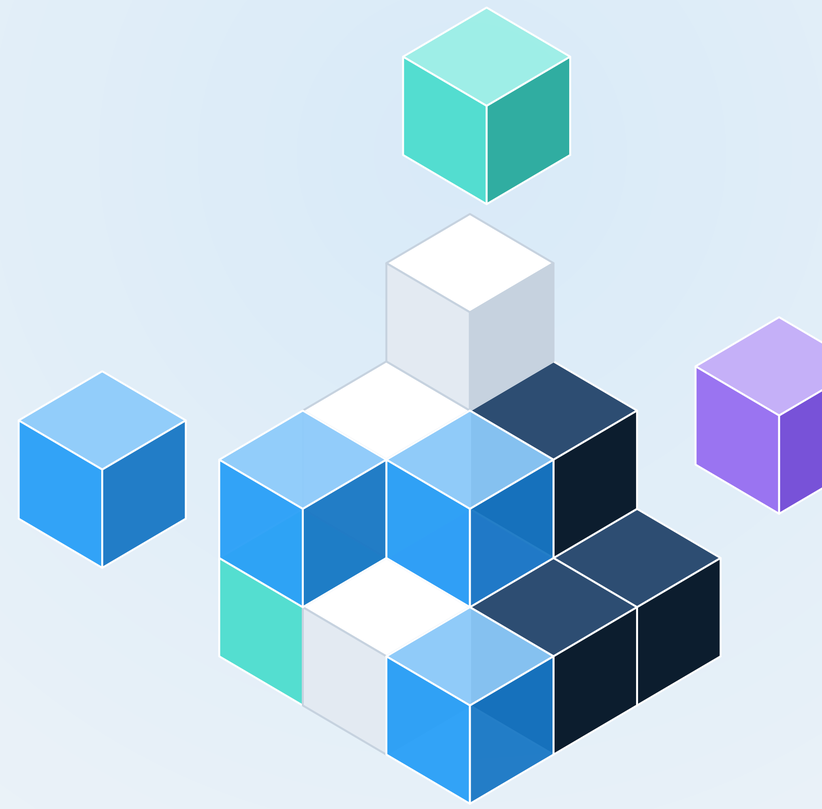
DIGITAL OPERATIONS

Digital Twin vs Simulation



A digital twin is a virtual model kept in sync with a real asset through live data. A simulation runs a model on assumptions to explore scenarios that may not exist yet.

01 THE CORE MODEL

SIDE-BY-SIDE MODELS · LIVE VS SCENARIO

Digital twin
Synchronized with reality

Physical line → Live data → Virtual model → Insight back to the line

Runs continuously
mirrors the real asset

Simulation
Driven by assumptions

Assumptions → Model → Scenarios A, B, C → Design decision

Run on demand
answers what-if questions

Digital twin
A virtual model kept in sync with a real asset through live data.

Simulation
A model run on assumptions to test scenarios that do not exist yet.

Fidelity
How detailed the model is; match it to the decision, not to ambition.

02 WHICH ONE WHEN

Simulate to design; use a twin to operate and improve what exists.

SIMULATION — DIGITAL TWIN

SIMULATION FITS

- \+ New layouts and capacity planning
- \+ Testing rules before changing them
- − Accuracy depends on the assumptions

DIGITAL TWIN FITS

- \+ Monitoring and predicting real assets
- \+ Testing changes on a live replica
- − Needs reliable, continuous data

03 WORKED EXAMPLE

INTRALOGISTICS SYSTEM · USING BOTH OVER ITS LIFE

DESIGN	BUILD	OPERATE	IMPROVE
Simulate layout	**Option B installed**	**Twin with live data**	**Test new rules**
three conveyor options	chosen on throughput	shows real throughput	in the twin, then live

04 MANAGEMENT TAKEAWAYS

01 — Name the decision first
A model is only as useful as the question it answers.

02 — Validate against reality
Compare model output with measured data before trusting it.

03 — Reuse models
A design simulation can become the basis of a later twin.

05 COMMON MISTAKE

LIMITATION

Calling every 3D model a twin
A visualization without live data and feedback is not a digital twin.