

ProjectWise Extended

Rimantas Varanavicius Product manager, ProjectWise Integration Server

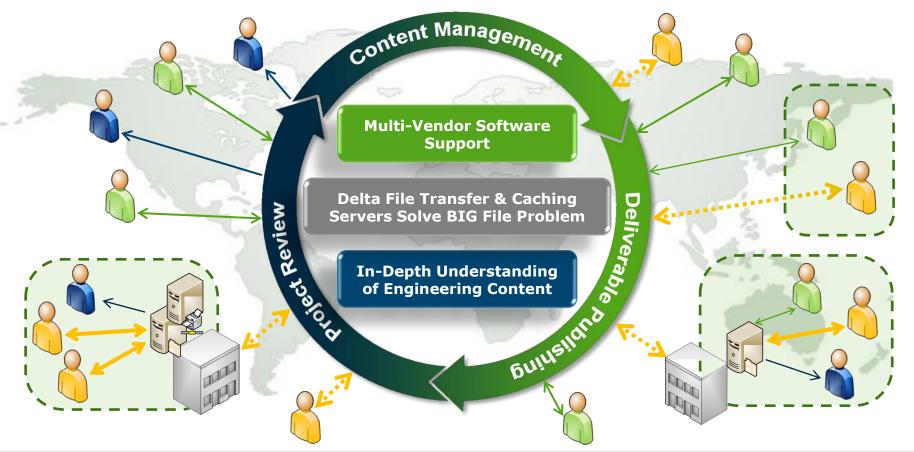


Agenda

- CAD application integrations
- Revit application integration
- ProjectWise role in Dynamic Review processes
- ProjectWise and GIS solutions
- Integration with generic DMSs and other enterprise solutions



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





Engineering Project Collaboration Platform

CAD application integration

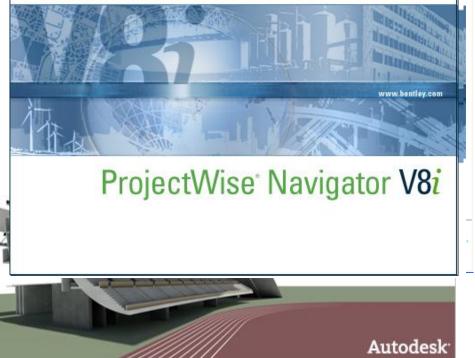


Design Projects Challenges

- AEC projects typically involve multiple software applications
- Important to pick the right tool for each aspect of the project
- Often deliverable formats are contractually mandated

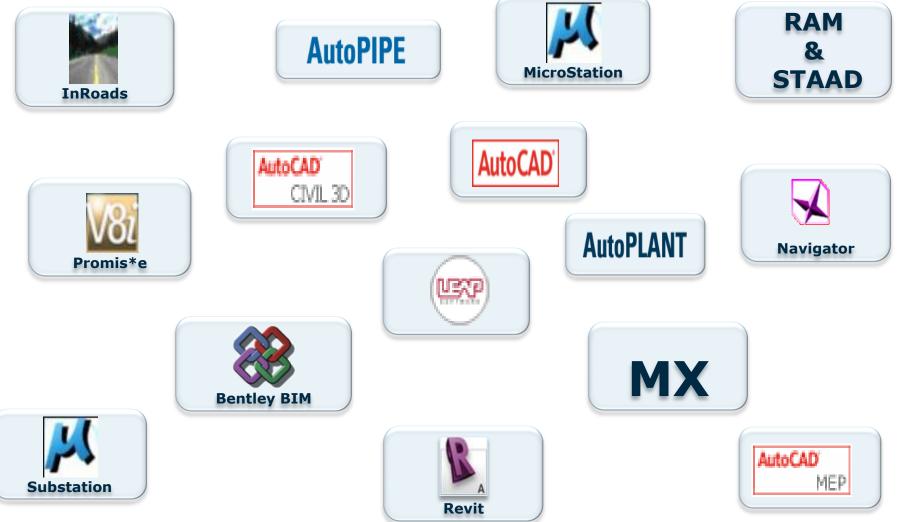
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ProjectWise V8i – New and Improved Application Integration





ProjectWise-CAD Integration Capabilities

ProjectWise integrates with MicroStation and AutoCAD and provides the following capabilities:

- Reference file management
- Titleblock content synchronization
- File open dialog integration
- Deliverable Management
- Workspace control and management
- Automated\Batch processing
- Industry-specific product integration



Automated Reference File Access

Slot

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- Automatically gets all the reference files when a master file is checked out
- Ensures that the design environment is always up-to-date
- Maintaining accuracy, integrity and quality of CAD deliverables

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Maintaining Reference Set Integrity

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- Automatically heals broken reference links and checks for changes to references during CAD session
- Ensures that all reference paths are maintained even if files are renamed or moved by other users

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Titleblock Content Synchronization

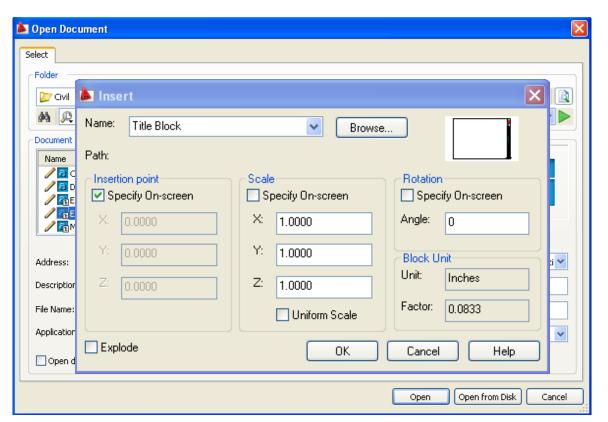
- ProjectWise creates links between data in the ProjectWise database to tags in the DGN file
- Eliminate the need for manual updates to titleblock content in a file (one or many at once)

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File Open Dialog Integration

- Microstion and AutoCAD dialogs that access files, browse directly to ProjectWise for content
- Allows users to work in a CAD application as they always have, and effortlessly load content stored in ProjectWise







Workspace Control and Management

- ProjectWise can manage and control MicroStation workspaces
- Administrators assign exact workspace configuration to content stored in ProjectWise
- Users always load into the correct workspace and there is now a single-source-of-truth for workspace data

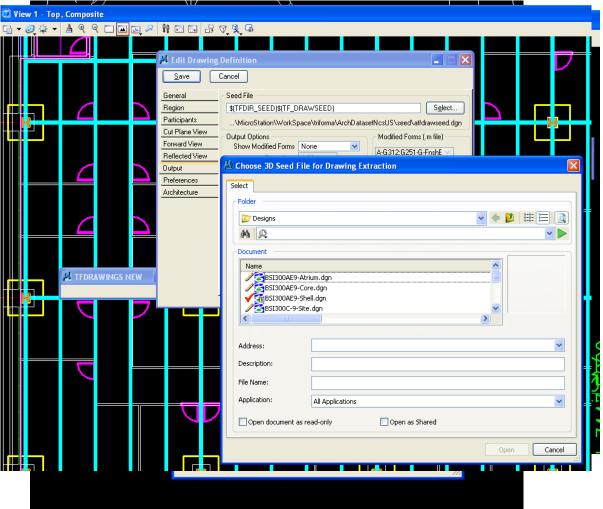
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- **MicroStation-Based Product Integrations**
- Many Bentley applications based on MicroStation also have ProjectWise CAD integration
- Create and maintain CAD data using the best applications for the project and still get all the benefits of the ProjectWise System







Autodesk Application Support

Autodesk AutoCAD-Based Produts that									
are Detected by ProjectWise V8i (SELECTseries 1) AutoCAD iDesktop In									
Product	2006	2007	2008	2009	2010				
AutoCAD Architecture	NA	NA	Х	Х	Х				
ADT		Х	NA	NA	NA				
AutoCAD Civil	NA	NA	NA	Х	Х				
AutoCAD Civil 3D	Х	Х	Х	Х	Х				
AutoCAD Electrical									
Land Desktop	Х	Х	Х	Х	NA				
AutoCAD Inventor									
AutoCAD LT									
AutoCAD Map 3D	Х	Х	Х	Х	Х				
AutoCAD Mechanical									
AutoCAD MEP	NA		Х	Х	Х				
AutoCAD P&ID	NA	Х	Х	Х	Х				
AutoCAD Raster Design					Х				
Structural Detailing	NA	NA	NA	NA					



Supported in 8.11.5.16 or later Supported in 8.11.5.47 or later Supported in 8.11.7.XX or later No product\version exists Not supported



Application Integration

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See Note 2	Partially Supported - see note for details
See Note 2	Not supported - see note for details
N∖A	Not applicable for the application - see note for details



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Top Benefits of ProjectWise-CAD Integration

- Always work with the correct version of the file
- Ensure reference file set accuracy
- Adhere to project standards and QA\QC policies
 - Titleblock content
 - Workspace setup and control
- Deliverable management
- Work efficiently



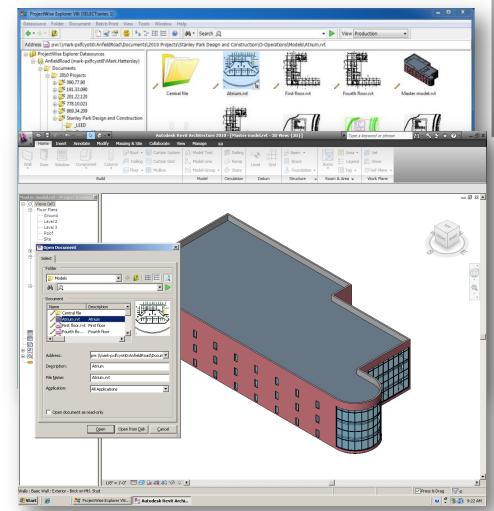
Revit application integration





Revit Integration Add-in

- Manage Revit models
 and Families
- Leverage ProjectWise capabilities
- Central File Management (worksharing)
- Supports Linked Files





Revit integration demo



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Key Revit integration benefits

- Revit content managed by ProjectWise
 - All ProjectWise benefits
- Single data management process
- ProjectWise infrastructure improves distributed Revit teams productivity and collaboration



Revit Integration Add-in

- Initially supports Revit 2009 and 2010
- 32-bit Revit version only
- 64-bit Revit and Revit 2011 will be available with SELECTseries3 release
- Can be installed on top of ProjectWise Explorer V8i (SELECTseries 1 and 2)
- Only requires a ProjectWise Passport





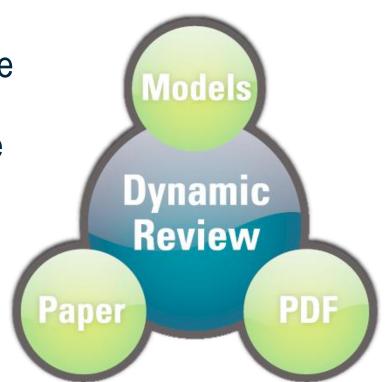
Dynamic Review workflows

Integration with Navigator V8i and Dynamic Plot V8i



Goal of Dynamic Review?

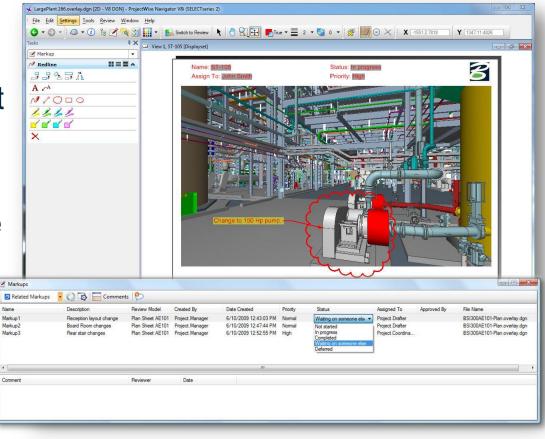
- Enable infrastructure project teams to dramatically increase design and construction productivity via more effective milestone reviews
- One business process regardless of format
- Change management
- Automation



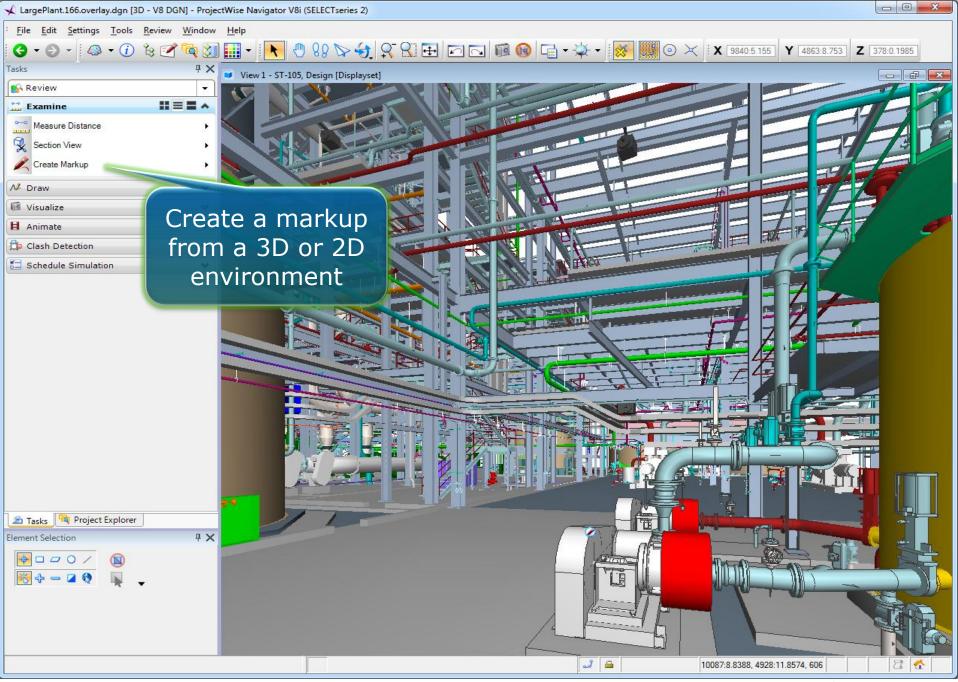


Closed Loop Redline Workflow

- Create markups for 2D
 and 3D environments
- Track status and comment history for each markup
- Automatically gather markups from ProjectWise and display in MicroStation
- Navigate directly to areas needing change in the design file

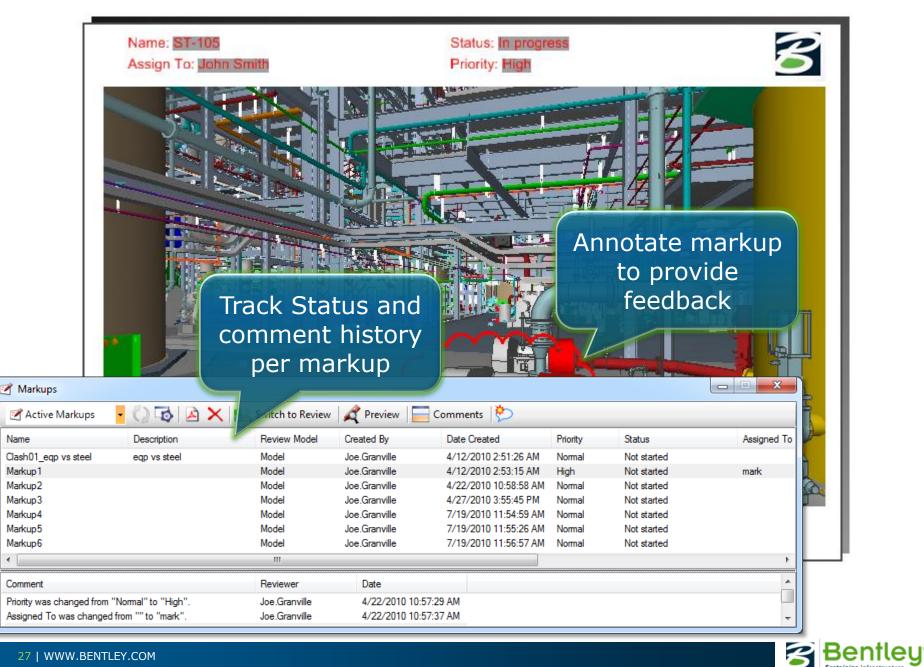


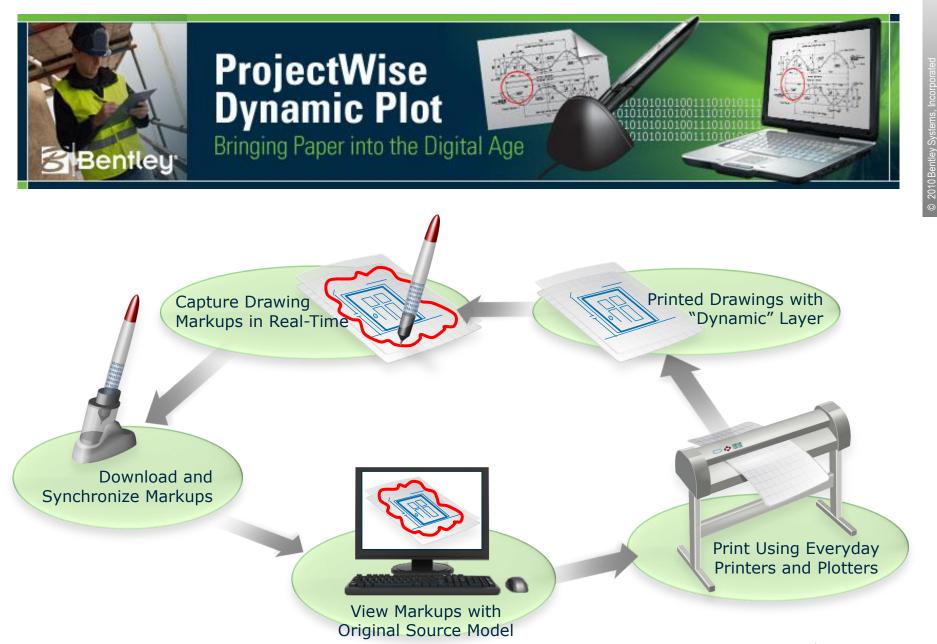






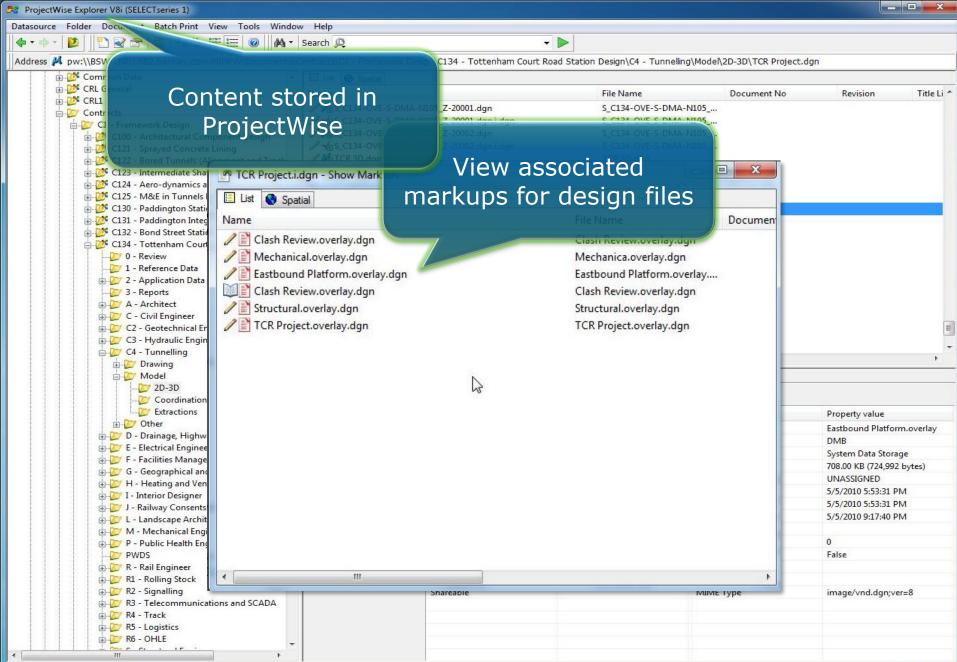






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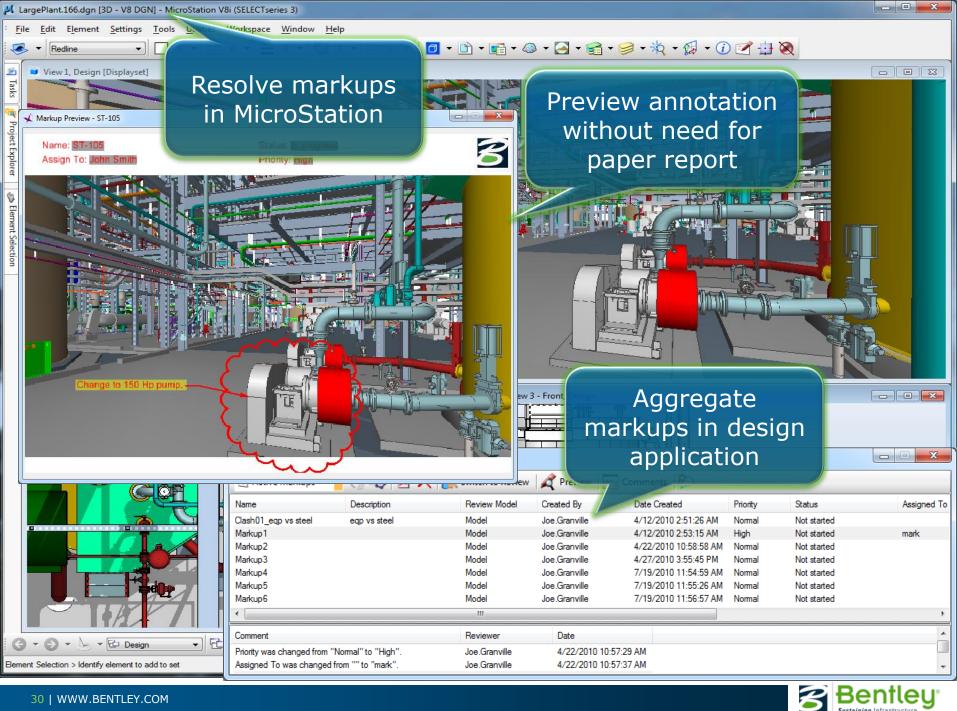




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ProjectWise Dynamic Composition Service

- Automated process for i-model generation
 - MicroStation
 - AutoCAD
 - AutoPlant XM & V8i (PDW (3D), P&ID (2D), ProSteel XM & V8i)
 - PlantSpace Design Series (3D)
 - Bentley Structural
 - OpenPlant P&ID
- Based on ProjectWise Automation Services
 - Delivers a new document processor for i-model creation
- i-Models can be automatically created when:
 - Changes are made to source files
 - Changes are made to references of source files
 - Source files workflow states are advanced
 - User-defined ProjectWise metadata are changed



ProjectWise benefits for Dynamic Review

- ProjectWise provides:
 - Change management
 - Status visibility
 - Version control
 - Application Integration with other participating programs:
 - ProjectWise Navigator
 - ProjectWise i-Model Composer
 - MicroStation
 - Bentley View
 - Automation
 - ProjectWise Dynamic Composition Service
 - ProjectWise PDX Manager Composition Service (early 2010)

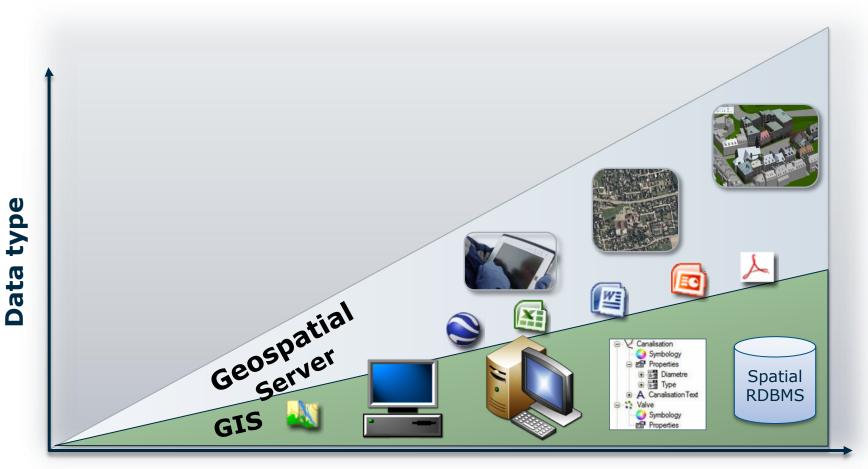


ProjectWise and GIS data

Bentley Geospatial Server and Geo Web Publisher solutions overview



Bentley Geospatial Server (ProjectWise)

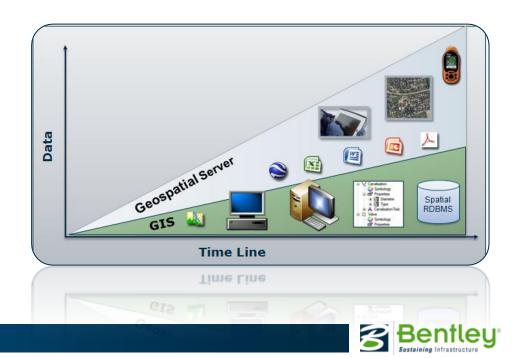






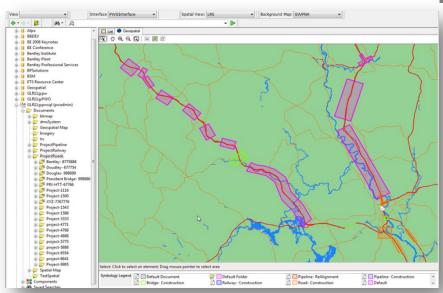
Bentley Geospatial Server

- A portfolio of the following products:
 - ProjectWise Geospatial Management Module
 - ProjectWise Integration Server
 - ProjectWise Connector for Oracle
 - ProjectWise InterPlot Server
- Can add ProjectWise Connector for ArcGIS as an option
- Integrated for geospatial needs
- Main Capabilities:
 - Document Management, Workflows
 - Spatial Indexing/Searching
 - Spatial Database Editing
 - CAD and GIS integration
 - Plotting



Bentley Geospatial Server enables to...

- Have teams using different CAD and GIS tools working on a single source of truth data repository
- Manage heterogeneous data (GIS data, document, images, projections, ...)
- Easily find the data you own about a given location on earth
- Know if the data you are about to work with is the latest and greatest or not
- Make sure that colleagues have access to the data they need to perform their tasks, no less, no more
- Edit spatial databases.





Geo Web Publisher

- It is a Web GIS
 - Easy to implement, high performance
 - Brings together multiple data sources, and databases
 - Supports collaboration workflows
 - OGC compliant, WMS/WFS server
- Advanced tools for GIS Web applications creation and administration
- End user tools for map navigation, querying, analysis, reporting, redlining, editing



Geo Web Publisher enables to...

- Make data available to a wide audience
- Because you need to share 3D city data with citizens, mayor, city council, managers
- Integrate with many data types in a single portal
- "Deliver" GIS tools to casual users
- Allow Web GIS users to create reports, prints, etc. from Web GIS applications
- Create and maintain Web GIS applications, be able to rapidly meet Web users needs
- Integrate GIS and mapping data with other enterprise wide systems





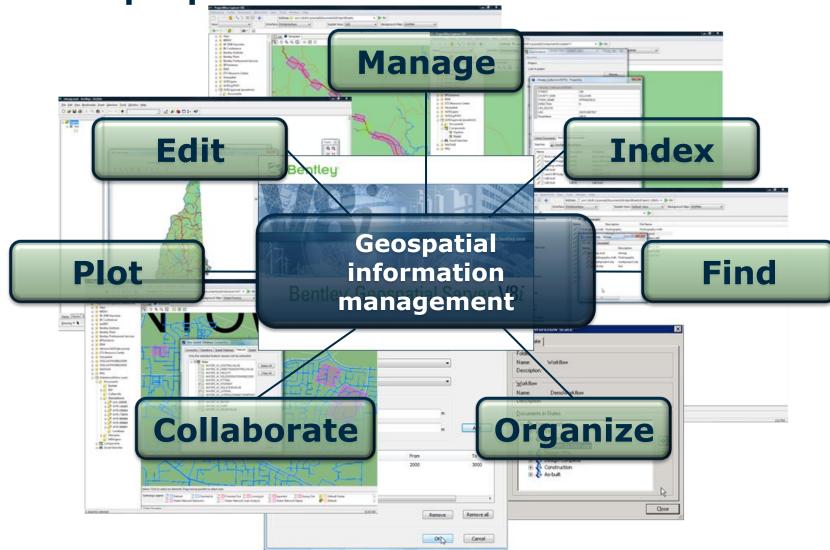
ProjectWise Spatial , Bentley Geospatial Server , ArcGIS Connector

Functionality	ProjectWise Spatial	Bentley Geospatial Server	Bentley Geospatial Server + ArcGIS Connector
Static CAD/Raster Background Maps	Х	Х	Х
Dynamic CAD/Raster Background Maps	X (requires Bentley Publisher)	X	Х
Spatial Locations	Х	Х	Х
Coordinate Systems	Х	Х	Х
Spatial Search	Х	Х	Х
Scan CAD File Spatial Extent	Х	Х	Х
Scan ESRI Shapefile Extent	Х	Х	Х
Load Spatial Location (SLF file)	Х	Х	Х
Advanced Background Maps (streamed CAD/raster maps, GIS layers, spatial database layers, WMS)		X	Х
ESRI ArcMap iDesktop Integration		Х	Х
DGN/XFM Feature Component Indexing		Х	Х
ESRI Personal Geodatabase Support		Х	Х
Geocoding by attributes		Х	Х
Linear Referencing		Х	Х
Live viewing and transactional editing of Oracle Spatial		Х	X
Disconnected viewing and transactional editing of Oracle Spatial		Х	Х
Disconnected viewing and transactional editing of ESRI ArcSDE (Enterprise Geodatabase)			Х
Batch plotting		Х	Х



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Value proposition







Integration with generic DMSs and other enterprise applications



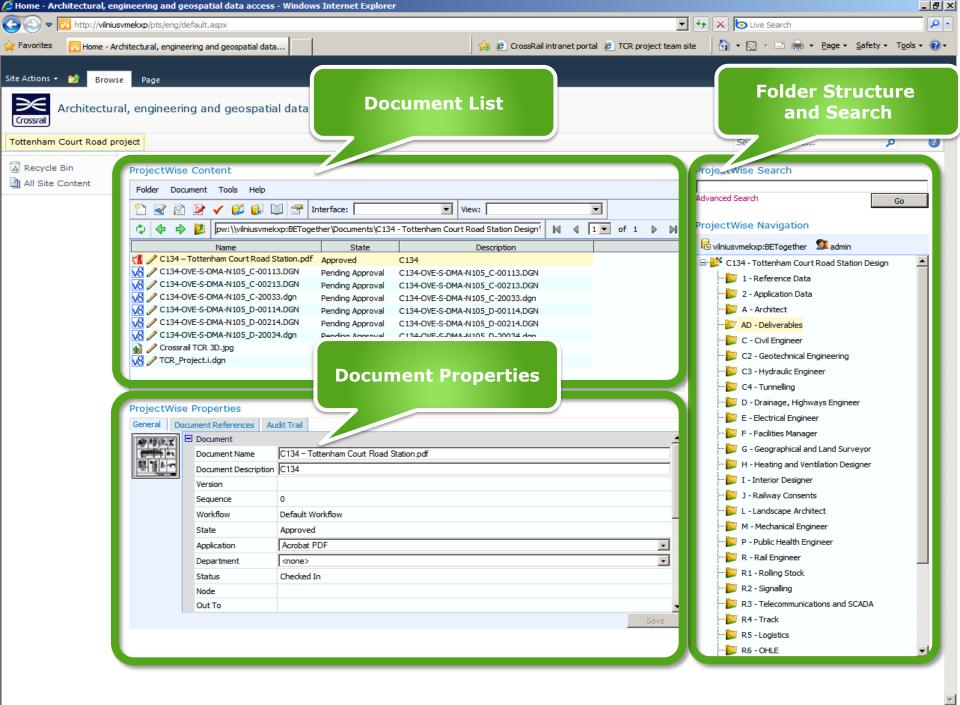
Integration with other enterprise solutions

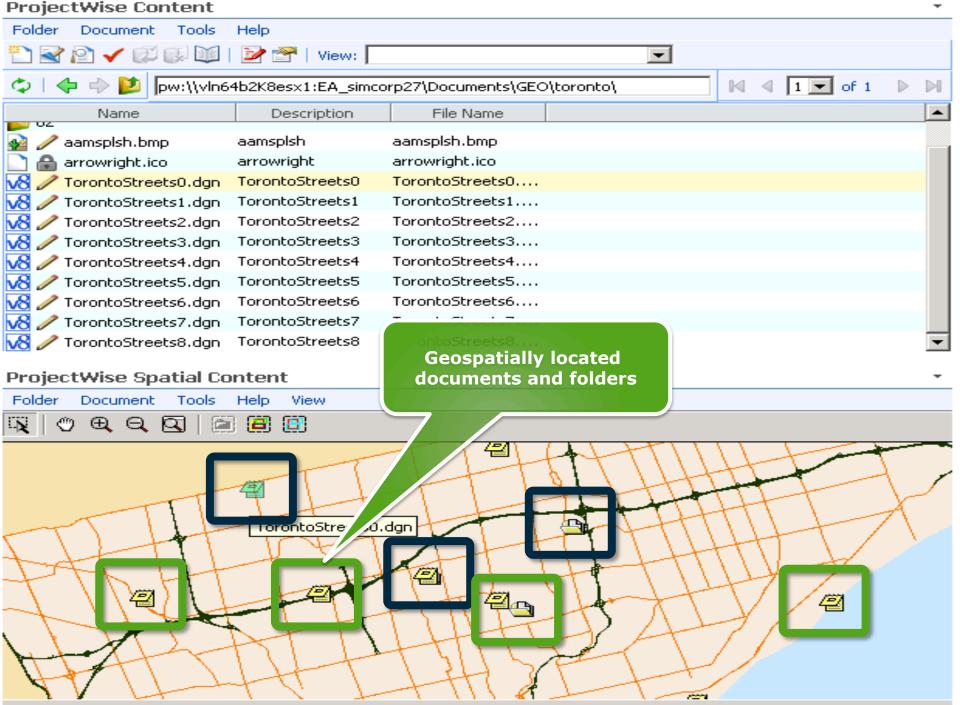
- Generic DMSs:
 - SharePoint
 - FileNet, Documentum, LiveLink, others
- ERP, CRM, Contract Management

- ProjectWise Web and Web View Servers V8i
 SharePoint and standalone IIS integration
- Content Management Interoperability Services (CMIS)



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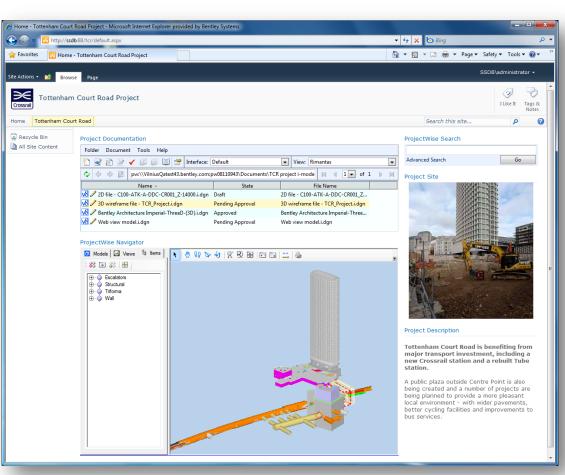




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ProjectWise Navigator Web Part

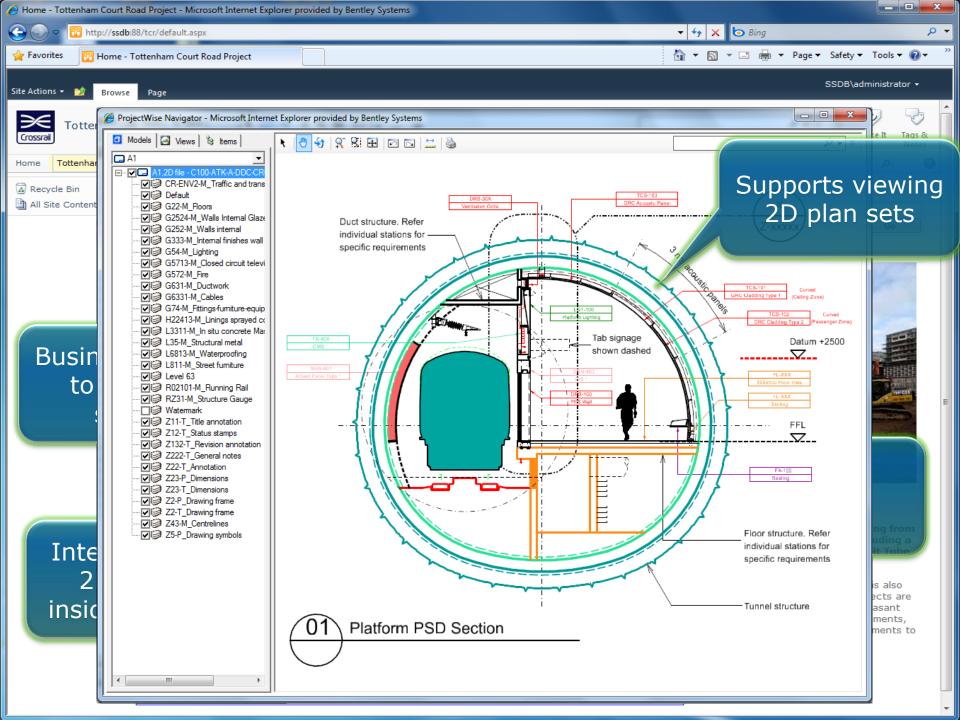
- SharePoint 2010, 2007 and stand-alone IIS integration
- Interactive 3D model visualization
- 2D plan set review
- Simple analysis capabilities: content search, dimension measuring, business data review.











Current Navigator Web Part limitations

- Supports viewing operations only, markup capabilities to follow (preliminary targeted for the next release)
- Single file packaged i-models supported only
- Geo-coordinated references are not currently supported.
- Point cloud display is not currently supported
- Embedded raster references are not currently supported.
- Dynamic Views are not currently supported
- i-models downloaded and visualized through the i-model viewer will not display textures
 - As textures are not currently embedded in i-models.
 - Further, the viewer does not include the default textures delivered with PowerProducts as this would result in unnecessary bloat of the control download/delivery.



CMIS implementation considered

- Content Management Interoperability Services is a specification for improving interoperability between <u>Enterprise Content Management</u> systems
- Approved and administered by standards body, OASIS
- Participants in the process include:
 - EMC, IBM, Microsoft, Open Text, Oracle, SAP and Alfresco
- Would enable:
 - Server to server communication between PW and other IT back-office products in an enterprise
 - Simplify the process of distributing documents from one DMS system to another.



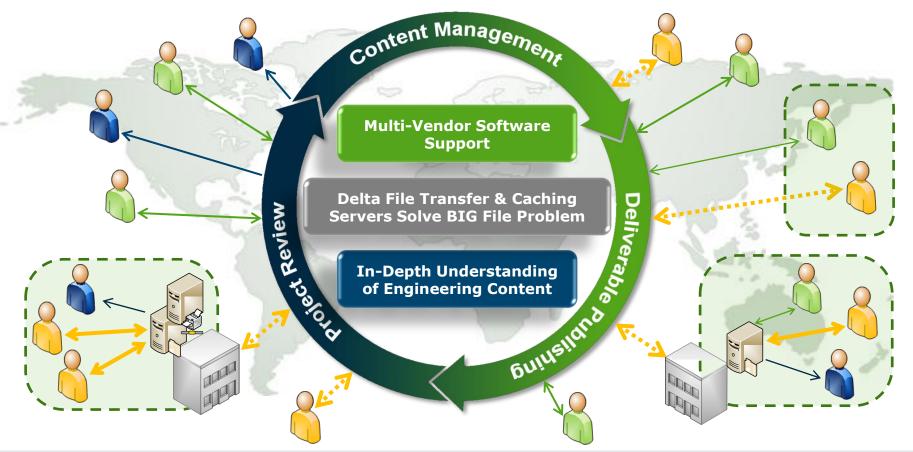
Integration with other enterprise applications

 ProjectWise Web and Web View Server V8i to integrate ProjectWise stored data with SharePoint Server

- CMIS considered as a generic way to integrate with enterprise systems :
 - Generic DMSs
 - EPR
 - Project Management
 - Contract Management



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





Engineering Project Collaboration Platform





