

Negotiating an Integrated Project Delivery Agreement



HansonBridgett

*Howard W. Ashcraft, Jr.
Hanson Bridgett LLP
425 Market Street, 26th Fl.
San Francisco, CA 94105
415 995 5073
hashcraft@hansonbridgett.com*

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1. INTRODUCTION

Integrated Project Delivery² (“IPD”) approaches design and construction from a perspective that is fundamentally different from traditional processes. Negotiating an IPD agreement also requires a fresh perspective, unfettered by traditional contracting concepts. In many instances, the contract negotiator must “unlearn” rules that have served him or her well, but are not functional or relevant in an integrated project. Moreover, negotiating an IPD agreement is not a separate act from the project itself. The negotiation process is the IPD team’s first collaborative effort and will deeply influence its ability to smoothly collaborate as the project unfolds.

This paper provides a practical approach to IPD contract negotiation that draws upon IPD principles as a basis for the negotiation process. The discussion assumes that the parties are signing a single, multi-party agreement. Other approaches are possible, including individual but interlocking agreements and separate single purpose entities. But we believe the multi-party agreement is simpler, less prone to inconsistency, and is the approach we most commonly see. In addition, the process of jointly negotiating and documenting the integrated agreement deepens each party’s understanding of the others’ interests. And when executed, it expresses each party’s commitment to their jointly defined goals. Despite this multi-party agreement bias, most of the discussion is relevant to negotiating IPD agreements, regardless of form.

2. NEGOTIATION BASICS

Negotiation is not about contract language. It is about finding and defining the intersection of the parties’ interests. If there is a substantial intersecting area, the parties gain sufficient benefit to support undertaking a project. But if interests do not overlap, the project will end poorly. Finding the common interests and getting the deal right is the first step in negotiation. Too often, negotiation starts with an exchange of proposed contract language. But this diverts attention to miniscule details that obscure the fundamental issues that need to be discussed. Good contracting follows this rule: *deal first, language second*.

One approach is to focus on the reasons the parties want to enter into the transaction. The reasons can be exposed by having each party list its most significant goals and fears, which leads to a list of common goals and common fears and defines the intersection of interests. From this list, we develop an abbreviated document that reflects the key aspects of the commercial transaction *and does not undermine the common goals or intensify the common fears*. Because it is short and spare, the key terms summary reveals the fundamental points in

¹ Partner, Hanson Bridgett LLP, San Francisco, California; Fellow, American College of Construction Lawyers; Honorary Member, AIACC; Steering Committee Member and Legal and Risk Chair, AIACC Integrated Project Delivery Taskforce.

² This paper uses the term Integrated Project Delivery for projects where the key participants are involved from an early stage of design, the project is jointly managed by the project team, and risk and reward are shared based on project outcome. IPD is sometimes loosely used to describe projects that do not have these attributes, but use BIM or have pre-construction services. These are useful practices, but by themselves they are not IPD.

the parties' agreement that are often difficult to discern in the completed contract. This key terms summary informs how the contract will be developed and a guide to assuring that the contract language is not working against the parties' agreed deal. The contract is, thus, aligned to the parties' interests and is a tool that helps them manage the project, not just a weapon wielded in litigation.

3. CHANGING MINDSETS

Experienced contract negotiators have mental “do” and “don't” lists that they have developed through hard experience. It has been said that the strategy of generals is designed to win the last battle of the last war. Similarly, contracts contain language that is designed to prevent a “never again” event, even if the situation has changed and the event will not likely reoccur. The accretion of these provisions complicates the document and obscures the fundamental transaction. When you negotiate an IPD agreement, you need to draw on your experience, but not be bound to it, because IPD presents a different set of issues that require new responses.

If all of the parties and their principal representatives have prior IPD experience, you can begin by developing the intersection of interests—or if they are all highly experienced with IPD and with each other—may move directly into documenting the agreement. But in current practice, a significant number of the participants (including their counsel) will have little IPD experience and will not understand what IPD is and why IPD works. Thus, they will raise concerns and propose solutions that are valid in other contexts, but are antithetical to IPD principles and undermine the IPD agreement. Once taken, these positions are not easily abandoned and can derail or complicate negotiations.

There are several areas where we have found that prior contracting experience can actually impede IPD negotiation. Three examples are set forth below.

Standard construction agreements seek to specify, in as much detail as possible, precisely what the parties must do and the procedural and notice requirements they must follow. This approach makes less sense in an IPD project for several reasons. When the IPD agreement is executed, what will be designed and how it will be constructed is not yet known. In addition, because IPD assumes that work will be performed by the best person for the task, exactly who will do the work may also be unknown. Thus, one can't specify everything in detail. Moreover, most IPD agreements have some level of joint management by the principal parties. IPD expects the team to develop the most appropriate methods for meeting the owner's goals, which requires flexibility, not specificity. Finally, because the IPD agreement will waive or limit the parties' liability to each other, it makes little sense to have detailed provisions that are unenforceable because of the agreed waivers. In an IPD agreement, the focus should be on the powers delegated to the parties, which powers are executed jointly, and which are executed by an individual party. The contract should empower the team, not limit it.

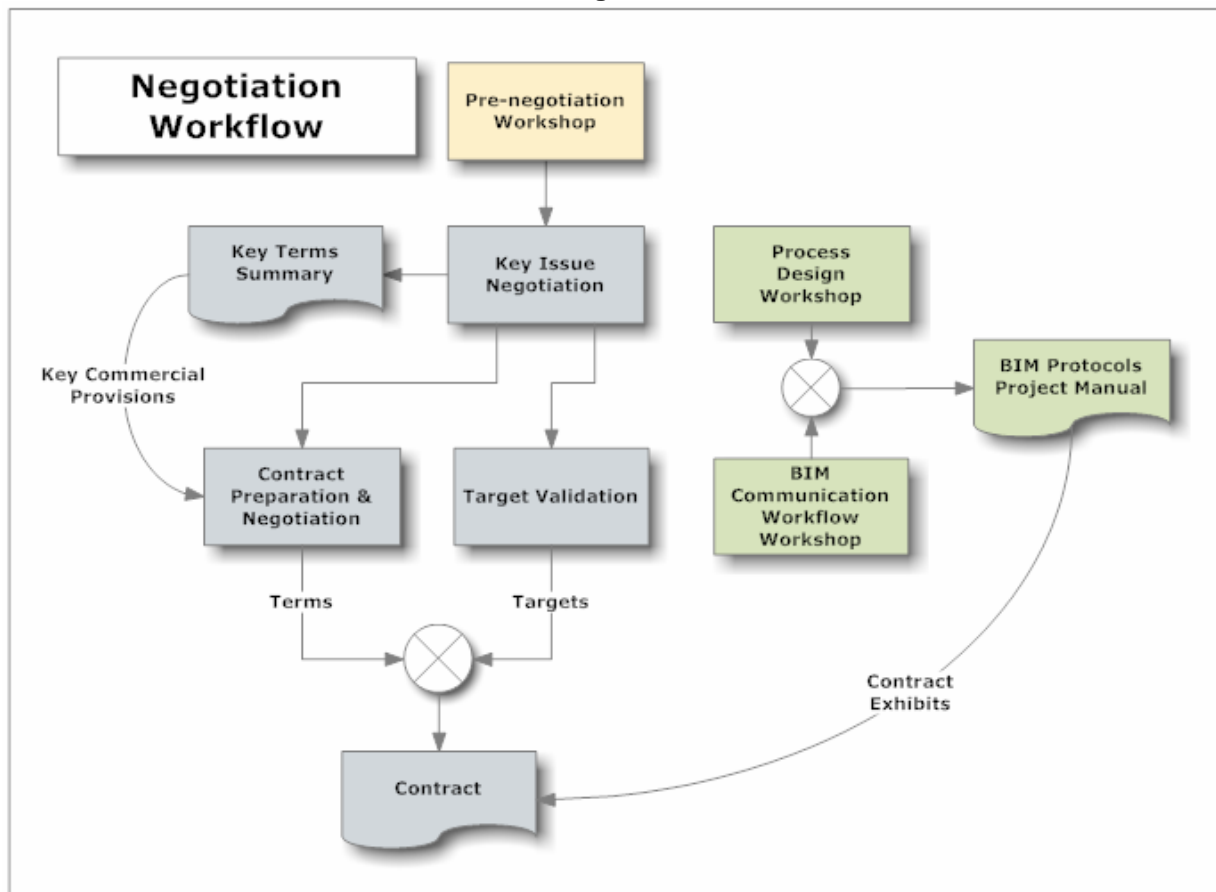
The concepts of a target cost and target cost design can also create difficulty. For a variety of reasons, the target cost should be set relatively early in the project. But conventional wisdom (based on lump sum and GMP agreements), argues that setting the target cost should be deferred until the design is more fully developed and a more accurate estimate can be made. But this is a return to the design, estimate, value engineer cycle that IPD seeks to break. In IPD, the design is developed to the budget so it makes little sense to create the design first. Moreover, much of the fear is based on GMP thinking. If the contractor guarantees the price, it is very risky to use an early and possibly inaccurate target because the contractor must fund

project overruns. But in an IPD project, the parties are only risking all or a portion of their profit, because the owner pays all direct costs. Thus, the consequence of an overly aggressive target is less severe than the consequence of an inadequate GMP. Despite this difference, we find that GMP habits are hard to break.

Finally, preconceptions regarding the nature, amount, and use of contingency can confuse the parties. In a basic IPD agreement, the primary metric is whether the project is achieved within the targeted cost. Because the parties are using target value design, the traditional design contingency does not make sense. Moreover, because the target is set early, it already contains some quantification of uncertainty. Thus, arguably *no* contingencies should be in an IPD agreement (and some have none). The real issues are the timing of target definition, what should the targets measure, what events cause an allowable change to the cost target or schedule, and whether the events also affect the parties' profit. But parties reluctantly abandon contingencies that they understand and which are necessary on traditional projects.

Unless mindsets are changed, negotiating an IPD contract may be difficult and frustrating because too much time and effort will be spent on the wrong issues. One solution is to have an IPD workshop *before* any negotiation takes place. The workshop covers what IPD is, why it works, how it differs from traditional project delivery approaches, and discusses holdover thinking, such as the three issues highlighted above. The workshop creates a common level of understanding, allowing the parties (and their counsel) to focus on the issues that will make their IPD agreement successful. Below is a basic negotiation workflow.

Figure 1:



4. PROJECT DIMENSIONS

IPD projects are not “one size fits all,” and IPD contracts must similarly reflect the differences between projects and the project participants. These project dimensions must be understood and accommodated in the IPD agreement.

4.1 The Deep Goal

Why is the owner pursuing this project? If the owner intends to sell the project when it is completed, reducing the design and construction cost, and thus increasing the Return on Investment (“ROI”), may be the overriding concern. If the facility is key to bringing a product to market, schedule may be the dominant issue. Where the facility will produce a commodity, then the goal may be tied to cost of production and life cycle costs. And if the facility is for the owner’s use, then the owner may be less interested in completing the project under budget than it is in maximizing the value received for the budgeted amount. If there is an underrun, the long-term owner may want to spend the difference to obtain more features or additional capabilities rather than save already budgeted funds. These differing deep goals affect how targets are defined and the structure of compensation and risk/reward provisions.

4.2 Funding

An owner that self-funds a project has great freedom in how the project is structured. But an owner that uses borrowed funds may be significantly constrained. Lenders often want to have designs well developed before they decide whether to fund the project. Because the project might not be funded, owners may want to limit the amount of design work occurring before the funding decision. But IPD projects involve more parties in the design process and shift design work to earlier phases. The borrowing owner must, therefore, pay for more design work from its own funds, because the work must occur before borrowed funds are available. In addition, lenders may have little understanding of IPD and may demand “hard” pricing or may impose contract terms.

4.3 Duration

The project duration can affect the basic contract structure. If a project is relatively brief, the parties can afford to defer all profit until the project concludes. But in a longer project, the parties may not be able to operate if all profit is deferred. This leads to placing a smaller percentage of profit at risk or to using milestones, such as issuance of a building permit, to allow distribution of a portion of the withheld profit. In addition, if the project is quite long, there may be insufficient connection between selfless action and the eventual payoff from a successful project.

Project duration also affects the amount of organization, team building and target validation effort that can be afforded. Although these activities are extremely valuable, shorter projects must necessarily reduce the time spent on organizational and administrative efforts. When developing shorter projects, established teams are preferred because they understand the basic values of an IPD project and have previously worked through the details of an IPD transaction.

4.4 Uncertainty

The Project Alliancing³ delivery method was originally developed for oil exploration in the North Sea. At the time the projects were proposed, no one knew what the projects would cost, whether they were technically achievable, and what the price of crude oil would be when it was sold. To meet these challenges, the parties developed a highly flexible collaborative project delivery approach. Integrated Project Delivery is a descendant of Project Alliancing and shares its flexible ability to respond to uncertainty.

Three aspects of IPD directly respond to uncertainty: joint project management, joint sharing of risk/reward, and liability waivers. Joint sharing of risk/reward makes project outcome paramount. Liability waivers remove fear that dampens creativity. Joint project management gives the team the ability to develop and implement solutions. How deeply one implements each concept is determined, in part, by the level of uncertainty.

4.5 Participants

The character of the organization, its ability to make decisions, its tolerance for risk and its internal and external regulations all affect the parties' ability to fully engage in IPD. Although these factors affect all participants, in practice, the owner is limited more severely than the designers and builders. These limitations should not be overlooked. Although some owners like the benefits of IPD, they can't perform in an IPD project because they don't have sufficient staff to be an active project participant, can't make decisions swiftly, need "absolute" cost guarantees, or have other limitations. IPD requires a sophisticated and capable client.⁴ If the client does not have these capabilities, IPD may be the wrong project delivery model.

One technique for addressing these issues is to have the owner develop a staffing plan that shows who it will be dedicating to the project, how much time they will be dedicating, and who has real authority for decisions. At the very least, the development of a staffing plan stimulates discussion of what an owner's roles are in IPD and whether this owner will be capable of fulfilling them.

The experience of the other parties, and particularly their experience, or lack of experience with each other, must also be considered. Concepts such as target value design and BIM interoperability are easy to express, but difficult to accomplish. Less experienced teams will require more extensive coordination and integration efforts.

If there are questions regarding the parties' experience with IPD or with each other, a Process Design phase should be inserted before the Conceptualization Phase.⁵ This phase is used to develop the procedures, protocols and trust that the project will require.

³Project Alliancing has been extensively used in Australia and New Zealand to deliver public infrastructure. The *Project Alliancing Practitioner's Guide*, published by the Government of Victoria, is a very good primer to the Australian approach.

⁴ Some capability gaps can be filled by consultants, but the fillable gaps are primarily administrative. The owner still must be able to actively make decisions swiftly and competently and to participate as a full fledged participant of the Project Management Team.

⁵ The AIACC's *Integrated Project Delivery: A Working Definition* established phasing terminology that is used in the AIA/AIACC *IPD Guide*, the AIA's Integrated Project Delivery contract documents, and other contracts and forms. The standard IPD phases are Conceptualization, Detailed Design, Implementation Documents, Buyout, and Construction.

4.6 Other Limiters

The ability to implement IPD can be limited by corporate compliance rules (that may require competitive bidding/estimates, for example), public procurement laws, public perceptions, or other limiters. All limiters must be understood if they will significantly affect the project.

5. PRINCIPLES AND POSTULATES

5.1 Principles of IPD

The parties' agreement must reinforce and not undermine IPD principles. In *Integrated Project Delivery: a Guide*, the AIACC/AIA task force listed and described the following nine principles.

(a) *Mutual Respect and Trust*

In an integrated project, owner, designer, consultants, constructor, subcontractors, and suppliers understand the value of collaboration and are committed to working as a team in the best interests of the project.

(b) *Mutual Benefit and Reward*

All participants or team members benefit from IPD. Because the integrated process requires early involvement by more parties, IPD compensation structures recognize and reward early involvement. Compensation is based on the value added by an organization and it rewards "what's best for project" behavior, such as by providing incentives tied to achieving project goals. Integrated projects use innovative business models to support collaboration and efficiency.

(c) *Collaborative Innovation and Decision Making*

Innovation is stimulated when ideas are freely exchanged among all participants. In an integrated project, ideas are judged on their merits, not on the author's role or status. Key decisions are evaluated by the project team and, to the greatest practical extent, made unanimously.

(d) *Early Involvement of Key Participants*

In an integrated project, the key participants are involved from the earliest practical moment. Decision making is improved by the influx of knowledge and expertise of all key participants. Their combined knowledge and expertise is most powerful during the project's early stages where informed decisions have the greatest effect.

(e) *Early Goal Definition*

Project goals are developed early, agreed upon and respected by all participants. Insight from each participant is valued in a culture that promotes and drives innovation and outstanding performance, holding project outcomes at the center within a framework of individual participant objectives and values.

(f) *Intensified Planning*

The IPD approach recognizes that increased effort in planning results in increased efficiency and savings during execution. Thus the thrust of the integrated approach is not to reduce design effort, but rather to greatly improve the design results, streamlining and shortening the much more expensive construction effort.

(g) *Open Communication*

IPD's focus on team performance is based on open, direct, and honest communication among all participants. Responsibilities are clearly defined in a no-blame culture leading to identification and resolution of problems, not determination of liability. Disputes are recognized as they occur and promptly resolved.

(h) *Appropriate Technology*

Integrated projects often rely on cutting edge technologies. Technologies are specified at project initiation to maximize functionality, generality and interoperability. Open and interoperable data exchanges based on disciplined and transparent data structures are essential to support IPD. Because open standards best enable communications among all participants, technology that is compliant with open standards is used whenever available.

(i) *Organization and Leadership*

The project team is an organization in its own right and all team members are committed to the project team's goals and values. Leadership is taken by the team member most capable with regard to specific work and services. Often, design professionals and contractors lead in areas of their traditional competence with support from the entire team, however specific roles are necessarily determined on a project by project basis. Roles are clearly defined, without creating artificial barriers that chill open communication and risk taking.

We have reiterated these principles because in the process of developing contract language, there is a tendency to drift away from the basic principles, especially when parties "borrow" contract language from non-IPD agreements. As you draft an IPD agreement, or modify an existing IPD agreement, you should determine whether the language being considered is necessary, whether the issue is better decided by the project team, and whether the provision impedes or supports the IPD principles.

5.2 Postulates of IPD

The IPD Principles define the elements that should be included in an IPD agreement. When negotiating an agreement, it is also useful to think about *why* IPD works and commitments are required for IPD to be successful. These are the Postulates of IPD.

(a) *Project Optimization Requires Collaboration*

White papers by CURT,⁶ discussions of Sustainable Integrated Design,⁷ game theory and the adage that "all float higher on a rising tide," support collaboration as

⁶ Construction Users Roundtable. CURT is a leading owner organization and has published two white papers that strongly recommend the use of integrated construction processes. *Optimizing the Construction Process: An Implementation Strategy*, CURT WP-1003 (July 2006) and *Collaboration*,

necessary for improved project performance. In IPD negotiation, this leads to minimizing local optimizations (i.e., compensation based on individual performance) in favor of project optimizations and jointly choosing strategies that maximize project outcome.

(b) *Collaboration Unlocks Creativity*

A few individuals are most creative when isolated—but very few. Most people develop ideas better and more quickly when stimulated by others. Moreover, different experiences and perspectives lead to evaluating a wider range of options. If you can create an environment where ideas are freely exchanged based on their merits rather than the author's status, creativity will be enhanced.

(c) *Joint Control Creates Joint Ownership*

No one takes responsibility for something they cannot control. But if they are given authority and exercise control, they become committed to project success. This commitment to the project leads to concern for more than their narrow area of responsibility. If they want the project to succeed, they will be interested in and will interact with all aspects of the project. This leads to contractors concerned with design and designers concerned with construction.

Creating joint control has an additional benefit. Research on risk perception shows that people fear most what they cannot control.⁸ By providing joint control you can reduce fear, which translates into greater opportunities for creativity and reduced “risk buffers”, such as contingency allowances.

(d) *Challenge Stimulates Creativity*

Necessity is the mother of invention. IPD in the United States has been most deeply adopted in health care construction for a simple reason: hospital costs have skyrocketed during the last 5 years. As a result, owners must look at innovative approaches because the *status quo* is clearly failing. Similarly, sustainable design creates challenges that cannot be adequately met through traditional processes. Quantum improvements are not achieved by doing more of the same. Setting aggressive cost targets stimulates creativity by forcing the team to realize that conventional approaches cannot reach their goals and that new ideas are required.

Integrated Information and the Project Lifecycle in Building Design, Construction and Operation, CURT WP-1202 (August 2004).

⁷ Informative Appendix G, BSR/ASHRAE/USGBC Standard 189.1P *Standard for the Design of High-Performance Green Buildings Except Low-Rise Residential Buildings* (IESNA 2008 Review Draft) Note that ASHRAE interchangeably uses Integrated Design and Integrated Project Delivery. See also, Krygiel, E and Nies, B, *Green BIM*, Sybex (2008) particularly Chapter 3, Integrated Design Team; and U.S. Department of Energy, *Greening Federal Facilities* 2nd Ed., Part 4.1 Integrated Building Design, U.S. Department of Energy and *Integrated Building Design for Energy Efficiency*, <http://fac.usu.edu/departments/d&c/HPD/EERE%20Integ%20Design.pdf>.

⁸ For a general discussion of risk perception, see Lennart Sjöberg, *Factors in Risk Perception*, Risk Analysis, Vo. 20. No. 1 (2000).

(e) *But Fear Creates Defensiveness*

You can go too far. If the challenges are too severe, particularly with setting cost targets, the parties will recognize that failure is likely. Instead of meeting this challenge, the parties will insulate themselves from the outcome by reducing their responsibility and blaming others. When a project commences, the parties should be “breathing hard” because of the challenges, but should not be “hyperventilating” in fear.

These concepts drive the IPD process and must not be undermined by the contract.

6. CURRENT CONTRACT OPTIONS

A companion paper compares key features in the currently available form contract documents and the approach Hanson Bridgett has taken in a series of recent projects. In our view, the deal should come before the contract and the contract should be built around, or should be modified, to document the deal. Thus, all of the form contracts require modification for a specific project, and for some standard forms, modification may be impractical.

6.1 ConsensusDOCS 300

ConsensusDOCS 300 is a multi-party agreement that traces back to the Lean Construction Institute contract and the agreements used by Sutter Health. Some of this heritage, particularly its reference to Lean⁹ production philosophy, is evident in the document. There are many good concepts in this document, but it falls short of complete adoption of IPD principles. For example, although there is a project management group, the owner retains the right to make all decisions. The target cost is also set late, similar to a traditional GMP agreement. This late setting removes incentive from the designer and unbalances the sharing of risk/reward between designer and contractor. The document also retains the possibility of traditional risk allocation and has more traditional approaches to contingency. Modification of the document can resolve many of these issues, but the team should recognize that the document was drawn from and reflects the needs of a specific owner.

6.2 AIA A195/A295/B195

This AIA set is included because they are offered as “transitional” IPD agreements. We believe these contracts are a good attempt to document an existing and often used model: cost plus with a guaranteed maximum price and pre-construction services. Although this approach is more collaborative than very traditional approaches, it is neither new or truly integrated.

6.3 AIA C195

We believe this AIA set is truly integrated and is worth studying. But the vehicle chosen, creating a project based limited liability company, creates corporate management and compliance issues, tax considerations, professional licensing requirements, and other complexities. Thus, it must be modified for a specific project and will likely not be used except on projects large enough to support the additional administrative overhead.

⁹ Lean is an application of the Toyota Management System to design and construction and was developed by the Lean Construction Institute. <http://www.leanconstruction.org>. Lean and IPD overlap in their common support for collaborative project delivery.

6.4 Hanson Bridgett

We have used a custom multi-party agreement that is based on the principles announced in the *IPD Guide*. Key features include:

- Early involvement of key participants;
- Aligning interests of the project team;
- Early target setting to enable target value design;
- Joint project management, with owner protection;
- Sharing of risk and reward on a project basis;
- Adjustments to compensation based on quality as well as cost and schedule; and
- Waiver of liability for project outcome (schedule and cost).

This basic approach is then modified to match specific projects and teams and to accommodate the project dimensions discussed previously. In addition, other provisions, such as interim milestones and design incentives can be used to further tailor the contract and achieve specific objectives.

We prefer this approach because it is relatively straight forward and consistent with IPD principles. In addition, a single agreement is less complex than a single purpose entity or interlocking joining agreements and has less risk of inconsistency. Moreover, the process of negotiating a multi-party agreement, and the psychological commitment of signing a single agreement, starts the project in a spirit of collaboration.

7. PRINCIPAL ISSUES

We have divided negotiation issues into principal issues and subsidiary issues. The subsidiary issues are also important, but we have found that certain issues require more negotiation effort than others. Also, some necessary contract provisions are so distant from the deal drivers that they are not ordinarily negotiated and we will not discuss them in this paper. We assume that, for the foreseeable future, any IPD agreement will be reviewed by construction counsel who should assure that the contract mechanics are adequately covered.

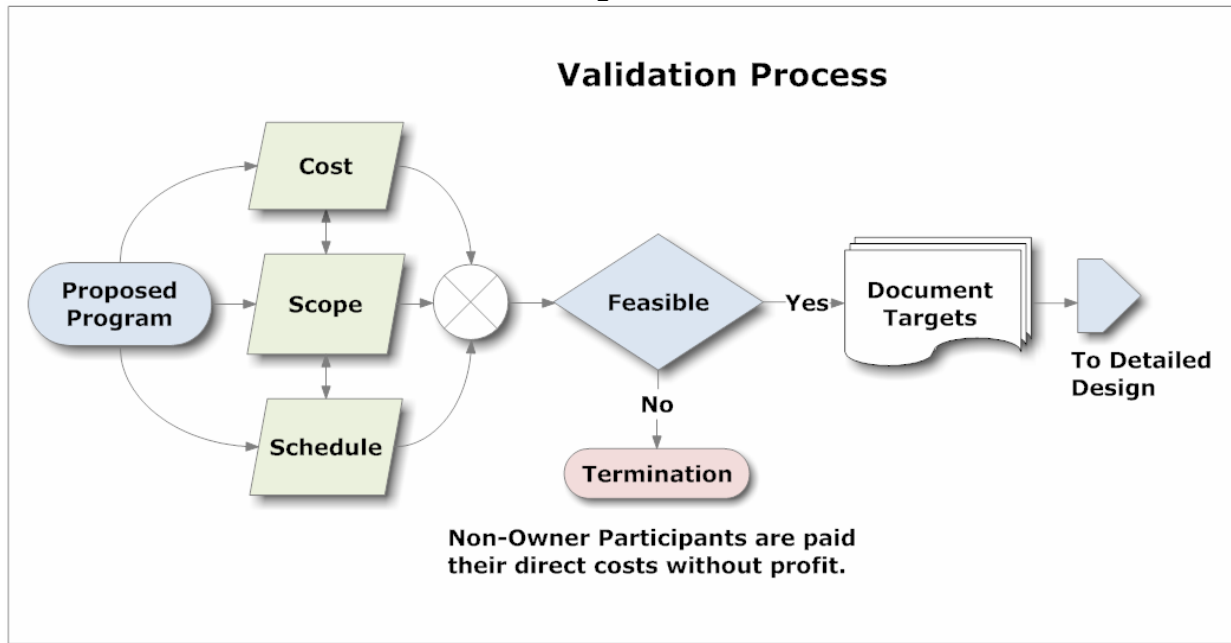
7.1 Project Scope

IPD is a flexible means to efficiently design and construct a project. Because the agreement is executed before design is well advanced, it is impossible to predefine all aspects of the delivered outcome. As the project progresses, the parties may have different opinions whether a specific item is within the initially contemplated scope, or is a justified change to the target cost. In our agreements, the Project Management Team is the first arbiter of scope issues, but if disputes continue they must be resolved by senior representatives, and in some instances, through the disputes process. It is better to avoid these disputes by developing a common understanding during negotiation of what is being designed and constructed.

The approach we and others have taken is to use a validation period. During the first phase of design development, the parties jointly refine the owner's initial program and determine whether it can be achieved within the proposed target cost and schedule. Although this occurs after the contract is executed, it is still part of the negotiation process because the project will terminate if the parties cannot agree on scope, cost and schedule. Validation is usually completed after the conceptualization phase and documented in a report or reports that

detail scope, targets, performance metrics and schedule. This process requires effort, but is critical to establishing the common basis for understanding that avoids or minimizes later scope disputes.

Figure 2:



The method used for defining project scope is also important and must reflect the owner's deep goals. For example, if the deep goal is designing and constructing the project as efficiently as possible, the project scope needs to be specified in detail. By setting efficiency as the primary goal, the team is incentivized *not* to include items unless they were reasonably inferred from the initial program. If the scope is vague, disputes are likely. In contrast, if the deep goal is maximizing value for a defined budget, the incentives should reward the team for increasing the project value rather than reducing project cost. A minimal scope must still be defined, but the contract should focus more attention on how to reward exceeding the minimum scope. And if time to market is the most significant goal, then incentivization should first favor schedule reduction and then seek minimizing cost or maximizing value. In practice, most projects contain a blend of goals and the scope definition must reflect a similar balance.

The content of the validation documents will differ depending upon the method chosen to define scope. The documents may contain programming information and a prioritized list of goals. It may include schematic drawings and a matrix of included features. It may have a list of elements categorized as required or desirable. Whatever method is chosen, it should be sufficient to guide the team in developing the project to meet the owner's goals.

7.2 Management and Decision Making

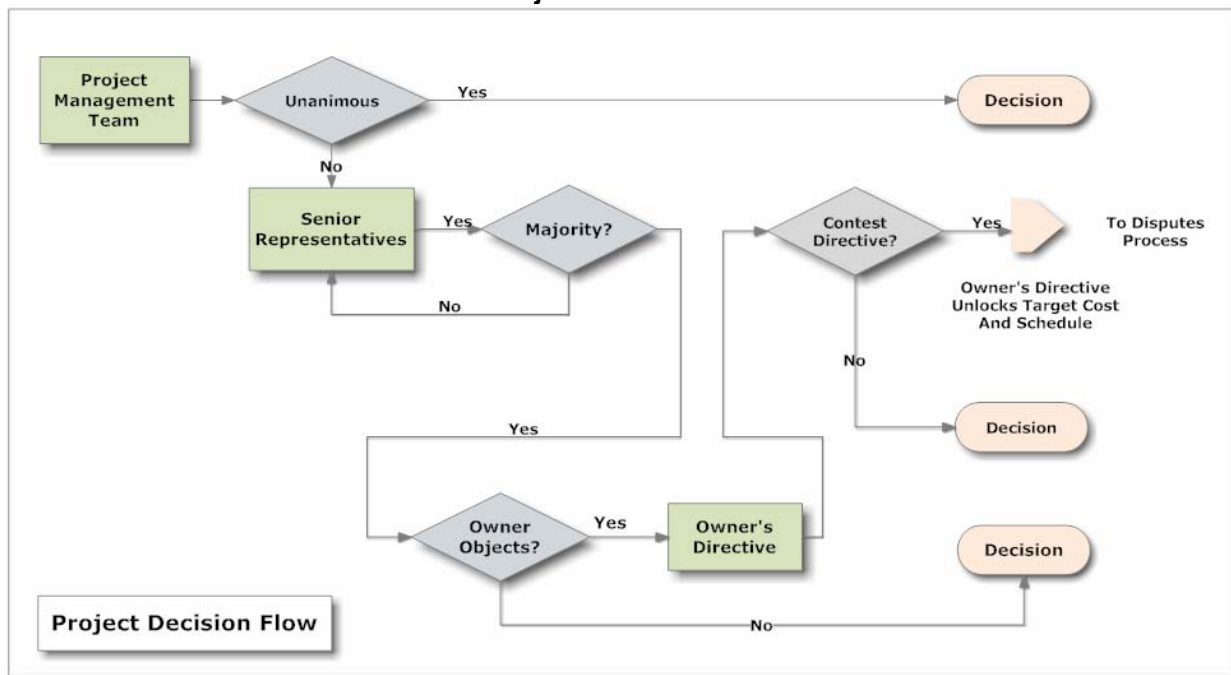
In an IPD project, the team manages the project. But how should decisions be made?

In Project Alliancing agreements, every decision must be unanimous and there are no tie breaking or dispute resolution procedures. To move forward, all must agree. In contrast, there are IPD agreements, such as the ConsensusDOCS 300 and the AIA IPD

agreements that favor consensus, but the owner has ultimate decision making. Although this approach avoids potential deadlock, in the hands of an uncommitted owner it undermines the principle of equitable joint management. And from a practical perspective, many owners do not have the staff or the decisiveness to assume this role.

We prefer a middle ground based on a tiered decision flow. Project decisions are initially made by a Project Management Team (“PMT”) comprised of owner, architect and contractor representatives. The PMT is the executive committee of the project and is responsible for managing the project to meet the previously set goals. All PMT decisions must be unanimous, but if the PMT cannot agree, senior representatives of the parties will decide the issue by majority vote. If the owner is out voted, it can still issue an “Owner’s Directive,” but if it does so, the parties may receive an equitable adjustment to the target cost and schedule. This allows, but restrains, an owner’s unilateral decision. In practice, the PMT makes virtually all decisions with few issues, if any, being elevated to the senior representatives.

**Figure 3:
Project Decision Flow**



7.3 Compensation

Compensation in an IPD agreement has three objectives. First, it should provide a fair return for a party’s efforts. Second, it should encourage the parties to act in the best interests of the project and to stimulate efficiency and creativity. These objectives are accomplished by tying a significant portion of compensation to project outcome, rather than individual performance. Third, it should buffer cost overruns. The buffer, which is funded by the “at risk” portion of compensation, must be large enough to keep anticipatable overruns within a range of acceptable results.

Although there are a number of compensation strategies, the default approach we use is bounded by two numbers: the target cost and the maximum contribution amount. The target cost is the amount the parties have jointly agreed the project will be designed to and is

the standard for determining economic success. The maximum contribution amount is the amount of profit the parties have placed at risk and is usually all, or a percentage, of the profit they would normally obtain on a similar project. The owner guarantees payment of direct costs (actual costs, allocated overhead, and in some cases, a percentage of anticipated profit) until the target cost is reached. The portion of profit that is “at risk” is not paid during this period. If the project is completed for less than the target cost, a portion of the savings and any “at risk” profit is paid to the participants. If the target cost is exceeded, the owner continues to pay direct costs, but for each dollar above the target, the amount of “at risk” profit to be distributed is also decreased by a dollar. This sharing of costs continues until the “at risk” profit is exhausted. Assuming that costs continue beyond that point, the owner pays the direct costs until the project is complete.

An example of this approach is summarized in the table below. The Incentive Compensation Layer (“ICL”) is the amount of profit the parties have put at risk that is either increase or decreased depending upon project outcome. Notice that this approach uses a different accounting method for the designer and the contractor. The designer’s “break even” compensation is approximated by a negotiated multiplier times direct salary expense. The contractor’s “break even” is approximated by a fee times allowable costs. This reflects traditional differences in designer and contractor project accounting.

**Table: 1
Sample Risk Sharing Compensation System**

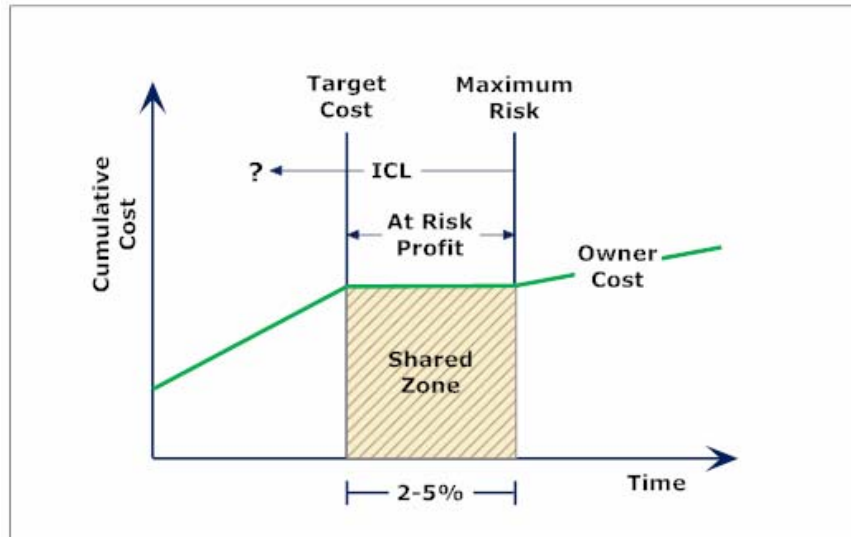
Project Outcome	Effect on ICL	Party	Compensation
Final Cost is Less than Target Cost	Increased ICL = Profit at Risk plus 50% of Cost Savings	Designer	<ul style="list-style-type: none"> ■ Hourly Rates @ 2.5 times Direct Salary ■ Reimbursable Costs including Consultant Fees ■ 43% of Increased ICL (Designer's Percentage)
		Contractor	<ul style="list-style-type: none"> ■ Allowable Costs ■ Fee of 2.5% of Allowable Costs ■ 57% of Increased ICL (Contractor's Percentage)
Final Cost Equals Target Cost	ICL = Profit at Risk	Designer	<ul style="list-style-type: none"> ■ Hourly Rates @ 2.5 times Direct Salary ■ Reimbursable Costs including Consultant Fees ■ 43% of ICL (Designer's Percentage)
		Contractor	<ul style="list-style-type: none"> ■ Allowable Costs ■ Fee of 2.5% of Allowable Costs ■ 57% of ICL (Contractor's Percentage)
Final Cost Exceeds Target, But is Less Than Target Plus Incentive Compensation Layer	Reduced ICL = Initial ICL minus Cost Overrun	Designer	<ul style="list-style-type: none"> ■ Hourly Rates @ 2.5 times Direct Salary ■ Reimbursable Costs including Consultant Fees ■ 43% of Reduced ICL (Designer's Percentage)
		Contractor	<ul style="list-style-type: none"> ■ Allowable Costs ■ Fee of 2.5% of Allowable Costs ■ 57% of Reduced ICL (Contractor's Percentage)
Final Cost Equals or Exceeds Target Plus Incentive Compensation Layer	ICL = \$0	Designer	<ul style="list-style-type: none"> ■ Hourly Rates @ 2.5 times Direct Salary ■ Reimbursable Costs including Consultant Fees
		Contractor	<ul style="list-style-type: none"> ■ Allowable Costs ■ Fee of 2.5% of Allowable Costs

Using this approach, the key negotiation issues are: 1) the target cost; 2) the normal profit level; 3) the maximum contribution amount (“at risk profit”); 4) the percentage allocation between contractor and architect; and 5) the percentage allocation of cost savings between the owner and design team. The correct balance of these issues varies between specific projects and teams. In general, however, the owner wants to assure that the target cost

is below similar projects delivered conventionally and that the maximum contribution amount is large enough to soften a moderate cost overruns.¹⁰ The architect, contractor and any subconsultants or subcontractors within the shared risk/profit group want to assure that the target cost is high enough that, if they work collaboratively, there is a real chance they can better the target price. Moreover, they want a percentage of shared savings that is a real incentive and a reasonable limit to the amount of their risk. All parties have a shared interest in getting the numbers right because the correct balance encourages the collaboration that benefits all.

In the chart below, the shared zone is a negotiated amount between 2 to 5 percent of construction cost to provide a reasonable buffer. The actual amount would be negotiated by the parties to fit the project and the participants. The ICL is shown expanding if the final project cost is less than the Target Cost point. Between the Target Cost and the Maximum Risk point the owner's cost does not increase, or increases at a slower rate. If the Maximum Risk point is exceeded, the owner's cost increases at actual or near actual cost.

**Figure 4:
Compensation Design**



This compensation strategy can be varied to accommodate different goals and issues. For example, because the designer has completed most of its work before construction commences, it may not be reasonable, and perhaps not financially feasible, for the designer to wait until construction completes before obtaining any portion of the “at risk” profit. This leads to considering a partial distribution when the design milestone is completed, provided there is strong evidence that the design will be constructed within the target price. The table below

¹⁰ One approach to defining these numbers is to determine the appropriate maximum contribution amount and to back calculate the other numbers. For example, if the parties believe that change orders, other than true scope additions, on a typical project is approximately 3 percent and that the range of “reasonably anticipatable” cost outcomes is -5% to +7%, then a maximum contribution amount of 4% would result in a net 3% cost if the +7% outcome occurred. Thus the owner would have an acceptable (but not good) result if a significant overrun occurred, and would have a better than average outcome if the overrun was less. A 4% maximum contribution amount is achievable on many projects, especially if subcontractors and subconsultants are included in the cost sharing participants.

provides an example of a milestone distribution with Design ICL being distributed at completion of design and the Construction ICL being distributed at completion of construction.

**Table 2:
ICL Distribution by Milestone**

Target Cost = \$100,000,000		Design ICL (40% of ICL)		Construction ICL (60% of ICL)	
Estimated Cost	Actual Cost	Architect (70%)	Contractor (30%)	Architect (30%)	Contractor (70%)
\$95,000,000		\$1,120,000	\$480,000		
\$100,000,000		\$1,120,000	\$480,000		
\$101,000,000		\$420,000	\$180,000		
\$105,000,000		\$0	\$0		
	\$95,000,000			\$2,220,000	\$5,180,000
	\$100,000,000			\$720,000	\$1,680,000
	\$101,000,000			\$420,000	\$980,000
	\$105,000,000			\$0	\$0

Note: If all or part of Design ICL is not paid because the estimate exceeds the Target Cost, but Final Construction Cost is less than the Estimated Cost, Design ICL that would have been distributed if the Estimated ICL equaled the final cost is distributed in a "true up" after Final Completion.

Timing and cash flow issues may also lead to limiting the percentage of profit at risk. The amount of profit at risk is also dependent upon the number of consultants and trade contractors within the shared risk/profit group. The amount of compensation may also be modified based upon quality or schedule performance or on the ability to achieve specific performance goals or desirable alternatives. However compensation is calculated, it must be practical and consistent with the project goals.

7.4 Target Setting

Targets in IPD perform two functions. First, the targets set the goal to which the parties design and construct the project.¹¹ Second, the targets are the metric used to measure the team's performance. Although the most common target is the project cost, targets can include performance, quality, schedule or any other reasonably evaluated metric. Moreover, targets can be expressed in alternatives as well as quantitative spectra. For example, the level of profit enhancement can be tied to which "desirable" elements can be achieved for the target price, as well as those that are required by the program. In these projects, the question is how much value the owner can get for a set budget rather than how little can be spent to achieve a set program.

¹¹ Target Cost Design or Target Value Design are key techniques in IPD. In a traditional project, the client's programming needs are used to develop the design. As the design progresses, cost is addressed through an iterative design/estimate/redesign loop until the estimate meets the budget. This is a *feedback* process. Target Cost Design uses a continuous evaluation of alternatives and cost implications to influence developing a design *to the budget*. This is a feed-forward process and avoids the waste, delay and lost opportunities that are associated with design/estimate/redesign.

Setting targets correctly is of paramount importance and raises significant issues for the negotiation team. The key issues can be divided into three basic questions.

(a) *What are the targets?*

Integrated Project Delivery attempts to align behavior with the goals through the use of incentives and disincentives. As these are meted out based on achievement of targets, the targets must align with the goals. Thus, if cost efficiency is the primary goal, then achievement of target cost should be the primary determinant of project success. But if issues such as schedule or sustainability are equally important, then they should be significant factors, as well. Moreover, if the owner wants to maximize value for a set budget, then a pure cost target actually works against the owner's purpose and different criteria should be used.

Target setting is further complicated because most projects have multiple goals and, thus, focusing on a single goal does not accurately model project values. In addition, some goals overlap, for example, lower maintenance or energy costs are financial *and* sustainability goals. Some goals are also more easily achieved and others are more easily measured. Influence diagrams can be helpful by exposing the relative value and interdependency of goals. In the end, the principal objective is to balance the targets such that they correctly reflect the project values and do not distort team performance. The targets must also be reasonably clear and administrable. Thus, the final targets will be a functional compromise between accuracy and practicality that is informed by the project's true goals.

(b) *When are the targets set?*

Timing of target setting reflects a tension between creativity and precision. Because the targets can affect profitability, the team, especially those that are experienced with guaranteed maximum price projects, may feel uncomfortable with setting targets early. They will argue that design should be further advanced to allow a more accurate evaluation of cost. Moreover, if the targets are set too early, it will be difficult to adequately describe the project scope. The loose scope definition can lead to later disputes, especially when the cost of achieving scope undermines achieving a financial target.

Although setting the target too soon may create difficulties, delaying the target undermines key IPD objectives. A late target setting unbalances the contributions of designer and contractor, because the designers can do very little further to increase project efficiency after the design is fixed. At this point, project outcome is almost entirely in the contractor's hands. Moreover, there is little incentive to develop an efficient design because the target will be based on whatever design is developed. In fact, an "economically rational"¹² designer will *not* want to create an efficient design because it lowers the target making the target more difficult to achieve. For the same reason, an "economically rational" contractor will not contribute its best ideas during pre-construction. Ideas shared during pre-construction lower the target and only benefit the owner, whereas ideas developed after the target may lead to savings that the contractor shares. Finally, IPD tries to use target value design to avoid the waste and lost opportunities inherent in design, estimate, redesign cycles. Target value design

¹² We recognize that parties do not always act in their short term economic interest because of inherent honesty and professionalism. But we believe it is better to align interests than to hope that parties will act altruistically. And besides, the parties should not be penalized for acting in the best interests of the project.

is undermined if the target is set after the design is well developed. For these reasons, we believe that the targets should be set before the design is well advanced.

Setting targets is also affected by the type of target used. If the target is purely financial, the related project scope must be clearly defined, which will require more time. If the target is the amount of value for a set budget, the target can be set earlier as the outcome is determined, to a great extent, on the amount of scope the team can achieve. Targets should be set when the team has had sufficient time to delineate the project program and determine that the target is an aggressive, but achievable goal. This ties target setting into the scope validation process outlined in Figure 2, above.

Although the correct time to set targets is specific to the project and target type, the practical range within which targets should be set begins at the end of the Conceptualization Phase and into the middle of Detailed Design. This gives the team enough time to explore what is being designed and built without foreclosing opportunities for creativity and target value design.

(c) *How should the targets be set?*

Targets are best set by the team in a collaborative process that confirms scope, schedule, target cost and any other relevant criteria. In our basic contract approach, the team undertakes a validation study that evaluates the owner's business case, the program requirements, the schedule and budget to confirm project feasibility and set appropriate targets. This process occurs during the Conceptualization Phase, and if agreement can be reached, the parties document the key project and target parameters and proceed to Detailed Design. If they cannot reach agreement, the project is terminated for convenience.

As noted previously, the targets should be aggressive. One purpose of IPD is to reduce inefficiency and achieve greater project value, which is expressed in lower cost targets. Target aggressiveness is sensitive to several factors. One factor that affects aggressiveness is the proposed profit levels for the participants. As the targets become more aggressive, proposed profitability should rise as well. Aggressiveness becomes counterproductive, however, if it creates fear of failure that leads to defensiveness and finger pointing. This is especially true if the owner retains unrestrained project control.

Financial targets can be expressed in current or escalated (de-escalated) amounts. If indexes exist or can be created that accurately reflect true costs, then it is better to set the target in current dollars and adjust the target based on the change in the indices. This makes it easier to evaluate the design against the target and to make appropriate choices as the design develops. When the project (or a milestone) is completed, the incurred costs can be readjusted using the indices for comparison to the target number. But this is complicated because costs are incurred over a period of time and the adjustment will be different for each time period. Moreover, different indices may apply to different cost components. The parties may have to live with a short-cut approach, such as using a cost mid-point adjustment. The other option is to predict escalation (or de-escalation) and consider its effect in setting the target. This is simpler to administer, but increases target uncertainty.

Finally, whether and how contingencies are reflected in targets is a significant issue discussed in the next section.

7.5 Contingencies and Adjustments to Targets

Traditional projects have three different types of contingencies: design, construction, and owner's contingencies. The design contingency accommodates cost increases that are uncovered as the design is more fully developed. The construction contingency covers items that were overlooked during estimating, scope gaps, some design errors and omissions, rework and miscellaneous, but unanticipated construction phase events. The construction contingency can also include a risk buffer that becomes extra profit if the contingencies do not occur. The owner's contingency covers owner decisions to add out-of-scope items and truly unanticipated events, such as force majeure. These contingencies are all necessary in traditional projects to buffer the contractor's risk when it signs a lump sum or GMP contract and to provide the owner with adequate funds to weather uncertainties. The construction contingencies are replicated within each lump sum subcontractor's bid. When summed, all of these contingencies create a risk pool that is larger than the project requires.

Contingencies in IPD projects function differently. The owner needs a contingency to cover elective scope changes and truly unforeseen events that are not the fault of the team, such as differing site conditions, force majeure, and some governmental actions. This contingency amount is in the owner's budget, but is usually not reflected in the contract. But the design contingency is unnecessary because the project is designed to the target price, rather than priced based on an evolving design. There should be no need to dip into contingency as the design evolves. There is also little need for a construction contingency because the owner has guaranteed payment of direct costs. If a contingency event occurs, the construction cost may rise, but the effect on the designer and contractor is limited to reducing their profit. The same is true for subcontractors that are within the profit/risk sharing group as they are also compensated on an actual cost basis. In addition, if project events justify changes to targets and profit, the need for any construction contingency is further reduced. As a result, we find little need for a construction contingency in a well-drafted IPD agreement.¹³

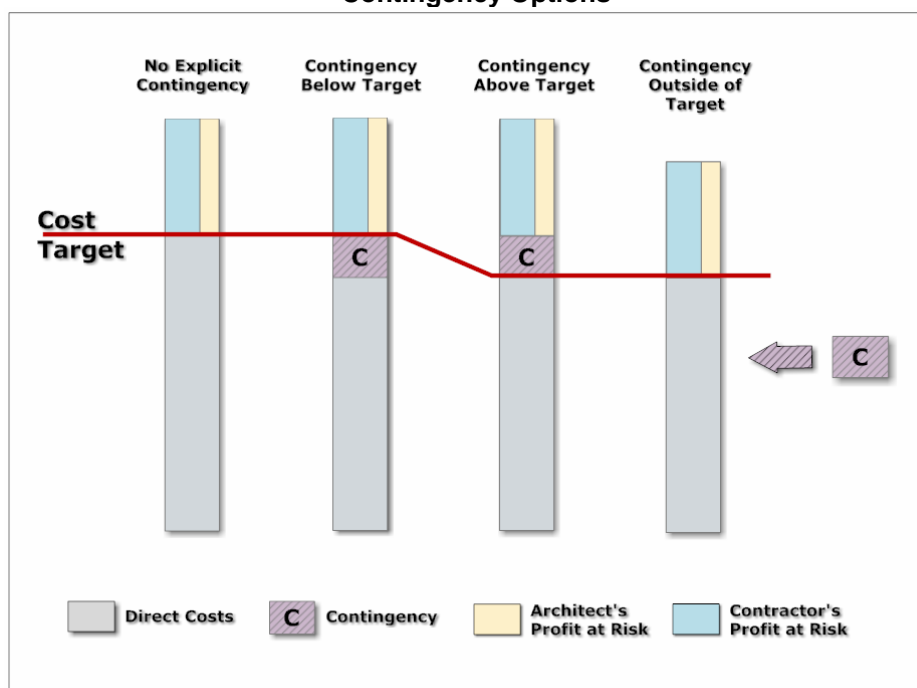
Because costs are guaranteed, contingency is an IPD issue only in relation to setting the target cost. As noted previously, setting the target costs early engages the entire team in developing a design that can be efficiently and economically realized. But early budgeting lacks the precision of later estimates and the non-owner parties will want to add a risk buffer to the cost target to ensure a reasonable chance of meeting or beating that target. Whether implicit or explicit, the target cost will thus contain some "uncertainty hedge", which is essentially a contingency.

Unfortunately, we have encountered significant confusion regarding contingencies when negotiating IPD agreements. Part of the confusion stems from using a term, "contingency," that has a well understood meaning in the traditional design and construction contracts, but operates differently in an IPD agreement. When the compensation metric is a target cost, "contingency" is just the amount of risk buffer that allows the parties to be comfortable with the target price given the level of project definition and design development. It is money that is intended to be spent if required to achieve the project goals whether or not any "contingency" events occur.

¹³ There is a tendency to put limits into contracts, such as GMPs, that transfer risk from one party to another. But the person accepting the risk must then build a risk buffer (contingency) into the contract and the owner then pays for the risk whether or not it occurs.

There are at least four ways that contingency is treated in an IPD agreement.

**Figure 5:
Contingency Options**



The first example recognizes that all project funds are equal and should be used to achieve the project goals. Thus, there is no explicit contingency and no reason to determine whether an allowable cost is covered by a contingency fund or is part of the normal project costs. A portion of the target cost undoubtedly reflects some risk assessment, especially if it is set early, but there is no separate fund. Under this approach, allowable costs are always payable by the owner and accrue towards the target cost, which is not amended unless the work is outside of the previously agreed scope. If the final cost is less than the target cost, the savings are shared among the architect, contractor and owner as agreed in the contract. We believe this approach is preferable because it recognizes that all funds are dedicated to achieving the project goals and that non-owner profit is increased by improving performance in all areas, not by artificially hoarding a contingency fund.

The second and third examples are mathematically similar and have the same risk assessment as the first example, except that it is stated explicitly as a contingency rather than being implicitly included in the target cost. We do not recommend this explicit approach, however, because we have found that non-owner parties begin to view the contingency as profit protection and resist spending these funds even though they are actually funds that have been allocated for project completion. Because the target cost is the sole financial metric for success, it does not matter whether funds are spent from the contingency or not. It only matters whether the accumulated allowable costs are less than or more than the cost target.

The final example has a contingency that can be spent by the owner or Project Management Team if a defined contingency event occurs. Any unspent amount is returned to the owner. We do not recommend this approach for several reasons. First, because the non-owner participants will not know whether the contingency will be spent, they will necessarily

want a risk buffer when they set the target cost. This leads to multiple contingencies—a result IPD seeks to avoid. Second, the limited amount of the contingency fund raises the question of what occurs if the funds are insufficient for the contingency. Most non-owner participants will recoil from an approach that limits the owner’s responsibility for truly unanticipated issues, such as pre-existing environmental hazards or governmental delays that aren’t caused by the design or construction team. This transfers risk to the non-owner parties that must be covered, somehow, and will likely end up being implicitly included in fee. Third, this approach requires careful drafting to predict the events that justify using the contingency. Finally, there will be a tendency for the non-owner participants to argue that events require spending the contingency fund because, in this model, spent contingency funds are not considered in determining whether the target was met. Thus, we think that this approach has the psychological disadvantage of the second and third options, is more difficult to administer, and if hidden in profit or overhead, tends to distort project accounting.

Although commencing a project that has no “contingency” may seem a risky undertaking, we believe that the usual discussions of contingency are not apposite in an IPD agreement. Instead, the parties’ discussion should focus on the project targets, and particularly when they are set and how they are measured. Unanticipated events that are outside of the project scope should be handled as amendments to the project targets, not as contingency events.

7.6 Allowable Costs and Profit

Designers and contractors account differently for allowable costs and profitability. Designers, for example, include profit in their normal hourly rates. Contractors, in contrast, consider profit a component of fee that is applied to the cost of the work. These accounting differences, and the differences in determining allowable costs, need to be reflected in the agreement. Moreover, because the IPD structure assumes payment of direct costs, care must be taken to specify what costs are properly chargeable to the project.

(a) *Designers*

As noted above, designers normally embed cost, overhead and profit in their hourly rates. In an IPD agreement, the owner guarantees payment of direct costs (costs without profit, or with reduced profit) and reimbursable expenses. This is most easily done by agreeing on a multiplier on direct salary expense. For example, if a firm’s normal hourly rates assume a 3.0 multiplier, the parties might agree to a lower multiplier, say 2.5, for all direct cost billings. The difference between multipliers would be the “at risk” profit. Reimbursable costs would be paid at cost, including subconsultant costs.¹⁴ When using this approach, the parties should recognize what benefits are included within the multiplier. In some firms, the multiplier includes anticipated bonuses and profit sharing. These may be inappropriate if you are trying to define costs without profit.

In an IPD project, you want to reward efficiency and discourage inefficiency. Thus, you do not want to have profit being a function of the number of hours worked. We generally prefer to calculate a “normal” profit that may be based on budgeted hours, but use the calculated number as a fixed amount, rather than an amount that is related to the number of hours actually incurred.

¹⁴ Because the designer is being paid on a cost basis, including costs incurred in managing subconsultants, a mark-up is not justified.

(b) *Contractors*

Contractor's compensation is more complex. The fee charged by contractors covers firm overhead, profit and risk. Cost of the work, to which the fee applies, includes labor, material, general conditions and general requirements. There can be some overlap between these items, depending how the contractor normally manages its costs. For example, some contractors do not use actual costs for personnel, but charge a blended rate based on functional level (i.e., "senior estimator") that may or may not be directly tied to their cost for that specific person. If more junior employees are used on the project, the contractor has, in effect, put profit into its direct costs. In addition, contractors vary regarding the level of benefits included in their hourly rates. What is billed as an employee's direct cost may actually include profit sharing based on historic performance. In addition, where persons are not fully dedicated to the project, or where they arguably should be part of general overhead, the owner may be paying twice for the same service.

Another difference between designers and contractors is the level of detail required for allowable costs. This is true whether general conditions are paid on a lump sum monthly basis (or pursuant to a schedule) or are paid as an incurred allowable cost. The contract must list the items that are properly charged to the project and those that are excluded. This exercise results in extensive exhibits that define which costs are within general conditions or general requirements, and which are allowable costs under the agreement.

Compensation of contractors should also consider the level of fixed price subcontracting contained in the contractor's costs. Because these fixed price subcontracts contain profit and contingency (for the subcontractor), they can distort the cost accounting of an IPD project. In theory, all subcontracts should be cost reimbursable with shared risk/reward, but in practice this cannot be achieved. You should try to include the key subcontractors (usually firms that may be brought on board during the design process or that provide design as part of their contract such as MEP, and often drywall, structural steel or curtainwall) within the shared risk/reward group and settle for as many others as can be reasonably administered and achieved.

Assuming you can adequately define allowable costs, you need to determine how profit will be defined. Our preference is to use a fixed profit to avoid encouraging the contractor to increase hours to increase profit. This profit amount can then be entirely at risk, partially at risk, and can be distributed at project completion, or can be distributed at milestones. How this is accomplished will depend upon the participants and some of the project dimensions discussed previously in paragraph 4.

7.7 Measuring Performance

Cost and schedule are relatively easy to measure. If there are early profit distributions, however, there must be a method for comparing progress achieved to the progress required at that milestone. This will invariably involve some level of estimating using a modified earned value calculation. For example, where there are distributions on permit issuance, we have used an estimate from the project team that can be accepted or reconciled with an independent estimate with the average taken if the two estimates do not differ by more than 5 percent.

Assessing quality can be more subjective. There are three approaches we have seen or used. First, the completed project can be compared to previously identified similar

projects using a matrix of characteristics. Second, an independent assessor or assessors can evaluate the project based on the initial program and a characteristics matrix. These approaches generate a score that is used to adjust distributions. The third approach lists project elements as required or desirable. If required elements are present, but do not meet a quality standard, they reduce the quality index. If they are done exceptionally well, they can raise the quality index. Desirable elements raise the quality index if they are achieved and raise the index higher if they are done exceptionally well.

Procedurally, we favor allowing the PMT to determine the quality assessment and to use independent assessors only if the PMT can not reach agreement. If that occurs, each PMT member makes a brief presentation and recommendation to an independent party, who thereafter assesses the project using an evaluation matrix and sets the quality index.

A quality index reduces the incentive to “skimp” to achieve target cost. But because it is subjective, it raises concerns regarding the fairness of its application. The subjectivity of the quality index may affect its weight relative to other more objective criteria, such as cost and schedule.

7.8 Risk Allocation

The Project Alliancing approach used in Australia forbids any claims between the Alliance participants unless there is willful default. Although this approach is blissfully simple, it does not accord well with American risk management. Some IPD agreements prefer to follow traditional risk management approaches, with each party fully responsible for its own failings. But this introduces counter-productive finger pointing and fear. Another approach is to waive claims for “joint decisions,” but this does not fully eliminate an adversarial environment because many important decisions will not have a “joint decision” pedigree, although taken in the interest of the project.

There are three intermediary risk management frameworks that the parties should consider.

The least complicated is a simple waiver of consequential damages. This prevents the owner, contractor or architect from seeking damages for delay. The mutual consequential damage waiver should apply to all consultants and subcontractors that are within the risk/reward sharing pool. Responsibility for delays is adjusted, at least to some extent, by the level of profit available for distribution. However, a simple consequential damage waiver does not solve all risk management issues. It does not address how direct damages should be handled or how a delay claim asserted by a person outside the risk/reward pool should be defended or paid.

We usually develop a more comprehensive approach that categorizes types of damages into project outcome, project performance, builder’s risk and third party claims. Project outcome risks are those related to cost and schedule and are mutually waived between the parties. Project performance (e.g., whether the roof leaks) are either warranty or professional liability claims. Builder’s risk claims are waived between the parties, at least to the extent of builder’s risk coverage. Third party claims, most often injured workers, are transferred by indemnification to the contractor, which is covered under their comprehensive general liability policy or an owner controlled insurance program (OCIP).

Another approach divides claims by time. Thus, those claims between the parties that occur before completion are waived (generally cost and schedule), whereas those that occur after (generally non-conforming or defective work) are not. This still leaves issues regarding injured workers and third parties that must be addressed and raises tricky problems with regard to builder's risk claims.

Many of the difficulties with risk management could be alleviated by a comprehensive insurance program. Currently, "off the shelf" insurance products are not designed for highly integrated projects, but we have discussed this issue with insurers who are "intrigued" by the possibilities that IPD affords. Hopefully, products will be developed as IPD projects become more common.

One unsettled issue is how to handle claims brought by or against third parties with one or more of the IPD participants. Ideally, these would be jointly defended and prosecuted by the Project Management Team, but this is not easily done if the team members are liable to each other (or have indemnity obligations) related to the claim. If the claim is covered by an OCIP, it becomes easier to accomplish joint prosecution and defense of many third party claims.

8. SUBSIDIARY ISSUES

8.1 Consultants and Subcontractors

In theory, every project participant should be bound by the same risk sharing and liability limitation provisions as the principal parties. In practice, however, only key subcontractors and consultants are included in the cost guaranteed/shared risk model because the advantage of including less significant parties does not justify the administrative expense. Generally, the parties that must closely interact with others should be incentivized on communal rather than individual performance and should be within the cost guaranteed/shared risk pool. This group will vary between projects, but on most vertical projects will include the mechanical, electrical and plumbing participants, and could include structural steel, framing and exterior cladding systems.

The level of subcontractor and consultant involvement will affect the amount of the profit at risk and will increase the buffer against cost overruns. We prefer to see at least fifty percent of the construction cost compensated under a cost reimbursable/shared risk-reward basis and preferably two-thirds or more.

Subcontractors and consultants can be bound to the IPD contract through "joining agreements" that modify their subcontracts and consultant agreements to incorporate the IPD provisions. But we find that most existing subcontracts and consulting agreements are not compatible with the provisions and tone of the IPD agreement. The better practice is to create subcontracts and consulting agreements that match the primary IPD agreement.

8.2 Document Ownership

If parties jointly contribute to a work, they obtain joint ownership to the entire product. This requires more than commenting and editing, but can conceivably arise where parties to an IPD agreement collaborate in the design, especially in projects using Building Information Modeling ("BIM"). The solution, however, is quite simple. The agreement should identify who owns what part of the joint work. Others using the joint work for the project should

be licensed to do so and there should be licensing for reasonable use thereafter, such as warranty work, promotional and educational uses.

8.3 Building Information Modeling

IPD does not require BIM, but few if any IPD projects will be done to their full potential without it. Who, then, owns the BIM? Because the BIM has long term facility management use, we generally recommend that the BIM be the property of the facility owner. This is a change from standard AIA practice with regard to instruments of service and thus requires discussion with the team. This discussion will raise issues regarding reuse of information and responsibility for designs that are not completed if the project or design team is terminated before completion. But these issues are no different in IPD than in conventional projects.

There are significant issues regarding how BIM is specified, what the process should be for developing BIM communication standards and how the BIM should be managed and administered. Luckily, the AIA, ConsensusDOCS and vendors, such as Autodesk, have published documents that deal with all or most of these issues.¹⁵

8.4 Dispute Resolution

Although many claims among the IPD participants are waived, there will still be issues that need to be resolved. Moreover, specific obligations, such as the obligation to make payment or a duty to indemnify, must be enforceable despite the waivers. The parties should carefully consider what issues must be resolved at the project level and which can be elevated to senior representatives and to an independent decision making process. In general, we favor a system that requires informal resolution before formal measure. Usually, this involves impasse by the Project Management Team, decision by the Senior Representatives, and then reference to a mediator or arbitrator for those issues that are not finally resolved by the Senior Representatives. Other systems can be fashioned that may include project facilitation, project neutrals, or dispute boards. But remember that in IPD it is the team that should solve problems, not outsiders, and reference to independent decision makers should be a last resort solution.

9. CONCLUSION

IPD raises many new issues and raises old issues in new ways. Negotiating an IPD agreement requires that the team members understand IPD at a theoretical and practical level. Because of the variance between projects, parties, their limitations and preferences, we strongly recommend that the project team define the deal before addressing contract language. When developing language, you should refer back to the reasons why the deal makes sense to all parties and to the fundamental principles of IPD. Finally, trust the team. There is a tendency to want to contractually handle every “what if” scenario that might occur. But the team, if well chosen and properly motivated, can develop better, more creative and more effective solutions than can be imagined when the contract is negotiated.

¹⁵ AIA C106 *Digital Data Licensing Agreement*; AIA E201 *Digital Data Protocol Exhibit*; AIA E202 *Building Information Modeling Protocol Exhibit*; ConsensusDOCS 200.2 *Electronic Communications Addendum*; ConsensusDOCS 301 *Building Information Modeling Addendum*; Autodesk *BIM Communications Specification*.