

Collaborative Construction Delivery Methods: Which one is most efficient and which one best fits your business?

What are the characteristics of collaborative construction delivery methods?

- Qualifications Based or Best Value Selection
- Some form of pricing transparency
- Early and ongoing information-sharing among project stakeholders
- Appropriate distribution of risk
- Some form of financial incentive to drive performance

Types (IPD, JOC, PPP) and benefits of collaborative construction delivery methods:

Collaborative:

Integrated Project Delivery – IPD: Alliance Contracts create shared Risk and Reward—shared contingency and shared incentive pool. Liability Waivers mean no ability to sue. The entire team is on board before design starts. It requires Qualifications Based Selection and Full Pricing Transparency. With this method, there is a deep involvement of key subcontractors and suppliers in the design process. The goal is to reduce duplication of design efforts--shop drawings serve design development. Utilization of BIM and other forward-thinking technologies to enable collaboration among team members.

Job Order Contracting – JOC: Typically viewed as “IPD-lite”. Very similar to IPD, however for renovation, repair, sustainability and minor construction projects vs. major new construction projects. “IPD Lite” is used for existing buildings. It allows consolidation of procurement to shorten project timelines and reduce procurement costs, transparency of pricing and procurement compliance through a Unit Price Book. Long term facility relationships increase productivity and enable reiterative process improvements. Quality and performance are incentivized through IDIQ form of contract with minimal guarantee and clear maximum volume. With proper implementation, change orders are virtually eliminated.

Private Public Partnership – PPP: Can be designed well and implemented in a balanced regulatory environment. PPPs can bring greater efficiency and sustainability to such projects as: public water, sanitation, energy, transport, telecommunications, health care and education. PPPs allow for better allocation of risk between public and private entities. They take into account their capacity to manage those risks. PPPs help make the most of scarce public funding and introduce private-sector technology and innovation to provide better-quality public services through improved operational efficiency.

Somewhat Collaborative:

Design Build – DB: Single source responsibility. Shifts risk of design errors from Owner to Contractor, maximizing construction dollars—Design-to-Budget. It allows for faster delivery. It can be commoditized as low bid, but can be innovative with performance-based measures. Relatively minimal owner control of design and construction quality and design changes after construction begins are costly.

Construction Management at Risk – CMAR, CM@R: This project delivery method transfers responsibility of construction and some risk from the Owner to the Construction Manager. The CM sublets the construction work to trade contractors

and is responsible for completion of the project for a fixed, negotiated price following design completion. Construction cost is known and fixed during design, however, design changes post construction are costly.

Typically Non-collaborative:

Design-Bid-Build – DBB: Known as the hard bid. This traditional method is a project delivery method in which the agency or owner contracts with separate entities for the design and construction of a project. This traditional method usually involves three distinct linear project phases: design, bid/procurement, and construction. No ability to store and reuse information. Non-standard pricing and lack of analytics. Higher risk.

Implementation requirements for a collaborative delivery method: JOC Focus

- Education and “buy-in” of all participants, stakeholder, and oversight groups
- Set of metrics/benchmarks/goals
- Standardized Ontology
- Standardized unit price book, updated for region, updated at least annually-preferable and independent source and/or national standard
- Detailed Unit Price Book UPB (with line item modifiers)
- Owner independent estimates and/or independent estimates by Owner’s rep and/or regular DETAILED audits
- Initial and ongoing training
- Marketing to all participants

Role of technology in using a collaborative delivery method

- Lower cost implementation of proven business practices/processes
- Consistent deployment
- Higher productivity
- Ability to store and reuse information
- Quantitative metrics and transparency
- Document Management
- Enables collaboration

Role of Training/Education in using a collaborative delivery method

- Critical to educate ALL stakeholders – Senior management, oversight groups, AE’s, Contractors, planners, Trades, building users, and community on the benefits of life-cycle management of the built environment vs traditional “first cost mentality”
- The value of collaboration with respect to reducing risk
- Better education required at formal level (college) and professional levels.
- Traditional “silo” methods of education are failing

Benefits, Metrics/KPIs that can be analyzed

- % Project on-time
- % Projects on-budget
- # of projects completed
- Average project timeline
- # of changer orders
- \$ value of change orders
- Average procurement time
- # and value of legal disputes

Overall, the benefits of IPD, JOC, etc. are: shorter procurement times, fewer change orders, virtual elimination of legal disputes, and more projects completed on-time and on-budget.

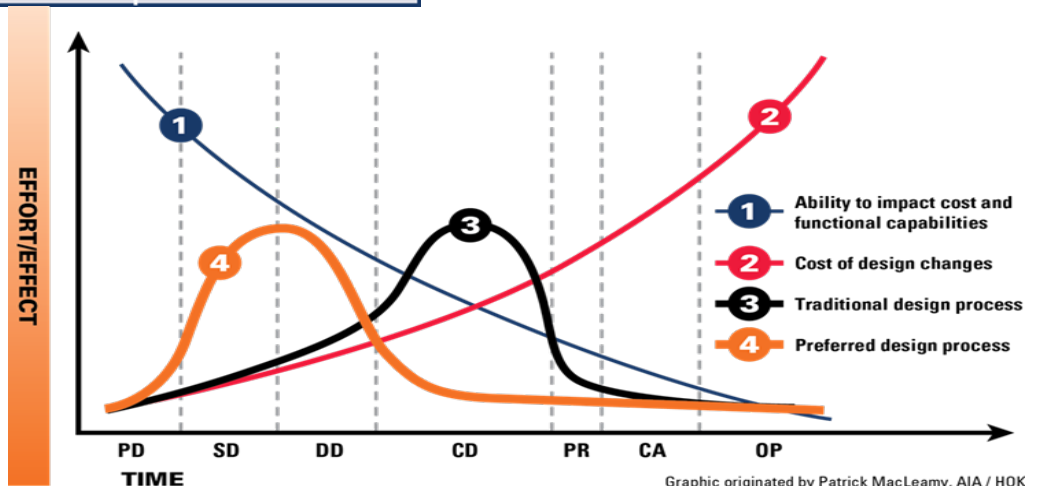
Benefits for Owners:

- Fast and timely delivery of projects.
- Consolidation of procurement creates lower overhead cost and procurement cost
- Contractor and owner efficiencies in prosecution of the work. Development of a partner relationship based on work performance.
- Virtual elimination of legal disputes, claims and change orders.
- Standard pricing and specification utilizing a published unit price book (UPB), resulting in efficient and effective estimating, design, and fixed price construction.

Benefits for Contractors/AEs:

- Better and longer lasting relationships with owners, more predictable revenue stream, reduced risk, reasonable profit.

TRADITIONAL PROJECT DELIVERY		INTEGRATED PROJECT DELIVERY
Fragmented, ad-hoc, hierarchical, controlled	Project participants	Team of project constituencies, open, collaborative
Linear, segregated, silo-oriented, limited information exchange	Process	Concurrent, project life-cycle oriented, shared information, collaborative
Individually managed	Risk	Collectively shared and managed
Cost-based, individually focused	Compensation	Performance and value based
Paper-based and/or digital 2D representations, spreadsheets, domain-centric software silos, email, FTP sites	Technology	Object oriented, centralized data repository linked with complementary knowledge-based systems, 2D, 3D, and 4D BIM, IPD/JOC software, shared model



Graphic originated by Patrick MacLeamy, AIA / HOK

KEY		
PD: Pre-design	CD: Construction documentation	CA: Construction Administration
SD: Schematic design	PR: Procurement	OP: Operation