

Support for OCX by Cadmatic Marine Software solutions

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Business Development Director



Hull and
Structural Design



Outfitting and
Piping Design



Electrical &
Automation



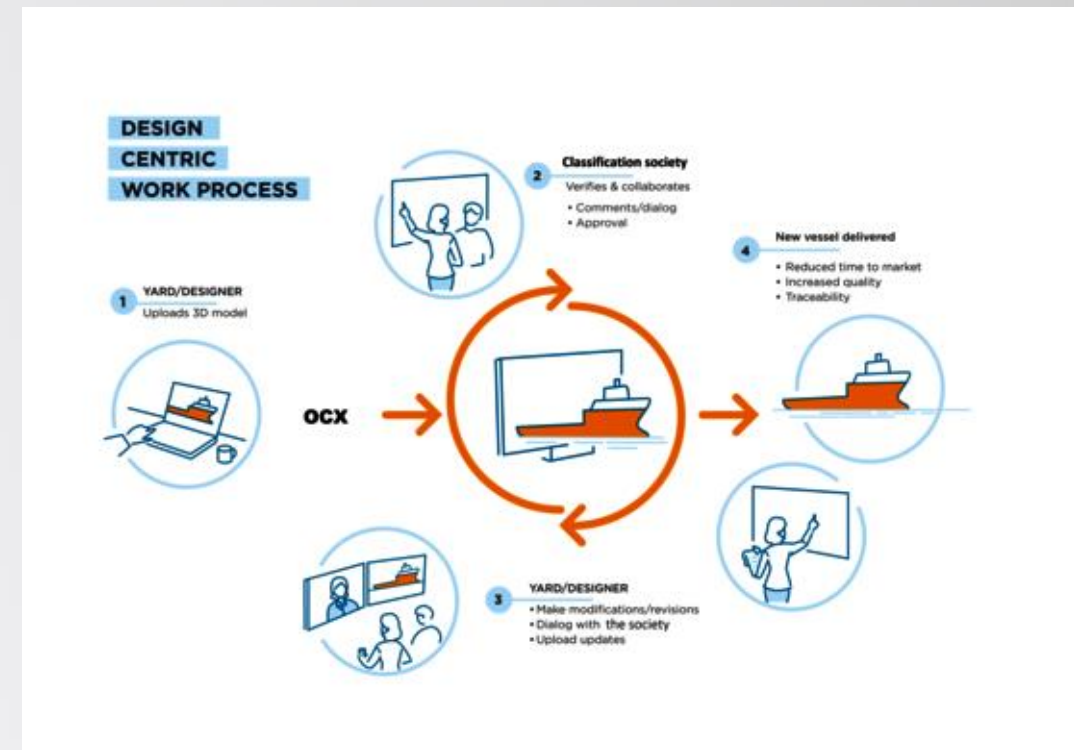
Information
Management

OCX initiative

Cadmatic started as an observer and later changed to a full member

Active participation in the OCX-IF test rounds and shaping the OCX format

Currently is developing a possibility to compare 3D models in Cadmatic native model with OCX 3D model

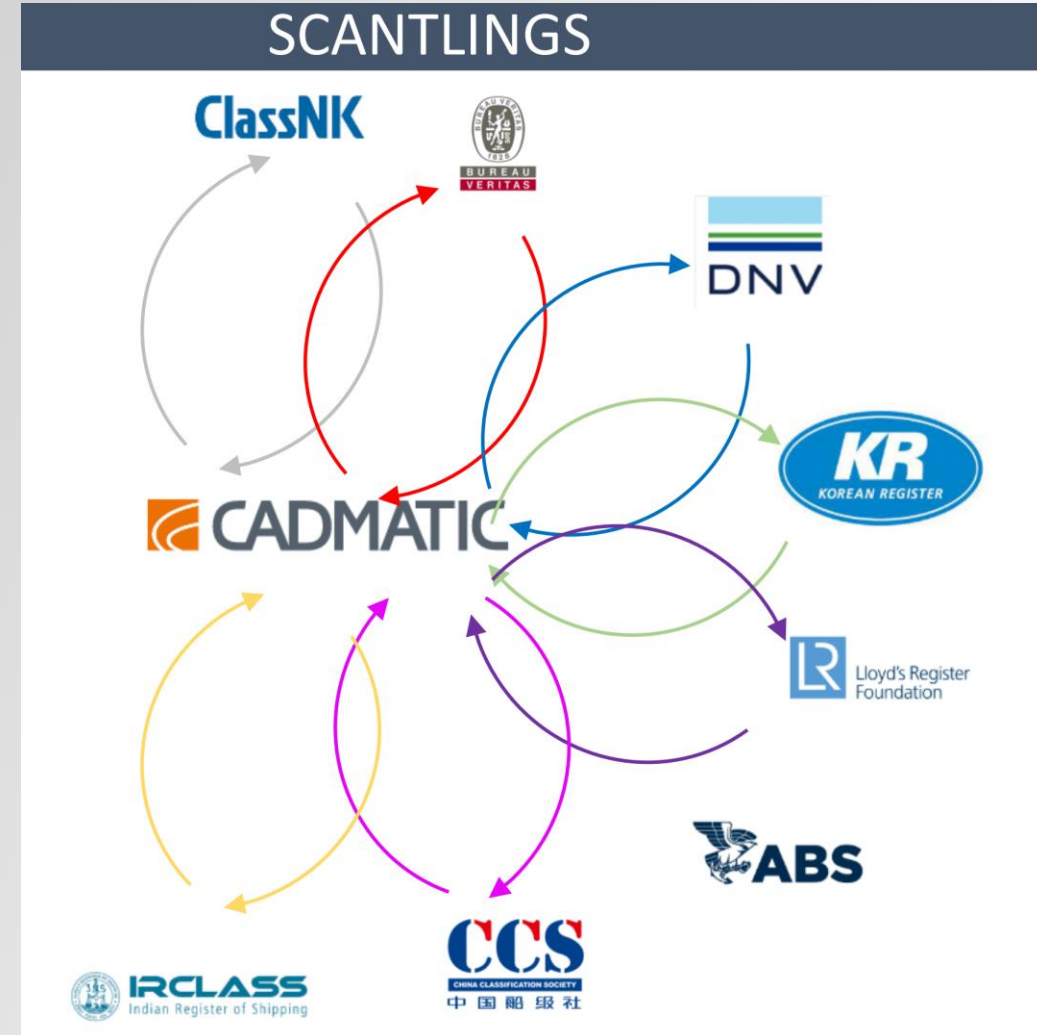


OCX interface from the Hull Design applications

Export and import interface under continuous development, currently in testing by several customers

Updated according to changes in the OCX and new releases of the software

Includes topology of construction elements. Lately rising concerns about reducing the level of topology due to changes in the format

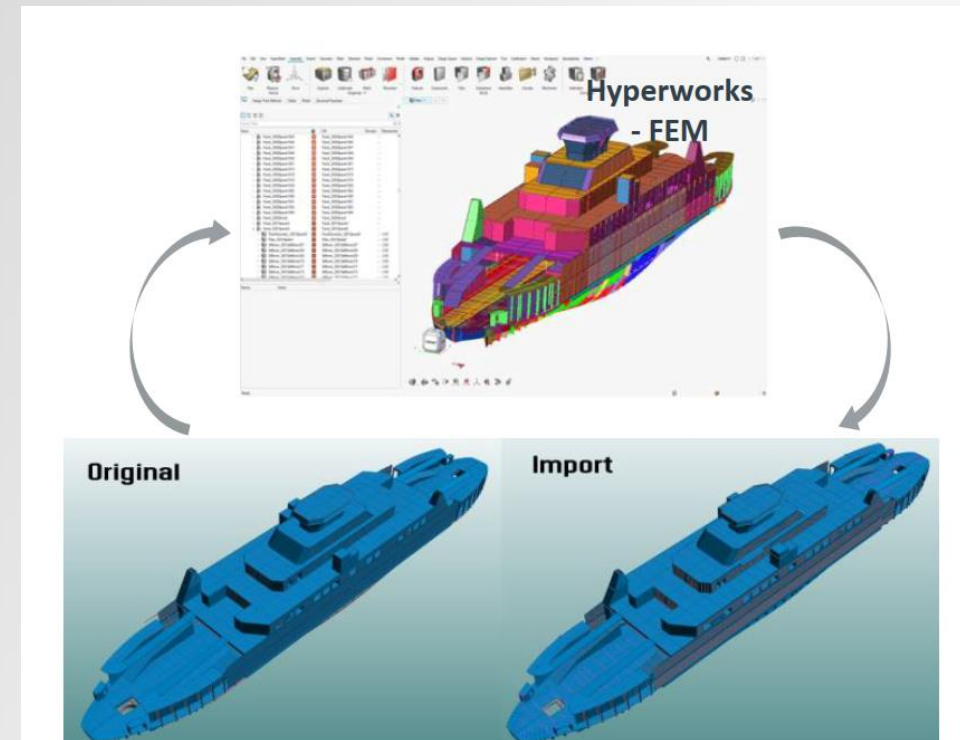
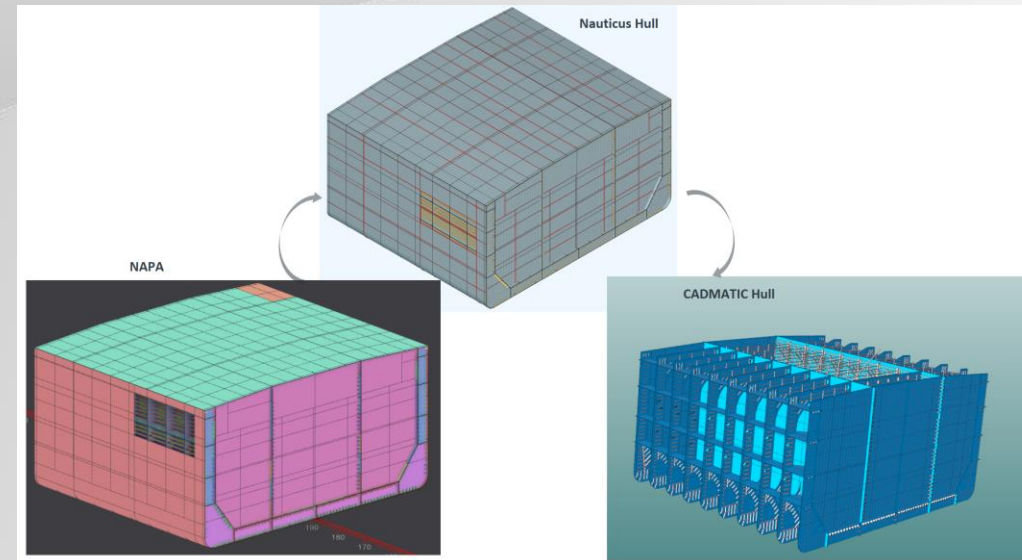


Expectations for OCX format

To enhance interoperability

To serve as a possible universal interface towards FE

From Approved project, the expectation is to facilitate the approval process

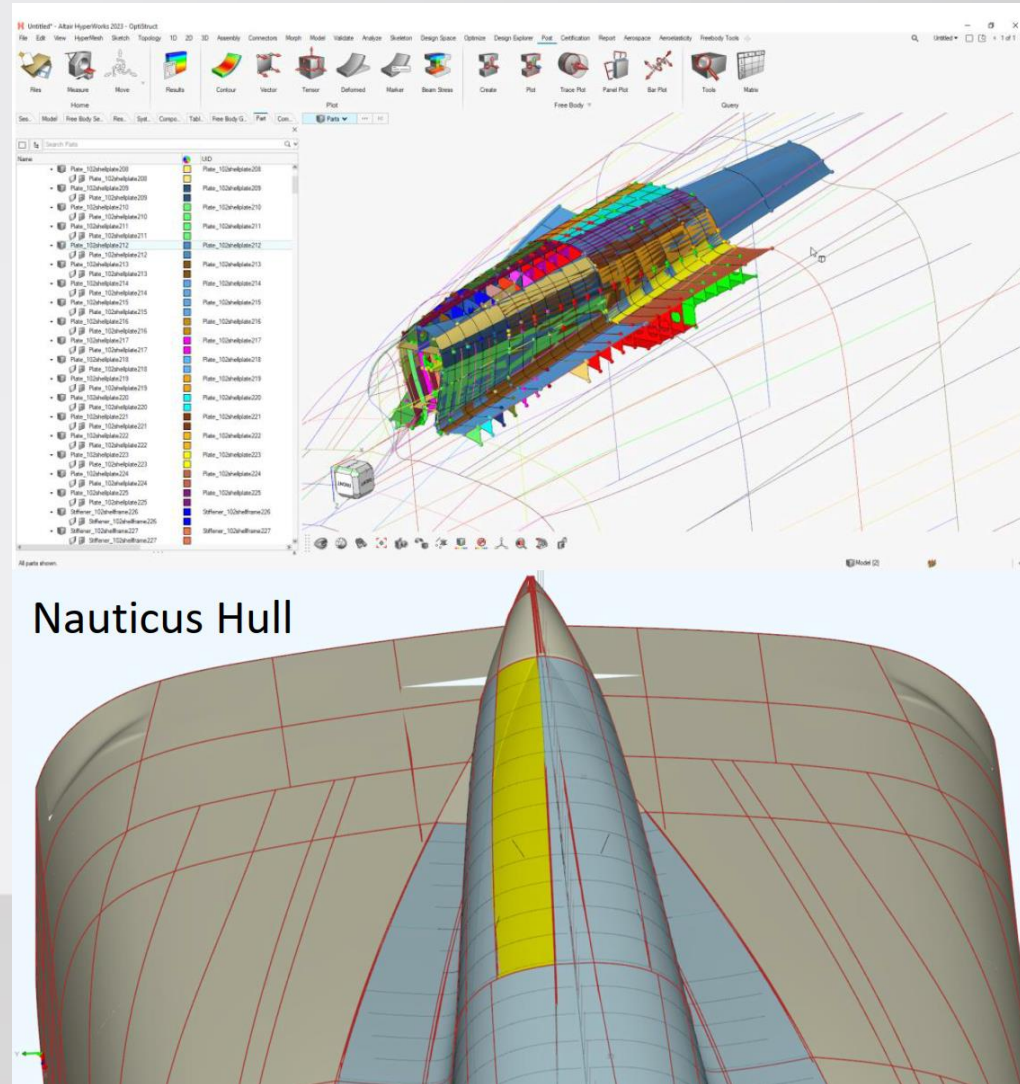


Is OCX a new data exchange format?

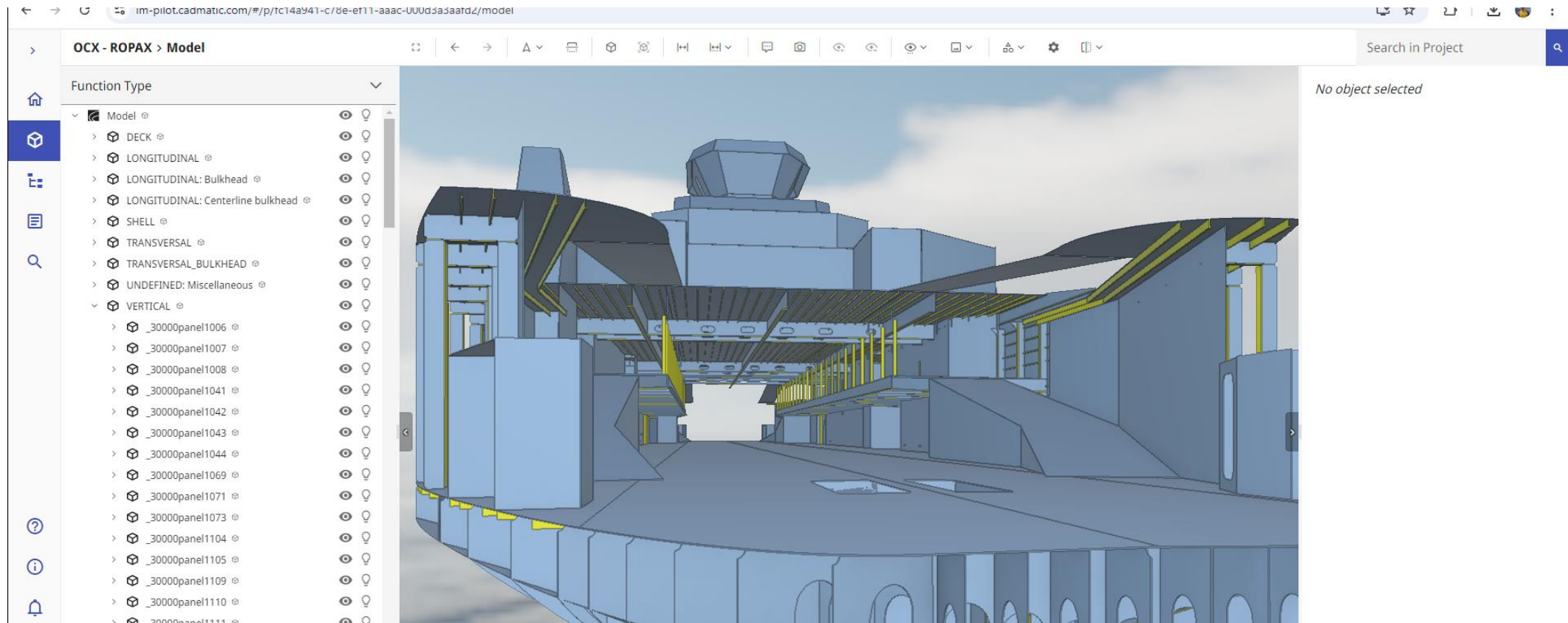
Focusing on OCX file format exclusively deviates from the purpose or the mission: to facilitate the approval process using 3D models

Upkeep of the compatibility in multiple vendors requires significant resources

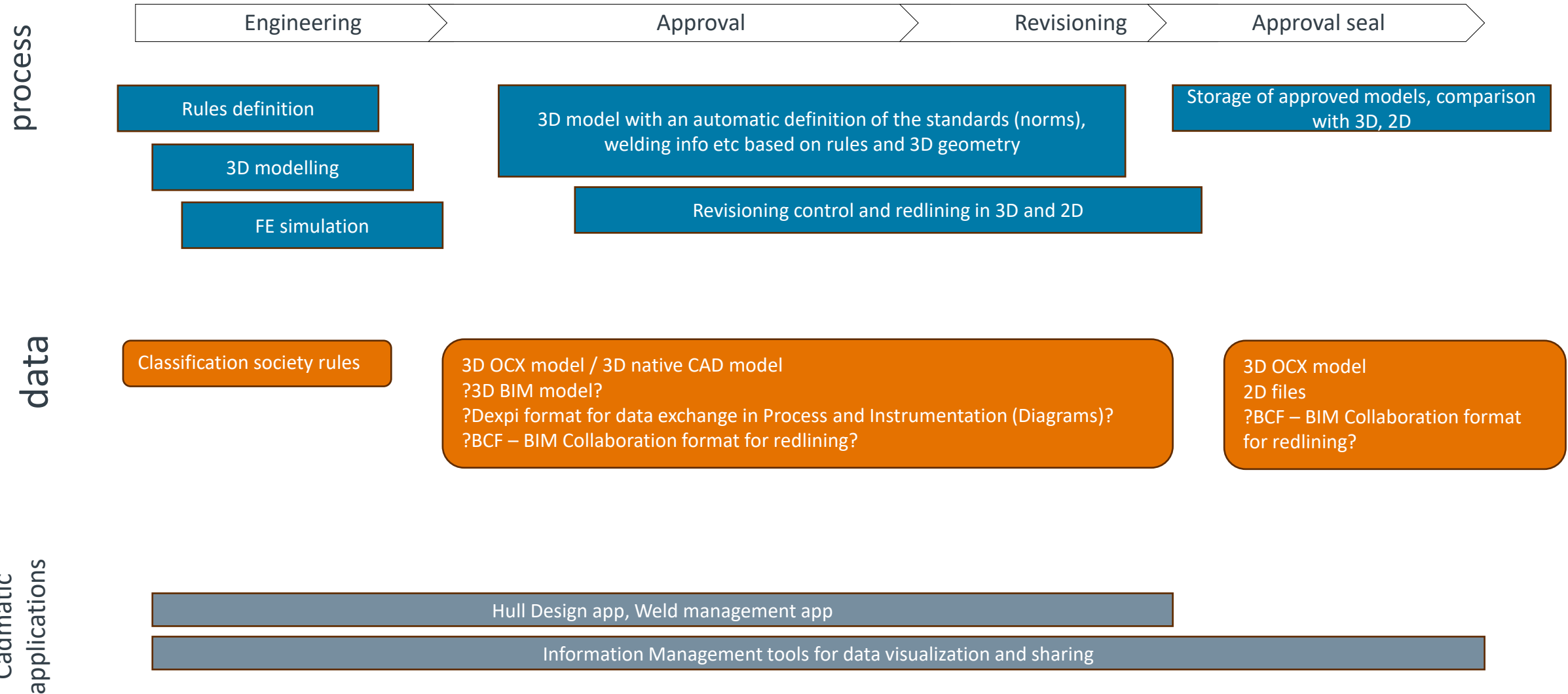
Compatibility with new development must be ensured



Prototyping with OCX viewer to enable capturing the process



OCX compatibility to Cadmatic Information Management



OpenBIM

A possible additions for OCX format:

- IFC for data exchange with 3D
- BCF for data exchange of comments and redlining

DEXPI – Data Exchange in the Process Industry

The aim of the DEXPI e.V. association is to develop and promote a common data exchange standard for the process industry, covering all phases of the process-plant lifecycle, from the specification of functional requirements to the assets in service. The current focus of the DEXPI e.V. association is on the exchange of *piping and instrumentation diagrams (P&IDs)*.

Members & collaboration partners of DEXPI e.V.:

Software & Technology

- Aucotec
- Autodesk
- Aveva
- Cadmatic
- Capital-Gain Consultants
- Hexagon
- IA
- ITandFactory
- IPS
- PNB
- PTC
- Semantum
- Siemens
- Yokogawa

International Collaboration

- IOGP / CFIHOS / USPI / L3Dex
- Open Industry 4.0 Alliance
- Building Smart International / CII
- ISO TC 184 SC4
- POSC Caesar / SEIIA / THTH
- DECHEMA / NAMUR / DKE / VDMA

Owner / Operators

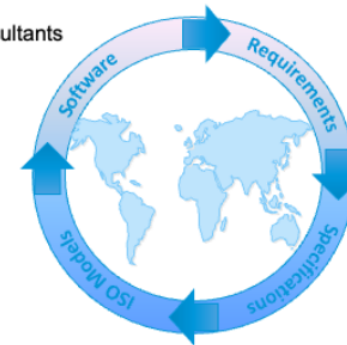
- BASF
- Bayer
- Equinor
- Evonik
- Merck KGaA
- Shell
- TotalEnergies

Others

- WOtten Consulting
- Reiner Meyer-Rössl

Research Organizations

- A* Star Singapore
- VTT of Finland
- TU Berlin
- TU Dortmund
- TU Dresden
- RWTH Aachen University
- TECGRAF/PUC-Rio
- University of Oslo
- University of Korea



Engaging Dynamic "Reports"

Opportunities

Visual Inspection

Categorisation

Visual Styles

Innovative Use

Data Sources

3D Model

Files

Database

Web API

eShare



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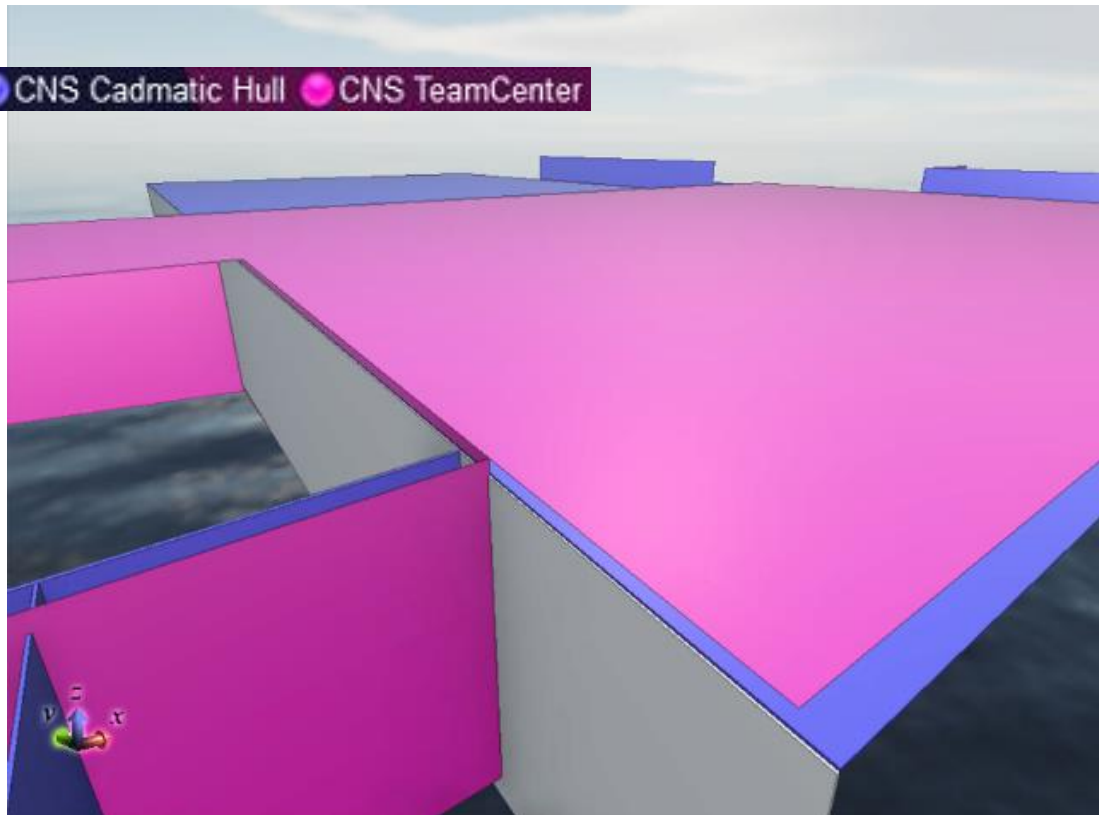
eShare

The supported formats are:
EBM, EBMX, 3DD, DWG, DXF,
DWF, IFC, JT, NWC, NWD, and
SmartPlant
PDMS, RVM
Tribon/AVEVA Marine Hull
Steel XML models
OCX

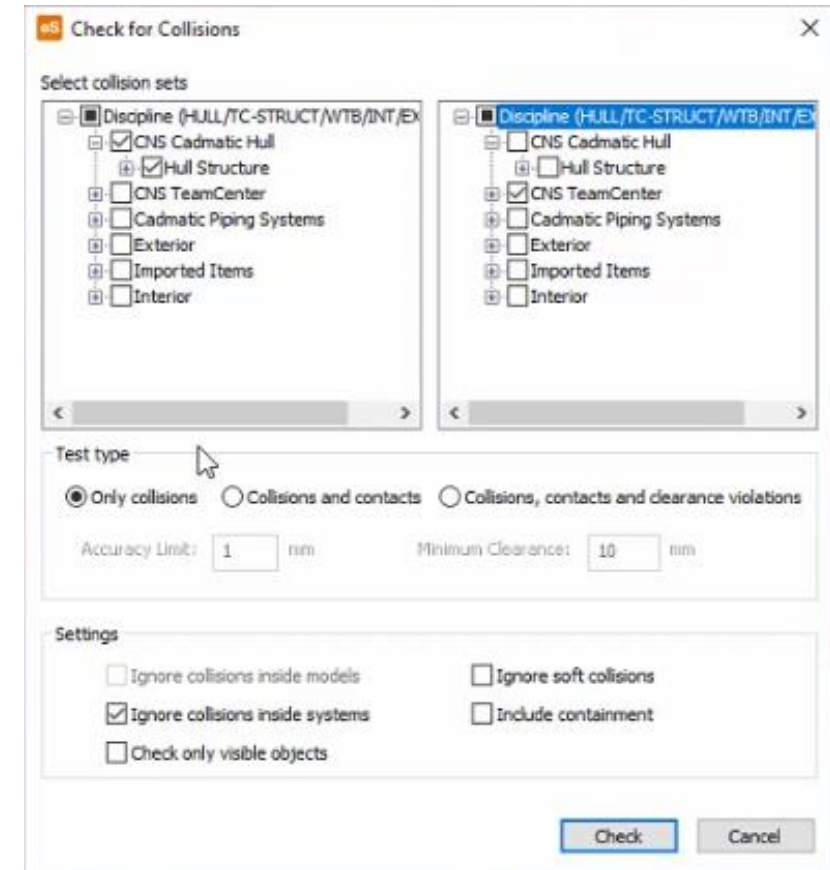


Validation of Models from Different CAD Systems

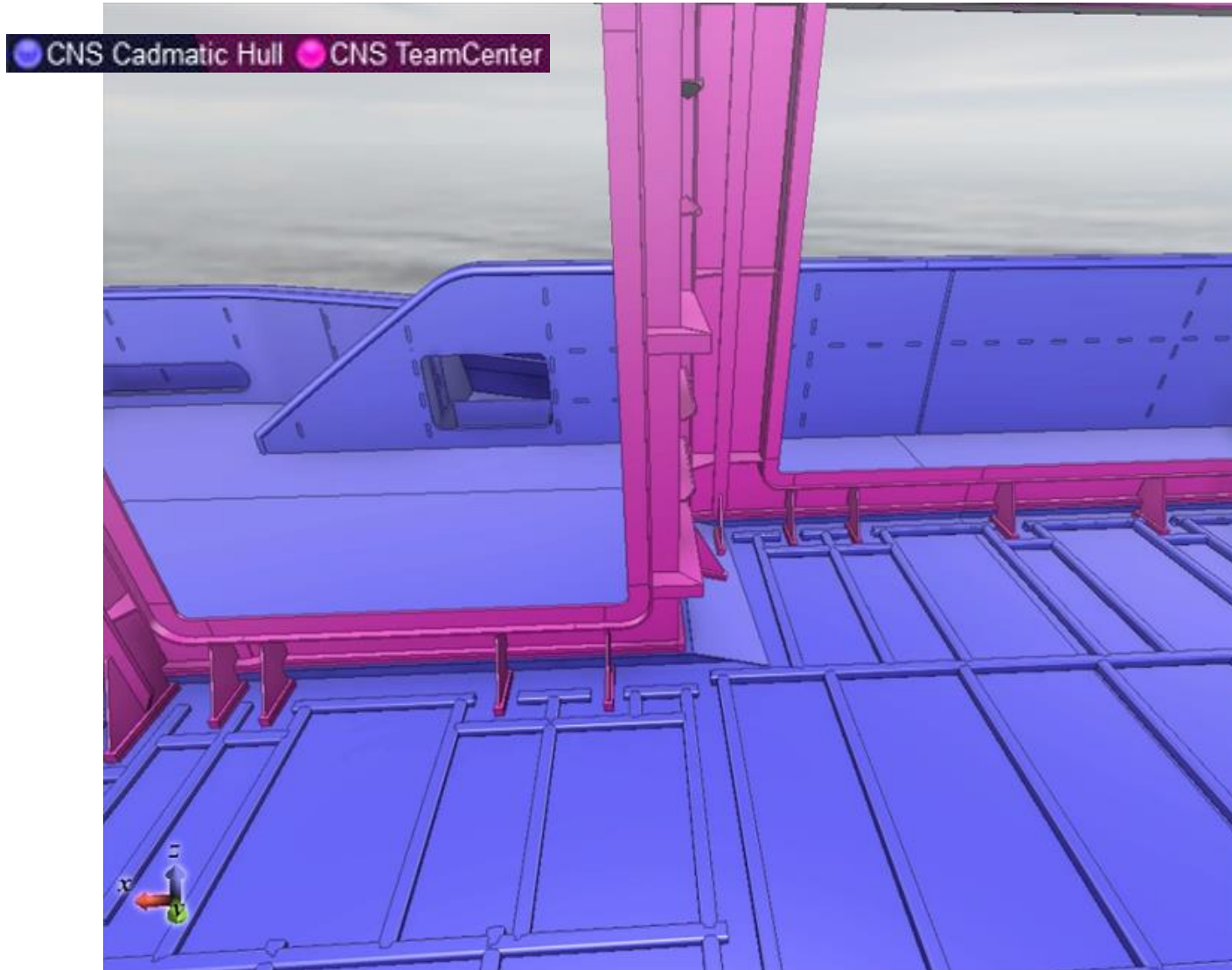
Visual Inspection (Alignment)

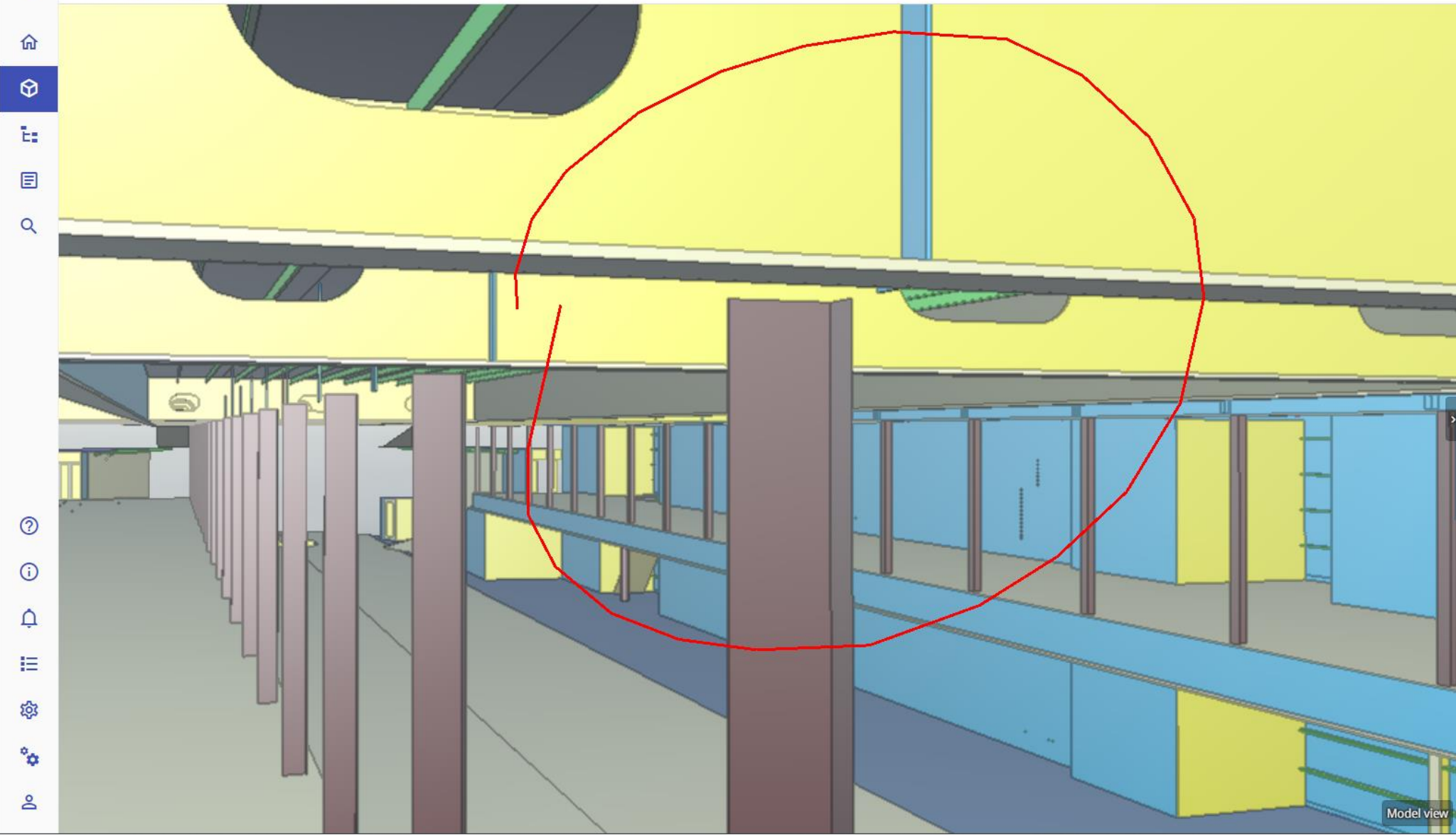


Clash Checking (Mis-alignment)



Validation of Models from Different CAD Systems





Missing Pad

Properties

Type	Markup
Title	Missing Pad
Markup Status	New
Markup Importance	Normal
Latest Comment	Pad is missing

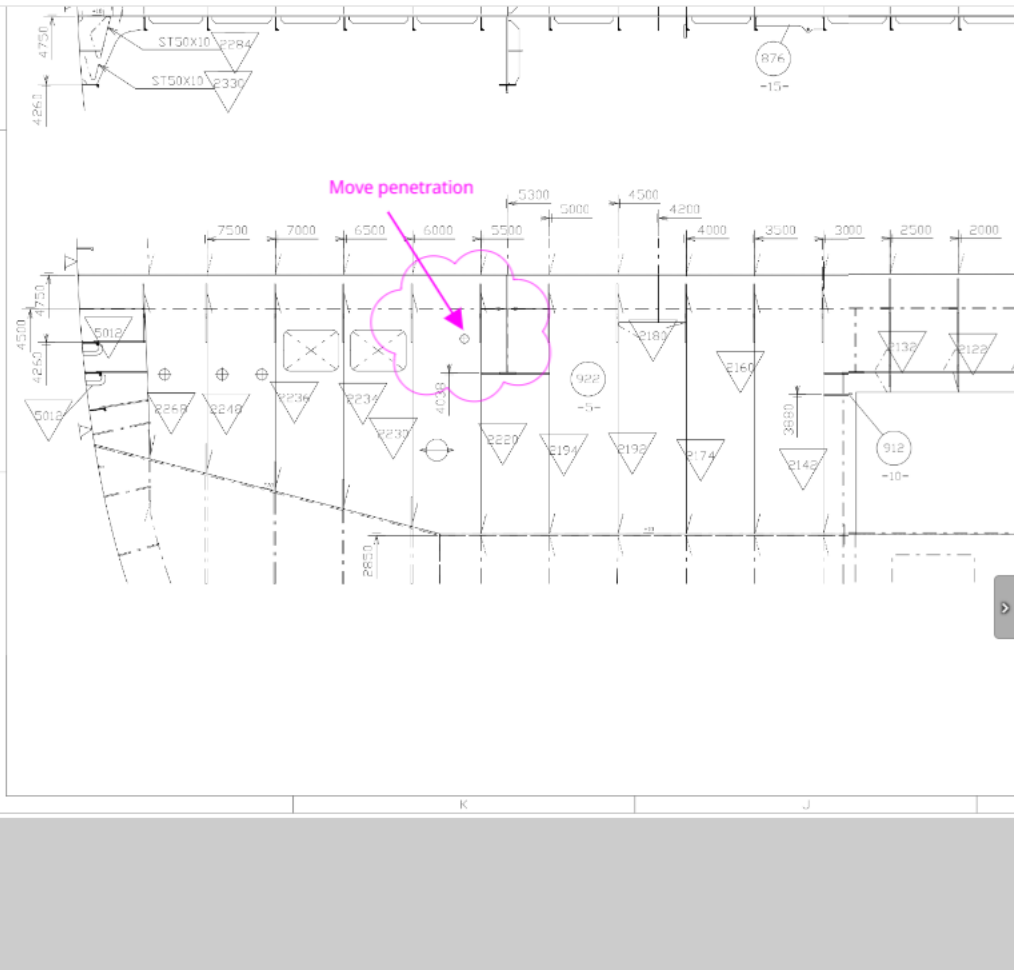
Change History

2024-10-21 08:33:00
Marcus Bole created this:

- Pad is missing
- Altered drawing
- Title to Missing Pad
- Linked to Name(Name) : _30000panel956part4869

Delete Edit Close

Linked 2D documents redlining



Move Penetration

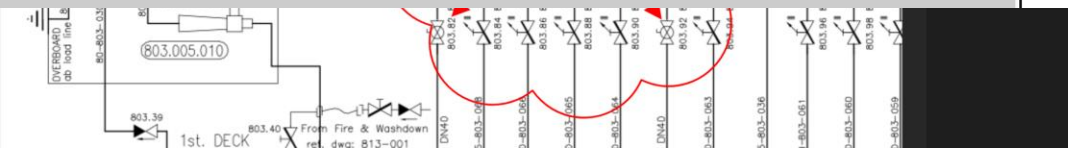
Properties

Type	Document Markup
Title	Move Penetration
Latest Comment	Added to a change request

Change History

- 2024-10-30 08:40:57**
Marcus Bole created this:
Penetration obstructs valve service space. Need to look at moving this.
 - Title to Move Penetration**
- 2024-10-30 08:42:53**
Marcus Bole commented on this:
Added to a change request

Delete Edit Close



Associating Inspection Sign-offs by Position (Smart Points)



FOB-720-F-101-OB 🔗 🗑️ ⚙️

Inspection Document ⬆️

External ID: **FOB-720-F-010-OB**

Created By: **Marcus Bole**

Creation Time: 2023-04-05 16:03:28

Modified By: **Marcus Bole**

Modification Time: 2023-04-05 16:03:28

Remark:

Linked Model Items ⬆️

Part Identifier: 347-P0111-010

Documents ⬆️

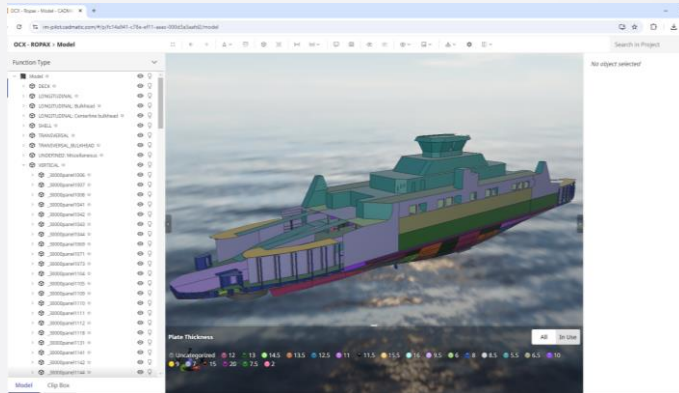
Select metadata

Tst-Roy-003-OB2.pdf

Tst-Roy-003-OB2.pdf

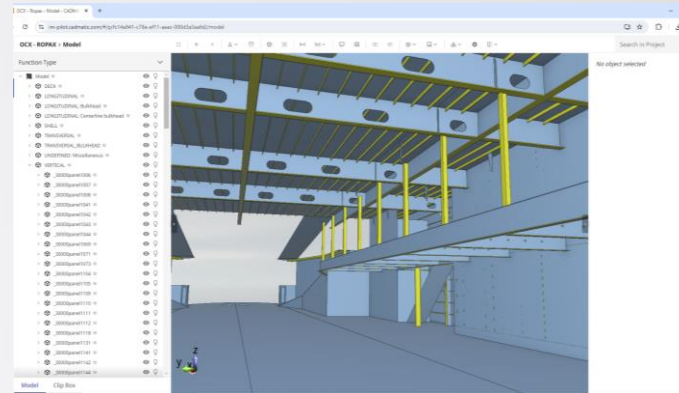
REPORT OF INSPECTION / ACCEPTANCE		DISCIPLINE	
2	FIRST	PIPELINE	OB - no level, BK - no marking
	SECOND	PIPING/MECHANICAL	PT: MSH-720-F-010-OB
	THIRD	EQUIPMENT	
	FOURTH	MACHINERY	INSPECTION DATE: ...
ATTACHMENTS		INSPECTION REFERENCES	
1. P&ID: 9722-02-001-10-01 rev A 2. P&ID latest E&S approved rev: 9722-02-001-10-01 rev A 3. I&P's: Schedule 30 steel 4. Construction Drawing: 9722-000711-00-01 rev B 5. Panchair Issues: - 6. Other: N/A 7. Test procedures: 9722-A-700-01-01-01 rev B 9722-B-700-01-01-01 rev D 8. Inspection & test plan: 9722-02-001-10-01		BLOCK/AREA: AT1, B01, B02 BECK: Tanks, Bottom deck ELEMENT CODE: T20 SYSTEM NAME: Fuel oil WELDER: Austere Steel Duplex Steel WPS: MSN 20-01 & 20-02 (Steel) CERTIFICATE: N/A IDPs: T20 P0111-01, W2 001, B04 102, B06, B07, B08 000 & 009	
5. PRESSURE TEST (STRENGTH)		REMARKS:	
PRESSURE TEST INFO 1. Design pressure: 2.75 Bar 2. Test pressure: 3.8 Bar 3. Test medium: Compressed air 4. Start date & time: 5. End date & time: 6. Working pressure test:			
SYSTEM STRENGTH TEST ACCEPTED			
REPRESENTATIVE OWNER			
Name: <i>Roy, S. Marcus</i>	Signature: <i>[Signature]</i>	Date: 11/01/2023	
REPRESENTATIVE L&S			
Name:	Signature:	Date:	
REPRESENTATIVE CONTRACTOR/SUBCONTRACTOR			
Name: <i>Robert Bruce</i>	Signature: <i>[Signature]</i>	Date: 11/01/2023	
REPRESENTATIVE AIR-BLINDER/INSPECTOR			
Name: <i>Koos Hank</i>	Signature: <i>[Signature]</i>	Date: 2023	

Use cases of OCX model in Cadmatic IM



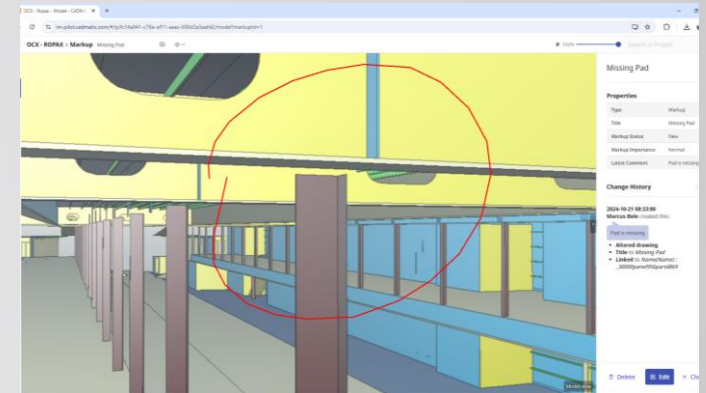
Use any data for visualization

- Colour coding based on thickness
- materials
- comments
- changes
- etc



Hierarchy of the 3D model

- In-build and customizable i.e. compartments, materials, departments etc
- Navigating in 3D and product tree



Redlining and comments

- Linked to 3D parts in 3D and 2D
- With a full history of changes
- Using status of approval
- Export/import
 - Excel
 - BCF (BIM)

Back end for mobile use available OOTB



3D model to go

- On tablet for mobility
- And offline use
- Sync with server when online



Connect with data

- Merge several models
- Use in AR/VR with a direct interface
- Optimized performance



Redlining

- Comments with attached images
- Search with QR



 **CADMATIC**
Feel Empowered