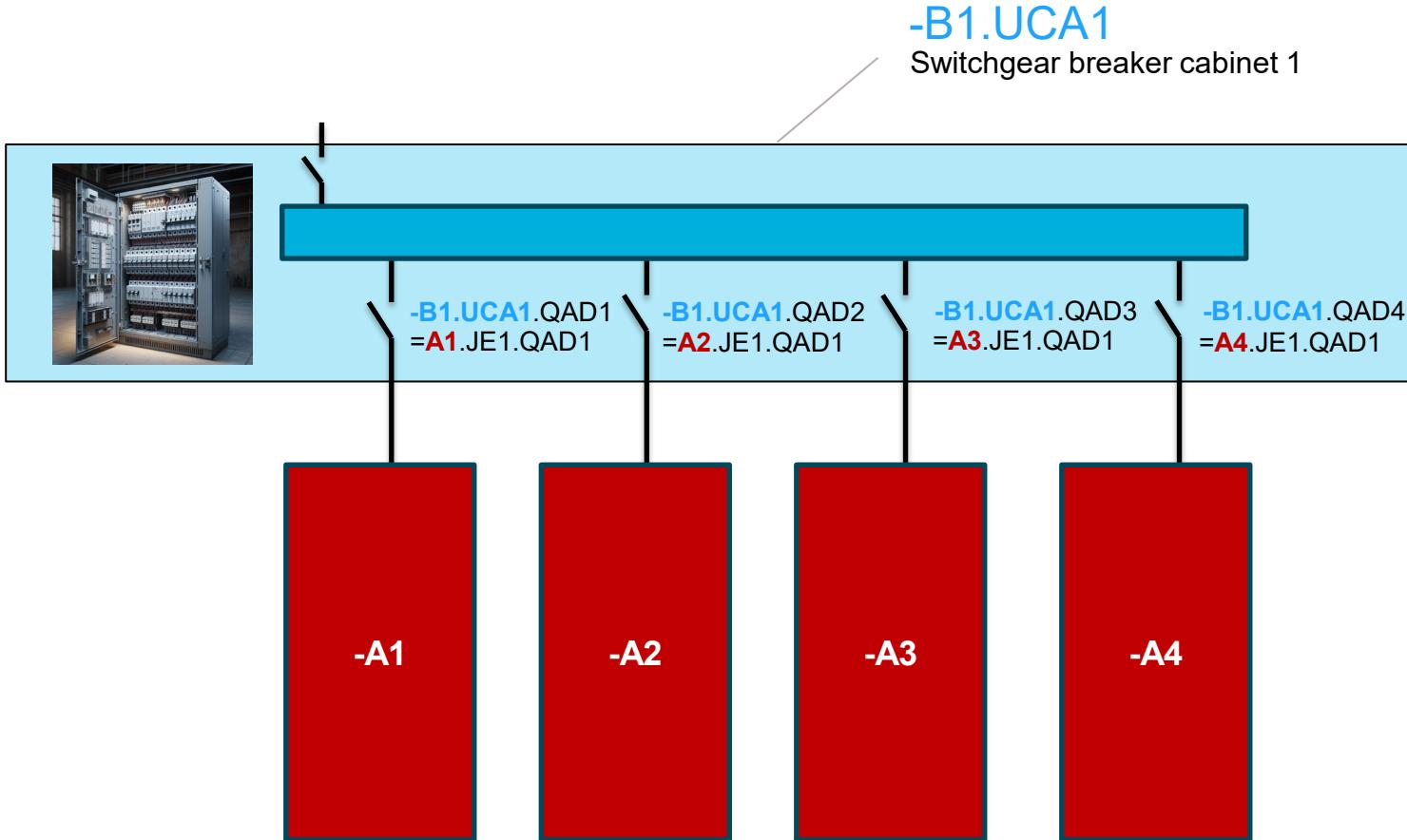
=Unit1=MIV=Bypass valve



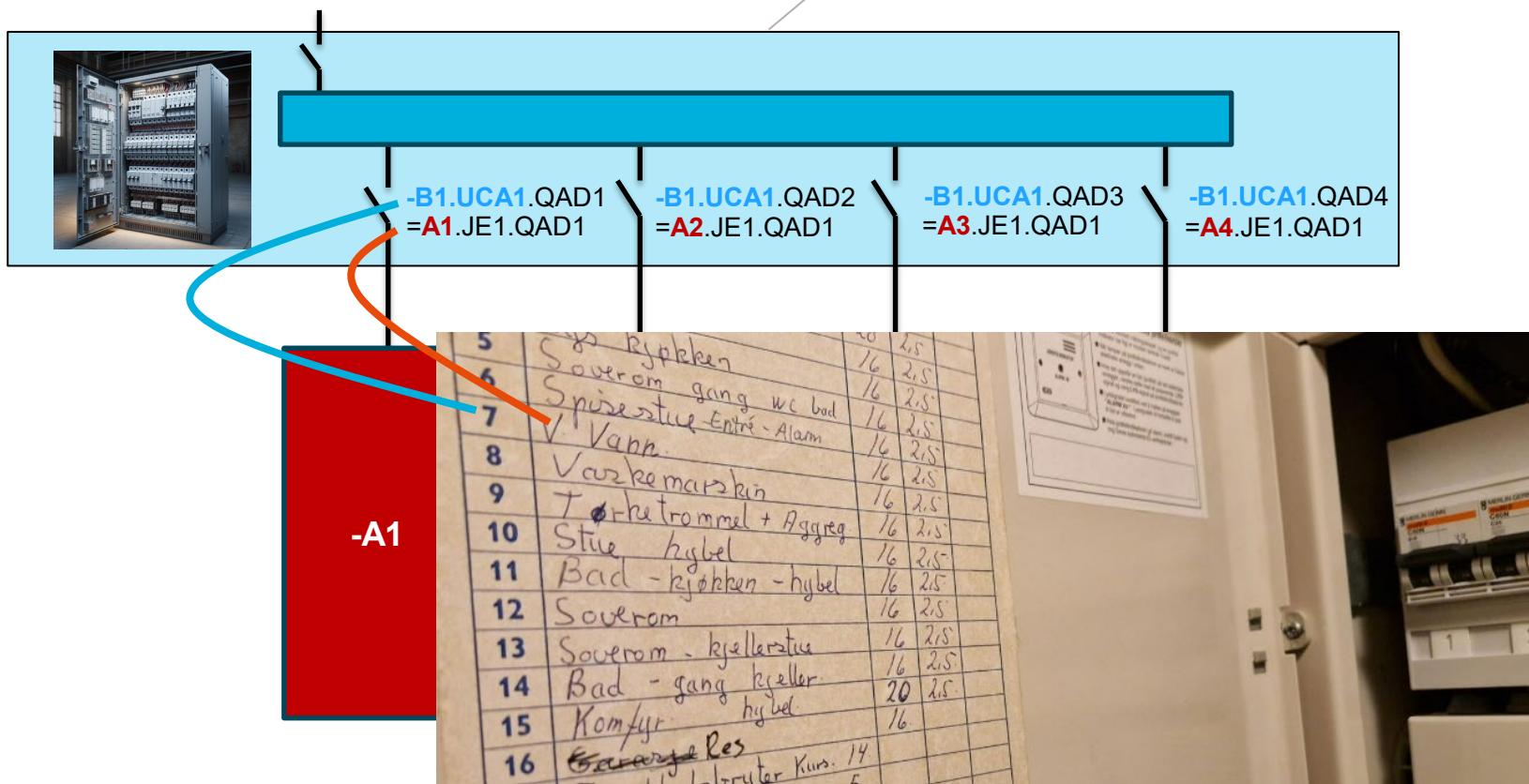
- Product

-HPhydraulics-Mod2-Filter6

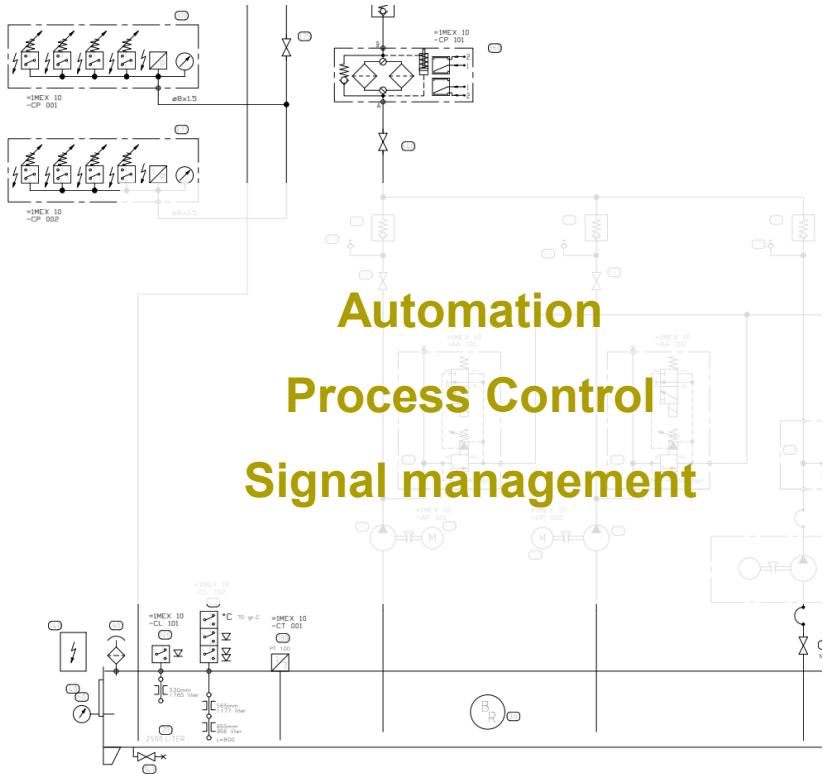
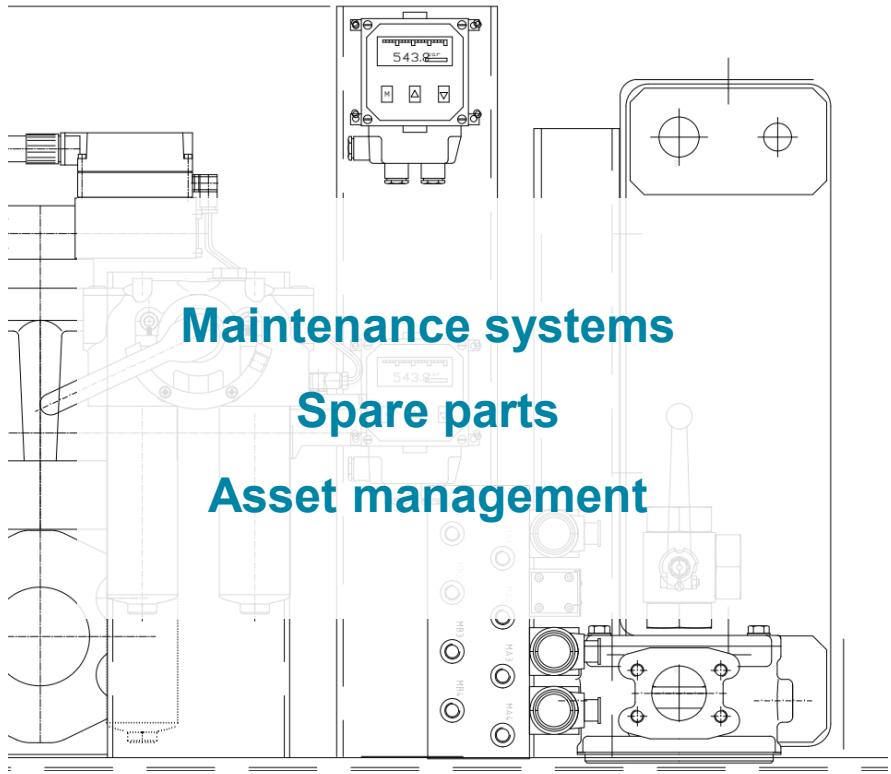




-B1.UCA1
Switchgear breaker cabinet 1



Why are they different?



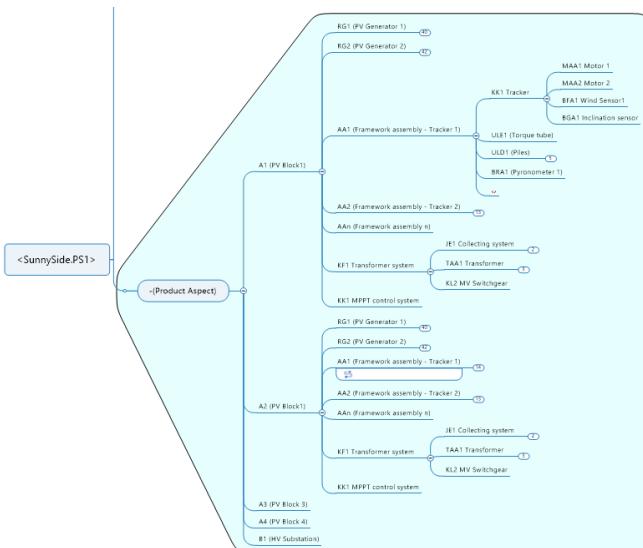
=A1.KA1

“It's a digital name”

Unit 1. main inlet valve



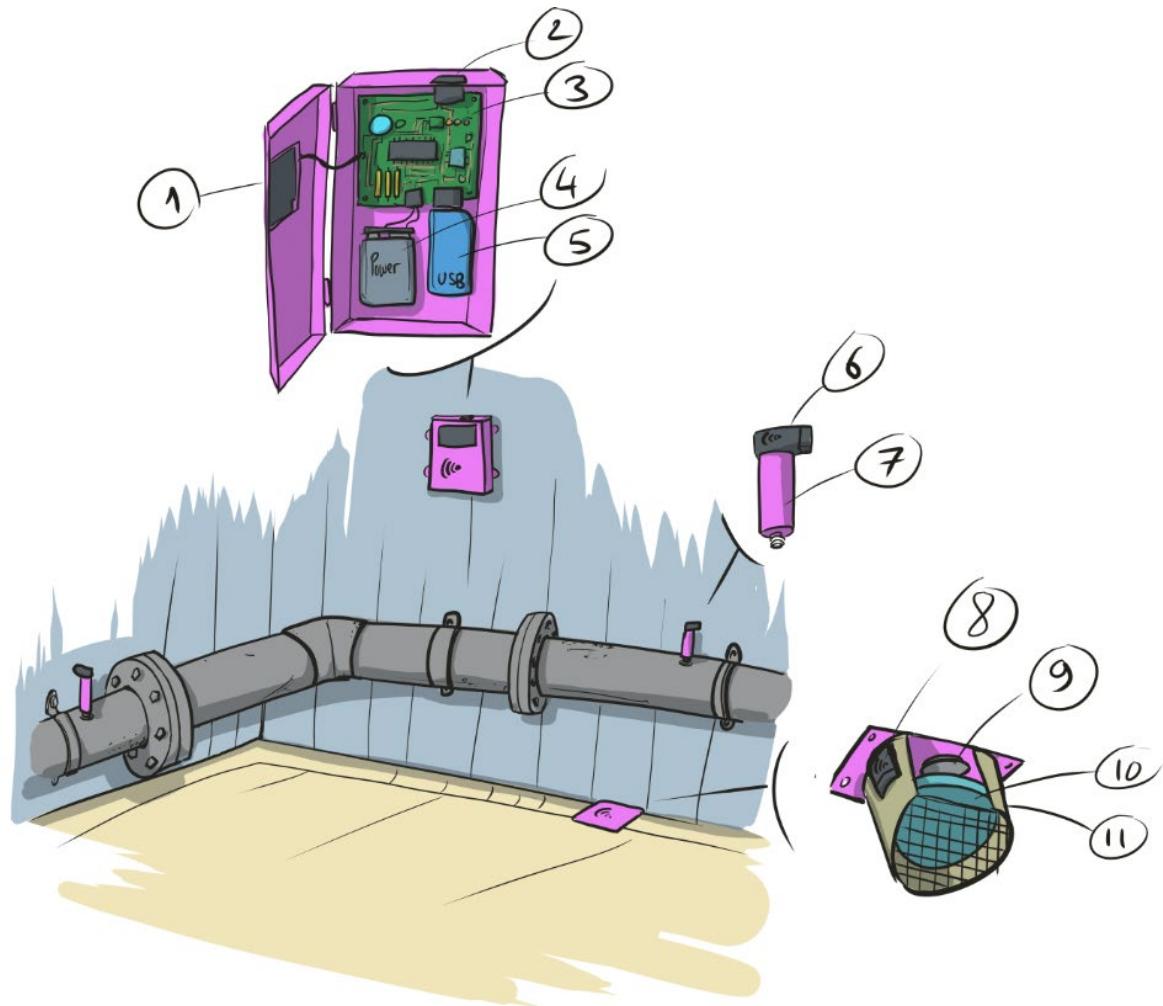
“Invest in modelling, gain in user friendliness”





Examples of use

The leakage monitoring system

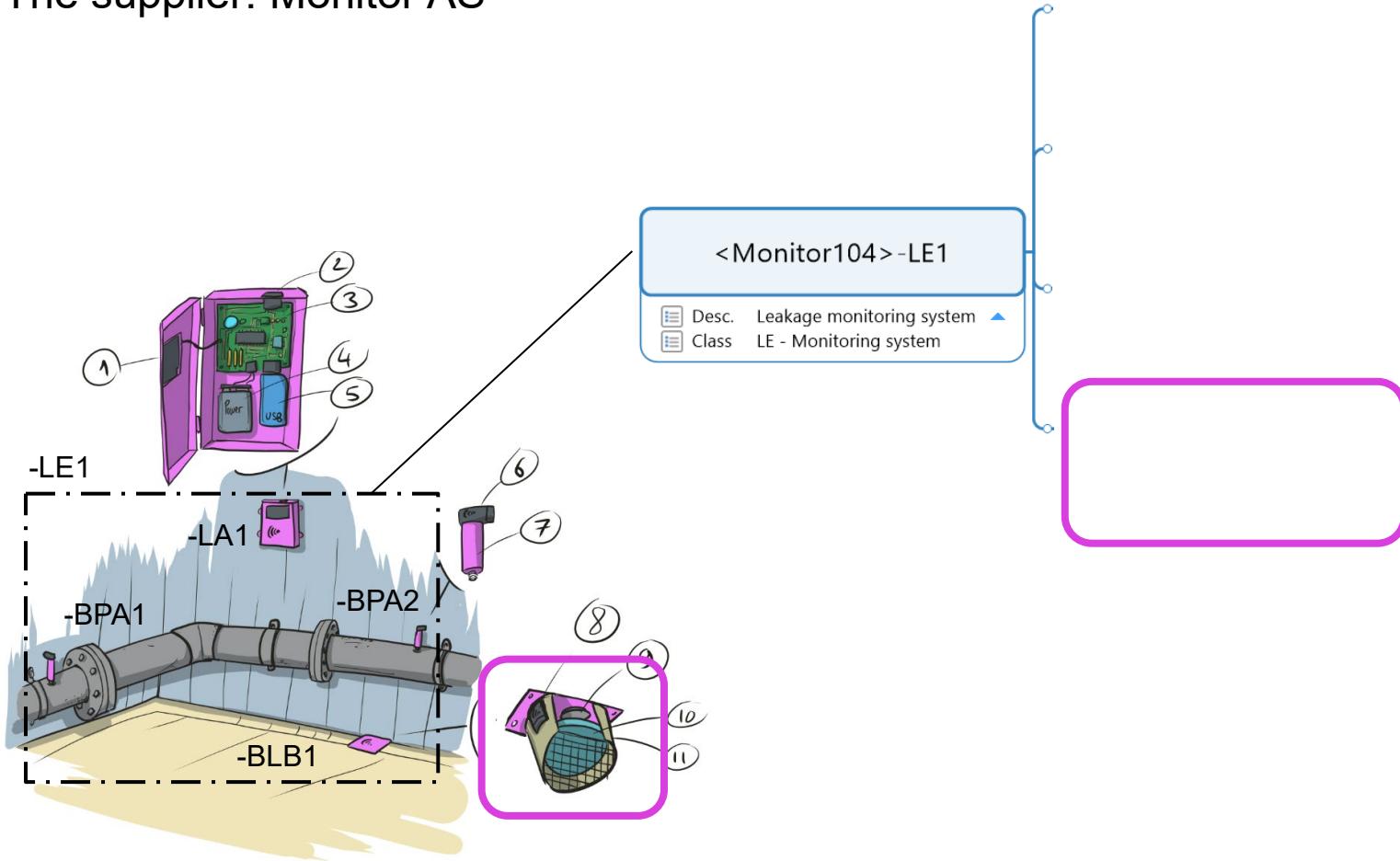


1. Touch screen
2. Bluetooth signal dongle
3. Main board
4. Battery
5. Data storage solution
6. Bluetooth emitter (x2)
7. Pressure sensor (x2)
8. Bluetooth emitter
9. Touch sensor/button
10. Floater
11. Housing

What are the main parts of this system?

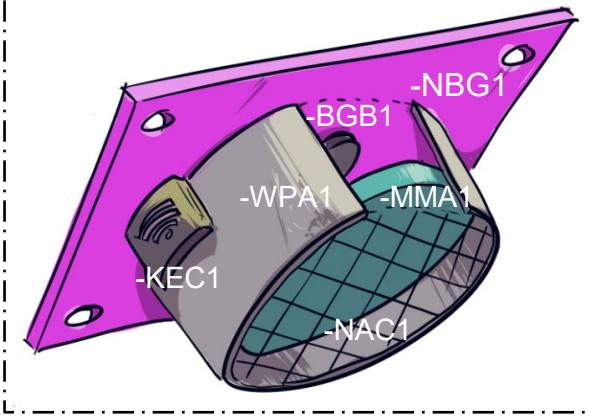
Let's dissect it...

The supplier: Monitor AS



The supplier: Monitor AS

<Monitor104>-LE.BLB1



-BLB1

- [] Desc. Level switch
- [] Class BLB - level switch

-NBG1

- [] Desc. Cover
- [] Class BLB - plug
- [] Class def. BLB - closure object in a pipe

-WPA1

- [] Desc. Housing
- [] Class WPA - pipe
- [] Class def. WPA - closed enclosure guiding object in a circular rigid form

-NAC1

- [] Desc. Grating
- [] Class NAC - Grating

-MMA1

- [] Desc. Floater
- [] Class MMA - Hydraulic Cylinder

-KEC1

- [] Desc. Bluetooth device
- [] Class KEC - Communication device

-BGB1

- [] Desc. Switch
- [] Class BGB - position switch

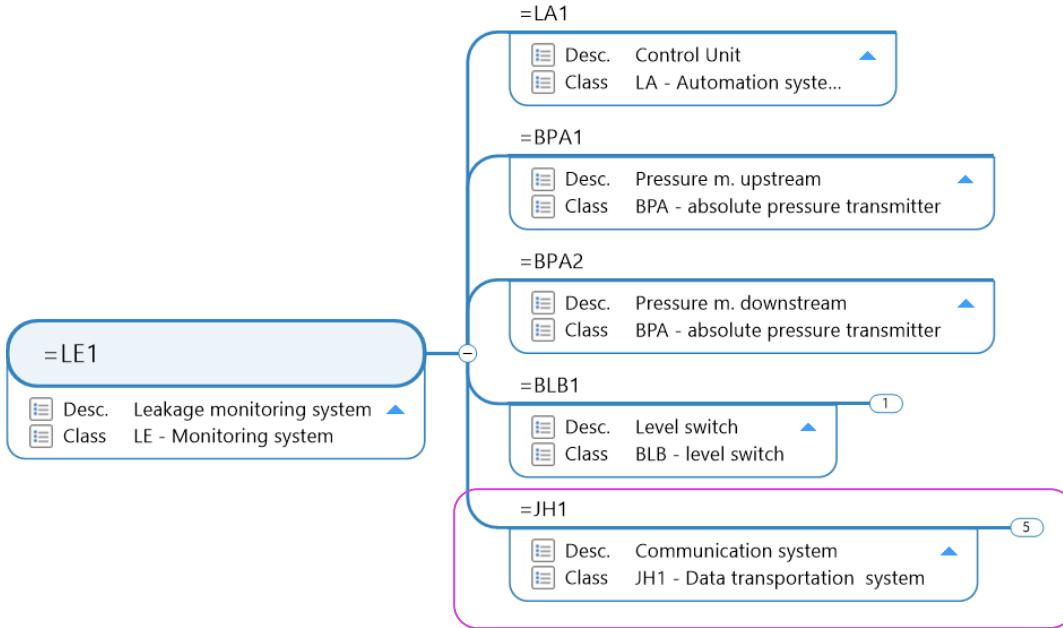
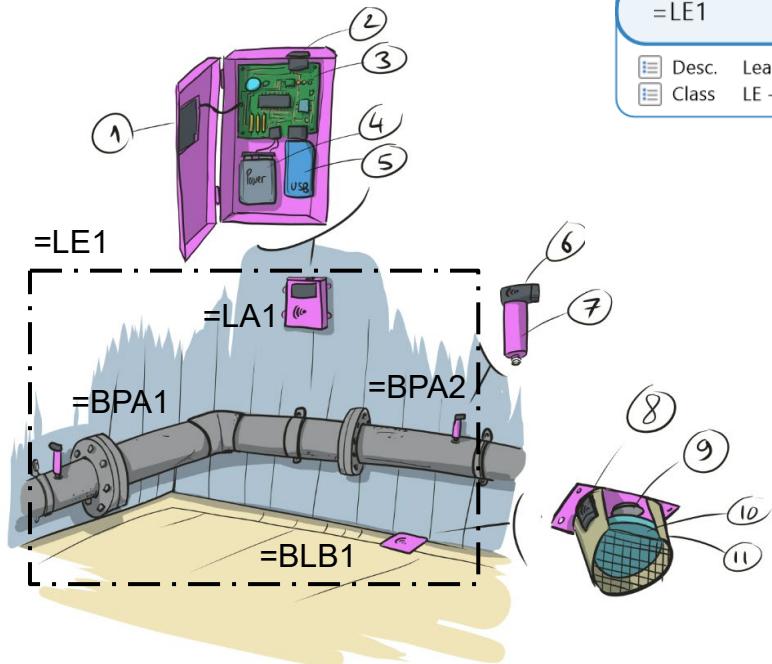
What are the main parts of this system?

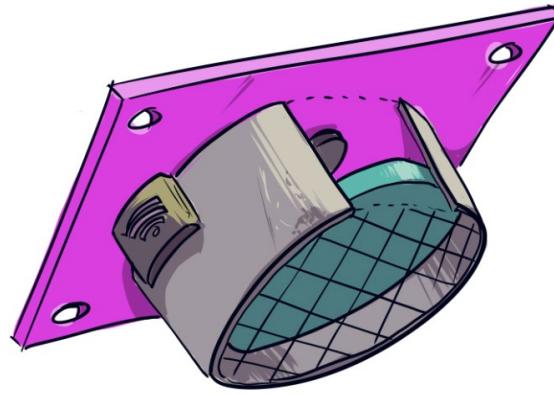
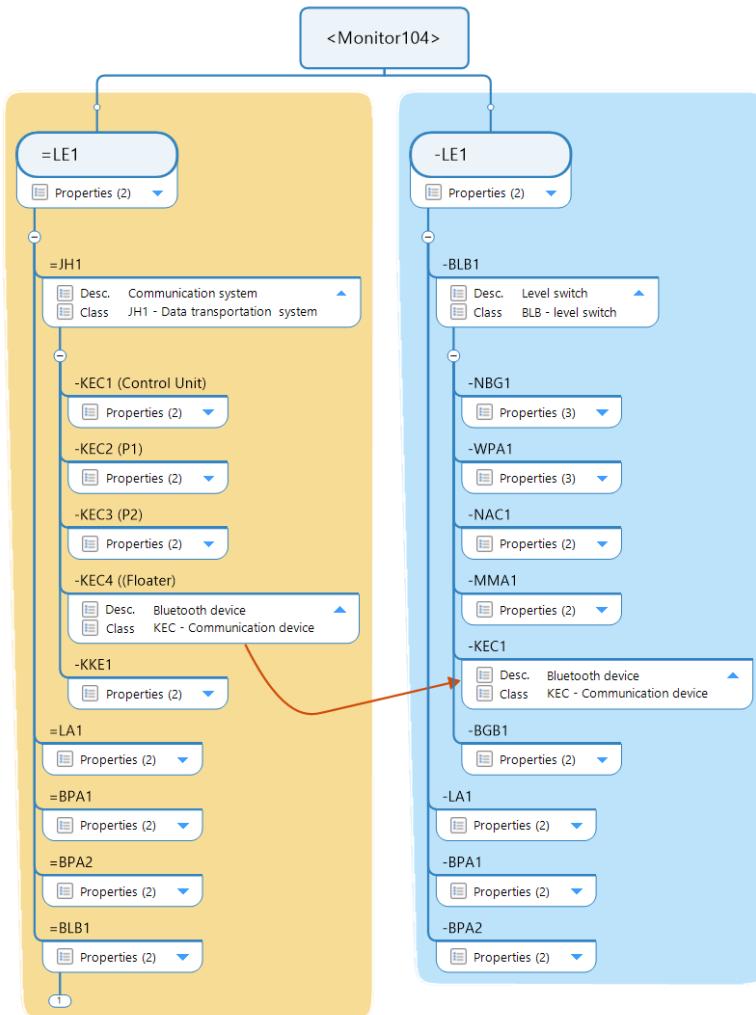
Let's dissect it...

What are the main features of this system?

Let's dissect it...

The supplier: Monitor AS

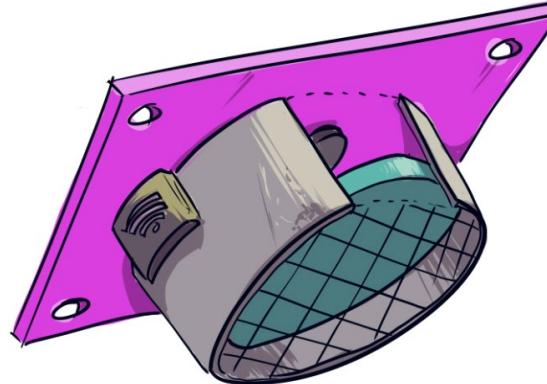
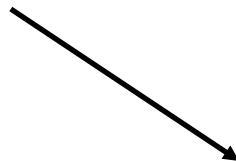




<Monitor104>=LE1.JH1.KEC4
Monitoring system, communication system, BT device 4

<Monitor104>-LE1.BLB1.KEC1
Monitoring system, Floater, BT device

Makes sense for automation,
data acquisition and analysis



<Monitor104>=LE1.JH1.KEC4

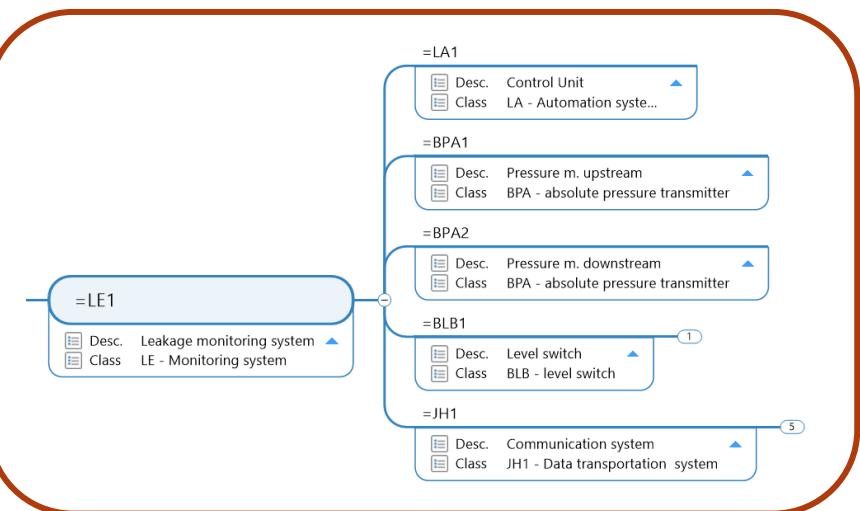
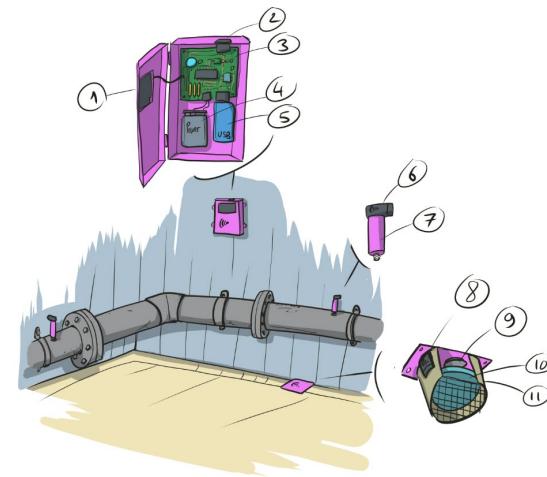
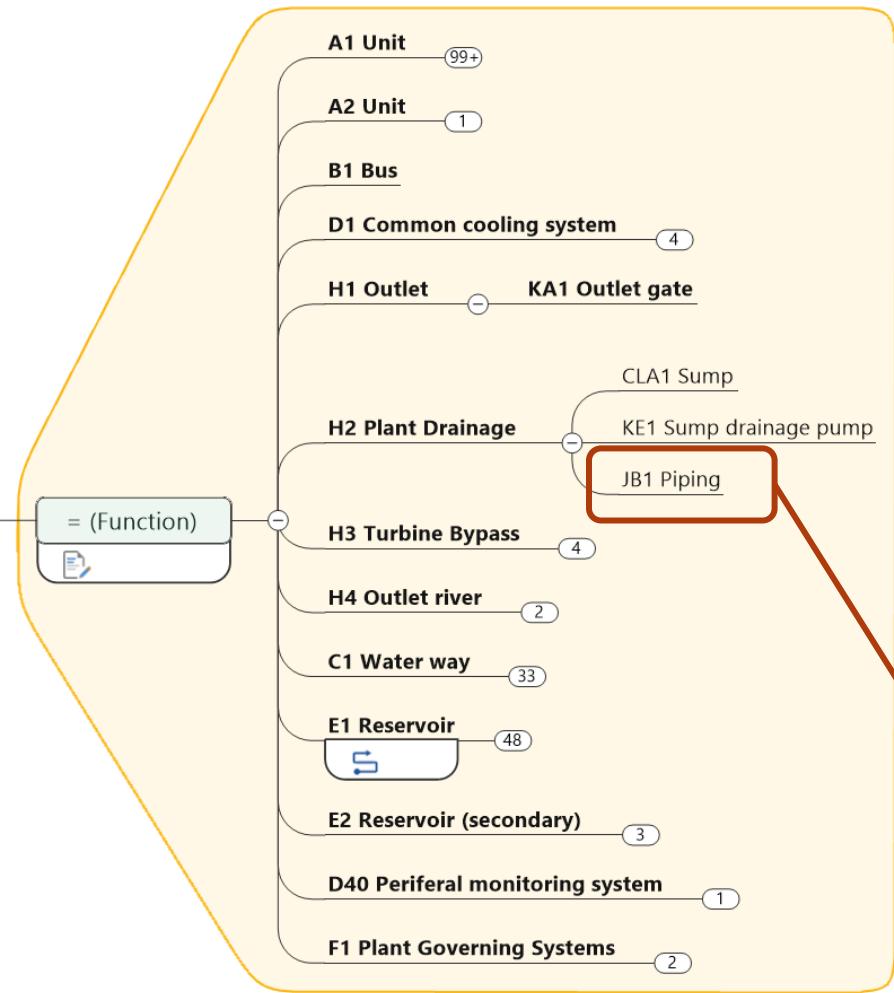
Monitoring system, communication system, BT device 4

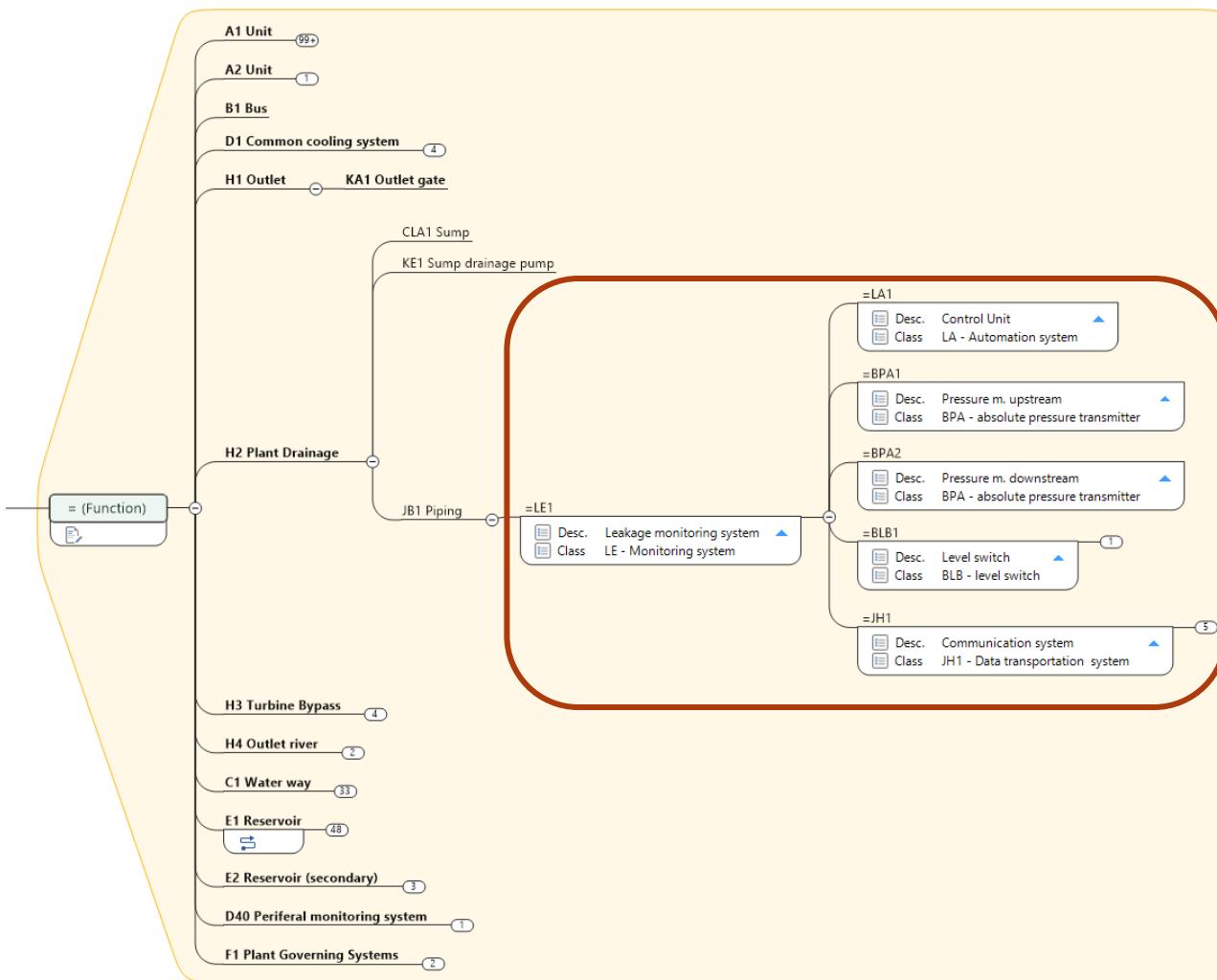
<Monitor104>-LE1.BLB1.KEC1

Monitoring system, Floater, BT device

Makes sense for assembly
drawings & component views









STATUS

Å ENERGI



Lunch break until ~~12:45~~ 12:15
(sorry)

BANE NOR



Statkraft

Implementation principles:

- ▶ Step-by-step
- ▶ Only what is relevant

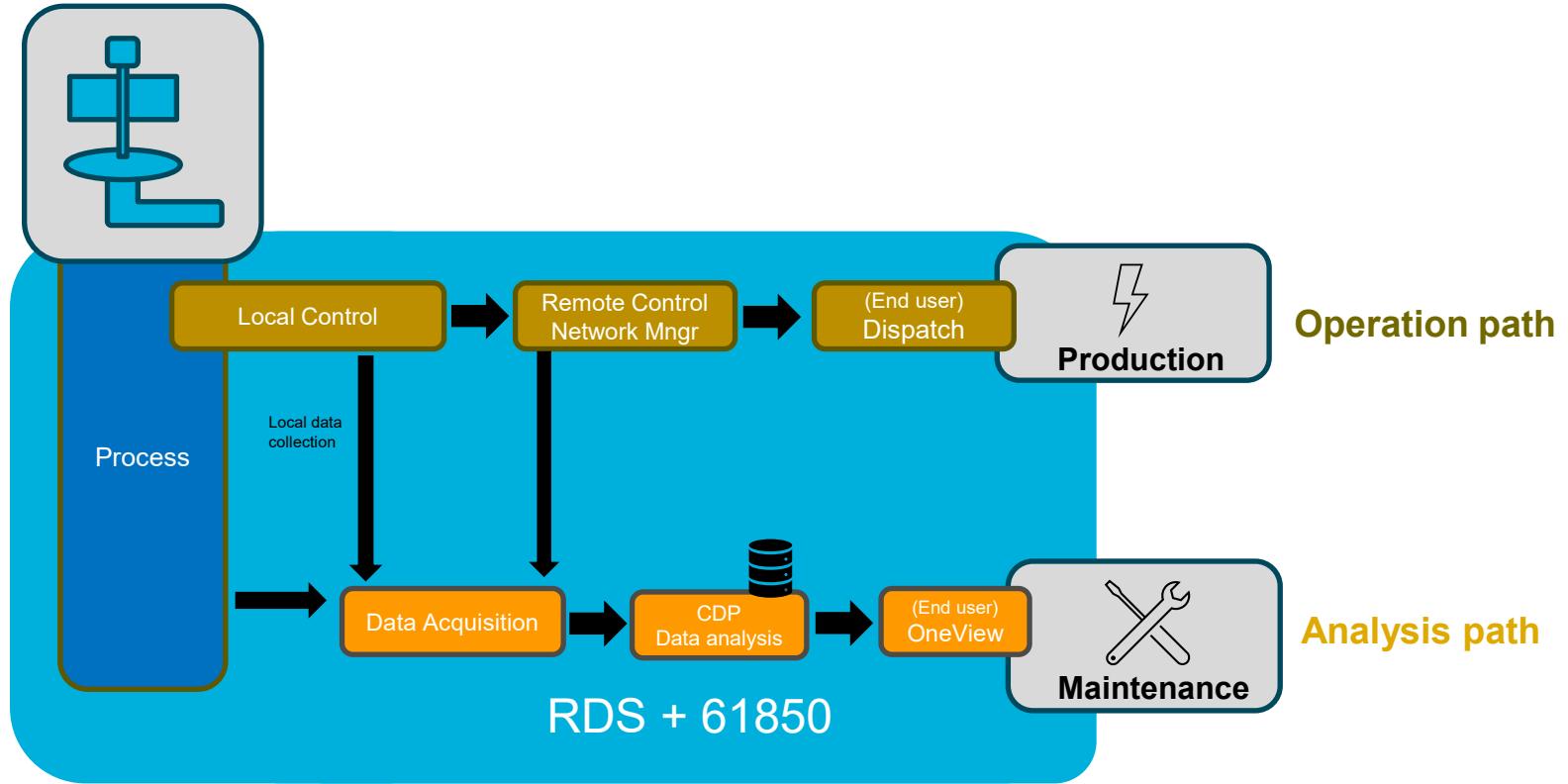
Implementation initiatives

- ▶ Hydrology, Solar
- ▶ Implemented: Data acquisition and analysis (Hydro)
- ▶ Start: ADA



Implementation:

Data acquisition and analysis





Element	Info
BLAGER	D_APMP1_A
BLAGER	D_APMP1_PA
BLAGER	D_APMP1HND
BLAGER	D_APMP2_PA
BLAGER	D_APMPAUT
BLAGER	D_APMPAUTA
BLAGER	D_APMPAUTD
BLAGER	D_APMPDHO
BLAGER	D_APMPDRI
BLAGER	D_APMPFI
BLAGER	D_APMPHOV
BLAGER	D_APMPKLA
BLAGER	D_APMPKLAR
BLAGER	D_APMPMAN
BLAGER	D_APMPRES
BLAGER	D_APMPSTR
BLAGER	D_APMPSTTR
BLAGER	D_APMPTRNO
BLAGER	D_APMPTRKLA
BLAGER	D_AUTOA
BLAGER	D_AUTOD
BLAGER	D_AVLPMPDR
BLAGER	D_AVLPMPFJ
BLAGER	D_AVLVENT
BLAGER	D_DCAVLPAU
BLAGER	D_DCAVLPDR
BLAGER	D_DCAVLPMP
BLAGER	D_DCAVLPN0
BLAGER	D_DCMPAUT
BLAGER	D_DCPMPAV
BLAGER	D_DCPMPDRI
BLAGER	D_DCPMPNOR
BLAGER	D_DCPMPPA
BLAGER	D_DCPMPTID
BLAGER	D_DRIFTA
BLAGER	D_DRIFTD
BLAGER	D_DTRYNORM
BLAGER	D_HMPMPDRI
BLAGER	D_KIPA_AV
BLAGER	D_KLAR
BLAGER	D_NIVA
BLAGER	D_NORMD
BLAGER	D_OLDMPAUT
BLAGER	D_OLDMPDRI
BLAGER	D_UNIVIA
BLAGER	D_UNIVNO
BLAGER	D_OLPMDAUT

Signals

Drag here to set row groups

Old Tag	Old Description	RDS Top Node	Main System	Tech Sys1	Tech Sys2	Tech Sys3	Comp Sys1	Comp Sys2	Comp Sys3	Origin	L Node
JOST.AGG1.TURB1.LAGER.M_VIB	IOSTEDAL G1 LAGER VIBRASJØR <JOST.PS1>	A1	JF1	KJ3			BGC1			SAXD	
JOST.AGG1.TURB1.LAGER.M_VIB	IOSTEDAL G1 LAGER VIBRASJØR <JOST.PS1>	A1	JF1	KJ3			BGC2			SAXD	
JOST.AGG1.TURB1.MV_M_SLAGE	IOSTEDAL TURB1 SLAGBESKRIFT <JOST.PS1>	A1	RB1	LD1						HOPL	
JOST.AGG1.TURB1.MV2_M_TURT	IOSTEDAL TURB1 TURTALL <JOST.PS1>	A1	JF1	LE1						HSPD	
JOST.AGG1.TURB1.MV2_M_TURT	IOSTEDAL TURB1 TURTALL <JOST.PS1>	A1	RB1	KA1						KVLV	
JOST.AGG1.TURB1.MV2_M_TURT	IOSTEDAL TURB1 LEDEAPPARAT <JOST.PS1>	A1	RB1	WPA1			QMA1			HNDL	
JOST.AGG1.TURB1.NALER_M	IOSTEDAL TURB1 PÅDRAG <JOST.PS1>	A1	RB1	QA51						HGOV	
JOST.AGG1.TURB1.PASLVL_F_UN	IOSTEDAL TURB1 Påslivningsverdi <JOST.PS1>	A1	RB1	KA2						HWGC	
JOST.AGG1.TURB1.REG_O_FISTYI	IOSTEDAL TURB1 Reg testsign. <JOST.PS1>	A1	RB1	LD1						HSPC	
JOST.AGG1.TURB1.REG_F_SIKRUL	IOSTEDAL TURB1 sikr brudd turbin <JOST.PS1>	A1	RB1	LD1						HSPC	
JOST.AGG1.TURB1.REG_M_EFFIN	IOSTEDAL TURB1 EFFEKT INNST <JOST.PS1>	A1	RB1	KA1							
JOST.AGG1.TURB1.REG_M_FINS	IOSTEDAL TURB1 FREKVENSI INN <JOST.PS1>	A1	RB1	WPA1			BPC1				
JOST.AGG1.TURB1.REG_M_STATI	IOSTEDAL TURB1 STATIKK INNS <JOST.PS1>	A1	RB1	WPA1			BPC1				
JOST.AGG1.TURB1.REG_V_TURTK	IOSTEDAL TURB1 Testsigna reg <JOST.PS1>	A1	RB1	WPA1			BPC1				
JOST.AGG1.TURB1.RINGLDNF_R	IOSTEDAL TURB1 Trykkmåling ring <JOST.PS1>	A1	RB1	KA1						SPRS	
JOST.AGG1.TURB1.RINGLDNM_I	IOSTEDAL TURB1 TRYKKMALMIN <JOST.PS1>	A1	RB1	KA1						SPRS	
JOST.AGG1.TURB1.RINGLDNV_F	IOSTEDAL TURB1 Trykkmåling ring <JOST.PS1>	A1	RB1	KA1						SPRS	
JOST.AGG1.TURB1.RUSHVE_V_K	IOSTEDAL TURB1 Mekanisk ruseve <JOST.PS1>	A1	JF1	LE1						SPRD	
JOST.AGG1.TURB1.SYRING_V_K	IOSTEDAL TURB1 El. reg. kritisk fe <JOST.PS1>	A1	RB1							PHD	
JOST.AGG1.TURB1.SYRING_V_U	IOSTEDAL TURB1 Defektør lukke <JOST.PS1>	A1	RB1							TIME	
JOST.AGG1.TURB1.TRBLAG_F_OJ	IOSTEDAL TURB1 Turblagmér oje <JOST.PS1>	A1	JF1	KJ3						SLVL	
JOST.AGG1.TURB1.TRBLAG_F_OJ	IOSTEDAL TURB1 Turblagmér oje <JOST.PS1>	A1	JF1	KJ3						SLVL	
JOST.AGG1.G1.OSLAGER_E_TEMI	IOSTEDAL G1 Øvre styringstemp. temi <JOST.PS1>	A1	JF1	KJ1						STMP	
JOST.AGG1.G1.OSLAGER_V_TEMI	IOSTEDAL G1 Øvre styringstemp. se <JOST.PS1>	A1	JF1	KJ1						STMP	
JOST.AGG1.G1.OSLAGER_V_LAEG	IOSTEDAL G1 Øvre styringstemp. se <JOST.PS1>	A1	JF1	KJ1						STMP	
JOST.AGG1.TURB1.TRBLAG_M_TI	IOSTEDAL TURB1 LAGER SKÄLTU <JOST.PS1>	A1	JF1	KJ3						STMP	

TRANSLATION

<JOST.PS1>=A1.JF1.KJ3.FRA1.BLA1/SLVL1.Hi1.stVal

AUTMAP

WRITE DESCs



Selected Rows: 0 Loaded Rows: 1000

References

Drag here to set row groups

Tech Sys3	Comp Sys1	Comp Sys2	Comp Sys3	Origin	L Node	LN Instance	DA	Description	Language
HBI	EGC1				NWIAU	A1fisv	cvn1mag1	Upper guide bearing current	English
HBI	EGC1				MMXU	A1fphs	mag.f	Generator avg current of the 3	English
	FRA1				MMXU	A1fphs	mag.f	Start motor avg current of the 3	English
HBI	EGC1				MMXU	A1fppvs	mag.f	Start motor average voltage	English
HBI	EGC1						stval	Thrust bearing cooling water on	English
HBI	FRA1						stval	Thrust bearing cooling water on	English
HBI	EGC1						stval	Thrust bearing cooling water on	English
HBI	FRA1						stval	Thrust bearing cooling water on	English
HBI	EGC1						stval	Thrust bearing cooling water on	English
HBI	FRA1						stval	Thrust bearing cooling water on	English
HBI	EGC1						stval	Upper guide bearing coupling tri	English
HBI	FRA1						stval	Upper guide bearing coupling tri	English
HBI	EGC1						stval	Upper guide bearing oil level lo	English
HBI	FRA1						stval	Upper guide bearing oil level lo	English

NAMED SIGNALS

Turbine bearing oil level high alarm

ADD

REMOVE

DUPLICATE

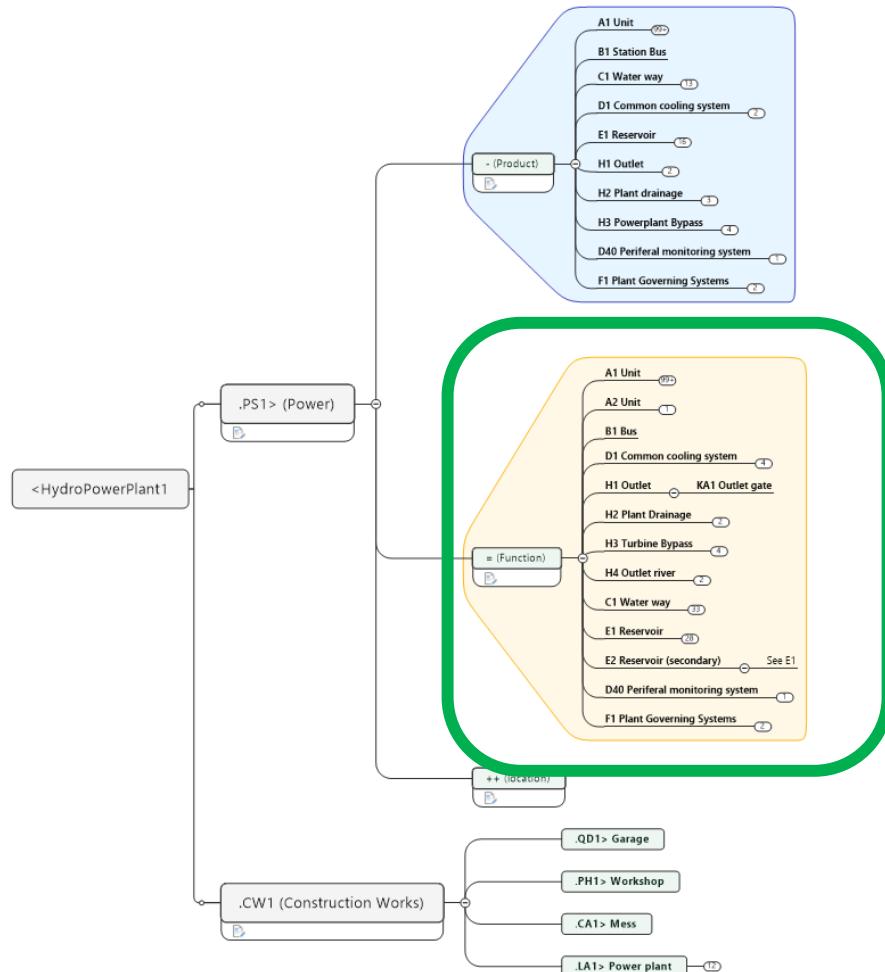


Interesting for maintenance



Drag here to set row groups											
Tech Sys3	Comp Sys1	Comp Sys2	Comp Sys3	Origin	L Node	LN Instance	DO	DA	Description	Language	
				MMXU	1	AuPPVPhs	CVafridy.i	Generator current L3	English		
				MMXU	1	AvAPhS	mag.f	Generator avg current of the 3 p	English		
				MMXU	1	AvAPhS	mag.f	Start motor avg current of the 3	English		
				MMXU	1	AvPPVPhs	mag.f	Start motor average voltage	English		
H81	EGC1	BFA@	SFLW	1	Lo1	stVal		Thrust bearing cooling water cir	English		
H81	EGC1	BFA@	SFLW	1	Lo2	stVal		Thrust bearing cooling water cir	English		
	FRA1	BFA@	SFLW	1	Lo2	stVal		Upper guide bearing oil circula	English		
	FRA1	BFA@	SFLW	1	Lo1	stVal		Upper guide bearing oil circula	English		
H81	EGC1	BFA@	SFLW	1	Lo1	stVal		Thrust bearing water circulation	English		
	FRA1	BFA@	SFLW	1	Lo2	stVal		Thrust bearing oil circulation tri	English		
	EGC1	BFA@	SFLW	1	Lo1	stVal		Lower guide bearing cooling wa	English		
	EGC1	BFA@	SFLW	1	Flw	mag.f		Lower guide bearing cooling wa	English		
	FRA1	BLA@	SLVL	1	H12	stVal		Upper guide bearing oil level lo	English		
	FRA1	BLA@	SLVL	1	Lo1	stVal		Upper guide bearing oil level hi	English		







Insight Jukla



RESERVOIRS

UNIT

XY PLOTS - ALL PHASES

XY PLOT - GENERATOR

XY PLOT - PUMP

HEALTH MONITORING

OIL LAB ANALYSIS

Z AUDIO



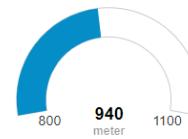
Reservoir levels

Langavatn

Water level. Time resolution: 60 min (SmG)
NO DATA

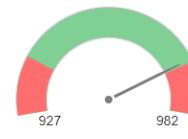
Jukla tunnel

JUKLA JUKLA T
VANNSTANDSMÅLING



Kvandrøvatn

Jukla Kvandrø
Vannstandsmåling



Jukladalsvatn

Water level. Time resolution: 60 min (SmG)
NO DATA

Juklavatn øst

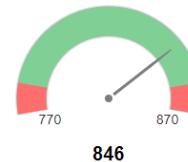
Water level. Time resolution: 60 min (SmG)
NO DATA

Juklavatn vest

Water level. Time resolution: 60 min (SmG)
NO DATA

Svartedalsvatn

MAURANGER SVARTADV
VANNSTANDSMÅLING



Dravladalsvatn

Water level. Time resolution: 60 min (SmG)
NO DATA

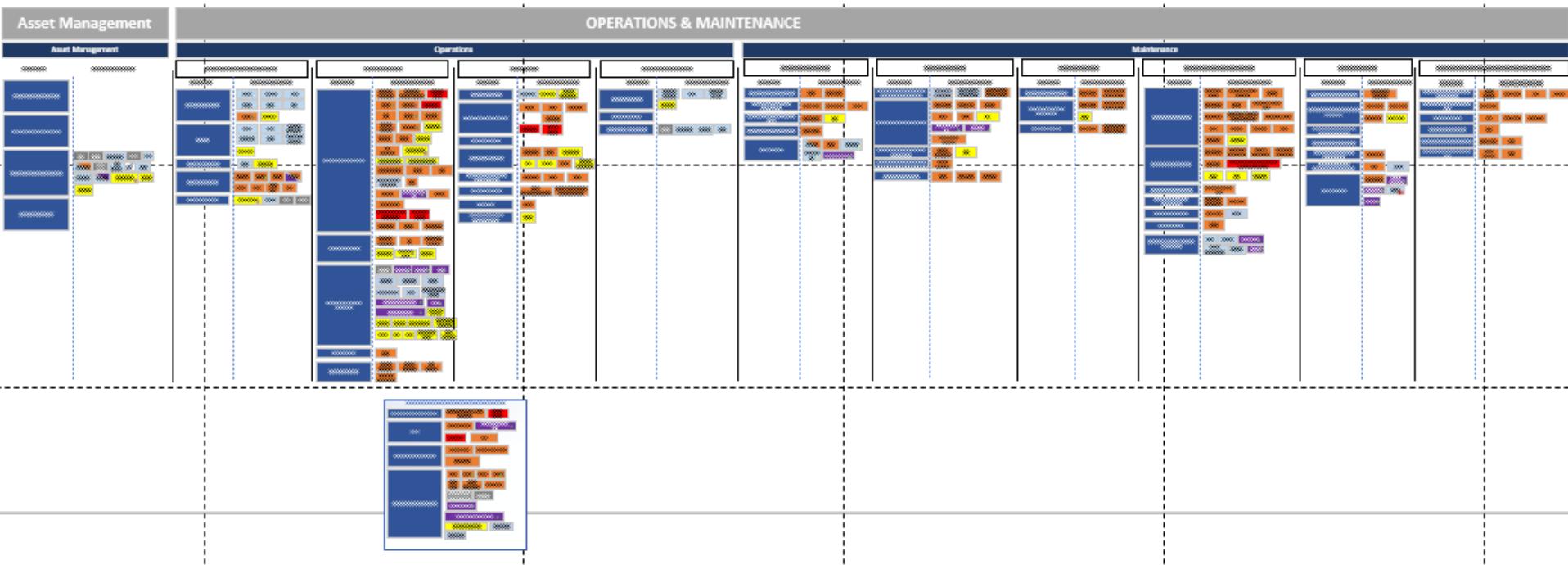


Implementation:

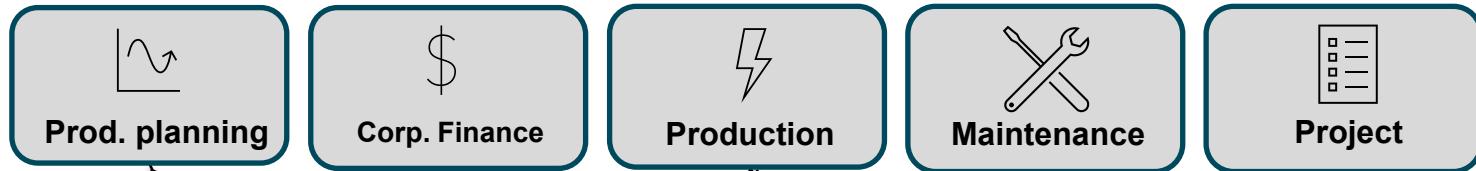


1₍₄₎
The problem

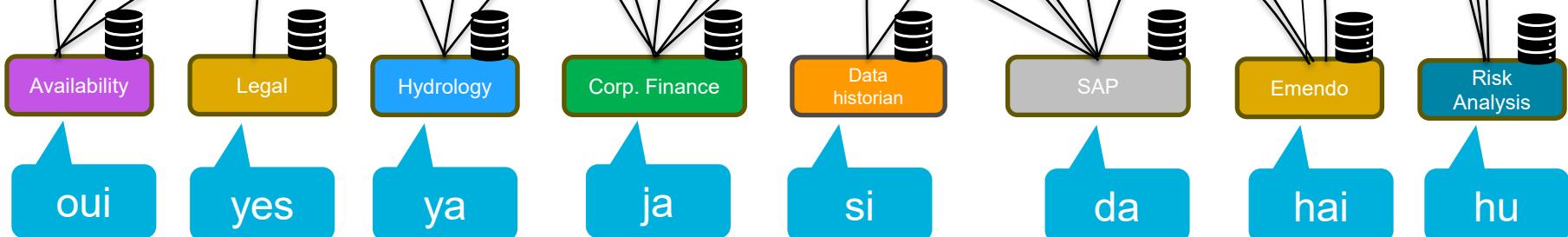
Capability map

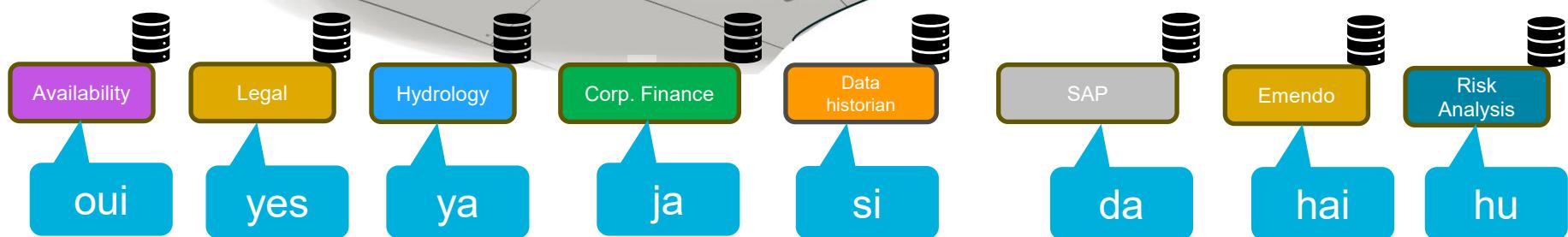


 Adrega	 ArcGIS	 Baseline Desktop...	 BEAM	BRADY Brady	 Corporater	 Dow Jones	 Emendo	 Fresh
value Hidacs	 Interaxo	 Jaggaer	 LTM	ONE VIEW OneView	 Primavera	 Project Online	 Public 360	 SAP
 Salesforce	 Scada	 Sceptre	 SHOP	value SmG	 Spotless	 STAB	 Teams	 ZenDesk

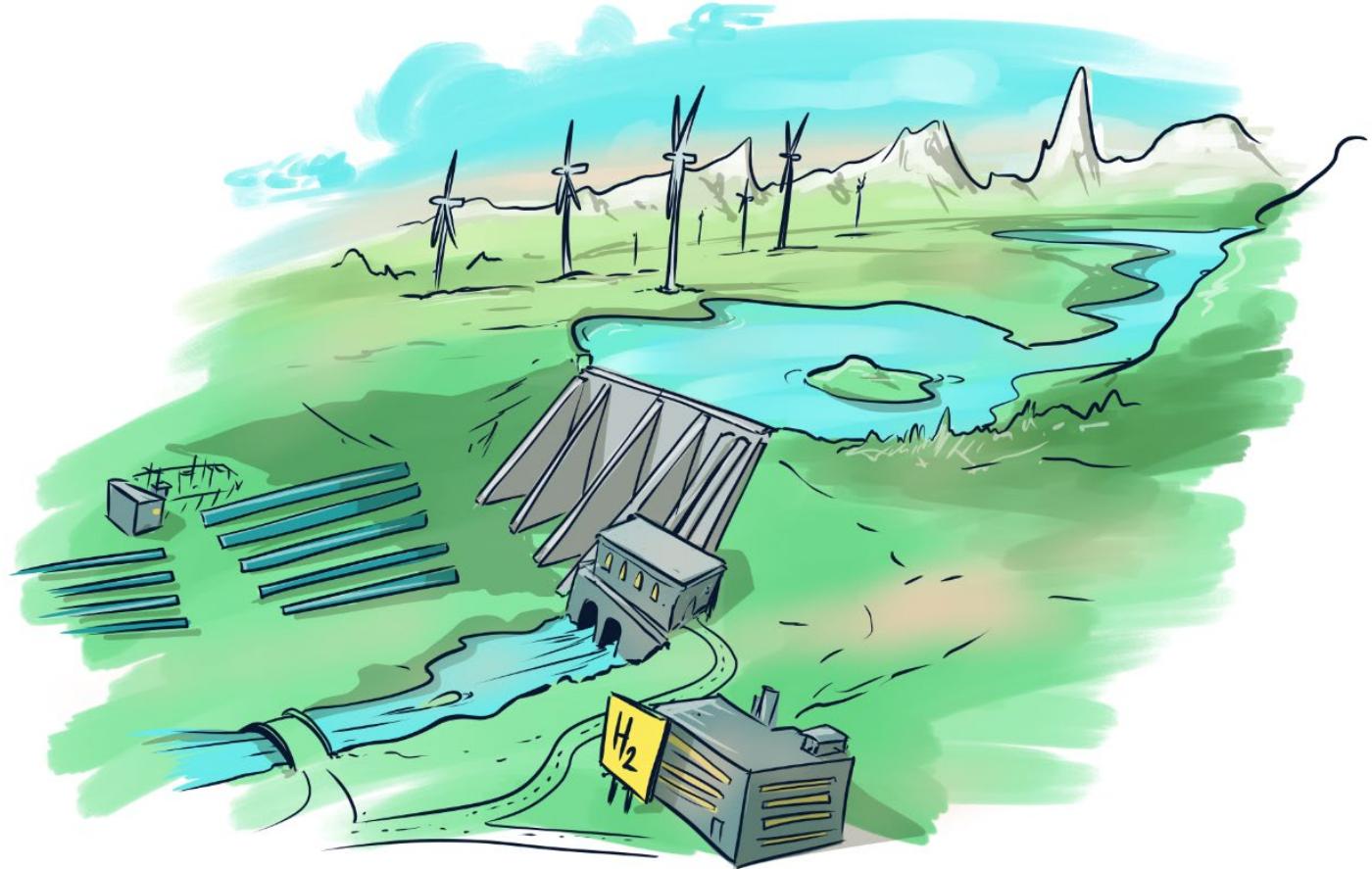


- through API
- through email
- through doc. availability
- should exist





- ✓ Hydropower
- ✓ Photovoltaic
- ✓ Hydrogen
- ✓ Thermal power
- ✓ Flywheel
- ✓ Lithiumbattery
- ✓ District heating
- ✓ Wind power



Is this really a
problem?

Do we really need
to fix this?

It sounds
expensive...

Prod. planning

1 – Maintenance of own “standards”

2 – Accept to work on flawed data

3 – Accept costs of unreliable data

4 – What is digital will clutter more and more

5 – Rely fully on personnel knowledge/knowhow

6 – Difficulties optimize maintenance scheme

7 – Reject GIS and BIM

...

Availability

Legal

Corp. Finance

historian

Technical restrictions

Risk Analysis

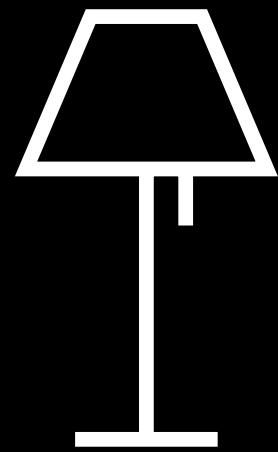
oui

yes

ai

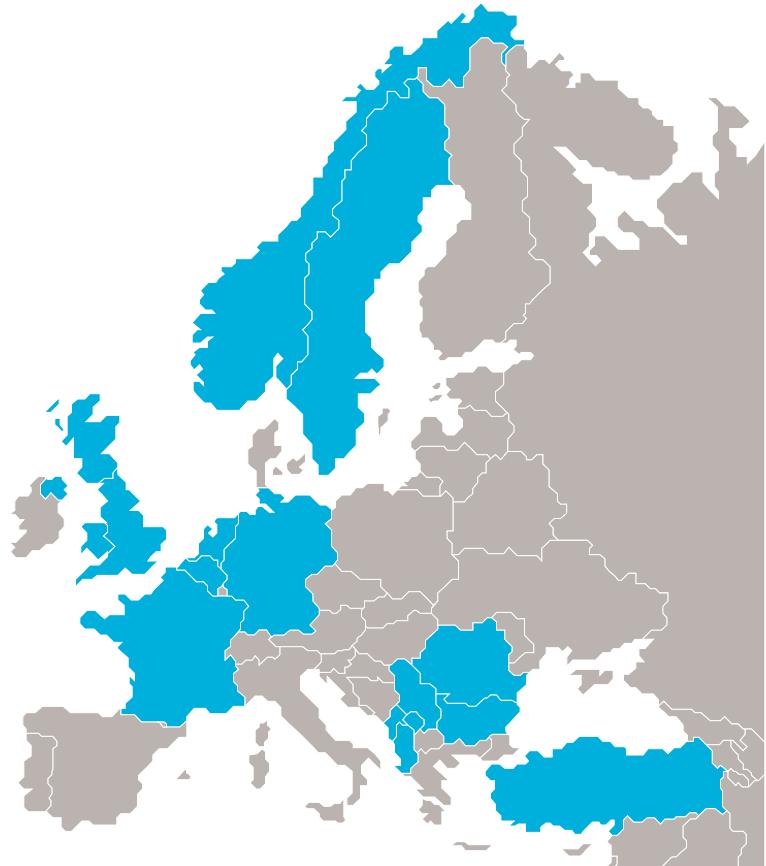
hu

In short:
THIS IS AS GOOD AS WE WILL EVER BE



$2_{(4)}$

The solution
- conceptual

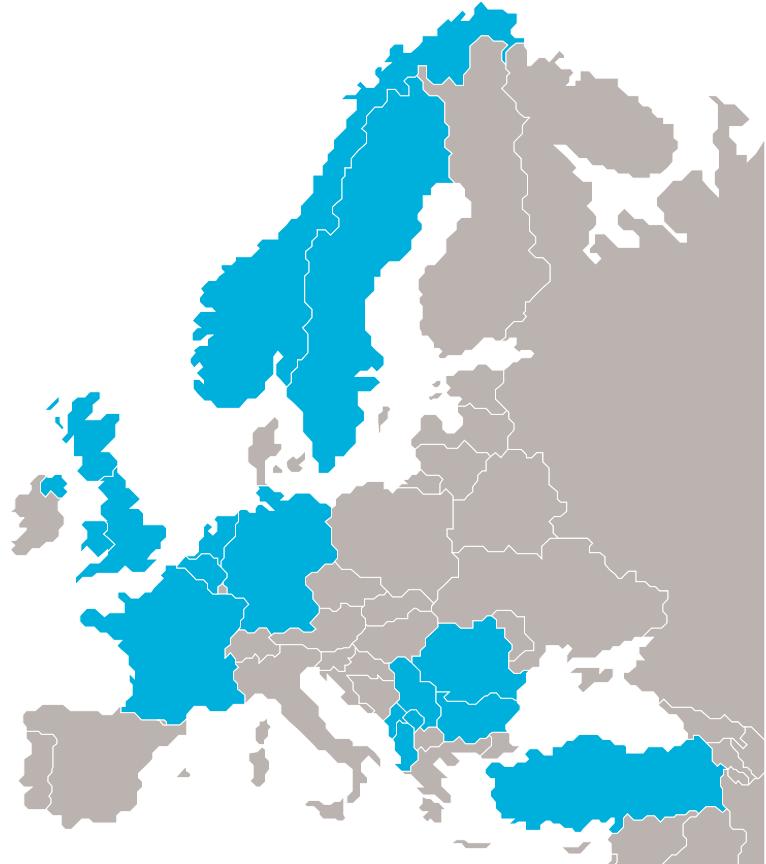




International
Organization for
Standardization



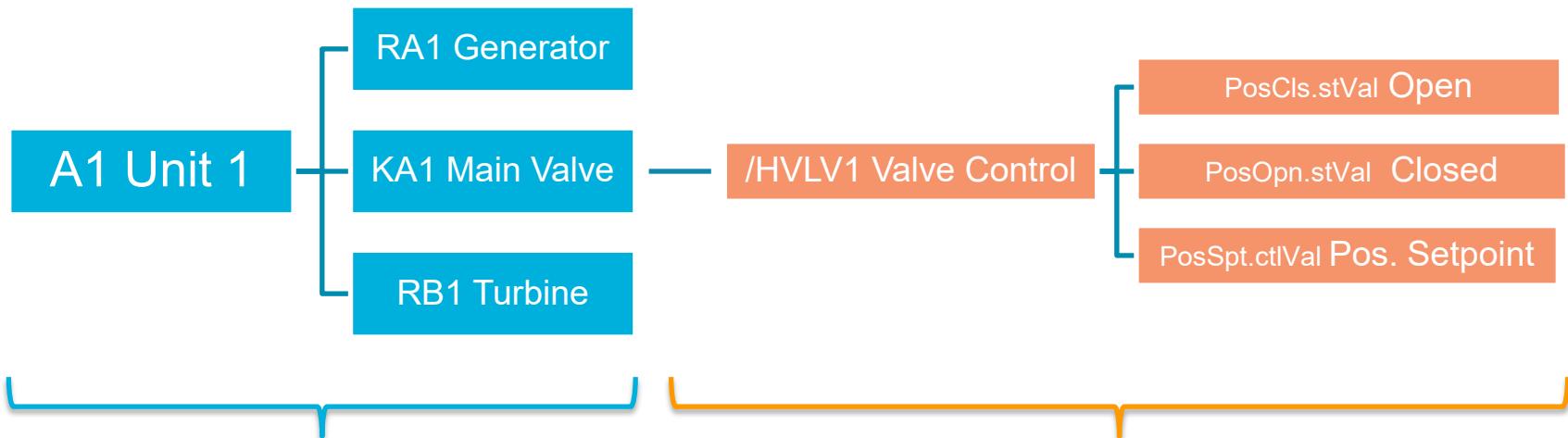
INTERNATIONAL
ELECTROTECHNICAL
COMMISSION



Signal

A1.KA1/HVLV1.PosOpn.stVal

Unit1, Main Valve Open State (true/false)



IEC/ISO 81346 (RDS)

Object Reference

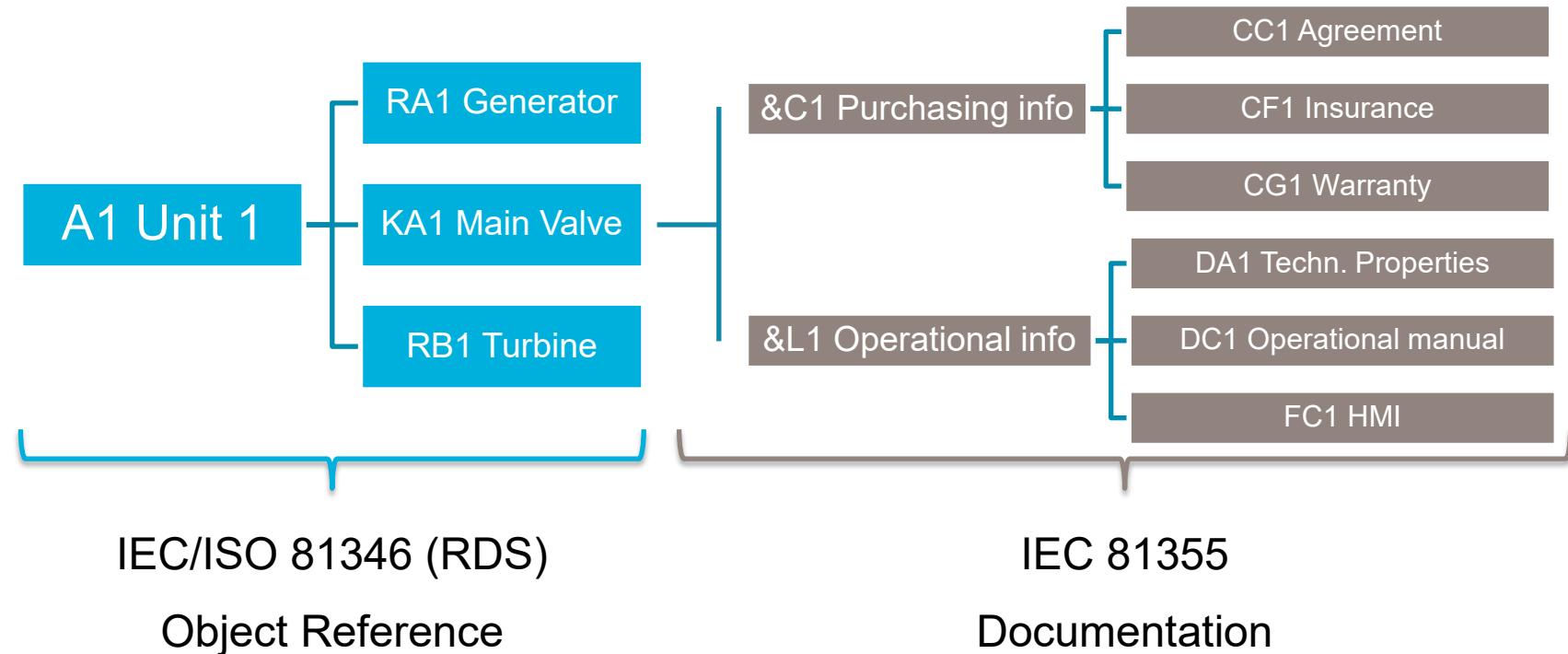
IEC 61850-7

Signal Modelling

Doc.

A1.KA1&C1.CG1

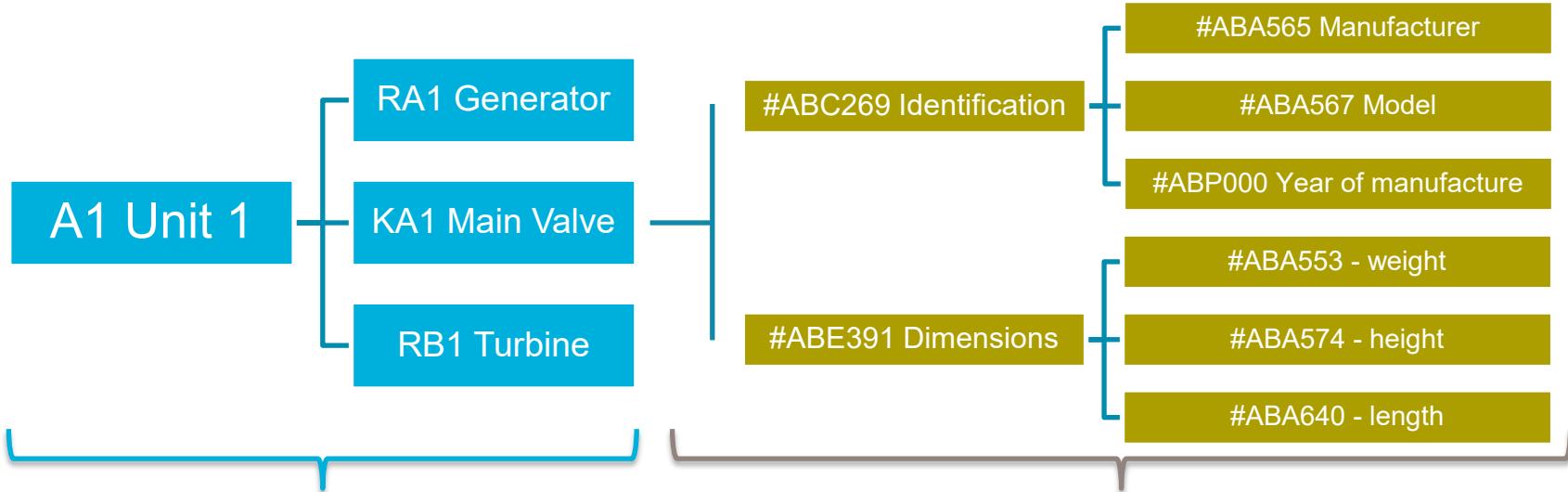
Unit1, Main Valve Contractual warranty doc.



Attribute

A1.KA1#ABA553

Unit1, Main Valve Weight



IEC/ISO 81346 (RDS)

Object Reference

IEC 61987 (CDD)

Attributes



International
Organization for
Standardization



INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

Signal

A1.KA1/HVLV1.PosOpn.stVal

Unit1, Main Valve Open State (true/false)

Doc.

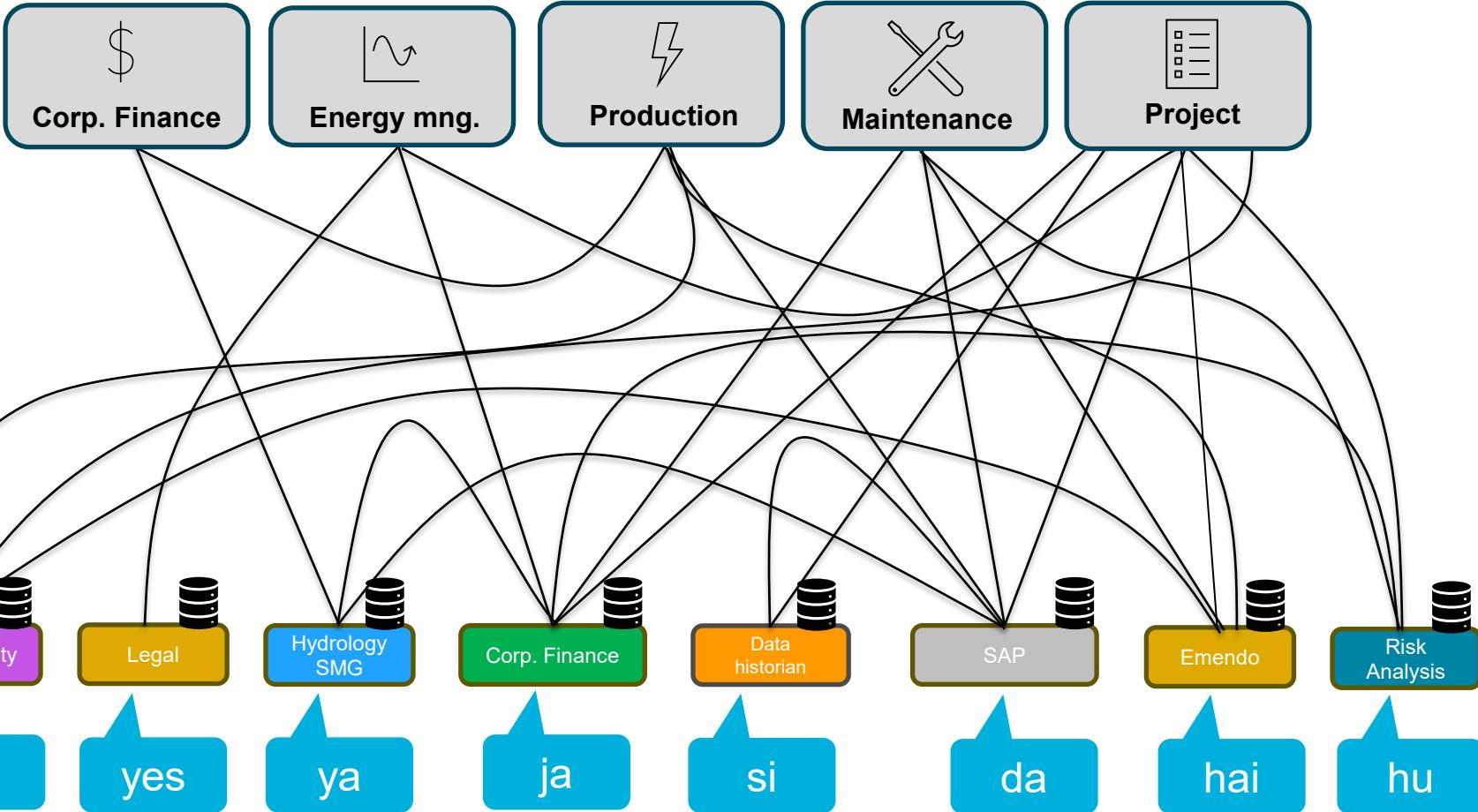
A1.KA1&C1.CG1

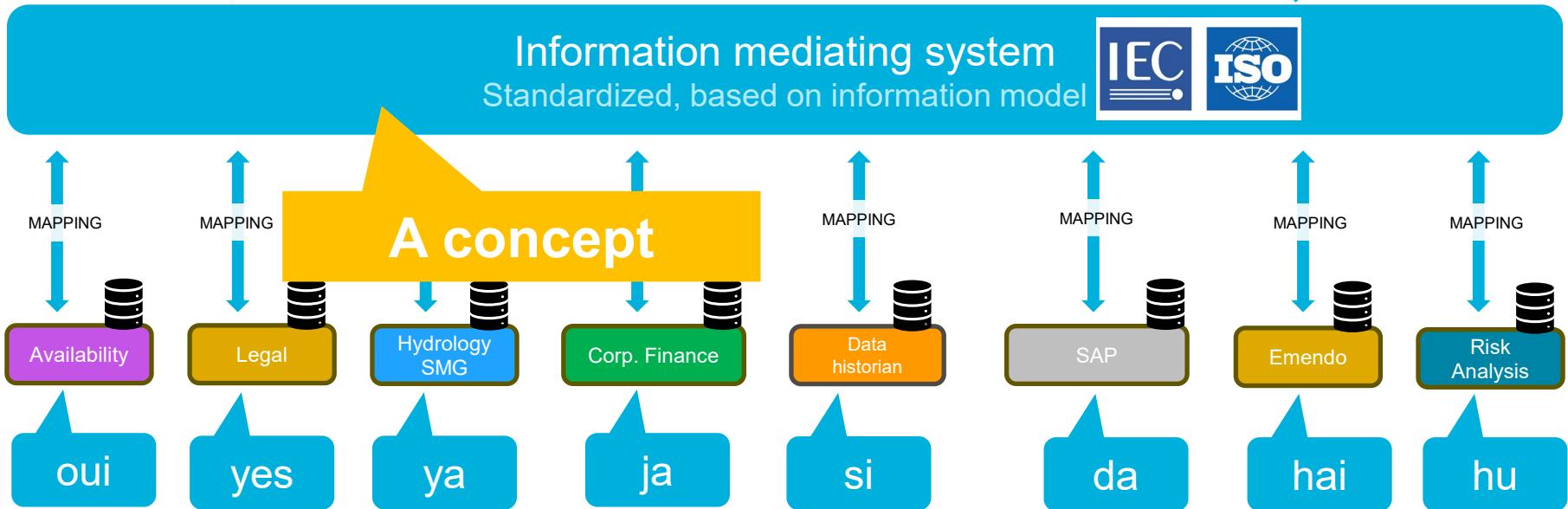
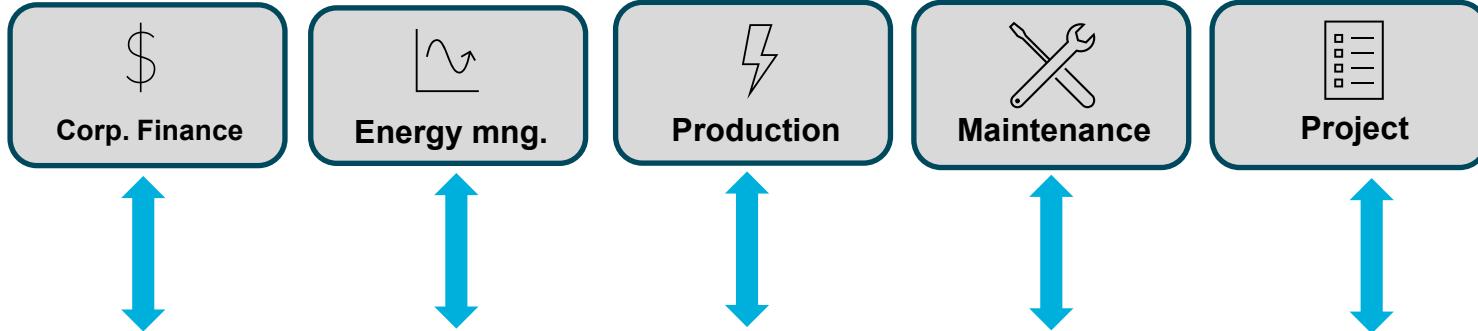
Unit1, Main Valve Contractual warranty doc.

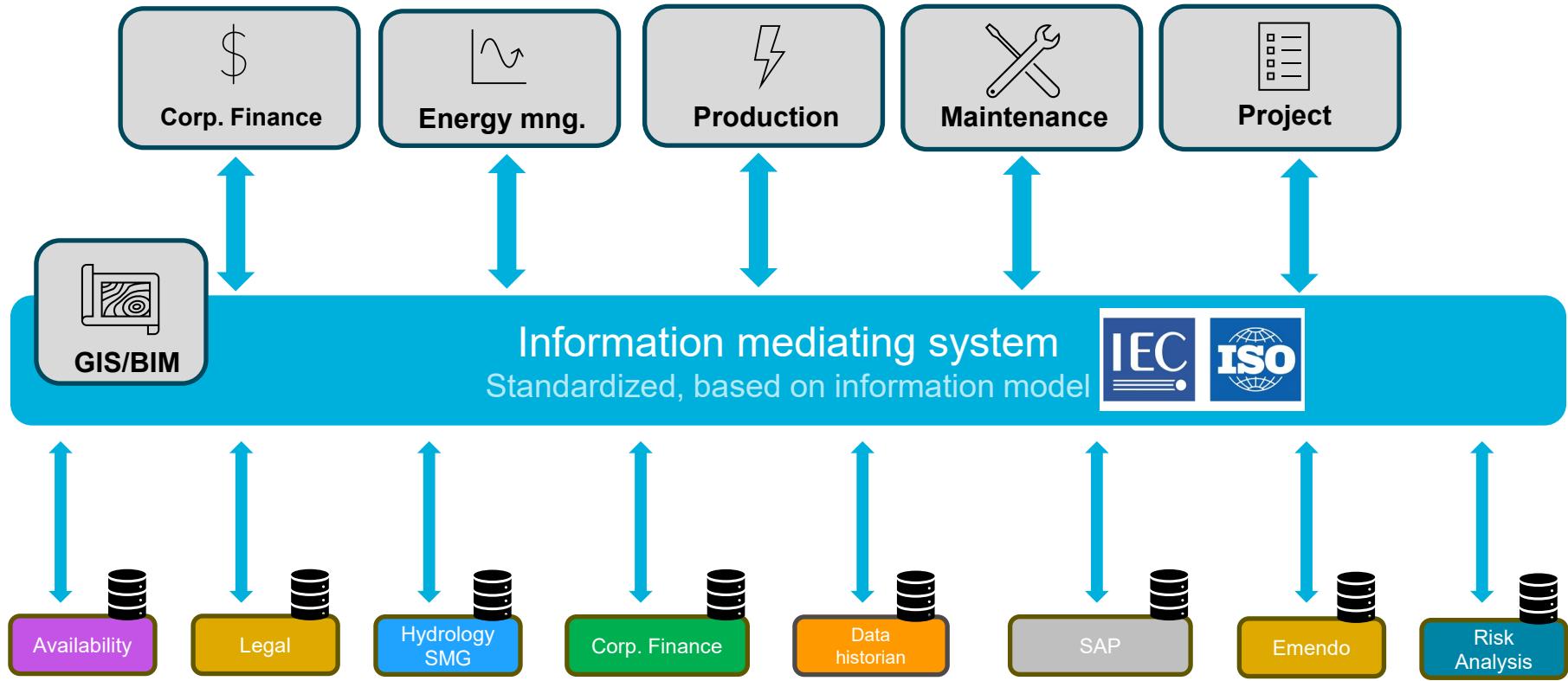
Attribute

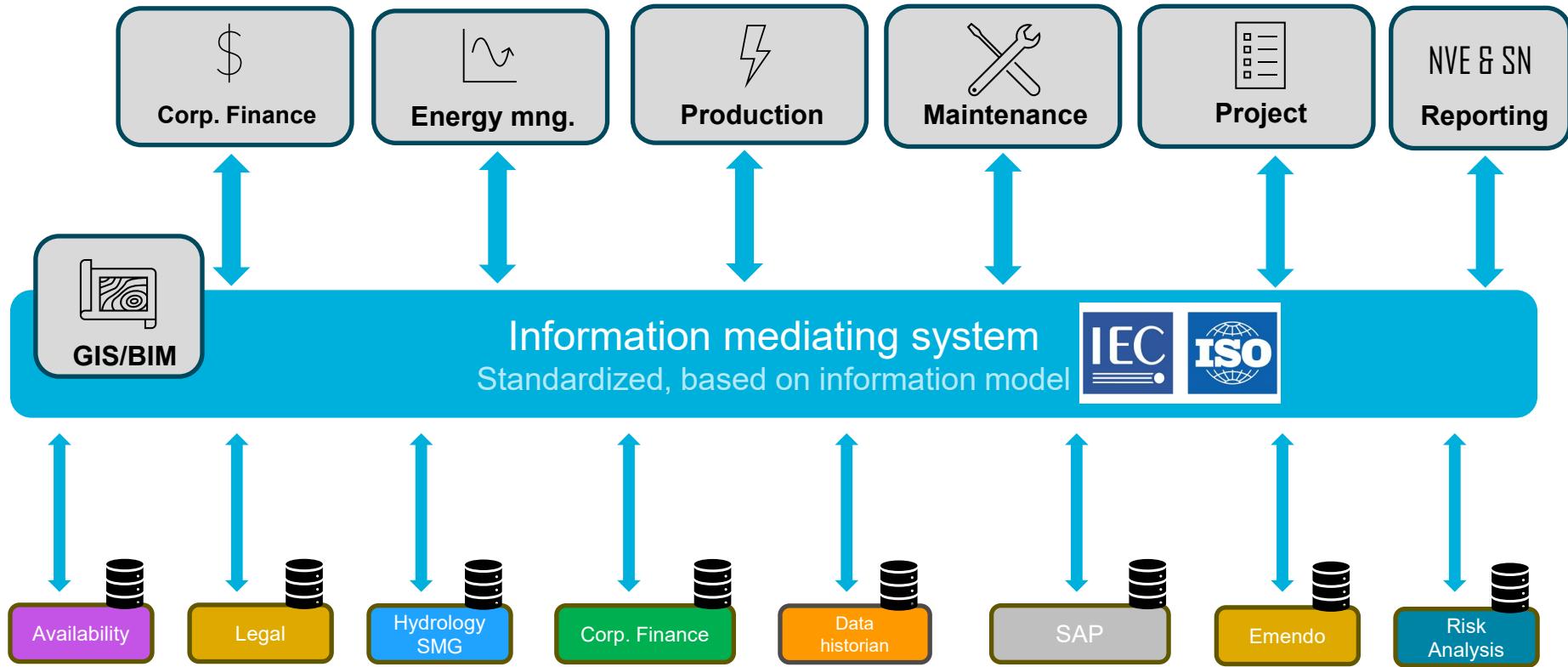
A1.KA1#ABA553

Unit1, Main Valve Weight





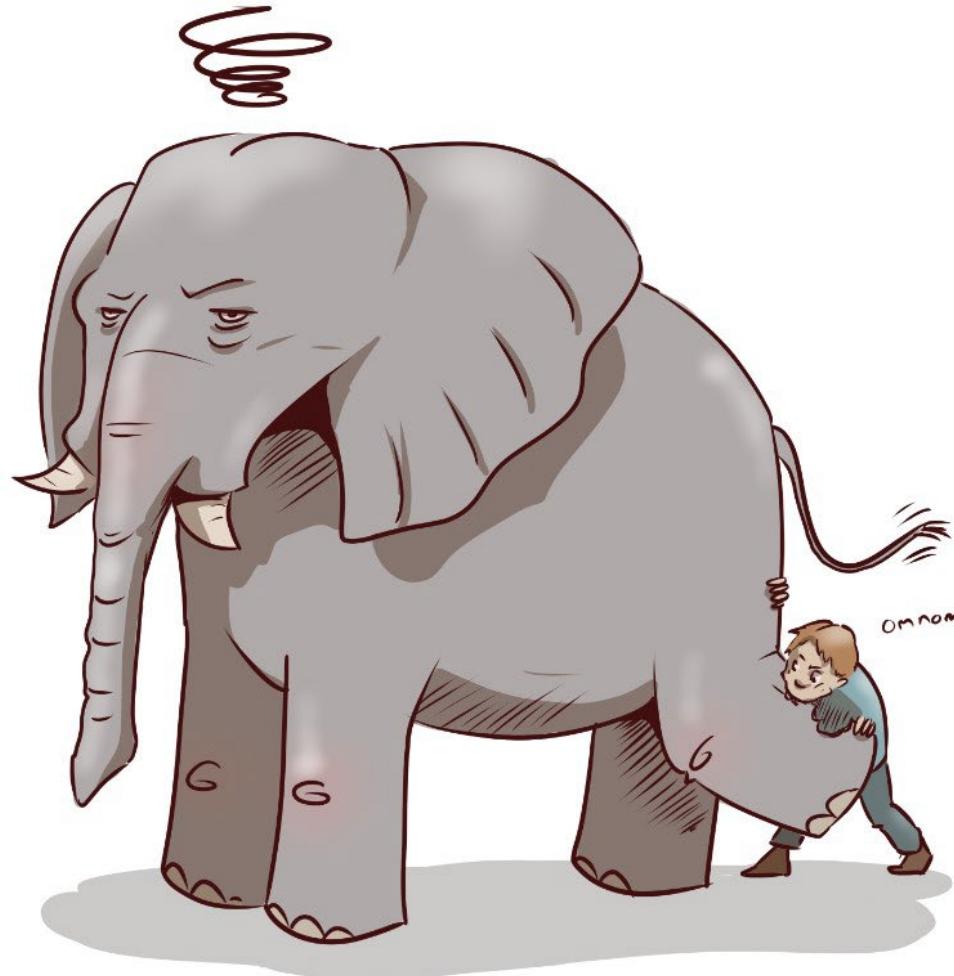


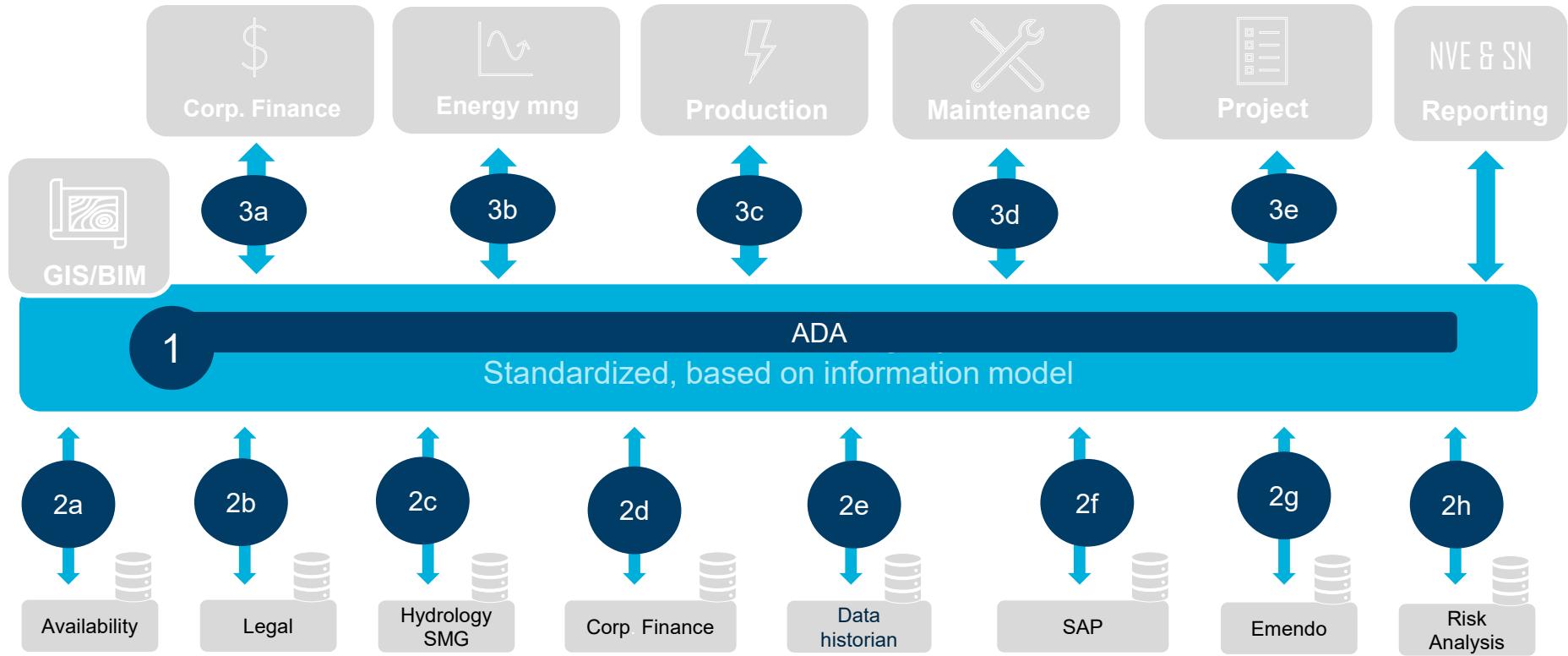


$3_{(4)}$
The solution
- applied

Why is it always me?

You know whales are
even bigger, right?







Graph databases

ADA



Hm...

We got any more of
these?

I dunno...

Shmoogle

Breakers supplied by Rent-a-Breaker



Google

Google terry pratchett

Books Images Movies News Quotes Series Cause of death Books in order Discworld

About 8,200,000 results (0.51 seconds)

Terry Pratchett

English humorist

Overview

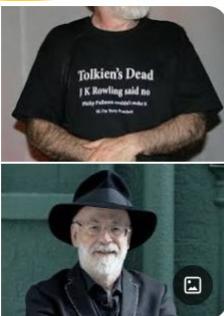
Books

Movies and TV shows

Short stories



Ian Gavan/Getty Images



terrypratchettbooks.com
Sir Terry Pratchett: Home
The online home for books written by Sir Terry Pratchett, including reading order lists, forums, plus all manner of things...



Wikipedia
https://en.wikipedia.org/wiki/Terry_Pratchett

Terry Pratchett

Sir Terence David John Pratchett OBE (28 April 1948 – 12 March 2015) was an English humorist, satirist, and author of fantasy novels, generally comical



About

Sir Terence David John Pratchett, humorist, satirist, and author of fantasy novels, generally comical works. He is best known for his Discworld series.

Terry Pratchett

IsAuthorOf

Books

IsAuthorOf

Short Stories

IsAuthorOf

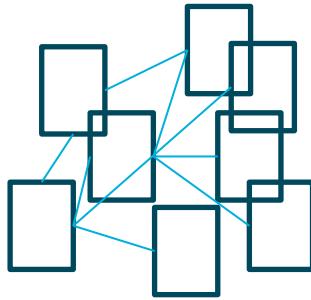
Movies & TV shows

IsTypeOf

Humorist

IsFrom

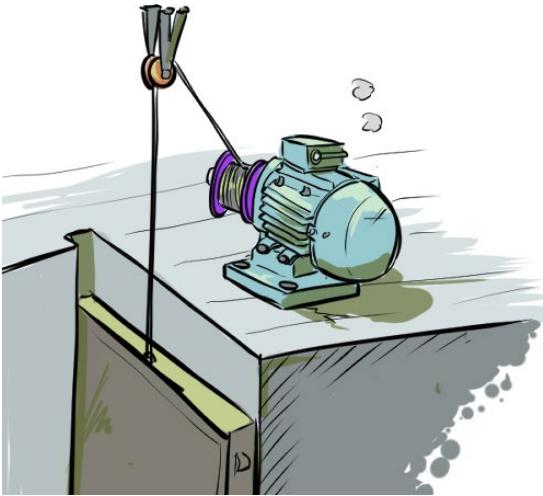
England



RDF

Resource Description Framework
(A type of Graph database)

A triple:



Subject

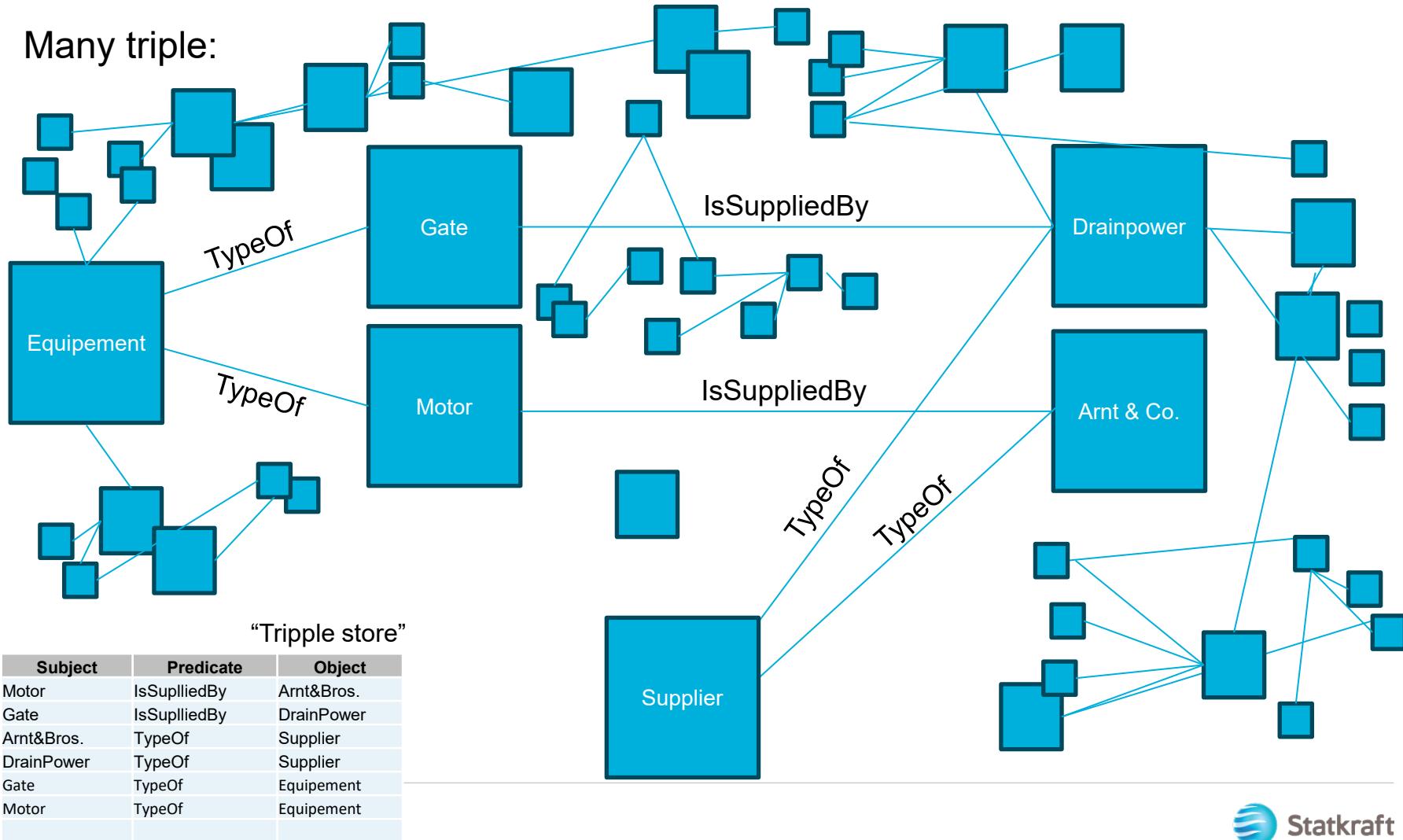


Predicate



Object
Arnt & Co.
Motorer e' vi go på sjø!

Many triple:

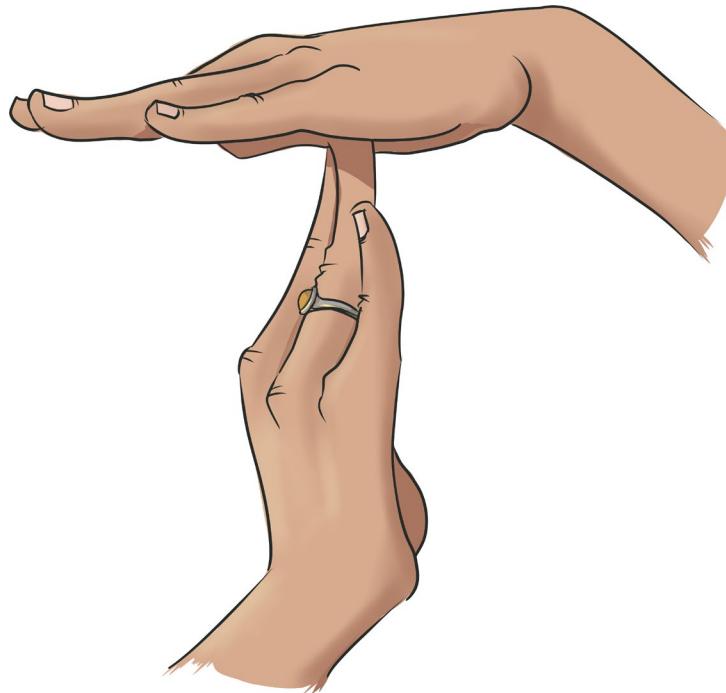


Shmoogle Query system (SPARQL)

Subject	Predicate	Object
Motor	IsSuppliedBy	Arnt&Co.
Gate	IsSuppliedBy	DrainPower
Motor	IsTypeOf	Equipement
Gate	IsTypeOf	Equipement
Motor	IsPartOf	Gate
Arnt&Co.	IsTypeOf	Supplier
DrainPower	IsTypeOf	Supplier
Arnt&Co.	HasAddress	Lilleakerveien 7
DrainPower	HasAddress	Gokk 4
		MegaTorque400
Motor	IsModel	0
akjsjdhkahl	werafds	rtrtrgf
asdas	saefdfar	dshj
asdasda	awerafds	erwegtf
adsads	waereafd	errew
wqeefwd	earght	rtrte
erta	rt	sdfds
weregf	erw	dgfd
...

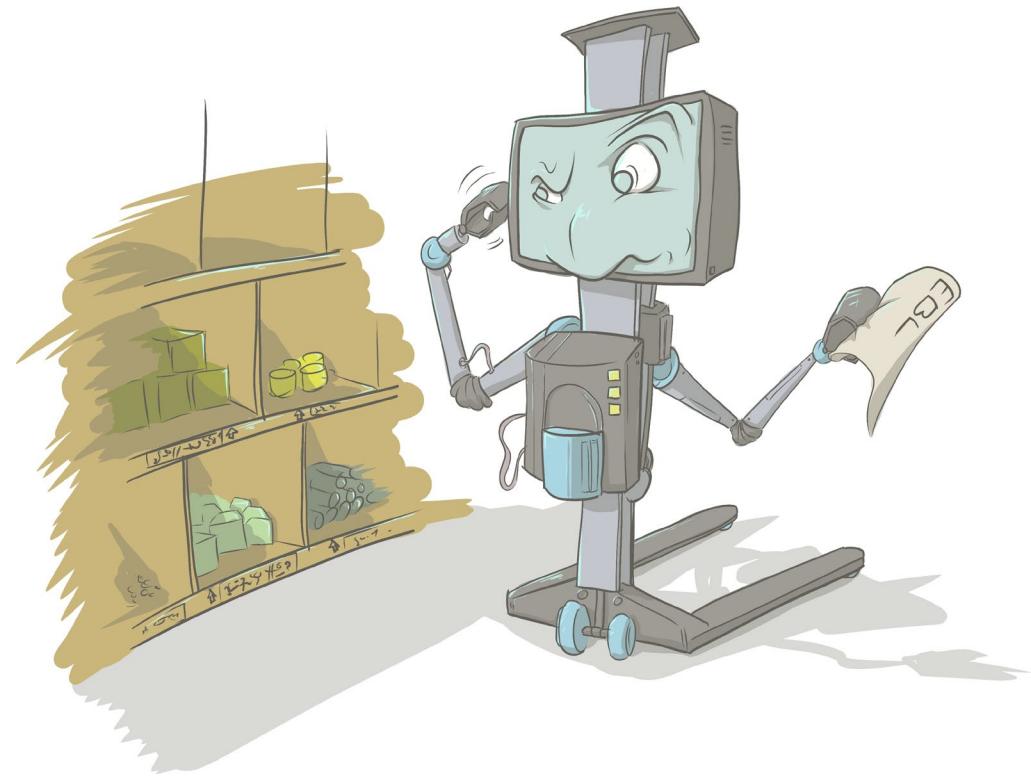
- Trollheim Powerplant Generator – IsSuppliedBy - ?
- How many motors do we have in total?
- Who supplies those motors?

Subject	Predicate	Object
Motor	IsSuppliedBy	Arnt&Co.
Gate	IsSuppliedBy	DrainPower
Motor	IsTypeOf	Equipement
Gate	IsTypeOf	Equipement
Motor	IsPartOf	Gate
Arnt&Co.	IsTypeOf	Supplier
DrainPower	IsTypeOf	Supplier
Arnt&Co.	HasAddress	Lilleakerveien 7
DrainPower	HasAddress	Gokk 4
		MegaTorque400
Motor	IsModel	0
akjsjdhkahl	werafds	rtrtrgf
asdas	saeefdar	dshj
asdasda	awerafds	erwegtf
adsads	waereafd	errew
wqeefwd	earght	rtrte
erta	rt	sdfds
weregf	erw	dgfd
...

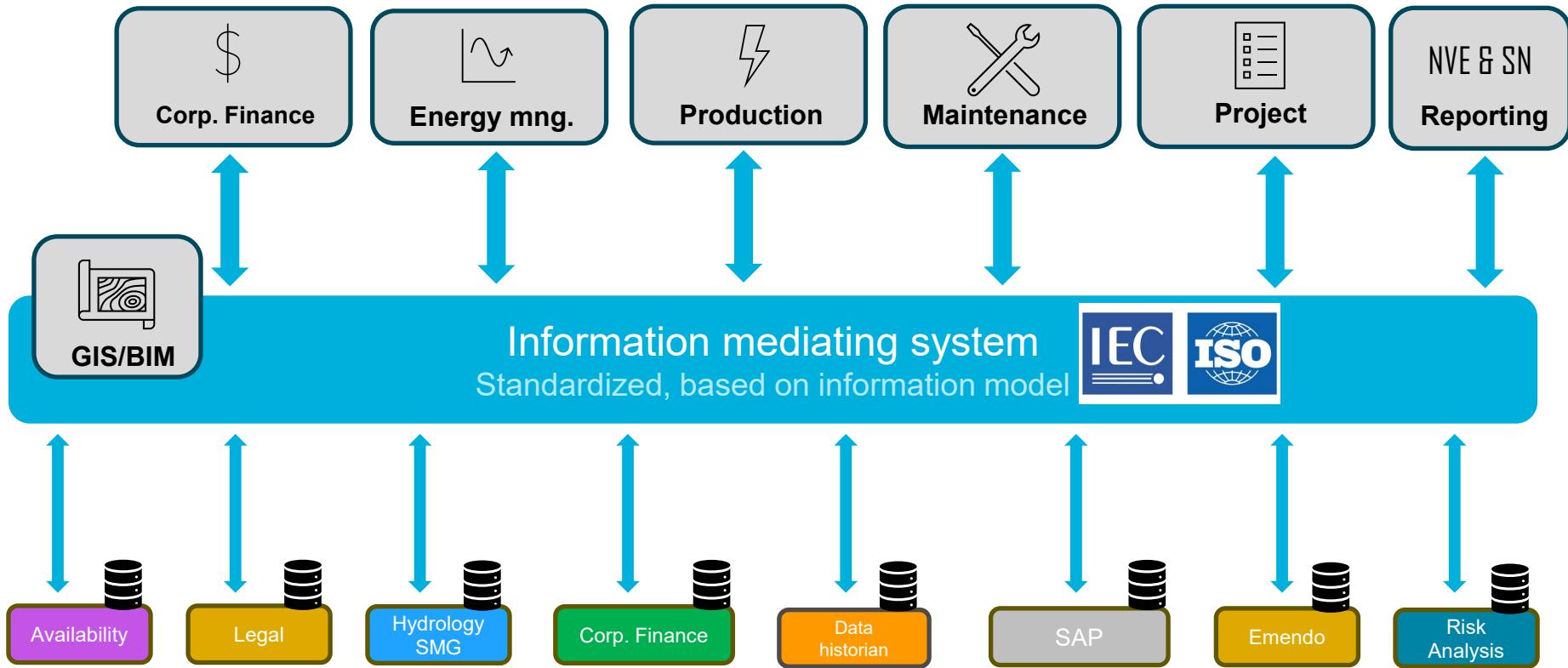


IEC Standard ISO

Subject	Predicate	Object
Motor	IsSuppliedBy	Arnt&Co.
Gate	IsSuppliedBy	DrainPower
Motor	IsTypeOf	Equipement
Gate	IsTypeOf	Equipement
Motor	IsPartOf	Gate
Arnt&Co.	IsTypeOf	Supplier
DrainPower	IsTypeOf	Supplier
Arnt&Co.	HasAddress	Lilleakerveien 7
DrainPower	HasAddress	Gokk 4
		MegaTorque400
Motor2	IsModel	0
akjsjdhhkahl	werafds	rtrtrgf
asdas	saefdfar	dshj
asdasda	awerafds	erwegtf
adsads	waereafd	errew
wqeefwd	earght	rtrte
erta	rt	sdfds
weregf	erw	dgfd
...



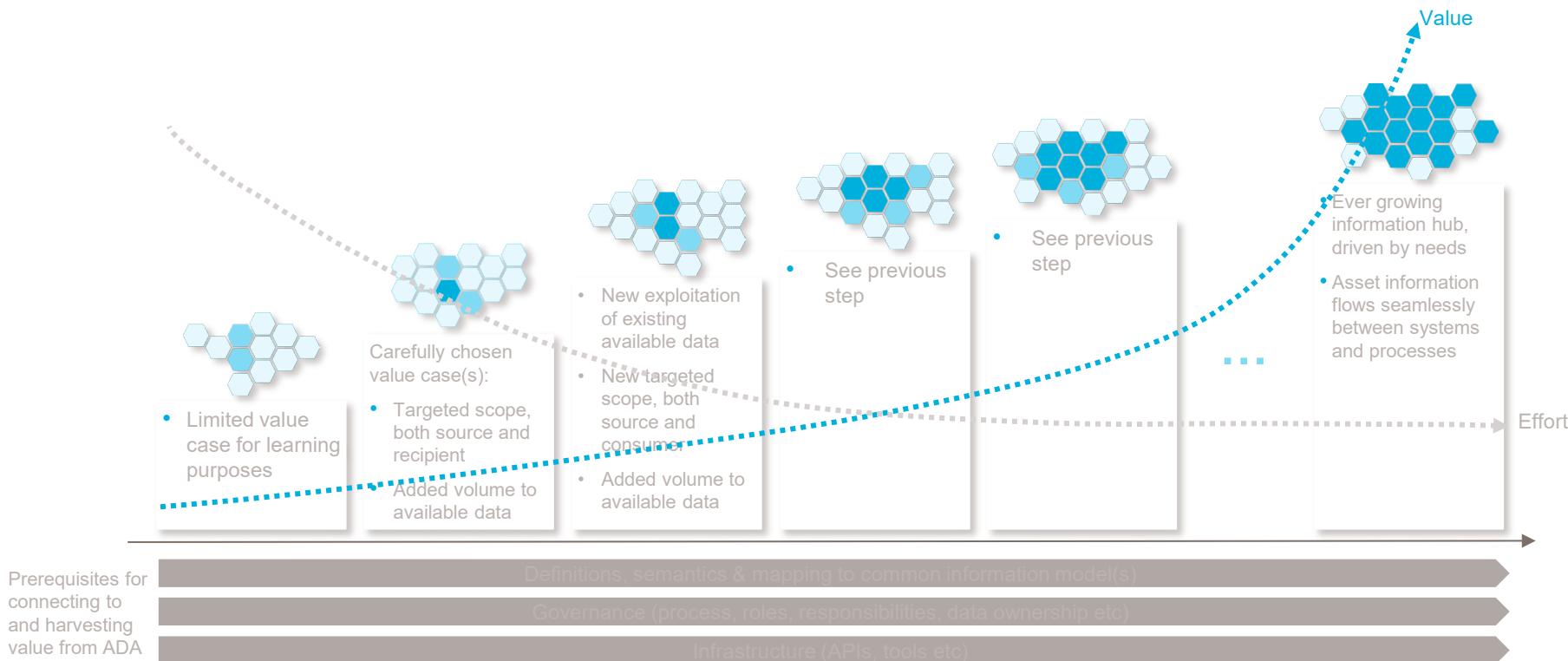
ADA



ADA semantics will include several perspectives depending on query needs



ADA will grow incrementally, adding new data points based on prioritized value cases

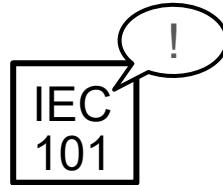


RDS MODELLING

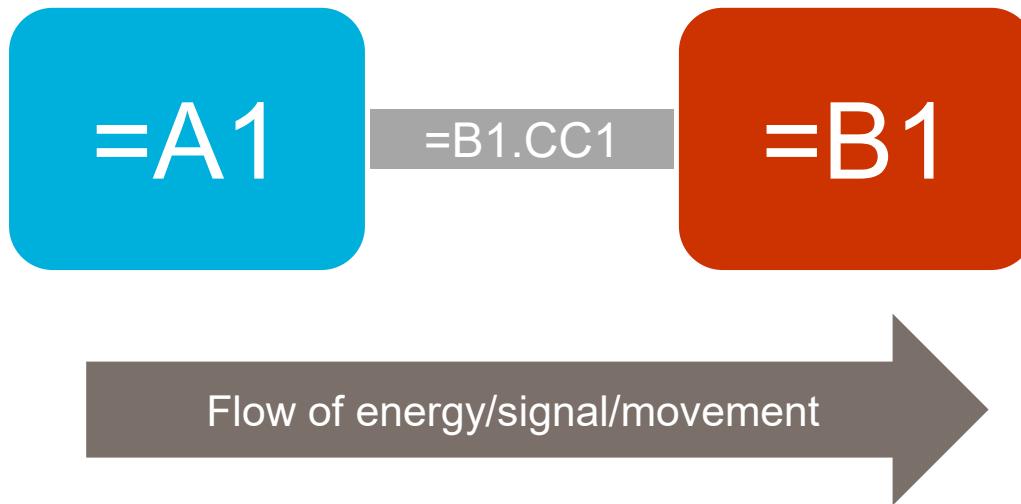
MODELLING GUIDELINES

1

Receivers' principle



Primarily a rule for the functional aspect



MODELLING GUIDELINES

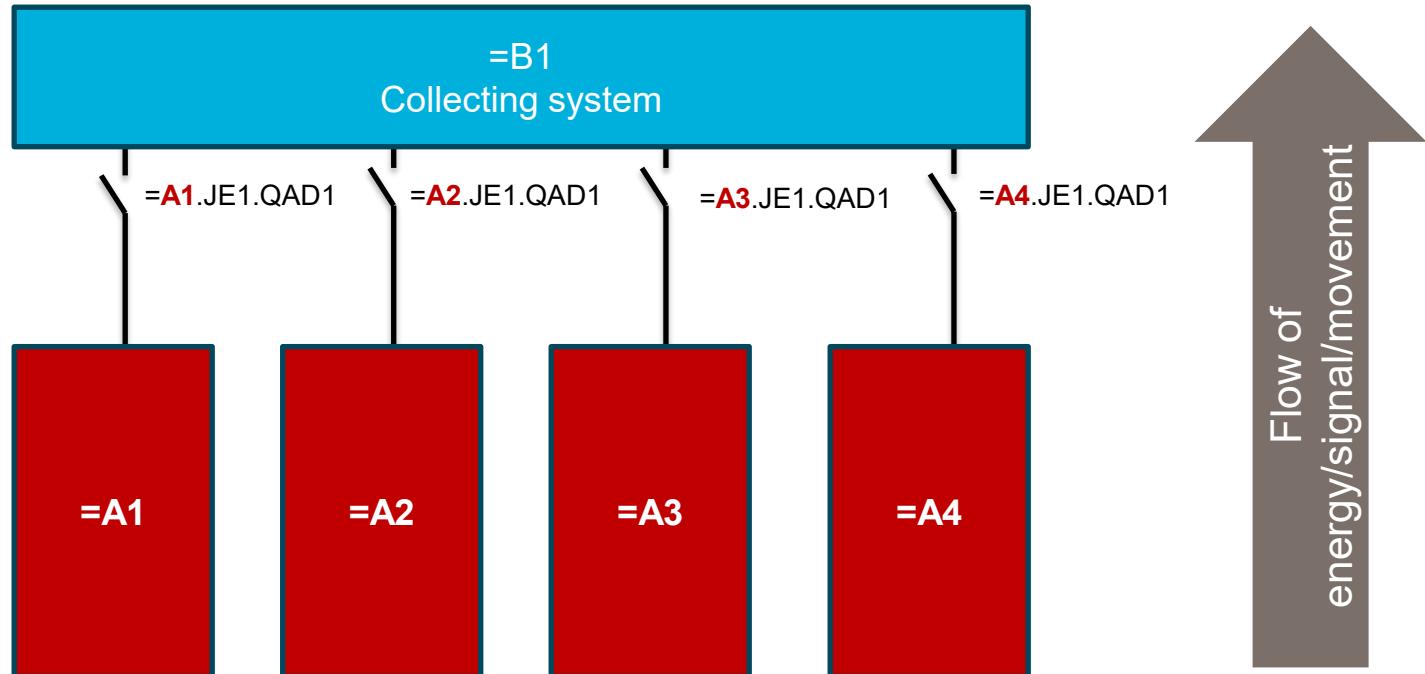
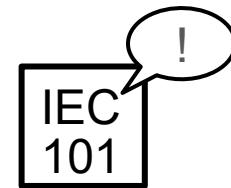
2

No rules without exceptions...

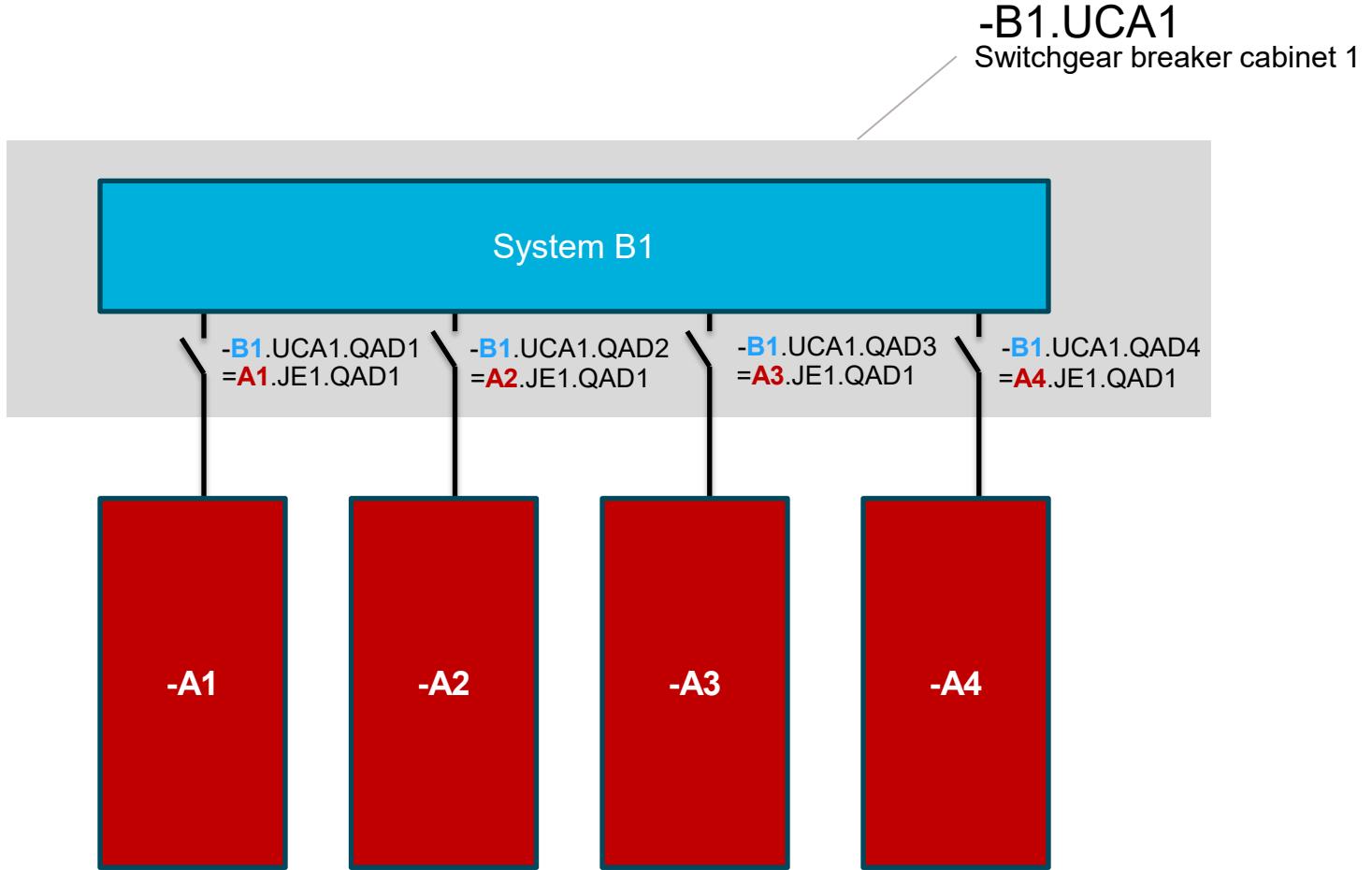


FUNCTION

Collectors principle

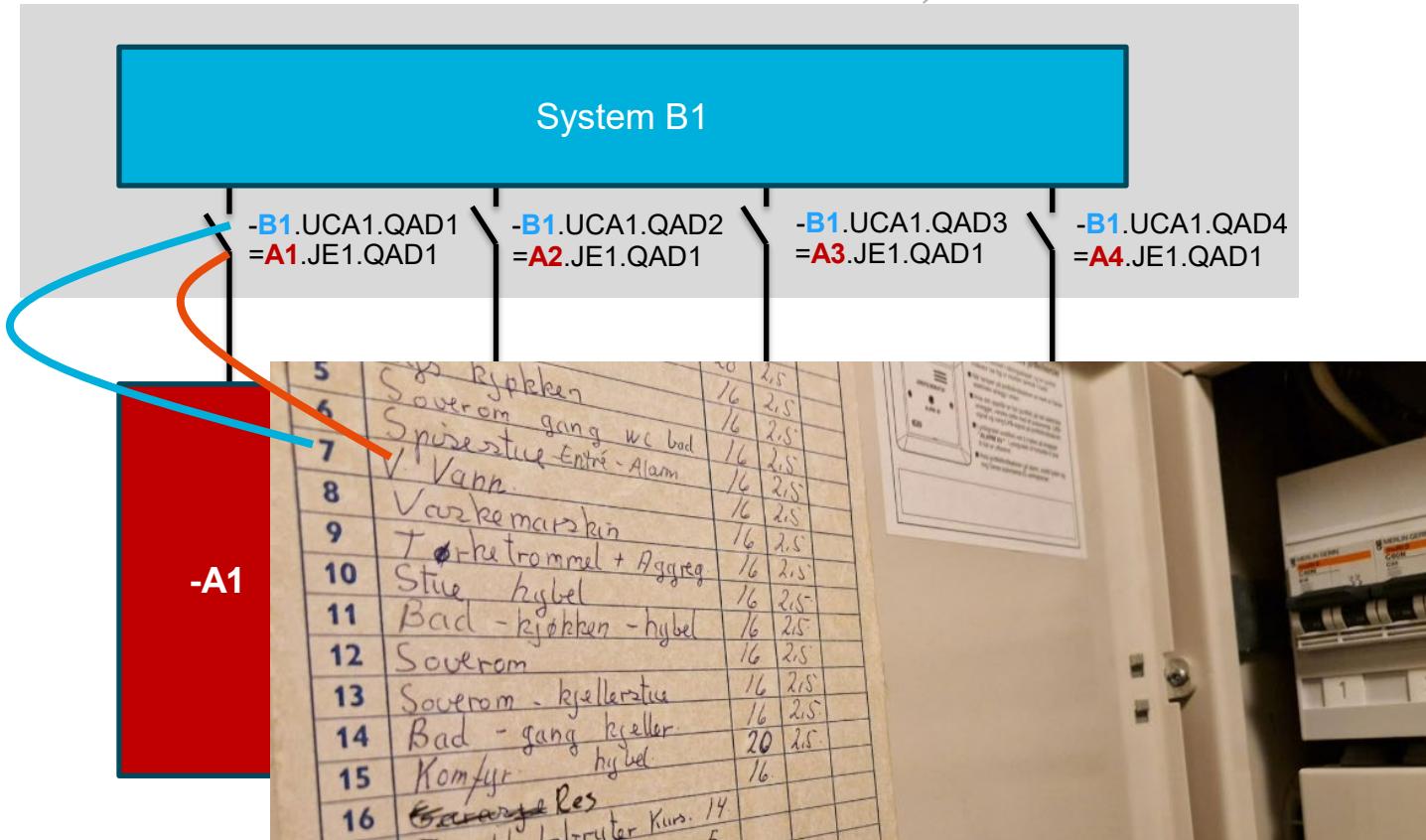


Product



Product

-B1.UCA1
Switchgear breaker cabinet 1



MODELLING GUIDELINES

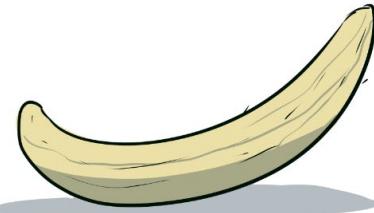
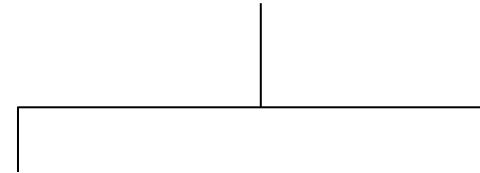
3

What is a banana?

Repeated classes

-BA1

Banana 1



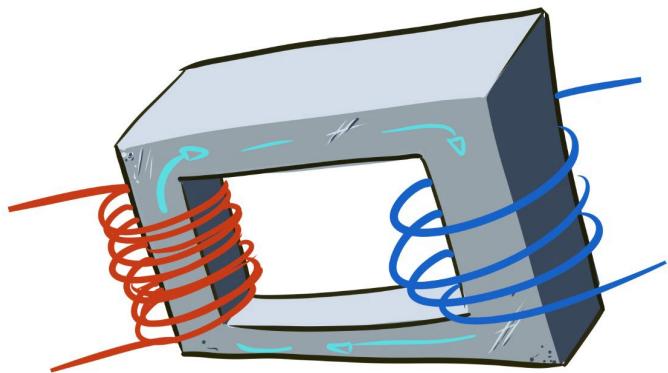
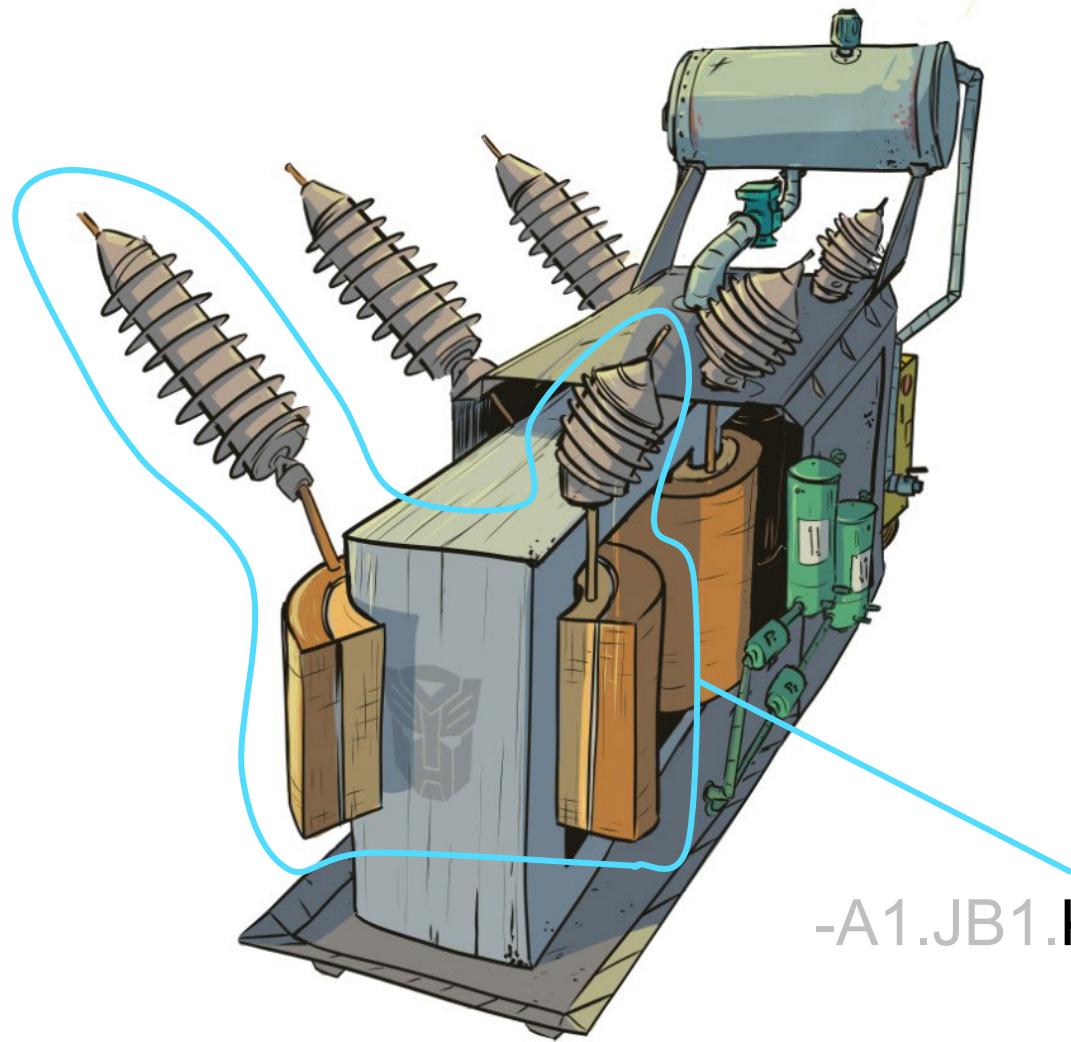
-BA1.BA1

Banana, banana



-BA1.HO1

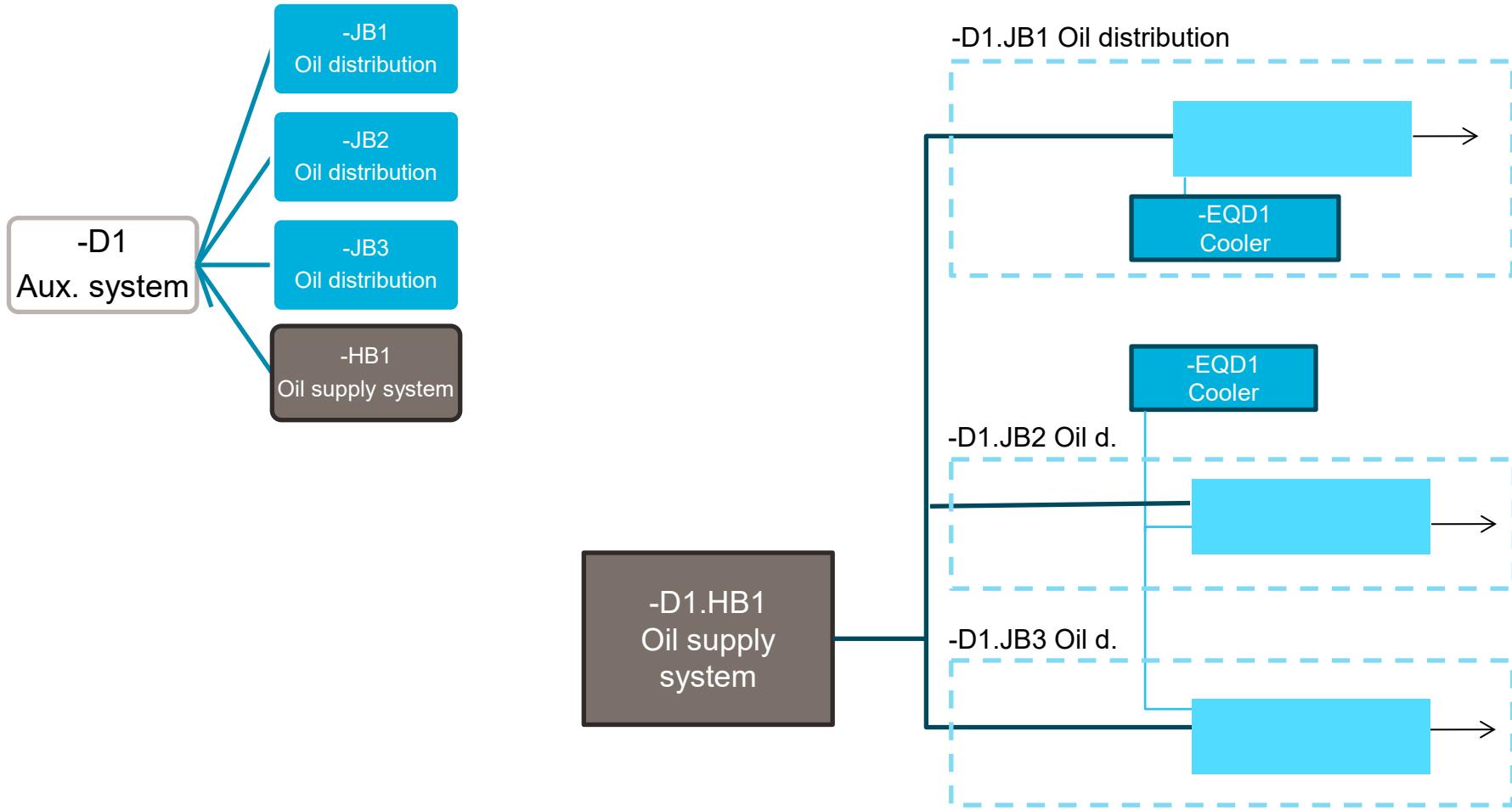
Banana, housing



-A1.JB1.KF1.KF1

MODELLING GUIDELINES

4



**IF system “=BB1”, only serves system “=A1”,
then “=A1.BB1”**

MODELLING GUIDELINES

5

Part 1...

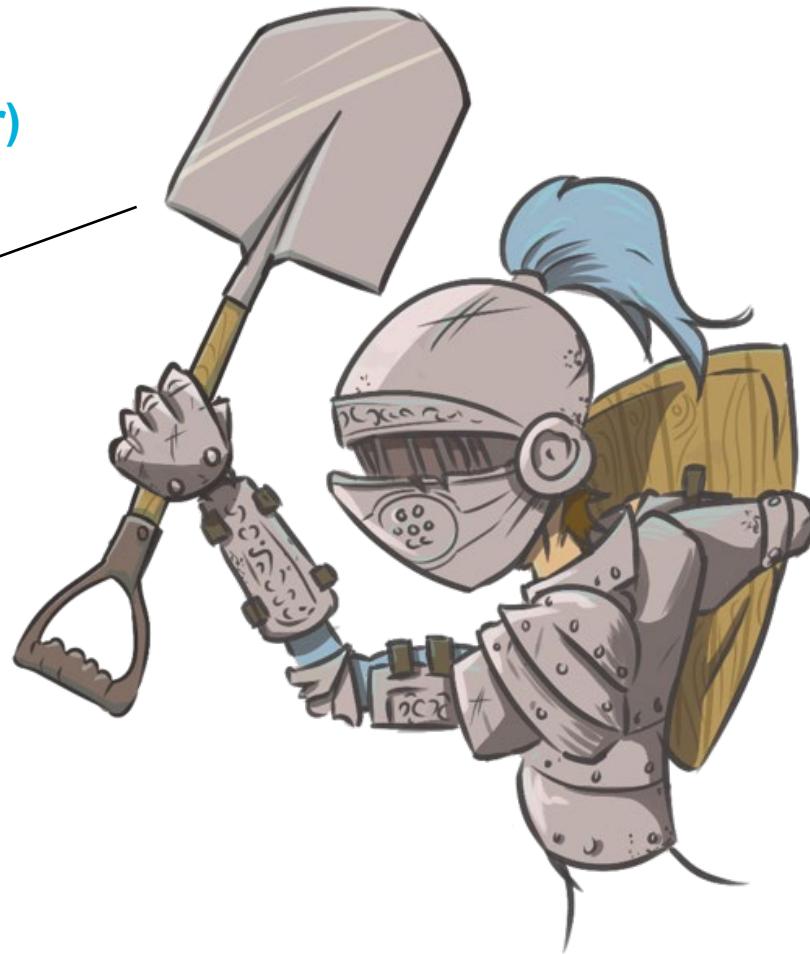
What it was made for (not what you use it for)

S - Shovel

Tool for digging

W - Weapon

Tool for saving princesses



MODELLING GUIDELINES

5

Part 2...



Protection system?

Control System?

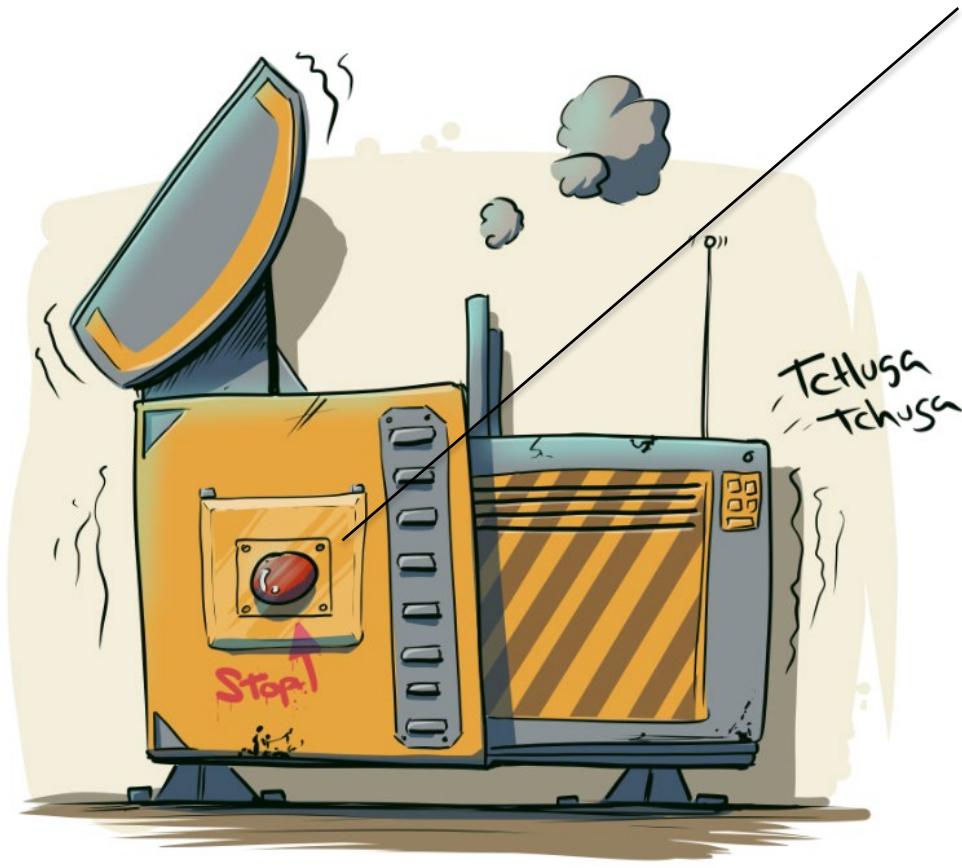


SJB - pushbutton
finger interaction device by pressing

Context

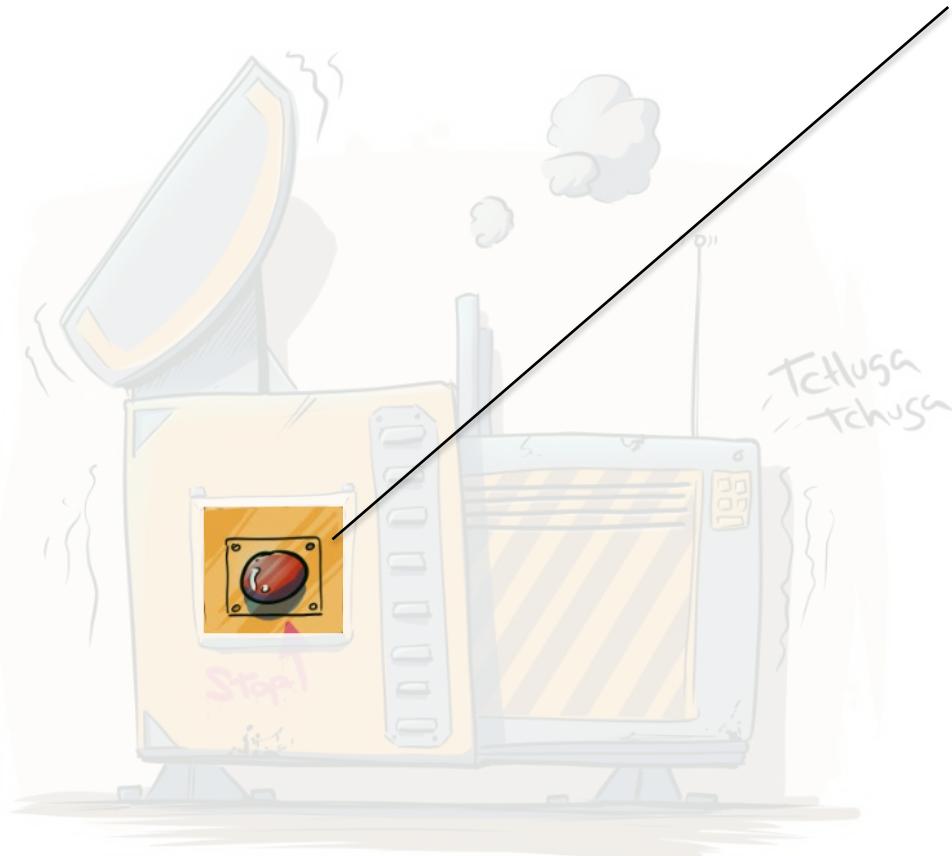
=D1.HE1.PF1 SJB1

Aux. sys 1, heat supply, protection sys., pushbutton



SJB1

pushbutton



1. Receiver principle
2. Exception: Collector principle
3. Repeated classes are ok
4. If it serves A, and A only, it's a subsystem of A
5. Classify according to design intent
6. Classify without context

That's all folks!