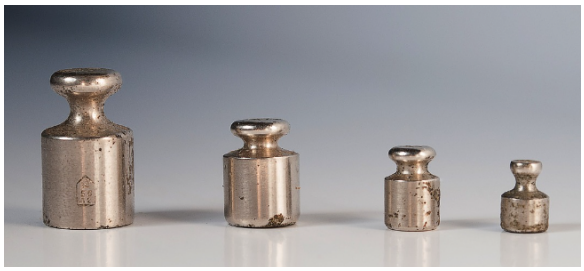
Optimizing the Whole and Not the Parts

A conventional approach to owner capital project management is to assemble a project team by selecting an architect and builder. This may be through a competitive bidding process, a negotiated agreement, or some hybrid process. Some owners will be involved in the selection of key consulting engineers, and trade and specialty contractors. Beyond requiring that the project team meet certain budget targets, schedule milestones, and safety goals most owners do not engage in defining the array of processes a project team will use to design and build the project.

The cost of relinquishing this responsibility is 10% to 20% in additional construction costs and an additional 20% to 30% of time to complete the project. This additional project burden is due to the nature of multidisciplinary, multi-contractual work. Each of the dozen or so major parties to the project naturally each seek to optimize their own work. The inevitable friction between competing interests slows the work, leading to the time delays. A lack of early coordination on production planning leads to missed opportunities for cost reductions that enhance rather than compromise quality.

When this dozen or more major, and often dozens smaller yet important, organization are led as one system, there is an opportunity to implement project performance standards that greatly reduces project friction, moving the project ahead swiftly while realizing cost savings. While an architect, builder, or owner's project manager can do the work of implementing these performance standards, the directive to do so needs to come from the project owner.



What Are Project Performance Standards?

Project performance standards are a framework for practices demonstrated to productively coordinate project workflow at a systems level. Importantly, effective practices define actions that shape project results, with the expectation that the authentic application of these practices will generate desired results. I organize the practices I coach into five practice families, each that correspond to a core performance principle that maintains the focus on a project led and managed as one system.

- Project Team Architecture, Principle: The health of a system is determined by the quality of interactions and relationships between the people working in that system.
- Workflow Strategy, Principle: Organizing complex work into loosely coupled modules improves collaboration by reducing the complexity of integrating components of the project work and promotes speed by organizing focused work into small teams.
- Distributed Leadership, Principle: The work of capital project teams is best understood as set of integrated leadership practices, in which individuals share responsibility and accountability for optimizing a dynamic set of coordinated actions

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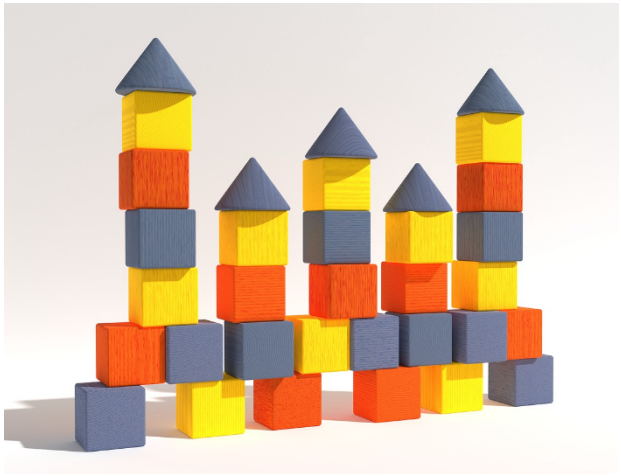
for a mutual and meaningful objective.
- Situational Awareness, Principle: Since it is not possible to predict all internal and external conditions that will influence project outcomes it is important to become aware of unanticipated conditions quickly and integrate that awareness into our work.
- System Innovation, Principle: Systems are not static, and without a conscious and consistent effort of improving a capital project leadership system project performance will decay.

This organization is for convenience when coaching others. A table that identifies my recommended project performance standards by practice name is available here. The way an owner, or builder or design firm, organizes their performance standards can differ.

The foundation of the practices I coach are primarily drawn from lean design and lean construction practices, which are a body of tested and proven methods that when practice authentically have produced cost and time savings across many project types led by many different project teams.[1] This consistency of successful project delivery when using these methods provides grounding for their application on all capital projects.

Layered into this foundation are additional practices influenced by people[2] working outside the building industry, including W. Edwards Deming,[3] Steven J. Spear,[4] Jim Benson,[5] John Shook,[6] and Christopher Alexander.[7] Taiichi Ohno, and Sakichi and Kiichiro Toyoda.[8]



How Does an Owner Develop Project Performance Standards?

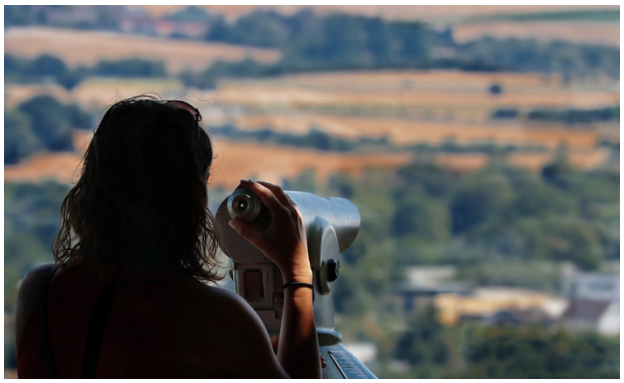
If developing performance standards on your own, the lean design and lean construction practices as promoted by the Lean Construction Institute are methods that will provide a solid start. Beyond the mechanics of these practices, which are important, seek to understand the principles that inform the practices. Use these practices, without shortcuts, as the foundation for your performance standards. It is important to mold the practices to fit your organization, with the understanding that the focus should be shaping processes while adhering to principles.

An alternative is to identify a builder or architect that has project performance standards aligned with your understanding of systems-based approach.

Yet another starting point is a set of project performance standards I have developed. You can download an example practice map for those standards here.

Is a Minimum Effective Implementation Enough?

For a project that will require less than eighteen months to design and construct, it is sensible to define a minimum effective implementation of performance standards. This is because a full set of performance standards will include challenging practice skills that not all project teams will have had an opportunity to develop let alone master. Therefore, in establishing or adopting performance standards owners may consider defining minimum and optimum practices. These standards can then be used to evaluate candidate design and construction firms. Consideration can be given to firms that have not yet developed the desired practice skills yet are willing to with guidance from a coach representing the owner.



Why the Owner Needs to Take the Lead Defining Project Performance Standards

Project owners have the broadest perspective on how a capital investment best serves the interests of all stakeholders a project is intended to benefit. They also have the highest fiduciary duty of all project participants. This perspective and responsibility provide insight that other project team members cannot possess. Therefore, the owner is in the best position to lead and manage projects as integrated systems.

Many individuals responsible as project owners have broader leadership responsibilities extending beyond separate projects, and sometimes beyond oversight of capital projects. They should still satisfy themselves that project leaders are following a set of project performance standards and achieving a desired level of implementation of these standards.

Key Points

- In defining performance standards keep the focus on managing the project as a complete system, optimizing the work of all the project team members together rather than seeking to optimizing individual efforts.
- Focus on practices that serve as inputs to the system. While you want great results, expecting great results without an effective process leads to disappointment.
- Distinguish between Practices and Processes. A Practice is a set of actions with an intended beneficial impact. A Process is a clear description of the steps and responsibilities required to serve the intention of a Practice.
- Always be critical of your own processes, seeking ways to improve them.
- Advanced performance standards may require skills that some people and organizations on the project team may need to develop. In support of the project, there are advantages to supporting this skill development as part of the capital investment in the project.

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Notes

[1] Lean Design and Lean Construction has a mixed reputation, ranging from near ideological support for the practices to near disdain by people who believe these practices have failed to help their projects. My observation is that failure comes from half-hearted attempts to implement the practices, mostly from a lack of understanding by well-intentioned people about how Lean Design and Lean Construction practices need to be implemented, leading to an inauthentic application.

[2] There are many people in addition to those named that have also been influential in informing my work. The people named in this article have a body of work I recommend people seeking to understand principles that improve collaborative project performance study.

[3] W. Edwards Deming's "14 Points for Management" and "System of Profound Knowledge" provide a framework for understanding leadership in organizations seeking to operate as a single unit. *The New Economics* captures Deming's thinking regarding leadership toward the end of his life, and while written for organizations is as applicable to capital projects. For a worthwhile Deming biography that captures the evolution of his thinking, read *Deming's Journey to Profound Knowledge* by John Willis. https://deming.org/

[4] Steven J. Spear's *The High Velocity Edge* describes how best in class organizations across different endeavors significantly outperform otherwise similar organizations. In his recent book, *Wiring the Winning Organization,* co-written with Gene Kim, they propose a "Theory of Performance" to identify mechanisms that inform exceptionally stellar performance. https://itrevolution.com/product/wiring-the-winning-organization/ https://www.thehighvelocityedge.com/

[5] Jim Benson's *The Collaboration Equation* addresses practices for visual management, leadership, and communication practices supporting effective team-based work. While the examples in the book come from many different industries, they are extremely relevant to multidisciplinary capital project design and construction teams. https://www.collaboration-equation.com/

[6] A former Toyota executive and past chairman of the Lean Enterprise Institute, John Shook has shared with instructional detail practices from his experience with management and leadership through numerous articles and books. https://www.lean.org/about-lei/senior-advisors-staff/john-shook/

[7] Christopher Alexander is best known for his work in the publication of *A Pattern Language.* From a capital project perspective his book, *The Battle for the Life and Beauty of the Earth: A Struggle Between Two World Systems,* describing the design and construction of an academic campus in Japan in the 1980s is a unique description of a process that integrates building experience and cost targets into architectural design. These books are out of print yet are often available on the resale market. https://www.patternlanguage.com/bookstore/battle.html https://www.patternlanguage.com/

[8] While Lean Construction has roots outside of Toyota prior to the coining of the word 'Lean' to describe the Toyota Production System, the thinking behind the production work at Toyota as described by Taiichi Ohno in *Workplace Management* provides insights into the principles and practices that have been adapted to several manufacturing and service industries. It is helpful to understand that Ohno began his career working in Sakichi Toyoda's textile company and then later joined the Toyota Motor Company when led by Sakichi's son Kiichiro. Many of the practices Ohno developed at scale are production practices employed by the Toyoda father and son.
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