

Topological model of an oil platform

Integrated Operations in the High North – Joint Industry Project



Semantic Days

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Act 6: Reservoir and production pilot

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- **Main objectives:**

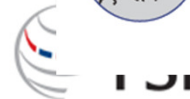
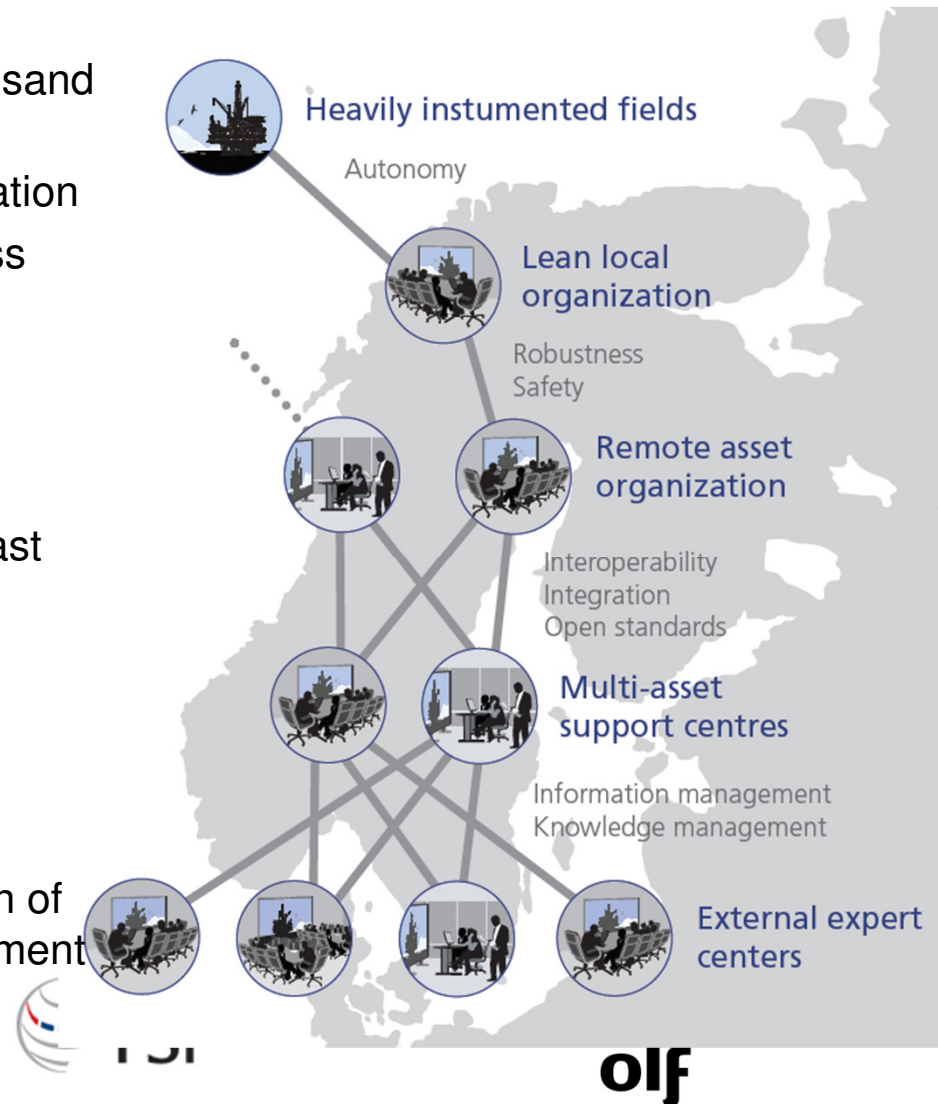
- Integrate information sources in the sand production domain
- Advances within production optimization
- Provide increased situation awareness both with respect to produced sand volumes and erosion

- **Two use cases:**

- Sand detection: semi-automatic validation of sand measurements (fast loop)
- Erosion Monitoring: monitoring of erosion through interoperability with external expert centers (slow loop)

- **Common activities:**

- Data standardization and abstraction of domain knowledge in sand management

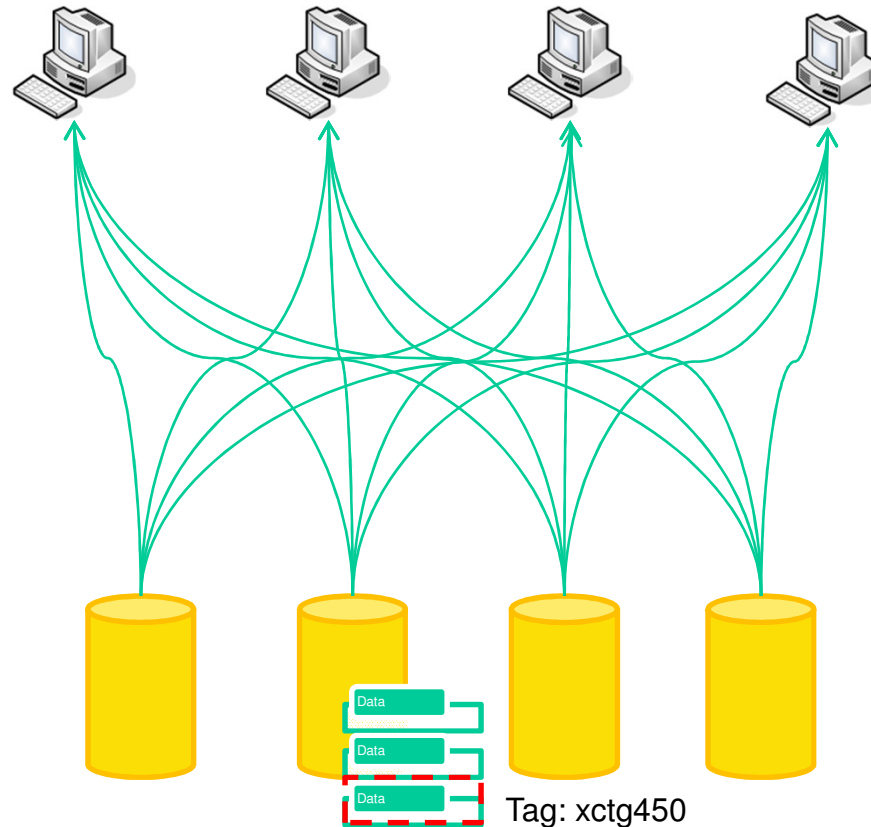


Interoperability - challenge

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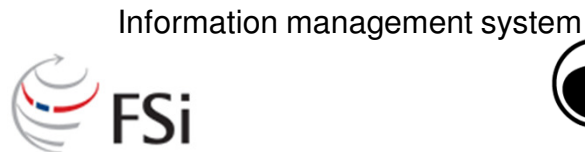
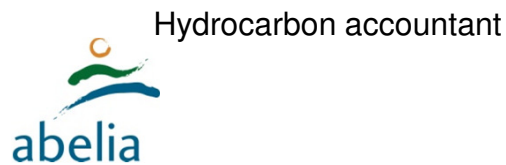
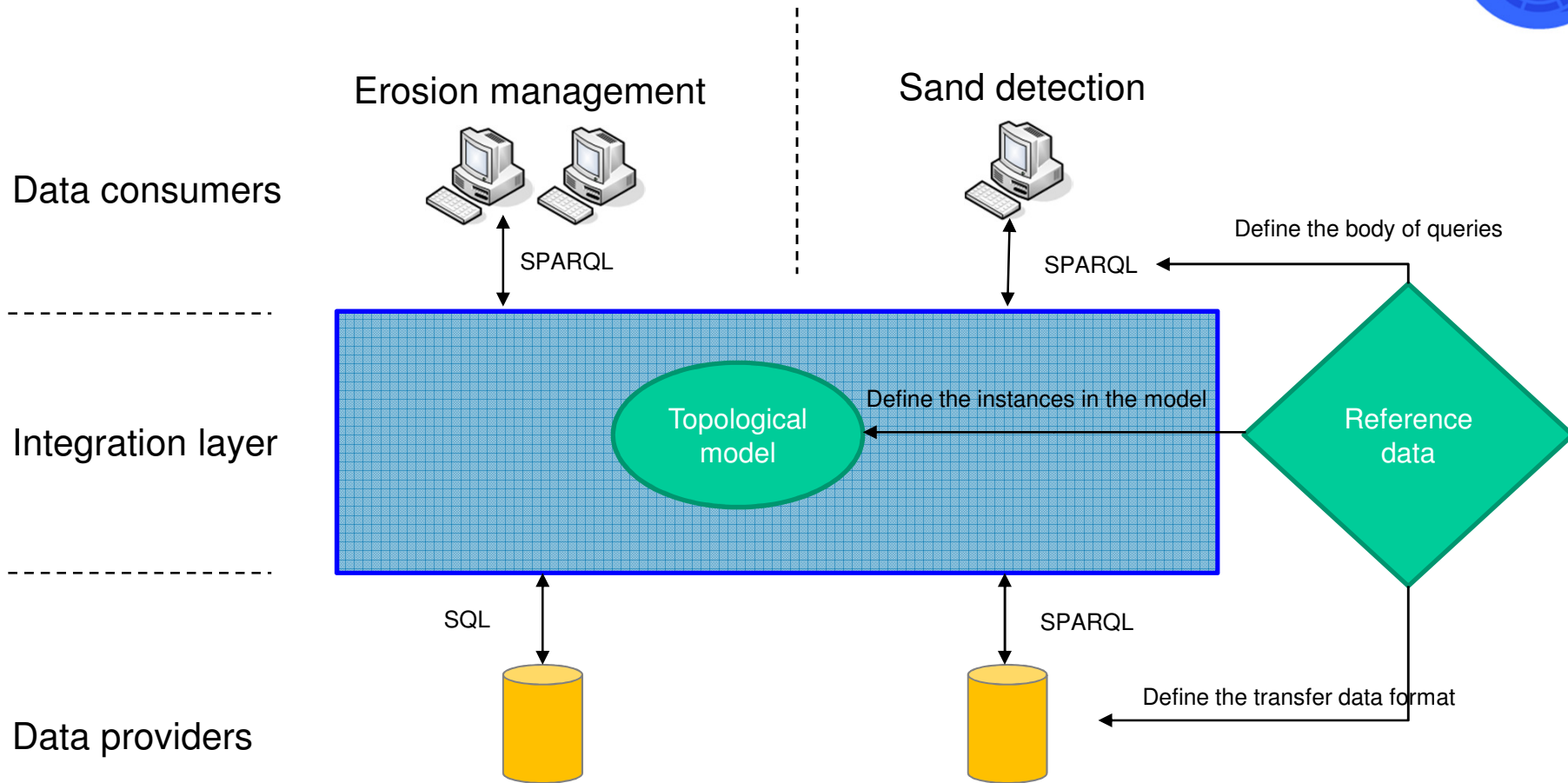


Wellhead pressure?



Interoperability - solution

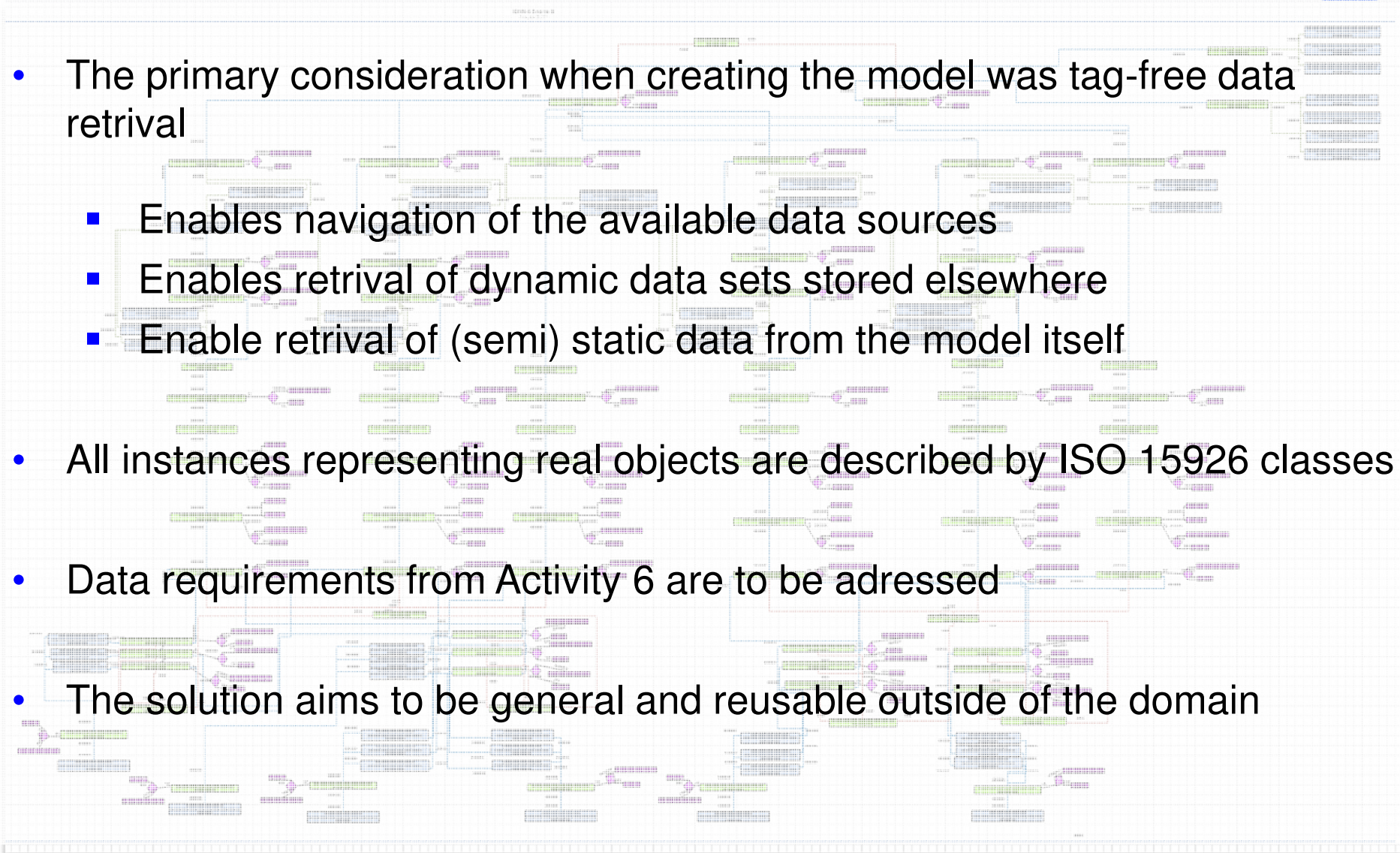
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Topological model objectives



- The primary consideration when creating the model was tag-free data retrieval
 - Enables navigation of the available data sources
 - Enables retrieval of dynamic data sets stored elsewhere
 - Enable retrieval of (semi) static data from the model itself
- All instances representing real objects are described by ISO 15926 classes
- Data requirements from Activity 6 are to be addressed
- The solution aims to be general and reusable outside of the domain



Example – Pressure data

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down hole pressure

flowline pressure

well head pressure

well head downstream choke pressure

separator pressure

topside flowline downstream choke pressure

subsea flowline pressure

manifold pressure



Topological model of a well

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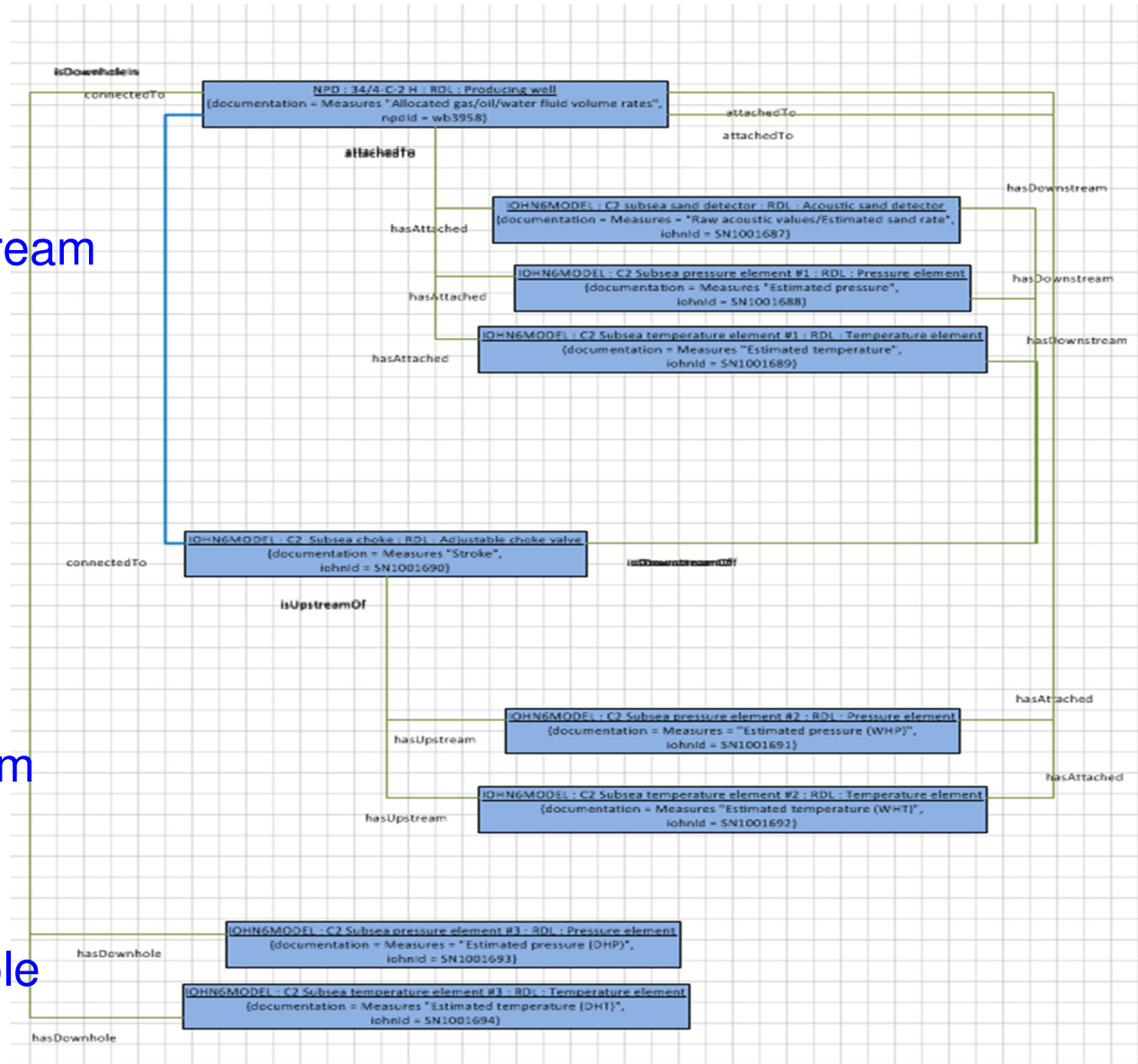


Downstream

Choke

Upstream

Downhole



Lessons learned



- The graphical modelling approach is believed to have included the domain experts in a larger degree than for instance RDL triplets.
- The project group has gained a significant amount of insight into the requirements to successfully integrate data.
- Visio's UML representation package not suited for automated transformation of model to RDL

