Diskussionsrunde 2: Kompatibilität und Austauschbarkeit von Planungs- und Maintenance-Daten mit dem Schwerpunkt PID, 3D und EMR

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# SmartPlant Enterprise

## SMART SOLUTIONS

**SmartMarine® Enterprise and SmartPlant® Enterprise**

### ENGINEERING & SCHEMATICS
- SmartPlant P&ID
- SmartPlant Instrumentation
- SmartPlant Electrical
- SmartPlant Process Safety
- SmartSketch®
- SmartPlant Explorer
- SIGRAF-CAE®

### 3D MODELING & VISUALIZATION
- SmartPlant 3D
- SmartMarine 3D
- POS®/FrameWorks® Plus
- SmartPlant 3D Materials Handling Edition
- SmartPlant Review
- SmartPlant Layout
- SmartPlant Isometrics
- CADWork®

### ANALYSIS
- CAESAR II®
- PV Elite™
- TANK®

### PROCUREMENT, FABRICATION & CONSTRUCTION
- SmartPlant Materials
- SmartPlant Reference Data
- Standard Database for SmartPlant Reference Data
- SmartPlant Spoolgen®
- SmartPlant Construction

### SMARTPLANT ALLIANCE & PARTNERS
- Technology members
- Service members
- Content members
- Complementary solutions

### INTEGRATION AND INFORMATION MANAGEMENT

**SmartPlant Foundation and SmartPlant Basic Integrator**

### AUTOMATION AND IMPLEMENTATION SERVICES
SP Enterprise for Owner Operators
– Solution Overview –

- **SPO Core**
  - Engineering Data Portal
  - Plant / Work Breakdown Structures
  - Document Management & Control
  - Transmittal management
  - Master Tag Registry
  - Piping Isometric Engineering

- **SPO VTL**
  - Data validation, transformation & loading

- **SPO Operating Plant**
  - O&M Browser
  - Plant Change Management
  - CMMS Integration

- **SPO Project Execution**
  - Project Change Management
  - Technical / Site Queries
  - Interface Management
  - Non-conformity Management
Cross Company Collaboration

- Information exchange without boundaries on three levels
  - Inside the disciplines
    - inside a company
    - between companies
  - Between the disciplines
    - Inside a company
    - Between the companies
  - Between different companies
    - Inside the disciplines
    - Between disciplines

- Supporting technologies
  - Terminal server
  - Hosting
  - Worksharing
  - Standards: e.g. ISO 15926, XMpLant, etc.
  - Other formats, e.g. IEC 62424,
Cross Company Collaboration
- Terminal Server / Hosting -

IT Network Topology Diagram for MW Kellogg Pearl Build

Primary Site

Disaster Recovery Site

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Cross Company Collaboration  
- SP3D Global Worksharing -

Suncor SmartPlant 3D Implementation:  
- 250 Users  
- 5 Workshare Sites  
- Single Replicated Model
Cross Company Collaboration – ICC1 –

- Business scenario
  - OO maintains as-built plant within SPPID, SPI and SPEL (integrated via SPF)
  - Projects are executed by using tools non-integrated

- Supported work processes
  - OO can maintain integrated as-built plant
  - OO can scope multiple projects in parallel
  - OO can execute projects in a non-integrated fashion
  - OO can export (disconnected) tool projects (including reference data) to EPC
  - EPC can execute tool projects in a non-integrated fashion (no reference data changes)
  - EPC can handover tool projects to OO
  - OO can consolidate tool projects into integrated as-built plant
Intergraph and ISO 15926

1980
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EPISTLE

ISO 10303 (STEP)

ISO 10303-221 (EPISTLE Core)

ISO 15926

ISO 15926-2

STEPLib (EPISTLE RDL)

POSC/Caesar (EPISTLE Core)

RDL

ISO 15926-4

15926-7

Published by ISO

Published by ISO

POSC-Caesar Proj.

POSC-Caesar Assoc.

Intergraph Joins

FIATECH

ADI

IDS-ADI

Camelot

Intergraph

1st ISO 15926 based Data warehouse

Notia

• POSC-Caesar snapshot C/D
• Object, Relationship, Object

SPF 3.X

• SmartPlant Schema
• Interfaces
• Graphs & Views

SPF 4.X

• Domains

OWL

• Published by ISO

iRing

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Demonstration Data Flow

P&IDs to Data Warehouse
Handover Scenario

Intergraph
Huntsville

SmartPlant Foundation

Intergraph

Information Consolidation

PlantSpace P&ID

OpenPlant PowerPID

Equipment, & Instrument

Equipment, & Instrument

Information Model

RDS/WIP

Oslo

Frederick

Brisbane

Hatch

Bechtel
Information Validation & Take-On
– VTL Architecture Overview–

Staging Area

Import

Export/Load

READER MODIFY COMPARE XFORM LOADER

QUERY FILTER XFORM WRITER

VALIDATION

Reports

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VTL Quality Rules

- Powerful and highly flexible generic rule definition capability covering:
  - Syntax Rules (ENS)
  - Uniqueness validation
  - Relationship cardinality
  - Date/Time validation
  - Integer validation
  - String validation
  - SQL Rule definitions for more complex rules
  - Pick-List validation
  - Unit of Measure validation
  - Mandatory fields
  - Cascading errors

- Rules may be included into Rule Sets that are run against data submissions

- The results of running a set of rules is a log providing full traceability of who performed which tests, when and what results obtained is held against each submission.

- Severity of validation findings may be graded on rules e.g. as “warnings” and “errors”
Domain-Konzept im Informationmanagement

App #1
Local Store

SPF Authoring
Local Store

App #2
Local Store

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when it’s not just a technology problem *

Aligning the people, process and technology of the enterprise.

* It is never just a technology problem
Integrating the Engineering Enterprise