ISO15926 & Interoperability

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The FIATECH Consortium

PCA Forum and Members Meeting
Kuala Lumpur, Malaysia
October 20 – 21, 2010

Agenda

- Introduction to FIATECH
- FIATECH Mission and Vision
- Active Projects in 2010
- Joint FIATECH/PCA Projects
  - JORD Project – Joint Operational Reference Data
  - ISO 15926 Primer
- Collaborative Projects
  - Proteus
  - i-RING
- Proposed projects for 2011

FIATECH Mission - an Industry-led Consortium

- Currently approximately 70 members that include owners, contractors/EPC's, academic institutions, government and research organizations, solution providers and suppliers
- Partnerships with leading organizations and institutions

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Living.
Improved daily.
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Taking on the world's toughest energy challenges.
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INTERGRAPH
AECL
Burns and Roe
WorleyParsons
resources & energy
S&B
Adobe
POSC Caesar
BECHTEL
THEOMETRICS
BOMA
ВНИИАЭС
EMERSON
AVEVA
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National Center for Manufacturing Sciences
ORACLE | PRIMAVERA
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Quality People. Quality Projects.
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Center for Integrated Facility Engineering
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International Alliance for Interoperability
ALCIM
CABA
ASU
Noumenon Consulting Ltd
FIATECH

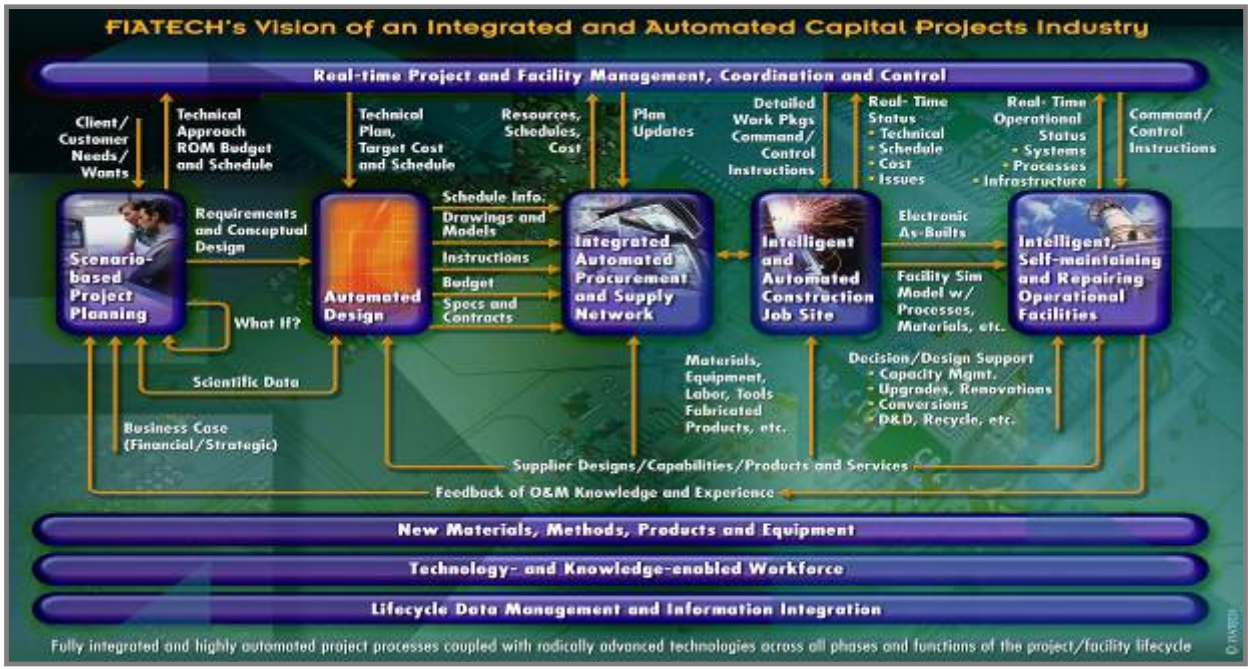
FIATECH Mission

- **Mission**
  - Provide global leadership in identifying and accelerating the ***development, demonstration and deployment*** of fully integrated and automated technologies to deliver the highest business value throughout the life cycle of all types of capital projects.
- **Guide: Capital Projects Technology Roadmap**
  - Industry-wide, global research agenda (not just FIATECH)
- **Approach**
  - Partnerships
  - Technology Exchange – conference and members meeting
  - Information Forums – webinars and social networking
  - Projects

FIATECH Vision

"Advance Highest Business Value in Capital Projects Lifecycle Thru New & Emerging Technologies"

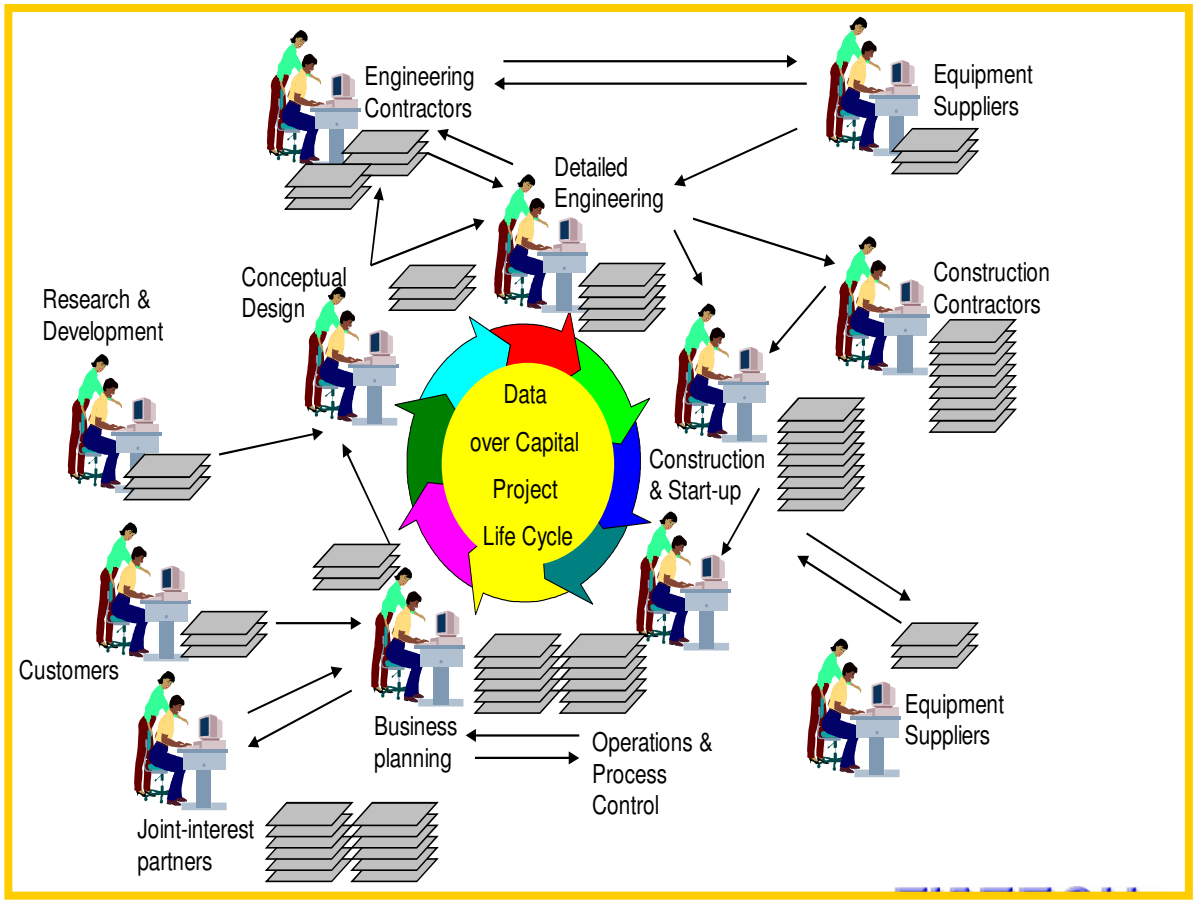
FIATECH Capital Projects Technology Roadmap



Advancing Interoperability

- Benefits of Interoperability
  - Increases economic competitiveness
  - Compresses time to market
  - Reduces infrastructure vulnerability
  - Expands markets for companies
  - Decreases supply chain communication costs
  - Provides global access for software vendors

"The cost of inadequate interoperability in the U.S. capital facilities industry is more than $15.8 billion per year"


Engineering Contractors
Equipment Suppliers
Detailed Engineering
Conceptual Design
Research & Development
Construction Contractors
Data over Capital Project Life Cycle
Construction & Start-up
Customers
Business planning
Operations & Process Control
Equipment Suppliers
Joint-interest partners

FIATECH 2010 Active Projects

- Total of 23 Projects have been active in 2010
- Specification Automation
  - Transforms engineering specifications into intelligent, electronic databases. Each clause, paragraph, requirement, table, equation, and/or limit becomes a flexible software object with attribution, relational capabilities, extensibility and interoperability.
- Collaborating with Neutral 3D Model
  - This project is developing the roadmap checklist and associated work-process in defining what is the minimum requirement for model exchanges (geometry as well as intelligent data) amongst the key stakeholders with different 3D modeling systems (SmartPlant, AutoPLANT, PDMS, etc,) to meet material management and construction deliverables.

FIATECH 2010 Active Projects

- Managing Material Libraries and Catalogs
  - This project will produce definition of requirements for catalogs and specifications, including geometry for exchange with design tools.
- Supplier Information Exchange with Design to Support Construction
  - This project will define the minimum vendor data deliverables to construction to support their construction planning, work-packaging, storage and maintenance processes.
- RFID for Materials Management and Productivity Improvement (The Cookbook)
- Engineered Equipment Life Cycle Application Tools (EELCAT)
  - The focus of this project is to develop data delivery and interoperability specifications and application tools for the life cycle of engineered equipment utilizing industry standards, i.e., ISO 15926 and AEX (as included in HI 50.7 and ISO 13709) for the exchange of data.

Joint PCA & FIATECH Projects

Leadership for Implementation of ISO 15926 Collaboratively with PCA

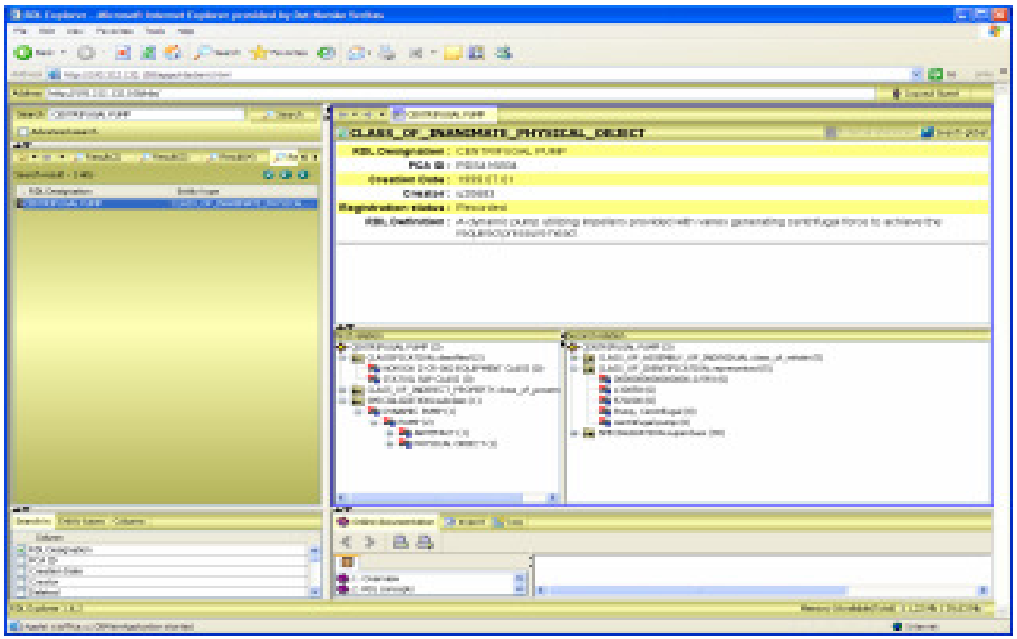
- Accelerate Deployment of ISO 15926 (ADI), Phases I, II & III
- ISO 15926 Primer
  - This publication will provide information to management decision-makers who are considering implementing the ISO 15926 standard
- JORD Project – Joint Operational Reference Data
  - Enhance and further develop the core RDS
  - Requires a significant investment – seeking funding for its development with PCA and the entire industry
  - FIATECH Board reviewing next steps and funding approach

ISO15926 Primer Book

- Working with Gord Racher and PCA
- The book content is a collaborative effort, compiled mainly from wikis previously published online, but also with input from experts in the ISO 15926 field.
- The deliverable will be a published book that looks at the need for digital interoperability, some of the things that have been done to address interoperability issues, and some of the things the industry should be doing now.

JORD (Joint Operational Reference Data)

Reference Data Library Today



10s of man-years of content

Technology is not scaling

Tools exist … but only for modelers

Back in 2009 the FIATECH Board of Directors agreed its Aims for 2010

- Promote ISO 15926 delivery by end 2010
- New funding available to make this happen (BUT…an achievable plan must be developed)
- Get core RDL WIP operational in a sustainable way (One Project - no advantage to anyone in diluting efforts and debating multiple projects)
- Plan to achieve this to be developed by end Oct 2009
- Renewed, higher level co-ordination with PCA

Oct 2009 - The JORD Project is 'born'

FIATECH

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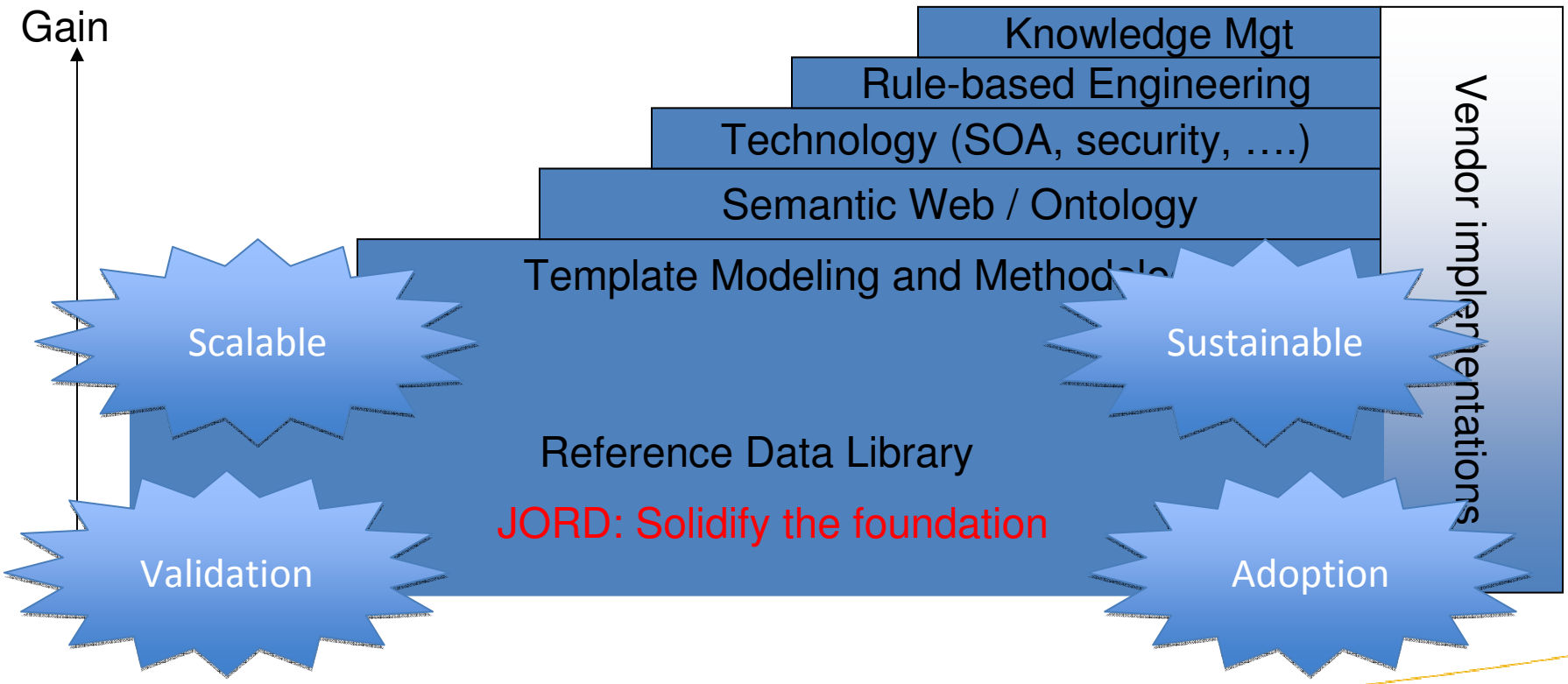
Single Unified Plan

Independence

$ Funding

JORD Objectives



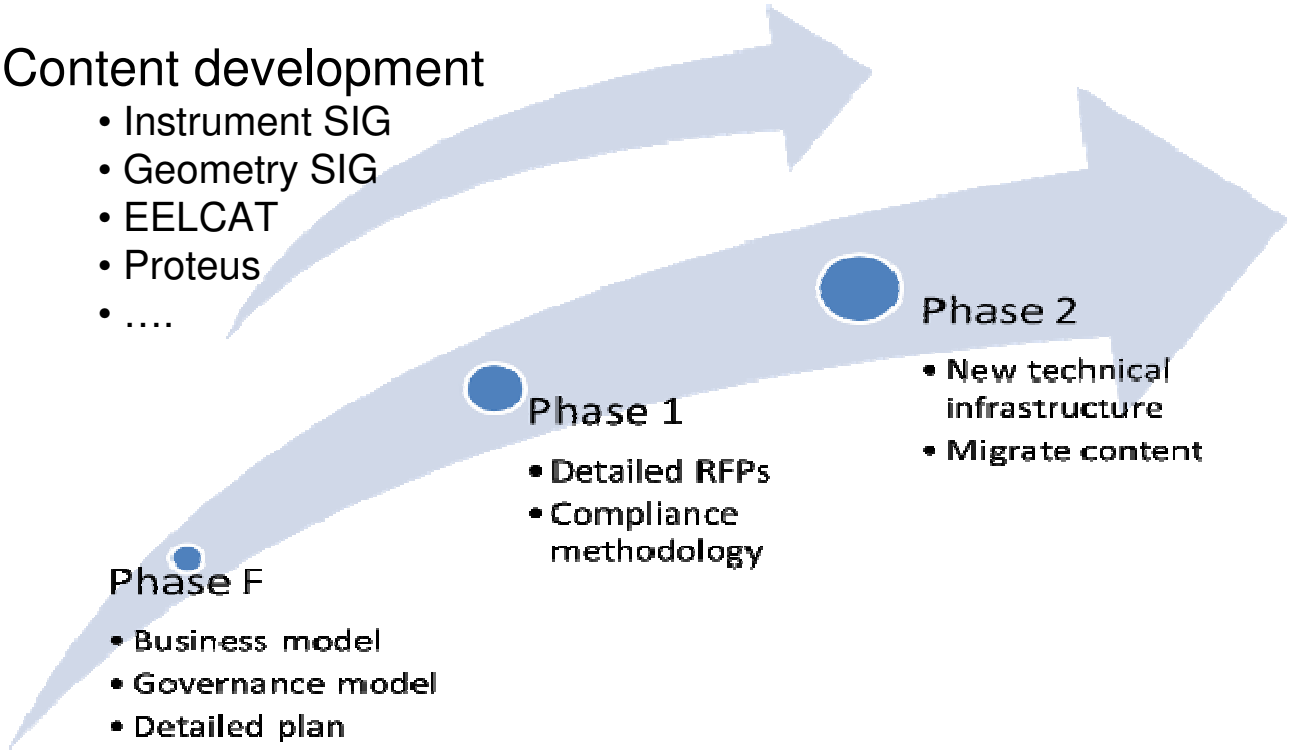
JORD Objectives

- Scalable:
  - Technical infrastructure for 24x7x365 operation, ever-increasing content
  - Critical path no longer dependent on a few specialists
- Sustainable:
  - Business model and funding for self-sustaining operation
  - Governance model for long-term viability
- Validation:
  - Content validated as consistent
  - Implementations validated as compliant
- Adoption:
  - An organization to enable broad uptake of ISO 15926

JORD Deliverables

Content development

- Instrument SIG
- Geometry SIG
- EELCAT
- Proteus
- ….



By end of 2012

JORD Current Status

- Joint FIATECH/PCA JORD Steering Team formed
- Phase F complete
  - Full-time worker, jointly funded by FIATECH and PCA
- Requires a significant investment
  - FIATECH Board reviewing next steps and funding approach
  - Seek funding jointly with PCA and the entire industry
- Work already underway
  - Special Interest Groups (SIGs) forming
  - Ongoing content creation
  - Short-term maintenance of infrastructure

JORD Funding – Short Term

Significant start-up costs

Low initial revenue stream

Operational shortfall inevitable in short-term
Sponsors sought

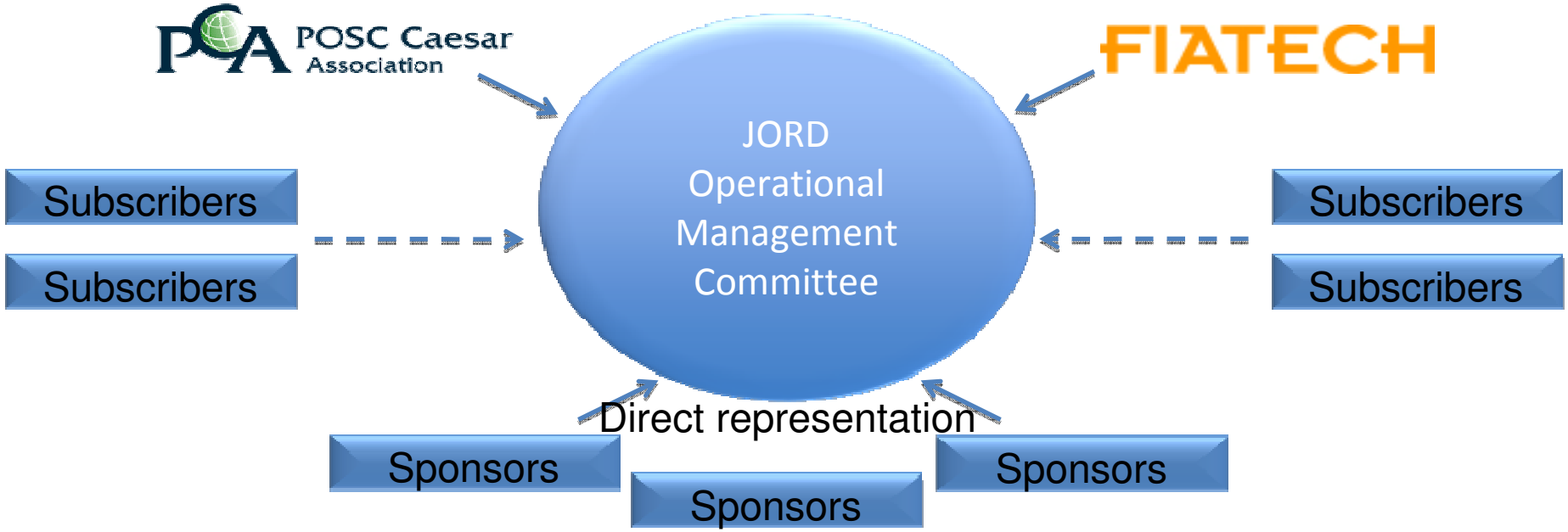
JORD Funding – Sustainable Phase

Ongoing costs reduced

Revenue stream increasing

Subscribers benefit from enhanced level of Services
Operational shortfall reduced, even eliminated

Managing JORD



Why Participate?

- If you plan to use ISO 15926, you need a scalable and sustainable Reference Data Service
- You could wait for others to fund it and build it ….

  …. or you could help
- Once the Reference Data Service is in place, each of us gets 100% of the benefit …

  … but none of us will have paid more than a fraction of the cost
- The broader we share the cost, the faster we each start to see benefits
- Let's capitalize on the momentum that has built

Food for Thought

Facts

- Funding of Phase F split 50/50 between FIATECH and PCA
- FIATECH contribution all by donations from FIATECH members
- 100% of FIATECH contribution raised in three weeks
- High proportion of donations came from software vendors

Conclusions

- This is a hot topic that companies are willing to fund
- We can fund Phases 1 and 2
- You can expect real action from the software vendors … but what about the owners and EPCs?

Collaborative Projects

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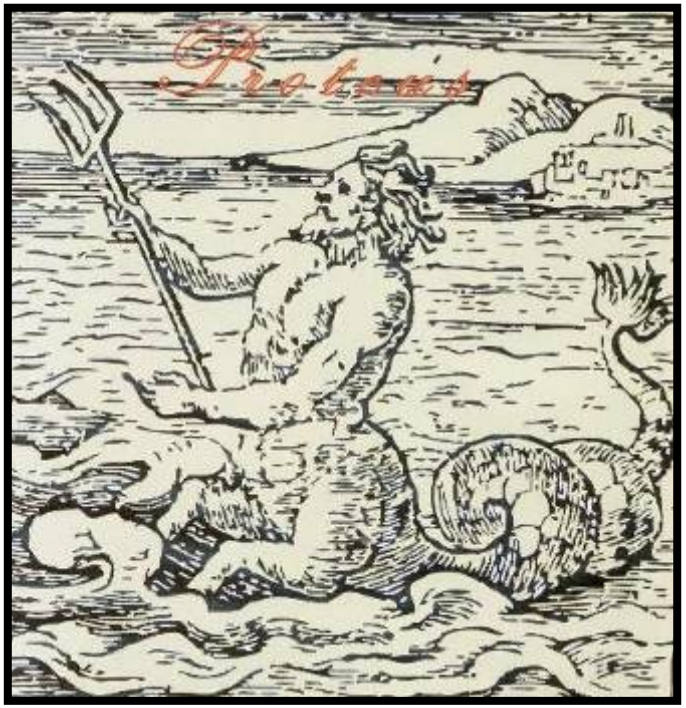
Proteus



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Proteus objectives

- Determine the business requirements and priorities for the PP industry
- Define the ISO 15926 model to meet the requirements
- Enhance the RDL classes to cover any new ones
- Enhance the Dictionary compliant (DC) Schema to extend the model
- Identify the Templates required to support the model
- Collaboration with vendors to assist in their development of interfaces
- Collaboration with other projects - eg iRING

Achievements

- 100+ projects gaining business benefit from deploying ISO 15926
- 9 vendors committed to commercial DC interfaces for ISO 15926
- 9 P&ID systems, 9 3D systems and 6 visual Navigation involved
- Test files exchanged between participating vendors for validation
- Major OOs deploying ISO 15926 DC XML
  - Alstom, BP, Dow, Dupont, Shell and many others

Projects

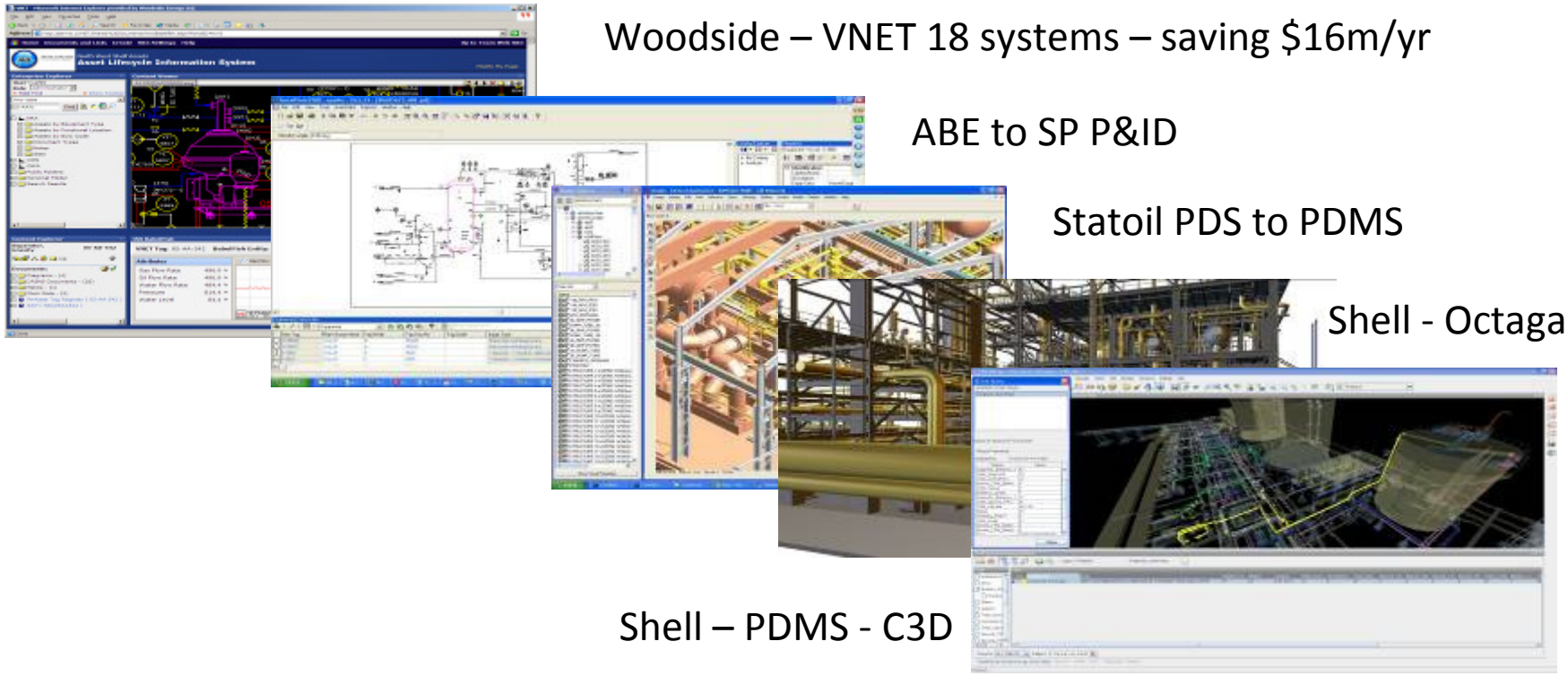
Woodside – VNET 18 systems – saving $16m/yr

ABE to SP P&ID

Statoil PDS to PDMS

Shell - Octaga

Shell – PDMS - C3D



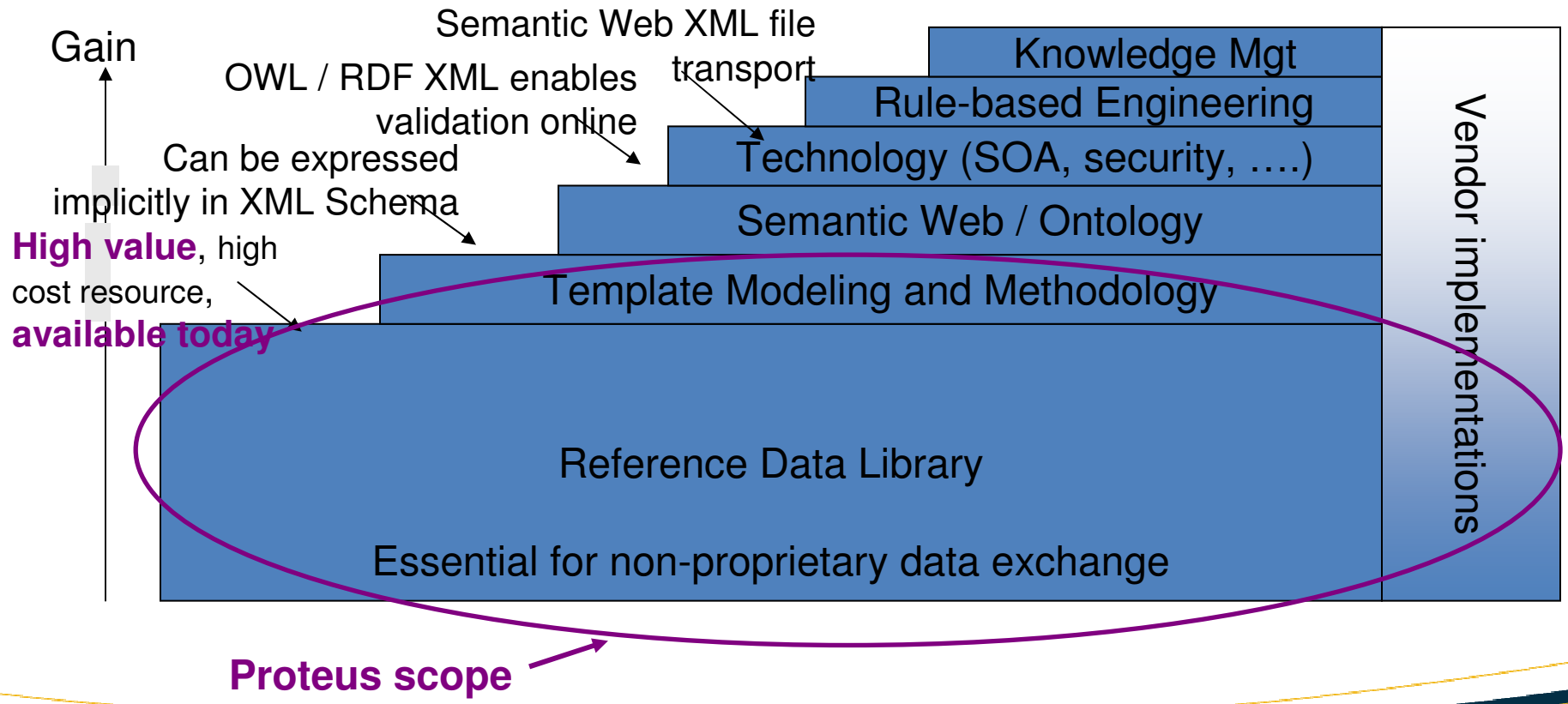
Priorities

- Intelligent P&ID exchange
  - Topology
  - Full graphics and topology
- P&ID and 3D engineering information accessible downstream
- P&ID to 3D validation.
- 3D to 3D conversion of intelligent models geometry and topology

Current activities

- Enhance the P&ID model
  - Incremental update
  - Round trip – retain “foreign objects” and User defined attributes
  - Multi-drawing models
  - Symbol libraries
- Enhance 3D model for Structural Steel
  - Consider scope of IFC and CIS/2
- Collaboration with iRING UG for Templates required
  - Presentation and Annotation classes
- Collaboration with Geometry SIG

ISO 15926 stack



Proteus – Current Status

- Major companies are gaining major business benefit using ISO 15926
- Proteus is driven by business requirements.
- Feedback from real projects to enhance the RDL.
- Collaboration with other projects to ensure coherent solutions.
- Major vendors support ISO 15926 Dictionary compliant XML files.
- Many commercial interfaces are available and in use today.

- More involvement will facilitate
  - faster progress
  - Key issues to be addressed

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iRING

ISO 15926 Realtime Interoperability Network Grid

iRING User Group

iRING Tools

iRING Sandbox

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FIATECH and iRING

ISO 15926 Realtime Interoperability Network Grid

- iRING is a brand (a label) created by the iRINGUserGroup for any implementation that **fully** conforms to Parts 2-10 of the Standard
- Although iRING is not currently an official FIATECH Project, it has always been the goal of FIATECH's and PCA's ADI project which iRING is finally able to realize.
- FIATECH supports iRING and believe that its efforts are significant to the ISO 15926 community.
- FIATECH will continue to work closely with the iRING user group (many FIATECH members already actively participate in this community)

Proposed Projects for 2011

- ISO15926 Project Information Flow
- ISO 15926 (IFC) – ISO/PAS 16739 interoperability – Preliminary Mapping
- ISO 15926 Beginners Users Guide
- OPEN PIPE STRESSING in ISO 15926 (Neutral data exchange for Pipe Stressing via ISO 15926)
- Instrumentation design interoperability by ISO 15926
- DCS Interoperability with Plant LifeCycle Systems
- Product Lifecycle Management XML (PLM XML)
- Joint PCA & FIATECH
  - ISO 15926 JORD phases 1 & 2
- Collaborative Projects:
  - iRING Tools Interfacing Project

Thank You

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