ISO 15926 and Interoperability in AVEVA

Americas *PCA Forum 2010 and Members Meeting*
4 March 2010, Houston, Texas

Jim Klein
Technical Manager
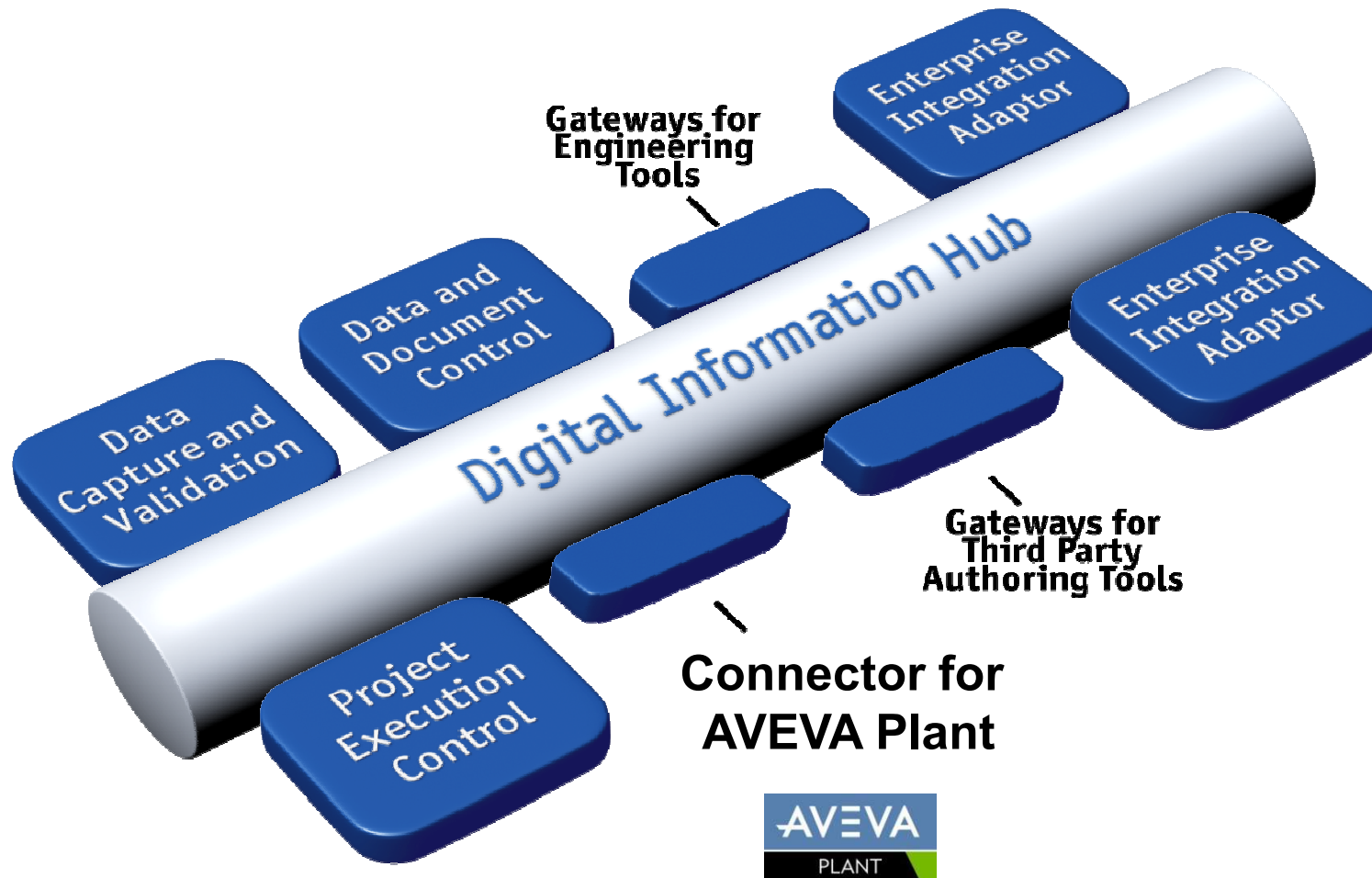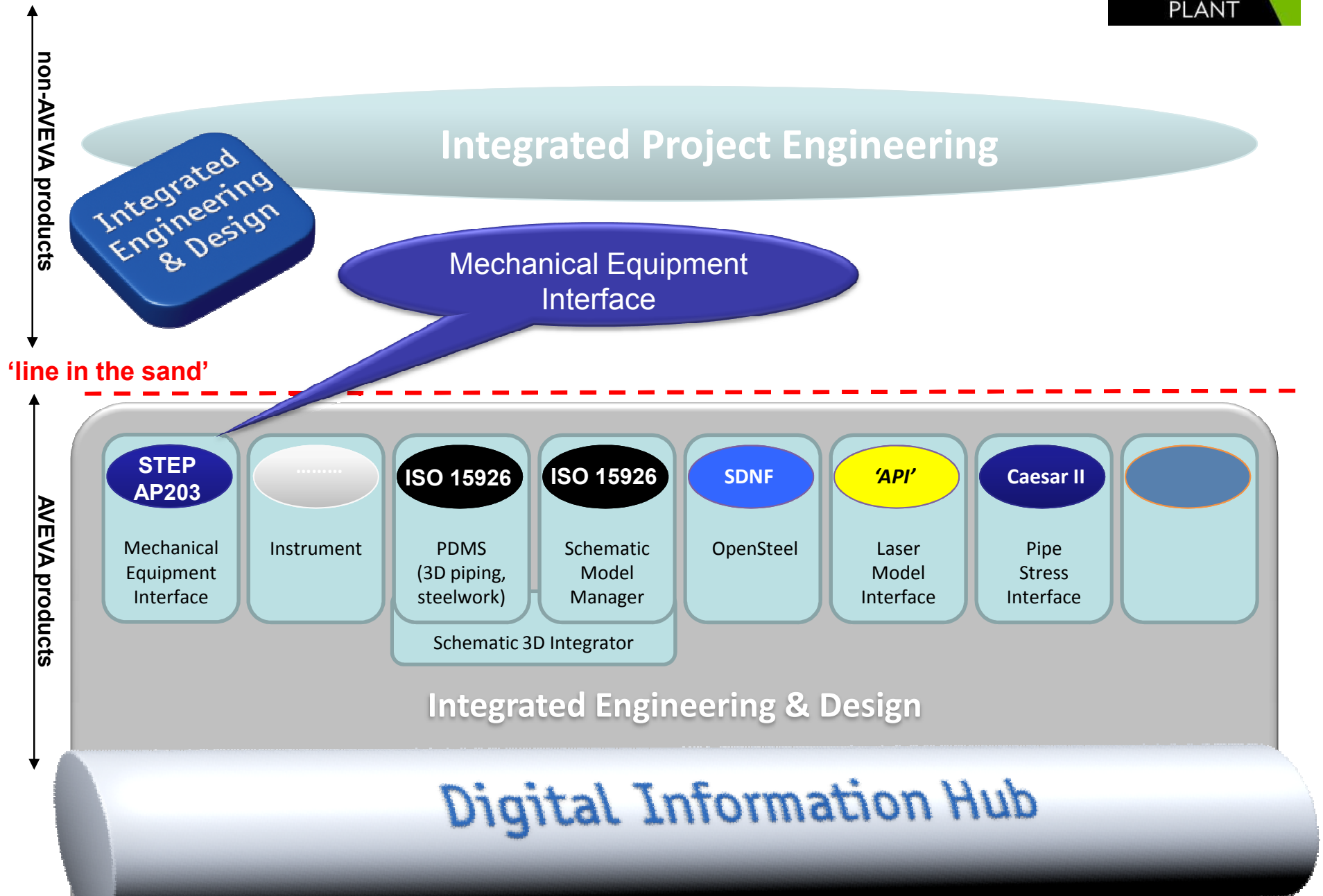
www.aveva.com

Introduction to AVEVA Solutions

The Digital Information Hub

Interoperability Strategy – Interfaces

AVEVA PLANT

non-AVEVA products

Integrated Project Engineering

Integrated Engineering & Design

Mechanical Equipment Interface

'line in the sand'

AVEVA products

STEP AP203	....	ISO 15926	ISO 15926	SDNF	*'API'*	Caesar II	
Mechanical Equipment Interface	Instrument	PDMS (3D piping, steelwork)	Schematic Model Manager	OpenSteel	Laser Model Interface	Pipe Stress Interface	

Schematic 3D Integrator

Integrated Engineering & Design

Digital Information Hub

ou design plants like this ?

Major equipment designed in MCAD systems
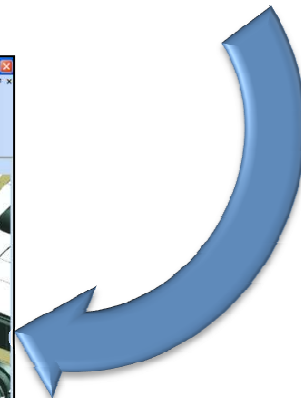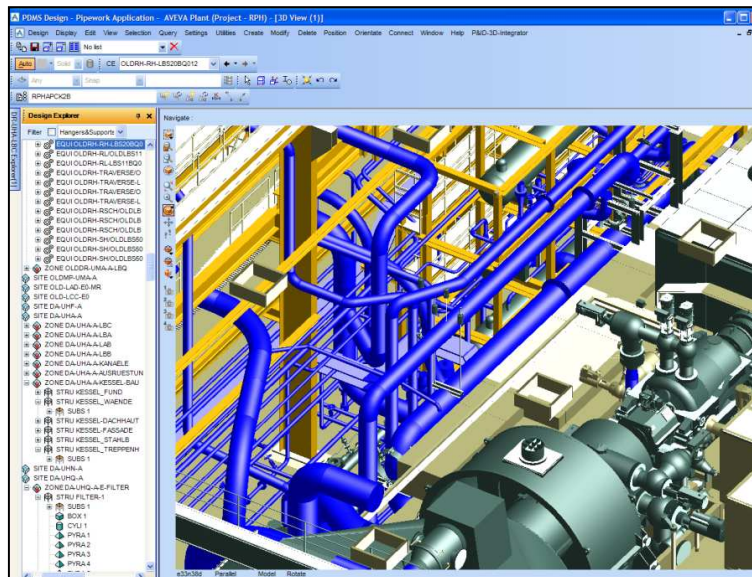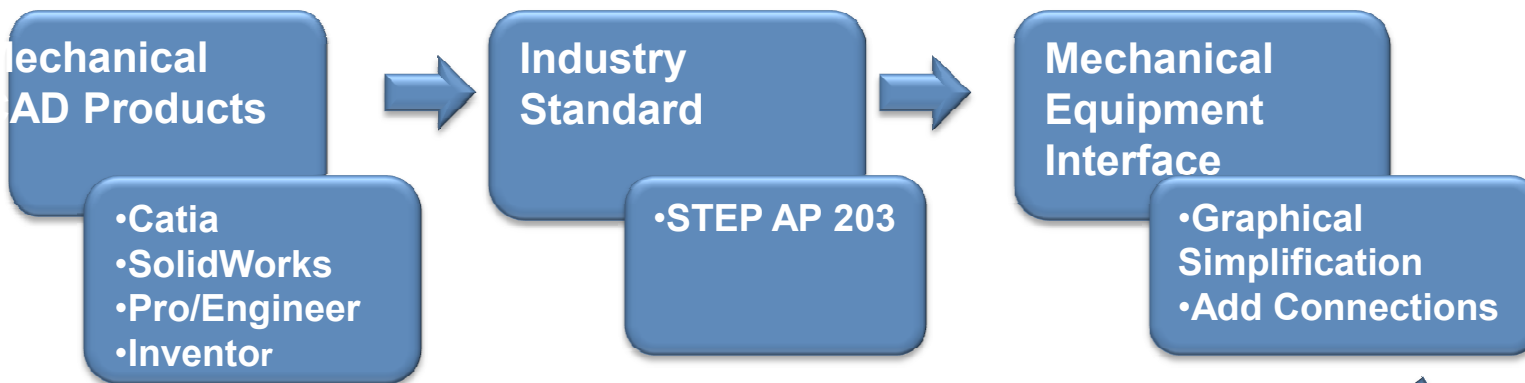
Pipework & Structural design in PDMS

ke this?

Major equipment designed in MCAD systems

Pipework & Structural design in PDMS

d you save money by bringing Mechanical Equipment Models **directly into**
IS?

EVA Mechanical Equipment Interface

AVEVA
PLANT

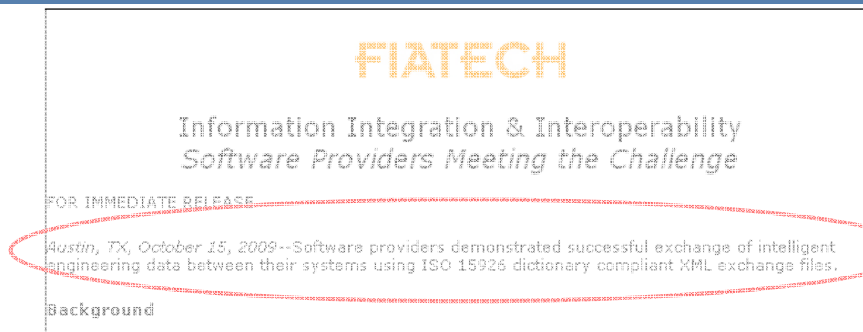**echanical AD Products**
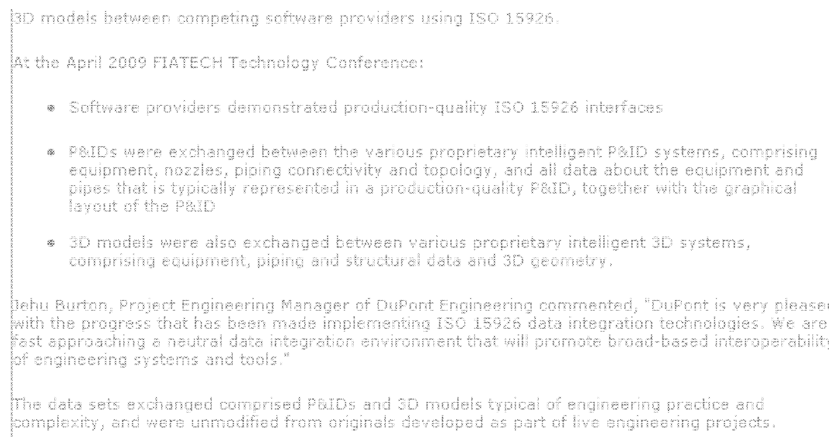
- Catia
- SolidWorks
- Pro/Engineer
- Inventor

Industry Standard

- STEP AP 203

Mechanical Equipment Interface

- Graphical Simplification
- Add Connections

EVA and Industry Forums

"Proteus"

FIATECH

Information Integration & Interoperability
Software Providers Meeting the Challenge

FOR IMMEDIATE RELEASE

Austin, TX, October 15, 2009--Software providers demonstrated successful exchange of intelligent engineering data between their systems using ISO 15926 dictionary compliant XML exchange files.

Background

ackson, the Director of FIATECH summarized, "the Proteus project has achieved what no other dards-based project has ever done for process plant information exchange. The commitment by oftware providers to collaborate and deliver information exchange between their competing ems has moved us a significant step toward our ultimate goal of enterprise wide integration. What table about this project is that it was conducted in direct response to the needs of the end users, hey all came together under FIATECH."
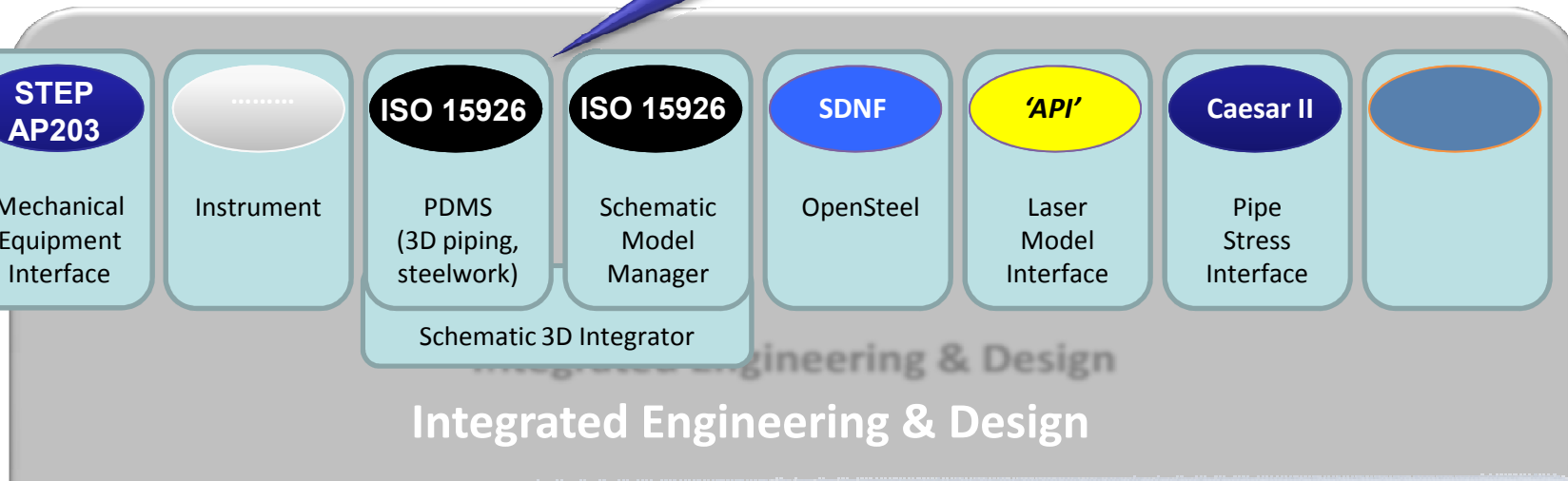
3D models between competing software providers using ISO 15926.

At the April 2009 FIATECH Technology Conference:

- Software providers demonstrated production-quality ISO 15926 interfaces

- P&IDs were exchanged between the various proprietary intelligent P&ID systems, comprising equipment, nozzles, piping connectivity and topology, and all data about the equipment and pipes that is typically represented in a production-quality P&ID, together with the graphical layout of the P&ID

- 3D models were also exchanged between various proprietary intelligent 3D systems, comprising equipment, piping and structural data and 3D geometry.

Jehu Burton, Project Engineering Manager of DuPont Engineering commented, "DuPont is very pleased with the progress that has been made implementing ISO 15926 data integration technologies. We are fast approaching a neutral data integration environment that will promote broad-based interoperability of engineering systems and tools."

The data sets exchanged comprised P&IDs and 3D models typical of engineering practice and complexity, and were unmodified from originals developed as part of live engineering projects.

AVEVA
PLANT

Integrated Project Engineering

Proteus ISO 15926
Plant Demonstrator

...e sand'

STEP AP203	....	ISO 15926	ISO 15926	SDNF	'API'	Caesar II	
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Schematic 3D Integrator

Integrated Engineering & Design

Digital Information Hub

Proteus Demonstrator
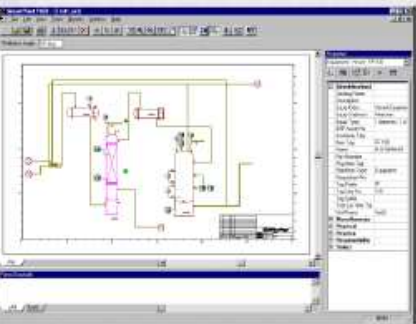
P&ID to 3D: Matrix 3

P&ID to P&ID:
Matrix 1

3D to 3D:
Matrix 2

Substantial commonality:
Executing as one project
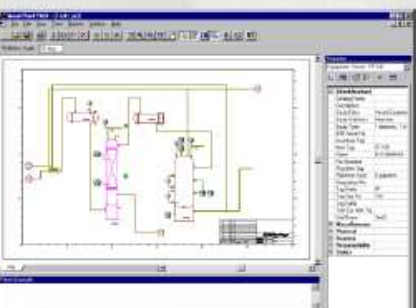
teus ISO 15926 Plant Demonstrator

cope

- Exchanging information in intelligent P&ID's and 3D Models
  - Tag numbers, equipment numbers, line numbers etc.
  - Connectivity
  - Schematic information (symbology, diagrams)
  - 3D geometry (equipment models and pipe routes)

dvancing ISO 15926

- Reference Data Library
  - Piping, instrumentation etc. class names added
- "Dictionary level compliance" defined
  - Vendor agreement on communal data XML schema
    - Noumenon's XMpLant Schema 3.3.2 and 3
- Business Interface Definition Guide
  - Owner/Operators were Subject-matter-experts

oteus – Moving Forward

Coordinate with Element 9 of FIATECH Capital Facilities Roadmap

roadening participation

Adding functionality (a list of 14 items), initial set of equirements descriptions distributed for comment

ms for discussion in Proteus Phase 2 Scope

oosen link between model and drawings

reserving information on the round trip

tatus management of object

alidation of class names

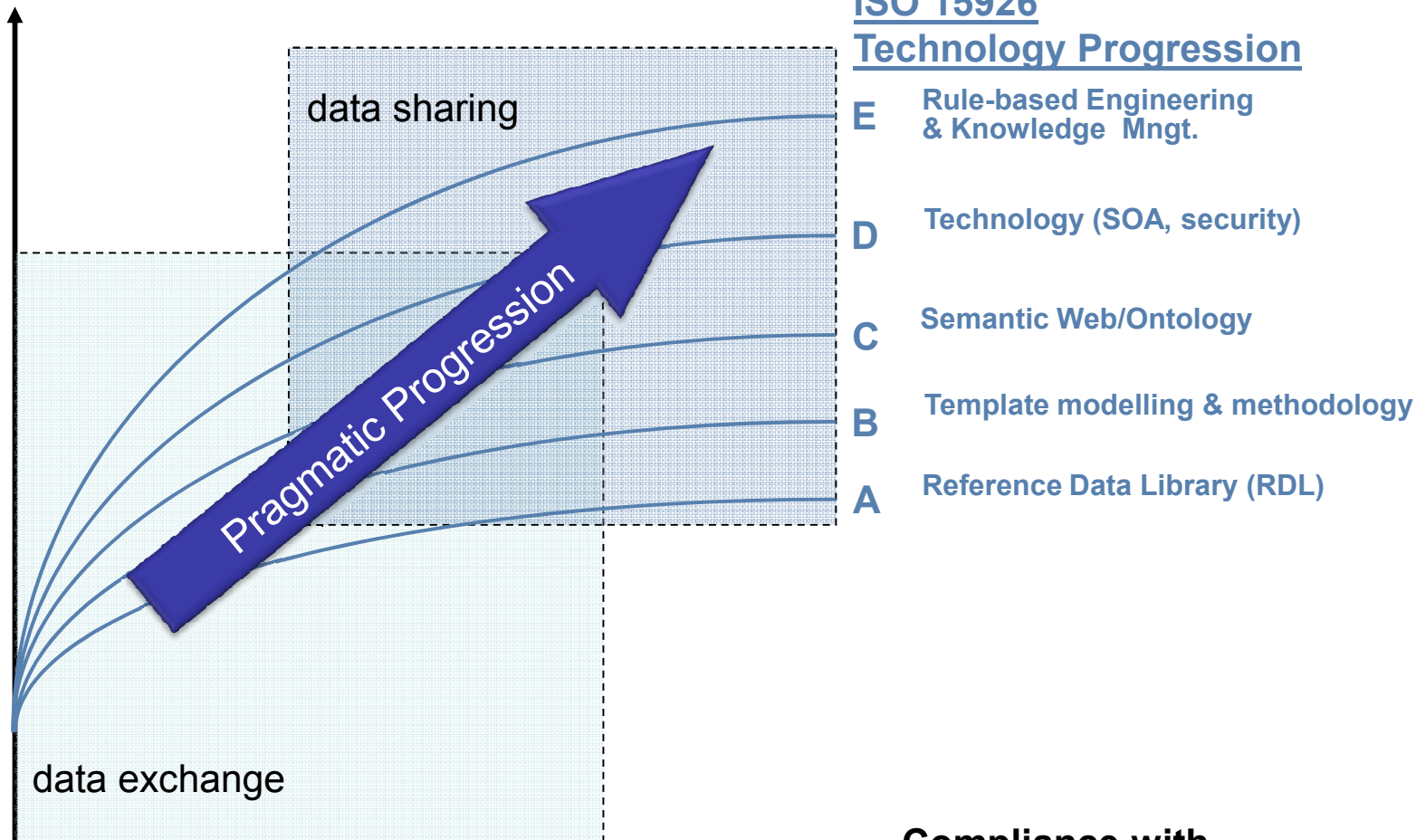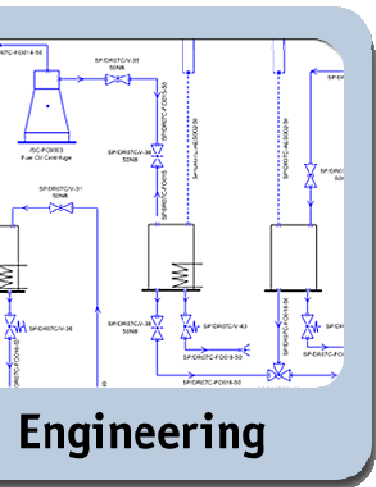eletion and re-use

umb graphics

EVA Vision/Philosophy

ue from Interoperability - "Walk before you run"
- "Exchange before you share"

Business Value

ISO 15926
Technology Progression

data sharing

E **Rule-based Engineering
& Knowledge Mngt.**

D **Technology (SOA, security)**

C **Semantic Web/Ontology**

B **Template modelling & methodology**

A **Reference Data Library (RDL)**

Pragmatic Progression

data exchange

Compliance with

Engineering

- **AVEVA P&ID**
- **AVEVA Diagrams**
- **AVEVA Instrumentation**
- **AVEVA Schematic Model Manager**
- **AVEVA Schematic 3D Integrator**
- **AVEVA PDMS**
- **AVEVA VPE Workbench**
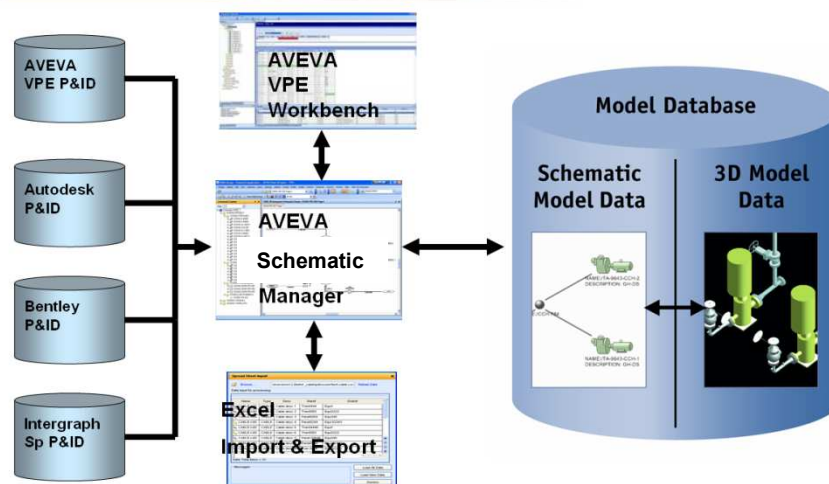
ISO 15926 compliant

3D Interoperability Solutions

- **Integrated Schematic and 3D Model**
  - **application interoperability**
- AVEVA P&ID Approach
  - federated strategy via ISO 15926
    - P&IDs originating in any schematic application can be consolidated and integrated into AVEVA environment
      - consistent Object Management

AVEVA P&ID Approach