

POWER INDUSTRY: MEET YOUR DIGITAL TWIN

Built from massive, cumulative, real-time data, a digital twin simulates its real-world counterpart in a live setting, creating an evolving digital profile of the physical asset's historical and current behavior. With the help of powerful analytics, machine learning and artificial intelligence, a two-way flow of information is created. The real-world asset sends live performance data to its digital twin for evaluation and, if action is needed, the digital twin responds with feedback or changes to optimize performance.

A digital twin is well-equipped with advanced tools and technology to monitor asset health, quickly identifying equipment that needs to be repaired or replaced, often enabling the use of predictive and condition-based techniques.



Digital twin technologies reduce the need for site visits to a generation plant or substation, saving time and money. If a site visit is required, leveraging real-time and other system and asset data from a digital twin will enhance personnel safety and site visit efficiency.



One benefit is its ability to provide the latest 3D information on existing site conditions using both 3D scans and design models. This makes it easier to guide planning decisions with highly accurate as-built information. As this data is used to prepare for the design and construction process, the detailed understanding and easy access to current site conditions enhance everything from design assessments to construction mobilization.



Knowing the explicit nature of an asset or process provides highly accurate system models. This is an invaluable aid in filling in any missing information or incomplete documentation.



WHAT IS IT?

A digital twin is a digital replica of a physical asset, system or process, with live data completing the reproduction. It is the ultimate combination of design, operation, process, and system models and data, resulting in a virtual representation that is as indistinguishable from reality as possible. Once created, a digital twin allows companies to perform tasks, such as planning, analysis and optimization, in ways that would not otherwise be possible.



PREDESIGN



DESIGN & CONSTRUCTION



OPERATIONS & MAINTENANCE

Utilities that regularly conduct 3D scans of high-voltage transmission lines and other outdoor mission-critical assets can track and identify vegetation and other issues to support trimming and maintenance programs.



With machine learning and artificial intelligence, it is possible to build an operational history that can be mined for trends and predict upcoming maintenance needs.



Utilizing this technology for an end-to-end system can be highly valuable in identifying the source of power outages, helping to speed recovery and improve customer satisfaction.



Switching from 2D drawings to 3D design software fundamentally changes the way power systems are planned and designed. Design involves creating a digital 3D model that easily can be manipulated and updated.



Many industries have already seen the revolutionary influence of digital twin-enabling technologies, such as 3D design, visualization and printing. Learn more about how the power industry can prepare for the evolution of what is possible at burnsmcd.com/ShapingReality.

