NavVis

GUIDE TO HYPERSCALE DATA CENTER DELIVERY VISIBILITY

FROM CONSTRUCTION VERIFICATION TO EXECUTION CONTROL

Executive Summary

This guide outlines how hyperscale programs can:

- Reduce rework risk before installations become permanent
- Align QA/QC and progress tracking through a unified site data layer
- Strengthen delivery visibility across field execution, commissioning, and capital milestones

Verification Alone Does Not Protect the Schedule

On hyperscale data center projects, delays rarely originate from one dramatic failure. They accumulate quietly through coordination gaps that surface too late — after installations become permanent and correction grows expensive.

Traditional construction verification answers a single question:

Is this installed correctly?

For construction and delivery leadership, tolerance validation alone is no longer sufficient.

Clarity is needed on:

- What is installed
- What is missing
- What is within discipline-specific tolerance
- What becomes irreversible tomorrow

On large-scale projects operating 5–15 active work areas simultaneously, milestone-only verification and manual trade reporting create visibility gaps.

Leading hyperscale programs embed reality capture into execution planning — transforming it from documentation into a measurable control system that combines:

- Installation validation
- Progress transparency
- Pre-permanence risk mitigation

Reality capture becomes more than a record of what happened — it becomes an execution control layer. This guide explores how to operationalize that shift. **This approach is already embedded across large-scale industrial programs.**

Across large-scale industrial programs, reality capture is used to validate installations and maintain alignment across trades. In heavy infrastructure projects, companies like Equans apply it to reduce coordination risk before scope becomes locked in.

The Highest Leverage Moment Before Installations Become Permanent

Field experience from a 400-acre data center project revealed a consistent pattern. In practice, reality capture delivers its strongest return before permanence.

The most valuable scans occur:

- Prior to trench backfill
- Before concrete pours
- Before structural enclosure
- Before skid installations are locked in

QA/QC is most powerful when correction remains practical.

After permanence:

- Rework escalates in cost
- Schedule recovery narrows
- Field friction intensifies

At scale, these compounding delays affect not just a single scope, but facility delivery milestones tied to capital deployment and revenue timelines.

Verification must keep pace with construction velocity.

The objective shifts from documentation to early, decision-ready visibility that informs corrective action.

Combining QA/QC and Progress Tracking Through a Unified Data Layer

NavVis enables reality capture to function as a unified source of site data that downstream workflows can use for both verification and progress tracking.

When point cloud data is aligned with BIM models, teams gain measurable visibility into installation status and design alignment.

This enables:
- Visual validation of installation against design intent
- Confirmation of installed elements against model geometry
- Early identification of missing components, often indicating scope not yet built
- Tolerance and deviation assessment within integrated partner workflows

Rather than maintaining separate processes for:
- Tolerance validation
- Installed quantity reporting

The same field-verified dataset can support both quality assurance and progress visibility.

For repetitive scopes such as steel, MEP routing, and underground utilities, this supports:

- Percentage-based installation tracking
- Immediate identification of incomplete or missing scope
- Discipline-specific tolerance workflows (within appropriate tools)
- Earlier detection of coordination risk

Scan once. Validate installation. Enable progress visibility.

Under schedule pressure, consolidating verification and progress tracking around a single source of site truth creates measurable control.

The Right Tool for the Right Risk

No single solution addresses every construction tolerance requirement in hyperscale environments. Selecting the right technology therefore depends on risk exposure and required tolerance precision.

Dynamic scanning using SLAM-based systems is best suited for:

- Frequent milestone validation
- Broad scope coverage
- Weekly installation verification
- Combined QA/QC and progress tracking

Terrestrial laser scanning is best suited for:

- Anchor bolts
- Ultra-tight tolerances (one-eighth inch or below)
- High contractual exposure scenarios

Clear technical positioning is critical.

Trust is reinforced when limitations are acknowledged.

Perceived accuracy influences adoption as much as measured accuracy.

From Documentation Tool to Construction Performance Backbone

When embedded into BIM and execution workflows, reality capture provides the site data required to answer three executive-level questions:

- Are installations aligned with design intent?
- Is progress tracking supported by measurable field data?
- What may still be missing before permanence?
- Is delivery progress aligned with commissioning targets and revenue timelines?

It reduces dependence on:

- Manual trade reporting
- Fragmented verification cycles
- Late-stage discovery during commissioning

Deviation analysis should not be positioned solely as error detection. Its strategic value is broader.

Reality capture functions as the measurable field-data backbone for construction performance oversight — aligning:

- Field execution
- BIM coordination
- Schedule tracking
- Executive oversight

into one measurable layer of visibility.

Execution Control at Hyperscale

Reality capture is no longer a documentation tool. It is:

- Pre-permanence risk mitigation
- Installation verification
- Progress transparency
- Governance visibility

SCAN OFTEN.
TRACK PROGRESS.
MITIGATE REWORK.
ENHANCE QUALITY.

NavVis

See how NavVis catches rework before it becomes 10–20x more expensive.

SCHEDULE A 15-MIN REWORK CHECK →