

WHAT IS LEAN & WHAT IS LEAN CONSTRUCTION?



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TRANSFORMING DESIGN AND CONSTRUCTION

Lean is a Concept...

Lean is a concept...

the concept that all processes contain waste

What Lean is

- The term Lean has become associated with a certain business capability, namely the ability to accomplish more with less.
- Lean organisations use **less** human effort to perform their work, **less** material to create their products and services, **less** time to develop them, and **less** energy and space to produce them.
- Lean organisations are **oriented toward Customer demand**, and develop high-quality products and services in the most effective and economical manner possible by improving **Flow** through reducing and/or eliminating waste, and by **adding Value** everywhere.
- Lean is **a business strategy** based on **satisfying the customer** by delivering quality products and services that are just what the customer needs; when and where the customer needs them; in the amount required; at the right price; whilst using the minimum of materials, equipment, space, labour, and time.
- Lean thinking and practices **enable** an organisation reduce its development cycles, use resources more efficiently, and produce higher-quality products and services at lower costs.



What Lean is (cont.)

The *Lean Enterprise Institute* (www.lean.org) states that a lean enterprise:

“understands customer value and focuses its key processes to continuously increase that customer value. The ultimate goal is to provide perfect value to the customer through a perfect value creation process that has zero waste. To accomplish this, lean thinking changes the focus of management from optimizing separate technologies, assets, and vertical departments to optimizing the flow of products and services through entire value streams that flow horizontally across technologies, assets, and departments to customers. Eliminating waste along entire value streams, instead of at isolated points, creates processes that need less human effort, less space, less capital, and less time to make products and services at far less costs and with much fewer defects, compared with traditional business systems. Companies are able to respond to changing customer desires with high variety, high quality, low cost, and with very fast throughput times. Also, information management becomes much simpler and more accurate.”



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5 Core Lean Principles



(Source: Womack & Jones, 1996)



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Lean Construction - overview

Lean Construction entails the use of proven lean production objectives, thinking, tools and techniques, as embodied in the Toyota Production System (TPS) and The Toyota Way, to the construction sector in the form of new management orientation and evolved mind-sets at all levels from trades to professionals, and applying these to a new project delivery process.

Integral to Lean Construction is to take a whole process or “systemic” perspective, and collaborate from idea and design stages to ensure that all stakeholders are involved at all times (“voice of customers”) to ensure that value (as defined by each respective customer) is understood and integrated throughout the project.

Lean Construction Institute (LCI)

The **Lean Construction Institute (LCI)** was established in 1997 in the USA

“to improve the Construction and Design industries through Lean approaches to project design and delivery... [that] seek to develop and manage a project through relationships, shared knowledge and common goals. Traditional silos of knowledge, work and effort are broken down and reorganized for the betterment of the project rather than of individual participants. The result? Significant improvements in schedule with dramatically reduced waste, particularly on complex, uncertain and quick projects”.



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Lean Construction – the differences

The LCI outlines how Lean Design & Construction differs from other forms of project management:

- Control is redefined from “monitoring results” to “making things happen,” with a measured and improved planning process to assure reliable workflow and predictable project outcomes.
- Maximizing value and minimizing waste at the project level is the goal, versus the traditional practice of attempting to optimize each individual activity.
- Value to the customer is defined, created and delivered throughout the life of the project, while traditional practice calls for defining requirements at the outset for delivery at the end, despite changing markets, technology and business practices.
- Coordinating action through pulling and continuous flow, as opposed to the traditional, schedule-driven push which places an over-reliance on central authority and project schedules to manage resources and coordinate work.
- Decentralized decision-making through transparency and empowerment provides project participants with information on the state of the production systems and empowering them to take action.

(Source: <http://www.leanconstruction.org/about-us/what-is-lean-design-construction/>)



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Lean Construction - rule of thumb

Level 1: Impeccable Collaboration & Co-ordination - The Last Planner System

Level 2: Production System Delivery - The Last Planner System + BIM

Level 3: Collective Commercial Enterprise - Integrated Project Delivery (IPD)



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