



What is Integrated Lean Project Delivery?

Integrated Project Delivery (IPD) collaboratively aligns people, systems, business processes & practices to harness the talents & insights of all participants so that they can optimise value for the client (while creating an appropriate return for all stakeholders), reduce waste & maximise effectiveness through all phases of design, fabrication & construction. Integrated projects are led by a highly effective collaboration between client, lead designer & lead constructor from early in design through to project handover and use lean thinking throughout the process. IPD is different from both Design & Build and from historic Design-Bid-Build.

What are the benefits of IPD – and for whom?

For clients	For designers	For constructors
<ul style="list-style-type: none"> • Easier to link design options to business objectives • Improved value and a higher quality product • Greater potential for lower cost construction & operation • Reduced energy cost of use 	<ul style="list-style-type: none"> • Less rework, minimises iteration • Relationships, conversations & commitments are managed • Decisions at last responsible moment • Easier to create excellent <i>green</i> buildings • Easier to design to target cost • reduced design documentation time 	<ul style="list-style-type: none"> • Better integrated design • More buildable • Logistics considered from outset • Relationships, conversations & commitments systematically managed • greater construction cost certainty

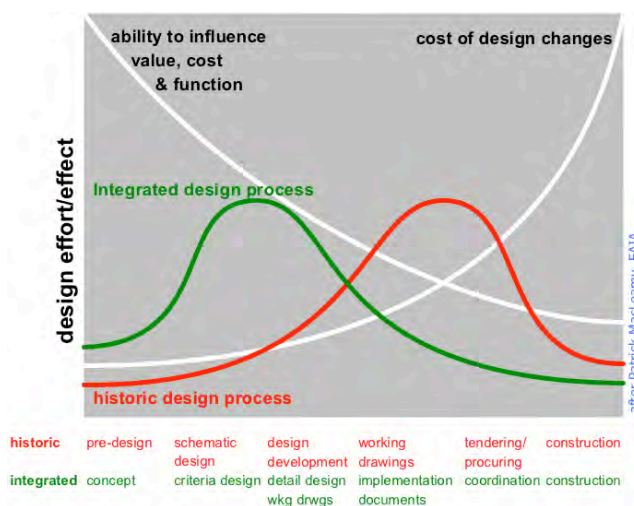
What is involved in IPD?

As Fig 1 indicates, the major change in IPD is to concentrate design much earlier in the overall process. This requires a different way of thinking about both the design process and the construction process (see table 1) as well as a changed procurement timetable as shown in Fig 2.

IPD enables shorter programmes delivering greater value with less hassle than the historic approach.

IPD is different from both Design & Build (D&B) and from historic Design-Bid-Build. D&B differs from IPD in that specialist constructors are generally procured much later in the process, are not party to the same contract as the lead designer, the lead constructor and the client/owner. With novated design and then D&B the constructor is procured later too.

At least initially, clients may need to take the lead, as some are beginning to do in the US and UK, as there is little incentive for constructors or designers to change in current economic conditions.



What does IPD enable?

- Systematic learning
- Greater sensitivity to emerging client needs
- Project delivery team alignment
- Lean & *green* design
- Lean logistics
- Lean & *hassle-lite* construction
- Improved buildability
- Shorter programmes
- Off-site fabrication & mfg
- Target value design & delivery
- More effective management of long lead items in short programs
- Building trust within the team

What are the requirements for IPD?

- Learning orientation
- Systems thinking & lean thinking
- Collaboration, collaboration
- Early involvement of key team members (see Fig 2)
- Openness & a modicum of trust
- Relational contract
- Single BIM to which all contribute
- Continual improvement

What supports IPD?

- Clarity of client's underlying purpose/end result
- Project business case
- Team alignment
- Clear, quick dispute resolution
- Clarity about rewards
- Clarity of management & decisions
- Early consideration of logistics and other buildability issues
- Whole life value assessments that include organisational outcomes
- Set-based design
- Design Structure Matrices
- Single project insurance
- IPD Team based incentives
- Last Planner System
- Project bank account
- Good relationships and trust

Table 1: comparison of ILPD and historic project delivery approaches - features

Inntegrated Lean Project Delivery		Historic Project Delivery
Learning, continual improvement, engaging with reality	culture	Blame, finger pointing, exploiting loopholes, individual reward maximisation, risk averse
Systems thinking; Optimise the whole; encourage, foster & support multi-lateral open sharing & collaboration	thinking	Command & control; encourage unilateral effort; Break project into constituent parts; Optimise parts (especially "my bit")
Outside-in: act on the system to improve it <i>for customers</i> (helped by those working in it).	management ethos	Top-down: Manage the contract, manage the programme, manage budgets, manage people
Integrated with work; based on data	decisions	Separated from work
Related to purpose, capability & variation	measures	Budget output, activity, standards, productivity
Based on demand, value & flow; open, collaborative & integrated team of key players formed at the outset & added to as the stakeholder group grows	organisational design	Functional specialisation; fragmented, silo based, strongly hierarchical, controlled; constructors not generally added until late in process
Concurrent & multi-level; high trust & respect	process	Linear, distinct, segregated (over-the-wall);
Shared openly & early	knowledge & expertise	Gathered "just-as-needed", hoarded in silos
Collectively managed, appropriately shared	risk	Individually managed, transferred as much as possible
Team success tied to project success; value-based	compensation & reward	Individually pursued; minimum effort for maximum return; (usually) first-cost based
Digitally based, virtual; Building Information Modelling (3, 4 & 5D); Last Planner	communication technology	Paper-based, 2 dimensional; analog;
What <i>matters</i> to them? – Understanding their <i>human</i> & technical concerns.	attitude to customers	Contractual

after AIA 2007 *Integrated Project Delivery: A guide* & Vanguard 1999 *The Vanguard Guide to Understanding your organisation as a system*

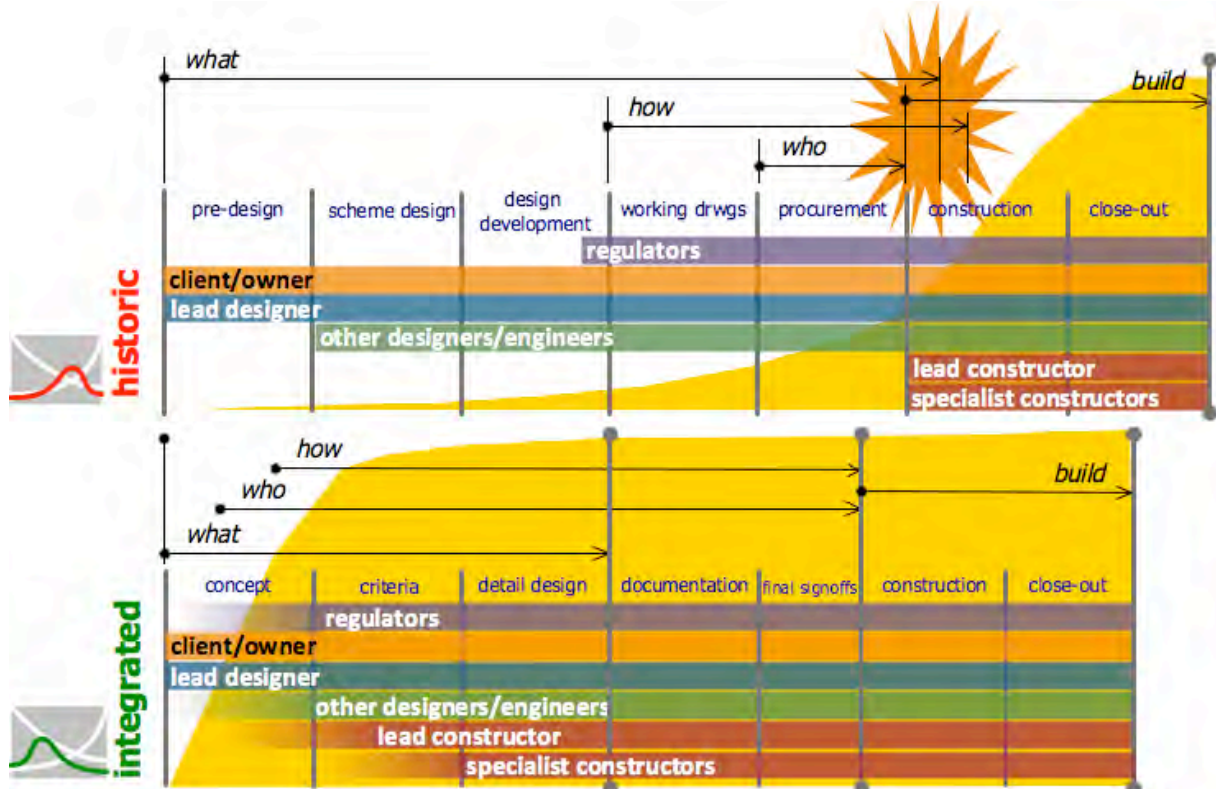


Figure 2: comparison of integrated and historic project delivery timelines (after Eckblad *et al* 2007 *The Possibilities of an Integrated approach*) & their impact on the development of a shared understanding of the project by the whole team (yellow Will Lichtig 2007 *Creating a Relational Contract to Support Lean Project Delivery* – note Lichtig suggests that *shared* understanding may never reach 100% in the historic approach).