Press Release

Press Contact:
Christine Byrne
+1 203 805 0432
Christine.Byrne@bentley.com
Follow us on Twitter:
@BentleySystems

Bentley Systems Announces Infrastructure Projects Achieve Measurable Results with LumenRT for NVIDIA Omniverse, Powered by iTwin

Creation of Immersive 3D/4D Experiences Enhances Visualization and Simulation of Infrastructure Digital Twins for Improvements in Communication and Collaboration

EXTON, Pa. – March 21, 2023 – Bentley Systems, Incorporated (Nasdaq: BSY), the *infrastructure engineering software* company, today announced how infrastructure organizations across industries and around the globe are leveraging the power of LumenRT for NVIDIA Omniverse, powered by iTwin, a solution enabling infrastructure organizations to create compelling visualizations and project deliverables with unprecedented speed and quality, make better-informed decisions, and win more projects.

LumenRT for NVIDIA Omniverse is the first engineering software application in the market built on Omniverse, a platform for creating and operating industrial metaverse applications. The integration of NVIDIA Omniverse and Bentley iTwin enables real-time, immersive 3D/4D experiences to enhance the visualization and simulation of infrastructure digital twins. The combined capabilities are delivering new possibilities and incredible results for some of the world's largest and most complex infrastructure projects.

An early adopter of LumenRT for NVIDIA Omniverse is Brigantium Engineering, an engineering and consulting services contractor working on the ITER project in southern France, where 35 nations are collaborating to build the world's largest tokamak and the first fusion device to produce net positive energy output across the plasma. Although the official language on the ITER project is English, there are more than 45 native languages spoken in the head office. Further complicating coordination, not all participants are accustomed to interpreting 2D drawings and Gantt charts.

To overcome these language and communication barriers, Brigantium is leveraging LumenRT

for NVIDIA Omniverse to provide an interactive 4D model that is intuitively understood by everyone, vastly improving and streamlining communication. Brigantium expects that this increase in user engagement and improved feedback will result in profoundly improved cross-departmental communications, quicker execution times, reduced errors, and less lost time, amounting to overall team efficiency gains of up to 80%.

“The power of LumenRT for NVIDIA Omniverse, combined with the iTwin Platform, will allow our project teams to effortlessly combine models from multiple design tools and instantly create high-fidelity, engineering-accurate visualizations that communicate the design intent of the project. These kinds of visualizations are critical to project communications,” said Lynton Sutton, Managing Director, Brigantium Engineering. “In the past we relied on specialists devoting valuable time and effort toward creating these essential project deliverables. It was inefficient, but necessary. Now, with LumenRT for NVIDIA Omniverse, everyone on the project can create compelling visualizations in less time and of higher quality than previously possible.”

LumenRT for NVIDIA Omniverse is also bringing innovation to the Tuas Water Reclamation Plant (TWRP) being built by PUB, Singapore’s National Water Agency. A giant step toward closing the water loop for Singapore, the TWRP is a one-of-a-kind, multidiscipline mega project to build a treatment facility for industrial and household wastewater. A project of this scope and complexity presents major challenges in coordination and communication across 16 different contractors on designs and construction representing 3,500 separate BIM models. “Preparing for monthly stakeholder review sessions with our client used to be quite time consuming – to assemble and align all the model data and to create renderings and videos to share with the client. With the BIM model management of ProjectWise powered by iTwin, assembling the data is effortless,” said OhSung Kwan, TWRP BIM Manager, with Jacobs. “With LumenRT for NVIDIA Omniverse, preparing renderings and videos takes much less time and we can explore more options with immersive VR. With these solutions together, we have reduced our preparation time for model review sessions, saving project costs and allowing more time to focus on collaboration with our client.”

By leveraging the iTwin federated model for visualization, LumenRT for NVIDIA Omniverse enables rapid change propagation that simplifies visualization workflows by linking directly to a single federated infrastructure digital twin so when changes occur, they are synchronized automatically, which allows the project stakeholders to review safety, quality, and design changes. Project teams can also create immersive virtual-reality and augmented-reality design experiences for stakeholders, a capability that has become increasingly sought after for visualizing industrial-scale projects. As projects become larger and more complex, such virtual-reality and augmented-reality design experiences offer a more compelling way to engage customers in order to win new work, and then to sustain the win by keeping stakeholders informed and engaged.

While Brigantium and PUB are benefiting from improved communication and collaboration, engineering professional services firm WSP finds LumenRT for NVIDIA Omniverse and the iTwin Platform instrumental for winning new projects and maintaining stakeholder engagement. WSP is utilizing LumenRT for NVIDIA Omniverse to produce compelling visualizations for the multibillion-dollar I-5 Interstate Bridge Replacement (IBR) Project between Oregon and Washington in the United States. The existing Interstate Bridge serves as a vital trade route for regional, national, and international economies, but the aging infrastructure is inadequate for modern traffic and is also at risk of collapse in the event of a major earthquake.

Washington State Department of Transportation (WSDOT) and Oregon Department of Transportation (ODOT) are supporting the use of a digital twin developed on the iTwin Platform throughout the full program cycle, from public outreach with conceptual design, through detailed design, into construction, and eventually for continuous operations and asset management. One of the many advantages to this approach is that it enables WSP to sync change sets and seamlessly and rapidly generate updated visualizations without time-consuming imports and exports.

“WSP has committed to using infrastructure digital twins for all the benefits they provide, not the least of which is being able to create compelling visualizations quickly and easily, first to win the work and then sustain the win by keeping stakeholders informed and engaged throughout the project,” said Tom Coleman, Vice President, WSP USA. “Bentley’s workflows in the conceptual phase allowed us to engage stakeholders sooner and more effectively. We were able to produce many times more conceptual designs than we ever could in traditional methods. The team produced well over 30 conceptual designs for the client to evaluate.”

These are only the first of many success stories likely to come from the now public availability of LumenRT for NVIDIA Omniverse.

“The results being achieved by the early adopter users of LumenRT for NVIDIA Omniverse demonstrate a unique advantage for project teams working with infrastructure digital twins by providing powerful new digital twin-native workflows that make visualization advantageous to apply on projects of every scale,” said Lori Hufford, Vice President, engineering collaboration, with Bentley.

The combination of iTwin and NVIDIA Omniverse provides an unmatched, high-performance user experience for infrastructure organizations at a scale that has previously not been possible. ProjectWise, powered by iTwin, leverages Bentley’s infrastructure schemas to semantically align design file data across multiple disciplines, mapping the information to a common schema that is open and extensible. The result is that all data is retained and not lost along the way as an

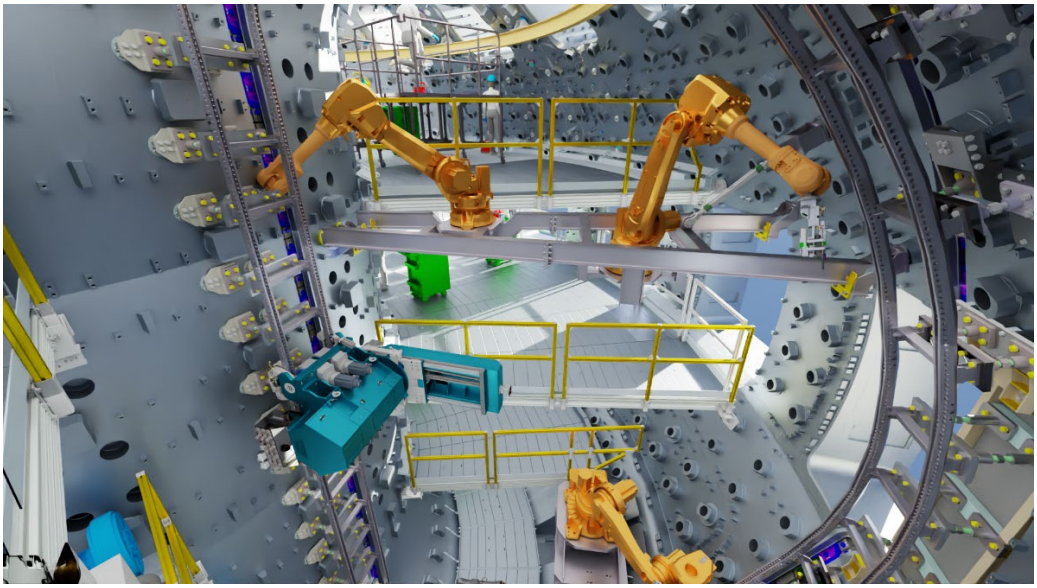
asset moves from one phase to the next.

“Creating project visualizations during work-in-progress can be extremely time consuming, particularly as we need to combine or isolate different disciplines, assemblies, or specific parts of the model, which has meant a lot of juggling of files and separate, manual partitioning of models and one-off visualizations,” said Jarred Myburg, Development Manager – design tools & visualization, Hatch Ltd, another early adopter. “The alignment of model data by iTwin made it easy to employ LumenRT for NVIDIA Omniverse to streamline creation of visualizations of various parts of the model at different stages and tell a compelling story much more quickly, making visualizations much more effective to employ throughout projects.”

“The scale and complexity of the infrastructure projects described here demonstrate the need for AI-enhanced real-time visualizations to support the successful execution and delivery of these projects through improved communication across multiple stakeholders — iTwin and NVIDIA Omniverse help to solve these problems,” said Richard Kerris, Vice President of the Omniverse developer ecosystem, with NVIDIA.

NVIDIA Omniverse provides a graphics pipeline for AI-enhanced, real-time visualization, and simulation of infrastructure digital twins, allowing engineering-grade, millimeter-accurate digital content to be visualized with photorealistic lighting and environmental effects on multiple devices, including web browsers, workstations, tablets, and virtual-reality and augmented-reality headsets, from anywhere in the world.

Image



The International Thermonuclear Reactor. *Image courtesy of Brigantium Engineering.*

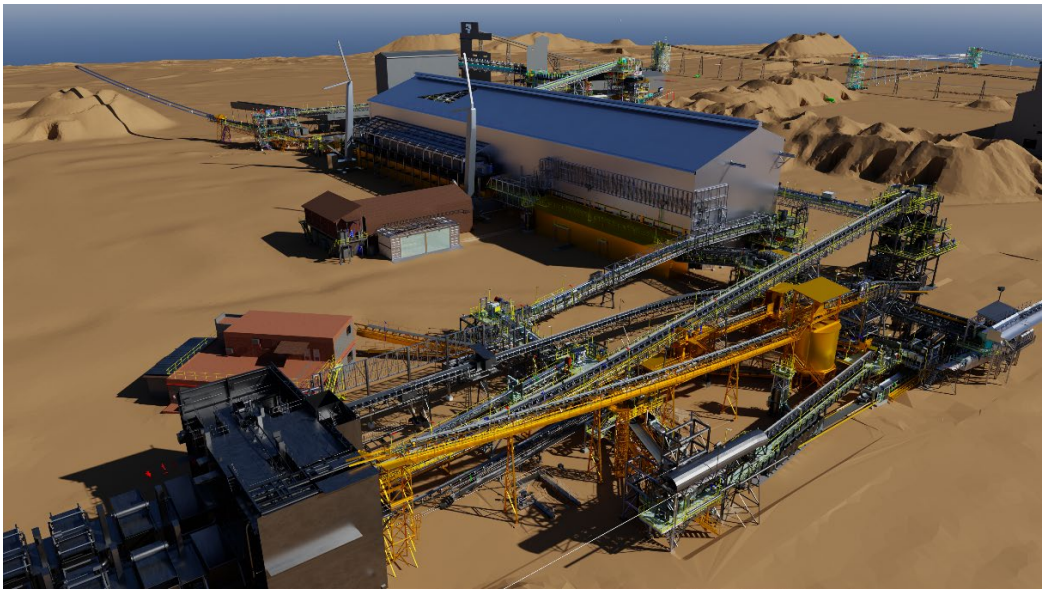
Video

The International Thermonuclear Reactor. *Video courtesy of Brigantium Engineering.*

Image

Tuas Water Reclamation Project. *Image courtesy of PUB, Singapore's National Water Agency, and Jacobs.*

Image



Process plant rendered in LumenRT for NVIDIA Omniverse. *Image courtesy of Hatch.*

Video
Process plant rendered in LumenRT for NVIDIA Omniverse. *Video courtesy of Hatch.*

Video
Introducing Bentley's LumenRT for NVIDIA Omniverse. *Video courtesy of Bentley Systems.*

##

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, powered by the *iTwin* Platform for infrastructure digital twins, include *MicroStation* and *Bentley Open* applications for modeling and simulation, *Seequent*'s software for geoprofessionals, and *Bentley Infrastructure Cloud* encompassing *ProjectWise* for project delivery, *SYNCHRO* for construction management, and *AssetWise* for asset operations. Bentley Systems' 5,000 colleagues generate annual revenues of more than $1 billion in 194 countries.
www.bentley.com