



What is Lean Project Delivery?

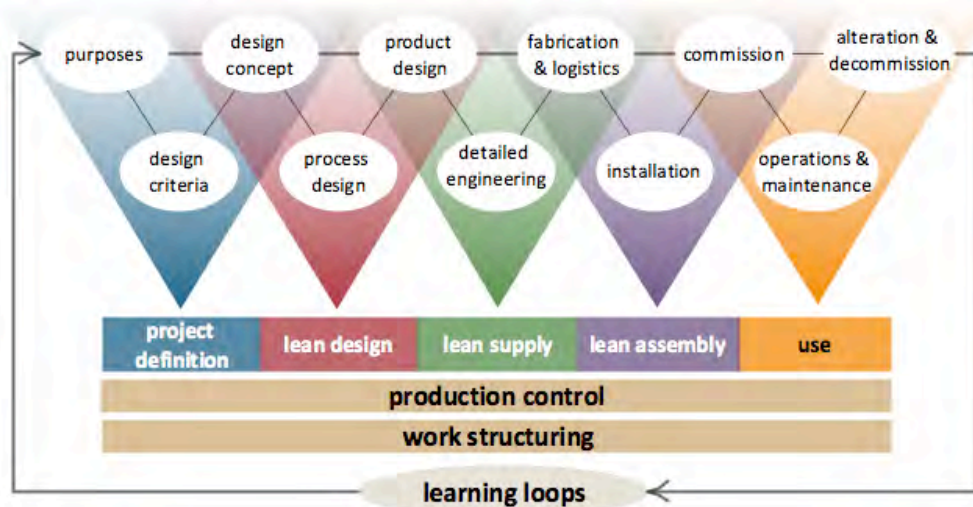


Fig 1: The Lean Project Delivery System™ (source: www.leanconstruction.org)

Lean Project Delivery (LPD) collaboratively aligns people, systems, business processes & practices so as 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. Lean projects are led by a highly effective collaboration between client, lead designer & lead constructor from early in design through to project handover.

LPD is different from both Design & Build and from historic Design-Bid-Build.

What are the benefits of LPD - and for whom?

For clients	For designers	For constructors
<ul style="list-style-type: none"> Easier to link design options to client business objectives Improved value and a higher quality product Greater potential for lower cost Reduced energy cost of use Available for use sooner 	<ul style="list-style-type: none"> Less rework, minimises iteration System for managing relationships, conversations & commitments Decisions at last <i>responsible</i> moment Easier to create high quality sustainable buildings Easier to design to target cost Reduced design documentation time 	<ul style="list-style-type: none"> Better lean design More buildable Logistics considered from outset System for managing relationships, conversations & commitments Greater construction cost certainty Less hassle

What is involved in LPD?

As fig 2 shows, a significant difference in LPD is the concentration of design much earlier in the overall process. This requires a different way of thinking about all aspects of construction (see table 1) and both requires and enables a much more straightforward procurement timetable as shown in fig 3.

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

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. The exception could be PPP/PFI projects.

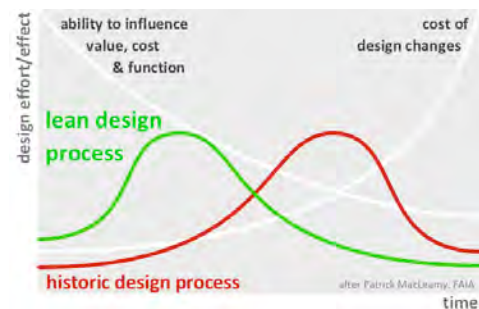


Fig 2: lean & historic design process compared

What does LPD enable?

- More sensitivity to emerging client & constructor requirements
- Project delivery team alignment
- Lean & green design
- Target value design & delivery
- Lean logistics
- Improved buildability
- Shorter programmes
- Off-site fabrication & mfg
- Lean & hassle-lite construction

- Building trust within the team
- More effective management of long lead items in short programs

What are the requirements for LPD?

- 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 LPD?

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

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

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 for customers (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 to the greatest extent 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 matters to them? - Understanding their human & 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*

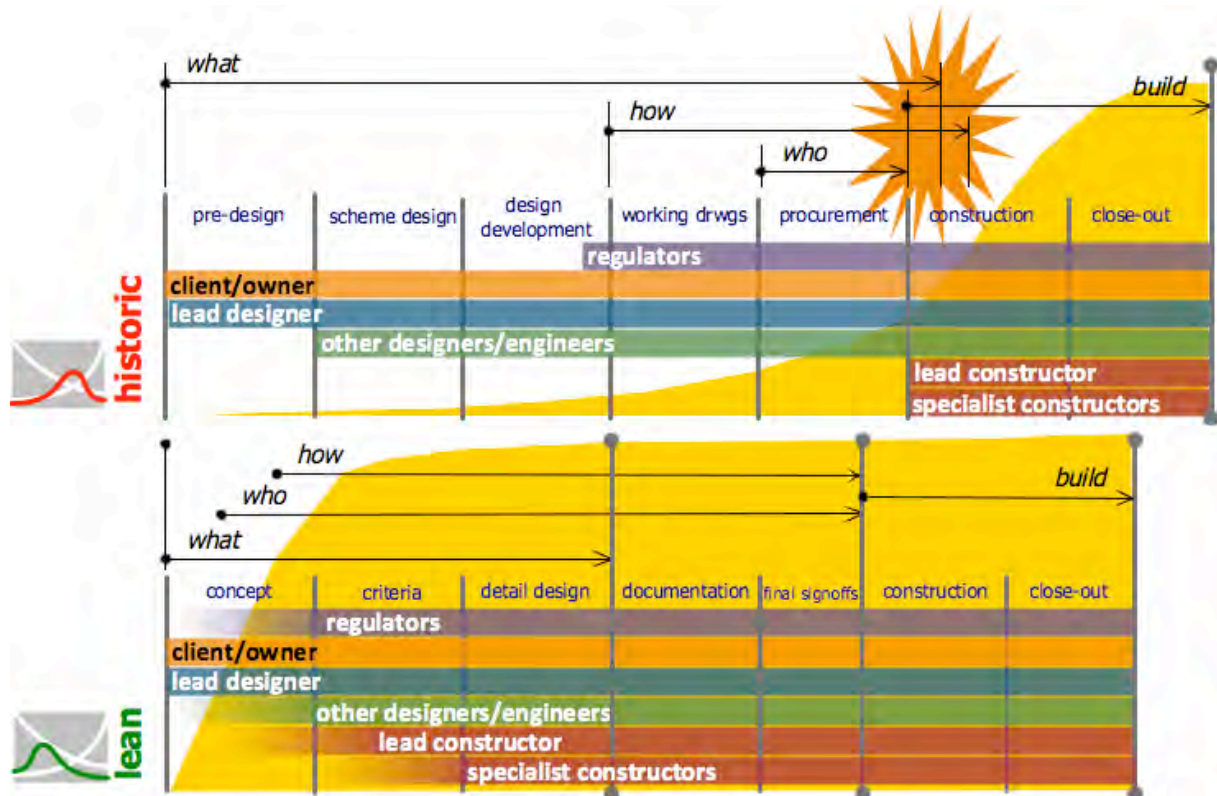


Figure 3: comparison of lean and historic project delivery timelines (after Eckblad et al 2007 *The Possibilities of an Integrated approach*) & their impact on the development of a shared understanding of the project by the whole team (yellow Will Lichtig 2007 *Creating a Relational Contract to Support Lean Project Delivery* - note Lichtig suggests that in the historic approach *shared* understanding may never reach 100%).