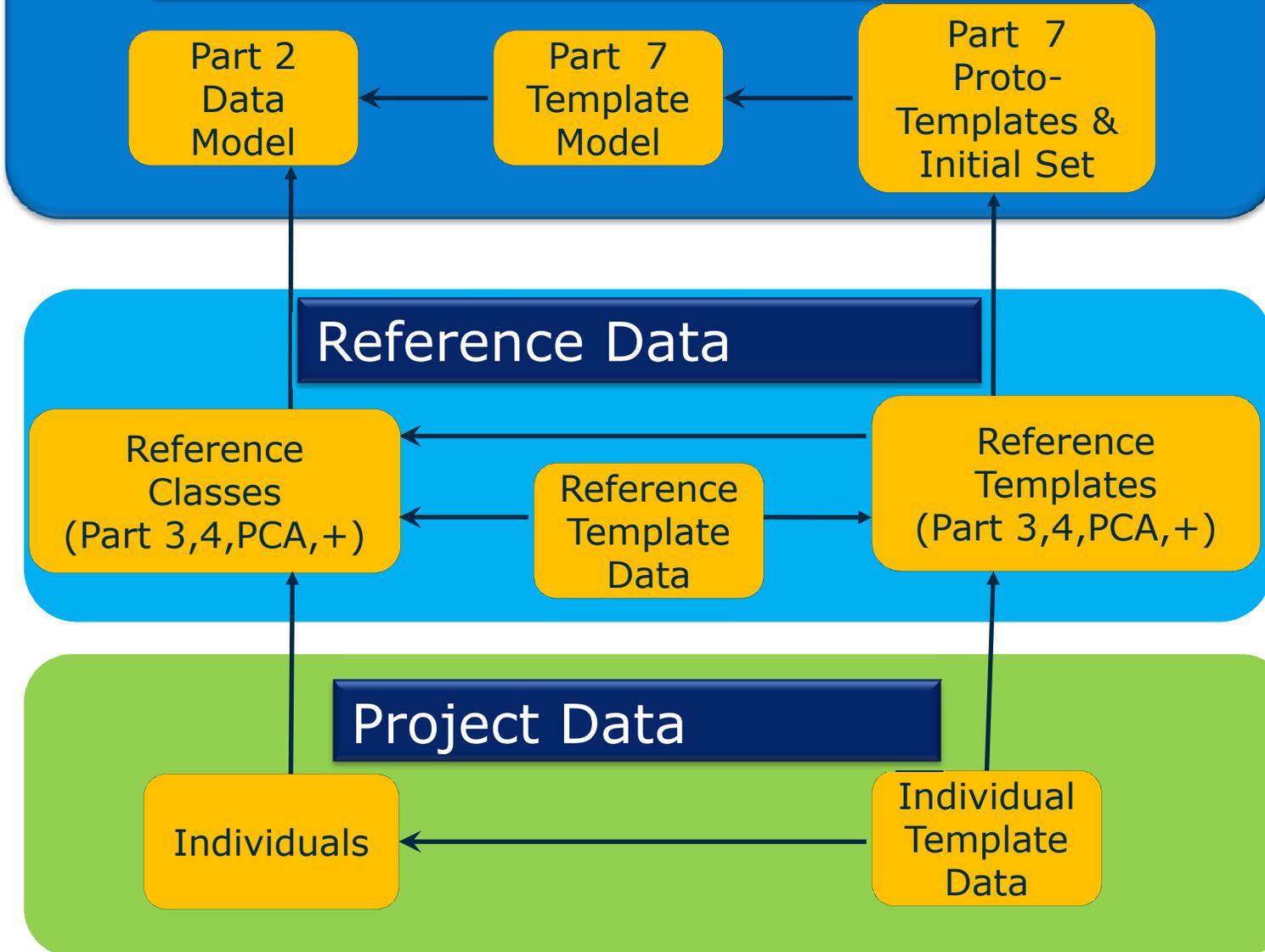




# Presentation Overview

- ISO 15926 and Bentley
- OpenPlant Interoperability Vision and Benefits
- OpenPlant – Current solutions built using ISO 15926 Reference Data
- PW Lifecycle Server (LCS) using ISO 15926 for Handover Scenario and Single Source
- Example EPC to O-O Data Exchange Scenario using ISO 15926
- Summary

# ISO 15926 Protocols (Part 2,7,& 8)



## Bentley's participation in ISO 15926

- Active member of POSC Caesar and FIATECH
- Co-founder of FIATECH ADI Project (2005)
- Active participation in ISO 15926 Projects and iRING User Group
  - Review and Complete Protocols (Parts 7, 8, 9, & 10)
  - Reference Data Usage & Extension (Parts 3, 4, 5, & 6)
  - Implementation (Use Cases, Demos, Pilots)
- Collaborating with other leading participants on ISO 15926 implementation
- Actively implementing ISO 15926 and providing feedback to improve the standard

## Our Vision...



## The Benefits ...

- Data interoperability using Industry Standards
  - Open & Common Information Model
  - Bentley OpenPlant™ products designed for the distributed world;
    - Uses ISO 15926 reference data natively
    - Quick access & sharing of data, facilitating collaboration
    - Provides complete, consistent & correct data throughout the plant lifecycle
    - Provides an integrated, functionally complete set of solutions supporting key engineering disciplines
- Achieves standardization across key plant lifecycle workflows
  - Reduces the time to implement & learn
  - Increases end-user productivity
  - Improves plant safety & performance
  - Delivers greater return on investment in information
  - ISO 15926-based Open Information Model offers true data & application interoperability lowering overall cost of ownership

## Our Solution ...

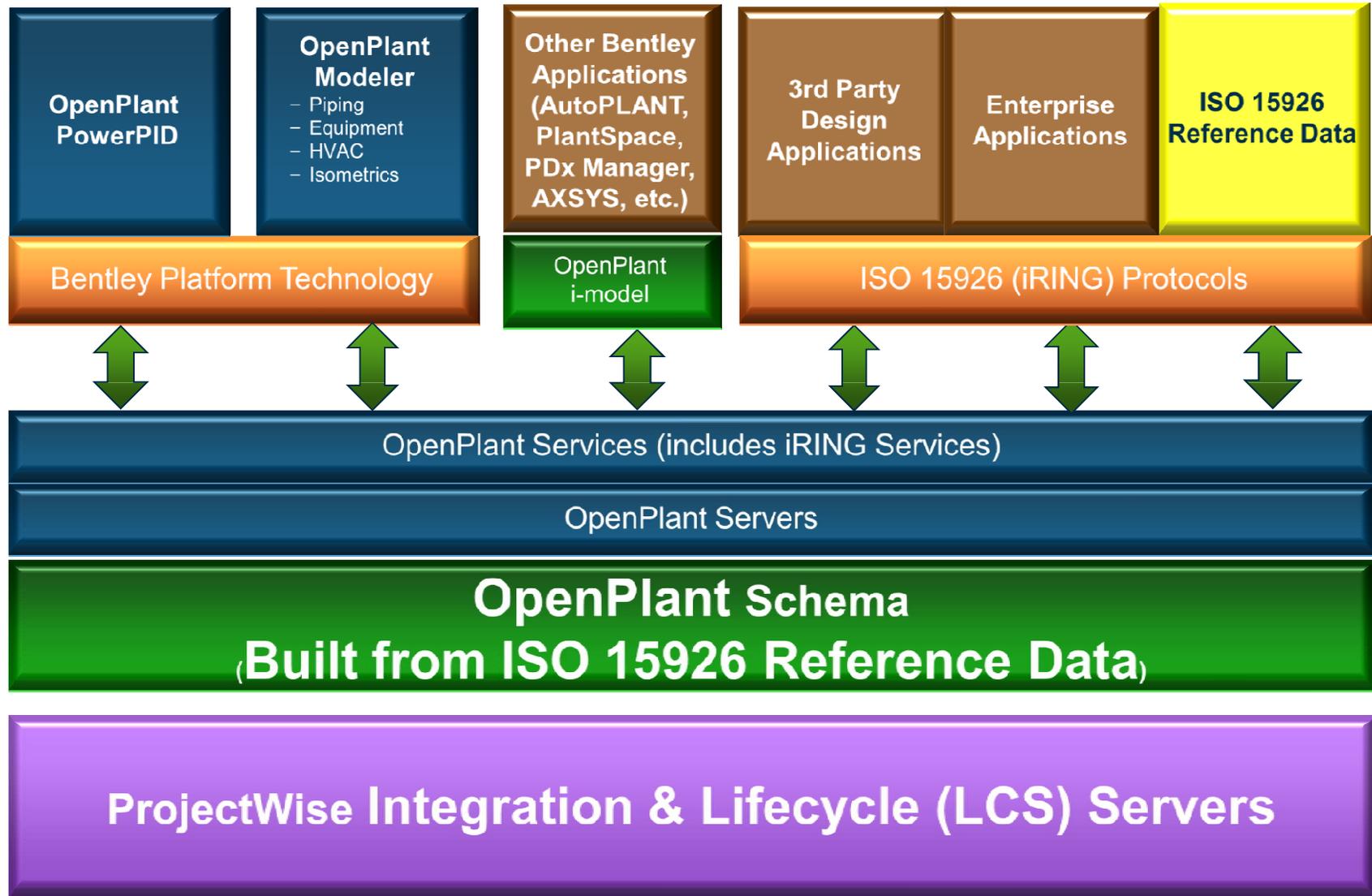
# Bentley OpenPlant™



## What is OpenPlant?

- OpenPlant is the next generation of Bentley's plant design products
- OpenPlant is based on ISO 15926 for interoperability
- OpenPlant lets engineers collaborate in an open environment
- OpenPlant is designed for the distributed world
- OpenPlant leverages Bentley's proven technology
- OpenPlant stimulates innovation by delivering greater flexibility, adaptability and productivity

# Bentley OpenPlant and ISO 15926 Architecture



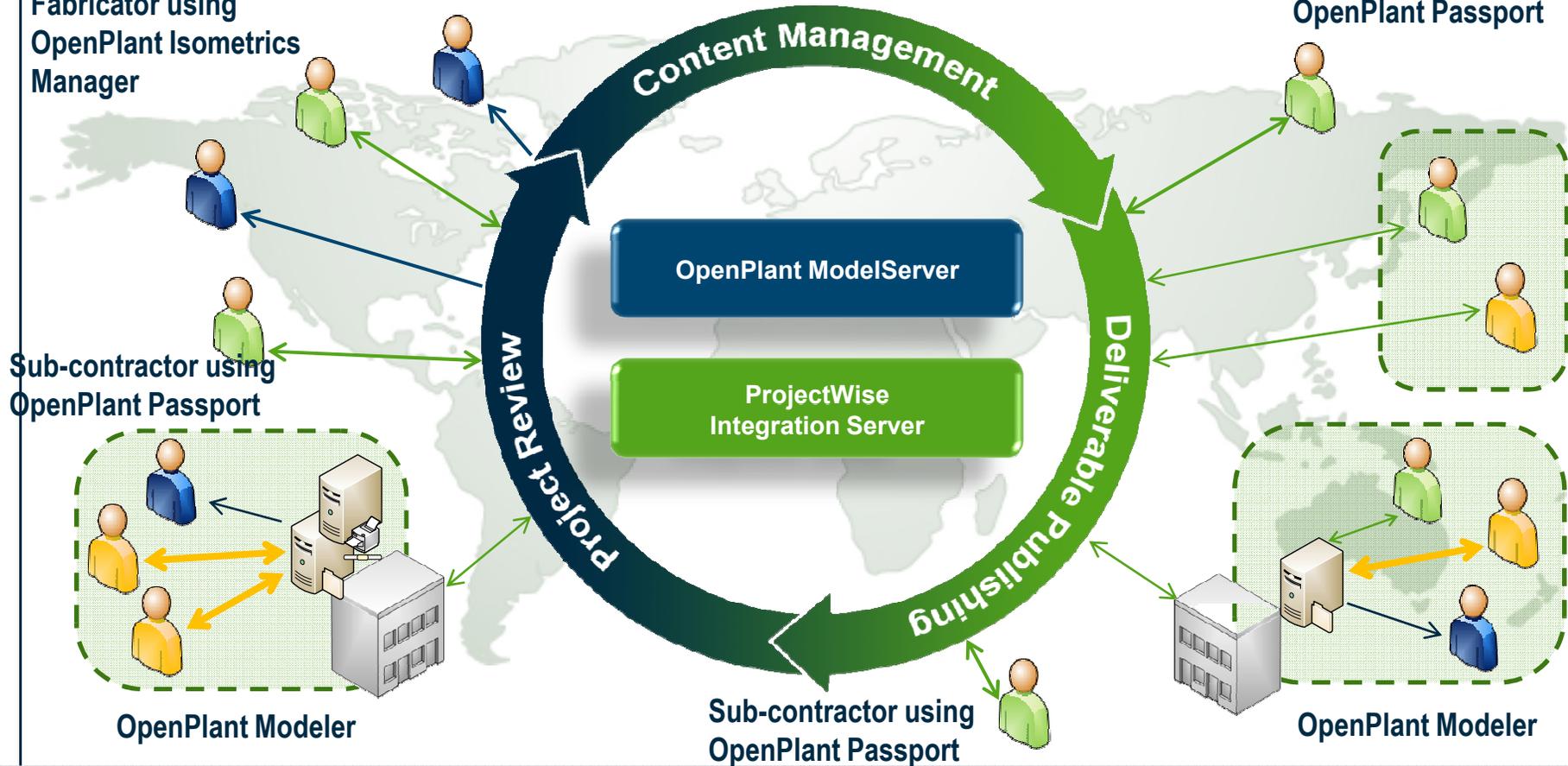
# OpenPlant PowerPID V8i SELECTseries 3

- Common Specs
  - Use of common piping specs between OpenPlant PowerPID and OpenPlant Modeler
- Managed Workspaces
  - ProjectWise Managed Workspaces
- Shared Schema
  - Single Schema version used for both products
- Support for Common Tag Format
  - One location to set Tag format properties at the schema level

# OpenPlant and ProjectWise is a Project Team Collaboration Platform for the Design of Capital Projects

Fabricator using  
OpenPlant Isometrics  
Manager

Sub-contractor using  
OpenPlant Passport



Bentley  
**ProjectWise V8i**

Engineering Project Collaboration Platform

Open Minds think  
**OpenPlant**

Built on ISO 15926



# Capabilities in June Release

- Workflow:
  - Component Level check in/out of Equipment, Piping, Cable Tray
  - Reference in Drawings from other apps
- Modeling Tools:
  - Piping
  - Equipment
  - Cable Tray
  - Structural (ISM using ProSteel or Bentley Structural)
  - Commodity Pipe Supports
- Utilities:
  - Administration & security
  - Specification Generator
  - Reports, Tagging
  - Configuration, Class Editing
  - Clash Detection
- PDS Import:
  - Specs/Cats
  - Models
- Drawing Production:
  - General Arrangements with annotation
  - Isometrics
- Analysis:
  - AutoPIPE PXF Export
- Design Review Workflow:
  - i-model generation
  - Markups
- Other:
  - Isometric Management/Status
  - Power based application
  - Operating Systems: XP, Vista & Windows 7

# Summarizing OpenPlant Benefits

<b>Save time and effort</b>	Does not requiring “translating” information
<b>Flexibility in your work practice</b>	You can work online or offline and edit with no bandwidth
<b>Reduce learning curve</b>	Intuitive task-based interfaces
<b>Maximize global resources</b>	Leverage existing applications you have in place & control work execution
<b>Improved project collaboration</b>	All team members have equal access to information
<b>Deliver better quality documents</b>	<ul style="list-style-type: none"><li>▪ Open, based on ISO 15926</li><li>▪ Truly intelligent deliverables</li><li>▪ Self-contained with graphics and data</li><li>▪ Repurpose information easily without the original authoring application</li></ul>

# Why Lifecycle Server for Handover?

- Comprehensive Management of Change
- Full State Control
- Data Quality Management
- Integrated Security Control
- Document and Data Cross Referencing
- Data Integration Platform
- Complete Multi-Language Support

## ProjectWise Lifecycle Server



# Why Lifecycle Server as a Single Source?

- Independent of a specified set of creation tools
- Repository for all data and documents, not just an Operations or Design specific portal
- Desktop or Web-based implementations
- Simple, easy-to-use interface for Maintenance and Operations

## ProjectWise Lifecycle Server



# Why Implement LCS with ISO 15926?

- **An average of 40% of engineering time is dedicated to finding and validating information from disparate systems'** – “Cost Analysis of Inadequate Interoperability in the U.S. Capital Facilities Industry”, National Institute of Standards and Technology, Office of Applied Economics.
  - **Avoidance Costs** – *money spent to prevent interoperability problems from occurring*
  - **Mitigation Costs** – *money spent to correct problems once they occur*
  - **Delay Costs** – *money lost due to schedule slippage*

# LCIM & ISO 15926 on the web

The screenshot displays the Bentley Lifecycle Portal web application. The browser address bar shows the URL `http://bentleycolo:8888/portal.aspx`. The page title is "ProjectWise Web Server with Lifecycle Web Parts - Microsoft Internet Explorer provided by Bentley Systems".

The main content area is divided into two sections:

- Left Panel (Tree View):** Shows a hierarchical structure of assets. The selected path is: BV Demo > Diesel Stripper > 3 Systems > 2 Locations > Unit 0303 > Diesel Stripper > 45 Tagged Items > 0303-CV-025.
- Right Panel (Details):** Displays the details for the selected asset, 0303-CV-025. It includes a "Details" section with various attributes and a "Documents" table.

**Attributes Section:**

Attribute	Value
AP Tag Type	
Assembly Order	
Description	
Displayed Name	
Fail Mode	
IO Type	
LAST MODIFIED DATE	12/14/2009 1:25 AM
Lifecycle For Change Order	
LIFECYCLE HISTORY	Tag:Engineered
Location	
Location Code	
Manufacturer	

**Associations Section:**

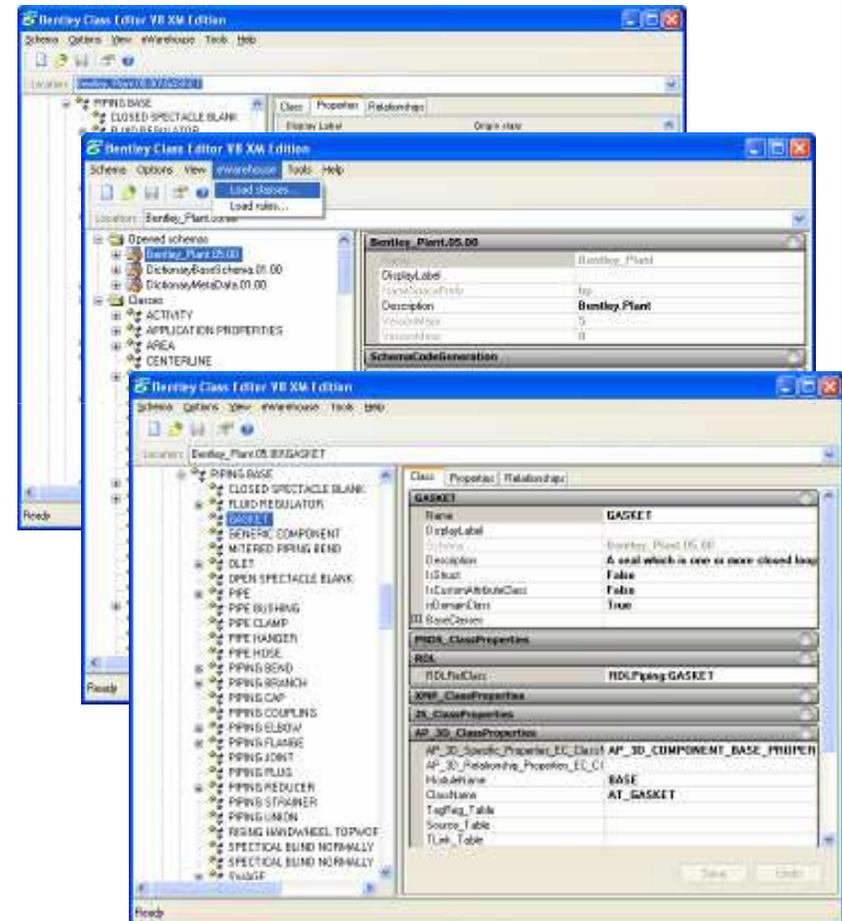
ID	Name
Category: Location	
Unit 0303	Unit 0303
Category: Class	
TAGGED ITEM:FUNCTIONAL_OBJECT_CLASS	TAGGED ITEM
Category: [Related Object]Facility	
Diesel Stripper	Diesel Stripper
Category: [Document]Document	
PSPID_01	PSPID_01

**Documents Section:**

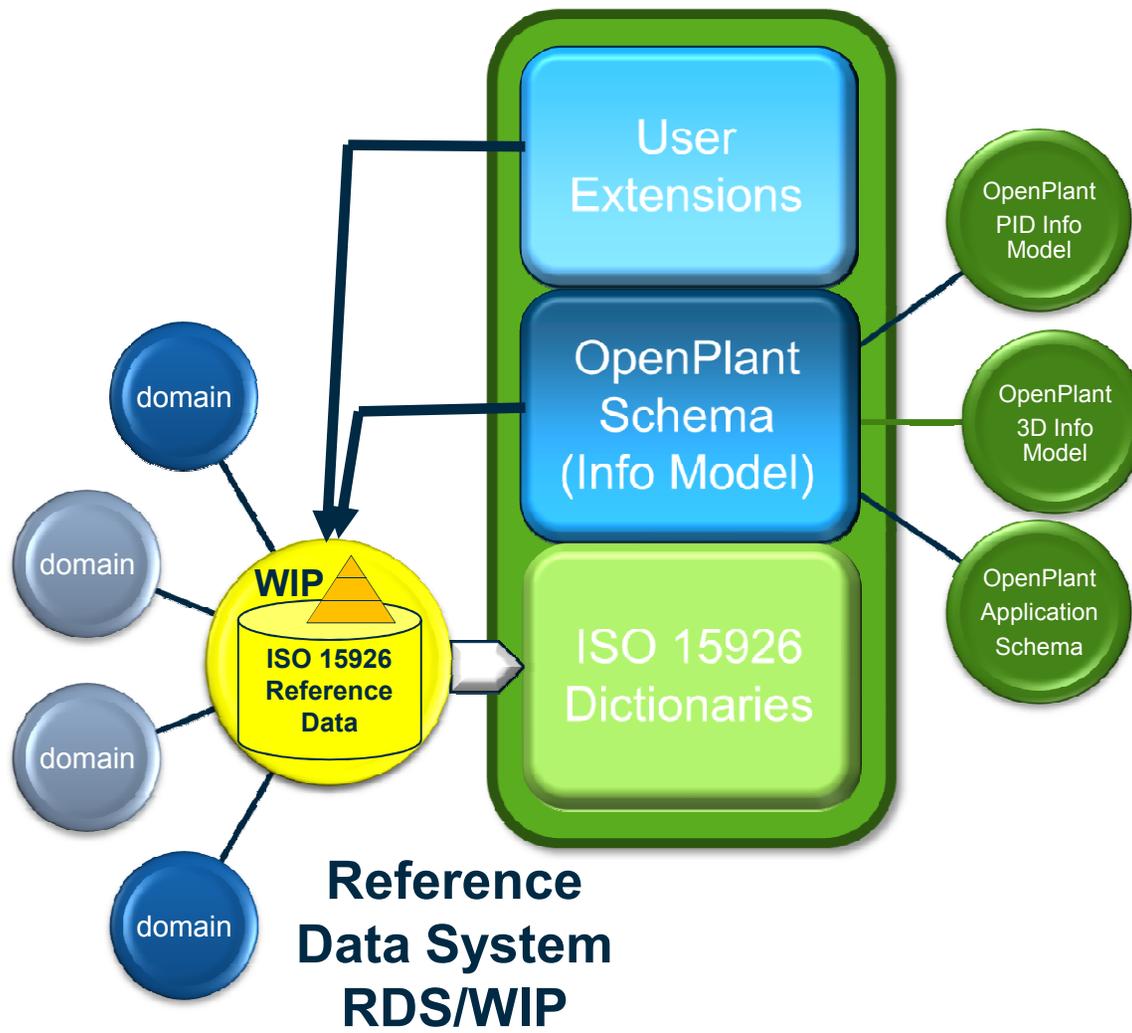
Name	Description	File Name	File Revision	Version	REV
PSPID_01.dgn	PSPID_01.dgn	PSPID_NO_1.dgn			

# Bentley Class Editor is used to build and maintain OpenPlant Schema

- Uses ISO 15926 dictionaries
- Engineering Friendly View of Reference Data
- Information model building
- Simplified mapping interface

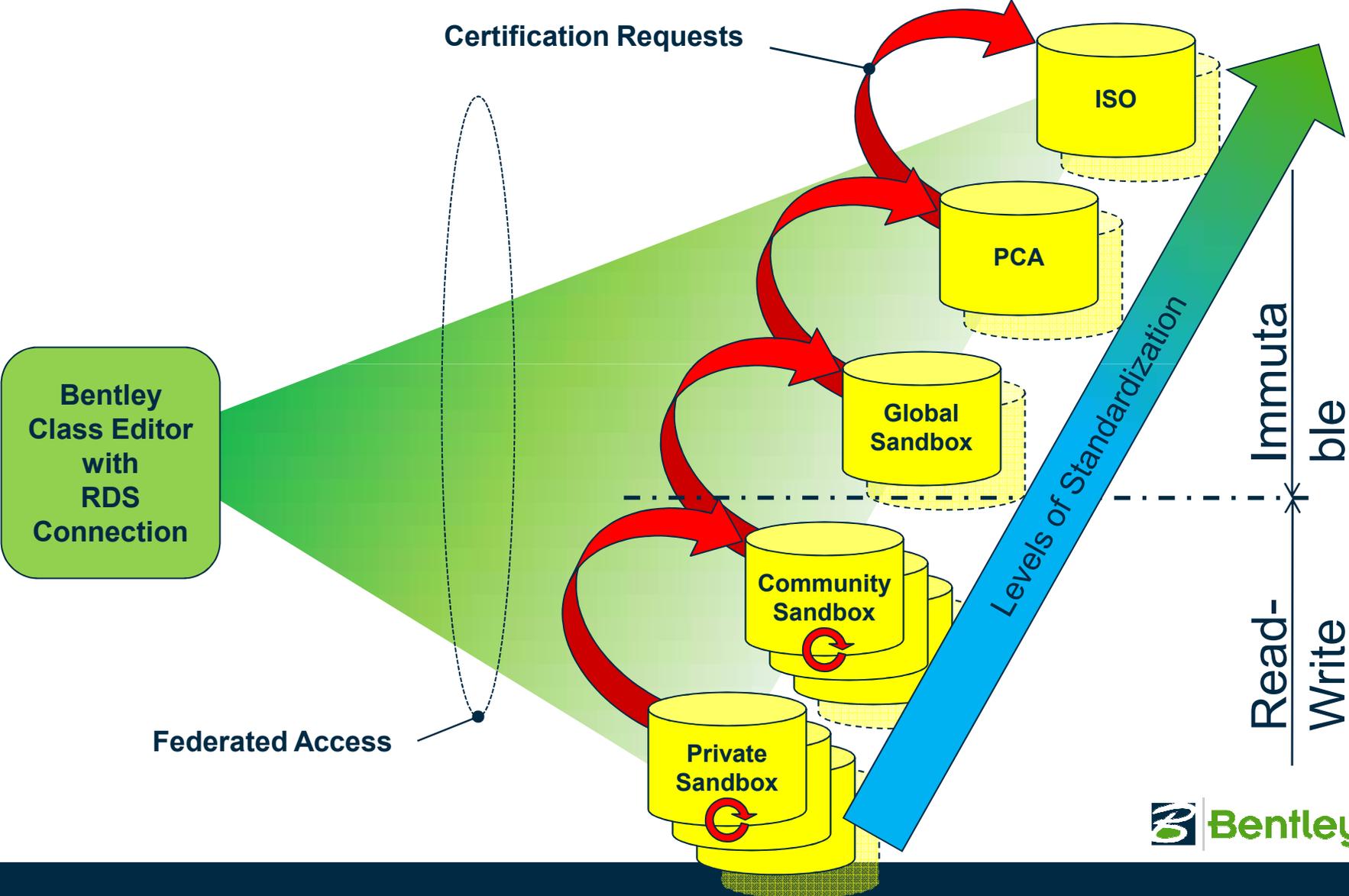


# What is the OpenPlant Schema?

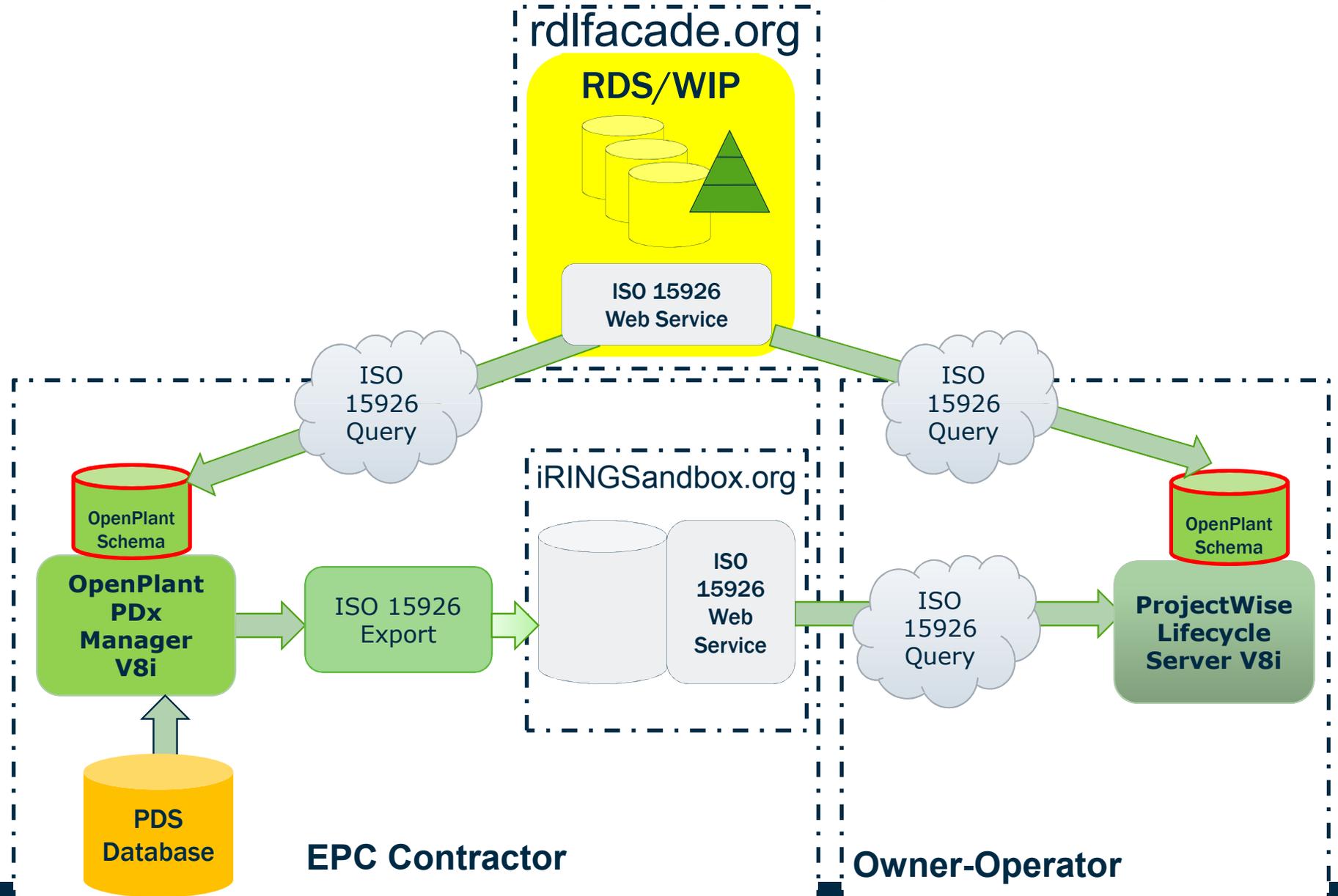


- Open
  - Ownership remains with the author
- Flexible/Adaptable
  - Change as changes happen
  - Reduced administration burden
- Future proof

# Reference Data Federation



# EPC to O-O Data Exchange Scenario



## Take-Aways

- Adoption and participation in ISO 15926 is a benefit to the entire industry
  - Bentley is actively collaborating to accelerate industry adoption of ISO 15926
- Interoperability is a key driver
- OpenPlant products use ISO 15926 Reference Data natively
- **Remember: Interoperability using ISO 15926 is a journey, with many destinations!**
- Increase efficiency and Remove barriers
- Maximize your return on human and financial investment

# Thank You!!

- Contact Info
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    - [Manoj.Dharwadkar@bentley.com](mailto:Manoj.Dharwadkar@bentley.com)

