Process, Power and Marine Division

Standards-Based Interoperability

ISO15926 – Tactical Update

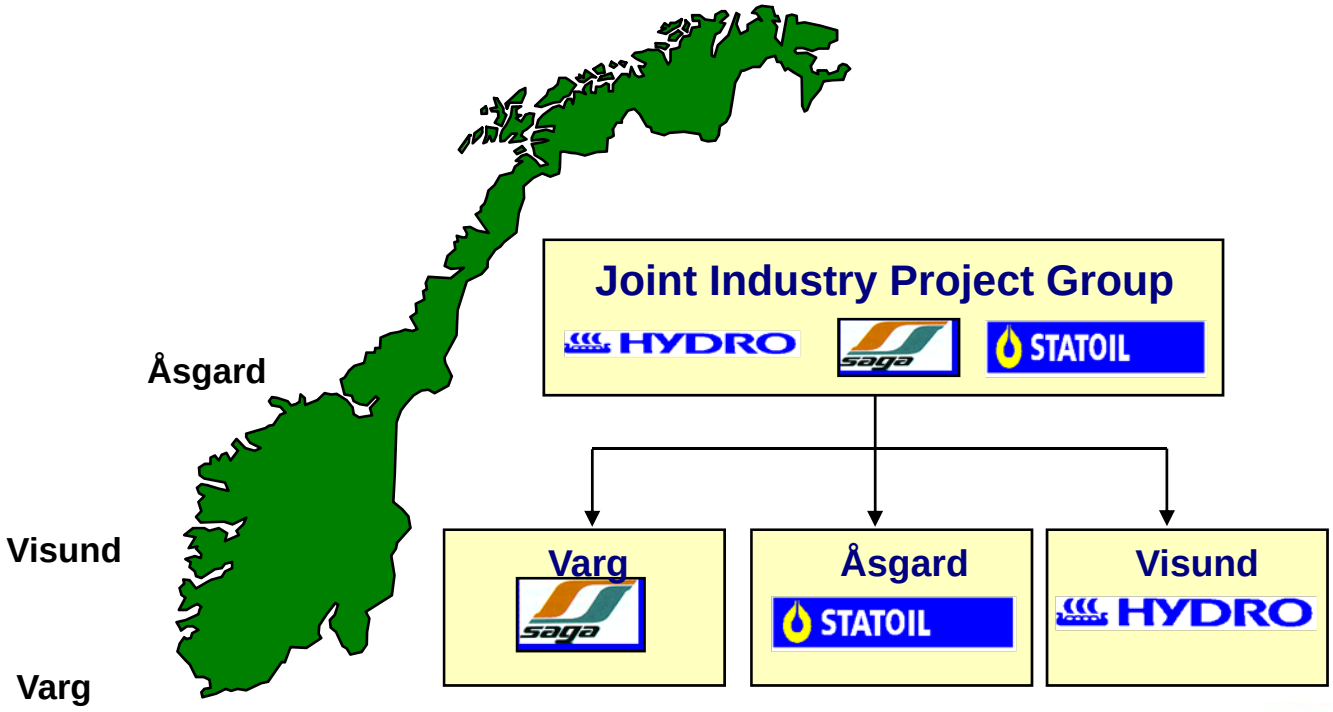
Ewan Botterill, Director GBD, Information Management & Integration, October – 2008

Integrating the Engineering Enterprise…

INTERGRAPH

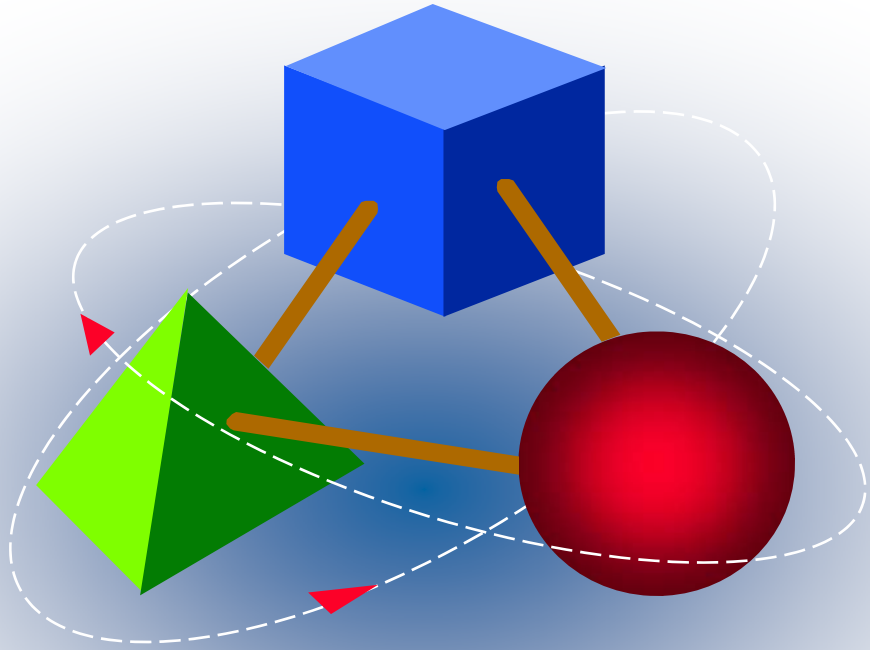
THE VÅV Take Up Project

- The journey for Intergraph started in 1997 Norway with support of the POSC/Caesar project
- The development of the **first** data warehouse and illustration to the world of neutral data exchange



The World's First Operational POSC/Caesar Data Warehouse

INTERGRAPH

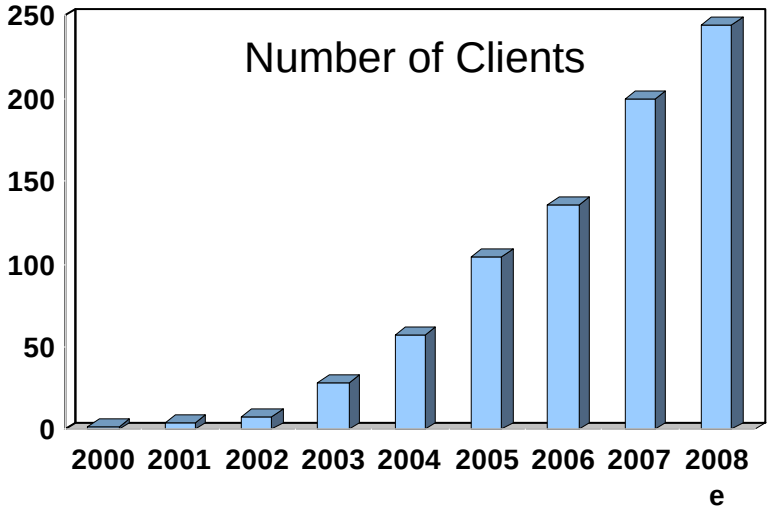


INTERGRAPH Notia®

SmartPlant® Foundation 2008

INTERGRAPH

- 10 Years young
- 200+ customers strong
- An evolution from data warehouse, to document management, to become the ‘hub’ of the SmartPlant Enterprise



- A $30m business

August 1997	**Notia1.0**
January 1999	Notia2.0
January 2000	Notia2.1
June 2000	Notia3.0
March 2001	Notia3.1
January 2002	**SPF3.2**
August 2002	SPF3.3
March 2003	SPF3.4
August 2003	SPF3.5
October 2003	SPF3.5.1
February 2004	SPF3.6
August 2004	SPF3.6.1
January 2005	SPF3.6.2
August 2005	SPF3.7
January 2007	SPFv2007
March 2008	**SPFv2008**

Intergraph complying with ISO15926

- **Interfaces** – communication, exchange & *mapping* using common data model
  - (Schema, Reference Data & Templates & Methodologies)

- **Full Lifecycle Change Management** – meta-data / *stewardship* of those communications & exchanges, changing through the lifecycle.
  - *Fundamental to SP Foundation past, present & future.*

More SPF Specifics concerning 15926

Internal schema has common 15926 heritage of EPISTLE core model.

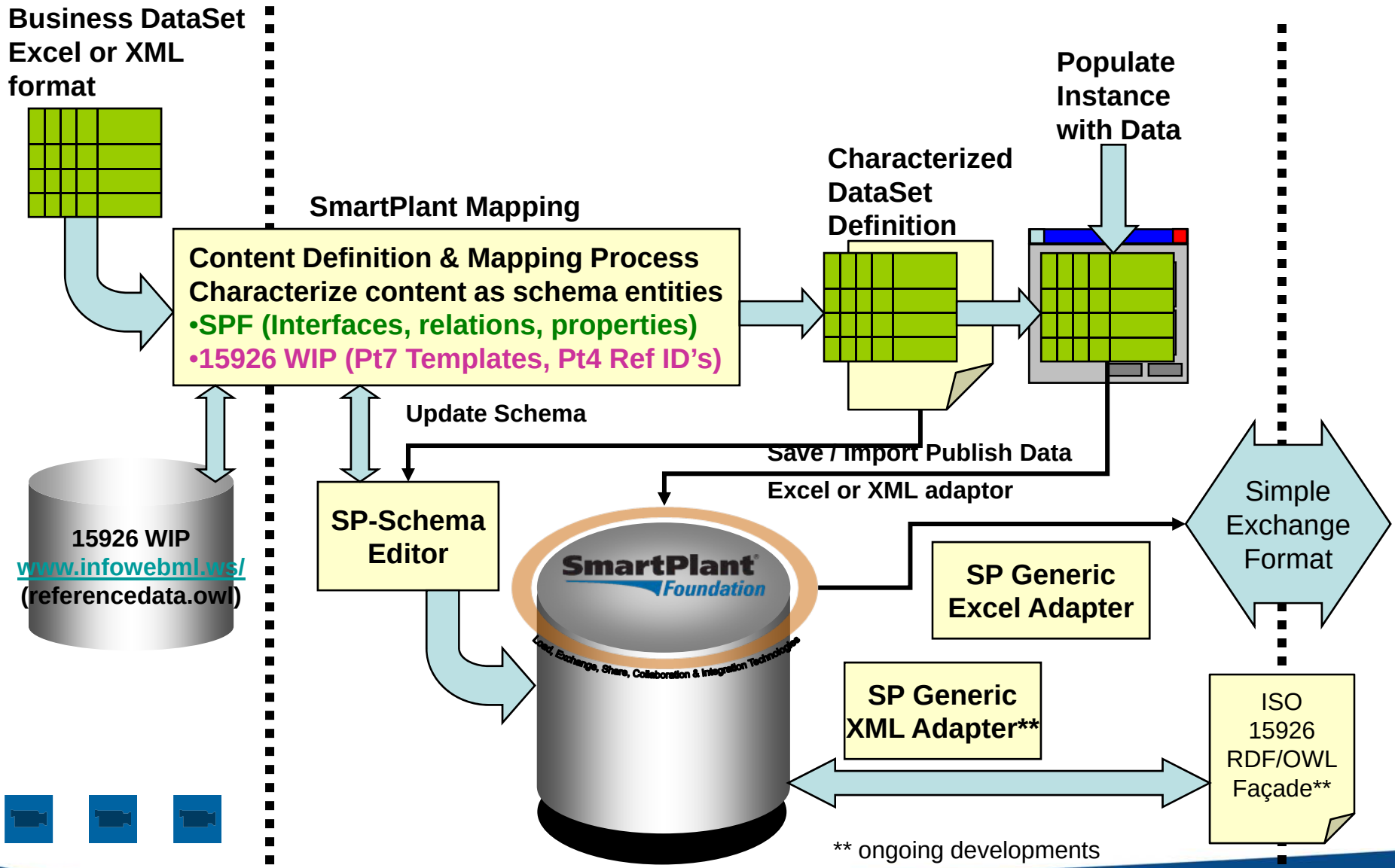
Existing implementations already use

- Management meta-data concepts for ownership, change-management, versioning, tomb-stoning, etc … and these continue to be enhanced
- *InterfaceDef*, *EdgeDef, GraphDef & ViewDef* concepts to build business-significant data sets from the generic core. *These are directly analogous to 15926 Part 7 Templates.*

Existing and ongoing “ables” development is extending and exploiting these “template” simplification layers to hide core model complexity and make configuration, mapping and interface building easier through business-friendly views, business rules in content, etc.

SP-Adapter *technology* evolving into generic adapter supporting more flexible interfacing *can* be extended in future to any de-facto technology standard (eg ISO15926 Part 8/9 OWL/RDF Facades).

Structured content Import/Export
e.g. according to ISO15926, demonstrated 2007



Recent SmartPlant Product-Based ISO15926 Interoperability Work

- Comprehensive 15926-style interoperability is already fundamental to SmartPlant Foundation (SPF) strategic approach, architecture and road-map
  - Now - SPF Generic XML / Excel Adapter / Loader Interfaces “Yellow-level”
  - “Green-level” limited only RDS/WIP content (using SPMapper / Schema Editor / Generic Adapter or XMpLant)
- Reference Data Content / Cats & Specs
  - Now - fundamental to SmartPlant Enterprise Integration SmartPlant Reference Data (SPRD) approach
- Standardization of supply-chain exchange using datasheet content
  - Now - Providing pragmatic “Yellow-level” conformance where Excel/XML is the transport medium
- Creation of first XMpLant interfaces for SP3D models
  - Now - SP3D / SM interfaces
    Exchanging 2D/3D Geometry & Data content.
    “Yellow –level” (eg using XMpLant with or without CIMSteel mapping harmonization.

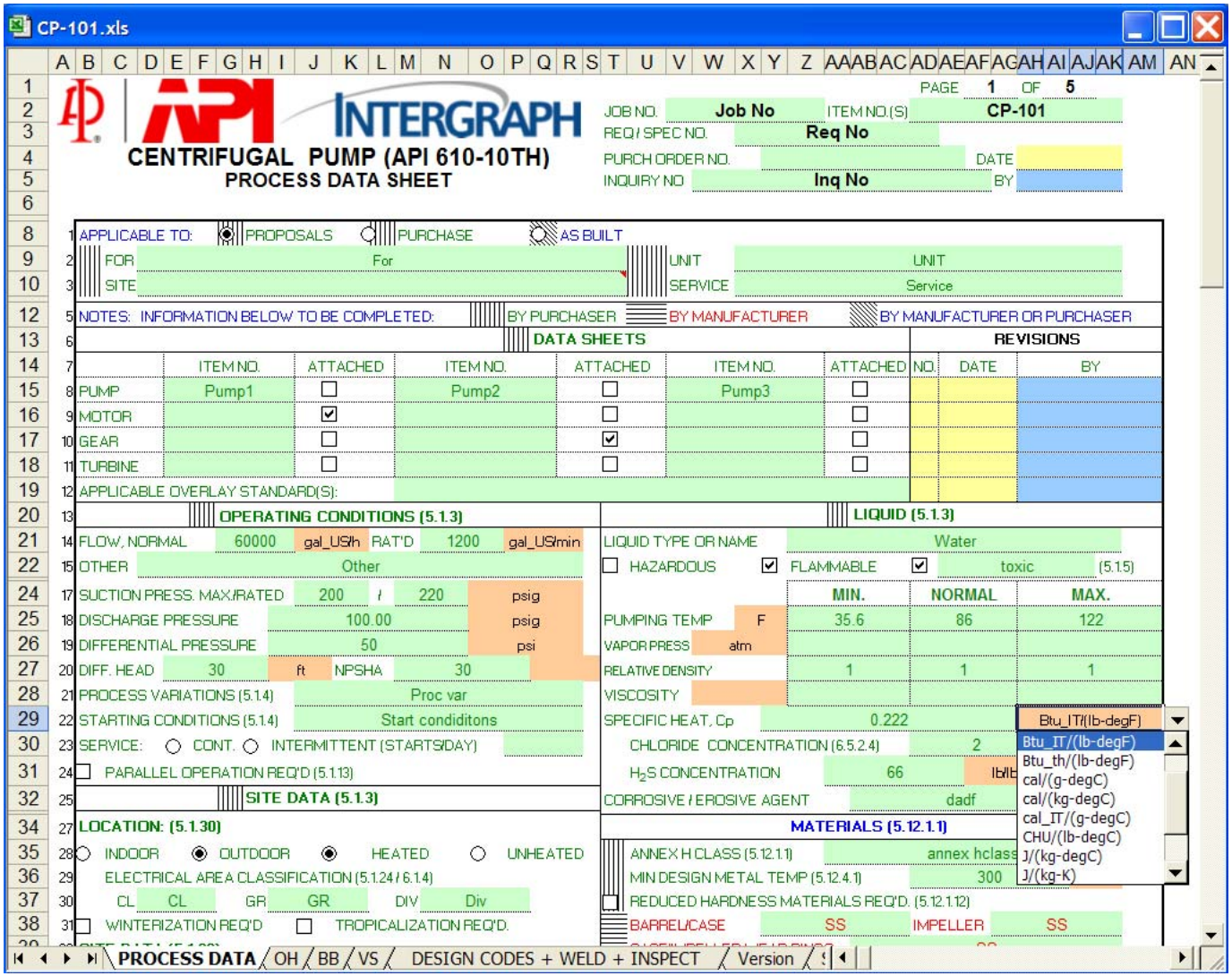
API Mechanical Equipment Datasheet development / usage objectives…

- Model content as shared ***data*** but with a ***document*** presentation vehicle
  - **Data** integration
- Uniform and *consistent* presentation between sheets
- Platform for sharing content with applications
  - **Application** integration
- Platform for sharing content with partners/suppliers
  - **Business process** integration
- Share/Collaborate definitions with industry standards initiatives
  - ADI project of FIATECH
  - IDS project of POSC/Caesar
  - to become the de-facto standard package for communication within the supply-chain for mechanical engineering content…

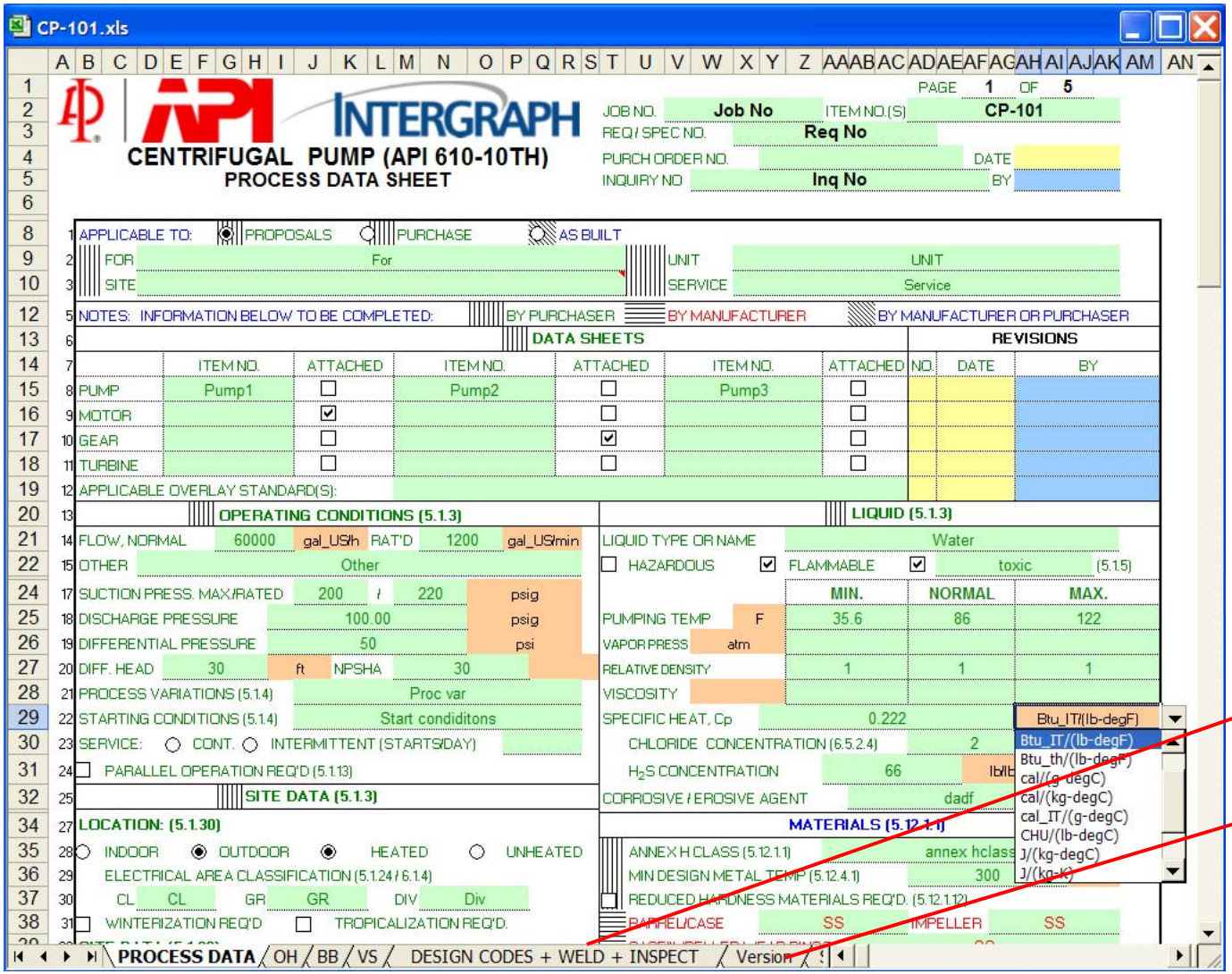
Availability… API Mechanical Equipment Datasheets for Rotary and Heat Transfer Equipment

- API 560 – Air Pre-heater
- API 560 – Fan
- API 560 – Fired Heater
- API 560 – Soot Blower
- API 610 – Centrifugal Pump (OH, BB and VS) (10th edition)
- API 611 – General Purpose Steam Turbine
- API 612 – Special Purpose Steam Turbine
- API 616 – Combustion Gas Turbine (4th edition)
- API 617 – Turbo-expander / Centrifugal Compressor (6th edition)
- API 618 – Reciprocating Compressor (4th edition)
- API 619 – Rotary Type PDP Compressor
- API 660 – Shell and Tube Heat Exchanger (7th edition)
- API 662 – Plate and Frame Heat Exchanger
- API 672 – Packaged, Integrally Geared Centrifugal Air Compressors (4th edition)
- API 673 – Centrifugal Fan (2nd edition)
- API 673 – Electric Motor (2nd edition)
- API 674 – Reciprocating Pump (2nd edition)
- API 675 – Controlled Volume Pump
- API 676 – Rotary Pump (2nd edition)
- API 685 – Seal less Centrifugal Pump

API Mechanical Equipment Datasheet Look and Feel (API610 example)



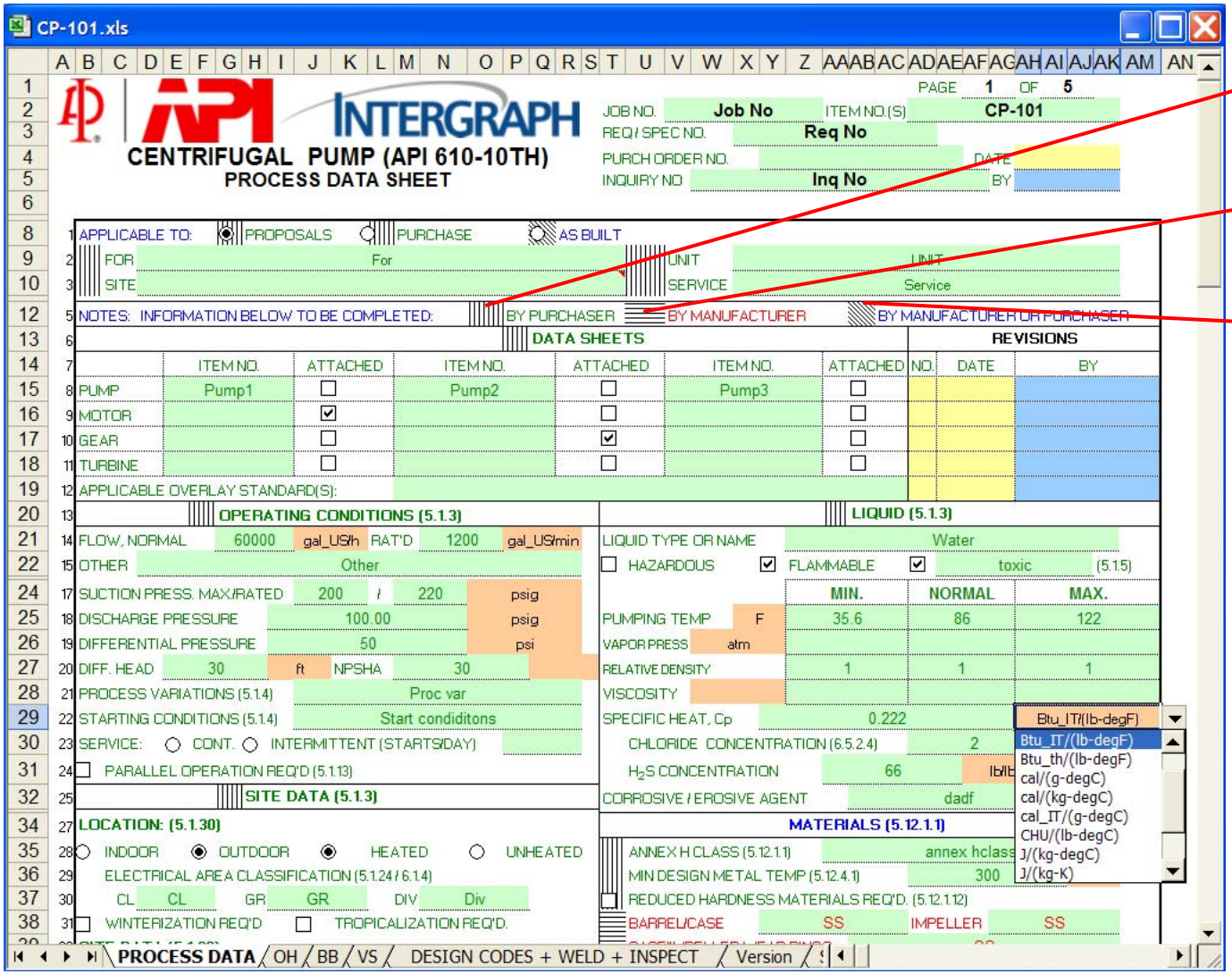
API Mechanical Equipment Datasheet Look and Feel (API610 example)



Multi Sheet

Schema version

API Mechanical Equipment Datasheet Look and Feel (API610 example)

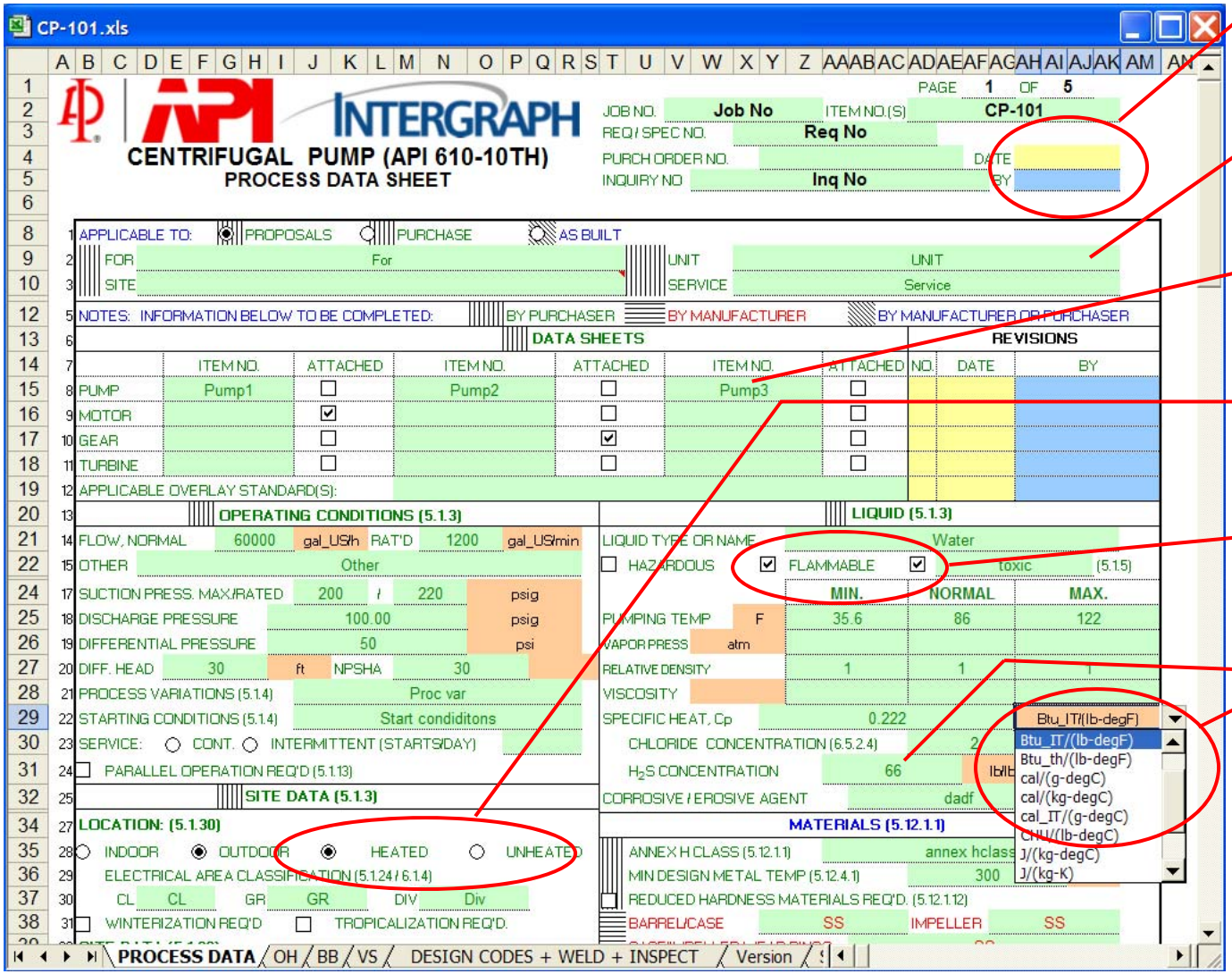


Data by purchaser

Data by manufacture

Data by either

API Mechanical Equipment Datasheet Look and Feel (API610 example)



SPF Title Blocking

User edited fields

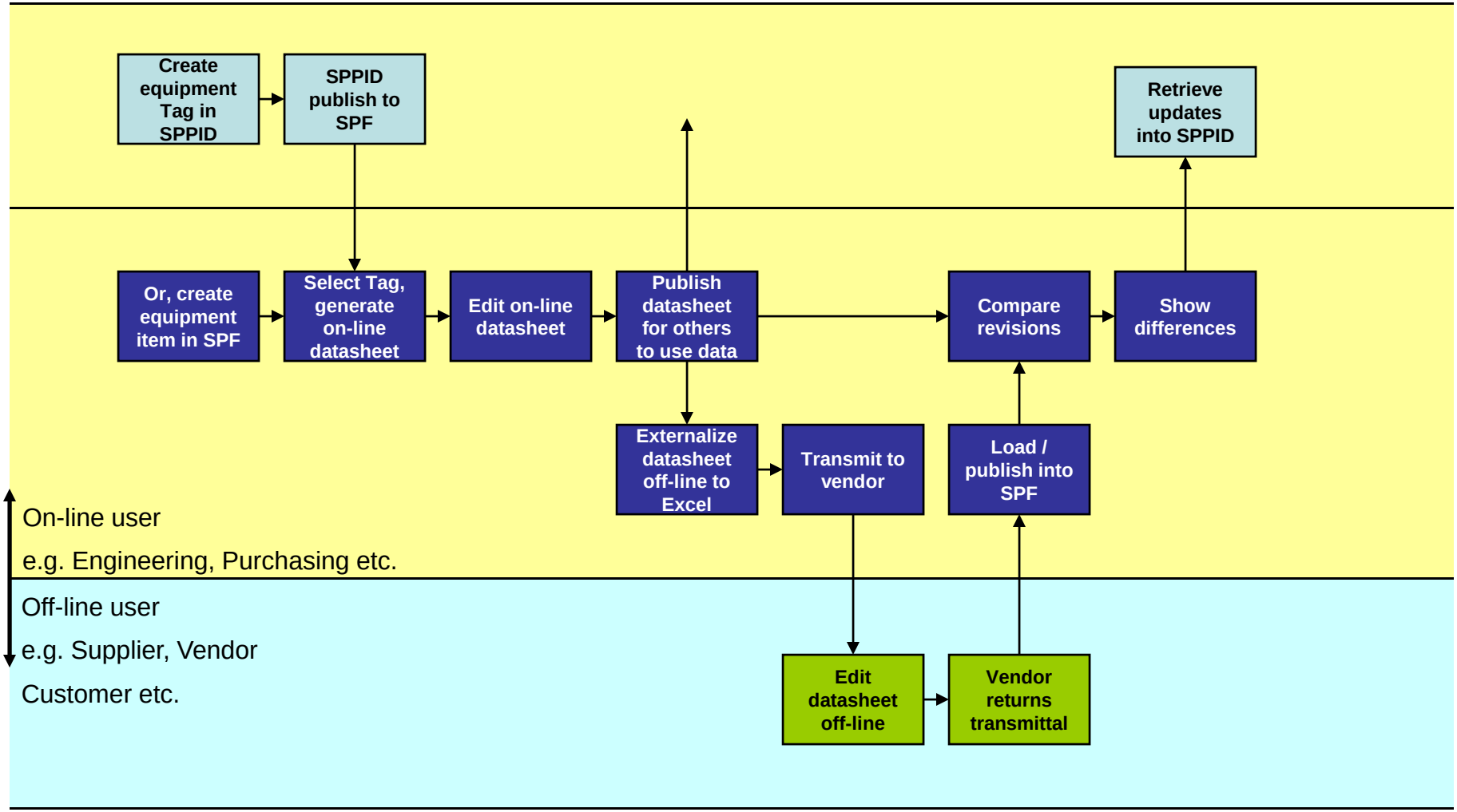
Tab between editable fields

Radio Buttons

Check Boxes

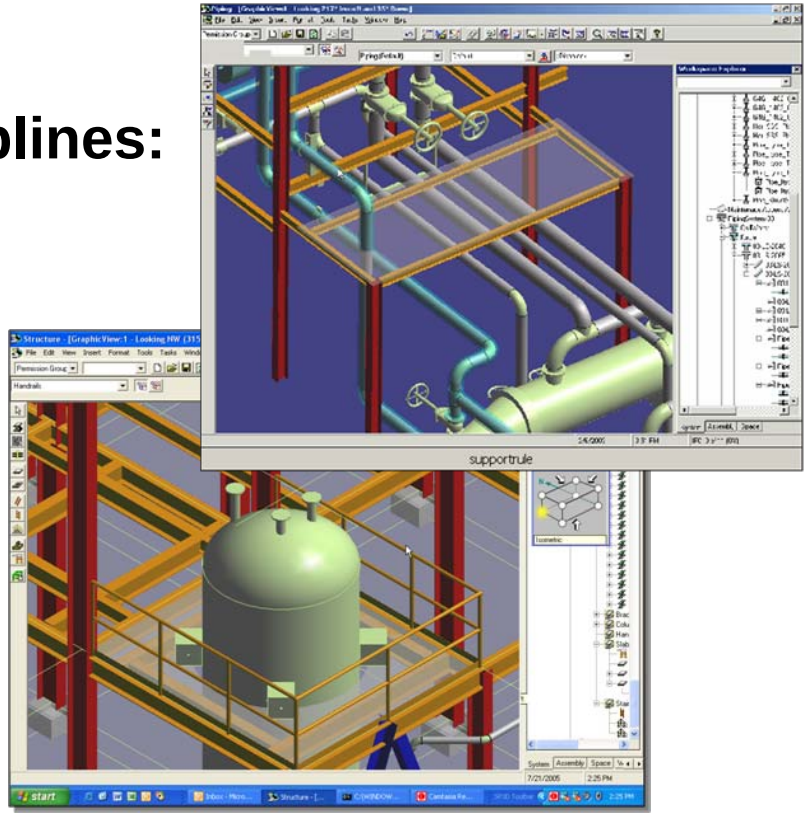
Drop down UoM list for conversions to value field

Example Workflow

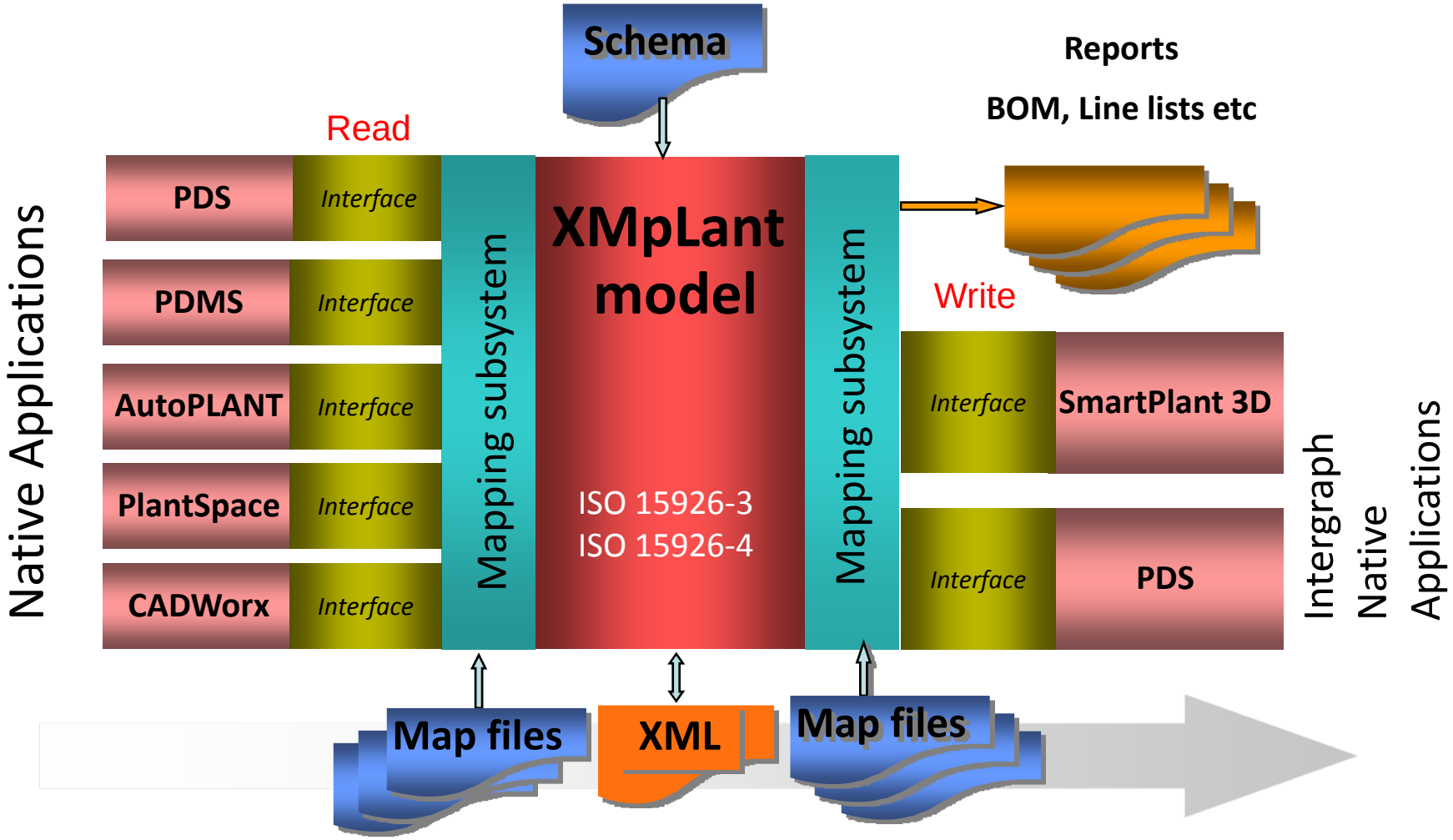


XMpLant write interfaces announced development go-ahead 4Q07

- **Scope:**
  - **Write interfaces for plant disciplines:**
    - Piping
    - Equipment
    - Electrical Cable/ Raceways
    - HVAC
    - Hangers & Supports
  - **SmartPlant 3D Structural:**
    - CIMsteel today
  - **Catalogues/ Specifications:**
    - Via intermediate XMpLant



Plant Design Systems Interoperability – XMpLant Read and Write interfaces



Status:
XMpLant write interfaces

- **Write interfaces for plant disciplines:**
  - Piping — *Completed*
  - Equipment — *Completed*
  - Electrical Cable/ Raceways — *In Development*
  - HVAC — *In Development*
  - Hangers & Supports — *In Development*
  - **Structural**
    - XMpLant write interface — *During 2009*
  - **Catalogues/ Specifications**
    - Via intermediate XMpLant — *In Development*
- **Availability** — **Early 2009**

Integrating the Engineering Enterprise…