Asset Lifecycle Information Management (ALIM)

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For owners, the Rubik’s Cube of construction is reducing, repurposing and augmenting design and construction data into accurate and useful facilities models for operations and maintenance. Now, owners, designers, builders, facilities managers and vendors are working together on projects around the country to solve the puzzle. They say they are not only succeeding, but the payoff is significant.

"Realizing new value: Owners are starting to realize the value of the data," says Bill Grubler, chief technology officer for Felder, a management consulting firm. "The value of the data is increasing as owners are starting to realize the value of the data."
Poor Asset Information can be Disastrous

“… we learned that the blowout preventer had been modified in unexpected ways…”

“… BP told us the modifications on the BOP were extensive. After the accident, they asked Transocean for drawings of the blowout preventer. Because of the modifications, the drawings they received didn't match the structure on the ocean floor… …”

Source: House Committee on Energy and Commerce hearings on the Deepwater Horizon disaster
Asset Lifecycle Information Management (ALIM)

Plan | Design | Procure | Build | Operate | Maintain | Retire & Recycle

CAD models
Documents
Requirements
Schedules
Budgets
Contracts
Status
Permits
Etc.

Permits
Conceptual Designs

Procedures
Materials
Maintenance
Work Management
Configuration Management
Equipment Reliability
Operations
etc.

Forecasts, Projections, Status Reports, Histories, Configurations, Permits, Regulations, etc.

ARC Advisory Group

Asset Lifecycle Information Management (ALIM)

Funded Projects

Modification Requests

New Facility Requests

Information Management

Demand/Cost Forecasts, Asset Status/History
Ideal Asset Information Management

Source: ARC Advisory Group
In reality... Some common causes...

• **Project Delivery**
  – Difficulty locating data
  – Incomplete information
  – Incorrect version of data
  – Design changes / re-work
  – Late detection of clashes / anomalies
  – Difficult team co-ordination

• **Operation & Maintenance**
  – Ownership of asset data
  – Incomplete / inaccessible data
    • Physical
    • Contextual
Cost Analysis of Inadequate Interoperability in the U.S. Capital Facilities Industry

40% of engineering time is spent locating & validating information

Poor communications between people and systems wastes 30% of project costs

The delivery of reliable data defining the asset upon completion can deliver a saving in O&M cost of 14% per annum.
Integration and Interoperability

Key it once and connect or merge my information with your information

Integration

Interoperability

Applications

Applications

Applications

Applications

ISO 15926

i-model

POSC Caesar Association

Fiatech

Innovation that builds the world.
Silo Operation

- Multiple Systems - ERP, EMMS, WBS, CAD, etc
- Operating in Silos
- Minimal Integration - No communication of change between apps
Tying into the OpenPlant Design Environment

- OpenPlant Functional Applications
- OpenPlant Physical Applications
- Other Bentley Applications
- 3rd Party Applications
- Enterprise Applications

Bentley Platform Technology

- i-model

OpenPlant ModelServer

- OpenPlant Services

OpenPlant Schema (ISO15926)

ProjectWise Integration Server

Enterprise Bridge [eB]

ISO 15926 Reference Data

iRING Tools

WIP
i-model Container
Open Information Exchange
Infrastructure for Asset Engineering and Operations

Asset Operations
- Maintain
- Repair
- Compliance
- Safety
- Inspect
- Replace

Asset Lifecycle Information Management Platform
(Single Source of Truth)

ProjectWise Integration Server
- Engineering Document Management
- Engineering Collaboration
- Design Application Configuration

AssetWise Data Quality Services
- Data Quality Analysis
- Milestone Data Loads from Design
Infrastructure for Asset Engineering and Operations

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(enterprise Bridge (eB))

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AssetWise Data Quality Services
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i-Model
- 2D/3D + data from multiple sources
- Contains full knowledge of origin + evolution
- Requires no application logic to display

Design Tools of Choice
- Legacy data not lost
- Re-Tool when the time is right
- Reduce time to innovation …
Interoperable Information Management Platforms

- MicroStation
- AutoCAD
- AutoPlant
- Revit
- InRoads
- GEOPAK
- AutoCAD MEP
- Etc…

- Inter-document relationships
- Meta-document relationships
- External Repositories

- Delta File Transfer
- Caching Servers
- Data Compression

- CAD standards management
- Reference file management
- Dependency Management
- Dynamic Review

- Granular, role based permission model
- Audit trail
- Centralized store
- Transmittal / Distribution

- Assets
- Requirements
- Regulations
Thank You