

The iLab Infrastructure Metaverse Experience

We have all heard the buzz around the metaverse and digital twins, but what does it actually mean? What is required for a metaverse experience, and what makes a metaverse experience different from a digital 3D experience? Does a true metaverse even exist?

These are questions we are exploring in the Bentley Innovation Lab (iLab). In an effort to understand the metaverse, we started building virtual 3D worlds using models provided by our customers. These models are not small – they are entire facilities and cities modeled in 3D and even 4D by our users all over the world.

We asked our users, how do you imagine teams working *within* these models in virtual reality, augmented reality, and mixed reality? Is VR even a requirement for a metaverse experience? We set out on an expedition to find out, and today you can experience some of our findings firsthand.

What we discovered is that a metaverse experience has some nascent requirements – that means it is still being defined and built. In fact, the requirements are likely to change, but the current types of requirements our users emphasize include interoperable 3D data, cross-platform and cross-device experiences, persistent access to data, real-time data-feeds, real-time 3D rendering, spatial navigation, and multi-user gameplay.

In the iLab demos, you will experience a new way of interacting with content. Rather than viewing layers of 2D graphics on a website, you will wander through a 3D space that includes a lobby, a gallery, and an innovation lab. In the lobby, you can try some of our latest experiments and discover what it is like to interact with massive infrastructure projects in a metaverse environment using game engine technology and the Bentley iTwin platform.

Our featured projects include the design of a new water treatment facility, the construction of a nuclear fusion reactor, the ongoing maintenance of a bridge, and the design of a new city.

We built a direct connection between 3D models synchronized to the Bentley iTwin platform and Unreal Engine 5, ensuring that models are always up to date, and that greater value can be realized and discovered from the investment in building and maintaining a digital twin. For the developer ecosystem, we are streamlining the process for developers to build interactive apps for desktop, virtual reality, and mixed reality. Together, we can build the foundation for infrastructure metaverse experiences.