From Speed to Operational Readiness: Controlling Data Center Delivery Risk

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Data center construction is expanding rapidly, driven by rising demand for cloud computing and artificial intelligence. According to ConstructConnect, U.S. data center construction starts reached $77.7 billion in 2025, up nearly 190% from 2024. That momentum has continued into 2026, with construction starts totaling $135.8 billion across 178 projects through September 2026.

Yet the rapid expansion of data center construction has introduced significant delivery challenges. JLL reports that 57% of data center projects experienced a construction delay of three months or more in 2025. Meanwhile, the shift toward larger, more complex AI campuses is adding pressure to development timelines as owners and developers contend with power, permitting and equipment constraints, according to CBRE.

For owners, developers and contractors, these trends underscore a critical distinction: Completing construction does not necessarily mean a data center is ready for operation. Speed creates value only when supported by disciplined schedule control, coordinated decisions, reliable procurement and a credible path to energization and operational acceptance. The central delivery question is not simply whether an aggressive completion date can be assigned. It is whether the assumptions behind that date are realistic, supported by evidence and controlled as the project progresses.

Test Feasibility Before Committing to Speed

A credible delivery plan begins by testing the constraints that can fundamentally control the operational date: site approvals, power availability, major equipment procurement and customer requirements. Other commercial, labor and environmental issues may affect execution, but an unresolved utility interconnection, permitting decision or long-lead equipment delivery date can determine whether the announced date is achievable at all.

Community concerns become schedule risks when they affect approvals or infrastructure needed for the project, including zoning, water use, traffic or environmental permits. The project plan should identify the related decision points, responsible parties and potential schedule consequences rather than treating public approvals as background assumptions.

Consider this hypothetical: A data center project remains on schedule for construction completion, but its permanent power connection is delayed by six months. Although the building and its systems may be substantially complete, the facility cannot proceed through full commissioning or begin operations as planned. The resulting delay could trigger additional carrying costs, extended contractor involvement and disputes over responsibility for the missed operational milestone.

An announced utility date is not necessarily a firm energization commitment. It may depend on completed studies, network upgrades, substation work, transformer procurement, permits, easements or upstream transmission improvements. Those dependencies should be tested before an aggressive date becomes the basis for major commitments.

Use Parallel Execution With Defined Controls

Phased construction, early procurement, modular construction, off-site prefabrication, standardized designs and early supplier involvement can reduce sequential waiting. They are effective only when the information needed to define scope and interfaces is sufficiently mature.

Early release of switchgear, transformers or cooling equipment may protect a required delivery date, but unresolved loads, ratings, utility requirements or interface details can create redesign, rework and substitutions. Progressive design release may be appropriate, but it requires clear accountability for decisions that affect multiple parties. When unresolved design requirements or supplier interfaces threaten a critical milestone, project teams need to establish who is responsible for resolving the issue, when a decision is required and how delays will be escalated.

JLL reports that the average U.S. data center equipment lead time is 42 weeks, 83% above 2019 levels. This helps explain the pressure to commit to procurement before every detail has been finalized.

Think about a project team that releases electrical equipment for fabrication before the facility's final power requirements have been confirmed. The early release may initially appear to protect the schedule. However, if subsequent design revisions change equipment ratings or utility interface requirements, the project could face costly modifications, procurement delays and additional commissioning work. What began as an acceleration measure can ultimately threaten the very milestone it was intended to protect.

Acceleration should focus on removing avoidable waiting and protecting the activities that control energization, commissioning and operational acceptance. Compressing an activity with available float may not improve the operational date if another unresolved dependency remains on the controlling path.

Protect the Baseline and Trace Requirements

Owners should distinguish among the approved baseline, the current forecast and the recovery plan. The baseline documents the approved plan for executing the authorized scope, including the planned sequence, milestones, and underlying assumptions. The forecast reflects the latest expected outcome.

The recovery plan identifies actions intended to improve that outcome. Keeping these separate allows the team to measure actual performance without treating mitigation measures as changes to the original plan.

Suppose a project originally has a June completion date, but delayed equipment deliveries push the forecast to August. The contractor subsequently proposes additional shifts and resequenced activities to recover four weeks. Those measures may improve the forecast, but they do not erase the original delay or change the approved baseline. Maintaining that distinction is essential for evaluating actual project performance and determining the effectiveness of recovery efforts.

Before implementing acceleration, the team should confirm that the baseline reflects design maturity, procurement milestones, construction sequencing, utility dependencies, commissioning and acceptance requirements. Each proposed measure should be assessed for cost, schedule, scope, quality, safety and risk. Changes should be logged, evaluated, approved by the proper decision-makers and reflected in the affected records. Just as importantly, the project records should establish when critical decisions were made, who authorized them and how they affected the schedule. This documentation is essential for distinguishing the effects of changed requirements from delays caused by execution.

Changes in technical requirements can have significant consequences for project schedules, particularly as data centers adapt to increasingly demanding AI workloads. According to CBRE's North America Data Center Trends H1 2026 report, ready-for-service fit-out timelines are expanding from weeks to several months because of mechanical, electrical and plumbing equipment constraints. For air-cooled data centers that require conversion from air cooling to liquid cooling, delays can exceed six months.

These risks underscore the importance of maintaining traceability between approved design requirements and the activities needed to achieve operational readiness. A late change from air cooling to liquid cooling may require already-released equipment to be redesigned or replaced, delaying fit-out and commissioning even if the base building remains on schedule. Identifying those consequences early allows project teams to evaluate the schedule impact before changes are approved or equipment is released for fabrication.

Model the Path From Utility Work to Operational Readiness

Permanent power may control full commissioning, integrated systems testing and operational acceptance. The schedule should distinguish completion of utility-side work, availability of service, customer-side readiness and actual energization. These dates are related, but they are not interchangeable.

On a large AI data center campus, the project team used temporary transformers to support phased energization while permanent equipment was being procured and delivered. Interim solutions of this kind can protect critical milestones when equipment delivery and infrastructure schedules do not align, but

they require careful planning, defined acceptance criteria and coordination among the owner, utility, contractor and commissioning teams.

Owners should track at least three separate dates: the approved baseline date, the applicable utility commitment or forecast date and the current risk-adjusted forecast. Each should have a clear definition, source and status. The schedule should connect utility readiness to customer-side electrical completion, inspections, energization, commissioning, integrated systems testing and operational acceptance. Without those links, a utility date can create a false sense of certainty even when the facility cannot yet receive or distribute permanent power.

Separate Schedule Gain From Contractor Productivity

An earlier completion date does not automatically demonstrate contractor productivity. Schedule gains may result from earlier owner decisions, expedited procurement, additional labor, overtime, resequencing, or revisions to schedule logic, calendars or durations. Those effects should be distinguished from measurable improvement in field performance using contemporaneous schedules, instructions, change orders, daily reports, labor hours, installed quantities, procurement records and commissioning records.

Productivity is better demonstrated by higher output per labor-hour, reduced rework, improved installation methods, better crew sequencing and less waiting under comparable conditions. For example, if a crew installs 25% more linear feet of comparable overhead busway per labor-hour under similar conditions, without increased rework or quality deficiencies, it may demonstrate improved productivity.

This distinction also matters when evaluating the cost of acceleration. Additional shifts or expedited equipment deliveries may shorten the schedule, but their associated costs should not be confused with improvements in labor efficiency. Understanding how an earlier completion date was achieved helps project teams evaluate whether acceleration measures delivered the intended benefit and at what cost.

The analysis should identify the event that changed the work, the affected activities, the resources used and the resulting effect on the controlling path. It should account for float, overlapping delays, resequencing and schedule-model changes. Where an owner decision enables a contractor improvement, the benefits should be separated so the same gain is not attributed twice.

A Credible Schedule is the Foundation of Operational Readiness

Demand for data center capacity may remain strong, but demand alone does not make a project deliverable. Converting a proposed facility into operational capacity requires a credible path through site and power approvals, design maturity, procurement, construction, energization, commissioning, and acceptance.

In a market where speed is often the primary measure of success, the greatest risk may be committing to a completion date without fully understanding what it takes to achieve operational readiness. The most successful projects will not necessarily be those with the most aggressive schedules, but those that identify critical dependencies early, manage changes transparently and establish a realistic, defensible path to operation.

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