

Capital Projects & Infrastructure Practice

Collaborative contracting: Moving from pilot to scale-up

Despite the early successes of collaborative-contract adopters, the industry remains hesitant. Five steps can help project owners better envision the transition toward more collaborative approaches.

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There is mounting evidence that owners of large capital projects should consider alternatives to traditional, adversarial contracting practices. More collaborative agreements and operating models can be found in integrated project delivery (IPD) or project alliancing. Under such models, key delivery partners (usually the owner, engineer or architect, major equipment manufacturers, and contractors) work together during a defined preplanning period to develop the project scope, schedule, and budget. These partners form a single contract including a no-fault clause; and operate under a joint management structure that governs the project execution.

Early adopters of these collaborative contracts in industries such as oil and gas, healthcare, water, and consumer-packaged goods are seeing improved financial performance for their capital projects during execution. Our analysis of eight collaborative-contract pilots reveals that these agreements have resulted in a 15 to 20 percent improvement in cost and schedule performance compared with traditional contracts (Exhibit 1).

Despite success in the relatively small number of implementations to date, project stakeholders

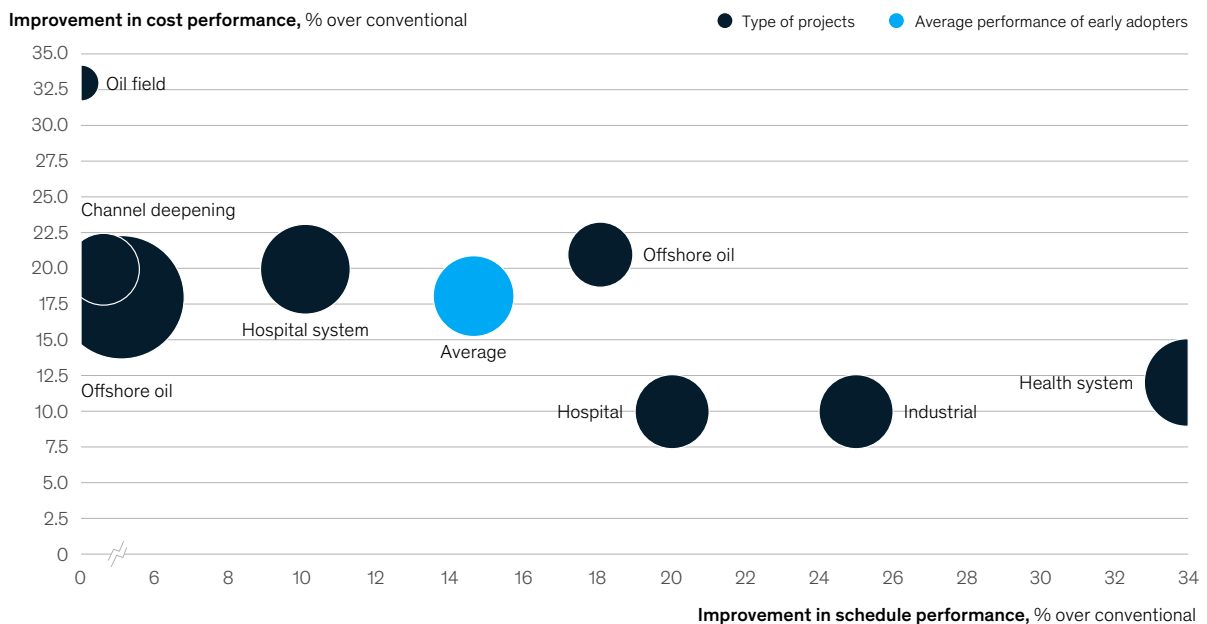
have not widely adopted collaborative contracts. Many willing industry participants stumble because they are unfamiliar with what it takes to implement collaborative models or have difficulties finding the right partners who agree to this type of structure. In addition, financing parties often hesitate to approve anything other than fixed-price agreements, citing uncertainty and an inability to transfer risk. Moreover, some public-sector owners are legally required to award contracts to the lowest qualified bidder, preventing them from entering into more-collaborative contract terms.

The result is an inability to shake the status quo—an adversarial contracting practice in which parties rush through fixed-price contract negotiations, opening the door for purposely understated timelines, long delays, and massive budget overruns.

To break old habits and adopt more-collaborative contracts, our analysis shows that project owners must start by fully understanding the elements of a collaborative contract and the spectrum of possible collaboration. Then they should assess their own readiness for collaboration, select the right partners, and invest, as early as possible in the process, in building out a detailed project description and

Exhibit 1

Early adopters of collaborative contracts are seeing improvements in performance.



aligning critical partners' incentives. Finally, owners can integrate best practices—from a project's start through its completion.

The elements of collaborative contracts

A fully collaborative contract, such as those found in IPD, is founded upon cocreation of the project's scope of work, transparency, and joint governance. These elements translate into four major practices: partners working together during a defined preplanning period, a single contract among all key partners, a no-fault clause, and a joint management structure.

Defined preplanning period

At the inception of any collaborative-contracting process, the owner starts by selecting all critical delivery partners, including an engineer and architect, the main original equipment manufacturers (OEMs), and at least one contractor. This core team then works closely—usually at the owner's expense—on a conceptual design, cost estimate, and schedule. It then negotiates and finalizes the commercial terms of the contract that link everyone's interests through the project's completion.

Single contract among all critical delivery partners

The single and final agreement, signed by all parties, clearly defines the scope of work, schedule, coordination guidelines, and the collective obligations of the partners and by exception the separate obligations of each partner. It also defines compensation (actual cost and overhead recovery) and the profit sharing if the project is successful. In addition, it outlines detailed voting rights, representation on the governance board and execution leadership team, and the change-order process for the project. (Investing in detailed project definition during the pre-planning period reduces the risks of change orders.)

No-fault clause

Most often, collaborative contracts include a no-fault clause that requires members to forfeit rights to claim against one another. In contrast to

a traditional lump-sum contract, in which owners attempt to transfer as much risk as possible to other parties, the partners within a collaborative contract have a limited ability to submit claims when they occur. Instead, all project-related decisions are binding and made by the governance board.

Joint management structure

During execution, collaborative projects are typically governed by a joint management structure or regularly convened board with an explicit contractual obligation for all parties to make decisions in the project's best interest. The governance board consists of a representative for each critical delivery partner, and each representative has a vote in every decision related to the project. All partners commit to transparency of their own cost and schedule data, and all parties share the risk and reward of the project outcome.

Choosing a level of collaboration

We realize some project owners may face constraints on how they're able to structure their agreements. For example, owners run into procurement constraints, strict lending requirements, government restrictions, or generally opposed mind-sets and behaviors. These obstacles, however, should not stop owners from making progress on initiatives that would facilitate better collaboration, such as establishing shared digital information, tailored incentives, and an integrated design environment.

The level of cooperation in a collaborative contract can be considered along a continuum, with IPD at one end as the most collaborative and limited risk-sharing programs or thematic collaboration at the other (Exhibit 2). (For examples of collaboration, see sidebar, "Case examples: Incorporating elements of collaboration into traditional contracts.")

Implementing a collaborative contract

Transitioning from a transactional approach to a collaborative model is no easy task. Certain situations may not be conducive to full collaboration, some organizations may not be ready, and with

A range of collaboration options is available to project stakeholders.

| Transactional | Type or degree of collaboration | Description |
|---------------|---|---|
| | <p>Traditional two-party contracts</p> | <p>Well-defined, ring-fenced scope compensates parties based on each one's performance</p> <p>—Contracts require a mature or capable contractor market</p> |
| | <p>1. Thematic collaboration eg, digital platforms, data transparency, and shared services</p> | <p>Project participants agree to collaborate around specific, well-defined themes or approaches to deliver project more efficiently</p> <p>—To succeed, thematic collaboration requires a clear business case for each efficiency improvement initiative</p> |
| | <p>2. Multiparty contract ie, all key project participants as signatories</p> | <p>All major partners shape project scope, validate cost and schedule estimates, and share risk and profits</p> <p>—Owner needs to assess its own structural readiness for collaboration, invest in detailed project definition, select the right partners up front, align incentives of all partners, and relentlessly invest in trust and collaborative mind-sets and behaviors</p> |

Sidebar

Case examples: Incorporating elements of collaboration into traditional contracts

If the most collaborative agreements can't be implemented, it is often possible to incorporate specific pieces of collaboration into a traditional project structure. Below are two examples of project owners that benefitted from implementing some collaborative practices.

Intermediate level of collaboration

One self-funded high-technology equipment manufacturer needed to expand capacity but had not built a new facility in more than 20 years. Given the degree of sophistication of the required equipment and original, brownfield layout of the facility, initial project estimates were more than 50 percent above the estimated cost limit to make the business plan work. To make the project financially viable, the manufacturer set up an integrated team of designers at a single location: OEMs; engineering, procurement, and construction (EPC) companies; and major subcontractors. This team used a common data environment and design tools, combined with agile working processes, to quickly evaluate more than 70 design concepts. Ultimately, the team landed on a concept that would relocate the facility next to underutilized existing space, significantly reducing construction complexity. Under separate contracts with shared milestone incentives, the team completed the detailed design and successfully executed the project.

Low-level (thematic) collaboration

Sometimes adding just one or two pieces of collaboration is both possible and beneficial. An oil and gas company, for example, recently undertook a self-funded, midsize project for which it signed a long-term reimbursable agreement with an EPC contractor. In this agreement, the company and the contractor collaborated on digital transformation and project-data transparency. In return, the EPC contractor was guaranteed a minimum of three projects over the next four years and earned incentives based on overall project outcomes, including cost and schedule. This arrangement is similar to a typical "open-book estimate" concept and traditional alliance contract. But unlike most open-book projects where transparency ends after a project is 30 or 50 percent complete, in this case the books stay open through the end of the project. As a result, most of the risks stay with the client, but it allows for both full transparency on engineering and construction costs and guaranteed work for the EPC.

collaboration come real challenges (such as ambiguous roles). Five steps can help project owners transition to a collaborative model more easily.

Assess structural readiness for collaboration

Project owners, as the driving force, must understand their own structural readiness to implement a realistic level of collaboration. We have identified a few essential determinants for owners to assess their readiness for collaborative contracting:

- Sophisticated contracting and procurement capabilities, an existing ecosystem of reliable engineering and construction (E&C) partners, and limited regulatory constraints on tender processes
- Strong organizational capacity and capabilities (such as for enforcing strict stage gates) and buy-in across the organization, from executive leadership to the project team
- Progressive risk-management philosophy, as well as a willingness to invest up front and take downside risk (after profit of all partners is forfeited)
- Agile project culture
- Project portfolio with sufficient volume to support long-term agreements and flexible financing arrangements

By knowing where their strengths and weaknesses lie, owners can better select the appropriate level of collaboration for their organization.

Select the right partners up front

An owner assessing potential partners must first ensure the basics, such as that they have the right qualifications and expertise. Partners need relevant experience (such as having designed similar facilities or local knowledge and

presence), distinct capabilities (so that no two partners overlap), and general financial health. Next, assessing the openness, self-orientation, and support for collaboration among a potential partner's project team and senior management is paramount.

In the end, whether the people are a good fit is what guarantees trust and a healthy collective decision-making process. During a Global Infrastructure Initiative roundtable in Houston,¹ one oil and gas executive concluded, "Relationships are what moves the needle."

Further, owners should be prepared for some of their potential partners to resist the collaborative process. Our interviews with one early adopter of lean IPD revealed that 30 percent of its contractor population was unwilling to entertain the model when it was first suggested. Undeterred and determined to embark on an IPD journey, that owner selected—and continues to select—partners willing to work within the boundaries of collaborative structures.

Invest in detailed project definition

When choosing a contract type, project owners need to decide early if the projected financial returns and risk profile warrant the cost of a higher-quality final investment decision (FID). If so, a cross-functional team—comprising the core project stakeholders working closely together to create a detailed project scope, execution plan, and cost estimate—increases the likelihood of a sound FID. While this increases the owner's financial commitment up front, this investment is outweighed by the higher likelihood of successfully executing the project.

One project for a North American transit agency, for example, involved a large and complex web of stakeholders. Initially, the agency used a traditional contract, intending to transfer risk to a developer. When potential developers evaluated this plan, none felt comfortable accepting this level of risk or submitting an offer.

¹ "Houston 2019: Using collaboration to improve performance and predictability in oil, gas, and chemical manufacturing project delivery," Global Infrastructure Initiative, November 2019, globalinfrastructureinitiative.com.

The transit agency had no choice but to adopt a collaborative model in which each stakeholder—that is, the agency, developer, and designer—partnered up to define the scope, craft design solutions, negotiate right-of-way approvals, and establish a target cost for the alliance. The agency assumed the downside risk of delays that extend past a certain point, but the developer, designer, and key subcontractors were given incentives to mitigate any potential overruns. Where a traditional risk-transfer model was unacceptable to the private sector, the agency made this project possible by adopting a collaborative model that better distributed the risks.

Align incentives of all partners

Distractions and inefficiencies often occur when each project stakeholder works toward individual project goals. Setting up a common incentive pool that grows or shrinks based on overall project performance (along with all parties distributing pro rata compensation) is one approach to facilitate collaboration among project stakeholders.

This approach was successfully used on an offshore project. Although each party had a separate contractual relationship, ranging from reimbursable to lump sum, the partners had the opportunity to earn additional profit through a gain-share agreement—if and when the project came in under budget and ahead of schedule.

Relentlessly invest in trust

Moving from an adversarial to a collaborative approach requires persistent investment in not only building and maintaining trust among delivery partners but also instilling collaborative behaviors (such as problem solving, knowledge sharing, curiosity, and creativity). To succeed, project owners should define their organizational aspirations and make those as important as a project's financial or schedule goals and enforce reliability and openness, two of the key dimensions of the “trust equation.”²

Then they must measure their progress against their goals. Relevant performance indicators can

be scores on engagement surveys by project team members, number of cross-stakeholder problem-solving sessions, cost or schedule improvement opportunities cogenerated by the team, or the number of digital innovations that were made possible through collaboration.

Formal mechanisms, such as tying senior leaders' compensation to organizational alignment goals, should also be implemented to reinforce the desired mind-set shifts. Leaders need to understand their role in overcoming decades of negative conditioning that make it hard for teams, even willing ones, to embrace collaboration. Habits are deeply entrenched, so collaborative teams need training, feedback, and reinforcement not just at the beginning but throughout the project life cycle.

Each of these steps is critical, but none can succeed without a few supporting elements. One is contractual enforcement; in fact, the former director of capital projects for a consumer-products company stated, “Contractual reinforcement is the secret sauce.” Other essential factors involve rigorous project- and performance-management science, including a digital control tower and war room; agile teams that are accountable for delivering impact; and finally, a joint execution-leadership team and project-governance board with clear authority.

No time to waste

When it comes to the transition away from transactional contracting practices, project owners do not have the luxury of time. Major North American E&C companies have already reconsidered whether they should bid competitively on lump-sum contracts at all. As more project stakeholders take the same path, project owners that stick to traditional contracts may soon be left with fewer options and rising prices.

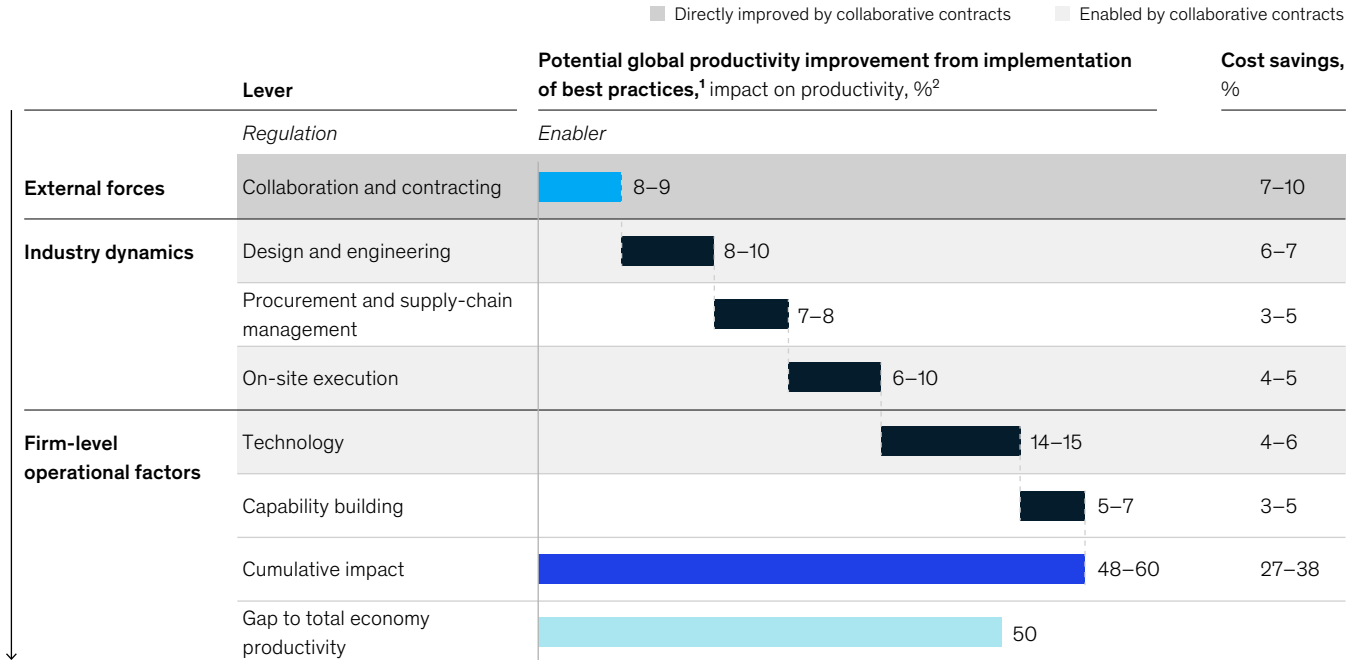
Additionally, those that wait to act risk missing out on the potential benefits of collaborative contracts for the entire industry—benefits that are exciting

² McKinsey's organizational research defines the “trust equation” as $\text{trust} = (\text{reliability} \times \text{credibility} \times \text{openness}) / (\text{self-orientation})$.

³ For the full report, see “Reinventing construction through a productivity revolution,” McKinsey Global Institute, February 2017.

Collaborative contracts improve project relationships directly and enable productivity improvements in design, execution, and technology.

Global levers to improve construction productivity



¹ The impact numbers have been scaled down from a best-case project number to reflect current levels of adoption and applicability across projects, based on survey respondents who responded “agree” or “strongly agree” to the questions about implementation of the solutions.

² Range reflects expected difference in impact between emerging and developed markets.

Source: McKinsey Global Institute Construction Productivity Survey, n = 210

to contemplate (Exhibit 3). A 2017 McKinsey Global Institute (MGI) report on construction productivity identified collaborative contracting as one of the largest opportunities to improve the productivity of the industry.³ Based on our research, we also believe that collaborative contracts and practices serve to enable three of the other levers to improve productivity: technology adoption, design and engineering, and on-site execution.

Adoption of digital project tools

Implementing digital tools on projects requires significant investments in capital, work processes, and time. E&C contractors and suppliers rarely make those investments on their own without knowing that there will be some sort of payoff. That impediment in the industry would be removed if project owners proactively invested in digital

infrastructure with a consistent capital program and a network of committed E&C contractors and suppliers codeveloping the solution.

Design and engineering

Using a digital design platform is not new to the industry, but making it transparent and shared across all parties is a marker of a collaboration. It creates one source of truth and enables faster creation of a “digital twin” prior to construction. When integrated into a database rather than segregated into distinct disciplinary silos, digital design deliverables enable more-efficient cross-party clash detection, along with joint owner-contractor-supplier design processes and construction and operability reviews. The results? Improved engineering quality and accelerated design releases for construction.

On-site execution

A single source of truth for design, supplier, and project-management data addresses the communication gap typically seen between home-office and on-site teams. This facilitates the on-time structuring of data into construction work packages, which improves construction readiness and enables implementation of advanced production or construction planning tools.

Furthermore, when teams work in the same place and from the same project-controls systems and dataset, it accelerates the on-time release of forward-looking, actionable data needed to proactively manage a project. That's a stark contrast from traditional structures, in which project controls gather data from multiple parties, and typical project-reporting cycles result in data

that's at least three weeks old—too late for project leadership to make effective adjustments when needed.

The value at stake for project owners is enormous. If just half of the 15 to 20 percent improvement realized on initial collaborative contracts can be sustainably achieved, project owners could save \$5 trillion to \$7 trillion of the \$77 trillion that MGI believes will be spent on capital projects over the next ten years. With industry participants becoming increasingly frustrated with the status quo, now is the time to make collaborative contracts the norm and thereby reinvent the owner-contractor relationship—and the construction industry along with it.

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