

Lean Basics

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Construction: A Framework for
Change*

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CHAPTER 1



LEAN CONSTRUCTION OVERVIEW

Introduction

Lean/Integrated Project Delivery (Lean/IPD) is a response to customer and supply chain dissatisfaction with the results in the building industry. Construction labor efficiency/productivity has decreased while all other non-farming labor efficiency has doubled or more since the 1960s. Currently, 70% of projects are over budget and delivered late. The industry still sees about 800 deaths and thousands of injuries per year. The industry is broken.

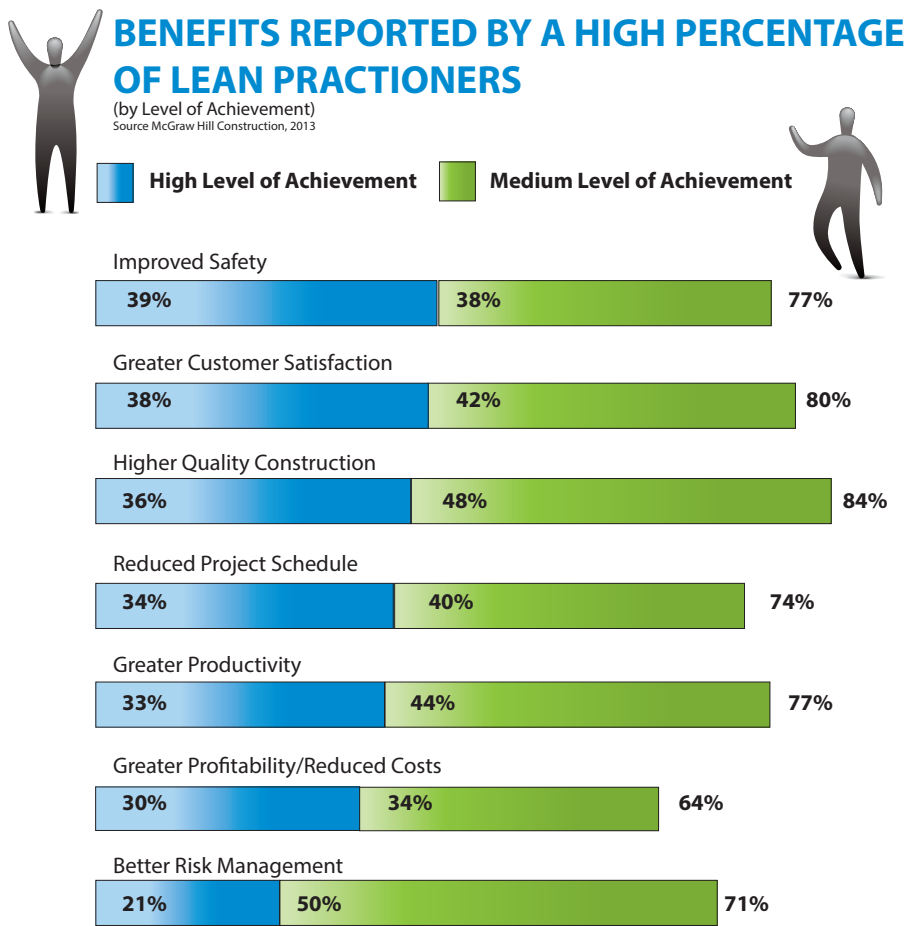
Construction labor efficiency/productivity has decreased while all other non-farming labor efficiency has doubled or more since the 1960s. Currently, 70% of projects are over budget and delivered late.

This is not a construction-only issue; it spans the entire delivery system. The silos created around architects, engineers, general contractors, trade contractors and specialty providers have introduced significant waste into the delivery system. An alarming lack of trust has created systems of checks, double-checks and over specification to cover legal ramifications—either real or perceived.

1.0 Why

Lean/IPD has shown that this phenomenon can be reversed as shown below.

Source: McGraw Hill Construction, 2013



Lean/IPD has the potential to reverse alarming trends in the construction industry that threaten safety, competitiveness and profitability.

Lean construction is a relationship-based system that is founded in commitments and accountability. It significantly improves trust. Teams are integrated through collaborative tools and search for ways to eliminate waste—specifically at the hand-off of work. Teams seek to continuously improve through reflection. Lean/IPD processes are designed to remove variation and create continuous workflow to drive significant improvement in predictability, all while strongly encouraging respect for all people involved.

2.0 How

High-Performing Team selection through a value-based Partner Selection assessment allows multiple subject matter experts to provide their knowledge in new ways through onboarding practices, Cluster Team development, and early incorporation of means and methods. These practices ultimately lead to higher-quality, lower-cost projects. Partners come together in a Big Room environment and learn to function as one team by creating long-term business partnerships. Teams improve by Learning to See Waste through the use of Retrospectives like the common Plus/Delta. Enhanced Facilitation, Agenda management, Production Systems implementation, and the Last Planner® System are tools that drive productivity into meetings, planning sessions and construction efforts.

Owner/operators are offered a significantly improved Value decision making opportunity and project predictability through Target Value Design. Teams learn to make better decisions with the use of Choosing by Advantages and present better solutions to complex problems through the A3 thinking process.

This framework can be structured through a common contract based around Conditions of Satisfaction that aligns goals and allows all parties to win together—not at the expense of each other—by creating a unique Business Deal.

CHAPTER 2



THE VALUE PROPOSITION

Introduction

Lean Integrated Project Delivery (Lean/IPD) is a predictable and robust management system that benefits project or building owners and operators. Engaging builders with designers through a non-traditional Partner Selection and Team Forming process enables the entire value stream to be considered. This means that many of the involved participants can offer better opinions, commit to those opinions and perform to those commitments. The availability of this broad knowledge base allows the entire project team to consider life-cycle operating cost, building performance, process outputs and employee engagement benefits to drive optimal solutions from a multitude of solution set options. This broader group of experts brings multiple perspectives to add value to decision making. With real-time cost knowledge, each solution set can be assessed against its impact to cost and schedule, as well as against a pre-defined set of Conditions of Satisfaction.

When builders and designers interact with operators and owners as partners, better understanding and definitions of needs lead to better solutions.

1.0 How

Lean/IPD projects are organized around teams, which eventually include all the key participants in the project—customers and suppliers. When a Lean/IPD project works properly, customers, concerns, new possibilities, value and waste are brought to the fore in new ways—and replace standard practices, historical habits and bureaucratic behaviors. Changes previously considered impossible occur in relationships with suppliers. Previous challenges of managing suppliers disappear and are replaced with collaboration. Task lists are transformed into commitments. People have better conversations and relationships and coordinate with each other much more impeccably. People recover their autonomy, responsibility and dignity. Finally, unprecedented new economic value is uncovered and made available to the participants.

When teams begin to perform well, deeper discussions evolve about building the “right” building for the prescribed need. With subject matter experts representing many areas of the project outcome, coupled with aligned business targets and a transparent sharing of knowledge, a multitude of project systems can be explored and optimized. When builders and designers interact with operators and owners as partners, better understanding and definitions of needs lead to better solutions.

Trust is a foundational principle of Lean/IPD. An owner who relies on the construction industry for regular business growth can expect better outcomes by considering the long-term outlook for partnerships rather than by selecting contractors on a project-to-project basis. By procuring design, build and related specialty services with long-term relationships in mind, the owner can turn the focus from individual company needs to project improvement needs. These partners should be encouraged to speak their minds freely, disagree with the owner/operator and challenge the wants and needs to gain full understanding. They need to be true thought partners, not “yes men.” Done correctly, this will lead to constructive conflict, not tacit agreement. This deep engagement can often help the owner/operator improve operations and steer the team to the “Right” building.

By viewing and sharing this risk openly, the team can collectively carry contingency to cover this potential cost.

2.0 Why

When owner/operators engage with experienced partners earlier in the process, a deeper risk assessment and understanding arises. As a result, the team can manage that risk, find a multitude of ways to mitigate the risk, and price it accordingly. By viewing and sharing this risk openly, the team can collectively carry contingency to cover this potential cost. This process focuses the team on finding solutions rather than arguing about who must pay for it, which typically delays solutions, increases the risk, interrupts project flow, and increases cost. The team nearly always has the capacity to address most, if not all, risks as they arise.

Because Lean/IPD projects have built-in schedule predictability, owner/operators can better manage their internal staff and assign them to tasks accordingly. For example, since less time is spent resolving claims and disputes, project participants are available at the planned completion—when they are most needed—and they are able to move to the next business need. With strong team partnership, the project closeout is more organized and reaches conclusion earlier than traditional programs. As teams work together more frequently, individual project vendor staff become extensions of owner/operator staff.

Completed Lean/IPD projects have shown significant safety improvements. Safety is a crucial concern in the construction industry—and Lean/IPD’s rigorous planning methods have helped tremendously. Tools like 5S, material management techniques, and other site logistic management efforts make the work safer, thus driving better results.

A word of caution: The owner/operator must be involved in this process to drive success. Value is defined by the owner, and the team needs this definition at every turn of the program. The owner should be open to others’ opinions—specifically those of partners who might not be in their primary industry. While at some points it may seem owners are losing control of their programs, they are actually improving control by empowering others to help make the numerous decisions necessary to deliver a successful project.

CHAPTER 3



WASTE

1.0 Why

Studies have shown that about 70% of the activities performed in the construction industry are non-value add or waste. Learning to see waste would dramatically affect this ratio.

Waste is anything that does not add value.

Waste is all around, and learning to see waste makes that clear.

2.0 When

The process to see waste should begin immediately and by any member of the team. Waste is all around, and learning to see waste makes this clear.

3.0 How

Observations

Ohno Circles

1st Run Studies/Videos

Value Stream Maps

Spaghetti Diagrams

Constant Measurement

4.0 What

There are seven common wastes. These come from the manufacturing world but can be applied to any process. They specifically come from the Toyota Production System (TPS). The Japanese term is *Muda*.

There are several acronyms to remember what these wastes are but one of the more common one is TIMWOOD. (T)ransportation (I)ventory (M)otion (W)aiting (O)ver Processing (O)ver Production (D)efects.

Transportation

Unnecessary movement by people, equipment or material from process to process. This can include administrative work as well as physical activities.

Inventory

Product (raw materials, work-in-process or finished goods) quantities that go beyond supporting the immediate need.

Motion

Unnecessary movement of people or movement that does not add value.

Waiting

Time when work-in-process is waiting for the next step in production.



Look for and assess opportunities to increase value through waste reduction and elimination.

Over Processing

More processing than is needed to produce what the customer requires. Perhaps the hardest to detect and eliminate.

Over Production

Making something before it is truly needed. This is a particularly serious form of waste because it leads to other forms of waste.

Defects

Production that is scrap or requires rework. There are many more forms of waste beyond the seven listed. Continue to look for and assess opportunities to increase value through waste reduction and elimination. Some other common wastes that have been identified are listed next.

Underutilized Talent

Many people consider this one the eighth waste. It is essentially underutilizing the talents or resources that are available.

Over Burdening

The Japanese word is *Muri*. This is excessive demand on a system that causes the system to produce beyond its reasonable capacity. Pushing a machine or person beyond natural limits. Over burdening people results in safety and quality problems. Over burdening equipment causes breakdowns and defects.

Unevenness

The Japanese word is *Mura*—fluctuation in demand that causes the workflow to be uneven.

Waste is Disrespect

Waste is disrespectful to people. Any of the wastes described interfere with the environment that an individual works in. Waste consumes resources and skill.

CHAPTER 4



LEAN CONSTRUCTION DEFINED

Introduction

Lean thinking has been applied with much success in many industries and service-provider organization. Lean concepts can be applied to any recurring effort at work, home or play. The construction industry recognizes it needs much improvement to keep pace with the ever-growing complexity of the built environment, and to make progress toward the same efficiency gains other business sectors have achieved. Many believe Lean Construction is the way.

Lean Construction extends from the objectives of a Lean production system—maximize value and minimize waste—to specific techniques, and applies them in a new project delivery process.

1.0 Why

Construction industry studies have shown 50% or more of the effort required to deliver a built environment is non-value added effort, or waste in the eyes of the customer (CII, 2004). The effectiveness of a labor hour has not improved in the last 50 years, while other industries have seen significant advancements (Teicholz, 2004). Demographics and labor shifts have significantly reduced the construction industry's labor availability, and the relative cost increases of the built environment are not satisfying the business needs of many of its customers.

2.0 How

Lean Construction is a respect- and relationship-oriented production management-based approach to project delivery—a new and transformational way to design and build capital facilities. Lean production management caused a revolution in manufacturing design, supply and assembly. Applied to the design, supply and construction of a capital facility, Lean changes the way work is done throughout the project-delivery process.

OPTIMIZE THE WHOLE



Lean Construction extends from the objectives of a Lean production system—maximize value and minimize waste—to specific techniques, and applies them in a new project delivery process. Therefore, Lean theory, principles and techniques, taken together, provide the foundation for a new form of project implementation. Building upon its roots in production management, Lean Construction produces significant improvements, particularly on complex, uncertain and quick projects.

3.0 What

Respect for People is the cornerstone of Lean thinking. People transform ideas and materials into final useful value. Respecting the contribution of each individual is necessary to tap this resource. In addition, 1) People are central to the success of Lean project delivery; and 2) The production management-based approach of Lean project delivery encourages all efforts to make transparent and then optimize all processes and flows within design and construction work.

Furthermore, by placing people at the center of Lean Construction, we are reminded to prioritize Respect for People and avoid generating the 8th waste, which can be summarized as “Unused/Underutilized Employee Talent/Creativity/Intellect/Skills/Potential” (Bicheno and Holweg, 2009).

Lean thinking encourages a constant reflection to determine if every expenditure of resource is employed to generate value. The customer should determine and make transparent that value definition via the project’s *Conditions of Satisfaction*. to help guide the project team’s efforts. Thus, generating value should efficiently transform raw materials into final products or services, and that process should be done right the first time.

Lean thinking encourages practitioners to look for and remove waste. Waste is effort or resource utilization that does not create value. This waste is not always obvious and requires effort to identify and then remove. All waste cannot be removed but an effort to minimize all waste is encouraged.

Lean thinking suggests that standardizing process and leveling flow are the best ways to optimize a value stream. Standardized practices can be repeated consistently and become a starting point for continuous improvement. Leveling workflow helps minimize variation to allow consistent output and predictable results.

Lean thinking demands a mindset of continuous Improvement. Leaders must create an environment where experimentation is encouraged and small manageable failure is acceptable if the goal is to improve continuously. This atmosphere can drive innovation that will benefit the entire value stream through value creation.

An overarching concept of Lean thinking is to optimize the whole. Value stream optimization encourages projects to look beyond the local and individual efforts and study the overall outcome to determine where value is added or waste is included in each step considering the value proposition. This concept is counterintuitive to those trained to specialize in one area and maximize that value. Traditional construction industry contracts force a siloed optimization for each individual firm to be successful. Lean thinking attempts to reverse that concept.

Project teams might also find it useful to customize the way they introduce/initially define changes in the application of Lean Construction based upon the composition of their audience.

For example:

Owner:

- Expects predictable/reliable delivery; that is, on time, on budget, and at the level of quality in a safe working environment expressed in the project's Conditions of Satisfaction.
- Requires actively engaged owner participation to continuously define the value proposition.
- Requires owner representatives to commit to making decisions, sharing the "why" with the partners, and fostering a fair, collaborative environment.
- Expects the owner to be an equally participative, accountable team member.

Design partner: (based upon the Lean principles outlined in *Lean Thinking* by Womack and Jones, 2003)

- Defines value from the customer's perspective and in their language.
- Organizes all value-adding work in a value stream.
- Makes the work flow in accordance with the needs of the next customer.
- Pulls work from a provider whenever possible.
- Pursues perfection; that is, "What can we do to make today better than yesterday?"

Build partner:

- Respects the expertise of the build partners and attempts to maximize their knowledge during design and project planning.
- Focuses on productivity and safety.
- Creates more productive trade partners because all constraints have been removed so they can complete work as planned. This minimizes their comebacks (that is, the need to demobilize and remobilize when work cannot be complete as planned), which negatively impacts productivity.
- Produces better safety results among trade partners because work can be completed as planned. When trade workers perform comeback work, they are potentially double- and triple-exposing themselves to unsafe work conditions.

People are at the center of Lean Construction. They collaborate within and across teams using foundational Lean principles with the goal of optimizing overall value.

CHAPTER 14



RESPECT FOR PEOPLE

Introduction

Traditional project delivery has generally viewed individual participants as labor or knowledge producers as defined by their narrow specialties. The traditional tendency is to pigeonhole individuals into their capabilities, such as licenses, firms, trades and expertise.

Collaborative project teams have learned that by respecting the individual first, then the role, participants will become more engaged in an enterprise and contribute in more meaningful ways. In fact, through respect, inclusion and appropriate challenges, individuals grow and engage further, produce more and are more fulfilled.

Collaborative project teams have learned that by respecting the individual first, then the role, participants will become more engaged in an enterprise and contribute in more meaningful ways.

FAKE LEAN



REAL LEAN



Source: Bob Emilani

"Respect for People enables Continuous Improvement. Continuous Improvement does not enable Respect for People." – Bob Emilani

1.0 Why

Respect for People, together with Continuous Improvement, form the two pillars of Lean management. However, it is the many Lean tools—aimed at making waste visible and improving processes—upon which organizations tend to myopically focus as they attempt to adopt the Lean philosophy. Experience demonstrates that Lean transformations fail to deliver sustainable results without equal attention to both pillars.

Respect for People means:

- Recognizing and showing appreciation for the value of each individual and what they bring to the team;
- Creating and maintaining an environment in which it is safe to speak up with concerns and problems, with the expectation that others will listen;
- Adopting a "problems first" attitude; and,
- Being open to the ideas of others and challenging one another to become better.

Respect is not the same as politeness or conflict avoidance. To the contrary, Respect for People *requires* that we embrace constructive conflict and openly discuss issues that might normally be treated as "undiscussable." Because Respect for People is not always comfortable, politeness can actually be its near enemy.

A Plus/Delta is a simple example of constructive conflict in action. In such a situation, an issue that might be perceived as a negative is instead framed as a delta, or a possible change to make the process better. These issues are openly discussed as a team, and the group decides which actions should be taken.

2.0 How

Place a primary focus on enabling those who perform the value-adding work to be successful every day. Ask them how this can be achieved, then help them to implement their ideas:

- Solicit broad engagement of each individual and invest deeply in developing that person's capabilities.
- Go to the Work to understand the challenges, determine if help is needed, and offer assistance.

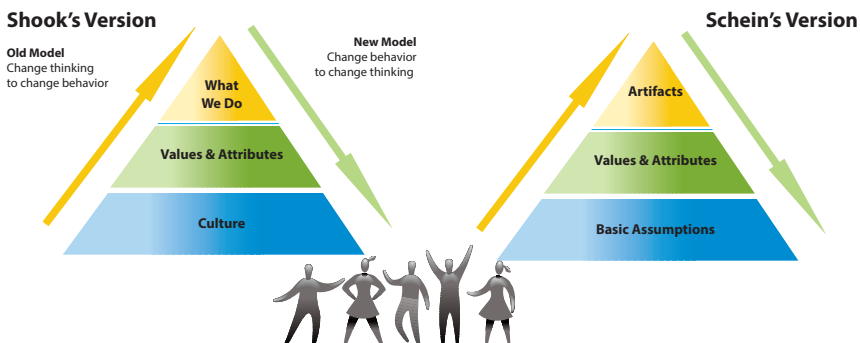
Listen:

- Practice effective, empathic listening.
- Develop emotional intelligence skills.
- "Seek first to understand." – Stephen Covey

Practice humble inquiry:

- Employ strategies for creating a safe environment.
- Adopt "No blame" and "No stripes" ground rules.
- Shift from a stance of "let's get to work" to one of building relationships first.
- Adopt the practice of asking questions about what we don't know and move away from telling and directing.
- Leaders should adopt the practice of being vulnerable and acknowledge their complete dependence upon the team for project success.

HOW CULTURE CHANGES – AND DOESN'T



Additionally, you should purposefully bring learning and improvement practices into the way the project is organized and delivered. Develop a team culture embracing John Shook’s suggestion that, “It’s easier to act your way to a new way of thinking than to think your way to a new way of acting.”

3.0 What

Lean management is unsustainable without an equal emphasis on both Respect for People and Continuous Improvement. Without equal emphasis on the two pillars of Lean, the process quickly degrades into “Fake Lean.”

Proper Lean management takes the view that:

- People are intrinsically motivated. Being effective together calls for connecting with the interests and concerns of everyone.
- People are fundamentally good and have positive intent.
- It is worthwhile to invest in building the capabilities of people for the sake of the project and future projects.
- The objective is not merely to produce improvements but to develop each person’s capability to improve.
- Everyone should come to work with the expectation of being successful every day. People should not be overburdened and should have the resources, skills and environment to do their work.
- Leadership is responsible for the system within which people work. When things go wrong, presume the system is faulty rather than blame individuals.
- Respect helps to build trust, which in turn enables innovation and risk-taking for the better of the project.

Shigeo Shingo, one of the early creators of the Toyota Production System, said, “There are four purposes of improvement: easier, better, faster and cheaper. These four goals appear in the order of priority.” In other words, we should focus on making it easier for people to do a better job. When we do that well, becoming faster and cheaper will naturally follow.

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PROJECT CONDITIONS OF SATISFACTION (COS)

1.0 Why

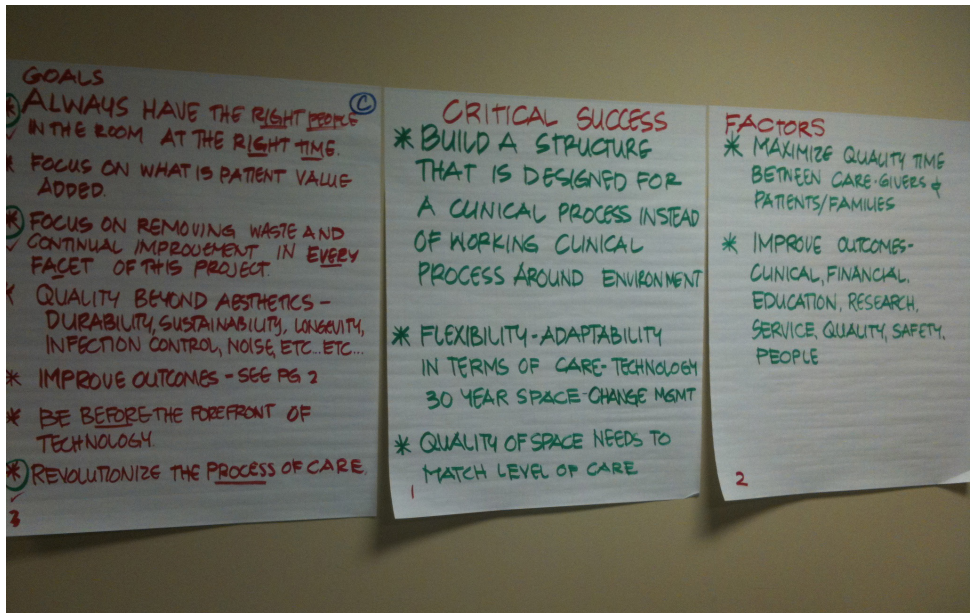
Lean/IPD Projects have been shown to out-perform traditionally delivered projects because there is a focus on alignment of interests, organizational integration, and agreement on project priorities for all parties involved. These project priorities are called Conditions of Satisfaction (CoS) in Lean/IPD Projects. These CoS guide decision making throughout development and implementation. When consensus is difficult to reach, these conditions become the measuring point from which to decide.

The Project CoS define what “success” means for the project team.

Co-developing Project CoS is a key element for developing and maintaining stakeholder alignment.

While a project has cost and schedule goals important for project success, CoS are co-developed to keep the Project Team aligned on additional important criteria the team believes to be critical for Project success.

CoS are the criteria that the team uses to make decisions, develop a common language for collaboration, define expected behaviors, drive team culture, and work together to achieve positive outcomes. Well-designed CoS ensure that all participants are fully engaged with their labor, talents, and experience. With CoS, everybody wins.



While a project has cost and schedule goals important for project success, CoS are co-developed to keep the Project Team aligned on additional important criteria the team believes to be critical for Project success.

2.0 What

Each CoS is a commitment, and all team members are responsible for delivering according to the CoS. By agreeing to and signing up to the CoS, the project team members make a Reliable Promise to one another. This behavior is aligned with the culture that needs to be present on a Lean/IPD Project.

The Project CoS define what “success” means for the project team. They are co-developed by the owner/client and the project partners. The CoS add value to the

client and to the Project Team. They must be measurable in some fashion. This does not mean each CoS needs to be a highly mathematic objective assessment; however, each CoS does need to clearly explain how it will be measured and how it will be known if it has been met (i.e., impeccable coordination that results in no field conflicts or system compromises).

Typically there are eight to 15 CoS established. Usually one CoS will address a budget objective, one will address a schedule objective, and one will address a safety objective. Other options for CoS might be:

- Everyone is profitable (It may be good to get this out in the open and get collective alignment.)
- The number of months in which the project is delivered
- Number of RFI's
- Number of Change Orders
- Number of punch list items
- Percentage of below market cost
- Percentage of operational cost improvement
- Percentage improvement in productivity
- Rapid improvement
- Exceptional teamwork
- Quality at acceptable levels the first time: As measured by:
 - No program schedule impacts due to construction quality
 - No unplanned factory impacts
- All schedules developed and executed using the Last Planner® System
- Total Project Transparency
- Strong Stakeholder Involvement
- Rapid Mitigation Existing Condition Discoveries

The CoS should be continually reviewed against the progress and learning of the team to ensure that the CoS remain relevant.

Do not rank the CoS in order of importance. The fundamental truth of a CoS is that it must be met; therefore, all of them must be met. Ranking CoS simply creates opportunities for the team to neglect one or more “lower ranking” conditions.

The CoS should be continually reviewed against the progress and learning of the team to ensure that the CoS remain relevant. One way to do this is to include a graphic on dashboards or other visual management tools. It is acceptable for the CoS to evolve during the life of the project – what’s important is that there is open communication on this subject among all the stakeholders. Equally important is ensuring that there is collective agreement on the changes as they happen. This is also true of the methods of measuring whether the CoS have been met. Conditions may be met early and retired as the project progresses.

There may be a risk and reward tie to the CoS. The team should be rewarded for meeting them, and there should be some penalty if they don’t. The risks and rewards can range from simple and elegant to complex and convoluted depending on project duration and contract structure.

Consider using tension-based language in framing the CoS. For example: “Needs to impress visitors as they approach and enter the building and yet not overwhelm the other buildings in the neighborhood.”

3.0 When

CoS should be co-developed as soon as possible, but should not be finalized until all the key players are engaged to have input and agree to the CoS. Typically it gets harder to add new or modify existing CoS the longer the project goes on. Some owners attach the CoS to the contracts and tie the ability to earn added profit to meeting the CoS, or the inability to meet them to reductions in profits. Be wary of having

too many CoS. Focus on what is critical and what would cause the project to be a failure if it does not happen.

Once the CoS are developed, make sure they are widely and regularly communicated to the team. If teams are co-located, have CoS publicly displayed on the wall where they are easy to find and to read.

Measuring how the team is doing against the CoS should be done as often as is reasonably possible. There should be a process in place to ensure the team responds to negative deviations from the CoS.

CHAPTER 26



RELIABLE PROMISING

1.0 Why

Construction projects traditionally encompass multiple companies contracted individually for a short term to one general managing firm. Each company typically comes to the project with independent—and mutually exclusive—goals, definitions, assumptions and generalities. These differences can lead to misunderstanding, incorrect work, rework, poor coordination, over production and missed deadlines. Lean/IPD projects focus on improving relationships and conversations to improve communication, thus reducing Breakdowns through reliable promises.

In the context of Lean/IPD, a promise is a commitment and an agreement.

Reliable Promising and personal commitment-making show respect for people and build trust among team members. Reliable Promising creates ownership and responsibility, and helps shift the culture from one of “holding people accountable” to a culture of “being accountable.” Reliable Promising reduces rework, defects and waste—and increases productivity.

2.0 What

In the context of Lean/IPD, a promise is a commitment and an agreement. A reliable promise contains:

- Customer
- Performer
- Timeframe
- Competency
- Mutually agreed-upon Conditions of Satisfaction

What makes a promise or commitment reliable?

- Performer has the resources to deliver.
- Performer has the ability to say no.
- Performer has the time to do it.
- Performer has the authority to agree to it.
- Performer has the competence or access to necessary competence.
- Performer has no hesitation about delivery.
- Performer has planned to do it.

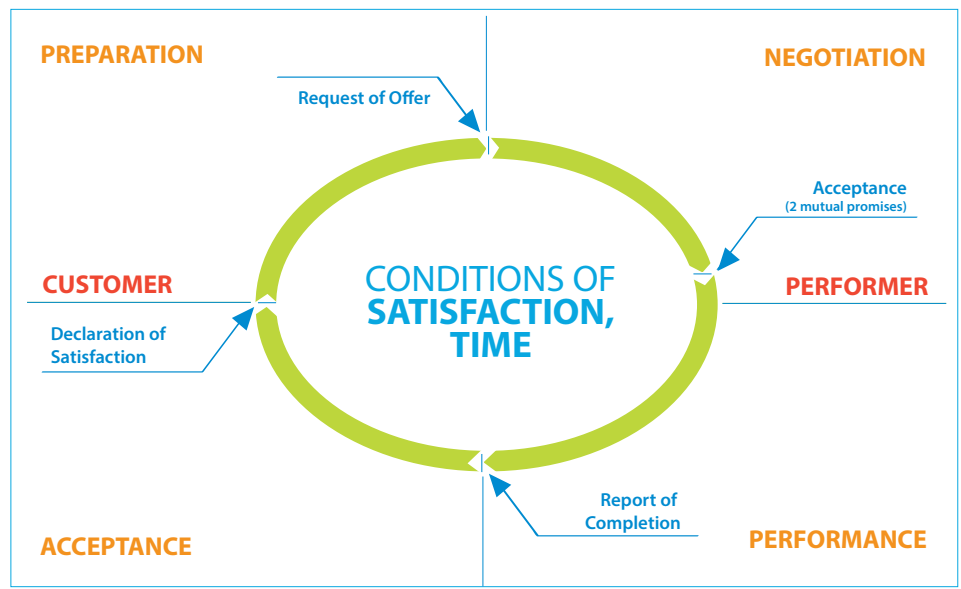
3.0 When

All work that is done is based in commitments. If there is not a customer and a performer for each piece of work, it should be questioned why the work is being done. Reliable Promising and commitment making is every bit as relevant to a Lean project as it is to a Lean organization.

4.0 How

Reliable Promising empowers performers to offer a conditional promise, which leads to negotiation. A conditional promise may be, “yes, I can do that if...” Another option is to provide a counter offer. It strengthens the network of commitments and clarifies the path forward.

Following the Basic Action Workflow model by Fernando Flores, an act is actually two mutual promises—one by the customer of what is being requested, and one by the performer of what they will deliver.



Following the Basic Action Workflow model by Fernando Flores, an act is actually two mutual promises—one by the customer of what is being requested, and one by the performer of what they will deliver.

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CHAPTER 35



1.0 Why

A primary pillar of a Lean culture is Continuous Improvement. One very effective way to strive for this is through Retrospection. Plus/Delta is a quick, simple retrospective to improve meetings, planning sessions or repetitive activities. By using Plus/Delta, teams can continuously improve meetings or activities and show respect for people by discussing the value of or ability to improve the time spent on events. Using this practice appropriately will help develop and sustain the Lean culture. Over time, participants will ideally develop a regular practice of making timely assessments and adjustments.

Plus/Delta is a quick, simple retrospective to improve meetings, planning sessions or repetitive activities.

2.0 When

Plus/Deltas are typically done in last 10 minutes of a meeting or activity. Projects and organizations that really look to maximize their learning from the practice also use it mid-way through a longer meeting or work session. It can be particularly helpful as a coaching tool when a meeting is going off-track—it will help recalibrate the team around the meeting's objective and potentially help them identify a new objective.

3.0 How

Typically, the facilitator does the following:

1. Plan 10 minutes in the agenda for the Plus/Delta. Make sure the time slot doesn't get used up by another topic. This is not something to be rushed and completed for the sake of completion. Attendees may at first be unwilling to appear to criticize the meeting. They may be afraid to participate. The facilitator should expect to encourage participation until the practice becomes commonplace.
2. Explain to the group every time what a plus/delta is.
 - a. Plus: what brought value and how does the team repeat it?
 - b. Delta: what can the team change or add to bring more value? How can the team do better?
 - c. The team should focus on the process of each particular meeting rather than focusing on people. The facilitator should be prepared to return to emphasizing the objectives of the meeting and how to better achieve these objectives.
3. Draw a line down the middle of a flip chart or white board, label the top with "Plus" and "Delta"
4. Ask the team for pluses and deltas—in action phrase format. They should start their comment by stating whether it is a Plus or a Delta.
 - a. Again, all comments should be discussed in action format. If someone says "There was good conversation" as a plus, ask "What action occurred to allow that to happen?" If someone says "we had too many sidebar conversations," ask "What action can we take to prevent that next time?" Try to get to the root cause so the appropriate countermeasure can be determined.
 - b. This may take some probing. Some teams go around the table so that everyone provides a plus and a delta, others let the group organically respond. If the room remains quiet, wait for a few minutes. You may eventually need to call on some participants to get the exercise started.
 - c. Encourage both deltas and pluses. The intent is to both improve and sustain what is working well.
 - d. Don't let people off the hook. Encourage all to speak up. Validate comments with the group to ensure value to most before helping define the action.
 - e. Ask in terms of "Who has another plus or delta?" or "What else?" until it is time



The facilitator should expect to encourage participation until the practice becomes commonplace.

to close the session. Then shift the question to “Is there anything else?”

- f. Capture these actions on the flip chart. If an action has too many words or is not easy to write, ask the person who said it to rephrase it in a few words. “Translating” is not recommended as often the intent is missed.
- g. Ask for owners of each action, along with a commitment date. It is O.K. to decide not to take action.
- h. At the beginning of the next meeting, review the status of the actions from the prior Plus/Delta.

Helpful facilitation points:

- No “junk words” allowed. If someone says “the meeting was too long,” ask them to define “too long” or to rephrase the statement into a recommended improvement. (For example: “We should meet for 45 minutes.”)
- If a participant found nothing to be of value in the meeting and has no improvements to offer, ask that participant if he really needed to attend. What action can be taken for the next meeting to ensure the right participants are there at the right time?

- Everything brought up is fair game. Do not discount anyone's pluses or deltas. Discounting feedback can prevent others from speaking up. Anything brought up that is completely off-topic should then be captured in a "Parking Lot."
- Pay attention to the mood of the group. The group must be open and feel safe to speak up.
- Ensure your application is appropriate for the environment. For very large groups (like conferences) a technical application may be helpful. Generally, more value comes from the group discussing these together.
- Set the goal of not having the same delta from one meeting to the next. Having the same delta means the action was not implemented the first time.

This process can become stale and not add value if not facilitated as described above. There may come a time when the team agrees the meetings are high performing and do not need a Plus/Delta. However, if the meeting value becomes suspect, begin the practice again, perhaps in a more intentional way to bring the value back.

Meetings tend to become habit, the need for the meetings change with time, the length of the meeting may need to change, or any number of factors may alter the value proposition. The Plus/Delta process can help the change occur as needed.

CHAPTER 36



1.0 Why

Lean/IPD teams are encouraged to work in groups, not silos. This reduces rework by incorporating the needs of many stakeholders before a solution set is presented or moves forward. Though this way of working seems to require many participants attending many meetings, it ultimately reduces the total time spent in meetings. Having an effective agenda respects the participants' time and the value they add to the subject matter. Good agendas effectively move work forward by aligning participants with objective outcomes. Collaboratively-built agendas support the development of a Lean culture. It is equally important for the agenda to be well-facilitate.

Good agendas effectively move work forward by aligning participants with objective outcomes.

2.0 When

Prepare agendas for all meetings, sessions and group events where three or more people are involved. Agendas can be used for singular subject matter situations and can support the weekly plan for co-located teams and Big Rooms.

3.0 How

Preparation

- Develop the agenda collaboratively. Involve all participants.
- Prepare the agenda at the end of a recurring session for the next session. Another option is to prepare the agenda earlier in the recurring session, particularly if attendance drops off or participation wanes during the meeting. This is a critical step.
- Publish or post the agenda well before the session meets. This advance posting allows participants to prepare—and also allows others to participate if they feel they will add value.

Elements of the Agenda

- Determine the intention and type of session (planning, decision-making, work, etc).
- Identify the clear expected outcomes to advance the work for each agenda item.
- Identify the customer(s) of the outcome of each item/session and align the expected outcome with their expectations.
- Determine the necessary participants based on their stake in the outcome, their input on the subject matter, and their empowerment to make decisions. When inviting participants, be mindful of the time and other costs they must devote to the meeting.
- Optimize the amount of time needed to drive to the expected outcome while being respectful of participants' time.
- It is acceptable to include time buffers and flex time, but be transparent about their inclusion; and only use them if needed. End items or sessions early if the outcome is reached early.



Use visual cues such as color-coding by type of session, visual timeframes, etc., when appropriate to provide clarity.

- Be mindful of participant's constraints in organizing agenda items.
- Be mindful of participants' time constraints when scheduling back-to-back sessions.
- Open the session with a review of previous plus/deltas for a recurring session.
- When appropriate, lead with Hot Topics. Allow for adjustment to the agenda if needed, and ensure that the group meets consensus.
- Leave time on the agenda to develop the next agenda for a recurring session.
- Include time for plus/deltas.

Tips for Building an Agenda

- Identify the facilitator of the overall agenda and individual agenda items.
- Use visual cues such as color-coding by type of session, visual timeframes, etc., when appropriate to provide clarity.
- Identify participants.

- Include contact information (location, virtual connectivity instructions, etc.) for venue(s).
- Plan to have a Parking Lot to assign actions and owners when off-subject topics arise to avoid derailing the session.
- Be prepared to build a Commitment Log for Action Items.
- Consider the manner in which output of session will be shared. (For example, determine whether minutes add value.)

FINAL THOUGHTS & ADDITIONAL RESOURCES

Final Thoughts

Lean practices have the power to transform projects and entire organizations by eliminating waste, delivering value, and fostering a culture of continuous improvement. The principles in this guide provide a foundation for success, but true results come from fully integrating these practices into your organization's culture. LCI Corporate Membership can help you take this critical next step.

As an LCI corporate member, your organization will gain access to a comprehensive suite of resources designed to help you realize the full benefits of Lean project delivery. From advanced education and recognition opportunities to professional support and community connections, LCI membership equips your team with the tools to build better projects and stronger relationships. If you are ready to embrace the full potential of Lean and position your organization as an industry leader, now is the time to join LCI and take your Lean journey to the next level.

Additional Resources

- [Purchase Transforming Design & Construction](#)
- [Explore LCI Videos](#)
- [Learn More with Lean Topics](#)
- [Expand Knowledge with eLearning Courses](#)
- [Register for a Webinar](#)
- [Join Your Local Community of Practice](#)

