Bentley Systems Announces *Bentley Infrastructure Cloud*, Powered by iTwin

*ProjectWise Leads Advancement to Data-centric Digital Delivery and
Digital Twin Opportunities*

LONDON – Nov. 15, 2022 – At the 2022 *Year in Infrastructure Conference*, Bentley Systems, Incorporated (Nasdaq: BSY), the *infrastructure engineering software* company, today announced Bentley Infrastructure Cloud, its combination of enterprise systems that span the end-to-end lifecycle and value chain of the world's infrastructure. Powered by the iTwin Platform and Bentley's infrastructure schemas and thus seamlessly integrating with Bentley's engineering applications, Bentley Infrastructure Cloud will enable better creation, delivery, and ongoing operation of better infrastructure, through complete and evergreen digital twins.

Bentley Infrastructure Cloud encompasses ProjectWise, for project delivery; SYNCHRO, for construction; and AssetWise, for asset operations. These enterprise systems now leverage digital twin technologies, powered by iTwin, to open up data contained in engineering files through automated and intrinsic mapping to Bentley's infrastructure schemas. By advancing these enterprise systems to become fundamentally data-centric without disrupting file-based workflows, Bentley Infrastructure Cloud provides user organizations with significant opportunities to improve collaboration, productivity, and quality.

Bentley's infrastructure schemas are both open and extensible, and now link to reality modeling and IoT devices, and incorporate carbon calculation and subsurface data. The rich data representation of Bentley's infrastructure schemas serves well the export of Industry Foundation Classes. The ability to share data seamlessly and to enrich it throughout the lifecycle helps engineering firms and owner-operators create and derive more value from their engineering data.

The potential for a unifying, cloud-based solution across the lifecycle of infrastructure engineering arises from the institutionalized limitations of fragmented information flows that

have impeded connections, feedback, analytics, reuse, and knowledge transfer. Bentley Infrastructure Cloud comprises a data-centric, always on, always current, always accessible federated environment that persists and relates engineering data throughout the span of design, construction, and operations. Information mobility and semantic continuity across traditional boundaries through Bentley Infrastructure Cloud will help accelerate, among other advancements, modular design and design for constructability, and performance-based design.

Bentley's Senior Vice President of Enterprise Systems Ken Adamson said, "Bentley Infrastructure Cloud stands for our commitment to connect everyone and everything in the infrastructure engineering value chain and extended project ecosystems. Infrastructure professionals deserve an evergreen digital twin environment for data that they can trust and act upon. I believe Bentley Systems is uniquely positioned to fulfill this requirement by virtue of the combined comprehensiveness of our ProjectWise, SYNCHRO, and AssetWise enterprise systems, our software's intrinsic engineering fidelity, and our commitment to openness – including our unique resolve to semantically integrate the full range of relevant engineering file formats. The iTwin Platform, in becoming the robust foundation for unifying all of our software development, has been proven equal to this challenge."

ProjectWise, Powered by iTwin
Bentley Systems also unveiled major enhancements to ProjectWise to extend its scope from work-in-progress engineering to full digital delivery. By supplementing each project's sequential file-based workflows with data-centric information mobility and analytics across *all* projects:

- through new **project portfolio and program management** capabilities, ProjectWise users can now apply analytics at the level of engineering fidelity across all projects, learn from and reuse rich project data, and retain knowledge to enhance the quality and efficiency of future projects; and

- through new **digital twin** capabilities, ProjectWise users can undertake interdisciplinary design reviews and advanced design validation to improve the effectiveness and quality of their designs, and also increase the richness of their digital deliverables for construction and operations, to position their businesses for transformational digital services beyond handover.

Powered by iTwin:

ProjectWise leverages **iTwin Capture** to integrate reality modeling data, increasingly the norm, to capture and monitor the digital context of designs, geospatially coordinated with engineering data;

ProjectWise leverages **Bentley's infrastructure schemas** to semantically align design-file data across multiple disciplines for comprehensive design reviews, and across all projects to understand dependencies, and to reuse datasets, including for machine-learning to develop proprietary analytics;

ProjectWise will leverage **iTwin Experience** to offer immersive visibility into project digital twins, assuring quality and improving performance;

ProjectWise 4D Design Review, powered by iTwin, enables users to securely share large, complex models with their entire project ecosystem, regardless of authoring applications. Reviewers can perform virtual walk-throughs, query model information, and analyze embedded property data using a simple web browser. A streamlined interface makes interdisciplinary review of 2D and 3D models easier and more accessible, and enables reviewers to see who changed what and when, through 4D visualization;

Advanced Design Validation, powered by iTwin, includes 3D digital workflows, integration with Bentley's OpenRoads and third-party applications, and AI/ML enhanced visualization, enabling simulation of the driver experience to validate designs and assure requirements are met;

ProjectWise Components Center, a cloud-based digital component management and library service with direct integration to engineering applications, drives standardization, automation, and reuse of design objects to deliver projects faster and more reliably. Engineering firms can now leverage data from one design to another, capture lessons learned, create reusable components, and truly industrialize their project delivery expertise; and

Digital Delivery capabilities leverage digital workflows to automate and manage the creation, exchange, and review of contractual deliverables including PDFs and Industry Foundation Classes, as well as digital twins. ProjectWise users can avoid wasting time manually assembling and sending packages, reduce risk by gaining visibility and traceability in deliverables workflows, and by automatically maintaining a comprehensive audit trail.

Powered by iTwin within Bentley Infrastructure Cloud, ProjectWise for digital delivery enhances engineering firms' opportunities while minimizing their risks, improving project performance and quality assurance. Infrastructure digital twins created in the design phase can be valuable to owner-operators as incremental project deliverables, including engineering firms' recurring services as "digital integrators" for data quality and security, proprietary analytics, and monitoring.

Lori Hufford, vice president, engineering collaboration for Bentley Systems, commented: "Engineering firms today face unprecedented challenges to deliver more and better projects despite scarcer talent, a retiring workforce, and loss of institutional knowledge. By leveraging the iTwin Platform, we are now able to advance ProjectWise beyond engineering work-in-progress for one project at a time, to be used across all projects to maximize insights, learnings, and reuse, and for machine learning. ProjectWise users already have a wealth of project experience incorporated in their ProjectWise archives. Now as part of Bentley Infrastructure Cloud, ProjectWise can drive a necessary step-change in the efficiency, effectiveness, and transformation of engineering firms."

AssetWise, Asset Health Monitoring Solutions, Powered by iTwin
Finally, Bentley also announced the availability of new asset-specific solutions, powered by iTwin, that leverage **iTwin Experience**, **iTwin Capture**, and **iTwin IoT** to deliver real-time asset health monitoring.

AssetWise Bridge Monitoring solution transforms traditional bridge inspections into a modern, digital workflow. By flying drones and using iTwin Capture to create a 3D digital twin of the bridge, inspections can be conducted virtually, avoiding costly and hazardous field trips, while tapping into expertise remotely and leveraging AI/ML to automatically identify and classify defects. Information is made available to stakeholders across the workflow via iTwin Experience. Inspection data required to correct issues can be seamlessly handed over to maintenance, design, and construction to create substantial savings.

AssetWise Dam Monitoring solution is purpose-built for engineering firms to offer digital services to dam operators who are modernizing their dam safety programs to reduce risk and address growing regulatory requirements. The upcoming solution will provide unified access to sensor data and will be able to be deployed without the need for specialized technicians. Users can incorporate sensor data in any digital twin for a contextual view of real-time data and associated metrics.

Cory Baldwin, vice president, infrastructure IoT for Bentley Systems, said, "We want to enable engineering firms to become digital integrators for the infrastructure digital twins they create in the project delivery phase, and to curate performance digital twins for owner-operators. To accelerate these opportunities, engineering firms can now start quickly with iTwin Capture, iTwin Experience, iTwin IoT, and our AssetWise monitoring cloud solutions, ready to add their own branded proprietary and asset-specific analytics and service programs."

AssetWise Bridge Monitoring and Dam Monitoring solutions are in early access.

Bentley Infrastructure Cloud Availability

Bentley's Chief Product Officer Michael Campbell concluded, "We are working closely with engineering firms and asset owners and clearly understand that they want innovation without disruption. With Bentley Infrastructure Cloud, users of ProjectWise, SYNCHRO, and AssetWise accelerate their generational advancement to digital twins, but don't jeopardize their existing workflows for engineering collaboration, construction, and asset performance management. Best of all, their existing project and asset files are the springboard to their data-centric future."

Bentley Infrastructure Cloud, comprising ProjectWise, SYNCHRO, and AssetWise enterprise systems, is available now. For more information, visit www.bentley.com.
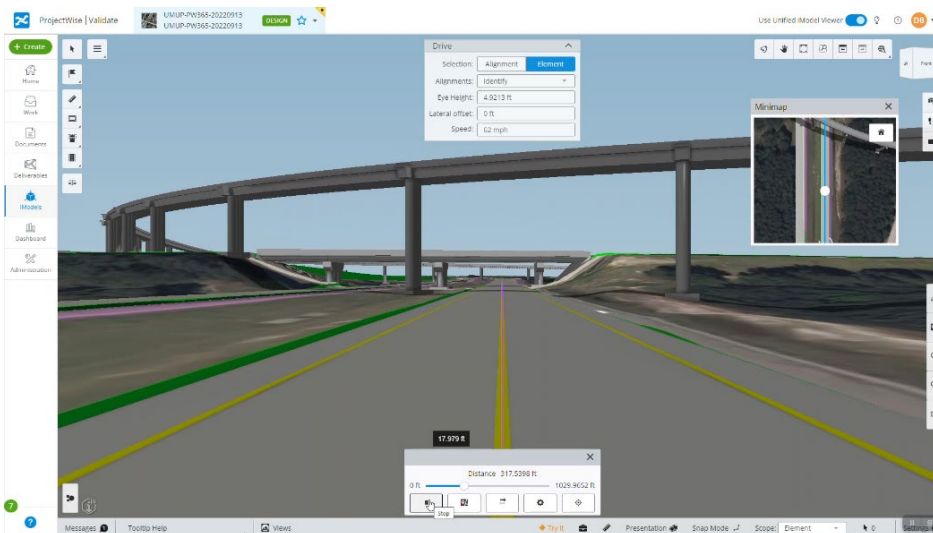
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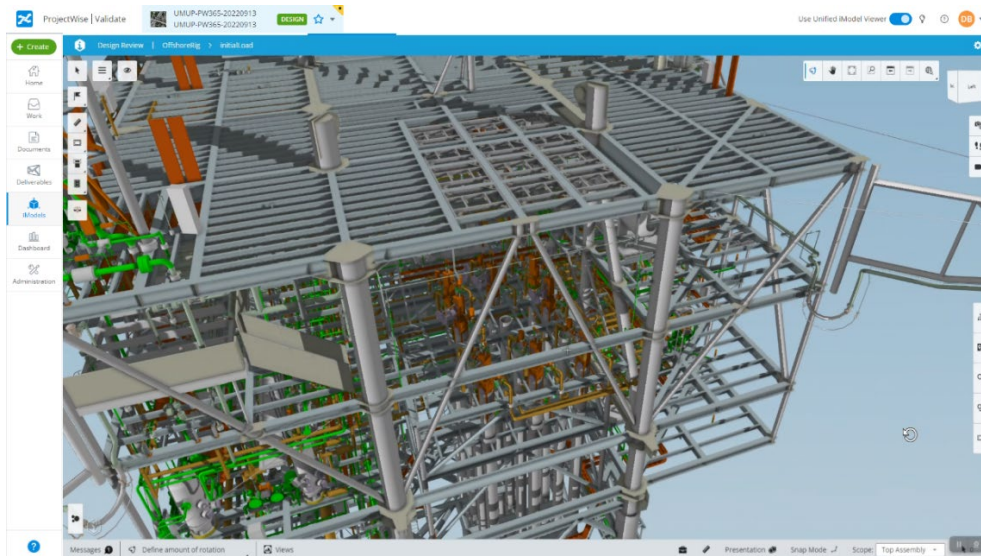
ProjectWise, powered by iTwin, enables multidiscipline web-based design reviews for all your design projects. *Image courtesy of Bentley Systems.*
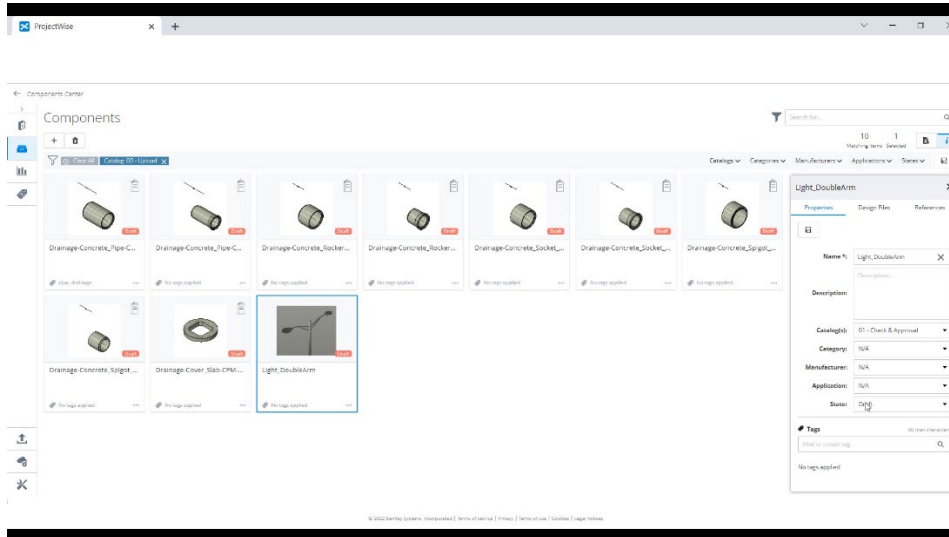
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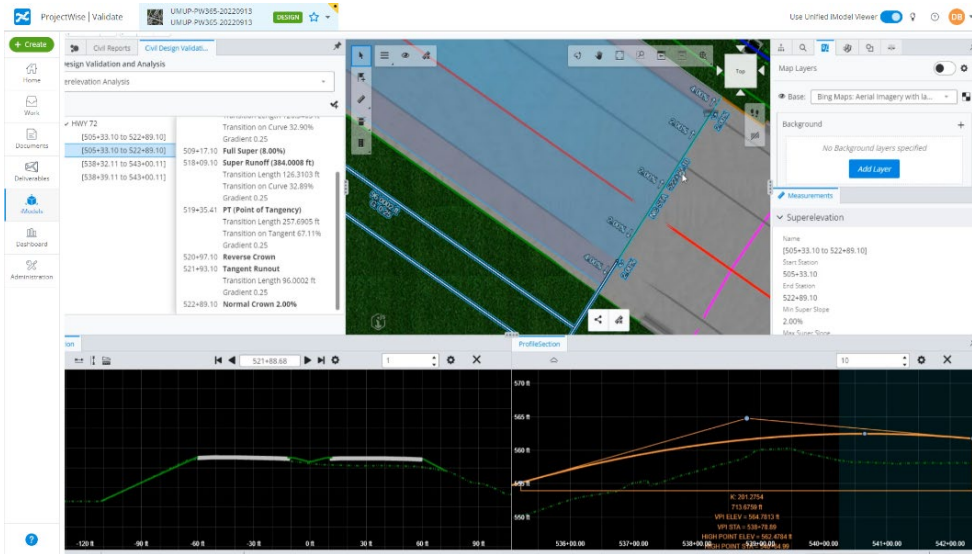
ProjectWise, powered by iTwin, supports full digital delivery including independent roadway corridor super elevation analysis, improving vehicle safety on the resulting roadway. *Image courtesy of Bentley Systems.*

Image 3

ProjectWise, powered by iTwin, supports full digital delivery, including simulating vehicle drive paths to ensure proper sight lines. *Image courtesy of Bentley Systems.*

Image 4

ProjectWise Components Center makes it easy to create component catalogs for your designs. *Image courtesy of Bentley Systems.*

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About Bentley Systems

Bentley Systems (Nasdaq: BSY) is the *infrastructure engineering software* company. We provide innovative software to advance the world's infrastructure – sustaining both the global economy and environment. Our industry-leading software solutions are used by professionals, and organizations of every size, for the design, construction, and operations of roads and bridges, rail and transit, water and wastewater, public works and utilities, buildings and campuses, mining, and industrial facilities. Our offerings include *MicroStation*-based applications for modeling and simulation, *ProjectWise* for project delivery, *AssetWise* for asset and network performance, Seequent's leading geoprofessional software portfolio, and the *iTwin* platform for infrastructure digital twins. Bentley Systems employs more than 4,500 colleagues and generates annual revenues of approximately $1 billion in 186 countries.
www.bentley.com