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Competition and Collaboration are not mutually exclusive

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Abstract

Purpose: The purpose of this essay is to help advocates of the integrated approach respond to the ubiquitous challenge of "how do I know I couldn't have gotten it cheaper unless I bid it?" by explaining how an integrated project approach need not compromise the owner's ability to benefit from competitive pricing and may well deliver lower cost than traditional competitive bidding

Findings: The integrated approach may provide a more effective level of competition and can lower the risk for both the owner and the contractor in ways that may not be fully recognized by those making contracting decisions and allows the owner to have far greater cost certainty, especially during early stages of the project. Competitive pricing can be secured on the key areas over which the contractor has discretion without a detailed design. An integrated approach can actually enhance competition by making the project more attractive to contractors, largely because it reduces their risk. This reduction in risk is not merely shifting the risk to the Owner or to others, but represents reducing the risk across the board. The reduction in risk is accompanied by an improvement in project collaboration, communication and culture that may be the biggest benefit of the approach. The commercial arrangements can take many forms, and owners do not necessarily need to use the excellent Integrated Form of Agreement.

Limitations: The integrated approach is not likely to work in organizations that pre-suppose that service providers must be coerced by market pressure to deliver their best pricing.

Implications: Projects need not be difficult and confrontational. Using an integrated approach can lead to lower risks, lower costs, and shorter schedules than the traditional design-bid-build method.

Value for practitioners: This paper will help practitioners contrast and compare integrated and traditional contracting approaches and recognize where an integrated approach might lower their risk and cost. The paper provides practitioners with a line of logic to counter the common argument that the lowest price is always found through traditional competitive bidding.

Keywords: Integrated delivery; collaboration; risk; communication; culture;

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Introduction

A classic history lesson concerns how a somewhat disorganized group of American rebels were able to prevail against a British army that was stronger, more experienced and better equipped by thinking differently about how battles could be fought. The British commanders, following the prevailing wisdom of the day, outfitted their forces in bright red coats and arranged them in straight lines in the middle of the battlefield. After all, the experts knew this was how you controlled your forces and thereby controlled the battle. The leaders of the impromptu assortment of American settlers recognized the unnecessary risk of fighting that way and allowed their troops to wear less conspicuous clothing and take cover behind trees. In retrospect, the wisdom of abandoning the traditional approach to battle was quite obvious and provides a clear illustration that our disciplined controls and procedures sometimes expose us to greater risk than we realize.

There may be a similar scene in front of the construction industry today, where the conventional wisdom holds that the way to secure the lowest cost is to maximize competitive pressure. Unfortunately, the approach typically chosen – competitive bidding based on completed documents - sharply restricts the ability for participants to collaborate and communicate on the key decisions made at the beginning of the project. An *Integrated* approach counters this problem by selecting the key contractors and subcontractors at the beginning of the project and allowing the project to gain the maximum benefit from constructability and reducing risk by allowing the parties to communicate much more freely about the scope and requirements of the project. But doesn't selecting the key contractors before the scope is defined prevent the owner from capturing the benefits of competitive bidding? Indeed, the construction industry's traditional procurement and contracting approaches appear to have evolved to maximize competitive pricing pressure at each step in the supply chain, and achieve the lowest overall cost by minimizing the cost of each piece. Procurement policies requiring the discipline of 3 competitive bids are viewed as a prudent and responsible, presuming competitive leverage would be abandoned should contractors be selected on some other basis. The scepticism many hold for the Integrated approach is not surprising considering that it seems to compromise the primary focus of the entire contractor and supplier selection process. After all, isn't it just common sense to shop around for the best price?

But what if you didn't have to choose between the advantages of an integrated project on one hand and the advantages of market competition on the other? What if we could retain the major benefits of competition while allowing the participants to work collaboratively? Perhaps many major capital projects need not be nearly as difficult, costly, or risky as we have previously thought they needed to be. An approach that better supports a culture of innovation and collaboration can lead to reductions in cost, schedule, and risk that may have otherwise never been considered possible.

Comparing and contrasting the Traditional and Integrated approaches

For purposes of this paper, a Traditional approach is one in which construction contracts are awarded on the basis of competitive bids based on a set of design documents that define the Owner's requirements for the project. The underlying assumption is that the Owner benefits from the competition among several qualified firms on a common scope of work and bidders are driven by competition to minimize waste and to develop innovative solutions. The Traditional approach also offers a level playing field for the bidders and allows for selection based on a simple, objective basis – price. Contractors must be qualified to perform the work, of course, but one qualified contractor is the same as another in the eyes of the procurement process. Traditional common sense holds that costs will run wild without market competition and the Owner will surely pay too much for the project: If you let contractors name their own price they will have no motivation to "sharpen the pencil" and perform the work for their lowest price.

The procurement strategies at each level of the supply chain seem to have been designed to optimize competitive pressure. In order to narrow the selection to a single criterion – price – it is essential that each competitor must bid on the same scope and requirements. An independent firm is usually hired to prepare a design that defines the scope and requirements, and it is presumed they will develop the best technical solution without the need for discussion with those that will perform the construction. Bidders are obliged to include only that scope explicitly called out in the contract documents. It is presumed that the documents fully convey the Owner's requirements and preferences in a manner that can be completely understood by the bidders, and those requirements won't materially change over the course of the project. The Traditional approach satisfies a preference for objective decisions over subjective judgments and preferences. In the pure form of the Traditional approach, there is no need, nor even a place, for judgment, discretion, or trust in the selection process. Contracts designed to protect the owner's interest are unilaterally issued to the bidders, placing the owner in firm control of the project. The legal system has a rich history of case law available to help deal with disputes, although it seems a bit ironic to think of a rapidly growing wealth of experience dealing with inherent conflict and misalignment as an advantage.

The traditional approach can conceal a very large risk, however: failure to truly align on the scope, expectations and requirements of the owner. Trying to communicate via the transfer of documents is simply not as effective as inter-active conversations between the parties. This risk brought about by the failure to communicate is similar, in my mind, to the risk of the British soldiers faced by entering a gunfight without the benefit of camouflage or cover.

The Integrated approach, in contrast, is one in which contractors are selected on the basis of qualification and pricing factors before the design begins so they can fully understand and shape the design. They are expected to be part of the team that explores the owner's requirements and preferences, and advise the project team on a real time basis as to the cost implications of the various alternatives under consideration, with constructability and value engineering "built in" to the design process. They are expected to contribute ideas and solutions that the design team may never have considered.

Because they are part of the design process, contractors can be expected to share responsibility for defining a scope that will satisfy the owner's requirements and share accountability for assuring that there are no scope gaps or hidden costs. This is in sharp contrast to the Traditional approach, where they are responsible only for the scope specifically identified by the documents.

The contact documents can take a variety of forms. The Integrated Form of Agreement, developed by Will Lichtig, offers a contractual arrangement that links the owner, design team, and contractor(s) in a manner designed to motivate collaborative behavior. While this form of agreement is probably the best current set of documents we have, the concepts presented here can work very well with other contract forms: It is not necessary to adopt radically different contracts to achieve the benefits of Integrated delivery. Taking the critical first step of thinking in a new way may be easier for some organizations if they do not have to adopt new contract documents to realize major benefits.

The Integrated approach incorporates construction knowledge in the scope definition stage of the project. The value of contractor input during early project stages has been recognized for many years and is sometimes called "constructability." Early Construction Industry Institute (CII) publications suggested that constructability efforts were most effective when the contractors that would build the projects provided the constructability input. But what about competitive pricing? How can the owner know he couldn't have gotten the same thing for less money from somebody else if he commits to hire a contractor without competitive bidding?

Competitive Pricing Using the Integrated Approach

As it turns out, the Integrated approach can be far more competitive than many realize. First, the degree of competition is in direct proportion to the project's desirability in the eyes of potential contractors. It is only rational that contractors will compete more vigorously for projects they find more desirable, and they should find a project in which they have an active role in defining and shaping the scope much more attractive than one in which they must infer the scope from a bulky set of documents. Not only do they get to have an active voice in key decisions, but they have the opportunity to understand the design intent and define their scope at a level that is simply not possible in the Traditional approach. The Contractors' risk is greatly reduced as they can be confident they have captured all of the scope in their pricing and fully understand the owner's requirements. With less risk, a rational contractor could be expected to accept a lower rate of return, in the form of fees, and especially in the form of lower contingencies than he would otherwise require. And that is what we have seen in several cases where we have used an Integrated approach – lower contingencies and lower mark-ups than the contractor would otherwise apply. It's important to note that the risk has not merely been shifted to the owner – a good portion of the risk has been eliminated. The focus shifts to reducing the overall risk for the project, and then allocating the remaining risk in an open and transparent manner rather than simply issuing contracts that attempt to assign the risk to somebody else. This change in the risk perspective leads to a change in mindset that is perhaps the greatest benefit of the Integrated approach.

The mechanism for soliciting and comparing competitive proposals can be quite simple. Contractors do not need a large formal design package to provide competitive proposals on most aspects of their pricing – they only need a good idea of the general scope, project approach, schedule and Owner requirements, which can be captured in a document of only a few pages. Contractors can quickly provide competitive pricing proposals for:

- Labor rates
- Mark-up percentages on materials and equipment
- General conditions and overhead costs
- Mark-up percentages for profit
- Multiplier factors on published labor productivity indexes, such as the Mechanical Contractors of America (MCA) or National Electrical Contractors Association (NECA)

Note that the factors noted above are the key drivers of the Contractors' pricing, and the key areas over which they have pricing discretion. So, while the competitive pressure is exerted in a different manner, and at an earlier time, it is not diminished.

Note that the Integrated approach does not rely on blind trust to make sure pricing is reasonable. Open book pricing and a high degree of transparency are essential elements. Contractors must be willing to fully disclose and justify their costs and must be willing to work with the owner and the rest of the team to identify and mitigate high cost items of scope. The ability of the contractor to understand the approach and the willingness to operate in a transparent manner are key factors in the selection process. The owner, perhaps assisted by a construction manager, can then review the contractor's estimate and quotes from his material suppliers to arrive at a fair price using the competitively negotiated cost factors once the physical scope has been established.

This was highly apparent in a recent project where the entire team of designers, contractors, and the owner combined their efforts to complete a complex retrofit in an aging facility at a cost and schedule that none of them considered feasible under a traditional delivery approach. Part of the success came from reviewing the scope and costs on a line item basis is a highly collaborative manner, allowing the entire team to work together to develop a combination of scope and price that met the owner's requirements with remarkably few scope gaps. This created a sense of alignment rarely seen on complex projects resulting in cost nearly 30% lower than original expectations. The project was completed with change orders totaling only 3% of the original contract amounts, and nearly all of that was to add enhancements the owner could afford because such a small proportion of his contingency had been spent on other changes. Those results are truly outstanding for an industrial retrofit involving new process technology.

Competition comes from many sources. The Integrated team is also competing with the challenge of delivering a project that meets the Owner's needs at a price that makes the project viable. Contractors still must carefully focus on the bottom line cost, because if they collectively do not come up with a price that meets the owner's requirements there is no work for anybody. This is nearly always a challenge, and provides strong motivation to eliminate waste and create an efficient solution. In summary, the pressure to control costs is no less in a well executed integrated approach than it is with competitive bidding.

Clear Cost Advantages Available Via Integrated Delivery Approach

The paragraphs above explain how competitive leverage can be retained in an Integrated approach. Further, the costs associated with risk and contingency can be reduced in such a way as to more than offset whatever competitive pressure might be foregone by using the approach. Now, let's move on to where the Integrated approach has clear inherent cost advantages analogous to the benefits that taking cover and then firing upon unprotected opponents provided to the American rebels.

First, contractors and other members of the supply chain have knowledge and background not available to the owner or the designer. An Integrated approach encourages direct communication between the owner's staff and the contractors that is otherwise not possible or even permitted. The entire team can be engaged to develop innovative solutions, not just the design team. This makes sense, as contractors have likely seen similar issues addressed by other design efforts and have lived through solving the problems of designs that didn't fully address all of the technical challenges. If the project issues are complex enough to warrant an innovative solution, it only makes sense to engage as much expertise as you can to develop alternative solutions early enough that they can be utilized. Very valuable input is often preceded with words such as "if that's what you're trying to accomplish, why don't you consider this?" It seems logical that finding a simpler way to meet the owner's goals will probably save more money than getting really competitive pricing on a more costly solution. There were countless examples of this on the recent project mentioned in the previous paragraph.

The design effort can also be more efficient in an Integrated approach. Contractors suggestions can be considered before the design team has committed to a particular approach, making the constructability input far more valuable. These same insights, if delayed until the design is largely completed, likely could not be utilized without substantially reworking the design, which introduces an unacceptable cost and schedule penalty and greatly increases the risk of interface errors. Design efficiency is therefore much greater if the constructability is built in, rather than crammed in after the fact. Further, the design team can focus its efforts on preparing documents the contractors need and less time preparing those that are left un-read. This savings of effort can translate directly to a shorter schedule, which in turn leads to greater flexibility and lower costs. On the recent project example this allowed the design team to release their packages several weeks earlier than would have been possible otherwise and those documents matched the scope and budget that had already been established.

Cost certainty, and the ability to design the project to stay within a target cost, is another major cost advantage of the Integrated approach. The project scope and target budget can be set at near the outset of the project, with the entire team focused on delivering the completed project within that budget. The scope, therefore, is the *driver* of the design rather than a *outcome* of the design. The owner knows with a high degree of confidence that the project can be delivered at a cost that supports his financial business model before committing extensive time and money for the design effort. This was a huge benefit to the owner of our recent project, as they would not have been able to secure funding for the project without this cost certainty.

The contractors' role in developing and defining the scope is another key to the greater degree of cost certainty. Contractors' responsibility for defining scope in a Traditional contract is very limited. In fact, they can bid only that work explicitly identified by the contract documents because doing otherwise would put them at a competitive disadvantage. This leaves the owner, or perhaps the designer, responsible for scope gaps or discrepancies. An Integrated approach can be very different. Contractors, in exchange for their exclusive position on the project, accept far more responsibility for defining and pricing a complete system and the competitive pressure to ignore or omit potential scope and costs is removed.

Of course, market forces have a major bearing on pricing. The Traditional approach allows the contractors to charge whatever the market will bear, providing the owner with essentially no visibility or input to the underlying costs. The Integrated approach allows the owner a high degree of visibility, including the mark-ups and allowances he is being charged, providing obvious advantages in hot markets. It's surprising how often we insist on an approach that maximizes market leverage even when the leverage is working against us. Less obvious is how this market leverage factor affects a Traditional contract if there are changes after the contract is signed; the leverage that the owner used to drive prices down is reversed, and he is pretty much stuck with a single source supplier who may feel entitled to coerce very high prices. After all, the owner used the full force of market leverage against the contractor when he had the chance. The transparency and underlying culture of the Integrated approach greatly reduce the potential for unreasonable change order pricing. My experience is that many events that would have been considered "changes" on Traditional projects are simply absorbed in stride without modifying the contract amount on a project using the Integrated approach.

A Different Mindset

Probably the biggest difference between the Traditional and Integrated approaches is a fundamental mindset. The Traditional approach basically assumes that the goal of the procurement process is to exert competitive pressure to drive contractors to their lowest costs, and that all competitors must be bidding on a common scope in order to facilitate the competition. The Integrated approach, in contrast, presumes that contractors should be part of developing the solution. Perhaps more fundamental are the underlying views about trust and how people work together to accomplish a complex undertaking. Table 1 contrasts the two viewpoints as they relate to several major factors:

Table 1:Collaboration and cooperation are not mutually exclusive - Contrasting traditional and integrated approaches

Factor	Perspective and Assumptions of Traditional Approach	Perspective and Assumptions of Integrated Approach
Contractor Selection Criteria	• Lowest cost on a pre-defined Scope so long as bidder meets minimum criteria	• Qualifications & Expertise • Pricing (Mark-Ups, Overheads, Labor Rates)

Factor	Perspective and Assumptions of Traditional Approach	Perspective and Assumptions of Integrated Approach
Key Assumptions Regarding Selection	• All bidders are equal, or nearly so, as long as they meet minimum requirements	• Contractors have expertise and pricing information that can shape the basic design decisions, and therefore have a large impact on project cost • Contractors are not commodities – the selection of a specific group of contractors can have a large impact on project success
Communication Protocols	• Interaction between contractors and operators restricted and controlled by procurement officer • Communication is formal, and primarily through documents	• Scope and requirements are developed through extensive inter-active conversation, and then documented. • Direct contact between contractors and owner's operators is essential for both parties.
Presumed Contractor Motivation	• Charge as much as the market will allow • Exploit changes or ambiguities after award to maximize margin or recover pricing required to win the job	• Working to help Owner develop a solution to a problem • Earn a reasonable, and transparent margin, at a reduced rate of risk
Alignment of Interests	• Low • "Win-Lose" and "Zero Sum" • Confrontational and Adversarial	• High – contract arrangements and project culture align interests
Contractor's Responsibility to Indentify Scope	• Contractors have almost no responsibility for defining Scope • Contractors must bid only the Scope clearly shown on the contract documents	• High – Contractors accept responsibility for recognizing and defining the scope in return for an exclusive position on the project team. • Contractors generally not eligible for change orders unless the Owner has made a change in requirements • Must select contractors that can "see what is not on the drawings"
Degree of Transparency	• Very low – in many cases, the Owner is entitled to see only the bottom line price • Unbalancing bid line items and other gamesmanship approaches are common strategies to disguise true costs.	• Very high – Contractors must agree to full "open book" review by Owner • Owner can see the actual cost details, and work with Contractor to find less expensive solutions on a line item basis, if necessary
Role of Gamesmanship in Project Administration	• Very high – the focus and talent of project team is often devoted to advocating positions – not on developing creative solutions to problems. • Contractors may knowingly allow Owner to proceed with faulty cost assumptions	• Low – Transparency does not promote or allow for much gamesmanship (if you see gamesmanship, you've hired the wrong company)

Factor	Perspective and Assumptions of Traditional Approach	Perspective and Assumptions of Integrated Approach
Use of Constructability[2] and Value Engineering	• Constructability "reviews" after key design decisions have been made are largely ineffective • Input is too late to be incorporated without reworking the design. • Reworking design represents waste and added risk • Value Engineering is typically an exercise to slash scope, disappoint the Owner, and add risk • Extensive time can be lost while trying to recover from scoping more work than the Owner's budget would allow.	• Constructability "previews" are highly effective, as options are discussed and debated before effort is spent transforming them into a design • Constructability and Value Engineering are built in from the beginning – not "repair jobs" at the end • Up-front constructability is key to design quality – you can't expect to get high quality by doing, then inspecting, then fixing

Reviewing the table suggests there is more at work here than a contracting arrangement – the real difference is a way of thinking. This contrast in outlooks seems very similar to what Douglas McGregor described as Theory X and Theory Y in his work on human motivation in the 1960s. McGregor found that managers tended to have either a Theory X perspective, believing that workers were basically lazy and had to be coerced, or a Theory Y view, which assumed the workers were basically well intentioned. The discussion on contracting approaches seems to follow a similar pattern. Some see contractors as commodities that must be coerced into a low price and controlled into compliance. Most of our construction contracts appear to be based on that view. Those that favor an Integrated approach may relate better to the Theory Y view, and believe that building an aligned team is the way to superior performance.

Conclusions - What is the Goal?

Think about the British commanders of a couple of centuries ago. Perhaps they confused the goal of controlling their troops with the goal of winning the battle, exposing them to risks they did not recognize. Our disciplined approach to contracting may expose us to risks and costs we similarly have not fully considered, including the opportunity costs associated with restricting the ability of the team to engage with one another to solve a common problem. With regard to your project, what are you trying to accomplish? Is your focus on optimizing competitive pressure on contractors, or is your focus on making sure you've delivered the best value for the owner? In my mind, it only makes sense to have the contractors fighting for you rather than against you.

Let's consider the track record of the Traditional approach. While many projects have been successfully delivered this way, the literature and courts are full of examples of projects that were miserable for everybody concerned, except the attorneys and claims consultants that profit from conflict. The battle metaphor used in this paper is, unfortunately, all too applicable. When project participants speak as though they are preparing for battle, it's no surprise that they find one. Contracts and procurement processes have become more and more complex, yet the results don't improve. Reacting

[2] Most effective constructability, as determined by Construction Industry Institute, requires the actual contractor, not a surrogate

to the problem with more complex and onerous contracts has apparently served to exacerbate, rather than relieve, the problem.

If we observe the actions of project teams on traditional projects it is clear they devote much of their energy to current or potential conflict. Perhaps we should stop to recognize that none of this posturing is adding any value to the owner's facility – it is pure waste that adds time, cost and misery to the project. The Integrated approach takes a different perception and addresses what some believe to be the root causes of the project failures: poor understanding of scope, poor alignment of interests, and inadequate means of communications. My personal experience is that this approach has allowed us to deliver results previously not considered possible, while creating an atmosphere that allows the project participants to thrive while working toward a common goal. The culture of collaboration is simply more effective and more positive for the participants than a culture of distrust and confrontation. Doesn't that seem obvious?

Retrospective discussions of projects that have turned out well almost always identify teamwork, communication and cooperation as the key factors that led to the success. Doesn't it make sense to arrange our contracting strategies to embracethese positive behaviors rather than ignoring, or perhaps even prohibiting, them? Perhaps by reconsidering what our real goal should be we can better move towards achieving it. Like the American rebels taking advantage of natural cover, we may find ourselves exposed to much less hostile fire and in much more of a mood to celebrate victory.

This paper is based upon the author's experiences and observations and was not intended as a research paper. The intent, rather, was to make a case for a way of thinking that will make our projects more effective and enjoyable. It is hoped that others will build upon this line of thinking through thoughtful research.

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