The ideal project delivery method involves a single party: the owner/designer/builder, who will not be frustrated by others’ wrongheaded decisions; will not have to worry about being poorly served or even cheated; and, regardless of outcome, will have no one else to blame or thank. Such entities exist—and more power to them.

This document, however, has been prepared for the benefit of the owner who is not also an architect or builder and who, consequently, must engage these other parties to get a building built. In it, we will compare the pros and cons of eight common project delivery methods, plus an emerging new paradigm. Additionally, we will outline some questions that can help owners evaluate the available methods, and we will offer principles that can improve outcomes in any of these methods.

But first, what exactly is a “project delivery method”? All of us are familiar with how consumer goods are delivered, in a box on our front porch. We rarely think about the earlier steps that led up to our receipt of that box: the design of the product and its manufacture. Each of those steps is an essential part of the overall delivery process for the product, but we don’t have to be involved in those steps. If we want a building built for us, however, it’s different: we have to be involved in the entire arc of delivery, from design through construction. Building industry professionals use the term “project delivery” to refer to that arc, to the process that begins with design, proceeds through construction, and concludes with the building ready for our use.

Many people are involved in this process, playing a variety of roles, and there are a number of distinct ways in which these roles can be assigned and related. Each of these ways is known as a “project delivery method.” Various project delivery methods have developed over time, through the collective experience of innumerable building projects, always with the underlying goal of controlling cost, schedule, and quality—a difficult balancing act in an endeavor as complex as making a building.

As suggested above, project delivery always involves an owner, a designer (typically an architect), and a builder (also referred to as the contractor or general contractor). Each project delivery method structures the relationships among these parties in a particular way, and one of its goals is to manage the tendency for their interests to diverge. Several mechanisms are employed, among which are:

- Contractual relationships among the parties, which define who answers to whom, how communication is handled, and how risk and reward are distributed.
- Documents that record expectations and intentions; some of these documents become contractually binding.
- In some methods, the engagement of an additional party—a construction manager—to oversee and facilitate the process.

Traditional Project Delivery: Design-Bid-Build

The most traditional project delivery method begins with the owner of the proposed building hiring an architect, who designs the building and makes drawings and other documents that describe in detail how it is to be built. These documents are then distributed to a number of builders, each of whom submits a bid for constructing the building. The owner then chooses and hires one of the builders to do the construction; the documents prepared by the architect serve as the basis for the contract between owner and builder. This method is known as Design-Bid-Build, shorthand for the steps in the process. Note some of its characteristics:

- The design is essentially complete before a builder is involved.
- The well-documented design allows the owner to seek competitive bids from potential builders.
- The owner hires the architect and the builder separately; there is no contractual relationship between the architect and the builder.
The construction documents—drawings and written specifications—become the basis for the contract between the owner and the builder (hence, they are also known as “contract documents”). Once the contract for construction is entered into, the architect’s role is to monitor the construction as it proceeds, to make sure that the builder is adhering to the requirements of these documents.

The Design-Bid-Build method recommends itself for its simplicity, and—in principle—its assurance of a fair, dependable cost of construction. Yet, in practice, this method has been found to have its problems. Most significantly, the pressure to submit the lowest bid tempts builders to underbid, hoping to make up the difference through change orders—formal changes to the contract documents that add cost—later in the construction process. If it were possible for the architect to produce a perfect set of documents, with no errors and nothing left out, and if building sites all had uniform conditions and no hidden impediments, and if specified products never became unavailable—in other words, if our dreams were reality—there would be no change orders. But there are always uncertainties, and no set of design documents is perfect. Consequently, cost control in Design-Bid-Build is not as certain as it would appear to be, and the unavoidable uncertainties can play out in an adversarial relationship between the architect and the builder, with the owner caught in the middle. This characteristic problem of Design-Bid-Build, coupled with its strictly linear series of phases—design, documentation, bidding, construction—which offers little opportunity for timesaving, has led to the development of other methods.

**Including the Builder Earlier in the Process: Negotiated Select Team**

The most common alternative method is known as Negotiated Select Team, a somewhat cumbersome way of noting that, rather than selecting a builder and establishing a construction cost through a formal bidding process, the owner selects the builder informally and negotiates the cost. This method saves time by eliminating the bidding phase. It also allows the owner to engage the builder early in the process, so that the builder can advise on materials, methods, systems, and costs during the design phase. When design is complete, the final construction cost is negotiated through bids from the builder’s subcontractors.

The principal advantages of Negotiated Select Team are:
- A cooperative team approach to the process;
- The availability of construction expertise during the design phase;
- A reduction in the adversarial relationship between designer and builder; and
- Correspondingly less potential for litigation.

The primary disadvantages of Negotiated Select Team are related to its relative informality:
- Without competitive bidding from the general contractor, owners may question whether they have an economical construction cost. An owner can require, however, that the contractor provide multiple bids for each major subcontract of the project, ensuring that competition is included in pricing.
- An ambiguity of roles, responsibilities, and phasing can confuse the process. In particular, the owner may experience uncertainty when facing conflicting advice from the architect and the builder during the design phase.

**A Fourth Player: Construction Management Methods**

As projects become larger and more complex, owners may choose to engage a construction manager (CM) to oversee such elements as schedule, cost, construction, project management, or building technology. A construction manager may be trained in that field or may be an architect, contractor, engineer, or developer; however, construction management is not a licensed activity in most states. Construction management is appropriate for both public and private projects that are relatively complex, for which budget or schedule must be closely monitored, and those requiring extensive coordination of consultants or subcontractors.

CMs can serve in different capacities, with varying degrees of authority, depending upon how the project is structured. The CM can act as an advisor to the owner (“Construction Manager as Advisor”), as the owner’s agent (“Construction Manager as Agent”), or as the builder (“Construction Manager as Constructor”).
The Construction Manager as Advisor method is appropriate for owners who want to hire an architect and contractor directly but who do not have the time or in-house expertise to oversee the building process. Its principal advantages are:

- Direct contractual relationships between owner and architect and between owner and builder;
- Careful monitoring of costs and schedule; and
- Continuous oversight of a process that is easy for owners to manage.

Disadvantages include:

- The added cost of an additional consultant;
- Confusion of traditional roles, since the owner is receiving advice from more sources, and because there can be ambiguity about the CM’s authority to make decisions;
- A relatively lengthy process, because of the time required to select a CM and the lengthened chain of communication; and
- More complex relationships among the parties.

The Construction Manager as Agent method, while infrequently employed, is appropriate for absentee owners and private owners who do not intend to be involved in the day-to-day responsibilities of design and construction. Its principal advantage are:

- It gives owners, as well as others working on the project, a single point of responsibility;
- The process, similar to traditional Design-Bid-Build, is easy for owners to track; and
- The management expertise of the owner's agent can shorten the project time line.

Disadvantages include:

- The added consultant represents an increase in cost and time in selection;
- Direct communication is suppressed between owner and architect or contractor; and
- The overlapping roles of owner and CM can complicate decision-making and communication.

The Construction Manager as Constructor method is contractually similar to Design-Bid-Build, has the advisory benefits of Construction Manager as Advisor, and involves the early cost commitment characteristic of Design-Build (see below). Rather than add a fourth party, it combines the role of construction manager with that of builder. The CM-constructor may be hired by bid to deliver the building for a guaranteed maximum price or by creating multiple bid packages. In either case, the construction manager assumes all the liability and responsibility of the general contractor, which explains why the method is also known as “Construction Manager at Risk.” The owner has separate contracts with the architect and construction manager (builder) in this project delivery model. There is no contractual relationship between the architect and constructor, as there is in Design-Build.

This method is common among owners for whom cost, schedule, or construction is expected to be complicated to manage, as when a project is to be fast-tracked. The principal advantages are:

- An initial focus on design issues;
- Construction advice during the design process;
- Careful oversight of costs and schedule;
- Early cost commitments; and
- Opportunities to shorten the overall project schedule.

Disadvantages include:

- The potential for adversarial relationships with, and change orders and delay claims from, low-bidding prime or sub-contractors;
- Reduced ability of the owner to control construction quality; and
- Unless the CM is also a licensed contractor, the project is without the person legally qualified to apply for a building permit for most project types—and therefore without the legal protections afforded the owner by contractor licensing regulations.

Fewer Players: Design-Build

Design-Build is a form of project delivery in which the owner contracts with a single entity, the designer-builder, to provide both design and construction services. The design-build entity may be a single firm, a consortium of experts, or a joint-venture undertaking. Typically, the team includes an architect and a contractor, who may be partners in the undertaking or one a subcontractor to the other. Although contractors more commonly head the design-build team, architects who maintain necessary bonds can also serve this function. (Such surety bonds are of three types: 1) bid bonds guarantee that a bidder will honor his/her bid and will sign all contract documents if awarded the contract; 2) performance bonds guarantee that the project will be
completed; and 3) payment bonds provide that subcontractors and material suppliers will be paid if the contractor does not pay them. The cost of bonds is proportionate to the value of a project.) Principal advantages of Design-Build are:

• A single point of responsibility, which minimizes the owner’s risk, reduces the likelihood of change orders, and reduces construction delays; and
• The potential to collapse otherwise independent phases and therefore save valuable time.

The primary disadvantages are:

• The method’s complexity (particularly for owners with less experience);
• Lack of direct connection between the owner and the architect; and
• The potential for cost-saving strategies to erode design and construction quality.

It should be noted that Design-Build is not legal for public work in some states.

In addition to simple Design-Build, there are two common variations, “Design-Build by Developer” and “Bridging.”

The Design-Build by Developer method combines the functions of design and construction, but in addition the design-build entity takes on some responsibilities of real estate development. Also known as turnkey construction or (occasionally) sale/lease-back, this method is characterized by the legal transfer of title to real property. It is distinct from speculative development, because an owner initiates the process and contracts for services with the design-build entity. Typically, the design-build entity maintains and operates the building long enough after completion to ensure that all systems are functioning properly, then transfers legal title to the owner. The principal advantages are:

• Minimal financial and legal risk on the part of the owner;
• Early guarantee of construction cost,
• Single point of responsibility; and
• Shortened overall schedule.

Its principal disadvantages are:

• The lack of direct owner participation;
• Its complexity (particularly for less experienced owners); and
• The difficulty of preparing adequate pre-selection materials, including quality and performance standards, to assure the desired outcome.

Bridging is characterized by the merging of Design-Bid-Build with Design-Build. With Bridging, the owner hires an architect to define the preliminary design and performance specifications of the project and to serve as the owner’s representative throughout the length of the project. After arriving at a well-developed proposal, the documents are used to solicit bids from design-build entities to execute the project. The design-builder completes design documentation, acting as the architect of record, and, after a final price review, construction begins. This method is common among public and private owners who wish to maintain the advantages of contracting with an architect while gaining advantages associated with Design-Build, and who also intend to engage in competitive bidding. Its principal advantages are:

• Focused attention to design issues;
• Competitive bidding; and
• Single point of responsibility during design documentation and construction (which changes between the design documentation and construction phases of this method, from architect to design-build contractor).

The disadvantages of bridging are:

• Its complexity;
• The need for more extensive management by the owner;
• Possible conflicts between the owner’s architect and the designer-builder; and
• The potential for short-term cost-saving strategies to outweigh building and construction quality.

An Emerging Model: Integrated Project Delivery

The project delivery methods described above can be seen as structures for optimizing the relationship among cost, schedule, and quality in a building endeavor. Equally, they are structures for mitigating the often-divergent interests of owner, architect, and builder. A new model of project delivery attempts, instead, to align—and in some cases even to unite—these interests. Known as Integrated Project Delivery (IPD), this approach can be understood as a set of principles that may be applied to any contractual situation; or it can involve a unique, three-party contract among the owner, architect, and builder. Such a three-party contract establishes shared risk and reward, aligning
the interests of the parties in the timely, cost-effective completion of the project at an agreed level of quality. In effect, it approximates the ideal scenario, mentioned at the outset of this paper, of the single owner/designer/builder entity. While the use of three-party contracts remains relatively rare to date, the following nine principles of IPD are being successfully applied to improve other project delivery methods:

1. 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.

2. 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 the method rewards “what's best for project” behavior, such as by providing incentives tied to achieving project goals.

3. Collaborative Innovation and Decision Making
   Integrated projects use innovative business models to support collaboration and efficiency. 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.

4. 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, when informed decisions have the greatest effect.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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 builders lead in areas of their traditional competence with support from the entire team, yet 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.

IPD principles can be applied to a variety of contractual arrangements, and IPD teams can include members well beyond the basic triad of owner, architect, and builder. In all cases, integrated projects...
are uniquely distinguished by highly effective collaboration among the owner, the prime designer, and the prime builder, commencing at early design and continuing through to project handover.

Helpful Questions

Keeping in mind the principles above, as well as the independent interests of the two, three, or four parties involved in the endeavor, you may find the following questions helpful in further evaluating the many available methods of project delivery:

1. How much effort and attention does the method require of the owner?
2. How easy is it to understand the roles and responsibilities of each of the parties?
3. How early and how dependably does the method predict the overall cost and time of the project?
4. How well does the method align expertise and authority? Does it put decisions into the hands of those best qualified to make them?
5. How well does the method facilitate necessary changes in expectations?
6. How well does the method facilitate the resolution of conflicts among the parties?
7. How well does the method apportion risk and reward?

Is there a clear-cut answer for which project delivery method is best? No. The appropriateness of a project delivery method will vary according to the size, scale, and complexity of the project, the experience of the owner, and the owner’s capacity to oversee the project. The position of the AIA is to encourage its members to deliver services to owners using the delivery method that is the most appropriate for the project, taking into account the interests of the owner, the AIA Code of Ethics and Professional Conduct, and the constraints of the law.

Regardless of delivery method chosen, clear and ongoing communication, frequent project reviews, and timely decisions are required for the success of any project. Ultimately, success depends more on the quality of the individuals involved than on the specific delivery system.

Further Resources