



AIA National | **AIA** California Council
The American Institute of Architects

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Integrated

Project Delivery:

A Guide

Integrated Project Delivery

Integrated Project Delivery (IPD) is a project delivery approach that integrates people, systems, business structures and practices into a process that collaboratively harnesses the talents and insights of all participants to optimize project results, increase value to the owner, reduce waste, and maximize efficiency through all phases of design, fabrication, and construction.

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 contractor. In all cases, integrated projects are uniquely distinguished by highly effective collaboration among the owner, the prime designer, and the prime constructor, commencing at early design and continuing through to project handover.

This Guide provides information and guidance on principles and techniques of integrated project delivery (IPD) and explains how to utilize IPD methodologies in designing and constructing projects. A collaborative effort between The American Institute of Architects (AIA) National and AIA California Council, this Guide responds to forces and trends at work in the design and construction industry today. It may set all who believe there is a better way to deliver projects on a path to transform the status quo of fragmented processes yielding outcomes below expectations to a collaborative, value-based process delivering high-outcome results to the entire building team.

Traditional Project Delivery

Fragmented, assembled on “just-as-needed” or “minimum-necessary” basis, strongly hierarchical, controlled

Linear, distinct, segregated; knowledge gathered “just-as-needed”; information hoarded; silos of knowledge and expertise

Individually managed, transferred to the greatest extent possible

Individually pursued; minimum effort for maximum return; (usually) first-cost based

Paper-based, 2 dimensional; analog

Encourage unilateral effort; allocate and transfer risk; no sharing

teams

process

risk

**compensation/
reward**

**communications/
technology**

agreements

Integrated Project Delivery

An integrated team entity composed key project stakeholders, assembled early in the process, open, collaborative

Concurrent and multi-level; early contributions of knowledge and expertise; information openly shared; stakeholder trust and respect

Collectively managed, appropriately shared

Team success tied to project success; value-based

Digitally based, virtual; Building Information Modeling (3, 4 and 5 dimensional)

Encourage, foster, promote and support multi-lateral open sharing and collaboration; risk sharing

Change is Now

Technological evolution coupled with owners' on-going demand for more effective processes that result in better, faster, less costly and less adversarial construction projects are driving significant and rapid change in the construction industry. Envision a new world where ...

... facilities managers, end users, contractors and suppliers are all involved at the start of the design process
... processes are outcome-driven and decisions are not made solely on a first cost basis
... all communications throughout the process are clear, concise, open, transparent, and trusting
... designers fully understand the ramifications of their decisions at the time the decisions are made
... risk and reward are value-based and appropriately balanced among all team members over the life of a project
... the industry delivers a higher quality and sustainable built environment

This is the world of Integrated Project Delivery (IPD).

IPD leverages early contributions of knowledge and expertise through utilization of new technologies, allowing all team members to better realize their highest potentials while expanding the value they provide throughout the project lifecycle.

At the core of an integrated project are collaborative, integrated and productive teams composed of key project participants. Building upon early contributions of individual expertise, these teams are guided by principles of trust, transparent processes, effective collaboration, open information sharing, team success tied to project success, shared risk and reward, value-based decision making, and utilization of full technological capabilities and support. The outcome is the opportunity to design, build, and operate as efficiently as possible.

Benefits of IPD

Recent studies document inefficiencies and waste in the construction industry. For example, an *Economist* article from 2000 identifies 30% waste in the US construction industry; a NIST study from 2004 targets lack of AEC software interoperability as costing the industry \$15.8B annually; and a US Bureau of Labor Statistics study shows construction alone, out of all non-farm industries, as decreasing in productivity since 1964, while all other non-farm industries have increased productivity by over 200% during the same period. New technologies have emerged, that when utilized in conjunction with collaborative processes, are demonstrating substantial increases in productivity and decreases in requests for information, field conflicts, waste, and project schedules. Owners are increasingly demanding methodologies that deliver these outcomes.

There are reasons to acknowledge that highest and best sustainable results in meeting increasingly aggressive goals for energy and carbon reduction are best achieved through collaborative processes. The AIA's experience with the American Society of Heating, Refrigerating and Air-Conditioning Engineers' (ASHRAE's) Advanced Energy Design Guides suggest that although some reductions are prescriptively achievable (i.e., through the use of a checklist), as one exceeds a 30% reduction and moves toward even greater reductions, complex interactions of systems and context must be taken into account. Integrated processes are being acknowledged and encouraged in sustainable ratings systems such as LEED®. New energy codes, such as ASHRAE's Standard 189, include recommendations regarding integrated processes.

IPD results in greater efficiencies. The United Kingdom's Office of Government Commerce (UKOGC) estimates that savings of up to 30% in the cost of construction can be achieved where integrated teams promote continuous improvement over a series of construction projects. UKOGC further estimates that single projects employing integrated supply teams can achieve savings of 2-10% in the cost of construction. (Office of Government Commerce, *Achieving Excellence in Construction Procurement Guide*, Vol. 5, at p. 6 (2007) www.ogc.gov.uk)

Beyond these benefits, IPD provides positive value propositions for the three major stakeholder groups:

Owners—

Early and open sharing of project knowledge streamlines project communications and allows owners to effectively balance project options to meet their business enterprise goals. Integrated delivery strengthens the project team's understanding of the owner's desired outcomes, thus improving the team's ability to control costs and manage the budget, all of which increase the likelihood that project goals, including schedule, life cycle costs, quality and sustainability, will be achieved.

Constructors—

The integrated delivery process allows constructors to contribute their expertise in construction techniques early in the design process resulting in improved project quality and financial performance during the construction phase. The constructor's participation during the design phase provides the opportunity for strong pre-construction planning, more timely and informed understanding of the design, anticipating and resolving design-related issues, visualizing construction sequencing prior to construction start, and improving cost control and budget management, all of which increase the likelihood that project goals, including schedule, life cycle costs, quality and sustainability, will be achieved.

AIA and IPD

Through early collaboration and the use of Building Information Modeling (BIM) technology, a more integrated, interactive, virtual approach to building design, construction and operation is emerging. To embrace, master and influence this emerging method of project delivery and to seize the new business and cultural opportunities it offers to the industry, the AIA is working with other construction industry stakeholders and through its own national, state or regional and local components, Board committees, Knowledge Communities, Task Forces, Working Groups and related activities to:

- 1. Collaborate with industry leaders to facilitate the dialogue, share knowledge, and accelerate the rate of change for all those seeking to improve the industry's current practices by utilizing integrated approaches to the design, construction, and operation processes;*
- 2. Communicate the benefits of collaborative approaches to public and private sector clients, and promote changes to the design and construction procurement process to allow early information sharing;*
- 3. Promote the benefits of developing a virtual model of a project using available technologies, built with interaction and input from an integrated and collaborative team of project stakeholders – owners, designers, consultants, constructors, subcontractors and suppliers;*
- 4. Develop and promote the integration of collaboration techniques and technology into education curricula for architects and architectural students to enhance their design and team collaborative skills;*
- 5. Engage the legal profession and the insurance industry in preparing contracts that support the integration of collaborative models and technology into the design and build industry and offering insurance coverages responsive to IPD; and,*
- 6. Promote documentation of the measurable contributions resulting from implemented integrated project delivery approaches to stakeholders and promote the value and achievements of increased use of integrated project delivery methods.*

Designers –

The integrated delivery process allows the designer to benefit from the early contribution of constructors' expertise during the design phase, such as accurate budget estimates to inform design decisions and the pre-construction resolution of design-related issues resulting in improved project quality and financial performance. The IPD process increases the level of effort during early design phases, resulting in reduced documentation time, and improved cost control and budget management, all of which increase the likelihood that project goals, including schedule, life cycle costs, quality and sustainability, will be achieved.

The Guide

The Guide begins with introductory material about the principles of IPD and points to consider when setting up an integrated project, moves through a study of how to implement IPD, and culminates with a discussion of how to apply general IPD principles within the specific framework of new and traditional delivery models used in the marketplace today. When thoughtfully considered, absorbed, and then applied, the principles and techniques outlined in this Guide should allow readers to be able to:

- ☐ Understand principles of IPD
- ☐ Understand the value propositions of IPD from the perspective of various stakeholders
- ☐ Organize non-traditional delivery methods and alternative team relationships for improved project performance, understanding the necessary qualifications / attributes of team members
- ☐ Assess interest and adequate knowledge resources within one's team
- ☐ Discern subtle differences between possible models for IPD
- ☐ Advocate the benefit of an integrated delivery model
- ☐ Understand the issues that must be addressed in an integrated project delivery document
- ☐ With the appropriate resources, write an agreement based on integrated project delivery principles
- ☐ Implement IPD principles to proceed with confidence during this time of change.

Integrated Project Delivery is built on collaboration, which in turn is built on trust. Effectively structured, trust-based collaboration encourages parties to focus on project outcomes rather than their individual goals. Without trust-based collaboration, IPD will falter and participants will remain in the adverse and antagonistic relationships that plague the construction industry today. IPD promises better outcomes, but outcomes will not change unless the people responsible for delivering those outcomes change. Thus, achieving the benefits of IPD requires that all project participants embrace the following Principles of Integrated Project Delivery.

3.1 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.

3.2 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 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.

3.3 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.

3.4 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 where informed decisions have the greatest effect.

3.5 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.