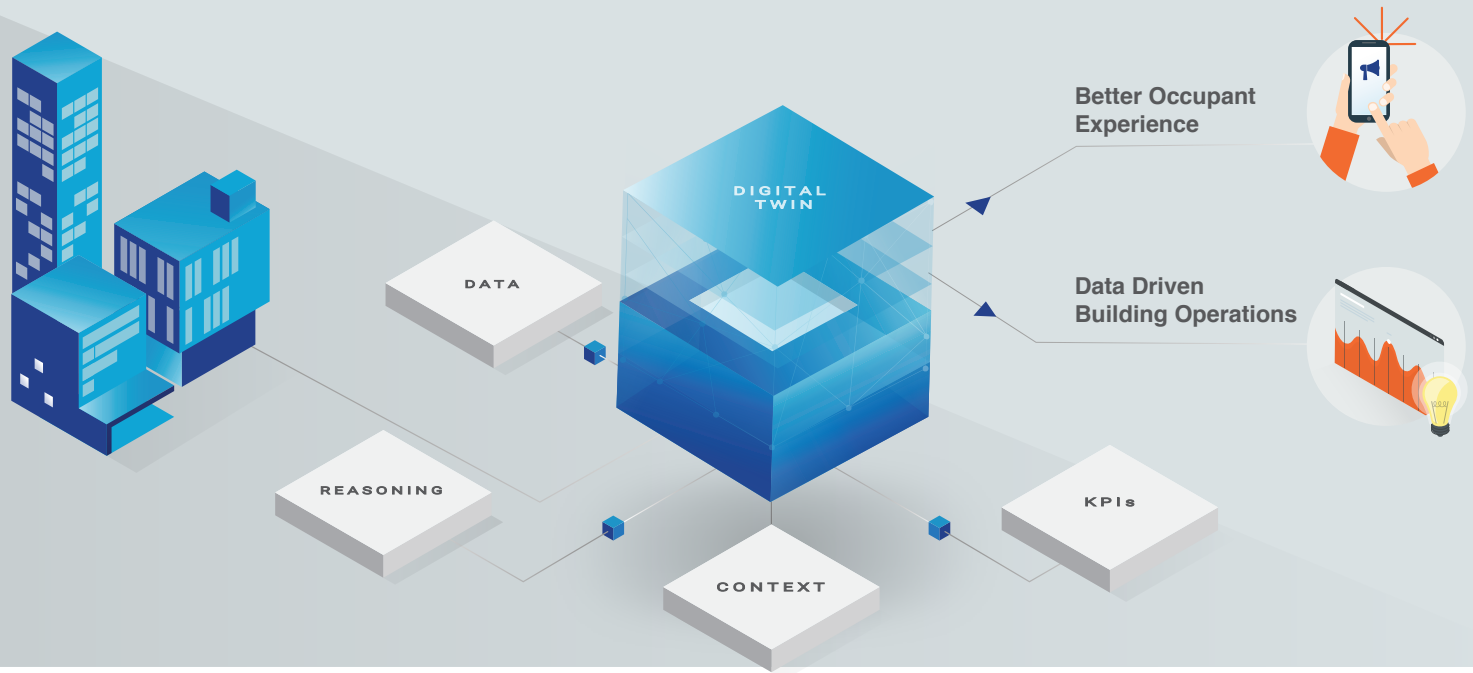


Bring your built environment to life with ThoughtWire's Digital Twin



ThoughtWire's Digital Twin is powered by our proprietary super fast in-memory graph database so you can work in real-time.

Not simply a digital mock-up of the physical environment, our Digital Twin is the contextual model of an entire organization and its operation. It's the data from your subsystems and the real-time interaction between people, process and connected things. ThoughtWire's Digital Twin powers your most important outcomes – improving building operations and enhancing the workplace experience.

The Challenge

Today, the data environment of built environments is incredibly siloed. Data repositories for operational information, financial data, and tenant applications lack any meaningful integration. In addition, the proliferation of data generated by IoT devices has further exacerbated the problem. Organizations want to be more data-driven and less siloed but lack the tools to derive meaningful insight from their disparate data sets.

The Solution

A new way of modeling, managing and actioning data from the built environment – ThoughtWire's Digital Twin

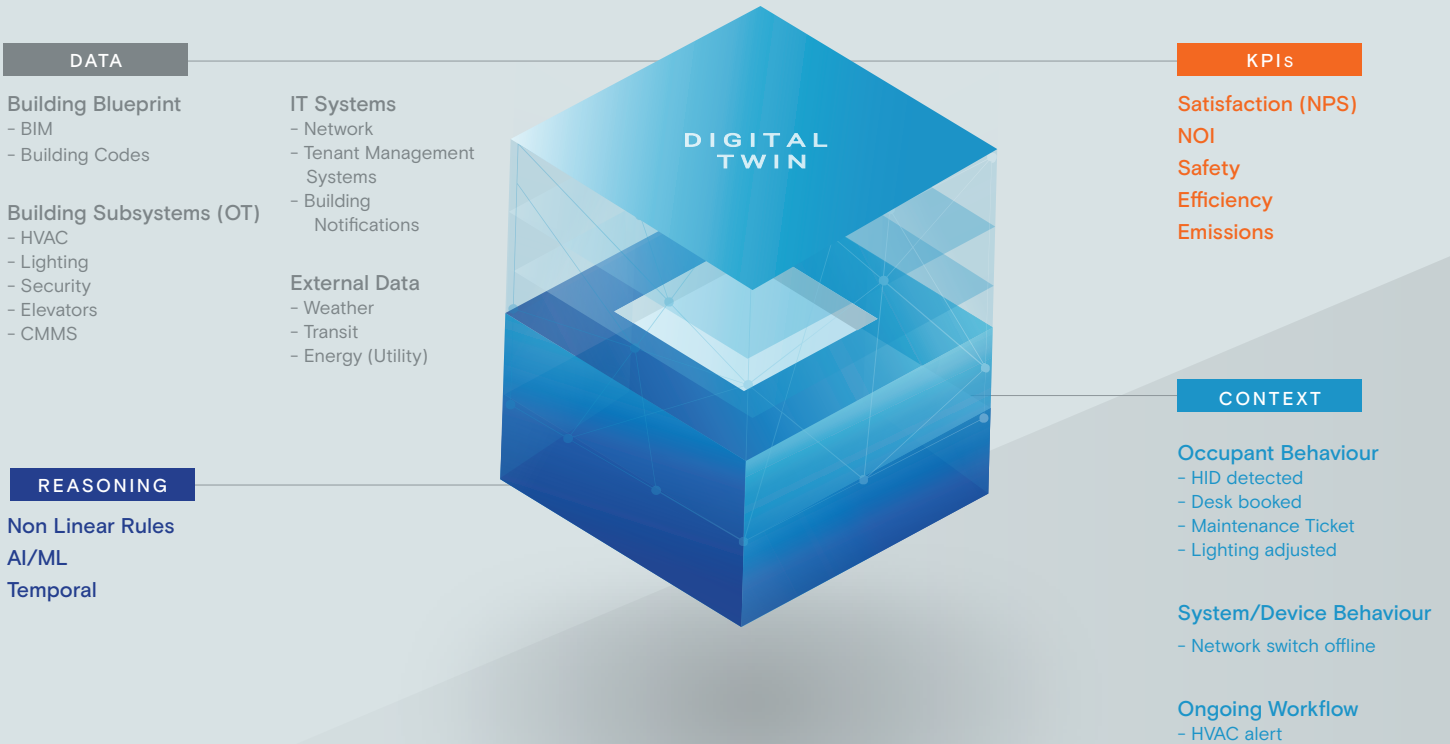
Solve the challenges of real-time data processing by bringing together data from IT and OT systems, IoT sensors and third party data in a contextual representation of your built environment.

Benefits

- Remote visibility and control
- Respond faster to occupant needs
- Understand how occupant behavior impacts operations
- Real-time, historical, and predictive state of assets
- Automated intelligent workflows that give the right information to the right people at the right time
- Understand the impact of issues or outages in real-time

Building a real-time, context aware engine to power the future of connected buildings

ThoughtWire's Digital Twin is a graph based semantic model that captures real-time context in order to drive action. By capturing data about people within the built environment, it's various workflows, and events external to the built environment, you are able to understand the complexity of an assets operation unlike ever before. This model unlocks an organizations ability to understand the complex relationships that exist between people, process, the environment itself and how they all impact the business state of an organization.



Enabling the Digital Twin requires:

Data from across the entire built environment. From people, processes, connected devices, operational building systems, IT and even external information like weather or transit feeds.

Context is all the real-time information about the actual state of the environment, what actions occupants take, the behaviour of devices, and the state of all workflows.

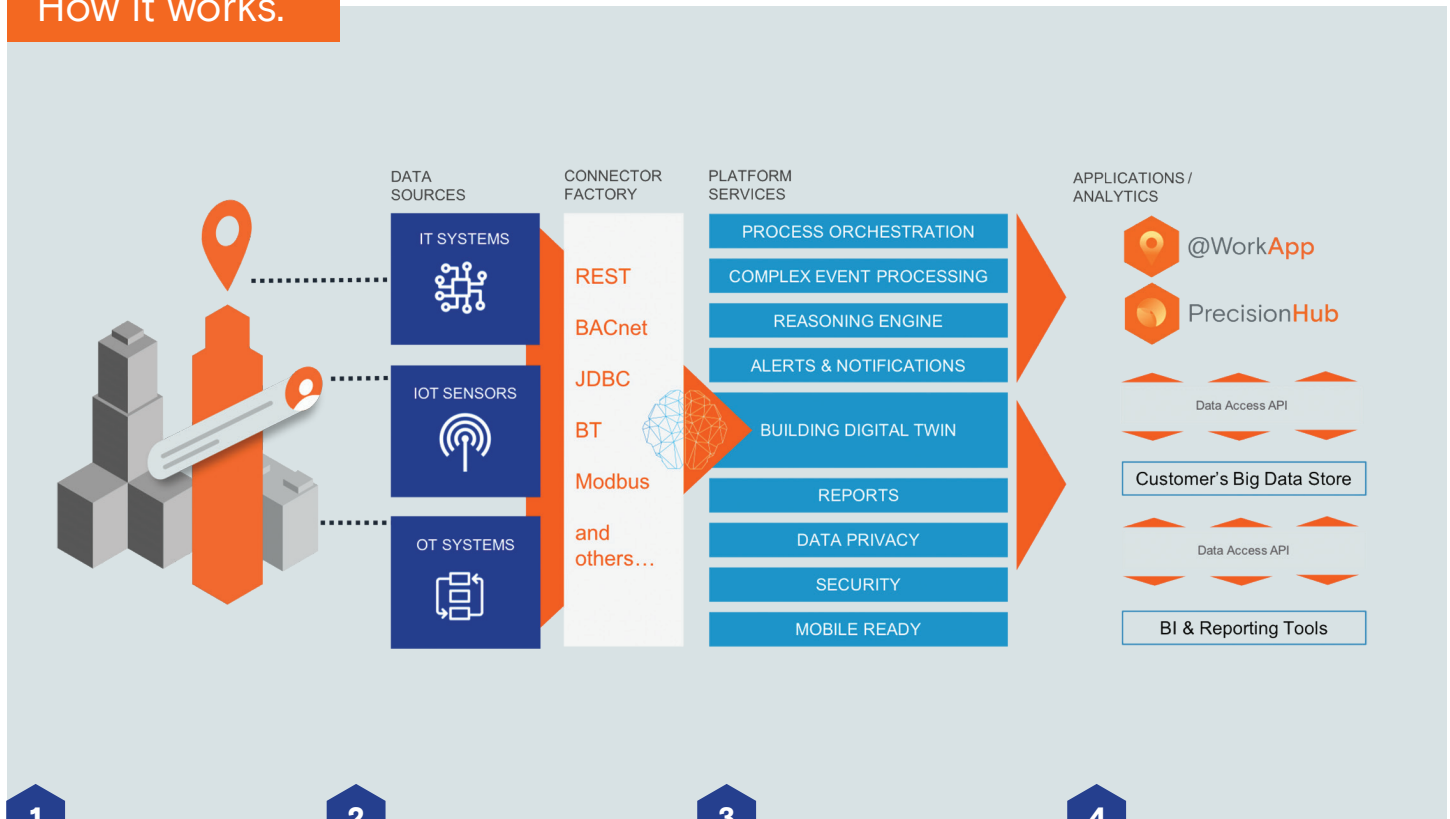
Reasoning is applied to data to drive action. Asynchronous rules processing, Machine Learning models, and AI. Most commonly reasoning applied to data is based on asynchronously processed rules, AI or Machine Learning models, and temporal reasoning when dealing with varied frequency of events.

KPIs give meaningful business context to the Digital Twin. KPIs are a critical design element of our Digital Twin to align stakeholders on objectives and performance measurement.

Why use graph technology?

Graph databases are tuned for creating context-rich and highly complex models. ThoughtWire's proprietary graph database is tuned to high speeds in order to handle the data frequency and variety of IoT or connected environments. To sift through the volume of signals to pinpoint the relevant information from a vast array of noise.

How it works.



- 1** Utilize pre-built connectors in the Connector Factory to Map data from sources like IoT devices, building control systems, IT systems, and people to our semantic graph model

Connector Factory is our proven connectivity layer that orchestrates pre-built connectors to simplify and streamline integration and communication with a wide variety of protocols including:

BACnet, Modbus, Telnet, JDBC/ ODBC, RESTful, SOAP, File-based connectors such as CSV, XML, JSON and more...
- 2** Dynamically build a graph of meaningful information from these data sources using formal semantics – Digital Twin

Formal semantics serves as a universal translator for multi-nodal subsets of data. Taking data collected via the connector factory and describing the information independent of the source system but keeping the meaning unambiguous.
- 3** As graph changes (more data is added) rules are triggered and asynchronously processed when these new states are recognized

Asynchronous processing allows relevant information to be delivered to the end user as it's available rather than a pre-defined set of rules that orders the information ahead of time.
- 4** Evolve the understanding of this new state or information by interacting with external systems to further analyze for more context or trigger actions to respond to changes

Continuous learning means as more data becomes available the Digital Twin becomes smarter. The value of the DT increases as more data is added, over time it enables a self-tuning environment that learns from its past, present and potential future state, to deliver the most optimal environment according to the KPIs defined by business stakeholders.

Digital Twin unlocks real business outcomes with **PrecisionHub** and **@WorkApp**



PrecisionHub

Get full visibility into a building's end-to-end operations and complete command and control over operations. In real-time. From anywhere. PrecisionHub is a single source of truth for building operations, it enables automation of tasks like load shed and building lockdown and visibility into alerts and notifications.



@WorkApp

Give occupants control over their space and remove productivity killers from their day. Occupants can book meeting rooms, submit tickets, access their building and much more. Understand your tenants behavior like never before and respond faster to their needs.

About ThoughtWire

ThoughtWire is the leader in Operations Performance Management (OPM) software applications for built environments, helping hospitals and commercial buildings operate smarter, safer and healthier. ThoughtWire's innovative applications empower built environments to connect previously unconnected systems, unlock high-value outcomes for patients and tenants, and put people in control of process change and optimization. For more information on ThoughtWire, visit www.thoughtwire.com

Contact us today

See what a Digital Twin can do for you and the people in your facility.



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