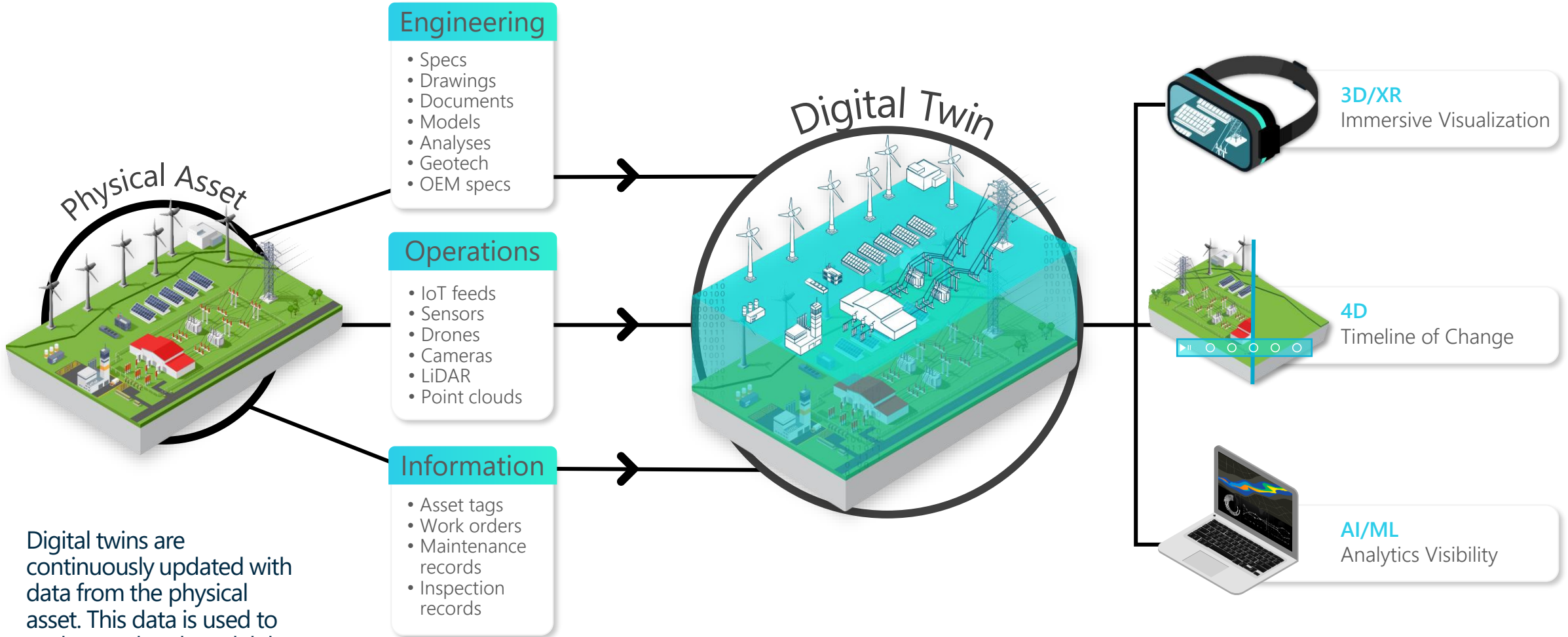# iTwin Platform Overview

Bentley®

iTwin® Platform

Why Digital Twins?

Digital twins enable you to visualize the asset, track change, and perform analysis to better understand and optimize asset performance.

Physical Asset

Engineering
- Specs
- Drawings
- Documents
- Models
- Analyses
- Geotech
- OEM specs

Operations
- IoT feeds
- Sensors
- Drones
- Cameras
- LiDAR
- Point clouds

Information
- Asset tags
- Work orders
- Maintenance records
- Inspection records

Digital Twin

3D/XR
Immersive Visualization

4D
Timeline of Change

AI/ML
Analytics Visibility

Digital twins are continuously updated with data from the physical asset. This data is used to understand and model the asset's performance.

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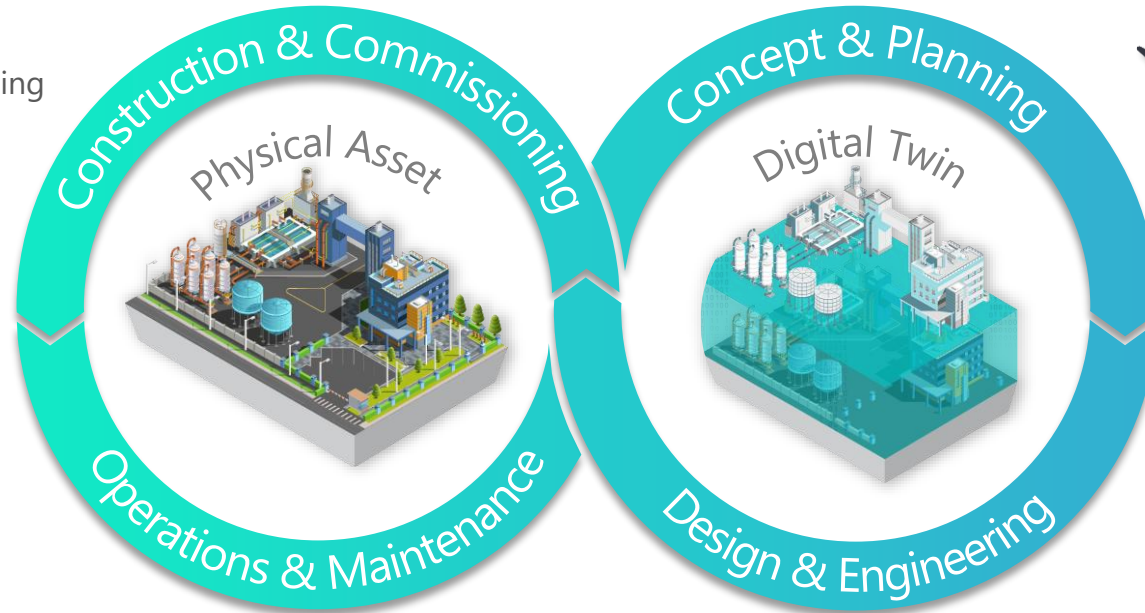**Bentley®**

Digital Twin Solutions

Digital twins enable you to visualize the asset, track change, and perform analysis to better understand and optimize asset performance throughout the entire asset lifecycle.

- 4D construction modeling
- Simulate logistics
- Track progress / status

- HSSE training
- Operator training

- Remote inspection
- Leak detection
- Corrosion detection

- Maintenance planning
- Shutdowns
- Verify before execution

Construction & Commissioning

Physical Asset

Operations & Maintenance

Concept & Planning

Digital Twin

Design & Engineering

- Site survey
- Reality capture

- Stakeholder engagement
- Planning and visualization
- Design collaboration

Forecast *26.4% Compound Annual Growth* in the use of Digital Twins for the Built Environment and Construction through 2026 - *Frost & Sullivan*

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iTwin® Platform

iTwin platform provides the foundation for creating infrastructure digital twin solutions enabling Bentley, engineering firms, strategic partners, integrators and independent software vendors to bring digital twin solutions to market.

The platform takes care of back-end concerns such as security, infrastructure, and data integration so that developers can focus on bringing solutions with digital twin business value and workflows to market faster.

iTwin Platform APIs

Services for building iTwin Powered apps targeting Infrastructure Digital Twins workflows

iTwin.js

Open-source libraries to create and visualize Infrastructure Digital Twins

iTwin Extensions

Pre-packaged libraries to expand the capabilities of iTwin Powered Applications

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Disparate Data

Engineering Data
2D, 3D & 4D Design Models,
Drawings, Analysis, Specs

Reality Data
Photos, Videos,
Points Clouds

Sensor Data
IOT, IIOT, Other Time Series

Enterprise Data
APM, ERP, EAM, ALIM

Geospatial Data
GIS, Maps, Terrains, TINs

Geotechnical Data
Soil boring logs,
Foundations, Compliance

Schedule Data
4D Schedule integrated
with models

Other Data
Open & extensible
For integration with
Data sources

iTwin Platform
PaaS Services and Open-Source Software Components

SCHEDULE   OTHER DATA

ENGINEERING   REALITY

ENTERPRISE   SENSOR

GEOTECHNICAL   GEOSPATIAL

iTwin
Infrastructure Digital Twin
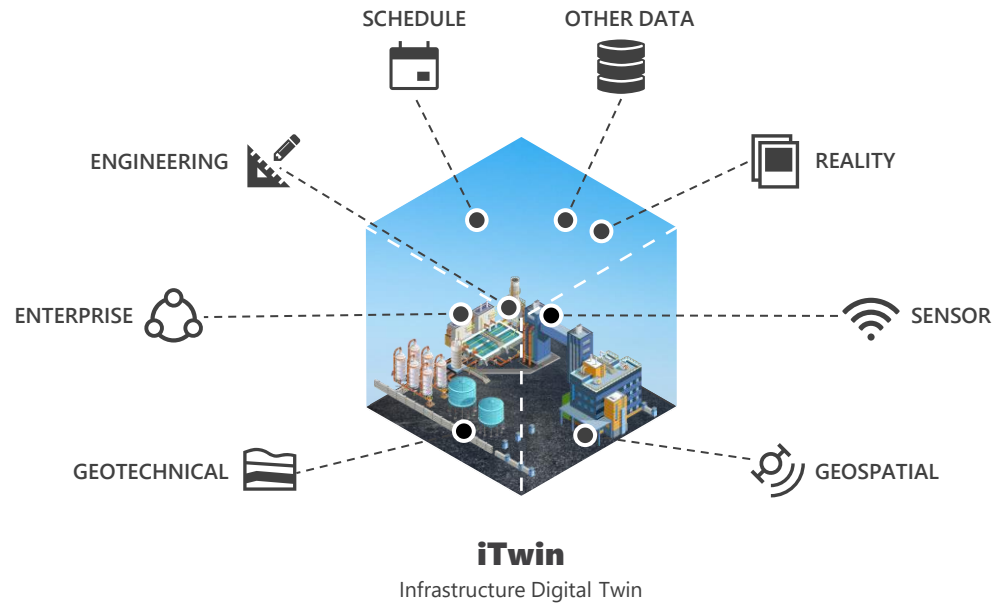
You Develop

YOUR OWN APPLICATIONS
Powered by iTwin

🖥 Web, Desktop & Mobile Apps

Ⓤ Unreal Apps

◁ Unity Apps

Application Extensions

Automated Workflows Agents

EXTEND BENTLEY APPLICATIONS*
You leverage the same platform
that Bentley uses for its own
Powered by iTwin applications.

Your extensions can run in
these apps, and others' extensions
can run in your apps.

PlantSight

Synchro

Design Review

OpenCities

Support for extensions coming soon

CONNECT

Spatial Alignment

Semantic Alignment

Continuous Synchronization

ENHANCE

✓ Validation   ⊕ Augmentation

👁 Object Recognition   🕘 Change History

Data Transformation   Indexing

LEVERAGE

Visualization   ⓘ Query   Data Integrations & Export

Simulations   🔍 Search   🔔 Sensor Dashboards & Alerts

Events   Reporting & Analytics   Query / Visualize Change History

Digital Twin Management

Access and integrate data from b...

Learn more...

iModels

iModels

Coordinate concurrent acces...
iModels and track the timelin...
engineering changes.

v1 ▾

Overview

Tutorials

Samples

Reference

> Baseline Files

> Briefcases

⌄ Changesets

POST	Create iModel Changeset
GET	Get Changeset Checkpoint
GET	Get iModel Changeset
GET	Get iModel Changesets
PATCH	Update iModel Changeset

> Locks

> Named Versions

> Permissions

> Thumbnails

> Users

> iModels

Release notes

Tutorials

5 min

Create an empty iModel

Walk-through how to create an empty iModel which later can be used for synchronization.

10 min

Create iModel Named Version

Walk-through how to create a new Named Version within existing iModel.

20 min

Synchronize a file from iTwin Storage

Walk-through how to synchronize a file from iTwin Storage to an iModel using Synchronization API.

20 min

Export data from an iModel

This tutorial guides you through exporting data from an iModel to other formats, such as IFC or...

See all tutorials

Administration

Manage the users, projects, and...
iTwin. Learn more...

Projects

Manage projects associated w...
your iTwin.

Reality Capture

Convert photos into high resolut...
orthophotos. Learn more...

ContextCapture

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What are developers building with the iTwin Platform?

iTwin® Platform

What are developers building with iTwin Platform?

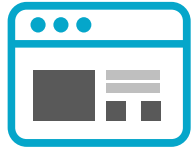**Connectors**
Align data and detect changes

Agent
Subscribed to iModelHub events

Front-End Extension

Interactive Web Frontend

Interactive Web Backend

Native Application
(Frontend + Backend)
Desktop/Mobile

Integrations with Game Engines
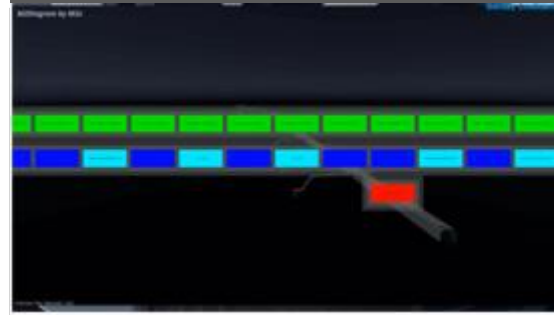
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P&ID Validation

Mobile Inspection

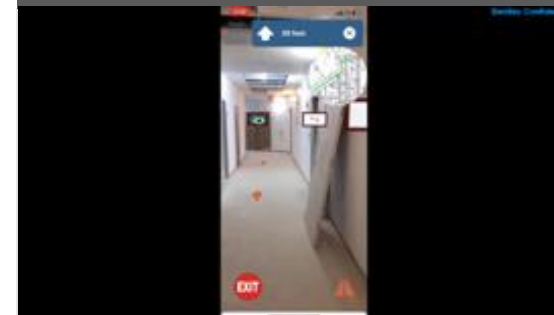Smart Building

Thermal Efficiency

Element Association

Indoor Navigation

Traffic Reporting

Leak Reporting

Climate Simulation

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