



eBook

# The Future Manufacturing & Industrial 4.0 Efficiencies



# The state of Industry 4.0 And how we deploy IIoT

We transform any physical space into a navigable, photo-realistic and dimensionally accurate digital replica. We give businesses the spatial data and insights to connect their buildings, services, and people. Get a feel for a floor plan, collaborate from afar, use the measurement tool or invite customers to your immersive showroom.

Capture, upload, experience. Capturing spaces can be done with a variety of proprietary Matterport cameras, our mobile app, and partner-enabled capture solutions.

Our immersive digital twins are powered by patented Cortex AI technology. This deep learning neural network builds precise digital twins at scale. It can automate 2D to 3D conversion, handle advanced image processing, recognize objects, and automatically label and classify spaces. With each capture, Cortex gets smarter and improves upon its precision.



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Our developer tools enable customers and partners to build amazing capabilities and custom add-ons to our platform. This means more value waiting to be unlocked and more innovations yet to be imagined.

## Business Challenge

To ensure profitability and stay competitive, Enterprise organizations everywhere are challenged with finding fast and easy ways to improve operational efficiency while simultaneously providing flexibility, agility, and scale. They're turning to digital twin technology for solutions.

Digital twins are built to enable remote access to facility operations, streamline planning decisions, and ultimately increase workforce effectiveness. Enriching digital twins with live data drives even more value, although this introduces complexities, as operational insights are derived from many different data sources within a facility, including sensors, SCADA, production systems, and business applications. However, companies who achieve this are able to view all relevant operational and spatial insights throughout their facilities in a unified user experience. These operational digital twins help companies optimize building operations, increase production output, and improve equipment performance, but creating comprehensive digital twins is notoriously costly and time-consuming.

Organizations need a solution that simplifies the primary challenges of digital twin creation: Capturing the physical space and converting it into a 3D model without spending too much time or money, and the ability to seamlessly integrate this model with the real-world system data.

## Solution Overview

The Matterport and AWS partnership allows customers to simplify the process of creating digital twins of real-world systems. By integrating Matterport with AWS IoT TwinMaker, customers can easily bind their operational and IoT data with Matterport models. The result is a visually immersive, interactive, and accurate 3D model of buildings, factories, industrial equipment, and operational data.

The integration of Matterport with AWS IoT TwinMaker provides a unique advantage over standalone services. Matterport offers the fastest and easiest method to capture physical spaces and convert them into detailed, dimensionally-accurate digital twins. AWS IoT TwinMaker provides methods for accessing and organizing data, then binding it to the respective assets within the Matterport digital twin. This comprehensive approach enables customers to accurately model real-world environments for remote visibility, in turn, increasing overall operational efficiency.

Furthermore, the Matterport and AWS IoT TwinMaker solution provides a single operational view into facilities so that dispersed teams can learn, collaborate, and respond to facility insights quickly and efficiently. Overall, the integration of Matterport with AWS IoT TwinMaker is the simplest way to create and leverage comprehensive digital twins.



### Remote Monitoring and Service Management

**Use-case:** Monitor equipment and operations from a centralized location. Enable the ability to manage remotely, prepare properly before going onsite, and give proper context to remote experts in case of escalation.

**Value:** Sustainability/save travel time. Efficiency gains from contextually informed decision making



### Predictive Maintenance

**Use-case:** Access real-time data on equipment performance to predict maintenance needs and efficiently conduct root-cause analysis, which results in increased equipment uptime and improves operational efficiency.

**Value:** Reduce equipment downtime and optimize production. Save cost by preventing more serious equipment maintenance/repair.



### Training and Onboarding

**Use-case:** Accelerate training and onboarding of new employees by providing immersive and interactive learning experiences within digital twins.

**Value:** Scale knowledge transfer globally and increase employee effectiveness and health and safety through remote training. More quickly ramp employees through immersive training experiences.



## Accelerating Design-Build Projects

Previously, staging a property was a time-consuming and expensive process, requiring agents to source and arrange physical furnishings to market properties. However, virtual staging solutions such as those provided by Matterport partner VRPM help overcome these challenges.

Through its virtual staging services, VRPM helps real estate companies think beyond sterile, empty spaces by using Matterport to create visually engaging and immersive virtual tours that help entice commercial clients to lease or buy properties.

“At VRPM we’re focused on making virtually staged spaces feel realistic, thoughtfully considered, and well-designed,” says Mike Merron, Founding Director of VRPM. “Seeing

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**MIKE MERRON**

Founding Director of VRPM



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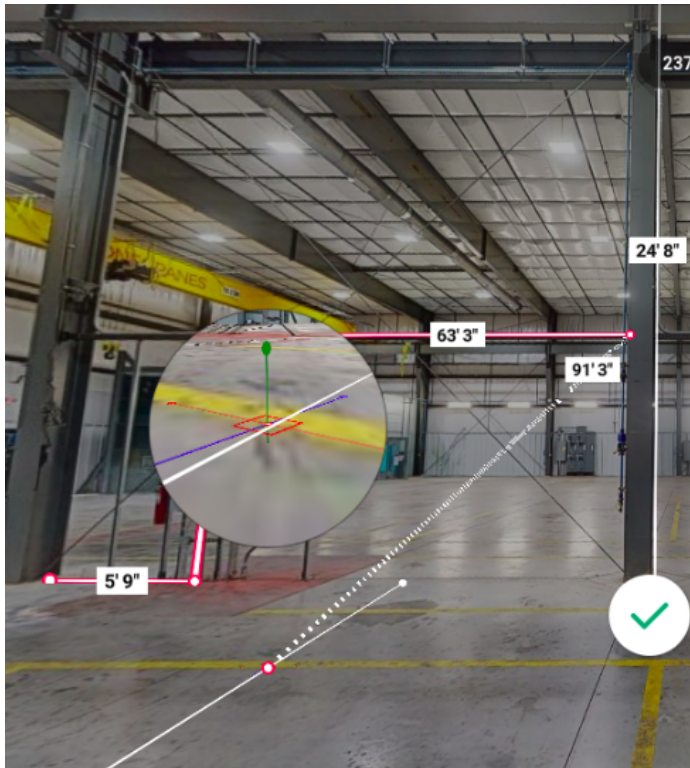




# The state of Industry 4.0 And how we deploy IIoT

AcuTwin | rX! partners with AWS and other APN companies to power end-to-end solutions for our customers. Reference the following solution packages for more details:

**Workforce Safety:** These solutions focus on the industrial workforce who operate in high-risk environments, such as construction, chemicals and hazardous goods manufacturing, industrial warehousing, and mining and minerals. By empowering immersive training and effective planning, companies can create safer operating conditions and better meet compliance and audit needs.



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**Connected Worker:** Focused on the communication and training challenges that customers face, AWS Connected Worker solutions mitigate errors and safety risks by providing workers with access to key metrics, enabling collaboration and facilitating immersive training. These features enhance skills, reduce errors and inefficiencies, and improve compliance with safety protocols while alerting workers to hazards in real time.

**Lean Daily Management (LDM):** Matterport and Siemens Mendix, in collaboration with AWS, have joined forces to offer a solution that aids plant managers by helping them understand progress, take corrective action, and ensure sustained improvements. This is achieved by providing data connectivity, analytics, and visualization capabilities for contextualized information and workflows that initiate corrective and preventive action.

# The current state manufacturing and proptech

Although the office market is facing its highest vacancy rate in recent decades, that doesn't mean the days of the physical workspace are over. Instead, the traditional concept of the office is receiving an upgrade.

However, leaders aren't only facing workers' evolving expectations. New market realities must also be addressed, including environmental, social, and governance (ESG) concerns, growing competition, and a tightening labor market.

Employers are considering cost-effective locations while also providing added amenities like customizable spaces, real-time workplace information, and interactive maps, helping employees navigate campuses while reconnecting with one another.

In the months ahead, the value of a property won't be defined by its size or location, but instead by its ability to combine the power of infrastructure and technology-driven solutions.





# Capturing operational efficiencies

Digital twins offer property owners deeper insight into not just what a space looks like, but also grant the visibility needed for an accurate scope of work and more effective coordination with contractors. This saves time and resources while ensuring every property feels cohesive.

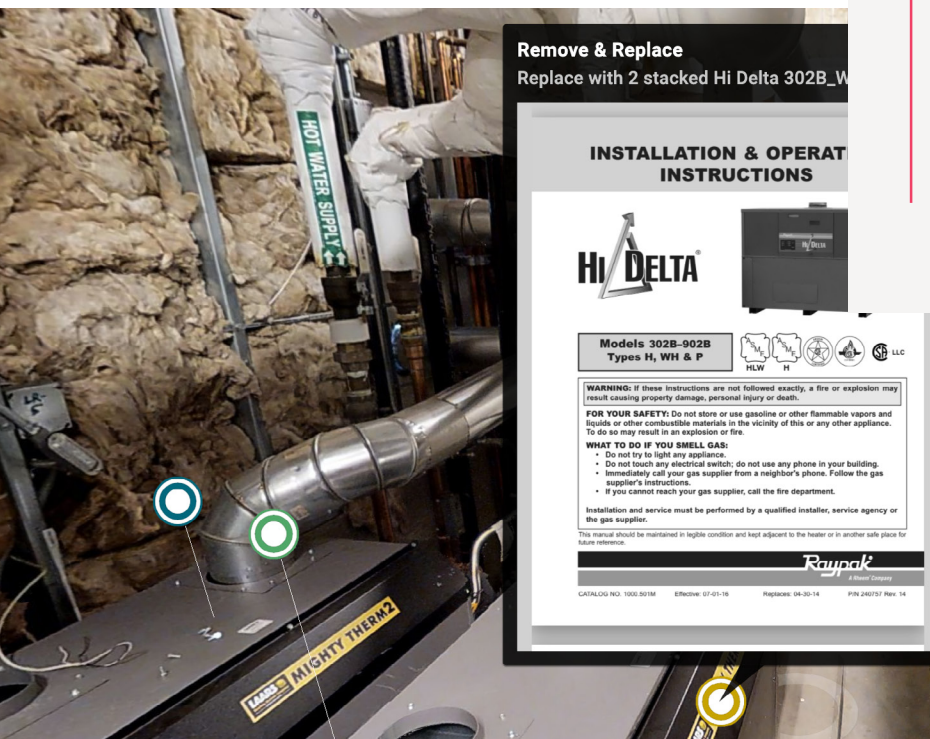
ID Plans is a commercial real estate software and services company that prides itself on serving some of the largest real estate investment trusts in the United States and to small- and medium-size property owners.

Allowing prospective tenants to virtually tour a commercial space is only the beginning. ID Plans uses Matteredtags to embed additional information about the assets it captures, such as HVAC units, service panels, and electrical meters. Information is embedded in the digital twin and can be accessed with a click of a button by any person

who needs it: landlords, prospective tenants, property managers, construction managers, architects, insurance adjusters, and property inspectors.

There are benefits on the operations side too. After a lease is signed, property owners need to get the tenant into the space, and there's a lot of planning, construction, and coordination involved. ID 360 and Matterport help owners get accurate bids and help contractors efficiently plan construction projects and get the right measurements and the right tools. Projects are completed more quickly and at a higher quality with less need for expensive rework. "Having real information and vivid imagery that's up to date and interactive is priceless," says Jordan Hearin, Chief Product Officer at ID Plans.

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## Building for optimized operations

Before office and retail tenants ever occupy a new space, they need to ensure operational readiness and address any issues that could arise as foot traffic returns.

ARUP Global, a design-led architecture practice, leverages technology and an analysis-led approach to optimize construction of all types, including the refurbishment of existing buildings. Using progression documentation with Matterport, ARUP project leads are identifying and addressing issues earlier than ever before.

“Sharing the Matterport 3D model with employees or tenants ensures they are operationally ready to occupy and operate the space from day one,” says Farbod Mehr, Senior Technology Consultant at ARUP.

Using digital twins to understand how end-users will interact with a space before it's ever occupied allows for properties to be built or refurbished with operational readiness as a top priority.

**ARUP**





# The next steps for 4.0 Transformations

The demand for better-equipped and dynamically designed facilities is on the rise. Now more than ever, industry leaders need to invest in a transformative digital strategy as we prepare for what the future of work may look like.

Digital twins are the key to fulfilling the demand for spaces that are more efficient, sustainable and mindful of social distancing while still creating an engaging environment. They offer capabilities such as interactive virtual walk-throughs as well as the tools to better design, plan and build optimized spaces catered to evolving consumer demands.

By investing in a transformative digital strategy and Digital Twin technology, manufacturing facilities can capture new efficiencies, advantages and succeed today and in the future.

**CONTACT AcuTwin LLC**

## About Our Platform Partner

Matterport is the industry leader in 3D capture and spatial data with a mission to digitize and index the built world and advance the way people interact with the places they inhabit and explore. Matterport's all-in-one 3D data platform enables anyone to turn a physical space into an immersive digital twin and share it with others to connect and collaborate in 3D, radarte.ch develops innovations and API's to best utilize this digital asset.

**radarte.ch | radarx.ai | radarx.eth**

A commercial partner of the Matterport platform has helped companies realize the full potential of a space at every stage of its life-cycle including planning, construction, appraisal, marketing, and operations. The company has been serving the real estate and photography industry since its inception and is also being adopted by major brands in architecture, engineering, construction, facilities management, insurance, restoration, retail, travel, and hospitality. Learn more at **radarx.ai** Or contact your regional office today at **info@AcuTwin.com**

