



# Lean Construction Institute

Building Knowledge in Design and Construction

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## **Target-Value Design: Nine Foundational and Six Advanced Practices For Delivering Surprising Client Value**

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Throw-it-over-the-wall design performed by specialists and sub-specialists working in isolation from others interacting with the design results in projects that are unaffordable, unconstructable, off-target and late. Rework, repricing, change orders, and de-value engineering are all symptoms of a process that ignores the nature of design and the systems nature of the built environment.

Target-Value Design (TVD) turns the current design practice upside-down.

- Rather than estimate based on a detailed design, design based on a detailed estimate.
- Rather than evaluate the constructibility of a design, design for what is constructible.
- Rather than design alone and then come together for group reviews and decisions, work together to define the issues and produce decisions then design to those decisions.
- Rather than narrow choices to proceed with design, carry solution sets far into the design process.
- Rather than work alone in separate rooms, work in pairs or a larger group face-to-face.

TVD offers designers an opportunity to engage in the design conversation concurrently with those people who will procure services and execute the design.

### **A Little Background**

What do we mean by design conversation? We hold design as principally a social activity. The notion that some one person sits alone and is inspired to design misses both the nature of design and the countless contributions from others. The point of design is to bring forth new value in line with the client's interests. What is value? Value is an assessment made relative to a set of concerns that someone wants addressed. There is nothing of value independent of a person saying (assessing) it is valued. Client concerns – interests, not worries – must be kept in the foreground of the design conversation. Doing so allows designers to engage in a conversation for exploring various ways to take care of the concerns of that client. Those concerns inevitably change over the life of the project. As design proceeds new concerns arise while others fade away. Locking down requirements early in the process cuts short the exploration and development of the clients' concerns. Consequently, design suffers as does the value delivered to the client.

What roles do clients play? Clients are key performers during design, not just customers. As performers they express their concerns, make value assessments, and eventually make choices. When clients fail to take those actions in a timely way it leads to immeasurable waste for the project team. The team cannot let their fear of the client get in their way of holding all performers, including the client, to act responsibly.

## **TVD Foundational Practices**

Here we are introducing nine practices for creating the conditions for delivering the target-value from the design process.

1. **Engage deeply with the client to establish the target-value.** Both designers and clients share the responsibility for revealing and refining concerns, for making new assessments of what is value, and for selecting how that value is produced. Continue engaging with the client throughout the design process continue to uncover client concerns.
2. **Lead the design effort for learning and innovation.** Expect the team will learn and produce something surprising. Establish routines to reveal what is learned and innovated real-time. Also expect surprise will upset the current plan and require more re-planning.
3. **Design to a detailed estimate.** Use a mechanism for evaluating design against the budget and the target values of the client. Review how well you are achieving the targets in the midst of design. When budget matters, stick to the budget.
4. **Collaboratively plan and re-plan the project.** Use planning to refine practices of coordinating action. This will avoid delay, rework, and out-of-sequence design.
5. **Concurrently design the product and the process in design sets.** Develop details in small batches (lot size of one) in tandem with the customers (engineer, builders, owner, users, architect) of the design detail. Adopt a practice of accepting (approving) completed work as you design.
6. **Design and detail in the sequence of the customer who will use it.** This maintains attention to what is valued by the customer. Rather than doing what you can do at this time, do what others need you to do next. This leads to a reduction in negative iterations.
7. **Work in small and diverse groups.** Learning and innovation arises socially. The group dynamics of small groups – 8 people or less – is more conducive to learning and innovating; trust and care for one another establish faster; and communication and coordination are easier.

8. **Work in a Big Room.** Co-locating design team members is usually the best option. Design is messy. Impromptu sessions among design team members are a necessary part of the process. So are regular short co-design sessions among various specialists working in pairs.
9. **Conduct Retrospectives throughout the process.** Make a habit of finishing each design cycle with a conversation for reflection and learning. Err on the side of having more retrospectives not less. Use plus|deltas at the end of meetings. Use more formal retrospectives that include the client at the end of integration events. Instruct all team members to ask for a retrospective at any time even if they just have a hunch that it might uncover an opportunity for improvement.

## TVD Advanced Practices

A lot has been learned since Target-Value Design was first practiced. Some of the foundational practices have been easier to adopt than others while a number of issues emerged. Decision-making has been one of the most challenging practices, particularly consensus decisions as required by some Integrated Project Delivery agreements.

1. **Engage the client as a key performer.** We have long understood that clients play a key role in performing projects. Getting a timely decision can make the difference to staying on schedule or getting behind. It goes farther than that to succeed with TVD. It takes more than the client project manager to understand how a design will perform for the intended use. Many projects require the involvement from stakeholders throughout the client organization to understand concerns, conditions of satisfaction and the variety of use cases.
2. **Design in small batches.** The lessons from the Lego® Airplane Production Simulation apply equally to design as they do to construction. Designing in small batches keeps the overall design coordinated while keeping design production flowing. Small batch design also shortens the learning cycle. If you want a lean project than you have to manage project work for the sake of learning and innovation.
3. **Use one-page improvement reports to capture and share learning.** All lean projects involve learning, improvement and innovation. Recording improvements is critical to sharing the learning throughout the project team and their organizations. The approach is simple. Use this protocol for capturing the improvements:  
*I had this problem. I made this change. It got a little better.*
4. **Model the space-in-use prior to design.** We can waste time and effort when we design then mock-up the space. The lean approach is called the Production Preparation Process, or 3P. It entails prototyping the space and how it will be used to carry out the operations within that space. Teams using 3P have discovered how small changes in room dimensions can vastly improve the productivity and effectiveness of the operations

in that space.

5. **Use A3 Learning for concurrent set-based design.** Document “the story” of the design sets that you are exploring on a single 11” x 17” (internationally known as an A3 sheet) report. The approach follows the Deming Cycle of Improvement: plan-do-study-act (PDSA). An A3 report captures the essence of the design development, its analysis, how the design will be implemented and follow-up to see that the design intent was realized. A3 reports are the key to knowledge-based design.
6. **Adopt Choosing By Advantages Decisionmaking.** Few of us had formal education or training in decision-making. Many of our practices and habits are idiosyncratic and unsound. Set-based design increases the design alternatives under consideration. This only makes decision-making more challenging for a team, particularly when consensus decisions are desired. The lean design community has latched on to an approach for making sound, congruent and effective decisions. It is called Choosing By Advantages (CBA). All decisions must conform to the Fundamental Rule: Decisions must be based on the importance of advantages.

## How to Proceed

Be careful not to pick and choose from the above 15 practices. We call them foundational practices indicating that taken together they establish a base for adopting other lean design practices. Both *Responsibility-based Project Delivery*<sup>™</sup> and *Knowledge-based Design* build on TVD. Also, don't hesitate to explore the advanced practices. Project teams that use them show far better results.

Be careful not to think “We already do this.” While we have taken care to describe what we see as different, we recognize that it might sound like something very familiar. Consider how what we are describing here is different from what you are doing. Create a plan with your team for adopting the nine fundamental practices and the six advanced practices.

Take an experimental approach to adoption – PDSA. While the nine foundational practices work, exactly how they work for your organization and specific projects might vary. Use your team leaders to bring about TVD practices on a project-by-project basis by considering both what is being designed and who will be doing the work. Stay close to these early experiments standing ready to offer whatever help the project team needs to succeed both on their project and with these new practices.

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