



Under pressure: An industry reckoning in engineering and construction



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Why growth alone is no longer enough for engineering and construction leaders

Demand for capital projects is booming, driven by power-hungry data centers, aging transportation and water infrastructure, and renewed industrial investment. Annualized construction spending in the United States reached nearly \$2.2 trillion in early 2026, up from less than \$1.5 trillion in 2020.¹ More than half (57 percent) of construction industry executives in a recent KPMG survey anticipate the number of capital projects to grow in the next two years.²

But demand does not guarantee performance—or shared success among stakeholders. As projects grow larger and more complex, owners are sharpening expectations around consistent, reliable delivery. Investors and acquirers are intensifying scrutiny as execution and delivery credibility become central to profitability and long-term valuation. Meanwhile, intensifying regulatory oversight, persistent labor shortages, and supply and logistics disruptions are testing current operating models.

Taken together, these forces—playing out across major construction markets globally—are redefining what credible performance looks like for engineering and construction (E&C) firms and raising the stakes for executives, project owners, and investors navigating delivery in an environment of heightened scrutiny and constrained execution capacity.

Just as important, years of risk-shifting have eroded confidence in traditional delivery models. Burned by cost overruns and delays, many E&C firms have pushed risk back onto owners, often without investing in the core capabilities required to manage that risk effectively in execution. The result is a widening gap between what

contracts say and how projects are actually delivered, leaving owners to either absorb the consequences or step in to control projects themselves.

Meeting this moment requires rethinking operating models to translate growing demand into reliable performance. Firms that lag in modernization face higher risk of project delays, disputes, and sustained value erosion as delivery demands continue to rise.

The consequences extend to project owners, who ultimately bear the operational and market impact when contractors lack the capabilities to deliver complex projects on time and on budget. For owners, reliability is not a preference but a requirement: Capital is committed years in advance, and delays or overruns ripple directly into revenue, operations, and market confidence—driving owners to tighten terms, shift risk, and demand greater visibility from their contractors.

The analysis that follows examines the opportunities and threats reshaping the E&C industry; the practices putting many firms at risk; and the shifts required to improve performance, integration, and decision-making at scale.

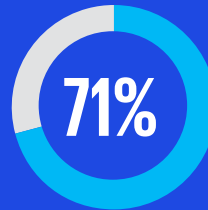


¹ Federal Reserve Bank of St. Louis, "Total Construction Spending: Total Construction in the United States," March 23, 2026.

² KPMG Global Construction Survey, 2025.

Why traditional operating models are breaking down

Given the booming demand for their services, it's perhaps not surprising that 71 percent of construction executives in 2025 described themselves as optimistic, up from 56 percent just two years earlier.³ But operating models built for lower volumes, simpler projects, and more forgiving timelines are increasingly strained by today's scale, complexity, and scrutiny. The future will not belong to firms that bide their time, relying on disjointed processes and incremental change as delivery demands continue to rise. Increased investor attention and ongoing consolidation in this historically fragmented sector are amplifying these expectations. In this environment, growth itself has become a stress test—exposing weaknesses in operating models that lack structure, visibility, and discipline at scale.



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Unstructured growth poses serious risks when execution capacity is strained:

In our 2025 survey, 42 percent of construction executives said regulatory and compliance burdens increased in the past year, while 39 percent expected skilled labor shortages to worsen.⁴ Combined with tariff uncertainty, fragile supply chains, tighter immigration enforcement, and a shifting insurance market pushing more risk onto contractors, these pressures are amplifying the consequences of unstructured growth.

Combined with tariff uncertainty and tighter immigration enforcement, regulatory and labor pressures are proving more disruptive than many firms anticipated. Volatility in material pricing is complicating cost forecasts, while

increased scrutiny of workforce compliance is further constraining already-tight labor pools. Together, these forces amplify execution risk and make unstructured growth far less forgiving in delivery.

Yet many firms are responding with a “just build more” mindset, stretching capacity, increasing exposure, and risking execution breakdowns across their portfolios. In too many cases, that mindset coincides with an unwillingness to own delivery risk or invest in the cost, schedule, and controls disciplines owners increasingly expect from their contractors.

³ KPMG Global Construction Survey, 2025.

⁴ Ibid.

Underperformance remains a chronic problem:

Project owners expect faster delivery with greater cost certainty, reliability, and safety—and are far less forgiving of delays. Moreover, the construction boom has brought a new generation of investors keenly interested in capital project performance. The vast majority (87 percent) of construction executives say their focus on project performance has intensified.⁵

Investor scrutiny is intensifying alongside a declining tolerance for execution volatility. On large, capital-intensive projects, schedule slippage, cost variance, and weak project controls now translate directly into higher financing costs, tighter covenants, or reduced valuations—elevating real-time delivery credibility as a determinant of enterprise value.⁶

Yet many companies are unable to produce a single, integrated view of project performance. And 91 percent of public sector project owners (and 53 percent of private owners) report project failures in the past year. Cost overruns for mega-sized capital projects average 88 percent, and more than 75 percent of projects are completed over budget.⁷

From an investor’s perspective, due diligence increasingly centers on two questions—how current projects are performing and how confidently the organization can deliver profitable growth. Investor confidence increasingly favors E&C firms with standardized performance frameworks and transparent, real-time project data over those using siloed systems and retrospective reporting.

Technology investment isn’t keeping pace:

Despite intensifying expectations around performance, many E&C firms continue to underinvest in the technologies needed to deliver consistently and at scale.

Indeed, while 56 percent of construction executives say they’re “cutting edge” or “industry leading” in technology,

and a majority predict productivity gains within the next five years, less than a quarter (24 percent) of companies have adopted artificial intelligence (AI) on more than half their projects and 15 percent haven’t at all.⁸

“The industry isn’t being judged on intentions or investment plans anymore. Owners and investors care about one thing: can you prove—right now—that your projects are under control?”



Geno Armstrong
Principal

⁵ KPMG Global Construction Survey, 2023.

⁶ UBS Evidence Lab, “Global Infrastructure and Construction Outlook,” 2024; BNP Paribas Exane, “Capital Projects Risk and Valuation Sensitivity,” 2025.

⁷ KPMG, “Successful adoption of technology in construction,” 2024.

⁸ KPMG Global Construction Survey, 2025.

When growth becomes a stress test

Under strain

Built for performance

Performance management

- Project-by-project oversight
- Retrospective reporting
- Inconsistent metrics
- Late issue detection

- Enterprise-wide standards
- Real-time cost, schedule, and risk visibility
- Common KPIs and thresholds
- Early warnings and intervention

Decision-making

- Manual and experience-driven
- Fragmented information
- Slow response to disruption
- Low confidence in forecasts

- Data-enabled and proactive
- Integrated, timely data
- Rapid assessment of impacts and trade-offs
- Higher confidence in commitments

External credibility

- Backlog-driven narratives
- Limited transparency
- Owner and investor skepticism

- Proven execution on active projects
- Clear view of current and future performance
- Greater confidence and resilience



Three imperatives for construction firms determined to take the lead



While the construction industry faces serious challenges, individual companies retain substantial control over their futures. Those that focus aggressively on performance and delivery, invest strategically in technology, and select the right projects can position themselves for industry leadership and sustained growth.

Capital project performance: Act like your company's future depends on it

Project owners judge success by a small set of non-negotiable outcomes: capital projects delivered as designed, on budget, safely, and on schedule. Yet as projects grow larger and more complex, many engineering and construction firms struggle to deliver consistently against those expectations, exposing gaps between how projects are planned, managed, and reported and how they actually perform in execution. That same gap is increasingly visible to investors and acquirers, who evaluate E&C firms less by backlog growth than by their ability to demonstrate reliable performance on in-flight projects and confidence in future delivery through timely, credible data.

Addressing this gap requires moving beyond localized project oversight to an enterprise-wide performance model with shared standards and clear accountability. Leaders need early visibility into emerging risks so they can intervene before cost, schedule, and margin impacts compound. Without that shared view from the C-suite to the field, even experienced teams struggle to translate scale and demand into reliable execution.

Meaningful improvements in project performance also require human communication and well-defined roles and responsibilities stretching from the C-suite to on-site

project management and back again. That alignment starts with clearly defined outcomes across scheduling, cost, quality, safety, and regulatory compliance—translated into key performance indicators (KPIs), thresholds, and reporting expectations appropriate to each level of the organization. While metrics become more granular moving from senior leadership to the field, all levels remain aligned around the same objectives:

- **Board and top leaders.** Hold the organization accountable to a standardized performance framework and provide high-level oversight and review.
- **Senior management.** Enforce standardized processes, governance, and controls enabling project-to-project comparisons; review detailed project data; and report to top leaders.
- **Project leaders.** Manage and oversee project progress, tracking against KPIs and creating rolling recovery plans when deviations occur.
- **Field coordinators.** While directing on-site work, resolve immediate problems or constraints and feed weekly progress data to upper management levels.

Turn technology into a performance multiplier

E&C companies are running out of traditional ways to enhance efficiency and productivity. Technology now offers the most consequential opportunity, but its impact is far from guaranteed. Without a clear, enterprise-wide strategy led from the top, even substantial investment can fail to translate into performance gains. Effective technology

transformation therefore depends on three interconnected moves: establishing a reliable foundation of data and systems, applying advanced technologies at scale, and extending those capabilities into the field where projects are delivered.

Lay the foundation

To deliver value, data and AI must be shared and used seamlessly across the enterprise. Companies with disjointed systems (often inherited through multiple acquisitions) should adopt project management information systems, enterprise resource management, and other tools that establish common standards in six areas:

Project financial structure

Integrate purchase orders, invoices, payments, payroll, timesheets, and other financial data into a standardized cost breakdown aligned to the work breakdown structure.

Project performance and reporting

Establishing uniform KPIs for project quality, schedule, cost, risk, customer satisfaction, and regulatory compliance, supported by standardized dashboards and assessment tools.

Cost management

Improve the accuracy and consistency of estimating, tracking, and forecasting project costs.

Contract and supplier management

Standardized contracts, purchase orders, key terms, and materials and equipment specifications to enable seamless financial planning, forecasting, and reporting

Enterprise and project risk management

Apply integrated risk management processes across the organization and individual projects, supported by standardized project triage and independent health and risk diagnostics.

Project scheduling

Use an integrated work breakdown structure to improve schedule quality and reliability, productivity, and forecasting.

“E&C firms have largely gone paperless, but project data remains fragmented, creating blind spots that incur avoidable cost, schedule slips, and risk. Today’s AI can finally connect documents, images, field data, and systems into a decision-ready view of performance, but only when foundational data enablers are in place.”



Clay Gilge
Principal

Put advanced technologies to work today

With foundational systems in place, E&C firms can deploy AI and other technologies to drive efficiency and productivity from project to project. Many are already benefiting today from AI data and analytics to improve back-office functions such as finance and accounting. In our 2025 survey, construction owners identified data

analytics and generative AI as the most transformative technologies for the industry over the next one or two years.⁹ In practice, firms are already using AI to strengthen core enterprise capabilities such as financial forecasting, estimating accuracy, and management reporting—areas where near-term gains are most achievable.¹⁰

Extend technology into project delivery

Across the construction industry, AI and other technologies have moved quickly from experimentation into day-to-day operations. The greatest opportunity for technology-enabled performance lies in the field, where complex capital projects are executed:



Prefabrication and modular construction

Manufacture components off-site and assemble them on-site to reduce construction time, manage labor constraints, and standardize quality.

Smart sensors

Monitor site conditions, equipment, and assets in real time to improve safety, productivity, and operational visibility.

Robotics and automation

Reduce reliance on manual labor for repetitive or hazardous tasks such as drilling, material handling, and inspections.

Drones

Conduct site surveys, track progress, identify safety and compliance issues, and inspect hard-to-reach areas.

Digital twins

Create virtual replicas of projects to simulate conditions, anticipate potential issues, and intervene earlier in delivery.

⁹ KPMG Global Construction Survey, 2025.

¹⁰ Anna Ghazaryan, "Top Construction Apps for Field Management and Job Site Tracking," Buildern, November 10, 2025.

Choose the right projects—the right way

Sustained leadership also depends on disciplined, data-driven project selection—especially as growth strain exposes the limits of execution capacity. The goal is to pursue work that aligns with strategic priorities, leverages core capabilities, and strengthens trusted client relationships.

Align projects with your broader strategy

With foundational systems in place, E&C firms can deploy AI and other technologies to drive efficiency and productivity from project to project. Many are already benefiting today from AI data and analytics to improve back-office functions such as finance and accounting. In our 2025 survey, construction owners identified data analytics and generative AI as the most transformative technologies for the industry over the next one or two years. In practice, firms are already using AI to strengthen core enterprise capabilities such as financial forecasting, estimating accuracy, and management reporting—areas where near-term gains are most achievable.

Evaluate the risks of new territory

Projects that take a firm into a new region, a new type of work, or a new industry introduce higher risks of missteps, delays, and execution breakdowns. Testing each opportunity against defined geographic, sector, and capability priorities helps leaders determine whether that added complexity is intentional, manageable, and worth the return.

Build on trusted relationships

Project selection should favor clients and owners with whom the organization has a proven record of successful delivery and mutual trust. Prioritizing established relationships—particularly with premium clients that offer repeat work aligned to strategic capabilities—can reduce execution risk while strengthening long-term market position.

A framework for optimizing project selection

Project selection decisions should be made in portfolio context, not in isolation. This framework helps ensure that each project you pursue advances long-term strategic goals, aligns with execution capacity, and makes disciplined use of scarce resources:

- Maintain a portfolio view of opportunities. Evaluate each using uniform criteria, forecasts of customer demand growth, customer satisfaction and service issues, sustainability targets, and the availability of federal grants, tax incentives, and other government opportunities.
- Screen opportunities for risk and value. Narrow the field by assessing operational, scheduling, environmental, financial, legal, and regulatory risks, alongside financial measures such as net present value and internal rate of return. Incorporate qualitative considerations, including risk mitigation requirements, reputational impact, and the availability and capability of project support resources.
- Prioritize through comparative scoring. Apply a scoring approach to compare projects on a like-for-like basis and differentiate those that warrant deeper analysis. Use these results to identify higher-priority opportunities for more detailed cost estimation and risk assessment, drawing on input from multiple functions to ensure a comprehensive view.
- Make final selections through strategic review. Evaluate top-priority projects against overall business strategy and capacity constraints. Use a cross-functional review panel to approve projects for pursuit or flag them for further analysis before committing resources.

⁹KPMG Global Construction Survey, 2025.

¹⁰Anna Ghazaryan, “Top Construction Apps for Field Management and Job Site Tracking,” *Buildern*, November 10, 2025.

A pathway to leadership

Firms that focus relentlessly on capital project performance can become indispensable to project owners whose priorities are safety, schedule, and cost certainty. Strategic investment in modern information systems and technology strengthens delivery discipline

and transparency. Rigorous project selection—choosing where and how to compete—protects scarce resources and sharpens execution. Companies that do all three are positioned not only to compete in the current boom, but also to help define the industry's future.

How KPMG can help

For nearly a quarter of a century, the KPMG Construction & Engineering practice has worked closely with a broad array of engineering firms and general contractors, as well as project developers, equipment and materials suppliers, distributors, subcontractors, and project owners. This experience gives us a depth of insight into the extraordinary challenges facing the industry, the response needed, and the opportunities for companies that embrace the moment.

We help companies implement technologies effectively to improve project performance and provide independent oversight and monitoring of major projects. Our professionals offer services covering every aspect of a firm's business, from operations and financial risk management to business performance services tailored to E&C's unique regulatory environment; internal audit, risk, and compliance services; tax; audit; and more. Project IQ, our patent-pending, proprietary, cloud-based tool, enables project leaders to evaluate a project throughout its lifecycle, using targeted metrics to compare performance with industry benchmarks and identify improvement.

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Clay is a principal and leader in the KPMG Capital Projects Advisory practice. He is the chief architect of the firm's global major projects methodology, Project IQ, and its capital project data engineering tools. Over his career, Clay has advised more than 40 Fortune 500 companies on capital programs totaling more than \$300 billion and has authored more than 30 articles on capital project efficiency, construction risk management, performance, and technology. Prior to joining KPMG, he held senior roles in contract and materials management at Intel and served as a project engineer at Bechtel.



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Geno is a principal and founder of the Major Project Advisory practice at KPMG and leads the global Engineering & Construction practice. Over his 25-year career at KPMG, he has advised companies and boards through market volatility, regulatory shifts, and digital transformation in infrastructure, and has consulted on some of the largest and most complex projects worldwide.

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