Capitalizing On B2B Information Exchange

Proposal for New CRE Standards:

“XML Schemas For Refinery Equipment”

“Collection, Analysis And Exchange Of Reliability And Maintenance Data for Equipment”

Andrea Johnson /API
New Proposal
API 690 “XML Schemas For Refinery Equipment”

- **Potential Scope:** API Equipment Standards (Mechanical Equipment, Heat Transfer, Instrumentation, and Electrical)

- **Most important usage scenario**
  - exchanges between user, vendor, contractor and user IT systems

- **Content**
  - Standard definitions & nomenclature
  - XML schemas for key equipment types
  - Guideline on Mapping (vendor, contractor, user)
  - Guidance for industry deployment
The Problem - Lack of Interoperability

- Engineering Contractors
- Detailed Engineering
- Equipment Suppliers
- Construction Contractors
- Construction & Start-up
- Operations & Process Control
- Business Planning
- Joint-interest partners
- Customers
- Business Planning
- Technical Data over Facility Life Cycle
Industry Challenges

- Everyone configures their eCommerce and project delivery systems differently
  - repeating electronically the chaos of the paper-based work processes

- Minimal convergence on nomenclature and functionality to support EPC and O&M eBusiness processes

- Minimal success in exploiting eBusiness potential for improving the delivery of Capital Facilities
Background

- eBusiness is and will transform the delivery and operation of capital facilities

- 100s of companies developing overlapping and incompatible eBusiness applications
  - still searching for sustainable eBusiness models

- Interest in common work practices and eBusiness standards
  - datasheets, RFQs, RFI, change orders, inspection, diagnostics and maintenance reports
The Solution - Industry Standard Data Exchange Vocabularies & Format

- Engineering Contractors
- Detailed Engineering
- Equipment Suppliers
- Construction Contractors
- Construction & Start-up
- Equipment Suppliers
- Customers
- Joint-interest partners
- Business Planning
- Operations & Process Control

Standard Data Exchange Vocabularies and Format
Deploying Standard XML Schemas will...

- Bring industry closer to interoperability
- Reduce friction and delay in the supply chain
- Provide capability for sharing data among parties across different uses and life cycle phases
- Provide a software-neutral format for data archival and re-use
- Technology foundation to bridge the gaps between EPCs, suppliers and O&M
- Reduce transcription errors, improve productivity
Why is XML Important

- Simple; human and machine readable
- Broad, commercial use - pervasive
- Central idea: presentation, content and structure of an electronic document should be kept separate and made explicit from the data
- By starting with a set of simple constructs, XML allows growth and flexibility
- Tool for communicating business and technical information
API PIDX Committee

VISION: To achieve petroleum industry and enterprise-wide integration of business processes through seamless electronic business communications.

MISSION: To influence the architecture and facilitate implementation of effective standards and processes for electronic business communications within the petroleum industry community. PIDX also seeks to leverage the inherent value in existing EDI standards as well as actively pursuing the benefits of the emerging E-business technologies.
PIDX Members

Accenture
Baker Hughes Incorporated
BP p.l.c.
Channelinx Inc.
ChevronTexaco Corporation
DTN
FuelQuest, Inc.
Halliburton Energy Srvc., Inc.
OFS Portal
POSC
Schlumberger Technology Corp.
Transport 4
WelloGix, Inc.

Aramco Services Company
Birdsnest
Business Knowledge Architects
ChevronTexaco Corp.
Cooper Cameron Corporation
ExxonMobil Corporation
FuelQuest, Inc.
Marathon Oil Company
Oildex/TransZap, Inc.
Shell/Equiva
Sooner Inc.
Unocal CorporateW
Roles of PIDX and CRE

- CRE to provide DOMAIN expertise
- PIDX to provide XML data interchange expertise
- Two API committees to work in collaboration on single industry standard or set of standards for downstream
API-610 (Centrifugal pumps)


Magnitude of Industry Opportunity

- 46,000 ANSI/ASME pumps per year
- 37,000 API & other pumps per year
- 53,000 ISO pumps per year

Each Customer has a unique data sheet and pump suppliers are required to “re-enter” data from customer data sheet to supplier “spec sheet”. Savings benefit to the supply chain is $100 to $500 per pump. This translates to a savings within the industry of between $13.6 Million - $68 Million/Year

—Flowserve Pumps
What are we asking from CRE?

- Subcommittees to nominate potential 690 Task Force members
- Submit nominations to Andrea Johnson by May 10, 2002
- TF 690 to work in collaboration with the API PIDX committee
New Proposal:
API 689 “Collection, Analysis, and Exchange of Reliability and Maintenance Data For Equipment”

- **Potential Scope:** API Equipment Standards (SOME & Possibly, SCHTE, SOICS AND ELECTRICAL)

- **Most important usage scenario**
  - exchange of data between users worldwide
  - provides statistically significant data population from which to draw meaningful conclusions (high confidence intervals)

- **Content**
  - definitions
  - key performance indicators
  - data structure (taxonomy)
  - analysis methodology
Problem: Continuous Improvement Is Not Possible In A Closed R/M System
The Solution – Industry Standard Data Exchange

Reliability and maintenance data (KPI’s)
API-689 supports better business decisions....

- Weibull
- Monte Carlo
- Fault-Tree
- 6 Sigma

OPTIMIZING:
- Spares inventory
- Maintenance intervals
- Equipment upgrades
- Production
- Life cycle cost
API-689/ISO-14224 Taskforce Participants

AGIP
Air Products & Chemicals
Aramco Services *
BP
ChevronTexaco
ExxonMobil
Heinz Bloch
IsoGraph
Jardine

Meridium
DNV
Paul Barringer
Repsol
Total/Elf/Fina
SAP Germany
SB Technologies
Shell Global Solutions
Stat Oil
UOP

*Chairmanship
API Initiatives/Standards

Equipment Life Cycle

E= Engineering
P= Procurement
M/F= Manufacturing
C= Commissioning
O= Operation
M= Maintenance

PIDX

API-686 Machinery Installation
API-689 (Reliability and Maintenance Data)

API-690 "XML Schemas"

API-610