

Doubling down: Digital twins in corporate real estate

Part 3 of a 3-Part Series



Following the overview of practical applications for digital twin technology within corporate real estate provided in [Part 1](#) and a deep dive into use cases for how digital twins can transform decision-making and streamline real estate operations in [Part 2](#), the final part of this series explores how corporate real estate teams can get tactical, bringing the vision to life within their organizations.

When introducing a digital twin into the broader real estate solution set, various operational and technical challenges can arise, including interoperability, security, and change management. However, when thoughtfully executed, it can be a differentiator for access to and the quality of strategic insights.





Digital twin maturity curve

As the scope of digital twins, integrations with adjacent applications, and broader analytics and insights engines continue to evolve, digital twins are increasingly empowering everyone from facilities managers to executive stakeholders. However, not all organizations are at the same starting point when planning for a digital twin solution. Below is a framework to help real estate teams assess their maturity and plan the next steps in adopting digital twin technology.

The digital twins maturity model framework consists of four stages, as shown in the table below.

	1 Basic monitoring	2 Advanced analytics	3 Dynamic optimization	4 Portfolio innovation
Data maturity	Collects and displays data from connected assets	Enables predictive maintenance for the assets using machine learning and historical data	Predicts asset performance, allowing for maintenance forecasting and capital planning	Leverages the cloud, edge, and 5G technologies to ensure scalability, security, and reliability
Insights	Provides fundamental insights and helps detect anomalies	Provides deeper insights into root causes and impacts of performance issues	Uses advanced algorithms and models to determine optimal settings and parameters for its assets	Enables scenario planning and simulation to evaluate different strategies and actions
Integration	Leverages a siloed data platform with limited integration with other real estate applications	Integrates data platform and some connectivity with other enterprise systems	Integrates data from various enterprise applications and platforms	Integrates data from external databases, third-party applications, and the public domain
Monitoring	Monitors assets' current state	Analyzes the performance of complex assets	Provides interactive and intuitive dashboards and interfaces for its users	Proactively adjusts the performance of equipment assets in real time

Each stage of the maturity curve offers different benefits and challenges for corporate real estate organizations. However, regardless of the stage, digital twin technology can provide significant advantages for real estate leaders regarding cost savings, operational efficiency, customer satisfaction, and environmental sustainability. To help highlight the different stages along the maturity model, let's walk through a theoretical digital twin evolution for an office building.

 Scenario 1: Basic monitoring	The digital twin, in its bare stage, can integrate with smart meters and sensors to track the energy usage and occupation of each floor and department, providing basic insights that can identify anomalies and inefficiencies.
 Scenario 2: Advanced analytics	The digital twin can now integrate with all major building systems, including historically offline equipment assets, such as fire alarms and elevators. Additionally, this stage often allows basic asset tagging information to be appended to the knowledge base, enabling preventative maintenance functionality.
 Scenario 3: Dynamic optimization	The digital twin is now mature and can automatically optimize the lighting and HVAC systems by leveraging weather and employee behavior data. The building management team can use in-depth data analytic tools driven by real-time data to make timely and informed decisions.
 Scenario 4: Portfolio transformation	Now, the scope of the digital twins is beyond a single building and can proactively influence the performance of the entire real estate portfolio. This industry-leading system can simulate multiple scenarios across various factors, such as market trends, tenant preferences, natural disasters, sustainability goals, and regulatory changes.

Recently, Deloitte supported a digital twin solution that combined multiple building management systems under one unified platform. As a result, facilities managers could oversee and optimize building operations in real time and centrally manage the portfolio. In addition to streamlining facilities management processes, the digital twin also enabled predictive insights to proactively identify issues before they occur, which improves employee experience. Lastly, the platform optimized energy usage across the portfolio, helping the organization reduce its costs and carbon footprint.

Critical steps in the digital twin journey

- 1. Data-collection pilot**—Begin with a single building or small collection of strategic locations that can serve as a testbed for digital twin implementation to understand real-world implications. Develop a phased approach to illustrate the potential for long-term portfolio efficiency. Then, install a set of basic IoT sensors within the chosen location(s) and create a centralized repository to store the data collected from the sensors. Ensure the data storage infrastructure is compatible with the digital twin platform you plan to implement.
- 2. Identify simple energy inefficiencies**—Utilize available software and tools to create initial virtual models of the building based on the data collected. These models should provide a basic representation of the building's structure and systems to analyze and identify "low-hanging" operational inefficiencies.
- 3. Spread awareness and train staff around digital twin technology**—Conduct training sessions to educate staff across departments and ensure that employees understand the fundamental principles of digital twins. A proper change management strategy spanning various functions, including IT, facilities management, and energy management, is essential to successfully implementing digital twins.

Digital twins has arrived

Integrating digital twins in corporate real estate marks a transformative shift in the industry, offering unprecedented opportunities to enhance efficiency, sustainability, and informed decision-making. By demystifying digital twin misconceptions and embracing the predictive and prescriptive functionality of the technology, digital twins position organizations at the forefront of the industry, ready to navigate the evolving modern real estate environment with agility and precision.

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