



PLCS Pilot for New Norwegian Frigates

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



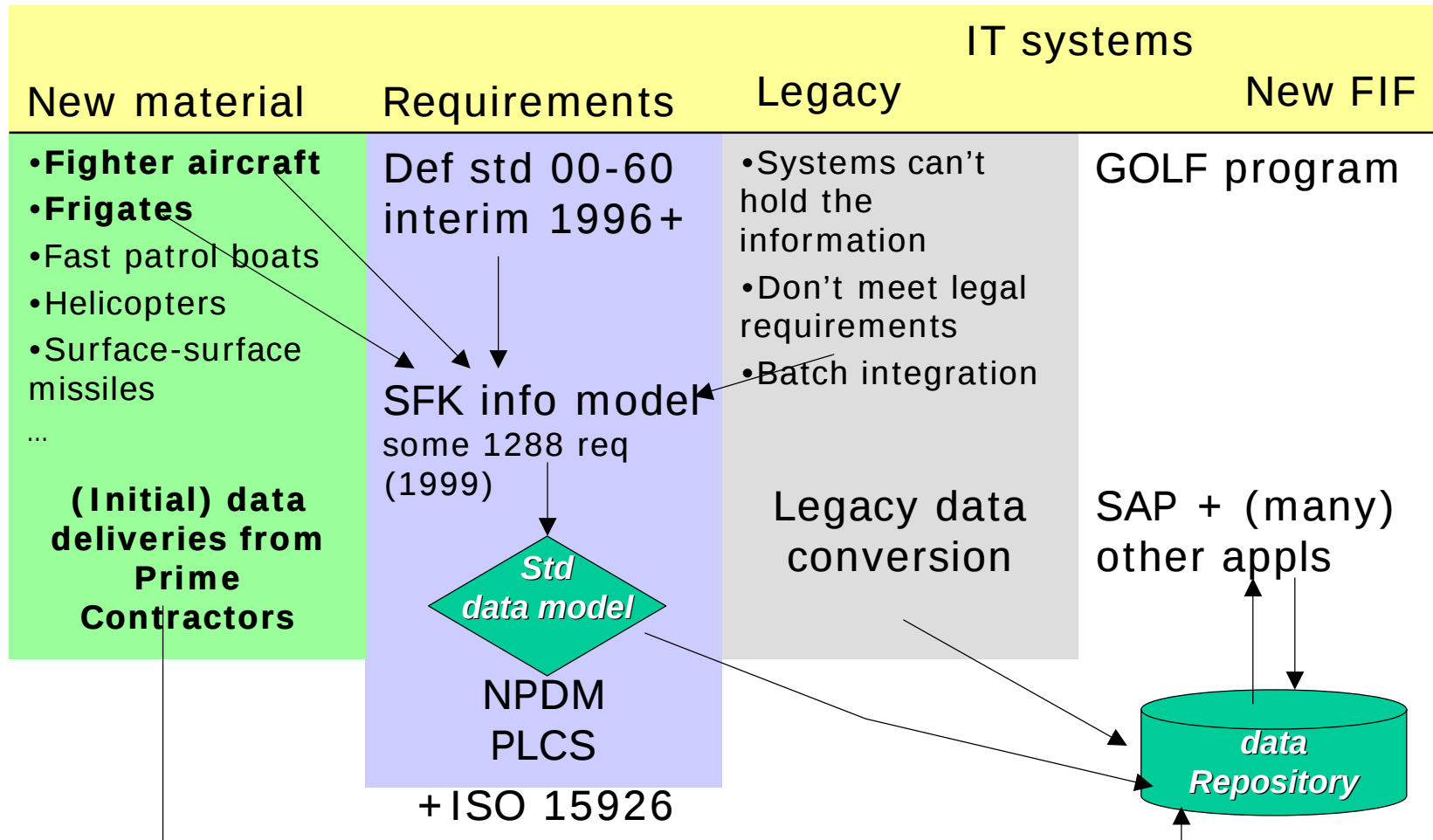
Topics



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



Background

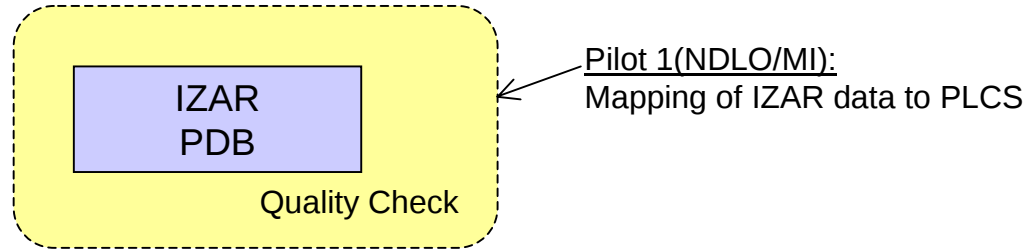


Pilot overview





Pilots





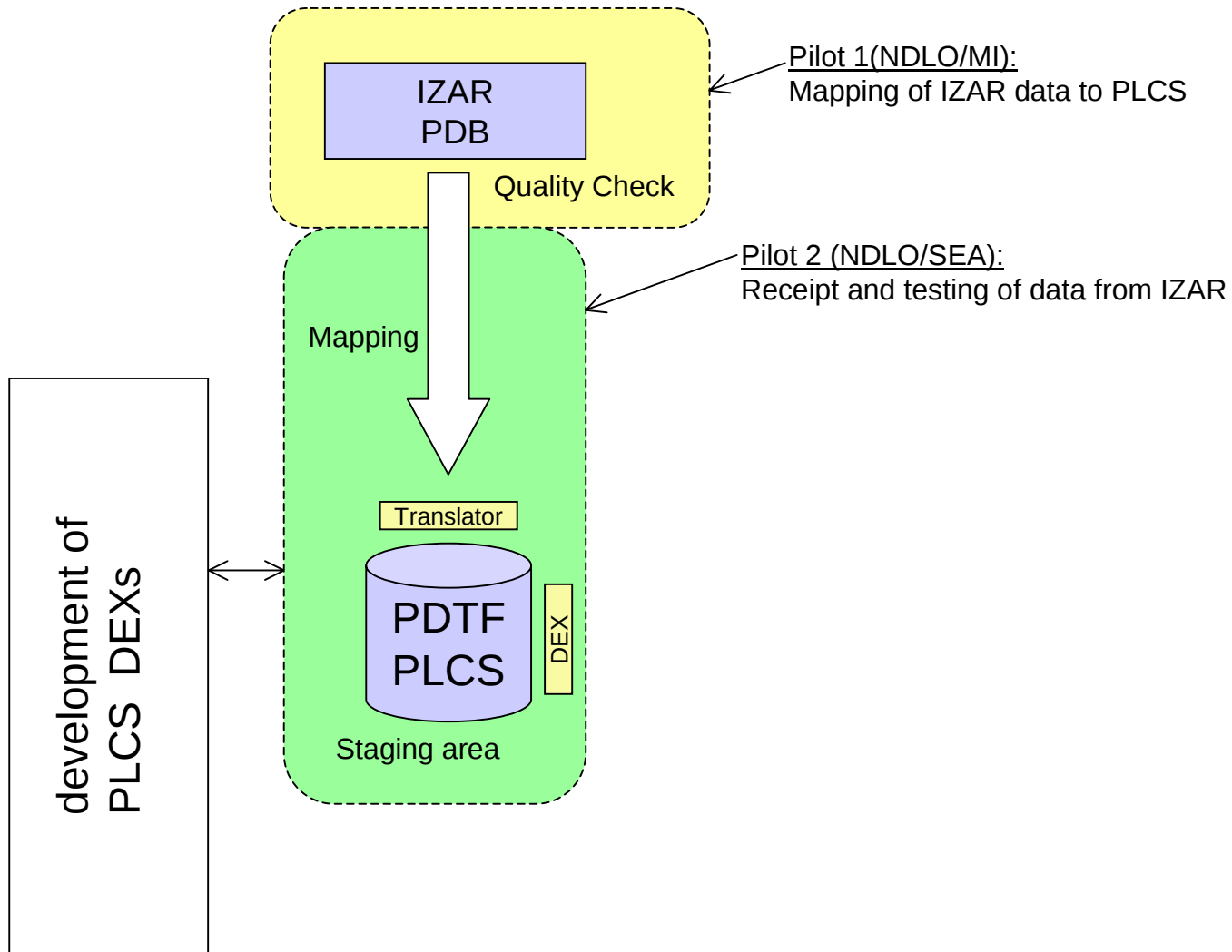
Pilot 1



- 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





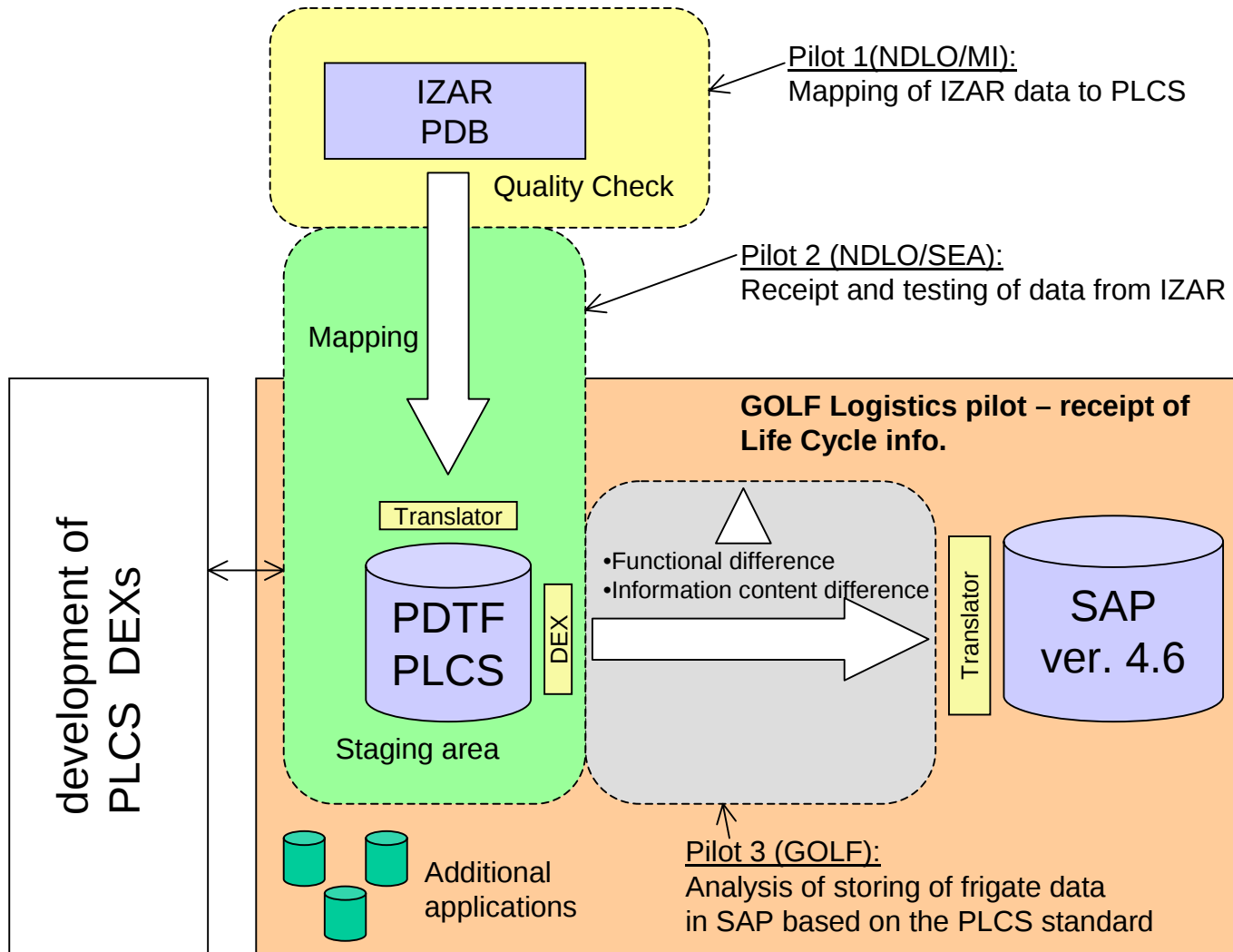
Pilot 2



- 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



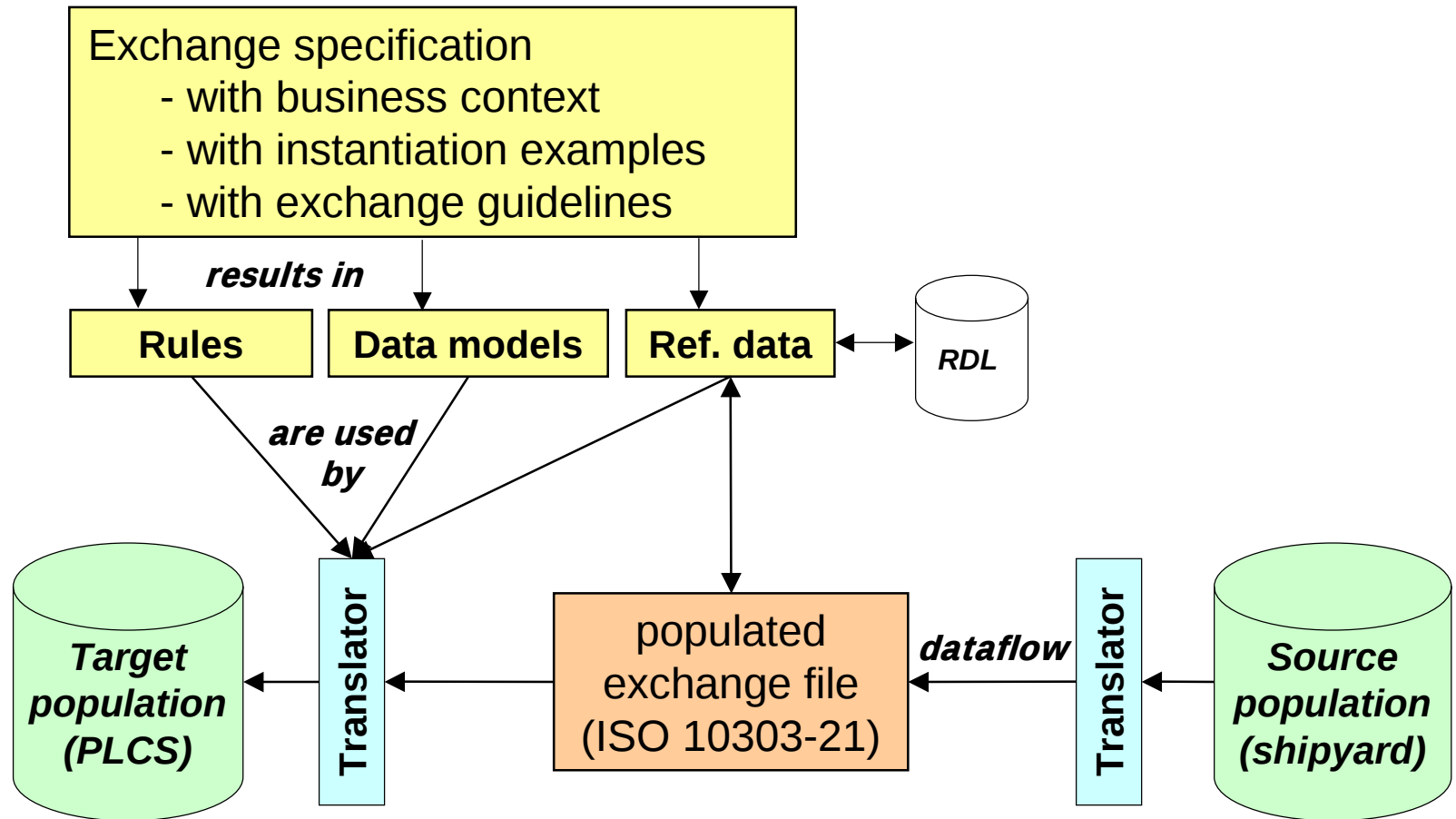
Develop a translator for the prime contractor data to ISO 10303-239



- acquire knowledge of the two data models
- document the data models and relate source concepts to target concepts
 - documented in *EDMmodelMigrator*TM
- 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



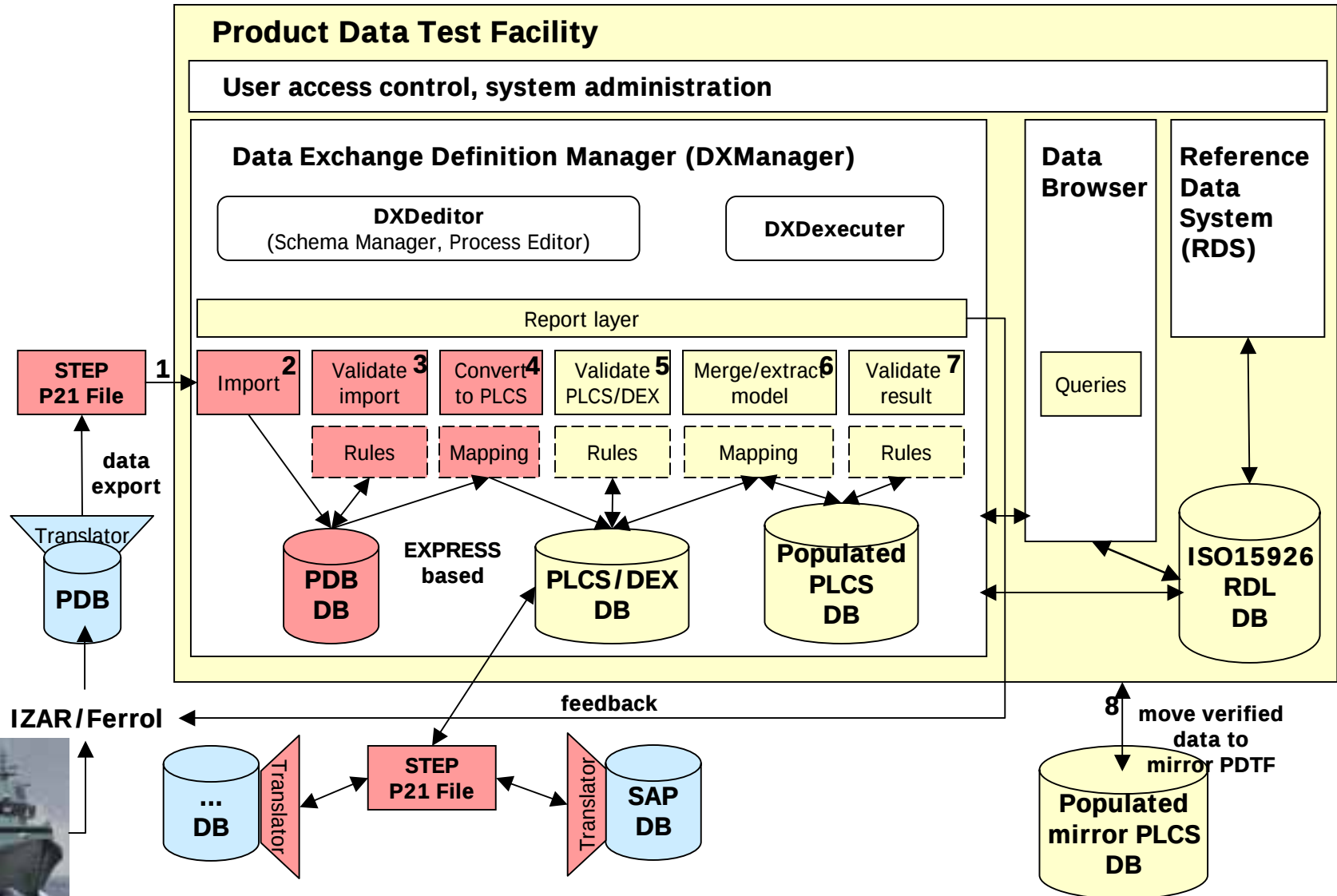
From pilot to production





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)



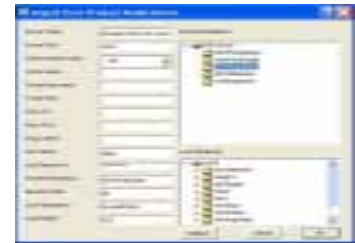
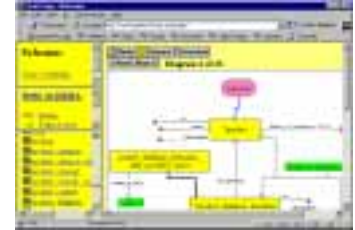
- ISO 10303-239 (PLCS) is to be used for all external information exchange for the areas covered by the standard
- Applies to all new projects from July 2004
 - *On-going projects* to be considered on a case-by-case basis taking information quality, time and cost into consideration
- PLCS is a design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



Applications used



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





Questions?