



# PLCS Pilot for New Norwegian Frigates

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**Jotne EPM TECHNOLOGY**



The 7th NASA-ESA Workshop on  
Product Data Exchange (PDE)



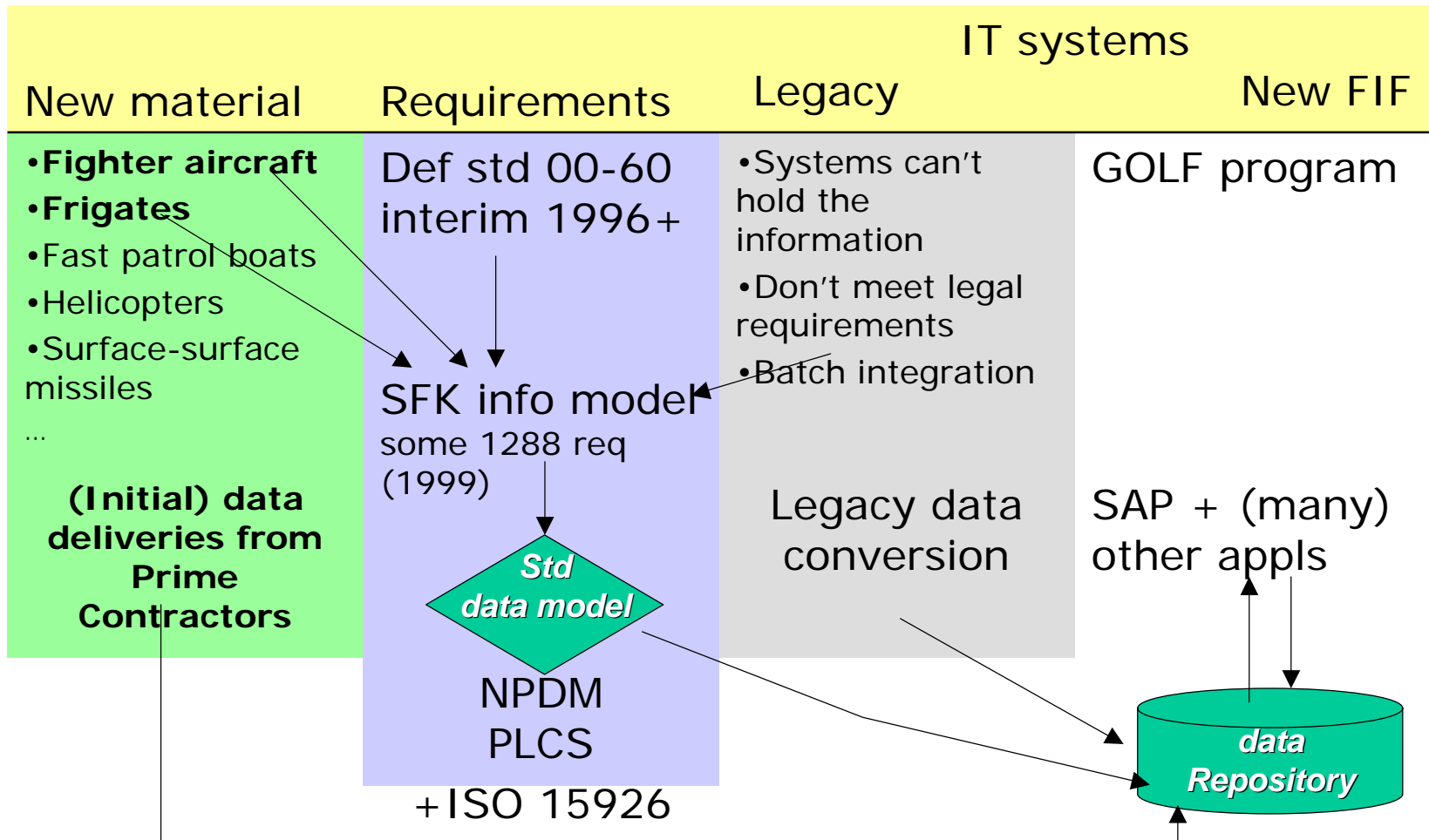
# Topics



- Background
- Pilot overview
- Findings
- From pilot to production
- Conclusion and outlook
- Policy statement on PLCS



# Background

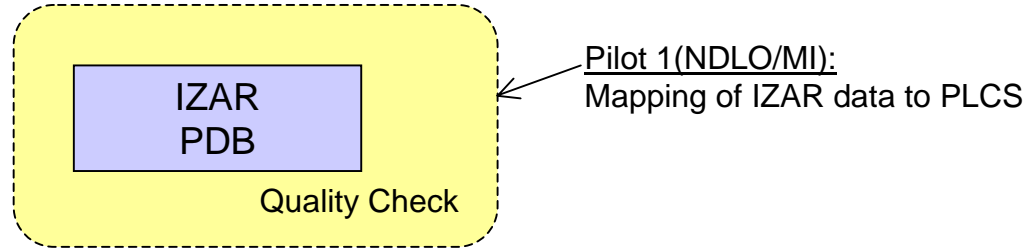


# Pilot overview





# Pilots





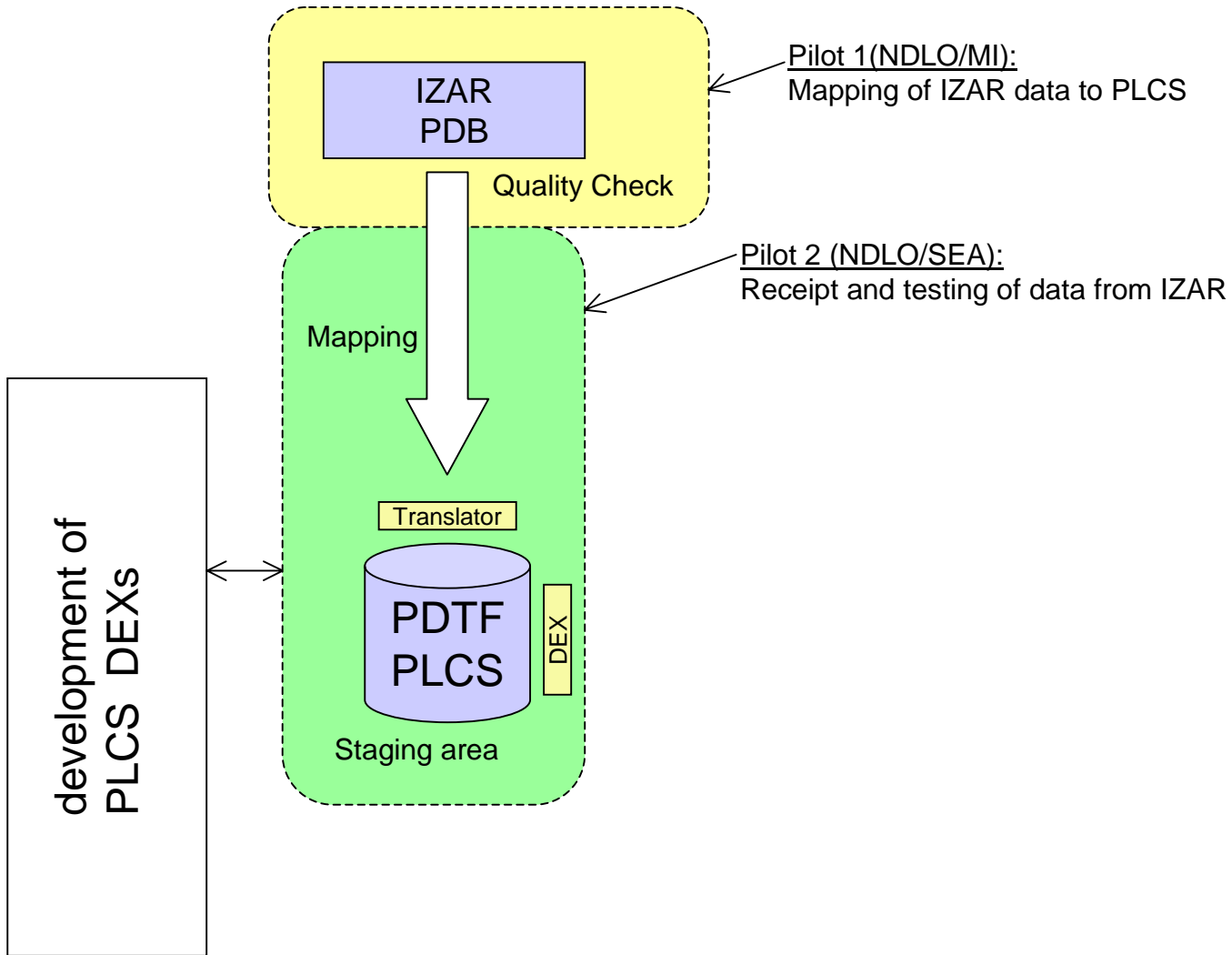
# Pilot 1



- Analyze the relation between the data model that IZAR use in the Project Database (PDB) for the frigates and the requirements model of the NDLO/Navy for the through-life support of the frigates
- Complete the mappings from the NDLO/Navy data model to the PLCS data model that were conducted in the phase-A project
- Agree and test with IZAR an export format for the PDB population
- Mapped 26 entities with 333 attributes
  - Completed
    - Structures, part, maintenance task and document
  - Remains
    - change management and project management



# Pilots





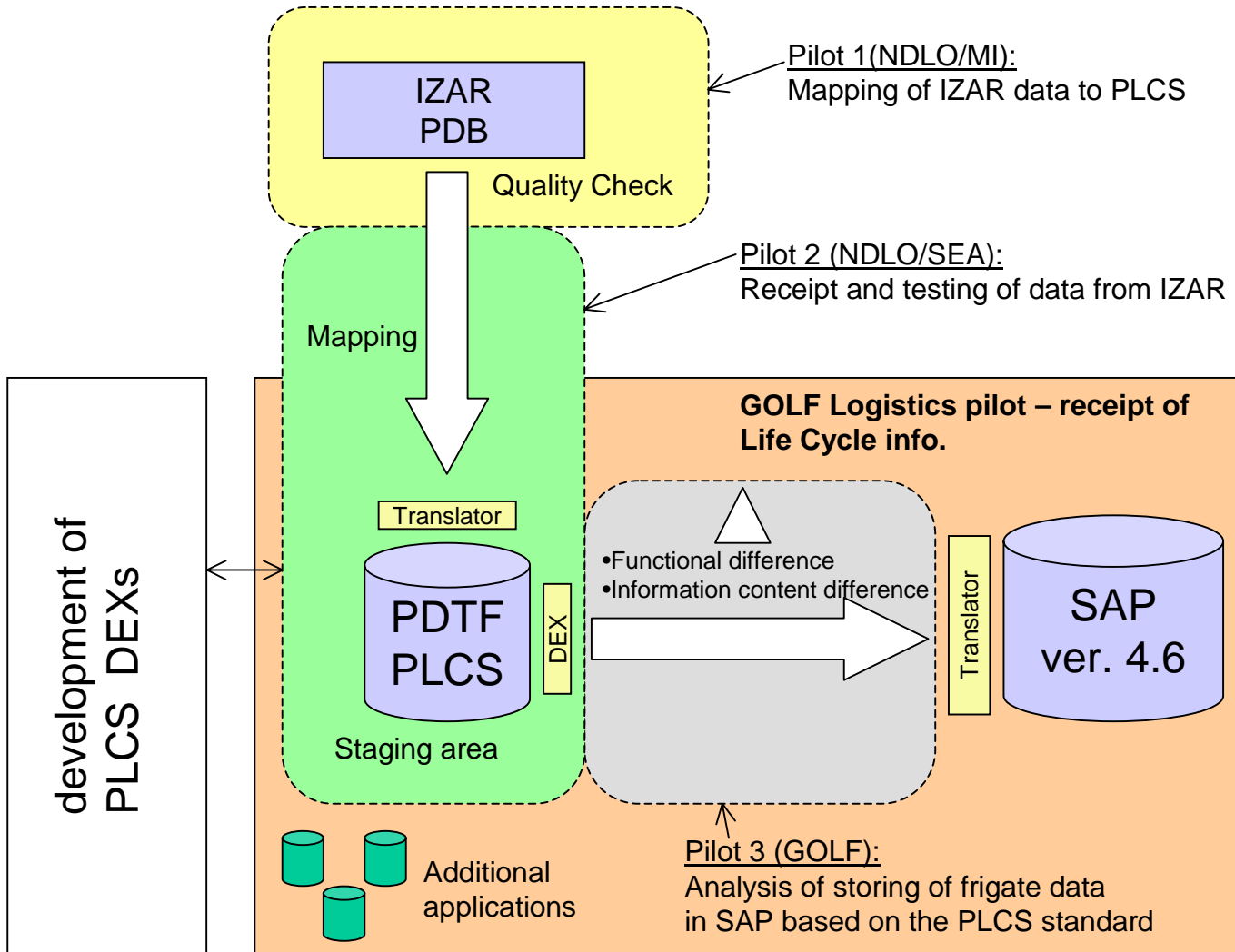
# Pilot 2



- Establish a translator in order to automate the process of receiving information deliveries from IZAR
- Establish a staging area, based on the PLCS data model, for receiving data from IZAR
- Establish Data Exchange Sets (DEXs) in order to standardise the exchange of data from the staging area
- Establish a Quality Check process of data transferred
- Contribute to an evaluation of ISO10303–239



# Pilots





# Pilot 3



- To reveal, by means of the functional mapping, the difference between what PLCS and SAP is covering
- To assess, by means of the data mapping, the capability of SAP to store PLCS data
- The target (SAP) scope limited to the scope of FIF

Make recommendations for exchange of information with SAP according to the PLCS standard, and to identify PLCS driven requirements for a translator to SAP

# Findings





# Data Exchange Set (DEX)

- A DEX represents a sub-set of the PLCS data model that includes constraints on how the model can be interpreted
- It serves as a technical specification for implementers of PLCS
- The use of standardised DEXs enables:
  - The common interpretation of PLCS; multiple dialects of PLCS are avoided
  - Easy communications across the user communities
  - A unique reference source for contractors



# Standardised DEXs by applying standard reference data



- Use business domain specific terminology to avoid misinterpretation of a DEX
- Reference data is a key factor for standards based data exchange
- Reference data reduce the ambiguity of terminology
- Roles of Reference Data;
  - Reusable data and data of interest to others
  - Data applied to quality assurance
  - Data to extend the data model by specialisation



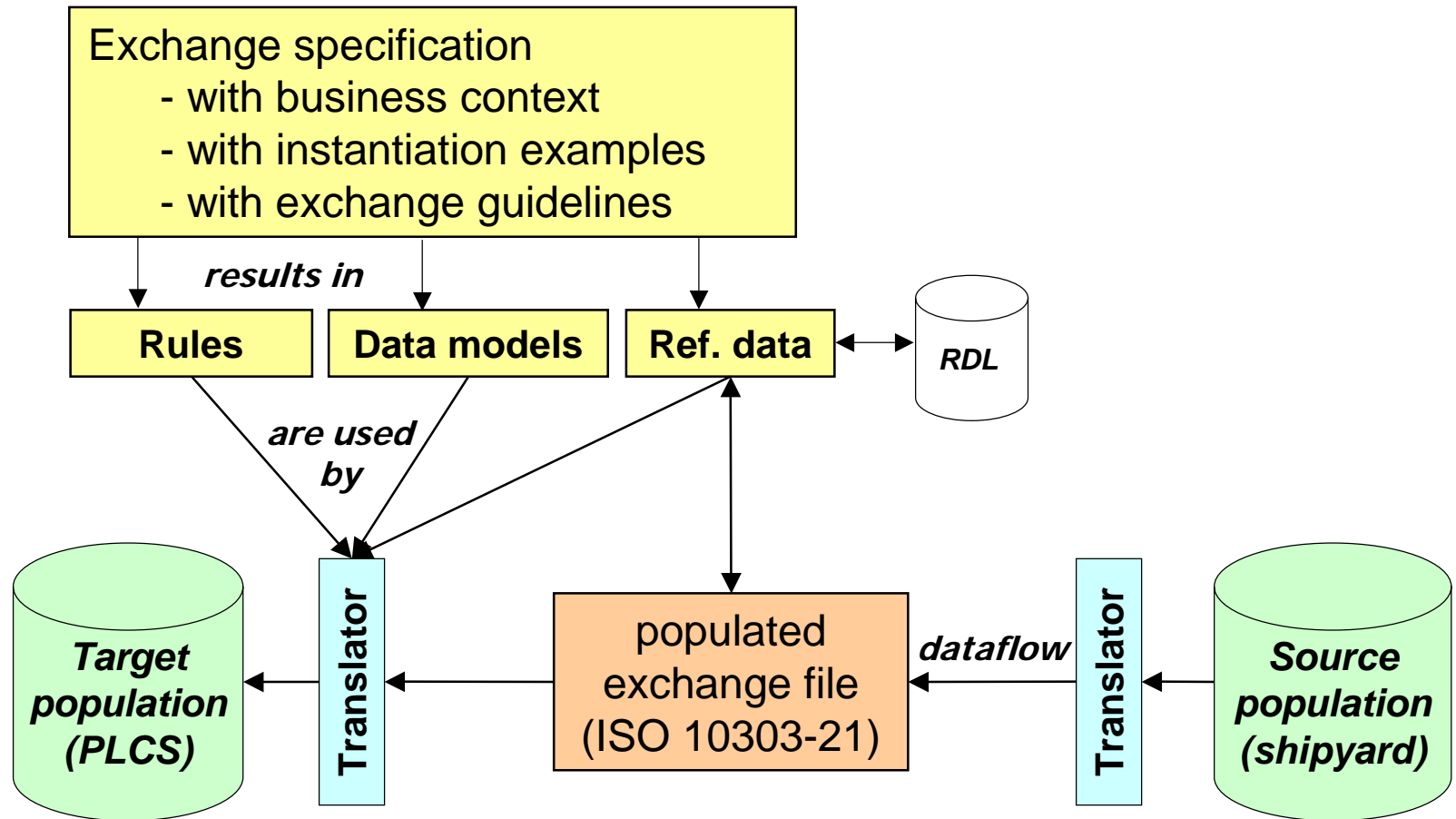
# Develop a translator for the prime contractor data to ISO 10303-239



- acquire knowledge of the two data models
- document the data models and relate source concepts to target concepts
  - documented in *EDMmodelMigrator*<sup>™</sup>
- design the translator functionality
  - empty target population
  - enhanced to merge new data sets
  - fleet management
  - reference data
- write the translator software
  - Express-X (ISO 10303-14)
- test the translator



# Translator specification and source to target dataflow



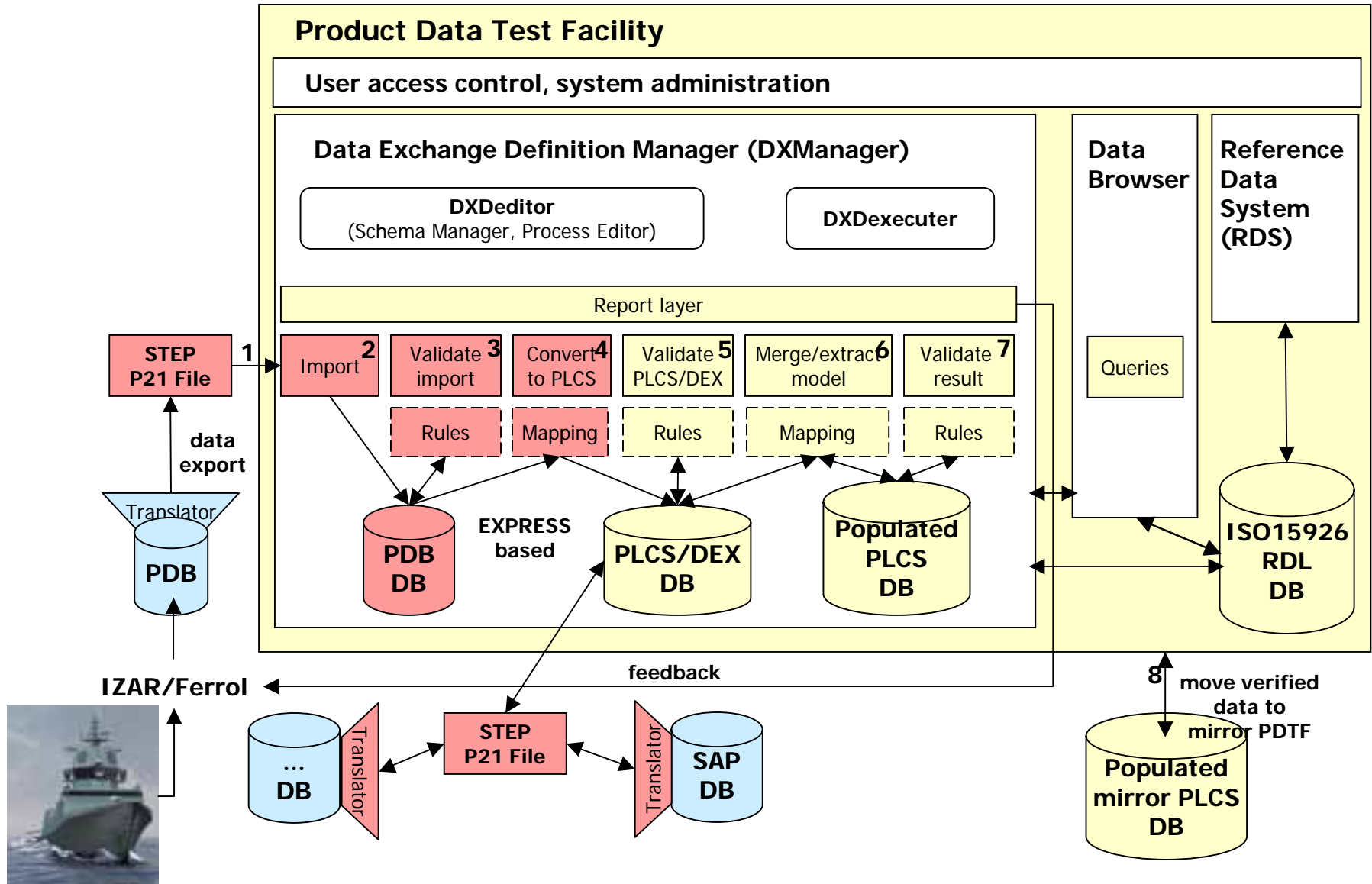
# From pilot to production





# Product Data Test Facility

- applied to NDLO frigate programme





# Conclusion and outlook

- The pilot has demonstrated that ISO 10303-239 satisfies the needs of the NDLO to hold and exchange product and support data
- The gap-study showed that most of the frigate data from the main contractor could be moved into SAP 4.6 from an ISO 10303-239 representation
- The work now enters Phase C where the NDLO requirements not met by PLCS will be revisited to find an open standard also for those. This include:
  - Risk STEP part 56
  - System engineering ~AP233
  - Buy-sell-move transactions
  - Structured documents ~S1000D
  - Training ~SCORM



# NDLO Policy statement on PLCS

(June 2004)



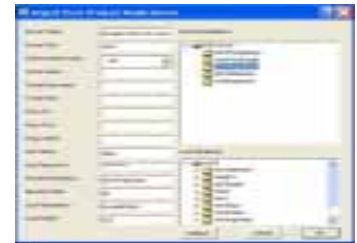
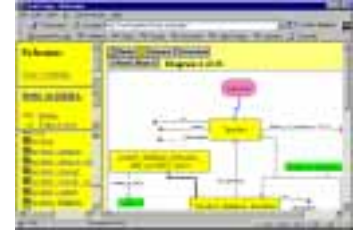
- ISO 10303-239 (PLCS) is to be used for all external information exchange for the areas covered by the standard
- Applies to all new projects from July 2004
  - *On-going projects* to be considered on a case-by-case basis taking information quality, time and cost into consideration
- PLCS is a design parameter for the new ERP system provided by the GOLF program



# Applications used



- *EDMvisualExpress™* to document models
- *EDMmodelMigrator™* for systems analysts doing the initial requirements
- *EDMDeveloperSeat™* to create mappings/translators
- *EDMserver™* to validate and store PLCS data including reference data libraries.





Questions?