Why Owners Should Require a Digital Twin at Turnover

Written by: Dale Dutton, Virtual Design and Construction Product Engagement and Project Delivery, InEight

As a construction professional, you know there are certain steps to close-out and turnover of a project, from a project team to an operations team. As an owner, you may have asked for specific metadata to be delivered in a construction operation building information exchange (COBie) format. You likely asked the designer or contractor to follow certain computer-aided design or CAD standards and requested electronic drawings to be delivered in a specific CAD file format.

In fact, you may have received files generated from many different types of CAD-authoring software. But do you have the expertise to utilize all that different software, and do you really want to maintain all those different CAD software licenses? All of these challenges can make turnover a grueling event, for you as an owner and for your contractor. Requiring a digital twin at turnover can help. Here's how.

The benefits of a digital twin

A digital twin is a permanent 3D digital replica and record of your physical asset. It seamlessly encapsulates the asset and serves as a snapshot of deliverables being handed over by the contractor to the owner. Yet while it's great to have data connected throughout a project, it's another to have project documents connected to the data throughout the project.

By starting the digital twin in construction, the execution of actual work captured will enrich the data, which will provide insight into the future serviceability of the asset during actual operation. This reduces the amount of work it takes to receive all documents and data during turnover and then get it organized by differentiating and or combining data and documents to be useful.

Specifying specific data to be captured electronically connected to a 3D model minimizes the turnover and reduces the hours of sifting through documents to get your asset serviceable ready.

Are you ready for a digital twin?

This goes back to trying to deal with and access all those design models from different software formats I mentioned earlier. In addition to simply accessing them, how will you access all the pertinent project data captured during construction that is connected to your delivered 3D model?

Fortunately for today's owner and contractor, there are products that can federate all design models into one project even though they are from different CAD systems. Some of these products provide the ability to add project data through construction, link documents to model objects, and more.

But there's a slight catch; you will need a software solution that can be utilized during construction to capture and maintain relevant information, link documents to a model, and then add your owner information as you maintain your asset. How do you go about determining what solution will work best for your needs?

Items to consider for your digital twin – a checklist

Here are three key items to consider for making a digital twin work to your best advantage:

» Request a federated 3D model. This is one project model that encapsulates all design models and all fabrication models into one model.

» Ask that all data that you are requesting be associated to the model objects.

» Ask that all relevant documents be associated to the model objects.

Now, what if you want to make changes or additions to your facility after construction? This is a great question because the reality is that your asset may indeed change over time, so you'll need a way to handle those changes and upgrades. Again, start with those design files. Even if your design company is using a different CAD software than previously, or you use an entirely different design company, the right modeling tool can consume all of those 3D design models into your existing environment so that you are not having to continuously learn new software to manage your asset.

The right 3D software can consume different design file formats linked to your operations data and information, helping you eliminate the need for different CAD software licenses and training. This not only saves you money and frustration but increases the number and type of design firms you can work with moving forward. And as design software changes, you will have the right software that fits your needs now and in the future.

About the Author

Dale Dutton joined InEight in 2014 to support Virtual Design and Construction product engagement and project delivery with a focus on improving efficiencies by enabling 3D design models to be used effectively in construction and asset management. Dutton brings a rich, 30+ year background to his role, having previously held key positions at Kiewit and at Bibb & Associates, including technology manager for design and engineering software, as well as design manager supporting EPC design and construction projects.

About the Article

This article is republished from the InEight Behind the Build online blog. InEight provides field-tested construction project management software for the owners, contractors, engineers and architects who are building the world around us. Customers worldwide rely on InEight for real-time insights that help manage risk and keep projects on schedule and under budget across the entire life cycle.

Any views and opinions expressed in this article may or may not reflect the views and opinions of the Construction Management Association of America (CMAA). By publishing this piece, CMAA is not expressing endorsement of the individual, the article, or their association, organization, or company.