ProjectWise

A Proven System of Collaboration Servers and Services for Infrastructure Projects

Bentley®
Sustaining Infrastructure

Market Facts

Enterprise Scale:

- ProjectWise enterprises range from tens of users to hundreds of thousands
- Representative ProjectWise accounts average over 1000 users
- Representative ProjectWise user organizations manage over 400,000 documents averaging 7.5 MB each

System of Choice for:

- Half of the U.S. state departments of transportation
- 24 of the *ENR* Top 25, 42 of the *ENR* Top 50, and 67 of the *ENR* Top 100 Design Firms
- 29 of the *ENR* Top 50 Design-Build Firms
- 234 of the *Bentley Infrastructure 500* Top Owners

Proven, Reliable, Broad Industry Adoption

ProjectWise is used in 92 countries by many of the world's leading infrastructure organizations. A sampling appears below.

"We've made ProjectWise our global work-sharing platform to streamline team collaboration on projects of all sizes and complexities. We're really happy with the way it allows widely distributed project teams to confidently share and manage project data. In addition, our strategic partnership with Bentley enables us to develop and implement world-class solutions that meet the needs of our integrated project teams around the globe."

Bruce A. Strupp/ATL, CPE-Design Technology Director, CH2M HILL

"We currently utilize ProjectWise in 32 projects, across more than 1,300 users, representing $3 billion in construction costs alone. As most of the design data we currently manage is Revit based, ProjectWise V8i (SELECTseries 2) with Revit integration, as well as delta file transfer, will further enhance our Revit community by incorporating their workflows with supercharged network performance. ProjectWise has been tremendous in helping us collaborate with our business partners."

Radhika Menon, CIO, DPR Construction

How Much Is Inefficient Collaboration Costing You?

Is Conventional Document Management the Answer? Think Again…

Is your organization trying to use conventional document management or collaboration software to support project teams?

These "generic" systems aren't set up to address the challenges specific to infrastructure project workflows. They can't meet the unique requirements of securely managing, sharing, and distributing work-in-progress architectural, engineering, and construction content. They aren't integrated with the design, analysis, and simulation applications commonly used by your teams, and aren't suited to properly handle the sets of large and interrelated files distributed across team members in multiple geographies, including multiple countries and continents as organizations seek to deploy 24/7 engineering.

What's more, document management systems don't offer capabilities for effectively and efficiently publishing information to project stakeholders, or for the demanding review and markup needs unique to infrastructure projects.

As a result, most teams struggle with ineffective collaboration, work sharing, and communication – increasing time spent moving talent to project locations, driving up costs, increasing risk, and hurting the bottom line. It's well understood that as much as 40 percent of an engineer's working day can be spent on looking for and validating specific information and files for use, and in ensuring that the results of the work are properly communicated and distributed – all because there's no single, trusted, and secure environment for collaboration and work sharing. But this is just the tip of the iceberg when it comes to work-in-progress inefficiencies. For example, how many times have:

- Your teams sent design files that were too large – or which reviewers couldn't open because of the file format?
- The inherently complex relationships among files in your engineering content been broken, endangering project quality and schedules?
- Your distributed, multidisciplinary teams been unable to work on projects simultaneously, rather than sequentially, limiting your ability to meet tight deadlines?
- You struggled to get stakeholder feedback faster and more frequently during design and construction, or perhaps even lost valuable feedback that later resulted in costly change orders?

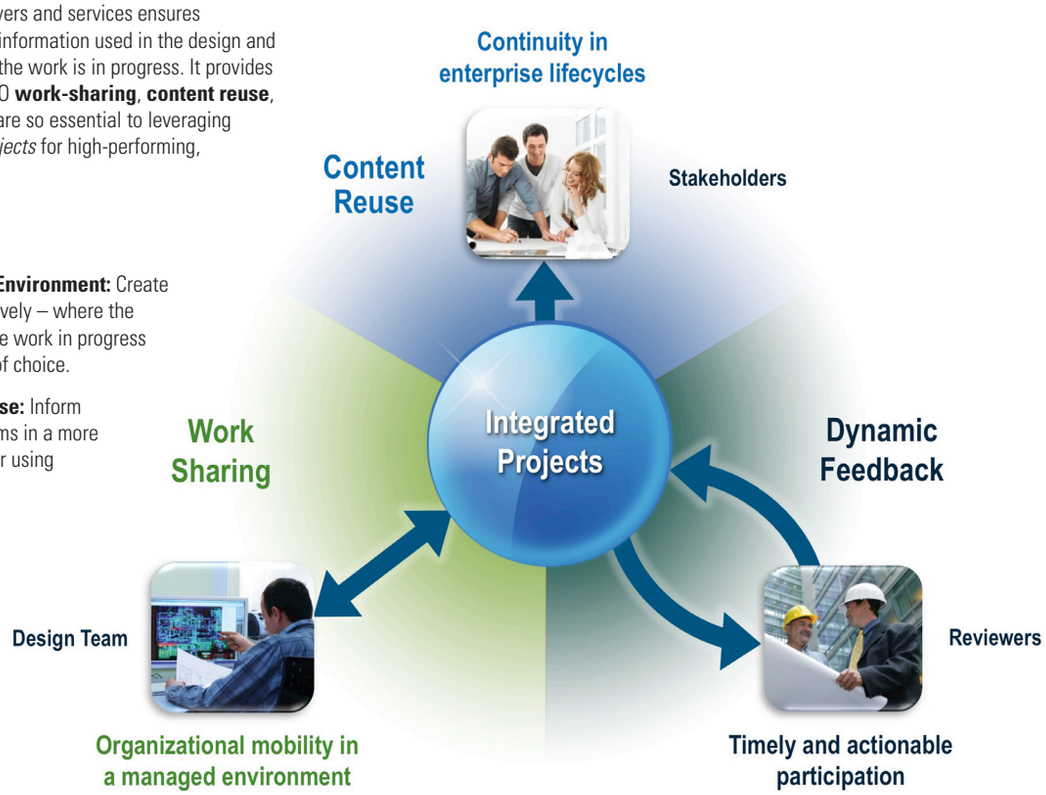
Given the unique challenges of engineering information management and collaboration for infrastructure projects, what's needed is information mobility in a secure, interoperable environment. Such an environment empowers collaboration, in the context of the entire project, including the input of all disciplines, and with continuity of information across all project teams, project stakeholders, and project phases, including design, engineering, construction, and operations—so information "hand-off" and "handover" become a positive "hands-on" experience.

ProjectWise Secures Information Mobility

The ProjectWise system of collaboration servers and services ensures information mobility *with integrity* for AECO information used in the design and construction of infrastructure projects while the work is in progress. It provides scalable, industry-proven, interoperable AECO **work-sharing**, **content reuse**, and **dynamic feedback capabilities** that are so essential to leveraging *information modeling* through *integrated projects* for high-performing, *intelligent infrastructure*.

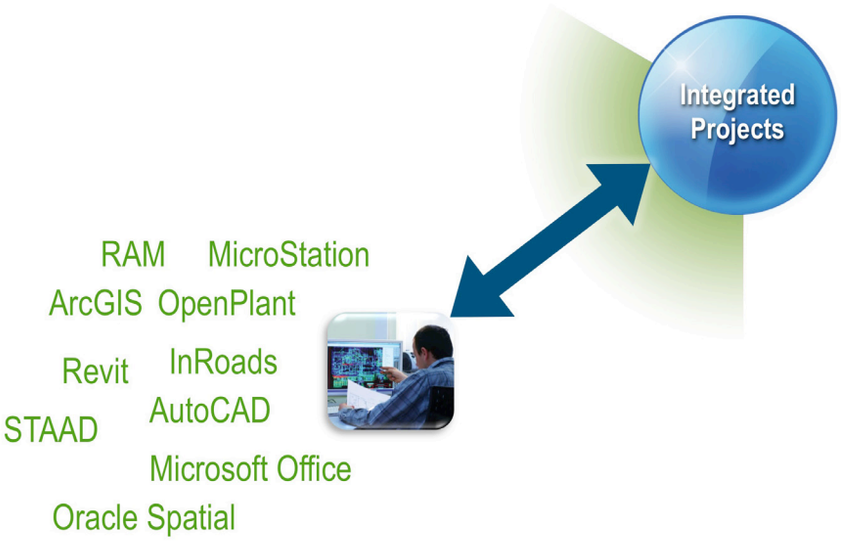
ProjectWise helps you achieve:

- **Organizational Agility in a Managed Environment:** Create and manage ongoing work-product effectively – where the right people quickly and reliably accelerate work in progress using infrastructure tools and workflows of choice.
- **Maximized Value Across the Enterprise:** Inform project stakeholders and enterprise systems in a more consistent, timely, and predictable manner using high-impact deliverables.
- **Timely and Actionable Participation:** Synchronize comments to resolve issues quickly and effectively in a closed loop, returning feedback in context to all the relevant designers so as to be actionable.

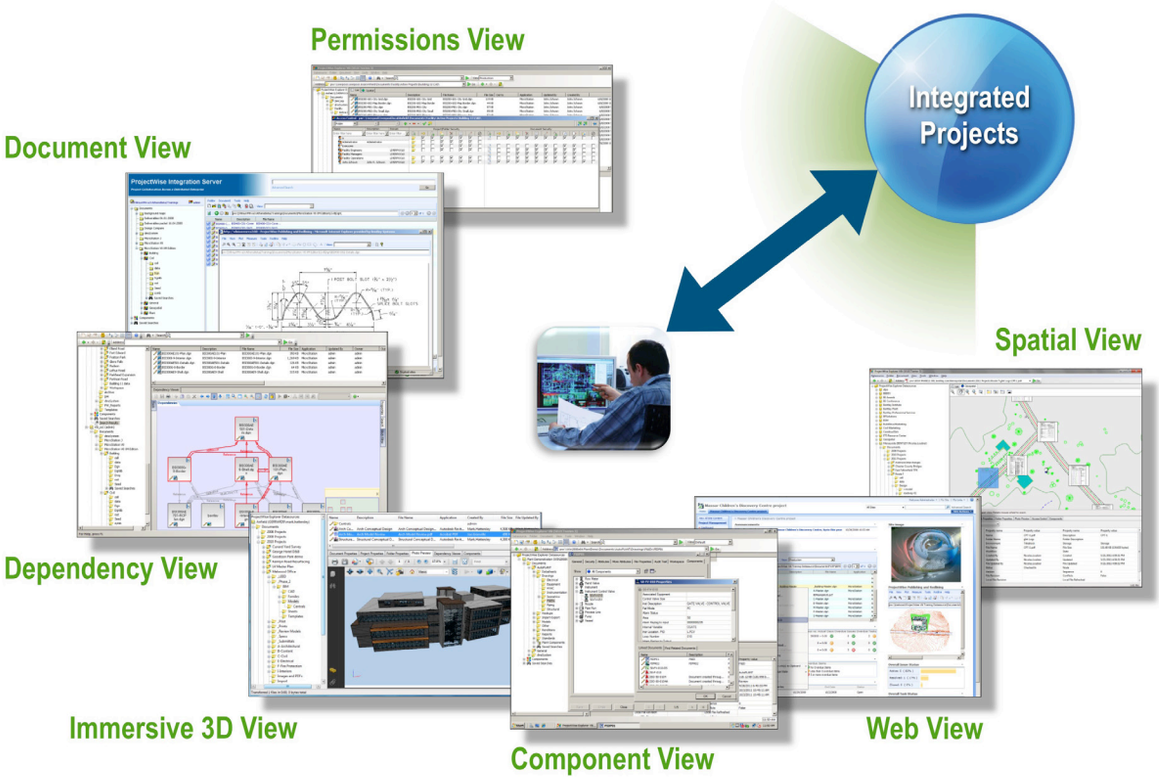


Work Sharing: Create and Manage Ongoing Work Efficiently

- With ProjectWise, everyone can collaborate on projects, which is how today's interdisciplinary project teams must work to meet the challenges of sustaining infrastructure. Distributed team members can use their own applications and file formats in their own locations. And through ProjectWise, they can quickly find, share, and interact with appropriately managed, interrelated engineering content using their preferred workflows.



With the smart work sharing that ProjectWise facilitates, your team realizes the higher productivity, increased project performance, and improved project quality that result from the ability to automate the management of complex relationships among documents and the countless components within them; share large work-in-progress datasets across offices in real time, instantly seeing the impact of design changes made by others; automatically enforce document standards across distributed teams; control document access; and make it easy to search at the file and component level. ProjectWise also provides powerful work-sharing capabilities such as spatial view for map-based navigation, web view for online browser access, permissions view for access control management, dependency view for understanding and managing complex file relationships, component view to search for information across file types, and 2D and 3D views without needing the authoring applications. These empower team members to interact with project information in views that directly relate to their specific task requirements.



Content Reuse: Keep Project Stakeholders Informed

With ProjectWise, you can keep project stakeholders informed by creating consistent, timely, high-impact deliverables in a predictable manner. Designers can publish project information according to a predefined schedule or on demand – and always in accordance with user-defined standards. Now you can publish precise, data-rich, native engineering content in media that are appropriate for different audiences, such as electronic files, drawings, renderings, 3D PDFs, and 3D prints. You can also publish digital files to devices such as plotters, tablets, iPads, and the Web.

With flexible publishing capabilities, you benefit from improved project quality, faster design approvals, and broader project awareness. Project teams can:

- Transform digital designs into high-quality, precise deliverables.
- Securely publish engineering content.
- Package and publish 2D drawings and 3D models in highly portable formats that anyone can view.
- Improve communication with stakeholders through photorealistic visualizations (including images and movies).

Dynamic Feedback: Synchronize With the Source to Resolve Issues

ProjectWise supports a dynamic, closed-loop review process that captures feedback from reviewers – regardless of their respective locations – and returns it in context to all relevant designers in a way that's instantly actionable. You can capture comments and feedback on designs from anywhere – on a PC, using an iPad, on paper while at a construction site, and online or offline.

Bentley Navigator and Acrobat

You can capture and synchronize electronic markups provided through Bentley Navigator or Acrobat™ files. Reviewers can open these files using any computer or iPad – without the need for costly, proprietary design software – and comment on 2D and 3D i-models and PDFs. When markups are returned to ProjectWise, they are automatically synchronized with the correct design files and team members, and include an audit trail of all comments and changes.

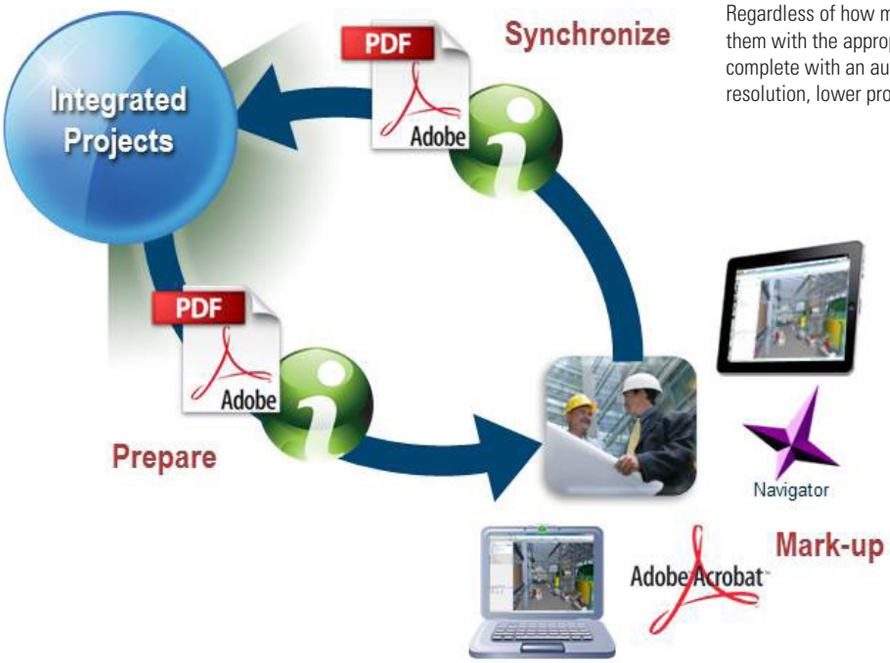
Pen and Paper

Since a hard copy is sometimes the best medium for sharing designs with stakeholders, Bentley provides a fast, easy way to synchronize markups created using pen and paper. Using ProjectWise Dynamic Plot, you can print versions of documents that can be marked up using a special digital pen. As markups are made, they are immediately captured by the pen. Once the digital pen is placed in its docking station, the markups are instantly synchronized with the original design file in ProjectWise.

Markup Synchronization

Regardless of how markups are captured, ProjectWise automatically synchronizes them with the appropriate project source documents and team members for action, complete with an audit trail. With dynamic reviews, you benefit from faster issue resolution, lower project risk, and reduced project time. Your project teams:

- Accelerate the creation and sharing of markups and feedback.
- Simulate and resolve clashes during the design phase and optimize schedules to eliminate on-site errors.
- View valuable component information, filter views of models, and precisely measure distances.
- Ensure feedback is routed to the right team members and associated with originating design files.
- Streamline review workflows and automate approval processes.



Business Benefits

ProjectWise transforms how project teams collaborate and makes your businesses more competitive by reducing the costs of inefficient collaboration. And as users can attest, the investment pays for itself through:

- **Rapid return on investment:** Pennsylvania-based Michael Baker Corporation achieved a 500% return on investment on ProjectWise for one project, with full payback in just six months.
- **Increased employee efficiency:** Genoa Port Authority in Italy cut the time employees spend locating, copying, and printing documents by 50%, saving two hours of work per employee per day.
- **Time savings:** London-based URS/Scott Wilson can find and validate information 25% faster, saving £5 million on a single project.
- **Lower travel costs:** Omaha-based HDR saved $1.5 million in travel costs by connecting a virtual design team of 174 people across five U.S. states.
- **More efficient content management:** Energy Australia in New South Wales manages engineering content more effectively, saving $500,000 in design and $500,000 in construction on one project.

At the same time, ProjectWise reduces the cost of collecting the data needed for project handovers to asset management teams. For projects completed in ProjectWise, there is a single trusted and secure environment that contains the critical engineering data needed by asset management and operations teams. This data can be utilized by an asset management solution such as AssetWise.

Flexible Deployment Options

ProjectWise provides the flexibility and scalability to support the needs of both large and small project teams and can be deployed onsite or online. Its modular design allows you to expand an initial implementation as project requirements change. Also available are packaged offerings tailored for specific industries and project requirements, as well as deployments specifically tailored to the needs of your enterprise.

Provides you with full control and confidence, and may be required for compliance with project requirements or corporate IT standards.

Onsite
(Hosted on your servers)

Online
(Hosted by Bentley)

Ensures full control and confidence while off-loading IT requirements to Bentley as a trusted service provider.

Work-Sharing Services

Empower and manage engineering content and team collaboration	ProjectWise Integration Server
Solve the geographically distributed 'big files' problem	ProjectWise Caching Server
Provide passport-enabled project team member access via a web browser	ProjectWise Web Server
Package, register, deliver and track AECO submittals and transmittals	Bentley Transmittal Services
Follow a best practice for AEC project management from the UK	ProjectWise Business Process Template (for BS1192)

Content Reuse Services

Automate production plotting for paper, PDF, and 3D plots	ProjectWise InterPlot Server
Automate i-models, PDFs, and raster production	ProjectWise Dynamic Composition Server
Define and enforce explicit dependency relationships	ProjectWise Dependency Service
Enable read-only browser access to broader stakeholders (no passport required)	ProjectWise Web View Server
Enterprise access to spatial data stored in ArcGIS	ProjectWise Connector for ArcGIS
Enterprise access to spatial data stored in Oracle databases	ProjectWise Connector for Oracle Spatial

Actionable Feedback Services

Review, mark-up, clash resolution, and visualization of i-models	Bentley Navigator
Produce paper plots for dynamic review with digital pens	ProjectWise Dynamic Plot Service
Access PDS models and data without requiring PDS software	ProjectWise PDx Dynamic Review Service

Enabling Technology

i-models: Delivering Information Mobility

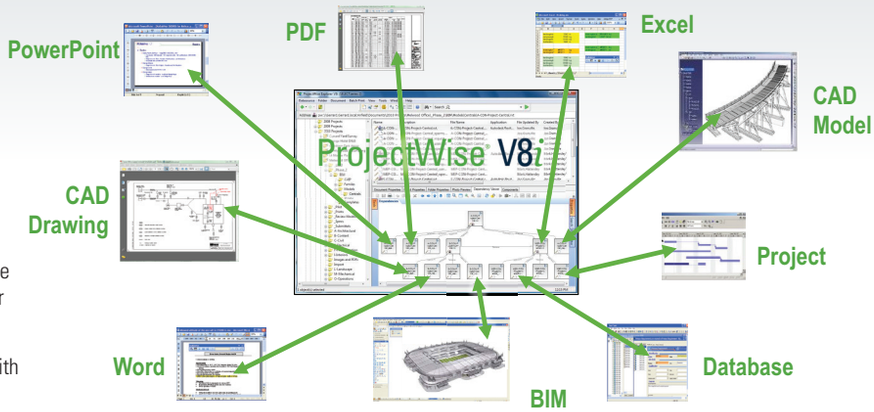
i-models are containers of information developed by Bentley to enable the fast, easy exchange of precise engineering content. Team members can share information generated from various applications without requiring recipients to have the source application used to create the data. ProjectWise and i-models address one of the fundamental weaknesses of conventional document management systems: how to seamlessly integrate everyone into project review and markup workflows.

- **Self describing:** Carry with them the associated data-model specifications (schema) to describe their content.
- **Portable:** Are optimized for sharing and distribution.
- **Provenance:** Retain knowledge about their original source, the purpose, and the state of the information at the time they were created.
- **Precise:** Contain 2D and 3D geometry and business properties and data with no loss of fidelity.

Trusted Shared Source of Project Information

Unlike systems that employ a centralized approach, ProjectWise utilizes a federated approach to provide the speed and flexibility needed when working with sets of large and interrelated files and data that are distributed across multiple sources and locations.

- Allows interdisciplinary project teams to utilize their own applications and file formats in their own locations.
- Enables project teams to always be in sync with the most up-to-date project information.
- Facilitates quick access to large and interrelated files by geographically distributed teams.

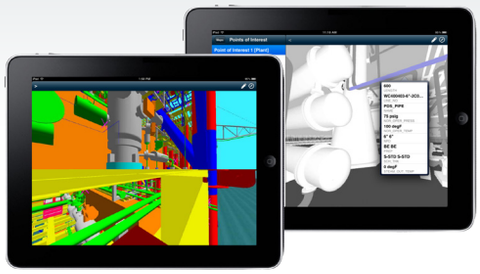


ProjectWise Collaboration Now Anywhere

The growing use of mobile devices has driven demand for effective tools to support mobile workflows. With the introduction of Bentley's mobile apps including ProjectWise Explorer, Field Supervisor, and Navigator Mobile, Bentley enables project participants to easily interact with content managed in ProjectWise.

Using Bentley's iPad apps, users can:

- Prepare and collate information, package and distribute it, perform a field task, and then return the package of information for analysis and reporting, whenever and wherever they might be.
- Extend anytime, anywhere access to their ProjectWise database through Wi-Fi or 3G, enabling users to access and browse folders and files at their finger tips. While connected, users can check out files on the iPad, perform field work, check the file in, and make it immediately available to other project stakeholders.
- Visit www.bentley.com/ipad for more information



Learn More

Are you ready to empower your project teams to work smarter and more efficiently? Contact your Bentley sales professional or visit us online at www.bentley.com/ProjectWise

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