



"Lean Construction" - What it Could Mean for You

Objective

I've been coming across the term "Lean Construction" more often, and getting questions about it from my network.

This b.note will:

- brief readers on this emerging project delivery method and discuss how it might fit into your business strategy
- help you understand how it differs from other evolving delivery models like Integrated Project Delivery and Public Private Partnerships, and how those differences affect the value proposition for "Lean Construction".

Definition

Google finds many definitions of "Lean Construction", principally in the U.K. and the U.S.A. Conceptually, it applies to design and construction the concepts of "Lean Manufacturing", first made famous by Toyota.

Key "lean principles" include:

- eliminate waste
- focus on defining and delivering value from the perspective of the ultimate customer/user - it's a 'customer-driven' process
- identify the process that best delivers/creates that value and then remove all steps in the process which do not contribute value
- smooth the flow between the individual steps of that process to ensure continuity and efficiency
- practice "just in time" delivery - e.g. in the case of "Lean Construction", whether it's design, procurement or construction, don't do it until it's needed, then do it quickly and efficiently
- implement enterprise-wide continuous improvement

Why Are Some Owners Looking to Apply "Lean Principles" to Design and Construction of Infrastructure?

Numerous studies in the U.K. and the U.S. have identified significant opportunities to improve the way we design and deliver infrastructure. For example, studies demonstrate that:

- as much as 30% of the energy and resources we invest in infrastructure are wasted
- the industry continues to underperform
- profitability is less than it can - and should - be
- quality suffers
- there is lack of certainty around budgets and schedules
- the supply chain is too often based on adversarial relationships

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In short, customers, clients and end users are dissatisfied with an industry that is not consistently delivering value. An industry that many believe has failed to improve while others have reinvented themselves many times over.

So, How Might "Lean Construction" Fit Into My Business Strategy?

Many of our customers are dissatisfied with the way the industry, generally-speaking, is operating and the so-called 'traditional' delivery models that we have continued to rely upon.

They're looking for new procurement and project delivery models that will deliver greater value, provide cost and schedule certainty and leave them an infrastructure project that, at very least, actually does - and does exceptionally well - what it was expected to do.

There are some of the reasons we see owners looking at Integrated Project Delivery, Public Private Partnerships, Design-Build and Construction Management.

They're convinced the 'traditional' models are broken.

Your understanding of "Lean Construction" AND your being able to market how it can benefit these owners (and users, operators, etc.) can help differentiate you and your business in an increasingly competitive, rapidly-changing post-recession economy.

You can gain a competitive edge when you can translate "lean principles" into creating value for your customers.

How Can "Lean Principles" be Applied to Construction?

Though it is referred to as "Lean Construction", to gain full benefit, lean principles must be applied to improving the whole design, procurement, construction process.

- employ Building Information Modeling to benefit from 3D visualization, a robust database on the building and its systems, computer-assisted collision and interference identification and resolution, and more
- integrate design and build, for example, employing principles of Integrated Project Delivery to "team" the key project contributors from the very outset, benefiting from their input and avoiding adversarial relationships
- clearly define project goals, objectives and outcomes that are common to all key members of the team and employ appropriate metrics to measure success in meeting them
- consider standardization and fabrication/prefabrication techniques
- share risks - risk should be borne by the party(ies) best able to mitigate and manage it
- budget and cost realistically; employing sound cost management systems consistently
- schedule realistically and employ critical path or other schedule management processes
- the entire project team should constantly 'rethink' the way they work - continuous improvement

Related Concepts

There are other evolving project delivery models that may sometimes appear to include some attributes of "Lean Construction".

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For example, "Integrated Project Delivery" is based on assembling a team consisting of the key players on a project - owner, users, operators, designers, constructors, facilities management, specialist consultants - who adopt as their common objective the most successful achievement of project objectives, while sharing risk equitably. In many cases a specialist is engaged to facilitate the project - the "orchestra leader". While this incorporates the "team" approach from "Lean Construction", it often does not include other "lean principles" like fabrication/prefabrication or continuous improvement.

Similarly, some have suggested that "Public Private Partnerships" (P3s - AFP in Ontario) are comparable to "Lean Construction". Again, while some P3 delivery models may include some attributes of "Lean Construction", the "team" typically does not include the public owner, which contracts with a private sector consortium to design, build, finance and in many cases maintain the infrastructure for a period of 25 to 30 or more years. In fact, most who are familiar with P3s will suggest that it is this maintenance component of the relationship that attracts the private sector partners and delivers potentially the greatest value to the owner. That maintenance component is not typically seen as a feature of "Lean Construction".

The bottom line ... don't confuse "Lean Construction" with delivery models that may include just *some* "lean principles". When marketing the value of "Lean Construction" you need to clearly differentiate it from other models that may not deliver the same benefits.

Resources

"Rethinking Construction" the seminal U.K. report that studied the construction industry and recommended, among other things, the adoption of "lean" principles.

www.architecture.com/Files/RIBAHoldings/PolicyAndInternationalRelations/Policy/PublicAffairs/RethinkingConstruction.pdf

Lean Construction Institute, featuring comprehensive information, resources and links.

<http://www.leanconstruction.org/>

P3 for You and Me - Article, Canadian Architect - Author, Brian Watkinson

www.canadianarchitect.com/issues/story.aspx?aid=1000221446

Understanding P3s in Canada, Report by Association of Canadian Engineering Companies, 2010

Principal Author, Brian Watkinson

http://www.acec.ca/en/docs/services/acec_P3_report.pdf

American Institute of Architects, Integrated Practice/Integrated Project Delivery

<http://www.aia.org/about/initiatives/AIAS078435?dvid=&recspec=AIAS078435>

Associated General Contractors of America - Project Delivery

http://www.agc.org/cs/industry_topics/project_delivery

Performance Based Studies Research Group - Applying Performance Based Procurement to Construction

www.pbsrg.com

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