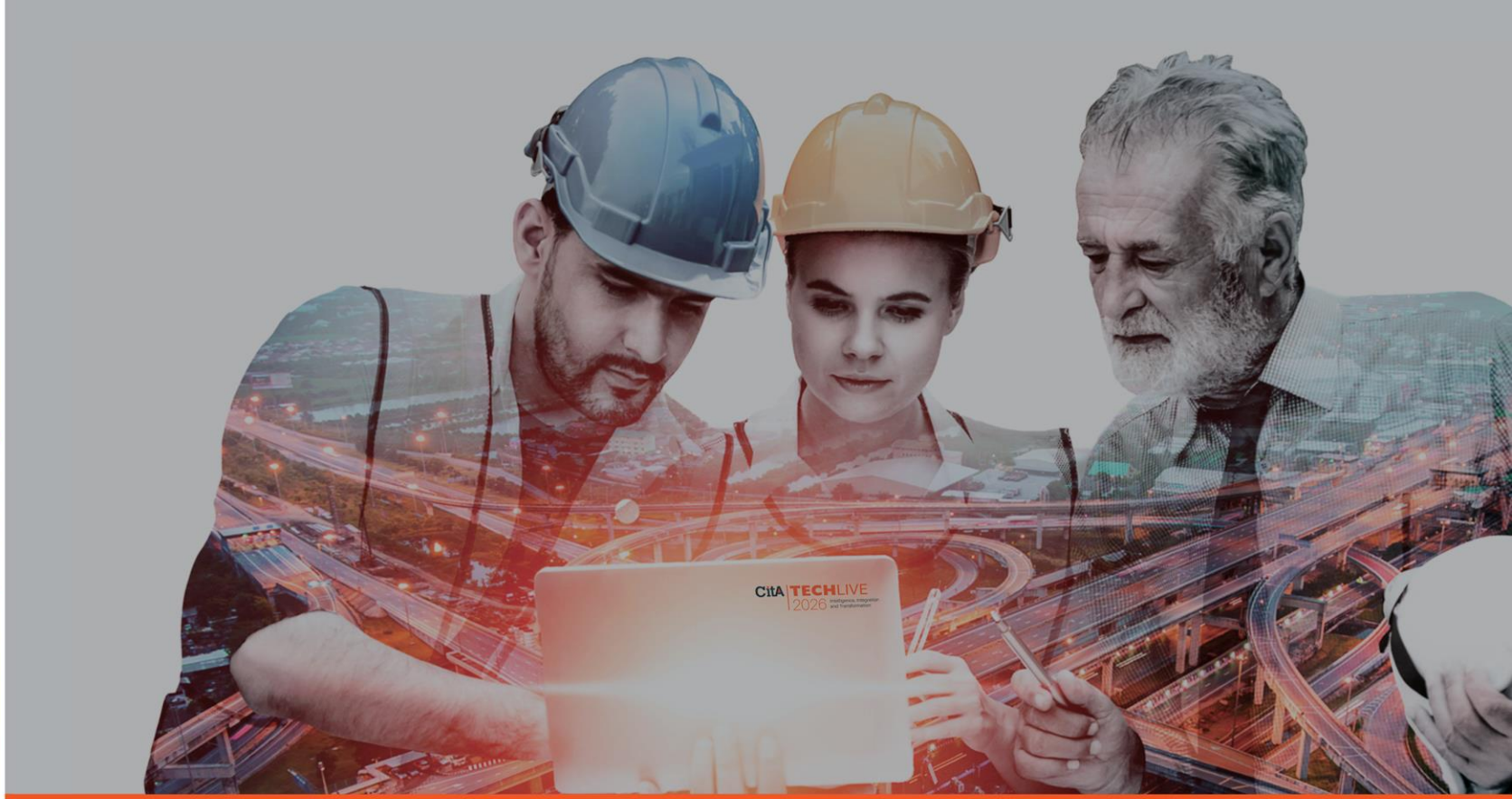
CitA | TECHLIVE 2026

Intelligence, Integration and Transformation



Dexcom Stadium, Galway,
12th November 2026



Shaping the Future of Construction

Sébastien Cliche

Technology & Innovation | Tetra Tech

Beyond the Headset

Reality Capture | BIM | Spatial Awareness



THE CHALLENGE

Using BIM software is not the same as understanding a building.

At human scale, a different set of questions emerges:

01 Where can a person stand?

02 How can a system be installed?

03 Can equipment be maintained?

Spatial judgement is an engineering skill — not a headset feature.



FROM PHYSICAL CONDITIONS TO DECISIONS

One connected workflow. Two outcomes.

Capture → ReCap & mesh → reconstruct in Revit → coordinate → review in XR → close the loop.

01
CAPTURE
Site conditions

02
RECAP
Register + mesh

03
RECONSTRUCT
Prevu3D → Revit

04
COORDINATE
Revit + NWD

05
WORKSHOP XR
Experience at 1:1

06
FEEDBACK
Issue + update

PROJECT REVIEW
Resolve constraints and track the decision.

ONBOARDING (PROPOSED)
Use the same scene to practise spatial reasoning.

Illustrative sequence. Scan-derived mesh and Revit reconstruction require a validated handoff.



REALITY-CAPTURE HANDOFFS

A point cloud is not an immersive model.

Use point clouds for reference, and reconstructed geometry for coordinated review.

ROUTE A / AUTHORING REFERENCE

ReCap
registered scan

–

RCP / RCS
indexed point cloud

–

Revit / BIM
measured conditions + proposed design

ROUTE B / SCAN TO MESH → REVIT RECONSTRUCTION → XR

Scan-to-mesh
captured geometry

–

Revit reconstruction
by Prevu3D

–

Navisworks → XR
publish NWD / Workshop XR

Key check | Reconstruction is a separate step. Validate geometry and coordinates before publishing to Workshop XR.



WORKFLOW / AFTER SCAN-TO-MESH / ELECTRICAL ROOM

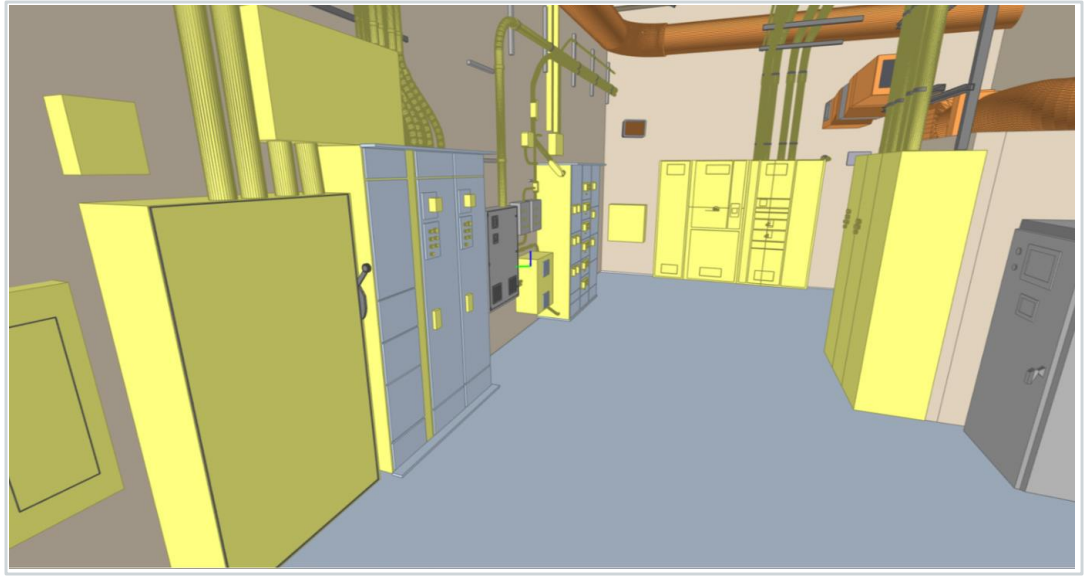
From captured reality to a Revit model.

Reconstructed equipment and space can be reviewed in the engineering model.

CAPTURED EXISTING CONDITIONS



REVIT MODEL RECONSTRUCTION



Revit model reconstruction credited to Prevu3D

Presenter-supplied project imagery



WORKFLOW / AFTER SCAN-TO-MESH / MECHANICAL AREA

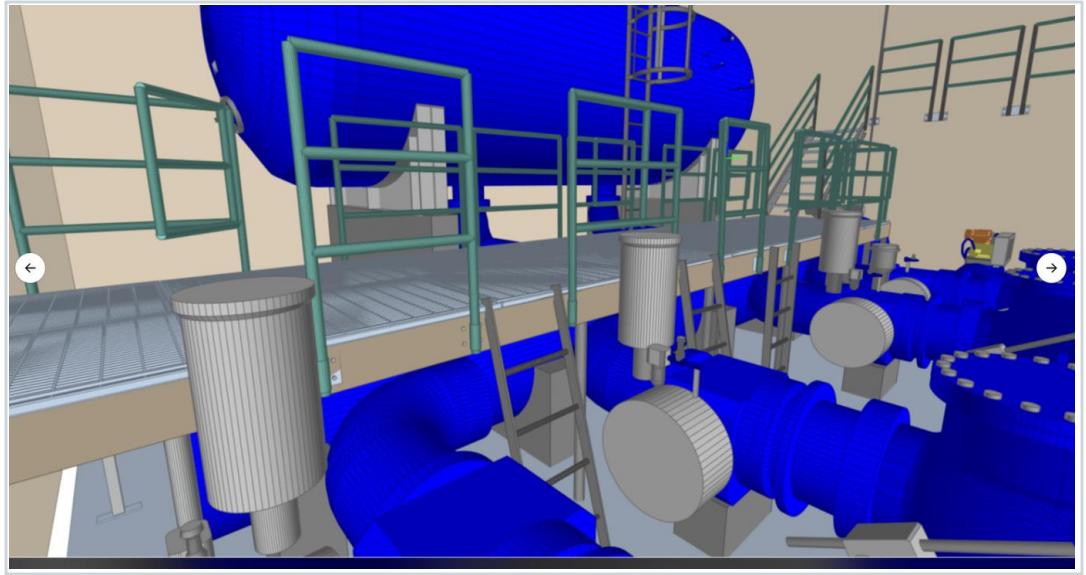
Rebuilding complex mechanical spaces in Revit.

Captured piping, platforms and equipment become easier to coordinate at full scale.

CAPTURED EXISTING CONDITIONS



REVIT MODEL RECONSTRUCTION



Revit model reconstruction credited to Prevu3D

Presenter-supplied project imagery

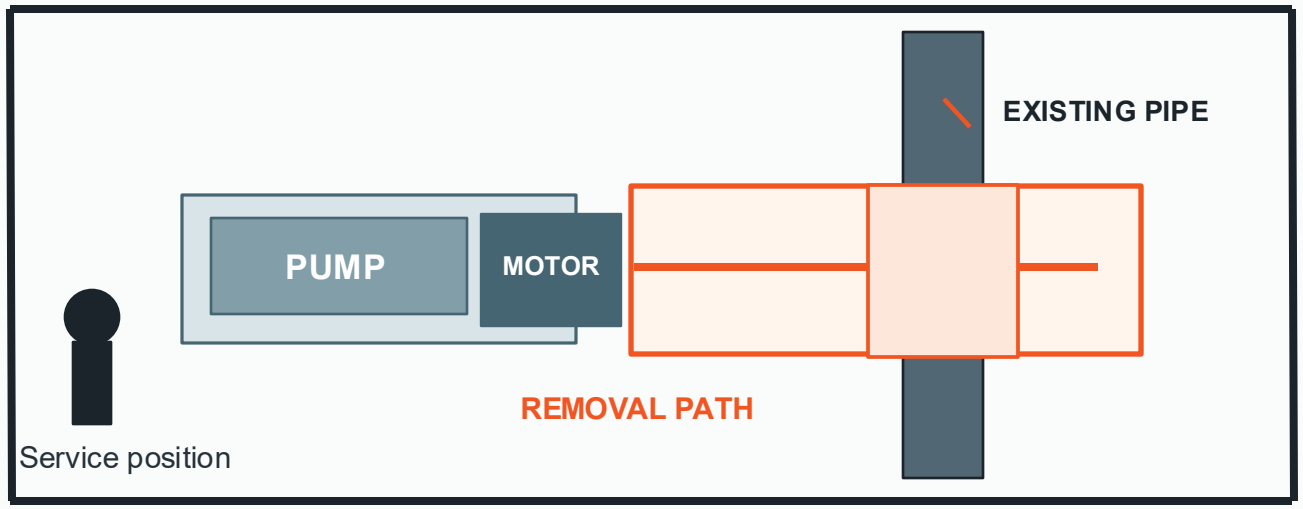


MECHANICAL-ROOM RETROFIT — ILLUSTRATIVE

It fits in the model. But can it be serviced?

A replacement pump passes the footprint check; the motor-removal path crosses existing pipework.

PLAN VIEW / SCHEMATIC



WHAT THE MODEL SHOWS

The proposed pump appears to fit in plan.

WHAT IMMERSION REVEALS

Human-scale access and removal become the review question.

WHAT ENGINEERING MUST CHECK

Manufacturer clearances, sequence and the installing trade's input.

Illustrative example — not a reported Tetra Tech project outcome.



A useful review ends with a decision.

One scene. Three perspectives.

DESIGNER

Does proposed geometry align with measured conditions?

INSTALLING TRADE

Can equipment reach its final position safely and practically?

OPERATIONS

Will there be room to inspect and remove equipment later?

THE CLOSED LOOP

Review in XR — Capture the issue — Update source BIM — Republish and verify

If the finding never reaches the project information environment, the loop is not closed.



PROPOSED ONBOARDING EXTENSION

Teach recruits to see the building.

Reuse an approved project scene in a mentor-led learning exercise.

01

PREDICT

From a plan, where will someone stand or reach?

02

EXPERIENCE

Explore space and system relationships at 1:1.

03

EXPLAIN

Describe the constraint and its consequences.

04

VERIFY

Check the evidence and next action with a mentor.

Success: the recruit can explain the constraint after leaving the headset.



PROPOSED LEARNING PILOT

Measure spatial reasoning, not headset time.

A 20-minute mentor-led exercise — separate from this 15-minute conference talk.

0–4 MIN	4–12 MIN	12–17 MIN	17–20 MIN
BASELINE	**GUIDED XR**	**TRANSFER**	**TEACH-BACK**
Plan + desktop model	Inspect the same condition	New, unfamiliar area	Explain and propose
What can they locate?	What do they notice?	Can they reason alone?	What evidence is needed?

Score independently

Orientation & scale	System tracing	Access reasoning	Clear explanation

Compare against equally mentored desktop training; keep a non-headset participation route.



TAKE THE WORKFLOW BACK TO YOUR TEAM

Beyond the headset: four commitments.

01

CAPTURE

Use controlled reality data to anchor the discussion.

02

COORDINATE

Keep design intent, model revisions and control aligned.

03

EXPERIENCE

Review access, installation and maintenance at human scale.

04

DEVELOP PEOPLE

Use a mentor to build and test spatial judgement.

We should not only teach recruits to create models.
We should help them understand the buildings those models represent.



Thank you.

Sébastien Cliche | Tetra Tech