Bentley Infrastructure Cloud for Cities and Campuses

Data Is Waiting to be **Unlocked, Unleashed, and Illuminated**

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Better Outcomes Across the Infrastructure Lifecycle

Behind every infrastructure project and every physical asset is data waiting to be unlocked, unleashed, and illuminated, resulting in insights into infrastructure intelligence.

From connecting critical information and workflows across the infrastructure lifecycle to leveraging artificial intelligence-driven insights, infrastructure intelligence is how you can build a more sustainable and resilient future.

Whether you need to:

- Rapidly generate different design concepts based on a range of inputs and constraints,
- Create immersive 3D environments of infrastructure assets where construction progress is captured, current, and actionable,
- Or automatically know when something is wrong with the health or safe operability of your assets,

Infrastructure intelligence is the key to solving and overcoming some of today's biggest challenges.

Infrastructure Lifecycle Challenges

Design and build firms, infrastructure owners, and their supply chain stakeholders must effectively manage infrastructure projects and assets across the lifecycle from design and build into operations.

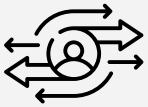
These teams need to:

Increase the efficiency of designing, building, and operating infrastructure due to the increasing complexities of increased client demands and workforce challenges.

Manage and govern data to support collaboration workflows for engineering, construction, and asset performance within and across organizational boundaries.

Manage the flow of information in and between organizations for efficient design, construction, and operations, with effective coordination of work between many different teams.

Utilize trustworthy and actionable asset data to **make better-informed decisions**.



Leverage data from engineering technology, information technology, and operations technology (ET, IT, and OT) to improve project delivery and asset performance.

Improve asset performance and reliability with a single, holistic, and up-to-date view.

Challenges in the Cities and Campuses Industry

Challenges, such as **climate change, energy** and **water scarcity,** and labor shortages, are sparking calls for action and productivity increases.

The goal of delivering **future-ready infrastructure** that minimizes carbon emissions, adapts to future work patterns, removes community barriers, and supports new business practices is reliant on infrastructure intelligence, which is now more important than ever for cities.

Cities and campuses have an **urgent need to aggregate information** above the building level, covering bigger facilities or entire urban districts, including their surrounding environment.

When conducting large-scale planning and engineering for campuses, cities, and other multibuilding facilities, the **amount and variety of data** produced can be staggering.

Massive volumes of information from paper plans, CAD drawings, ground and aerial surveys, and various other sources must be **integrated and organized** for access by a wide range of users.

How Bentley Infrastructure Cloud Can Help

Bentley Infrastructure Cloud brings teams, projects, and asset data together in secure managed environments to execute work, resulting in better outcomes across the infrastructure lifecycle. It offers purpose-built workflows for users across all phases of the asset lifecycle. Powered by the iTwin® Platform, seamlessly integrated with Bentley Open applications, and providing common data environments, Bentley Infrastructure Cloud delivers project delivery, construction management and asset performance capabilities through three key applications:

- **ProjectWise®,** which provides a connected data environment to help designers and engineers produce higher quality digital deliverables.
- **SYNCHRO™,** which enables constructors to simulate plans in 4D and capture as-built progress for digital twin handover.
- **AssetWise,** which empowers owners with asset lifecycle information within evergreen digital twins to help improve the reliability, performance, compliance, and safety of their infrastructure assets.

Bentley Infrastructure Cloud Benefits

Bentley Infrastructure Cloud is your ultimate destination for managing infrastructure data that can be relied on to make informed decisions, allowing you to better design, build, and operate more sustainable infrastructure.

Bentley Infrastructure Cloud:

- Manages the flow of information throughout the lifecycle in a trusted environment to efficiently and effectively collaborate across team and organizational boundaries.
- Provides governance through an open, federated environment to ensure that the right people have the right information at the right time, giving users the ability to create, edit, view, search, analyze, manage changes, and share asset and project information according to their function or need.
- Unlocks value with open access to data across the lifecycle by enabling the reuse of best practices and implementation of standards, helping you gain new insights through change management.
- Augments existing file-based workflows with data-centric workflows enabled by the iTwin Platform to streamline change management.

Use Cases

Bentley users are working on innovative projects that use data in groundbreaking ways. They see clear strategies for accelerating infrastructure intelligence, including reusing digital components and incorporating operational data from IoT sensors and drones into evergreen digital twins.

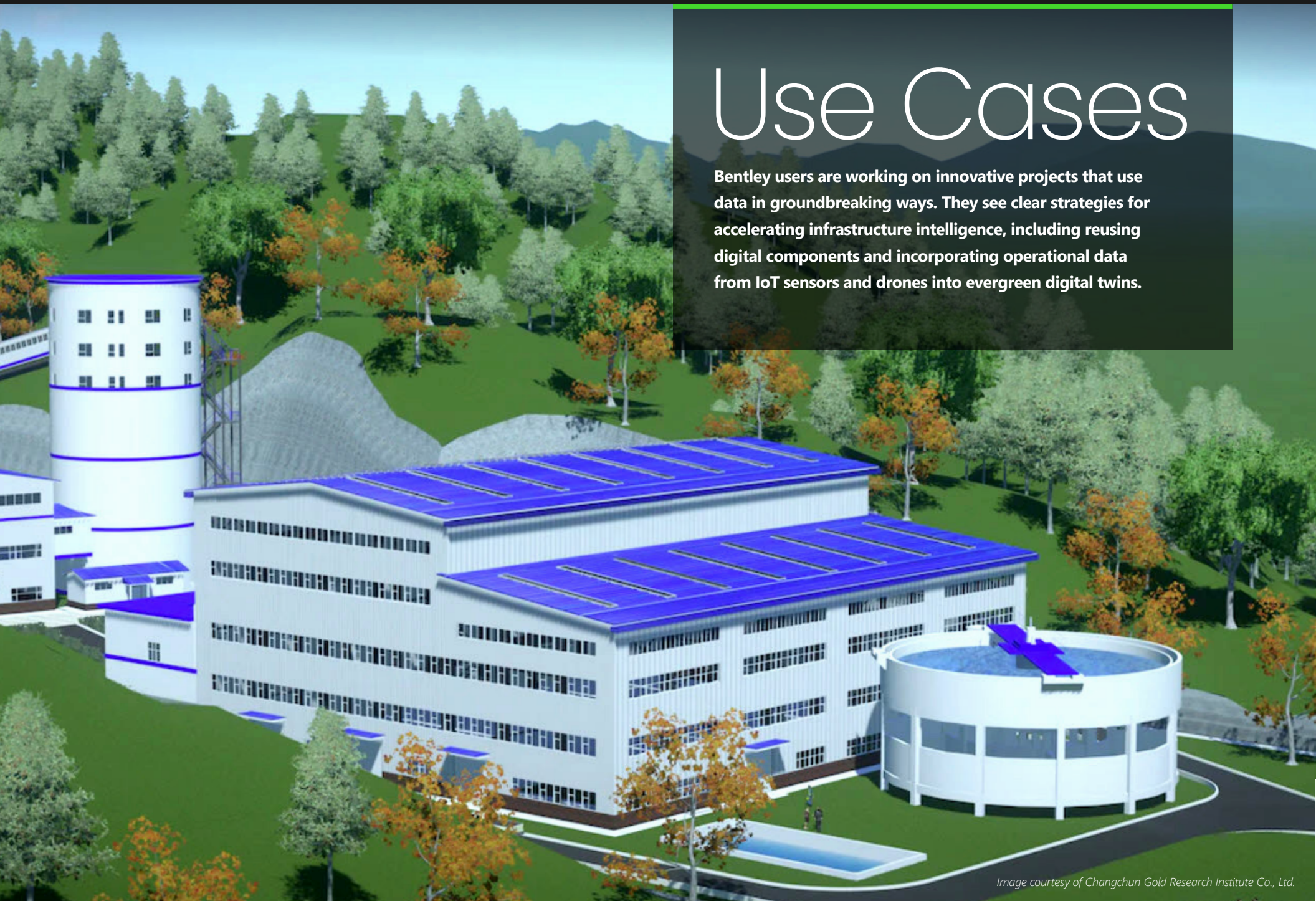


Image courtesy of Changchun Gold Research Institute Co., Ltd.


Image courtesy of Sydney Airport.

Use Case

Maps@SYD

The Sydney airport spans 906 hectares and includes three runways, three terminals, and over 400 buildings. Officials at the facility initiated a project to implement a cloud-based, self-service portal to support facilities planning and operations by integrating spatial and survey information, then making it accessible to all staff across the organization. Faced with complex, voluminous data, compatibility issues, and a diverse user base, Sydney Airport needed an open and user-friendly digital platform.

Already familiar with Bentley's modeling and mapping applications, the team selected OpenCities® and Bentley Infrastructure Cloud's design (ProjectWise) and build (SYNCHRO) capabilities, integrating different types of financial and asset data, metadata, models, and documents from multiple systems. This integration provides real-time collaboration and 3D viewing capabilities for planning, auditing, and facilities management. Having access to an open digital environment increased efficiencies, improved productivity and the quality of deliverables, and reduced costs and resource hours across all departments.


Image courtesy of Changchun Gold Research Institute Co., Ltd.

Use Case

Jinshan Mineral and Processing Plant

At the largest gold mine in Jiangxi China, the Jinshan mineral and processing plant has an estimated annual mineral processing capacity of 990,000 tons, expected to increase profits by around CNY 53 million and realize rapid development of the area's economy. The project team previously used 2D design methods that proved error-prone and time-consuming. Faced with a tight design schedule, the multidiscipline project team needed BIM design to develop the mine. Therefore, they wanted to implement BIM workflows, including integrated modeling technology and a connected data environment.

Changchun Gold Research Institute selected OpenBuildings®, OpenPlant®, and OpenRoads™ to optimize the design of the mining facility and equipment, and Bentley Infrastructure Cloud's design (ProjectWise) capabilities to manage and share models and files. Working in an open, integrated digital environment facilitated clash detection and accurate material quantity takeoffs, reducing waste, rework, and costs while accelerating the construction progress using Bentley Infrastructure Cloud's build (SYNCHRO) capabilities. Compared to traditional methods, the team reduced design time by 10%. They will use the 3D model to develop a digital twin and smart mine.

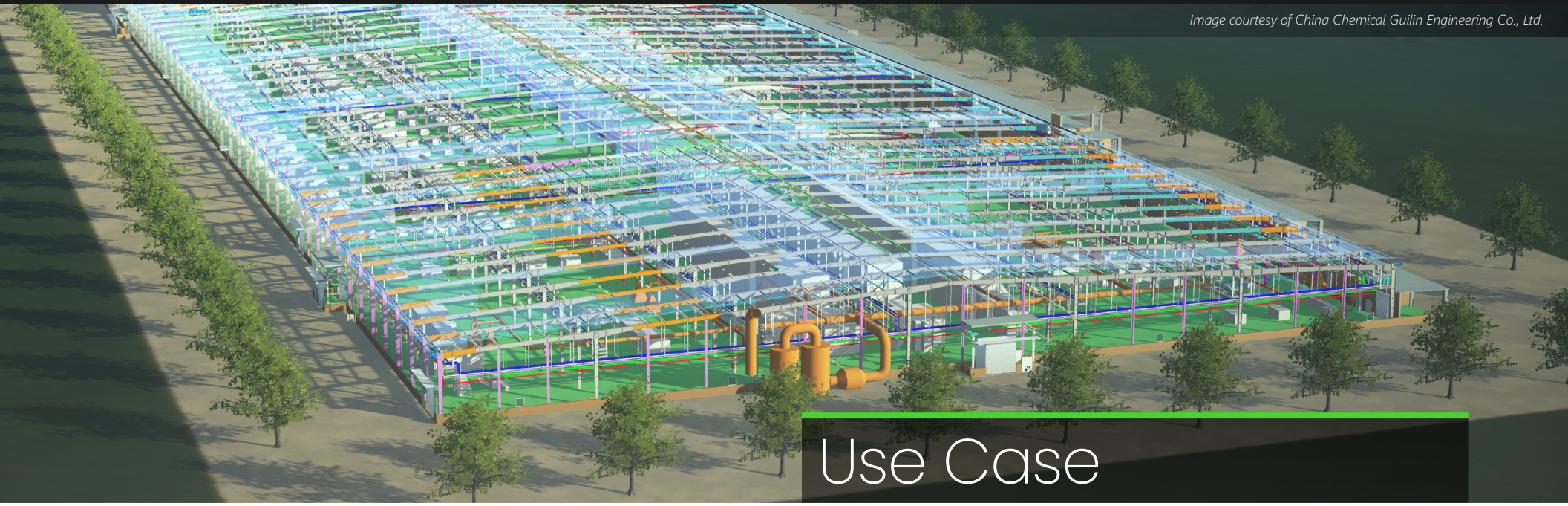


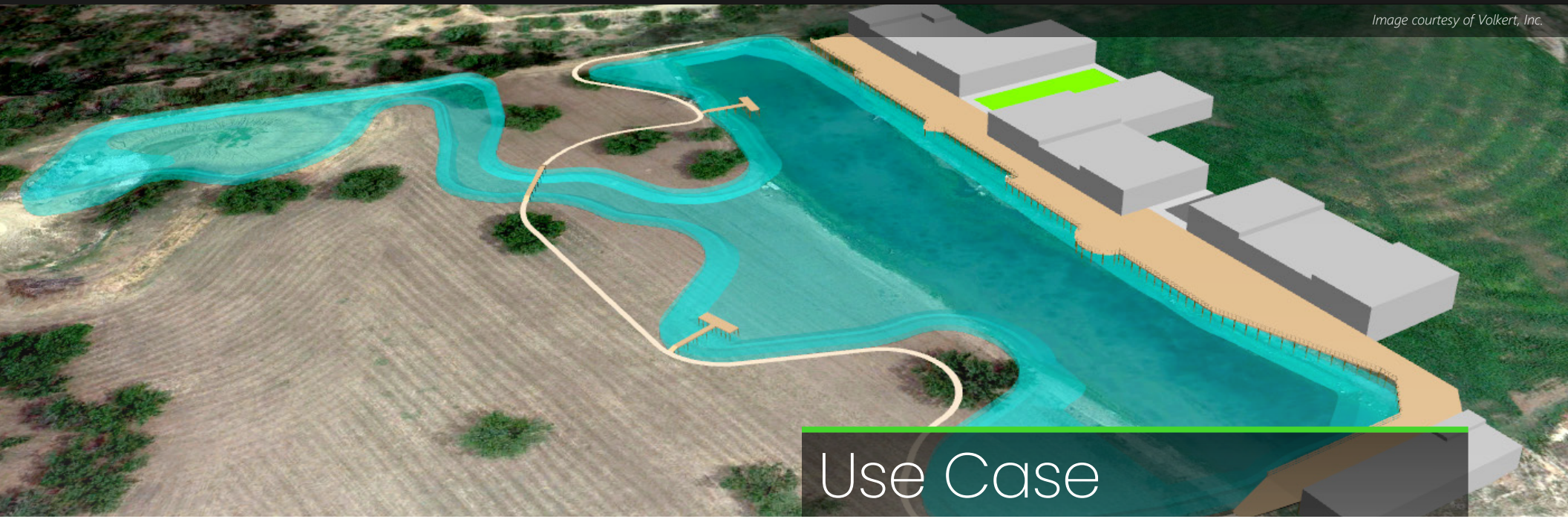
Image courtesy of China Chemical Guilin Engineering Co., Ltd.

Use Case

Relocation and Expansion Project of Anji Tire Production Base of Zhongce Rubber Co., Ltd.

Located inside the Anji Lingang Economic Zone, this rubber manufacturing workshop is a single-story building featuring a partial mezzanine breaching to a maximum height of 15.75 meters, which is being constructed as an intelligent, eco-friendly factory. The large project scale and complexity of the concrete building and pipeline layout required advanced planning to optimize design and construction. The multidiscipline project team wanted to implement a comprehensive BIM strategy and realized that conventional BIM and visualization processes failed to provide a holistic and intuitive understanding of the construction site.

Leveraging Bentleys open 3D BIM and reality modeling applications with Bentley Infrastructure Cloud's design (ProjectWise) and build (SYNCHRO) capabilities, the China Chemical Guilin Engineering team established a connected data environment and 3D information model that they used to perform clash detection and construction simulation. The collaborative, lifecycle BIM solution improved productivity, shortened the design cycle, and is expected to reduce construction by 30 days through digital construction management. The 3D model provides the basis for digital operations and maintenance, as well as intelligent factory processes.



City of Early Town Center Development and Town Center Lake

The small town of Early, located in west-central Texas, was originally developed without a downtown or main street. Volkert was contracted to develop a new, over-60-acre town center along the banks of the Pecan Bayou. In addition to designing streets, infrastructure, an artificial lake, and a boardwalk, the team needed to analyze the floodway. Since the project depends on both residential and commercial investments, Volkert needed to clearly communicate their vision with the public.

To overcome their challenges, Volkert used Bentley Infrastructure Cloud's design (ProjectWise) capabilities to aggregate data from multiple sources and ensure the most current data was available to the design and construction teams. They used Bentley Infrastructure Cloud's build (SYNCHRO) capabilities to share views of the construction phasing over time with the City of Early. Volkert leveraged MicroStation®, OpenRoads, OpenBridge, and LumenRT™ to generate realistic views of the lake and boardwalk development, and quickly translate the concepts into bidding documents complete with accurate quantities to expedite construction. While the realistic renderings helped the public understand the scope of the project, they also helped the project team avoid impacts to and from the floodplain and reuse materials excavated for road development. Using Bentley products allowed for a unique and high-quality design of the Town Center at approximately 40% less hours and design costs than are typically seen on projects of this size or complexity.

It All Starts with Data

What the most advanced firms are already doing today:

Lighting up their dark data

Reusing data through **seamless interoperability** across applications, throughout the infrastructure lifecycle

Enjoying a **consistent** UX

Realizing the **value** of that data beyond handover

Monetizing newly uncovered **digital integration** business opportunities

Bentley Infrastructure Cloud:

- **Allows you to manage and leverage all your engineering data,** maximizing its potential for generative artificial intelligence.
- **Unifies digital project deliverables and enhances model-centric workflows** with smart sheets, enabling 2D/3D hybrid workflows and connecting traditional file-based and BIM data-centric workflows to deliver value faster.
- **Embodies Bentley's commitment to openness and interoperability** with industry standards, including IFC, BCF, CFIHOS, Mimosa, DEXPI, and third-party file formats.

Contact us for Better Outcomes Across the Infrastructure Lifecycle

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