

# “Standards in Action”

A brownfield operations example

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- Brownfield Plant Operator has a heritage of 3D models ('n'000's) that have been developed over the years
- There was no 'overarching' catalogue, model management or change management environment in place, which resulted in this significant 'asset' of information being under-utilized
- There was no coordinated process of updating, 'as-building', checking, project alignment etc. which meant that many of the models did not match either 'what was out on the plant' or 'what anyone planned to be on the plant' – as such exposed decisions cost and risk
- Since there was no coordinated refreshing of the models, they were on multiple versions of the originating software, which would have resulted in a significant cost exercise to refresh to the latest version

- Model Management – provide a CAD neutral way to capture, catalog, manage, distribute and access this wealth of information. Provide accessibility for operations, maintenance, turnaround, process, reliability and projects groups
- Content management and evolution – provide an ‘a la carte’ menu of solutions so that the business was not exposed to a high cost, software version alignment and content refresh exercise
- Business Integration – 3D is a critical business information resource for many purposes, but it remains an island of information without integrating into the core business processes

A range of options (a la carte) to optimize/minimize cost/schedule and improve integrity...

1. Capture / manage what you have (native 3D models and databases) and make it available in a neutral manner (e.g. without the source tool needed at the desktop)  
*“Provide stakeholders a solution with shared access to their 3D models”*
2. Minor plant modification where 3D model **is** up-to-date but will not materially change
3. Minor plant modification where the 3D model **is not** up-to-date, and will not materially change, but is not cost effective to recreate the model
4. Minor plant modification where the 3D model **is not** up-to-date, and will not materially change, but is not cost effective to laser scan
5. Major plant modification where size of model, global workshare etc are important

# Core Information Management Capabilities

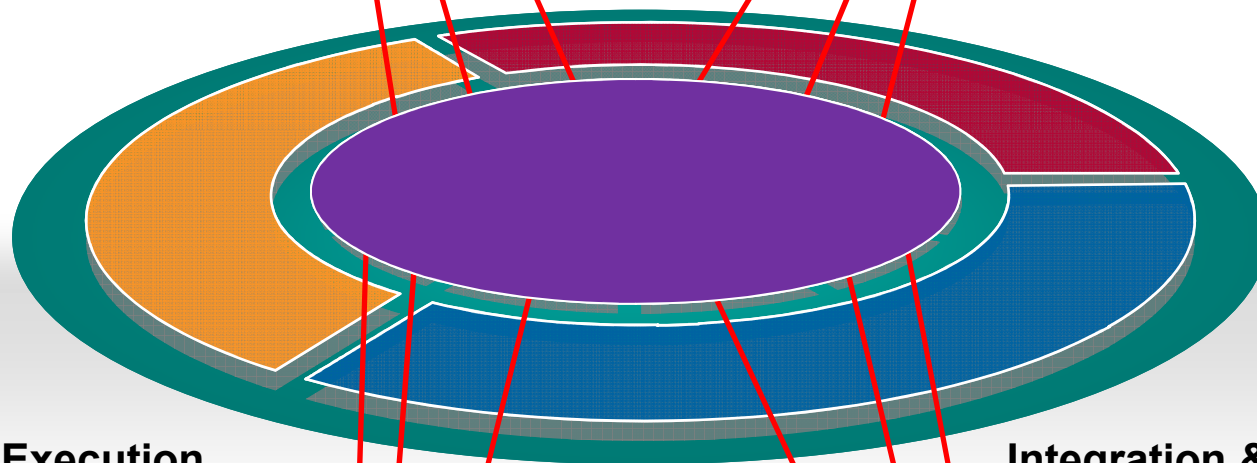


## Engineering Content Management (EngCM)

- Product structure management
- Document management
- Document control

## Visualization & Collaboration

- Collaboration Web Portal
- Data navigation and hotspotting
- Application agnostic multi-format visualisation



## Definition & Execution

- Workflow definition & execution
- Configuration management
- Progress management

## Integration & Interoperability

- Data validation & transformation
- Data warehouse & segregation
- Application integration

apture / manage what you have (native 3D models & databases)...



The screenshot displays the SmartPlant Foundation application interface. The main window shows a search results table for 'Find Design Documents = "\*"'. The table has columns for Name, Description, R..., V..., and Class. The results list various design documents with their respective revision and version numbers.

Name	Description	R...	V...	Class
57E1041_67-001-019_V...		A1	1	
57E1041_Version		A1	1	
57E1042_67-001-019_V...		A1	1	
57E1042_Version		C1	1	
57H1041_67-001-019_...		A1	1	
57H1042_67-001-019_...		A1	1	
57J1041_67-001-019_V...		A1	1	
57J1041_Version		A1	1	
57J1042_67-001-019_V...		A1	1	
57L1041_Version		A1	1	
57L1042_67-001-019_V...		A1	1	
57L1042_Version		A1	1	
57M1041_67-001-019_...		A1	1	
57M1041_67-001-019_...		B1	1	
57M1041A-S_Version		A1	1	
57M1041-S_Version		A1	1	
57M1042-M_Version		A1	1	
57N1041_67-001-019_...		A1	1	
57N1041_Version		A1	1	
57N1042_67-001-019_...		A1	1	
57Q1041_67-001-019_...		A1	1	
57Q1041_Version		A1	1	
57S1041_Version		A1	1	
57T1041_67-001-019_V...		A1	1	
57T1041_Version		A1	1	
57T1042_67-001-019_V...		A1	1	
MT57-L-P160-1_Version		B1	1	
MT57-L-P161-1_Version		A1	1	
MT57-L-P2012-1_Version		A1	1	
MT57-L-P2012-1_Version		B1	1	
MT57-L-P2135-1_Version		A1	1	
MT57-L-P812-1_Version		A1	1	
PD57-A-6-11_Version		A1	1	

The Properties panel on the right shows details for the selected file '57E1042.xml'. It includes sections for Archive file, Business file, Context, File, and Object.

**Archive file**

Is file archived?	False
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**Business file**

Checked out	False
Editable	True
Viewable	False

**Context**

Query Configuration	[REDACTED]
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**File**

Local directory	C:\Projects\XMPLant Data\ISO159
Local file name	57E1042.xml
Local host name	VTLHOST
Remote file name	Third Party Documents\1\35c8269

**Object**

Container ID	
Creation Date	12/1/2008 6:01:04 PM
Creation User	CPEngineer
Description	Type is XML
Domain UID	SPF
Last updated date	12/1/2008 6:01:04 PM
Name	57E1042.xml
Object Configuration	[REDACTED]
Termination Date	
Termination User	
Unique key	

and make it available in a neutral manner (e.g. without source tool needed at the desktop)



The screenshot displays the Intergraph Plant Foundation software interface. The main window shows a 3D model of a piping system with several grey pipes and green valves. The interface includes a menu bar (Query, View, Administration, Window, Help), a search bar (Items: Design Document QFind), and a toolbar with various icons. A Properties panel on the right side of the window displays the following information:

Context	
Query Configuration	[REDACTED]
Object	
Creation Date	11/30/2008 11:30:25 PM
Creation User	superuser
Description	PDSEquipment
Domain UID	DW5hared
Last updated date	11/30/2008 11:30:25 PM
Name	57G-40
Object Configuration	[REDACTED]
Termination Date	
Termination User	
Unique key	

The status bar at the bottom of the window shows: progress=1.2%, Selected Roles: DWViewer, Query Scope: [REDACTED], Create/Update Scope: [REDACTED], Effective Date: Now, User: DWViewer.

For plant modification where 3D model **is** up-to-date but not materially change



Find Design Documents = "\*" Find

Name	Description	R...	V...	Class	Workflow Name
57E1041_67-001-019_V...		A1	1		
57E1041_Version		A1	1		
57E1042_67-001-019_V...		A1	1		
57E104					
57H104					
57J104					
57J104					
57J104					
57L104					
57L104					
57L104					
57M104					
57M104					
57M104					
57M104					
57M104					
57M104					
57N104					
57N104					
57N104					
57N104					
57Q104					
57Q104					
57S104					
57T104					
57T104					
57T104					
MT57-L					
MT57-L-P2012-1_Version		A1	1		
MT57-L-P2012-1_Version		A1	1		

**Check Out**

Path: C:\Checkout

Select revisions:

Name	Description	Parent	Revision	Rev
<input checked="" type="checkbox"/> 57E1042.mdb		57E1042_Ve...		
<input type="checkbox"/> 57E1042.xml	Type is XML	57E1042_Ve...		
<input checked="" type="checkbox"/> 57E1042.dwg		57E1042_Ve...		

Check out all references

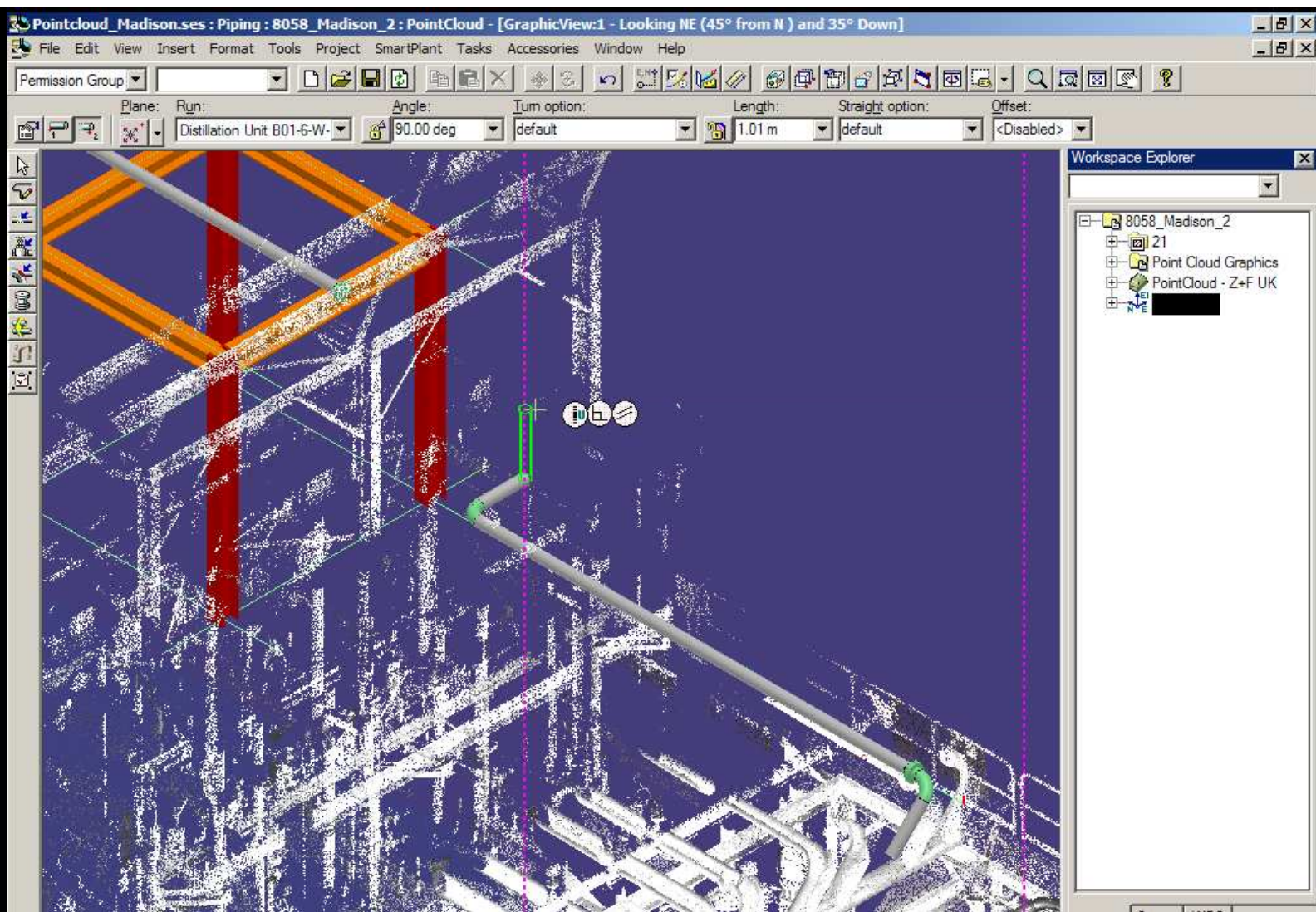
Select All Clear All Expand All OK Cancel Reset Defaults

**Properties**

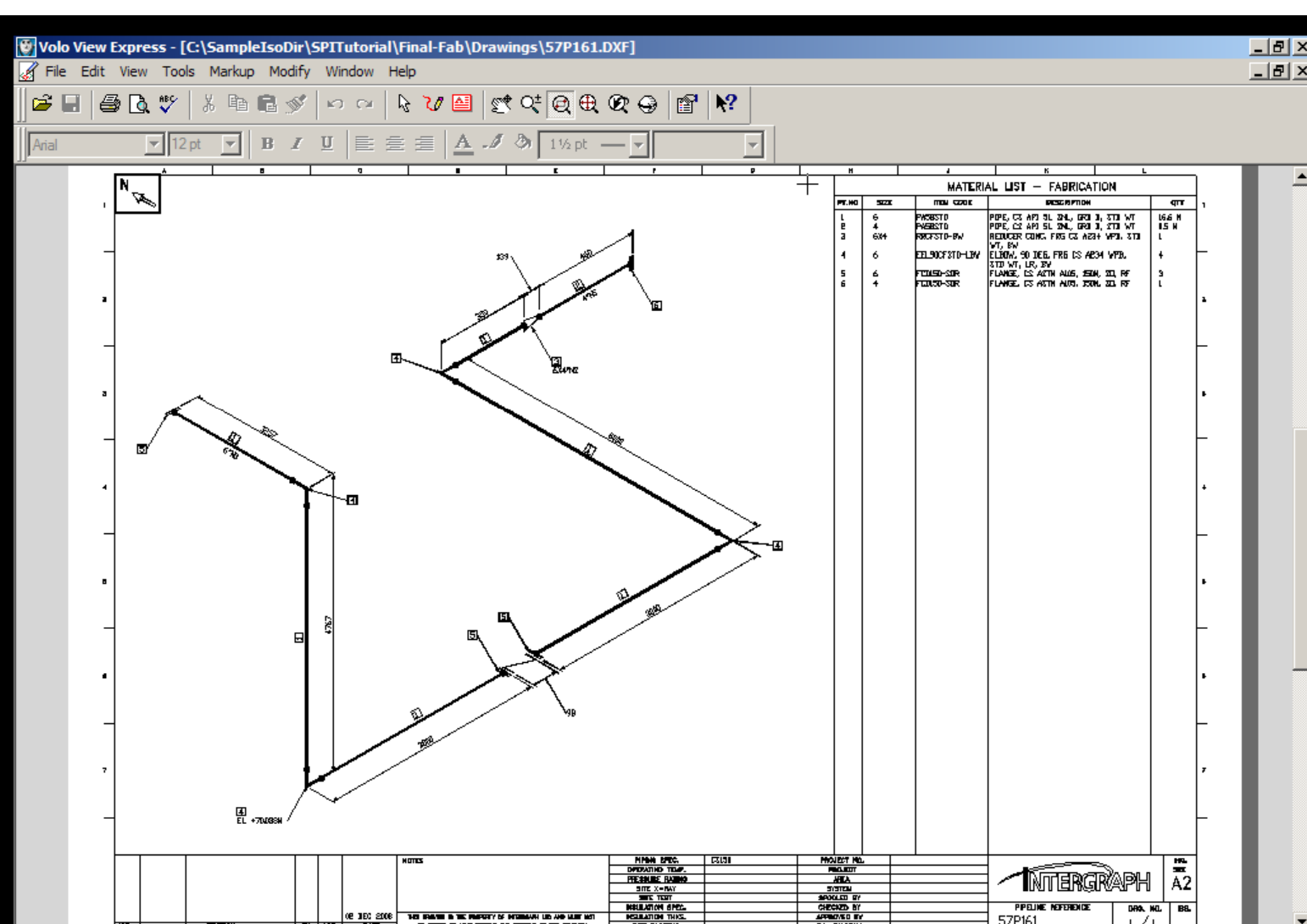
- Context**
  - Query Configurat [redacted]
- Document properties**
  - Issue state ISSUED
  - Title
- Object**
  - Creation Date 12/2/2008 5:42:19 PM
  - Creation User CPEngineer
  - Description
  - Domain UID SPFAUTHORING
  - Last updated date 12/2/2008 5:42:19 PM
  - Name 57E1042\_Version
  - Object Configurat [redacted]
  - Termination Date
  - Termination User
  - Unique key DM\_57E1042\_D\_1\_1
- Revision properties**
  - Exclusively revise False
  - Issue date
  - Major revision D
  - Minor revision 1
  - Revision D1
  - Revision state Working
  - Under change in s False
- Version properties**
  - Checked out False
  - Document version 1
  - Superseded False
  - Superseded date
- Workflow item**
  - Active workflow s
  - Number of active 0



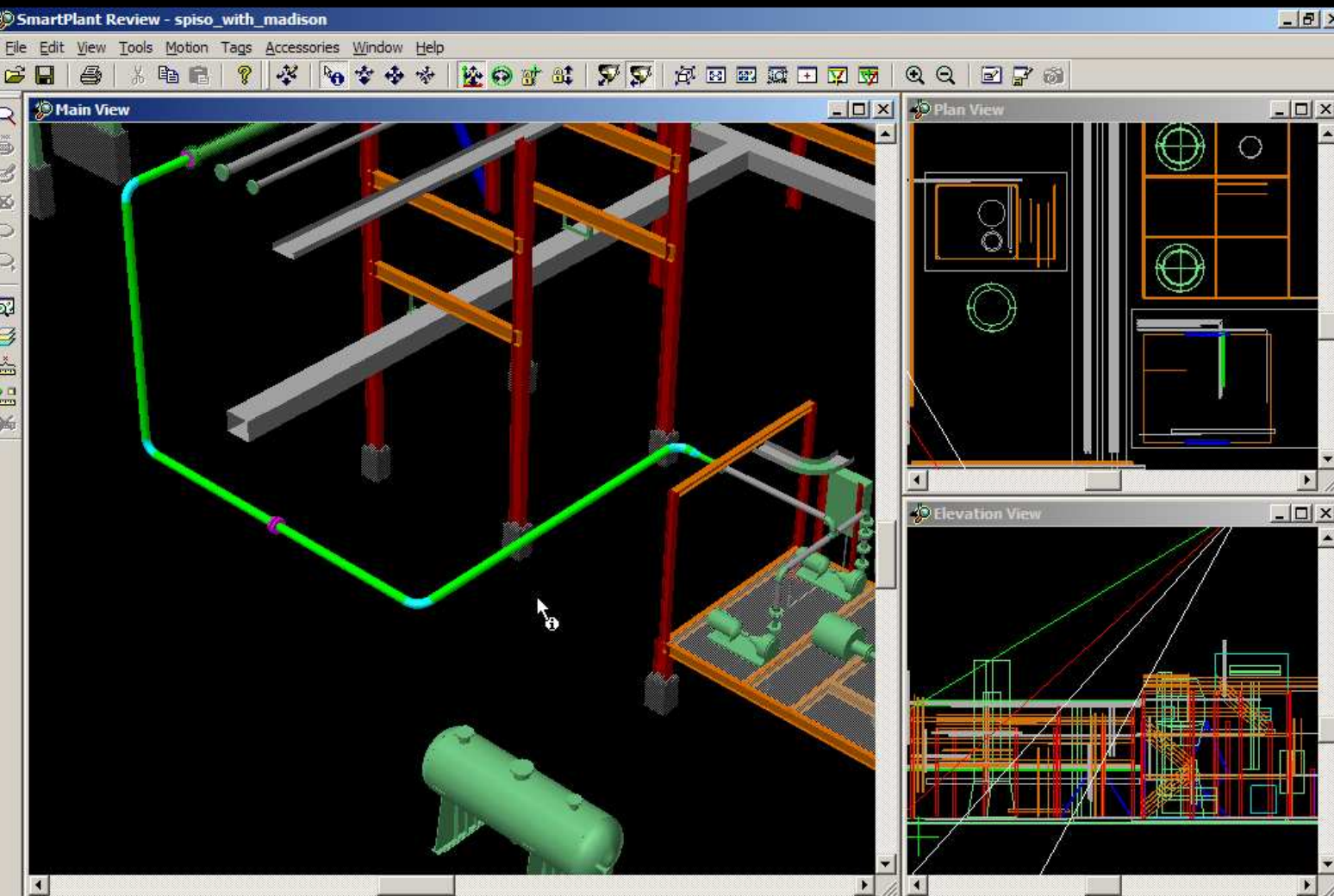
or plant modification where the 3D model **is not** up-to-date, and will materially change, but is not cost effective to recreate the model



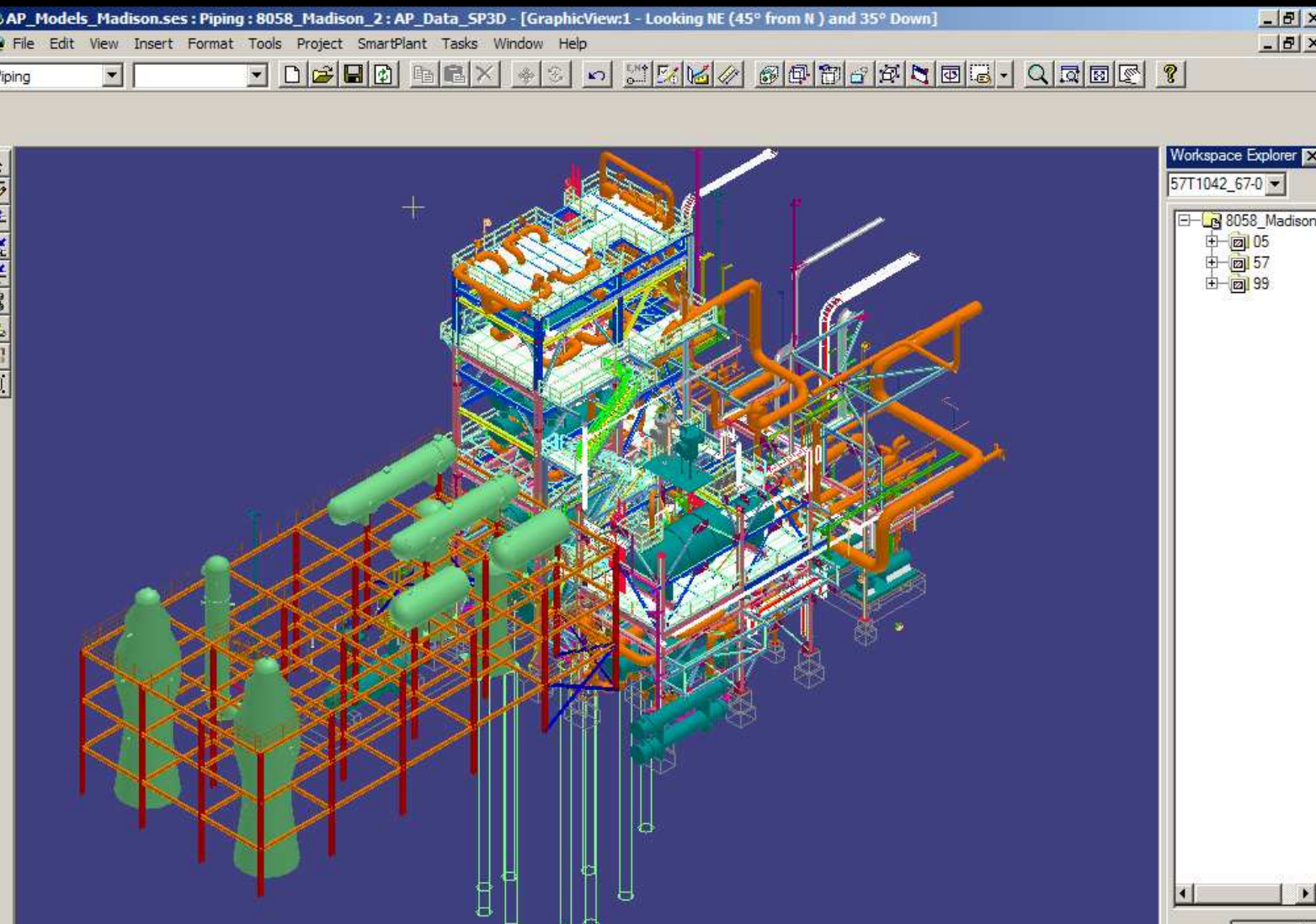
for plant modification where the 3D model **is not** up-to-date, and not materially change, but is not cost effective to laser scan



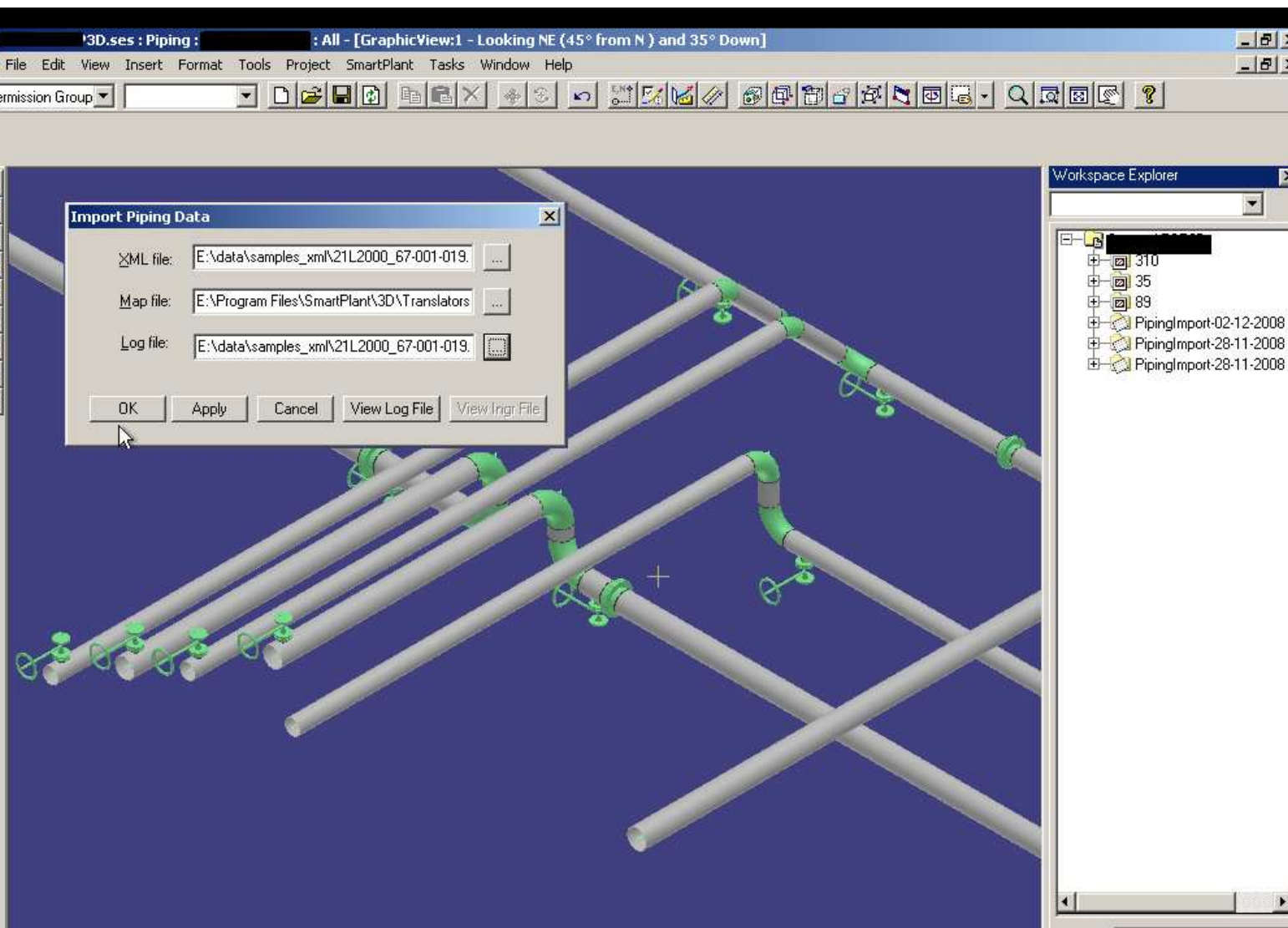
for plant modification where the 3D model **is not** up-to-date, and not materially change, but is not cost effective to laser scan



For plant modification where size of model, global  
kshare etc. are important



For plant modification where size of model, global  
linkshare etc. are important



consistency



During load of legacy models extract tag information

Compare against master tag registry

Validate the tags before loading them into SPF

Report on any exceptions which are flagged back to EPC for correction

Process is repeated as each new version is checked back in

Client has a better idea of the true quality and state of their model data

Has a program by which they can monitor the improvement of that quality as

they move through sustaining engineering projects



Hybrid approach for existing native content and neutral ISO15926 content  
Reduced the cost and risk exposure for the customer

**A comfortable learning exercise not a research project...**

Provided an approach to data take on and conversion at the pace that suited  
projects that were planned for execution

**As needed conversion and not all-or-nothing...**

Provided a range of tools to suit the task at hand, not a one-size-fits-all

**Not I have a hammer, go look for nails...**

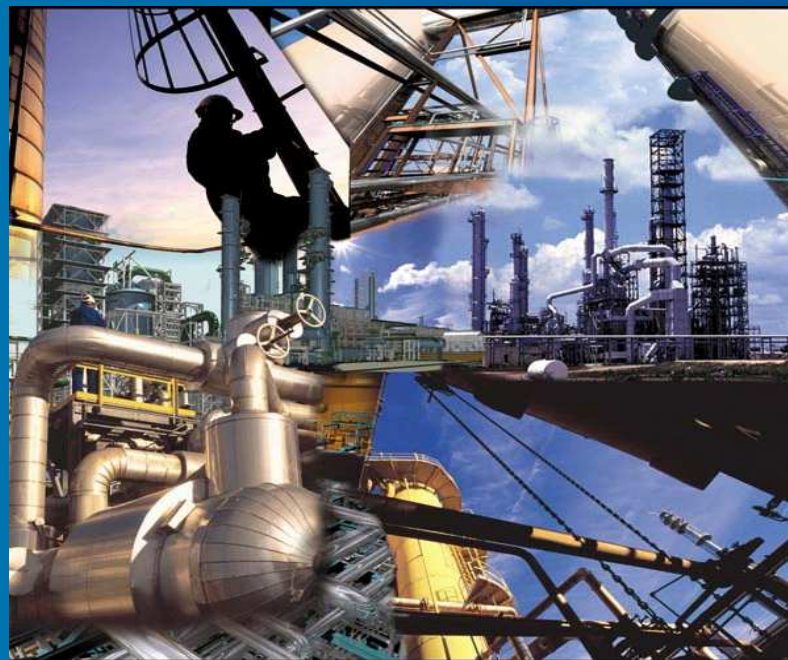
Allowed all of the content to be exposed/accessible to all stakeholders with the  
tools they were familiar with, and for those that didn't have the native tool  
provided a common, neutral interface

**Obviated any fear of proprietary, content 'lock-in'...**

Harmonized existing legacy with latest generation tools

**Provided a bridge to future projects**

**– evolve into new tools and new work processes**



# INTEGRATING THE ENTERPRISE