

What is Digital Twin Technology

FOR FACILITIES MANAGEMENT?

Digital twinning is the next big thing in facilities management, revolutionizing what's possible in the same way that other seismic shifts in the industry have done in the past.

If you think of facilities and operations management in terms of technological leaps, you'd have a timeline that reflects the Industrial Revolutions starting back in the 18th century with steam power and mechanization. Then came the advent of electricity and mass production assembly lines, followed by advancements in computers and automation.

Now, in Industry 4.0, it's all about leveraging data to drive operational efficiencies and reduce waste. Sensor networks, smart buildings, the Internet of Things (IoT) and other cyber-physical systems are transforming the management of facilities for workplaces, commercial and manufacturing businesses, commercial office buildings, schools, hospitals, colleges and other industries.

And that's where the power of digital twinning comes in. It's no surprise that, according to McKinsey research, [70 percent of C-suite technology executives](#) at large enterprises are already exploring and investing in digital twins. Interest in digital twinning is skyrocketing everywhere, with the industry expected to grow to \$110.1 billion by 2028 — a 61 percent compound annual growth rate.

Tech-forward, data-driven asset and space management solutions that improve collaboration, reduce costs and increase efficiencies are understandably in demand.



WHAT ARE DIGITAL TWINS?

A digital twin is a [virtual replica or model](#) of something physical, infused with a layer of data that provides updates in real-time to reflect the condition of the original version. That digital doppelgänger could be a model of an object, piece of equipment, system, space or anything else in your built environment.

NASA was one of the first to use basic twinning technology for space missions, creating replicas on the ground of systems in space — like Apollo 13, which allowed engineers to test solutions from hundreds of thousands of miles away when oxygen tanks ruptured during the mission.

The advent of technology and, particularly, the Internet of Things (IoT), is making the use of digital twinning much more accessible for organizations of all kinds nowadays.

A classic example of digital twinning that you've likely experienced in practice are online tours of properties listed for sale. The 3D walkthrough of a house or apartment allows you to peruse the spaces and furnishings, clicking through to an accurate replica of each room. Universities, museums and many others also use digital twinning for online tours.

Another example you likely have in your pocket? Google Maps. It's a digital twin of transportation infrastructure and systems, updated with real-time data about traffic conditions, speed traps, construction and other changing elements.

THE VALUE OF DIGITAL TWINS FOR FACILITIES MANAGEMENT

Tours and maps only scratch the surface of what's possible with digital twinning, though. And for facilities management especially, the ability to model, monitor and optimize your operations remotely is a game-changer.

Digital twinning allows you to view your buildings virtually and understand your as-built assets and spaces. You can better manage your assets and extend their lifecycle, while also creating Building Information Models (BIM) for upgrades and renovations at a lower cost.

What does that mean in practice?

Imagine being able to walk through your spaces from afar, remotely surveying everything from the roof to the HVAC to the electrical systems. Or being able to share 3D models of your spaces with architects, engineers, space planners and interior designers so they can explore your spaces remotely and collaborate on planning, thereby avoiding unnecessary site visits and trip fees.

Maybe you need to monitor live and trending data about temperature, occupancy or indoor air-quality data within a building to improve occupant comfort. Or monitor your equipment to analyze performance and schedule preventative maintenance.

Perhaps a piece of equipment needs repair or new employees need to be trained on how to use the equipment, so you share virtual models of your assets with notes and other materials embedded directly into the 3D models using user-friendly tags. With all data aligned with your current computerized maintenance management system.

These are just a few scenarios where digital twins have an immediate, tangible impact. There are countless other opportunities that directly impact an organization's bottom line. In fact, according to research by [Matterport](#), businesses that utilize digital twinning see a 53% reduction in travel and site visit costs and a 30% reduction in time to complete projects. That's in addition to a 24% improvement in sustainability.

IoT Remote Monitoring and Data-Backed Decision-Making

Dynamic, true-to-life 3D models generated from scans and images of your built environment offer a powerful way to capture and share information about your spaces, assets and exteriors.

Added to that is the power of real-time data and IoT remote monitoring, which opens up a world of possibilities for more strategic and effective facilities management. Using IoT wireless sensors and a technology platform like AIWX™ Connect, the digital twin updates in real-time to reflect the actual condition and status of the asset or space.

From determining the activity within a space for space planning, energy management and demand-driven cleaning schedules to identifying water leaks to understanding energy usage of equipment in real-time to reduce overall costs, the combination of remote monitoring data and digital twinning provides unprecedented opportunities for facility management efficiency.



HOW CAN AN ORGANIZATION GET STARTED ON LEVERAGING DIGITAL TWINS?

As with any tech-forward innovation, working with an integrated facilities management partner is often the easiest and most effective way to implement a new solution.

It can be a challenge for self-operating organizations to sustain an in-house team focused exclusively on research and development of the latest facilities management tools. A partner like Aramark Facilities Management removes that hurdle, with an R&D team dedicated to leading-edge solutions like digital twin technology, ensuring a smooth transition and offering ongoing support after implementation.

With digital twinning specifically, making the most of your investment requires the right systems in place to deliver reliable data from the environment to the virtual model. A high-quality data infrastructure means that the digital twin is not only a dimensionally accurate representation of the physical asset or space, but also reflects the actual status or condition in real-time.

TwinOptix® is an asset and space management solution from Aramark backed by decades of experience solving complex facilities management needs, putting the power of digital twinning at your fingertips. It pairs with Aramark's leading remote monitoring [AIWX™ Connect](#) solution for confident and data-driven decision-making that improves overall efficiencies and reduces total cost of ownership.

We've entered the era of unprecedented data and insight into buildings' spaces, assets and operations. Never before has so much information been available. Now, it's time to leverage it for more efficient, effective and profitable facilities management.



twinoptix®

TwinOptix® provides actionable, data-backed insight into your facilities, transforming your operations. To learn more, contact us today.

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