CHAPTER 1

Ten Key Principles of Contracting

Writing a book about contracting strategy is a good deal harder than it might seem. Contracting is a subject that is full of exceptions. There are relatively few conclusions that appear to hold universally. Contracting is sensitive to the locale, the state of the market, the capabilities of the owner, the pool of available contractors, and, of course, the nature of the project under consideration. But over many years of studying contracting strategies and practices for industrial projects, I have arrived at a set of conclusions to which there seem to be few, if any, exceptions. These conclusions are what I call the 10 *principles of contracting*. As I explore the ins and outs of contracting strategies for industrial projects over the next 11 chapters, I will return to these principles again and again. If one pursues a contracting strategy that flouts one or more of these principles, it is very likely that trouble is ahead. If circumstance forces one to adopt a strategy that runs afoul of a principle, it is vitally important to understand that and mitigate the damage. The 10 principles of contracting are

1. There is no free lunch; the principal-agent problem is ever-present.
2. Contractors do good projects well and bad projects poorly.
3. Complex projects require simple contractual approaches.

4. Owners are from Mars; contractors are from Venus.
5. Risk transfer from owners to contractors is often an illusion; the big risks stay at home.
6. Contractors have shareholders, but they are not *your* shareholders.
7. Contractors normally win contracting games, not owners.
8. If you assign a risk to a party who cannot manage it, the risk will go unmanaged.
9. All contracts are incentivized; the question is always, how?
10. Economize on the need for trust.

Principle 1: There Is No Free Lunch

Economists like to remind us that no matter how little we personally pay for lunch, somebody somewhere paid for it fully. In contracting, I like to use the "free lunch" lesson to remind everyone that no contracting strategy is without problems. What is a good strategy in a down market may be a mess in an up market. What works for a smaller project may not work for a larger project. What works for a standardized project may well not work for a bespoke project. In contracting, there is no formulaic approach that is bound to succeed. All attempts to find a silver bullet will be disappointing. There are no successful gimmicks.

Over the years, IPA has worked with many companies who thought—for a while—that they had found the perfect contracting strategy. For one, it was incentivized reimbursable contracts; for another it was integrated project delivery (IPD), which is also called *alliancing*; for another it, was LSTK;[1] and so forth. Any strategy that is one-size-fits-all-for-all-time is bound

[1]Lump-sum turnkey is a form of engineering, procurement, and construction (EPC) contract that has the contractor turn over a fully commissioned, started-up, and operating facility to an owner often with a performance guarantee.

to fail sometimes. Often when failure comes, it is in spectacular fashion.

By far the most damaging contracting strategies are those that appear to be working while they are actually disastrous. Let me offer an example. A major chemical company was in a long-term "partnering alliance" with a prominent engineering, procurement, and construction (EPC) contractor. The contractor did all of the chemical company's major projects on a sole-source reimbursable basis. It was a seeming miracle that every project came in on budget and on time, and the owner was very pleased. When the company finally benchmarked and discovered that the projects were nearly 30 percent more expensive and 20 percent slower than their competition, it was too late to save the company.

This regrettably true story brings us to the core problem that prevents any free lunch in contracting: the principal-agent problem. When we contract, an owner (the principal) hires someone (the agent) to act on their behalf. Even in the best of circumstances, the behavior of the agent is unlikely to be exactly what the principal wants. The agent's understanding of the objectives is unlikely to be identical to the principal's understanding, and, of course, the agent probably has goals that are not perfectly consonant with the principal's. The principal-agent problem sits right at the heart of what makes contracting so difficult. We will come back to it repeatedly.

The key antidote to the principal-agent problem is transparency. The more transparent a contractor's performance is to the owner, the less room there is for the contractor's performance to wander away from the owner's objectives. The more transparent the owner's behavior is, the less anxiety the contractor will have about being taken advantage of. We will return to the theme of transparency as well a number of times. It is very important.

An old friend and U.S. federal judge, T. Rawles Jones, used to remind me: "Contracts should always say what they mean and mean what they say."

Say What They Mean

Part of the process of generating transparency is the use of straightforward and simply stated contracts. The clearer the contract, the clearer everyone's understanding of their obligations. Complex and arcane language works directly against one of the most important elements of a good project contract: risk assignment. An owner needs to know how a contractor will make money on the project. The smart owner always welcomes the contractor making a profit. But the owner needs to foreclose any nonobvious and unintended ways that money can be made. Simplicity and transparency help generate that outcome.

Mean What They Say

Contracts place obligations on both parties. Those obligations need to be taken seriously. So if the contract provides audit rights for the owner, then it behooves the owner to audit from the start. If the owner doesn't bother, those rights will soon be gone. Any later claim of unexercised rights is often dismissed by the contractor and later by the arbitrator or court. If the contract stipulates no "reservation of rights," then get a monthly release of rights to make claims later.[2] If the contract establishes a change process, then it behooves the owner to get that change process in place immediately, not down the road when change orders have started to accumulate on the PM's desk.

[2]*Reservation of rights* is a term in American law in which party A announces to party B that notwithstanding some partial remedy, all rights to other or additional remedies remain in place. For example, even though party B did not inform party A in real time about the development of a claim, party B has reserved the right to perfect that claim at a later time. Reservation of rights complicates the liability structure for a contract. If the contractor has reserved its rights, the owner needs a very strong controls organization with excellent record keeping and exercised audit rights. If the owner has reserved rights, the contractor is more likely to assume a defensive posture early in the project. Releases are a mechanism to limit reservation of rights and avoid big late surprises in terms of claims.

Principle 2: Contractors Do Good Projects Well and Bad Projects Poorly

At first glance, this principle may seem to be a tautology. It is not. Owner behavior shapes contractor performance. This is a reality that IPA research has demonstrated over and over again. When the owner has clear objectives for the project, has a competent, fully staffed, cross-functional team, and completes the front end of the project with excellence, the contractor's performance is systematically splendid. When the owner has hazy or conflicting objectives, the project fails. If owner operations and maintenance people have been left out of decision-making, late major changes will occur or fundamental errors may have been made in scope development. If the cost or schedule targets are not achievable by humans, the project will fail. If the front-end engineering and project execution planning are deficient, the project will fail. After years of hammering away at these issues with the data, the project management community around the world accepts these things as true. Any of these deficiencies, none of which are controlled by a contractor, will nonetheless leave the contractors looking stupid and incompetent. Owners have the most leverage in projects. Owners set direction and set the table for the projects. Therefore, it is inevitable that owners will make the big mistakes—poor business case, wrong scope, disgruntled stakeholders, and so forth. Contractors will inevitably make lots of little mistakes, but very few projects bleed to death from a thousand paper cuts.

Contractors may make convenient scapegoats, but they are rarely to blame for bad projects. A little reflection will make clear why this must be true. The situation in which a deeply incompetent contractor could survive would be outside a market system. Markets ruthlessly weed out incompetent contractors. In most places in the world, engineering and construction contracting is

very competitive.[3] Owners award very few projects without competition of some sort.

When one appreciates that owners shape project outcomes and not contractors, it is immediately apparent that contracting is a second-order issue for projects, not a dominant one. Being a second-order issue, however, does not mean that contracting is unimportant.

Principle 3: Complex Projects Need Simple Contracting Strategies

Complexity is the enemy of transparency. Complexity exists in projects in a number of dimensions.

- Scope complexity increases with the number of distinct scope elements. A project with a lot of infrastructure development, for example, will always be a complex project.
- Shaping complexity increases as the stakeholder set becomes larger and more diverse. Problems with host governments and regulators and local communities all add to project complexity.
- Basic Data complexity occurs when the basic technical data for the project are in development during the front end rather than fully available and confirmed. This is almost always the case for new resource extraction projects and occurs in other sectors whenever new technology is involved.
- The three dimensions of complexity mentioned will almost always generate organizational complexity for the project. More subteams will be required with more functions involved, many of which do not speak the same professional language.

[3]I recognize that for very large projects and for technically very difficult projects, markets are typically not nearly as robust as for smaller and simpler projects. But competition is the norm even for megaprojects.

Higher complexity should encourage those generating the contracting strategy to keep things as simple as humanly possible. Contracting with complex incentivization schemes should be avoided because the situation will make it harder to separate out who was responsible for what. Clear risk assignment should be the order of the day. Generally project complexity means there will be more interfaces to manage with more contractors and third parties working side by side. When possible, it is best to have all contractors working on the same basic contract form in such situations.

Principle 4: Owners Are from Mars and Contractors Are from Venus

To borrow from the wonderful book title, owners and contractors could not be more different sorts of economic entities. Owners earn from assets. Projects are a cost center that creates the assets. Markets measure owner success and failure by the returns and cash flows that their assets produce. Industrial owners tend to be heavily capitalized with big balance sheets, and most assets are fixed. Once an asset is in place, it can produce large amounts of free cash if prices are good.

Contractors are almost exactly the opposite. Rather than earning from assets, contractors earn via a markup on staff hours sold and markups on transactions, such as procuring equipment and material. Contractor balance sheets are asset light. The amounts of money that move through a contractor may be huge, but the margins tend to be very thin on that volume, and free cash flow is modest at best.

The economic differences between industrial owners and contractors have profound implications for contracting because they shape perceptions and reality of project-related risk. The biggest project risk for an owner is that the prices for the product

the project makes will fall or the volumes that can be sold will not approach capacity. Project overruns and schedule slips, while very unwelcome, are rarely catastrophic. For the contractor working on a fixed price contract, even a small overrun means no profit, and a large overrun can ruin the year (or worse).

A simple mind experiment shows the difference. If a capital project overruns by 25 percent and the owner absorbs all the overrun, that extra 25 percent is *added* to the corporate balance sheet as an asset, and the business now has to earn against a larger asset than they had hoped. But, if the contractor absorbs that 25 percent overrun, the amount is *subtracted* from the corporate balance sheet, and the contractor has no asset to show for it. And recall, those balance sheets were asset light at the outset. When we discuss the pricing of risk later, these economic differences become front and center. The economic differences between owners and contractors also show up in disagreements about contract terms. Because the contractor is typically short of free cash flow, timely payment is extremely important. Many owners find those concerns overblown and posturing. They shouldn't.

Principle 5: Large Risk Transfers from Owners to Contractors Are More Illusion Than Reality

When I work with some owner lawyers on contracting for projects, I am struck by their belief that contracts change reality. For example, if we assign risk for the timely delivery of critical equipment to the contractor, we will no longer have to worry about the equipment arriving late. Although it is true that transferring the risk may cost the contractor money, at the end of the day the project is still late, which means that our cash flow is late, and the customers who were promised product are still unhappy with

us, not the contractor. The consequences of risks in projects will eventually come back to the owner whenever the risks are not effectively managed regardless of risk assignment.

There are examples in which contractors have in effect subsidized the asset balance sheets of owners. Sometimes contractors significantly underbid a lump-sum project and proceed to deliver that project with excellence. But, there are not very many such examples. Most of the time, contractor losses on projects do not translate into owner gains. Lump-sum contractors in large loss positions search for ways to shift those losses back to the owner. Sometimes it shows up in claims; sometimes it shows up in poor quality; sometimes it shows up in an unwillingness to bid on the next project.

There are not many examples of wealth transfer from contractors to owners for the simple reason that contractors do not have much wealth to transfer! If losses on projects were routine, there would be no contractors, or at least there would be no lump-sum projects. All of the big downside risk has to end up in the owner's lap. If the project is the wrong asset for the business—a huge risk—that is purely an owner risk, although it probably also results in a badly developed and executed project. If the project has operability problems, that ends up as the owner's risk even if the contractor is hit with big performance penalties. Penalties do not operate plants. Contractors live with a project for a short while; owners live with the resulting asset for a generation.

Principle 6: Contractors Have Shareholders and They Are Not *Your* Shareholders!

This principle may sound obvious, and it should be. However, it is easily forgotten and is not trivial. One can be sure that contractor managements will try to behave in ways that will generate

profits. If they decline or fail to do so, they will be replaced. Contractor managements have an ethical obligation to their shareholders to generate profits. What that means in principle and in practice is that there will always be some degree of tension between owner project managers and contractor management. Pretending that the tension isn't there is just that: pretense.

At the contractor working level, however, contractor staff are driven by the same things that drive professionals generally: the need to provide for themselves and their families while trying to do meaningful work well. This means in practice that generating collaboration at the working level should never be difficult.

The owner should seek to *control* the drive of contractor managements to make profits. That is not the same as seeking to *minimize* contractor profits. Owners have an important long-term interest in the contractors working on their projects making a profit. When an owner does everything in its power to minimize contractor profits, they gain a reputation that forces contractors into defensive postures if they are going to take on work from the owner at all. The strongest contractors will simply be unwilling to work for such owners.

Controlling contractor profits requires owners to understand what avenues the contract creates for profits. It also requires specific owner capabilities to control those avenues of profit-making. Owners get themselves into trouble when they adopt a contracting strategy for which they lack the practices, personnel, and skills to control. We will return to this issue often in the chapters ahead.

Principle 7: Contracting Games Are Rough Sport

Both owners and contractors sometimes want to play contracting games. A contracting game is a tactic to make more money

(if the contractor) or pay less (if the owner) by setting up claims, by gaming incentive formulae, by using the schedule for advantage, and by using damages and penalties for leverage. These are games in the sense that every device has a countering strategy that seeks to nullify the device. Incentive games are widely practiced and will be discussed at length in Chapter 8. Claims games are less common in industrial projects but can be very disruptive and time-consuming.[4]

In my experience, *contractors are almost always more skilled at playing contracting games than owners.* This is not surprising; contractors generally have more to lose than owners and get a lot more playing time than the average owner project manager. When owners use incentive devices, for example, they often do not even realize they are playing a game, which facilitates their losing repeatedly.

The biggest problem with contracting games is that they obscure the fundamentals of what is driving contractor and owner behavior regarding the contract. For example, in a fixed-price contract, the dominant incentive for the contractor is cost minimization. Adding another incentive, such as for schedule, probably does not change the contractor's calculus, but it does change the owner's expectations—otherwise they would not have inserted it. The more devices that are added to the mix, the more confusing the incentive structure becomes. And games often beget more games. For example, a schedule incentive in an EPC lump-sum encourages the contractor to play schedule games that will ensure the schedule incentive whether or not any schedule acceleration is achieved.

[4]See James G. Zack, "Claimsmanship: A Current Discussion," *Transactions of the AACE*, 1992.

Principle 8: Assigning a Risk to Someone Who Cannot Control It Is a Fool's Errand

One of the most important elements of contracting is the assignment of risks among the parties to the contract. But risk *assignment* is not risk *management*. Owners routinely assign risks in contracts to contractors who actually have little or no ability to manage and thereby control the risk assigned. Sometimes owners keep risks when they lack the expertise necessary to manage it. For example, owners should rarely keep field labor productivity risks. They almost always lack the skills to manage field productivity. I have seen owners keep responsibility for laydown management in the hope of saving a little money only to completely bungle the laydown yards and subject themselves to unnecessary claims.

When a contractor is assigned a risk that it cannot manage, what happens? Sometimes, the contractor raises his bid price in hopes of covering the risk. That will certainly occur when it is a sellers' market for engineering and construction services. In other cases, the contractor will immediately start working on ways to shift the risk back to the owner through a claims development process or muddying the water around who is responsible for what.

Sometimes the magnitude of a problem is inherently not knowable. That should make the item a potential carve out for a contingent change. For example, sometimes soil conditions cannot be fully known until extensive excavation has occurred. In those cases, the owner needs to create a contingent reserve rather than follow the usual passing of that risk to an EPC contractor on a fixed-price contract.

Sometimes known or suspected risks are simply unmanageable. That should be a candidate for force majeure, but owners

generally want to limit force majeure to the narrowest possible definition and seek to offer the most limited relief possible when force majeure is triggered.

The worst situation is the passing of a risk from the party that can substantially control it to the party that has no substantial control. That not only means the risk will not be managed effectively; it also creates a significant moral hazard.[5] The moral hazard is that the party who actually controls the risk now feels free to disregard it. Owners commonly face this problem on reimbursable construction that leaves them responsible for field labor productivity. This occurs repeatedly in the other direction when an owner passes risk associated with poor front-end definition work, an owner responsibility, to a fixed-price contractor.

Principle 9: All Contracts Are Incentivized

Every contract contains within its reimbursement scheme and terms and conditions a set of behavioral incentives for the owner and the contractor. The compensation scheme incentives and terms and conditions usually dominate and control behavior to a much greater extent than any incentives added in other ways. For example, a fixed-price contract to execute a given scope of work is a perfectly cost-incentivized compensation scheme. One hundred percent of all savings the contractor generates is kept by the contractor as additional profit. Any and all other incentives contained in the agreement are likely dwarfed by the cost incentive.

[5]*Moral hazard* is a term borrowed from insurance and economics. A moral hazard is created whenever a party who controls a risk bears no negative consequences for the risk materializing (or could even gain if the risk materializes). The problem on running up excessive hours on reimbursable contracts is an example of gaining from a moral hazard.

The incentive structure in reimbursable contracts is often quite complex and often not properly understood by owners. Owners often believe that the (usually fixed) fee contained in the contract is the dominant incentive for the contractor. However, reimbursable contractors can have other, often more important, income streams from a project. There may be profit contained in the overhead rates ("the multiplier"). There may be hidden profits in the equipment transactions. There may be profits associated with subcontracts or labor brokers and so forth. Some of these hidden streams are not entirely ethical and may be illegal in some cases, but that does not mean they do not exist.

We will discuss the effectiveness of using incentive schemes for cost, schedule, operability, and safety in Chapter 8. But oftentimes owners do not even fully comprehend the incentive structure that the basic contract creates prior to adding additional incentives. That means they will have absolutely no idea how the incentives they add will actually play out. That is why we see so many dysfunctional and unintended consequences of incentive schemes.

Principle 10: Economize on the Need for Trust

Industry associations such as the Construction Industry Institute in the United States or the Major Projects Association in the United Kingdom often extol the virtues of owners and contractors developing mutual trust. I certainly agree that trust is a valuable commodity. But like all valuable things, one should economize on how much trust is required to make things work out. I am not suggesting that owners and contractor should mistrust, but rather that the contracting strategy should economize on how much trust it requires to be successful. Some readers will

no doubt interpret this principle as an expression of cynicism. It is not. It is, however, a rejection of wishful thinking as a contracting strategy.

Generally, trust is appropriate only when the trusted party sees being trustworthy as valuable for themselves. This is the way things work in most business relationships and most especially in the relationships between a professional services firm (such as a contractor) and their clients. Lawyers seek to do their best for clients as a matter of professional ethics and because they want to keep clients. Physicians do their best to keep their patients healthy as a matter of professional ethics and because they want to keep their patients. Most business contracts are self-enforcing because they are executed in the context of an ongoing business relationship that both parties see gains in continuing. One can trust the other party whenever being untrustworthy would be stupid behavior by that party.

The problem for contracting in the context of engineering and construction services for projects is that the situation does not always foster self-enforcing contracts. Many projects are contracted on a "one-off" basis. The contractor can expect no follow-up work. On large projects the gains or losses associated with the contract are so large that any potential follow-up work becomes irrelevant. Over the last 30 years in North America and Western Europe, owner-contractor relationships have becoming increasingly transactional in nature as owner engineering organizations have been downsized and more project decisions on contracting have been controlled by purchasing organizations or business professionals rather than by project organizations. Whenever the context does not foster self-enforcing contracts, economizing on the need for trust is the wise course.

Trust is not a contracting strategy, yet some contractual approaches depend heavily on trust in situations in which trust does not have much value to the trusted party. In those situations, trust becomes very expensive.

Summary

The 10 principles of contracting are not normative principles; they are not intended as guides to morally correct behavior. They are *empirical* and *logical* principles. The principles are sometimes violated due to ignorance. Sometimes they are violated due to wishful thinking that the conflict and tension in contracting can be washed away with good intention. Perhaps most often, however, they are violated due to greed and in hope of gaining an unfair advantage.

When I am evaluating a proposed contracting strategy for an owner client, I do so with repeated reference back to the 10 principles. A contracting strategy that disregards the principles, or is premised on overriding them, will almost always fail. It is also important to understand that a well-written contract will not supersede a strategy that violates the principles of contracting. Poor contracting strategy can debilitate the best written contract.