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Immersive Education Program

An Introduction to the Lean Deployment Planning Approach

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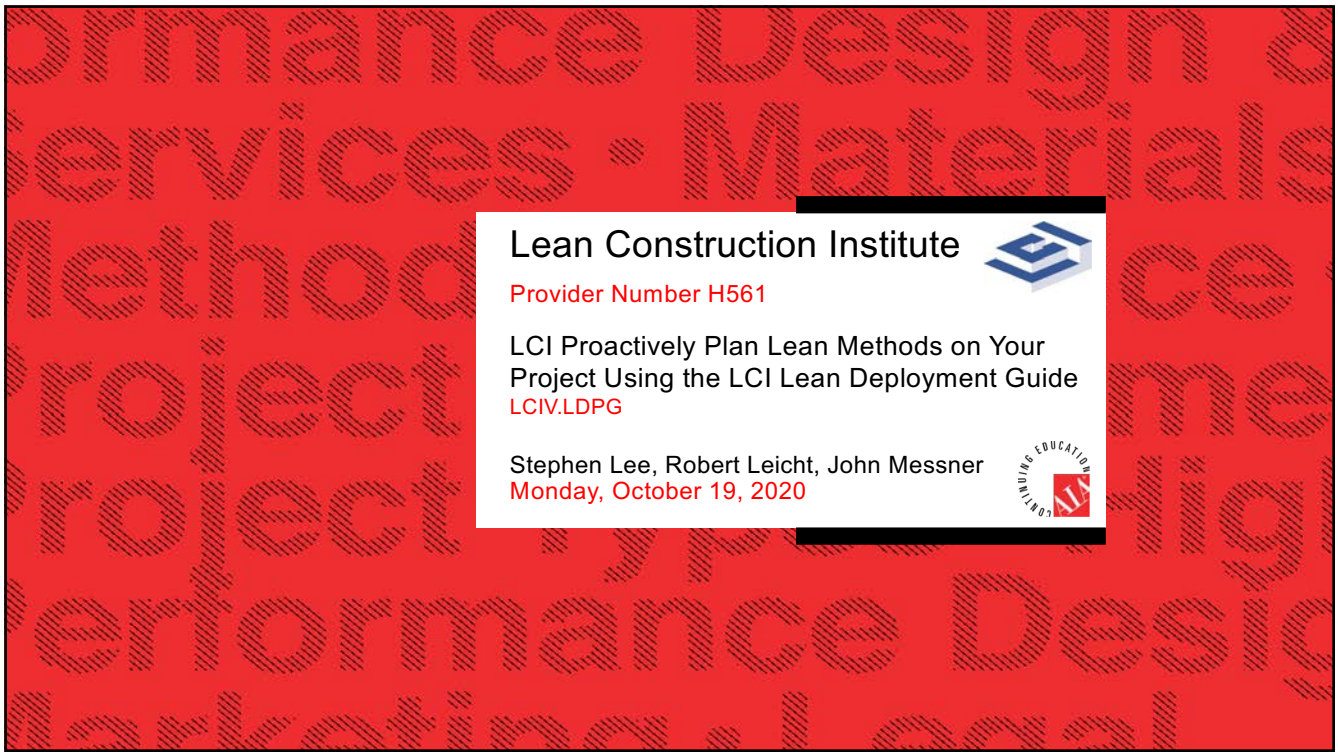

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Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.

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Course Description

The hand-on workshop will integrate learning with practical application working sessions for identifying and planning lean methods. Learning will commence with an explanation of the Lean Development Planning Guide and resources that support the steps of the planning process for a project including: initiate, select, plan and integrate. Participants will gain an understanding of each resource included in the guide and how it may be implemented during the planning process. A case study where the Lean Deployment Guide was used by the project team to develop method-specific A3s for implementation will be shared. During the facilitated working sessions, participants will experience developing a Lean deployment plan for a simulation project, using the guide resources to select project methods, create a method-specific A3 plan and begin to integrate methods into the project dashboard for tracking and management.

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Learning Objectives

01.

Participants will be able to define essential steps for developing a project-specific Lean deployment planning process.

02.

Participants will be able to identify and use the resources in the guide that support each of the steps of the process.

03.

Participants will gain insights from a case study project team with successful outputs.

04.

Participants will use the guide resources to create a method-specific A3 plan for a simulated project.

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Rules of Engagement

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- This is a safe zone
- Everyone has equal status
- Speak up and share your ideas
- Actively listen to others
- One conversation at a time
- Use E.L.M.O.
- Silence phones
- Be focused and engaged
- Stay on time
- Have fun!

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Lean Journey to Mastery

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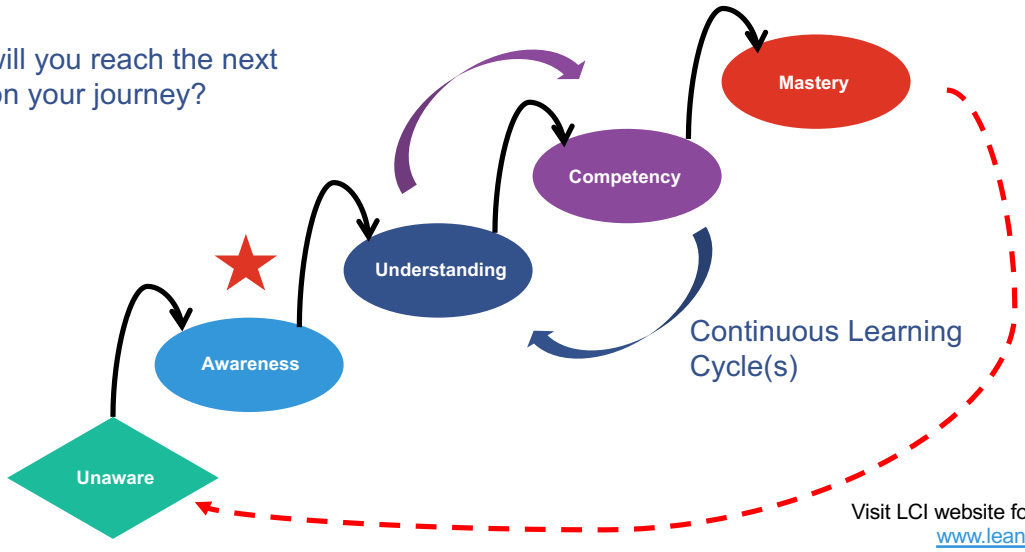
How will you reach the next level on your journey?



Visit LCI website for more learning:
www.leanconstruction.org

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Six Tenets of Lean

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1. Respect for people
2. Optimize the Whole
3. Generate Value
4. Eliminate Waste
5. Focus on Flow
6. Continuous Improvement

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Lean Deployment Planning Guide

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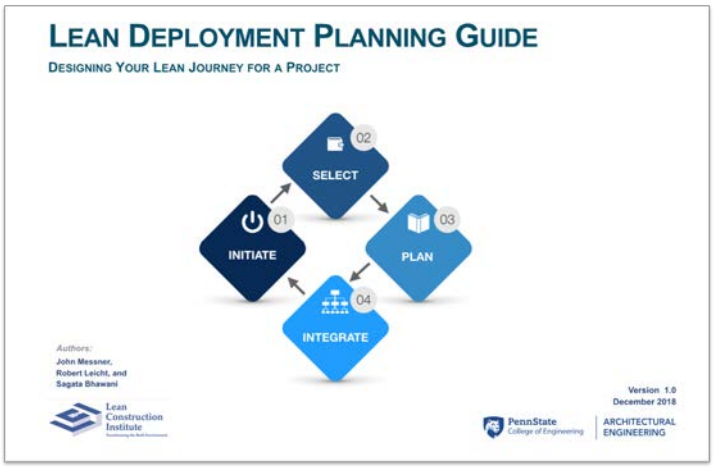

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Why develop a Deployment Plan?

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- Project teams need a 'place to start'
- Provides a basis for project's lean operating system
- Helps owners know what / how to ask for lean implementation on their projects
- Provides structured process for identifying & planning lean implementation - define 'why', then 'how'
- Allows for standardizing a project baseline
- Training and coaching can be better targeted to support a project's specific lean deployment plan

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Lean Deployment Planning Guide Overview

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Lean Deployment Planning Steps

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Step 1: Initiate the Lean Deployment Planning Process

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- Identify lean coach and champions
- Conduct lean training
- Schedule a lean deployment kick-off session
- Develop meeting agenda and presentation
- Conduct kick-off session

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Step 2: Select Lean Methods

Review lean methods

Evaluate methods

Select methods

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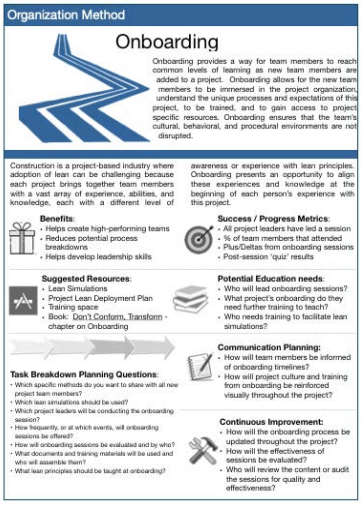
Defining the Lean Methods

Organization Methods - Definitions

Team Organization	*Problem-solving*	*Decision-making*	*Continuous Improvement*
Onboarding Activities conducted strategically to quickly get everyone on the same page regardless of when they join the project team. Example: orientations, trainings, team building exercises, etc.	**A3 thinking (PDCA)** Documentation approach for problem-solving and reporting on project-related critical decisions using the Plan - Do - Check - Adjust. (PDCA) method for continuous improvement.	**Choosing by Advantages** A multi-criteria decision-making method developed by for determining the best decision by quantifying the advantages of each option.	**Quality Circles** A participatory management technique that engages workers directly in identifying and solving problems that span different steps in the design or production process.
Work Clusters Multifunctional work groups created within the project team to pursue complex decision-making and problem-solving by putting in use the different experience and skills of every member.			

Additional Techniques used in Lean Implementation:

5 WHY Analysis Problem solving technique to determine root cause by diving deeper into the "why" five times.	**PICK Chart** An ease/impact chart that segregates ideas into possible, implement, challenge, and kill categories.	**Spaghetti Diagramming** A map that shows current layout of operations and path taken by people, product, or the service as it moves through the process.
Ohno Circles Figuratively refers to a portion of the workplace identified to be observed and analyzed for an uninterrupted period of time to look for inefficiencies.		**Gemba Walk** Means "Going to the work" or walking the job site where the actual work is done to identify waste elimination opportunities.



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Step 3: Plan Each Lean Method

- Identify the method goal
- Identify champion(s) and key participants
- Outline the tasks and responsibilities
- Define the measures, communication strategy(ies), and continuous improvement opportunities

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Method Planning A3 Template

Example - Onboarding

Method: Onboarding | **Champion(s):** Andy | **Project/Organization:** Project A

Goal(s): Create quality onboarding so everyone understands.

Participants(s): All personnel, Owner included.

Task Breakdown:
- Integrate the organization processes with the management processes
- Leadership team defines information for all members. Example: Not IFOA but interdependence of parties
- Define Lean/IPD briefing for safety orientation
- Define communication or visual management strategies
- Train the trainers
- Design assessment/health checks
- Run/track metrics and audits
- Conduct Monthly "Reconnect" or "Lean Learning"

Related Methods and Strategies:
Weekly Work Planning
Big Room Planning
Visual Management
Meeting Agendas

Metric(s):
- Observed actions
- Reward system
- Health check
- Quiz (2 minute drills)

Education Plan:

Level	Who?	When?	How?

- Who will train/give onboarding?
- How frequently will onboarding sessions be offered?
- What are the milestones for updating the training?s

Communication Plan:
- Define slides for orientation
- Develop posters for big room
- Rewards at luncheon
- Rewards system board

Continuous Improvement
- When do we conduct audits
- How we frequently do we conduct audits/check-ins
- Who will conduct these audits/check-ins?
- How will we rotate responsibilities?

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Step 4: Integrate Methods to Project Plan

Record project conditions of satisfaction and associated methods

Consolidate project measures for tracking alignment to implementation plan

Consolidate all training to be completed on the project

Consolidate all communication strategy(ies), and continuous improvement opportunities

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Project Summary Dashboard

Project: ABC Recreational Complex Renovation

Lean Champion(s): Jane Doe

Project Conditions of Satisfaction
Rapid issue-detection and resolution
Continuous and reliable workflow
High performing project team
Effective , efficient, and timely team communications
High performing building design

Lean Implementation Metrics:	Status
All lean methods champions identified within 30 days of lean implementation planning kick-off	
Lean plan completed within 90 days of kick-off	

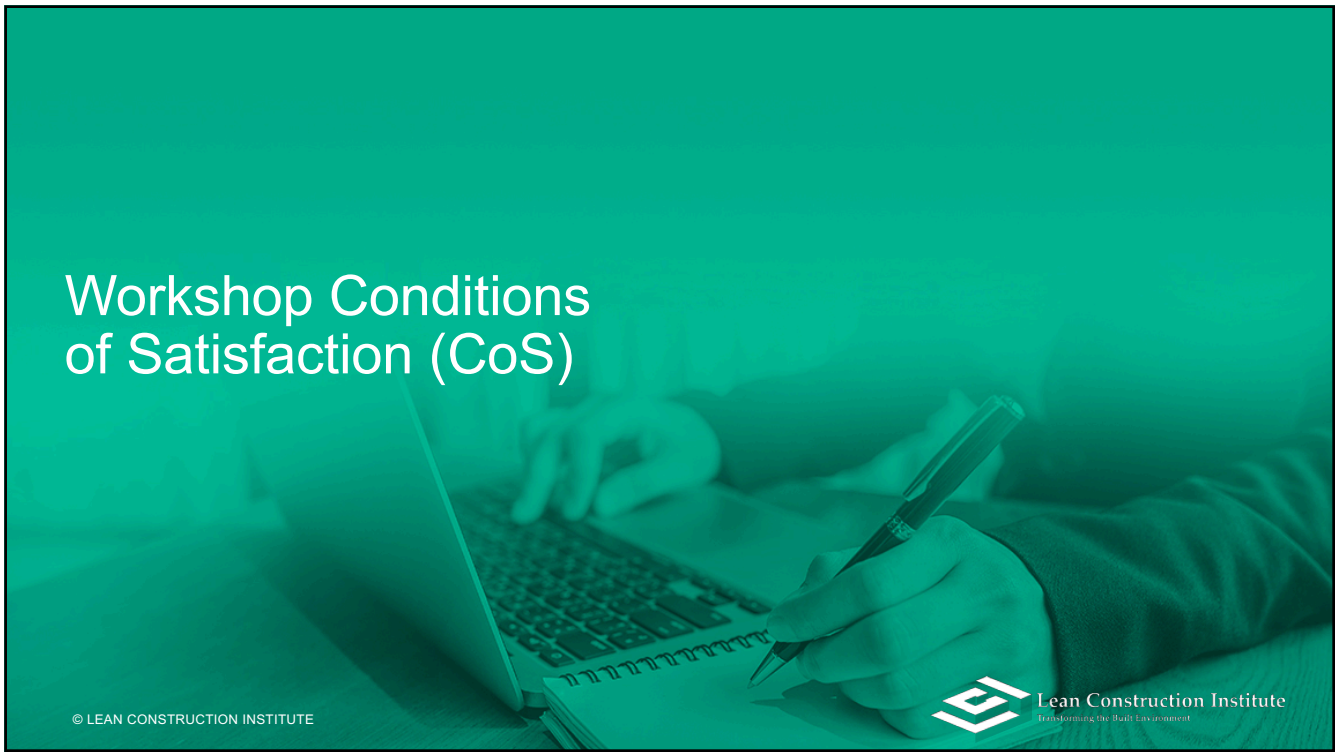
Education and Training Metrics	Status
New person onboarding completed within 30 days of hire	
All lean champions trained within 30 days of kick-off	
All lean trainings completed within 90 days of kick-off	

Organization Methods	Operating System Methods
Onboarding	Last Planner System
Work Clusters	Target Value Design
Gemba Walk	Big Room Planning
A3 Thinking/Reports	Visual Management

Communication Metrics	Status
Project issues identified did not cause project delay	
Identified project issues resolved within 15 days	
Zero change orders post issue of detailed design docs.	

Continuous Improvement Metrics	Status
Plus-deltas recorded from all collaborative sessions	
Deltas addressed in future sessions	
Pluses repeated in future sessions	

Workshop Conditions of Satisfaction (CoS)



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Workshop CoS

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- Breakout group directions:
  - Join one of the breakout discussions (we will assign you to a group)
  - Introductions
    - Introduce yourself
    - Ice-breaker questions: What was something fun you did this past weekend?
    - Identify group spokesperson / person to submit group response
  - As a group, brainstorm what you would like to get out of this workshop
  - We will come together and share highlights with the whole group

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Intro to Mural collaboration tool

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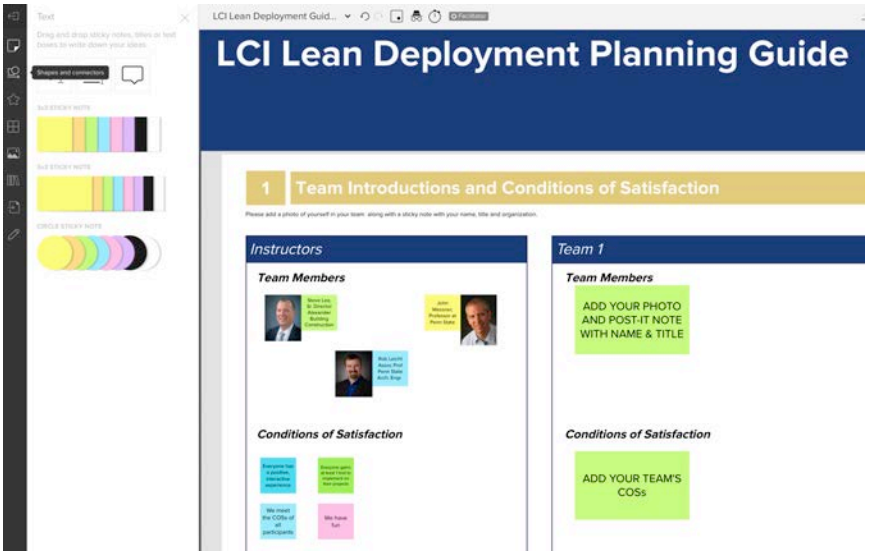

Link at:

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Case Study Project Introduction: Hampden Medical Center

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Strategic Goals: Penn State Health

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- First greenfield hospital expansion for the system
- Bring world class care closer to patients in more effective setting – hospital within 30min (10-20-30)
- Speed to market

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Selecting the Team

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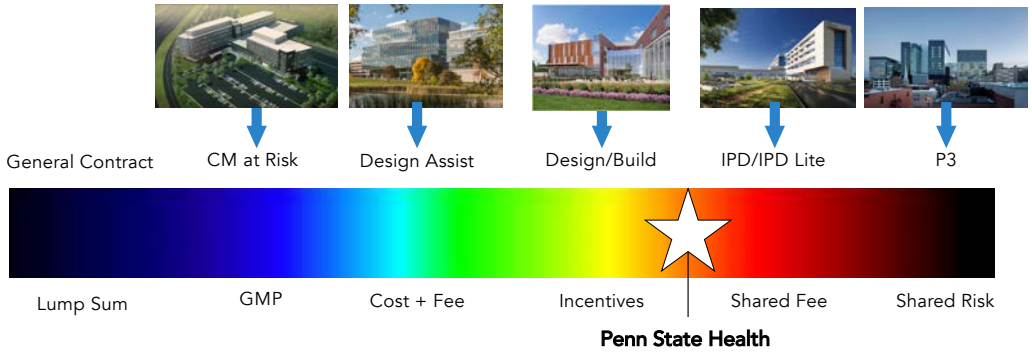
- CannonDesign Architects & Engineers hired June 2018
- Barton Malow / Alexander JV hired July 2018
- IPD Spectrum: Bringing the Right Tools for the Job - How do you define “Lean” or “Integrated” delivery?



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Collaborative Team

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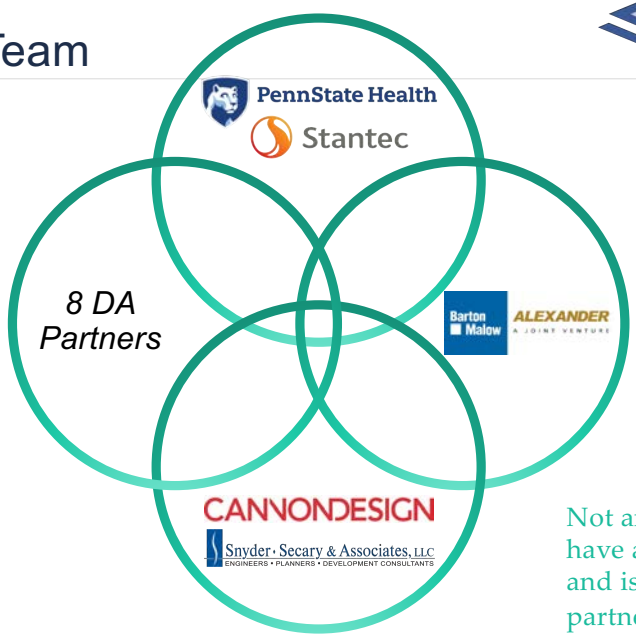

Collaboration

Not an IPD project, but we did have a contractual methodology and issued a contract for our DA partner preconstruction services

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Design Summary

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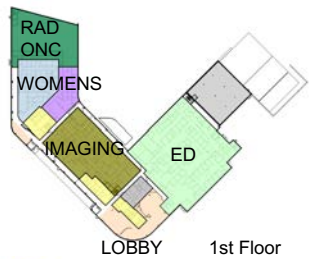

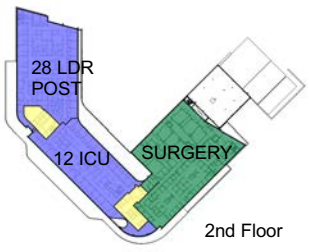

300,000 BGSF

108 Patient Beds

- 12 ICU
- 4 Labor / Delivery
- 18 Post Partum
- 6 Ante Partum

6 OR's 2 Cath Labs

30 ED Exam Bays

$197.7M Target

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Design Summary

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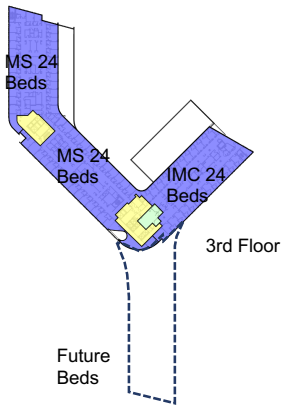

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 30

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Step 1: Initiate Lean Deployment Planning

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Lean Deployment Planning Steps

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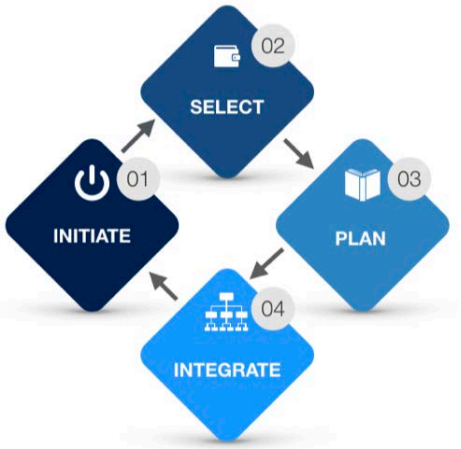

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Sample Content

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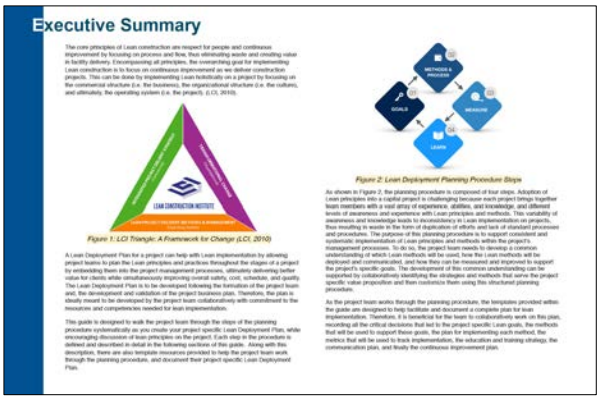

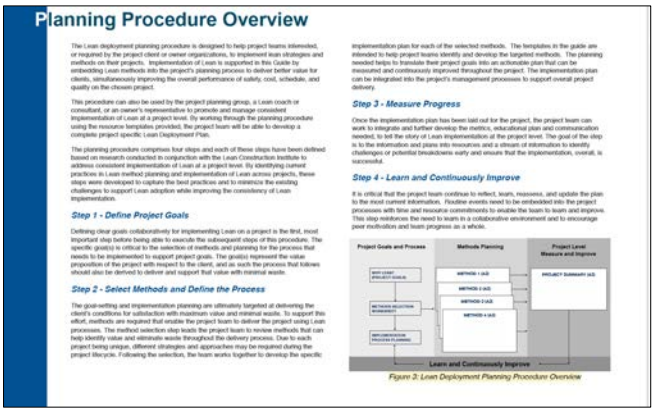

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Step 1: Initiate the Lean Deployment Planning Process

- Identify lean coach and champions
- Conduct lean training
- Schedule a lean deployment kick-off session
- Develop meeting agenda and presentation
- Conduct kick-off session

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Step 1: Initiate – Coaches & Training

- Identify a Lean Champion on your Team
- Bring in a Lean Coach (internal or consultant)
- Connect your Lean Champion to continue to consult with your Coach
- Identify the Team's (owner, design & builders) knowledge / experience with Lean – Where are you starting from?
- Need an Owner that's willing to let you try
- Start the Project with setting your Conditions of Satisfaction and use those to guide which Lean Methods you select.

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Step 1: Initiate –Kickoff Session Planning

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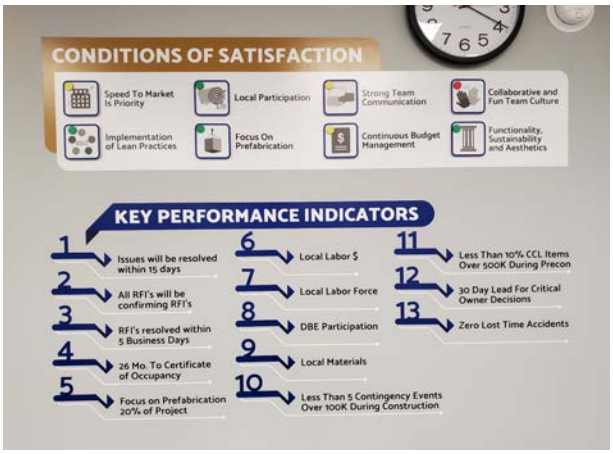
- Start the Project with setting your Conditions of Satisfaction
- Best to facilitate a meeting with the entire team (owner, designers & builders) to identify the methods you want to try
- Let CoS guide which Lean Methods you select
- Develop a core group to work with Project Champion to build momentum



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Step 2: Select Lean Methods

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Step 2: Select Lean Methods

Review lean methods

Evaluate methods

Select methods

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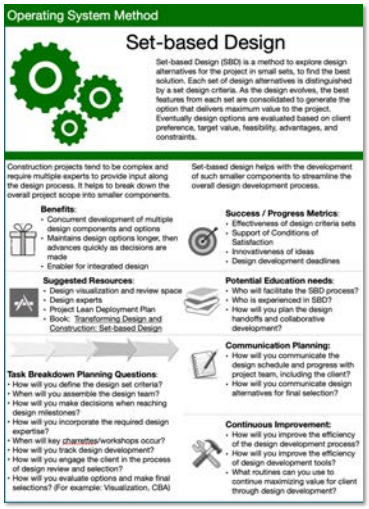
Defining the Lean Methods

Operating System Methods - Definitions

Production	Design development	Scope & Cost	Information Management
Last Planner System	Set-based Design	Target Value Design	Big Room Planning
SIPS/Takt Planning	Agile Planning	Design Structure Matrix	Visual Management
Modularization	Value Stream Mapping	Conditions of Satisfaction	BIM Execution Plan

Additional Techniques used in Lean Implementation:

First Run Studies	Poke-Yoke	5-S	3P



Operating System Method

Set-based Design

Set-based Design (SBD) is a method to explore design alternatives for the project in small sets, to find the best solution. Each set of design alternatives is distinguished by a set design criteria. As the design evolves, the best features from each set are consolidated to generate the option that delivers maximum value to the project. Eventually design options are evaluated based on client preference, target value, feasibility, advantages, and constraints.

Construction projects tend to be complex and require multiple experts to provide input along the design process. It helps to break down the overall project scope into smaller components.

Set-based design helps with the development of such smaller components to streamline the overall design development process.

Benefits:
- Concurrent development of multiple design components and options
- Maintains design options longer, then advances quickly as decisions are made
- Enabler for integrated design

Success / Progress Metrics:
- Effectiveness of design criteria sets
- Support of Conditions of Satisfaction
- Innovativeness of ideas
- Design development deadlines

Suggested Resources:
- Design visualization and review space
- Design experts
- Project Lean Deployment Plan
- Book: Transforming Design and Construction: Set-based Design

Potential Education needs:
- Who will facilitate the SBD process?
- Who is experienced in SBD?
- How will you plan the design handoffs and collaborative development?

Communication Planning:
- How will you communicate the design schedule and progress with project team, including the client?
- How will you communicate design alternatives for final selection?

Task Breakdown Planning Questions:
- How will you define the design set criteria?
- When will you assemble the design team?
- How will you make decisions when reaching design milestones?
- How will you incorporate the required design expertise?
- When will key charrettes/workshops occur?
- How will you track design development?
- How will you engage the client in the process of design review and selection?
- How will you evaluate options and make final selections? (For example: Visualization, CBA)

Continuous Improvement:
- How will you improve the efficiency of the design development process?
- How will you improve the efficiency of design development tools?
- What routines can you use to continue maximizing value for client through design development?

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Defining the Lean Methods

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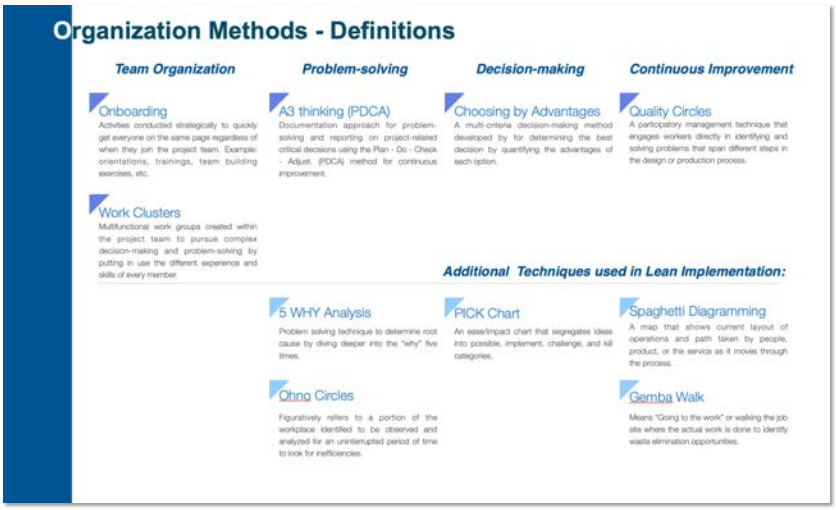

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Methods by Function and Project Phase

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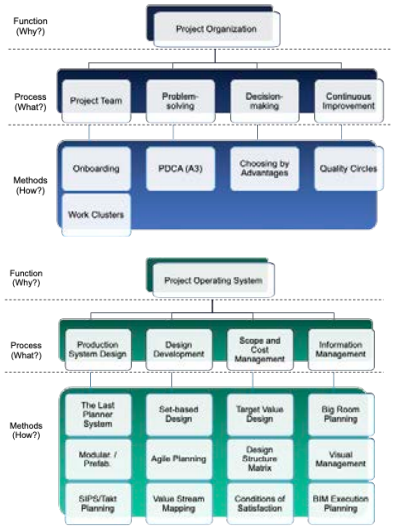

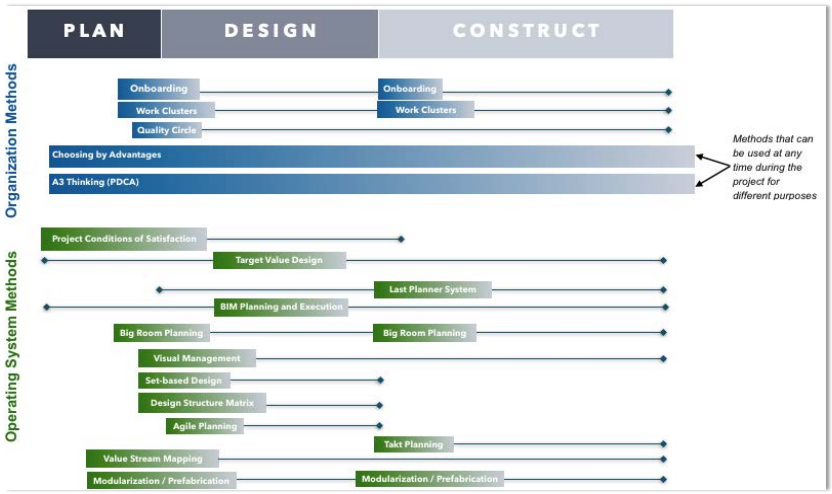

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Evaluating Lean Methods

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- The purpose of the evaluation step is to prioritize methods that add value to the project
- Consider Value to the project
- Review and share awareness and experience using methods

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Step 2: Select Lean Methods

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Review lean methods

Evaluate methods

Select methods

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Method Selection Worksheet

Process (WHAT WE WANT TO DO?)	Methods (HOW WE WANT TO DO IT?)	Customer(s)	Value to Customer(s) High / Med / Low	Responsible Party	Resources or training needed to implement	Notes	Proceed with Method YES / NO / MAYBE
Production System Design	Last Planner System	[Project Team]	High	Construction Team	Lean Coach needs to conduct pull planning workshop for hands-on training	Contact organizational lean coach/hire consultant	YES
		[Client]	Medium				
Scope & Cost Management	Target Value Design	[Project Team]	High	Design Team	Experienced design team, no additional training needed		YES
		[Client]	High				
Design Development	Set-based Design	[Project Team]	Medium	Design Team	Experienced design team, no additional training needed		MAYBE
		[Client]	High				
Information Managemennt	Big Room Planning	[Project Team]	High	Project Management	Lean coach needs to conduct training workshop for hands-on training	Contact organizational lean coach/hire consultant	YES
		[Client]	High				
Information Management	Visual Management	[Project Team]	High	Project Management	Need data analytics and visualization training for individuals responsible for performance reports	Contact trainers for webinars/in-person workshops	YES
		[Client]	High				
Team Organization	Work Clusters	[Project Team]	High	Project Management	Experienced team, no additional training needed		YES
		[Client]	Low				
Team Organization	Onboarding	[Project Team]	High	Project Management	Experienced team, no additional training needed		YES
		[Client]	Medium				

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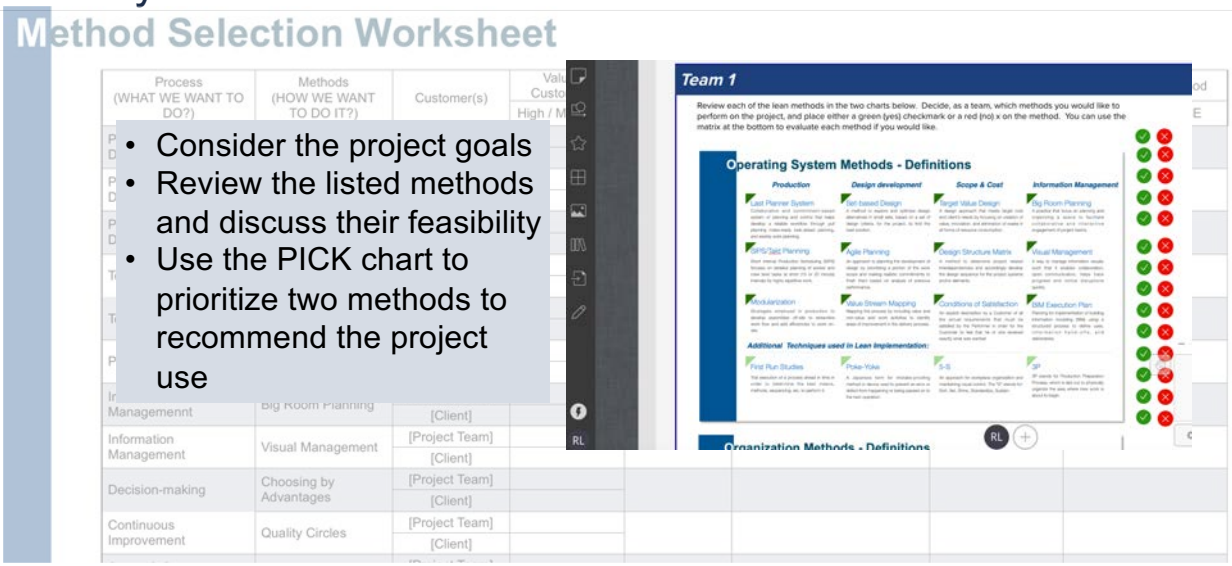
Select your methods



- Consider the project goals
- Review the listed methods and discuss their feasibility
- Use the PICK chart to prioritize two methods to recommend the project use

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Methods Discussion

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- What methods did you agree to implement?
- Which methods were harder to agree? Why?
- How were you able to address the goals / risks you defined earlier?
- How does your current understanding of the methods influence your decisions?

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Operating System Methods - Definitions

Production	Design development	Scope & Cost	Information Management
Last Planner System Collaborative and commitment-based system of planning and control that helps develop a reliable workflow through pull planning, make-ready look-ahead planning, and weekly work planning.	**Set-based Design** A method to explore and optimize design alternatives in small sets, based on a set of design criteria, for the project, to find the best solution.	**Target Value Design** A design approach that meets target cost and client's needs by focusing on creation of value, innovation, and elimination of waste in all forms of resource consumption.	**Big Room Planning** A practice that focus on planning and organizing a space to facilitate collaborative and interactive engagement of project teams.
SIPS/Takt Planning Short Interval Production Scheduling (SIPS) focuses on detailed planning of worker and crew level tasks at short (15 or 20 minute) intervals for highly repetitive work.	**Agile Planning** An approach to planning the development of design by prioritizing a portion of the work scope and making realistic commitments to finish them based on analysis of previous performance.	**Design Structure Matrix** A method to determine project related interdependencies and accordingly develop the design sequence for the project system and/or elements.	**Visual Management** A way to manage information visually such that it enables collaboration, open communication, helps track progress and notice disruptions quickly.
Modularization Strategies employed in production to develop assemblies off-site to streamline work flow and add efficiencies to work on-site.	**Value Stream Mapping** Mapping the process by including value and non-value add work activities to identify areas of improvement in the delivery process.	**Conditions of Satisfaction** An explicit description by a Customer of all the actual requirements that must be satisfied by the Performer in order for the Customer to feel that he or she received exactly what was wanted.	**BIM Execution Plan** Planning for implementation of building information modeling (BIM) using a structured process to define uses, information hand-offs, and deliverables.

Additional Techniques used in Lean Implementation:

First Run Studies Trial execution of a process ahead in time in order to determine the best means, methods, sequencing, etc. to perform it.	**Poke-Yoke** A Japanese term for mistake-proofing method or device used to prevent an error or defect from happening or being passed on to the next operation.	**5-S** An approach for workplace organization and maintaining visual control. The "S" stands for: Sort, Set, Shine, Standardize, Sustain.	**3P** 3P stands for Production Preparation Process, which is laid out to physically organize the area where new work is about to begin.

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Organization Methods - Definitions

Team Organization

Onboarding
Activities conducted strategically to quickly get everyone on the same page regardless of when they join the project team. Examples: orientations, trainings, team building exercises, etc.

Work Clusters
Multifunctional work groups created within the project team to pursue complex decision-making and problem-solving by putting in use the different experience and skills of every member.

Problem-solving

A3 thinking (PDCA)
Documentation approach for problem-solving and reporting on project-related critical decisions using the Plan - Do - Check - Adjust. (PDCA) method for continuous improvement.

Decision-making

Choosing by Advantages
A multi-criteria decision-making method developed by for determining the best decision by quantifying the advantages of each option.

Continuous Improvement

Quality Circles
A participatory management technique that engages workers directly in identifying and solving problems that span different steps in the design or production process.

Additional Techniques used in Lean Implementation:

5 WHY Analysis
Problem solving technique to determine root cause by diving deeper into the "why" five times.

PICK Chart
An ease/impact chart that segregates ideas into possible, implement, challenge, and kill categories.

Spaghetti Diagramming
A map that shows current layout of operations and path taken by people, product, or the service as it moves through the process.

Ohno Circles
Figuratively refers to a portion of the workplace identified to be observed and

Gemba Walk
Means "Going to the work" or walking the job site where the actual work is done to identify

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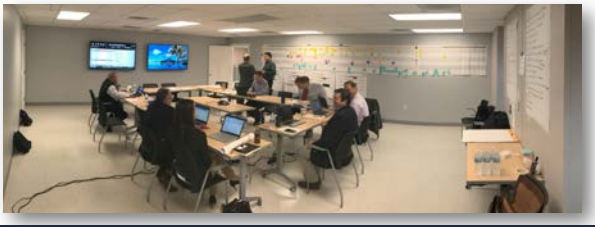
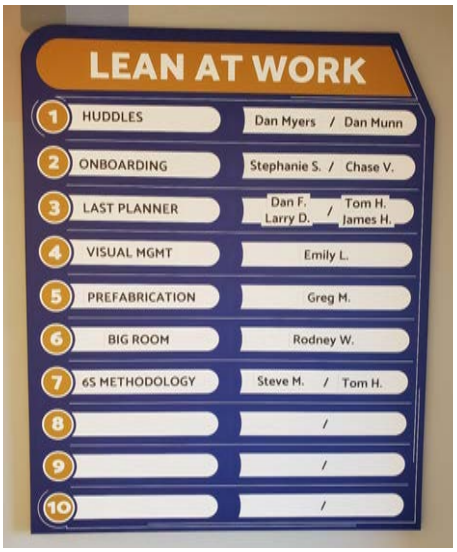
Step 2: Selecting Lean Methods

- Begin to identify champions of each initiative
- Start on Day 1
- Don't jump into the deep end (don't try to do it all at once)
- Start with some easy wins
- Continue regular Lean Initiatives session to engage the larger team





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Step 3: Plan Each Lean Method

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Lean Deployment Planning

Step 3: Plan Each Lean Method

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- Identify the method goal
- Identify champion(s) and key participants
- Outline the tasks and responsibilities
- Define the measures, communication strategy(ies), and continuous improvement opportunities

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Method Planning A3 Template

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Method:	Champion(s):

Goal:
(please list the project goal this method supports)

Customer(s):
(please list the customers, but internal to the team or external that are targeted as beneficiaries of this method)

Task Breakdown	Responsible Party	Milestone

Related Methods:
(please identify other methods the team is pursuing, or should consider, that support or can be enabled as a result of, this methods use on the project)

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Project:

Metrics:
(please identify the measures that will be used to track and identify challenges, and successes, in the implementation of this method.
- Be sure to capture the party responsible for tracking each
- Consider the specific times, or frequency, the metrics are captured and shared

Education Plan:

Level	Who?	When?	How?
Introduction			
Deep Dive			
Trainer			

Communication Plan:
(please identify the how the method and its implementation is communicated to project stakeholders)
- What forms will be used (presentations, posters, posted logs)
- How often does it need to be shared? With which audiences?
- Who is responsible for maintaining and updating it?

Continuous Improvement:
(please define the timing and process that will be used to improve the use of this method
- Who will review or assess the current implementation?
- When and how often will the process be assessed?
- How will targeted improvements be incorporated into future steps?

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Method Planning

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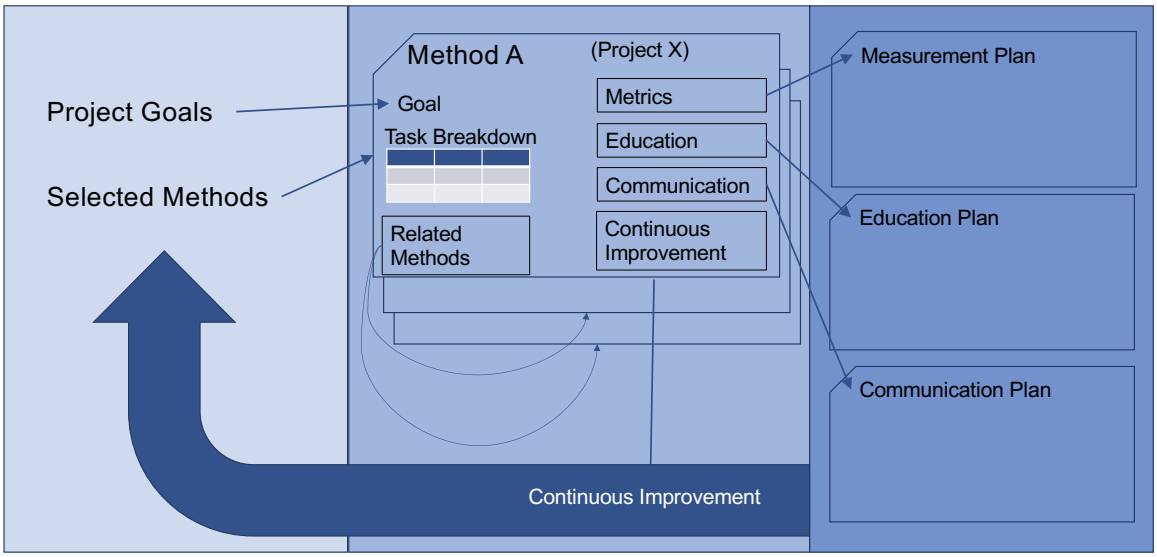

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Goal, champion, and participants

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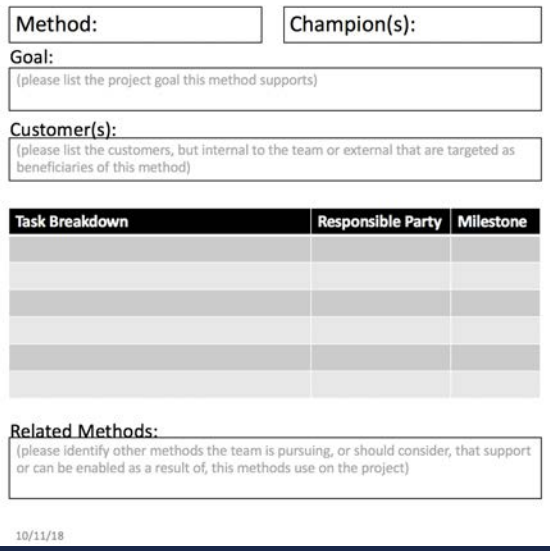
Method:
Champion(s):
Goal:
(please list the project goal this method supports)
Customer(s):
(please list the customers, but internal to the team or external that are targeted as beneficiaries of this method)

Task Breakdown	Responsible Party	Milestone

Related Methods:
(please identify other methods the team is pursuing, or should consider, that support or can be enabled as a result of, this methods use on the project)
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- **Goal** – which project CoS and team member goal(s) does this method support and enable?
- **Champion** – which team member will be leading the implementation of this method?
  - Should be engaged in the project on a daily basis
  - Role should align with method use, support their responsibility for implementation
- **Customer & Participants:** who should be involved in planning the methods?
  - Participants should be involved in planning and implementing
  - Customers – should be recipients / benefit from the use of the method

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Lean Deployment Planning

Tasks and Related Methods

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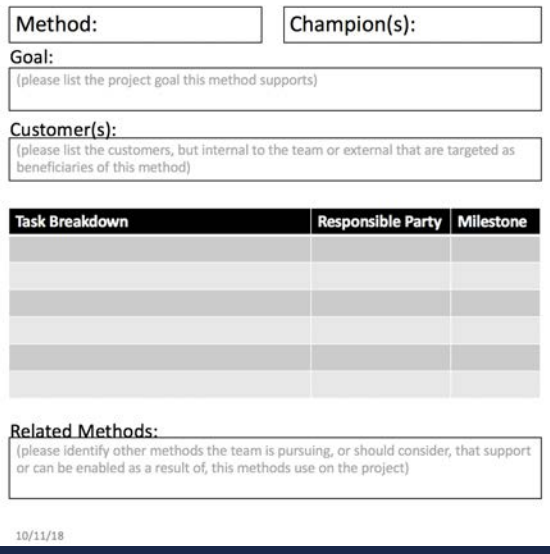
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Goal:
(please list the project goal this method supports)
Customer(s):
(please list the customers, but internal to the team or external that are targeted as beneficiaries of this method)

Task Breakdown	Responsible Party	Milestone

Related Methods:
(please identify other methods the team is pursuing, or should consider, that support or can be enabled as a result of, this methods use on the project)
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- **Tasks** – what are the one time and repetitive tasks that need to be planned to manage the use of the method?
  - Appendix C – method specific questions to support planning
  - Assign timeline and responsible party for implementing each task / step
- **Related Methods** – identify methods that are inter-related with the use of this method
  - Methods Summaries (App C) help identify this
  - Supports consideration of shared metrics, training, and implementation tasks

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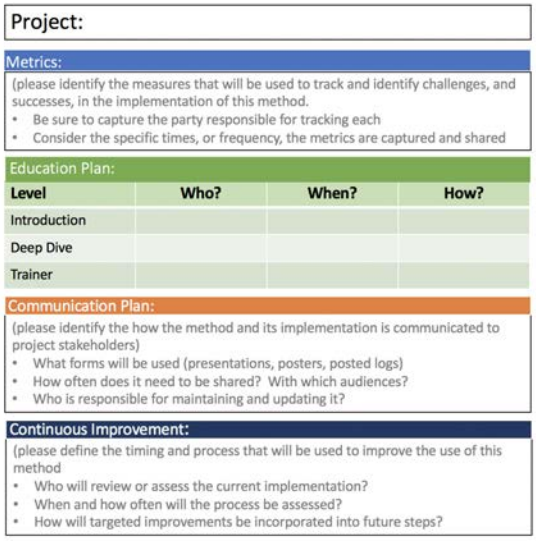
Education and Communication Plans

- **Education Plan** – define who needs to be trained for using this method and how deep the training needs to delve
  - Introduction – general awareness or understanding of method
  - Deep Dive – active participants in using method
  - Trainer – those that lead, facilitate, or train others
- **Communication Plan** – define the critical aspects that need to be communicated throughout the project team
  - Where can information be displayed?
  - What can be embedding in onboarding?
  - How can we create routines and processes that enable regular updates and sharing?



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Lean Deployment Planning

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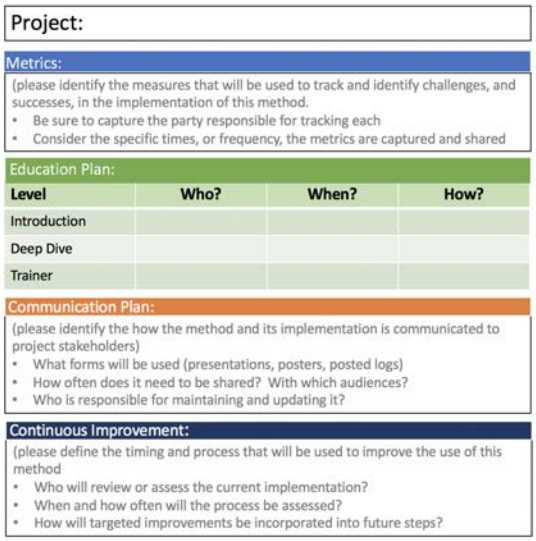
Metrics and Continuous Improvement

- **Metrics** – the metrics and measures should support tracking and monitoring
  - Should align with project processes
  - Identify best information/metrics first, then refine
- **Continuous Improvement**– define the plan for monitoring, evaluating, and improving the use of the method
  - Should align with metrics being captured
  - Define meetings/timelines for review and evaluation
  - Capture actions and improve!



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Method Name:	Daily Huddles	Champion(s) Name:	Larry D./ Greg M./ Em

Date:	6/4/2019

Goal(s):

- Speed to Market
- RollUp Information from Huddle into the Last Planner System
- Strong Team Communication
- Trackable Metrics
- *Accountability, Creates Culture of Team Collaboration*
- To Resolve Issues Quickly, Bring to attention
- Standard Agenda
- Celebrate Win, Good Catches

Metric(s):	Responsible Party
Effective Communication (not sure how to track?) Team Health 5 Whys	Jeff Work Sessions
Have past constraints been resolved, or are they still outstanding? Log/trackin	Jeff Work Sessions
Attendance Tracking early issues and resolution thru huddles Tracking issues that creat	Jeff Work Sessions
Short goals, not bogging team down with out of reach goal timeframes/ Onboarding Succ	Jeff Work Sessions

Customer(s):

Superintendents/ Project Management (BMA) and Subcontractor Management

Education Plan:

Level	Who?	When?	How?
Facilitator		asap	LCI webinars, LCI Books, BM LC Facilitator/Trainer (Jeff Creighton)
Tracker (Monitor of Daily Huddle Issues)	Participants of Huddle		

TASK BREAKDOWN	Responsible Party	Milestone
Create the standard agenda	Superintendents (PM's)	
Define the metrics on the huddle board	Any project team member	
Create the Huddle Board	Larry D/ Em	
Identify the location for the Huddle Board	Larry D/ Em	
Identify a process for how constraints will be resolved	Any project team member	
Establish a cadence for how often the huddle meets	Larry D/ Em/ Greg M	

Communication Plan:

- White board, huddle board
- Report/notes developed at the end of each huddle and saved on Box
- Picture of huddle board saved on Box

Related Methods and Strategies:

- Last Planner System
- Work Cluster Groups
- Visual Management
- Onboarding
- Gemba Walks/ 6S Observations

Continuous Improvement:

- Plus/Deltas (Good Catches)
- Evaluation of the processes that have been developed for the Huddle Board - are they working? Do they need revised?
- Team feedback
- 5 Why Analysis

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Lean Deployment Planning

Daily Huddles

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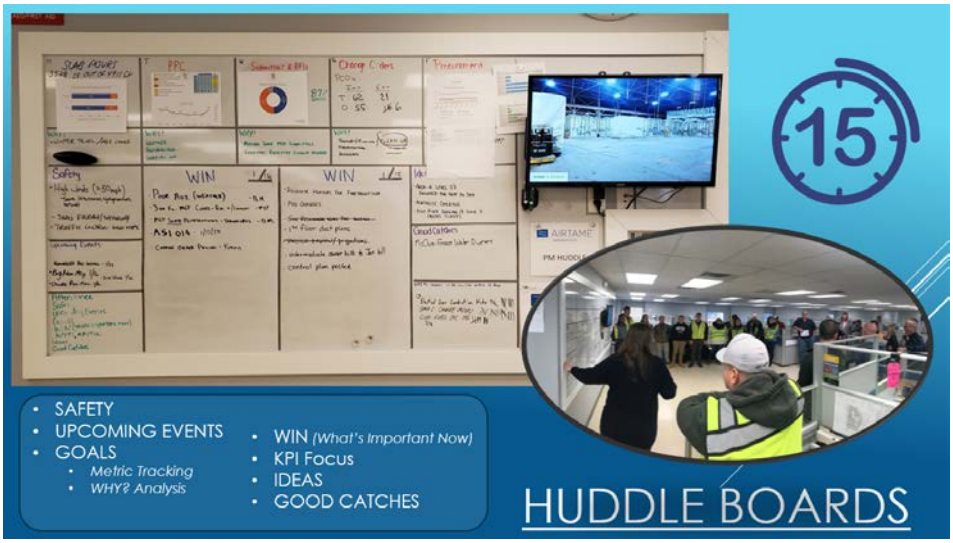
- Standard agenda
- Anyone can run
- Safety
- Metrics (each day)
- Why?
- WIN
- Ideas
- Kudos



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Daily Huddles

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Define your Onboarding Plan

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- What tasks need to be performed
- What metrics can you use to measure?
- How will this be communicated?
- How will we identify and phase in improvements?

Customer(s):

(please identify the measures that will be used to track and identify challenges, and successes, in the implementation of this method.
- Be sure to capture the party responsible for tracking each

Who? When? How?

Trainer

Communication Plan:

(please identify the how the method and its implementation is communicated to project stakeholders)
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- How will targeted improvements be incorporated into future steps?

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Step 4: Integrate Methods into Project Plan

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Step 4: Integrate Methods to Project Plan

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- Record project conditions of satisfaction and associated methods
- Consolidate project measures for tracking alignment to implementation plan
- Consolidate all training to be completed on the project
- Consolidate all communication strategy(ies), and continuous improvement opportunities

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Project Summary Dashboard

Project: ABC Recreational Complex Renovation	Lean Champion(s): Jane Doe

Project Conditions of Satisfaction
Rapid issue-detection and resolution
Continuous and reliable workflow
High performing project team
Effective , efficient, and timely team communications
High performing building design

Lean Implementation Metrics:	Status
All lean methods champions identified within 30 days of lean implementation planning kick-off	
Lean plan completed within 90 days of kick-off	

Education and Training Metrics	Status
New person onboarding completed within 30 days of hire	
All lean champions trained within 30 days of kick-off	
All lean trainings completed within 90 days of kick-off	

Organization Methods	Operating System Methods
Onboarding	Last Planner System
Work Clusters	Target Value Design
Gemba Walk	Big Room Planning
A3 Thinking/Reports	Visual Management

Communication Metrics	Status
Project issues identified did not cause project delay	
Identified project issues resolved within 15 days	
Zero change orders post issue of detailed design docs.	

Continuous Improvement Metrics	Status
Plus-deltas recorded from all collaborative sessions	
Deltas addressed in future sessions	
Pluses repeated in future sessions	

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Lean De

PennState Health Hampden Medical Center | Barton Malow | ALEXANDER A JOINT VENTURE

7/16/2020	#19	Monthly	195
Report	Dashboard	Dashboard Frequency	Current # Active Team Members

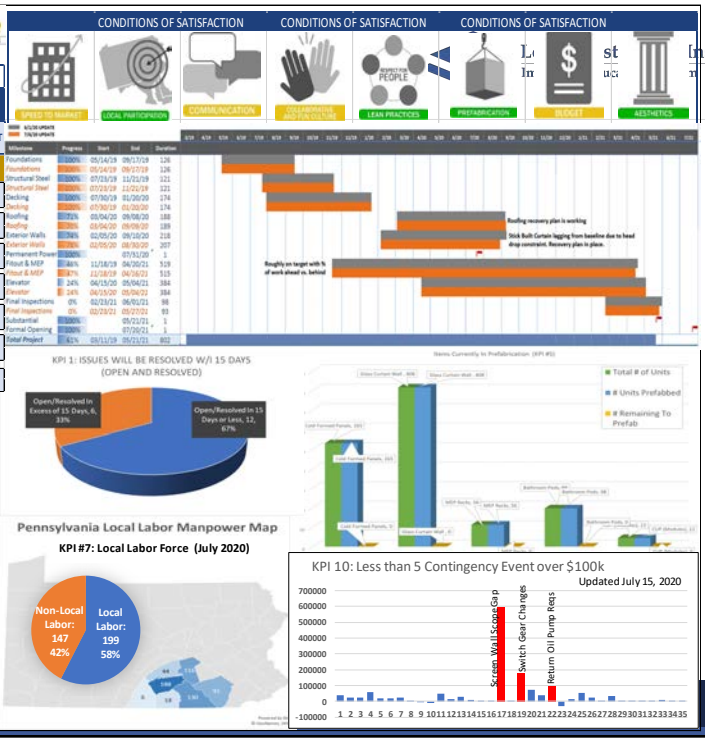
SAFETY REPORT: 1 INCIDENTS SINCE LAST REPORT | 32 DAYS WITHOUT INCIDENT

MAJOR MILESTONES

9/1/2020 SITE: 43 DAYS Hardscaping Start Around Building		9/23/2020 ENCLOSURE: 65 DAYS Roofing Complete	
7/17/2020 SITE: -3 DAYS Final Plan Recordings		8/10/2020 ENCLOSURE: 21 DAYS Exterior Walls Complete	
10/1/2020 SITE: 73 DAYS Start Landscaping		8/29/2020 ELECTRICAL/ IT: 40 DAYS Permanent Power	
10/25/2020 SITE: 97 DAYS Phase 1 HOP Completion		8/12/2020 INTERIORS: 23 DAYS Start Installation of Ceiling Grid	
11/1/2020 SITE: 224 DAYS Start Phase 2 - Good Hope Rd.		8/21/2020 INTERIORS: 32 DAYS Start Installation of Millwork	
3/1/2021 SITE: 224 DAYS Installation of Traffic Signals		8/15/2020 PREFAB: 26 DAYS CUP Start Up	
		8/15/2020 CANNON: 26 DAYS Area A Fitout	

SITE: HURDLES/ DESIGN DISCUSSIONS
Remaining Utility Coordination
Oxygen Tank Coordination
Fuel Oil Coordination
Meter Pit Sumps
Landscaping in the fall 2020 / spring 2021
Backfill near CUP
STRUCTURE/ENCLOSURE:
Overhead Boom Support Structure
Final Roof Equip. Weight Checks
Interior/Overhead Support Steel
MEP Penetration Coordination
Misc. Final Detailing
Enclosure Testing
Roofing / Exterior Cold Formed in Progress
Dry-In Constraint Removal
PREFAB:
Interior AHU Piping
Rooftop ductwork

MEP/FP/CUP:
Large Chandelier Design
Post Fire Smoke Evacuation System
INTERIORS:
Porcelain Tile
Keying Schedule
Finalizing Door Hardware (electrical/security)
Floor Plan Changes
OR Ceiling
Pest Control
Glass Railing @ Tear Drop



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Resources

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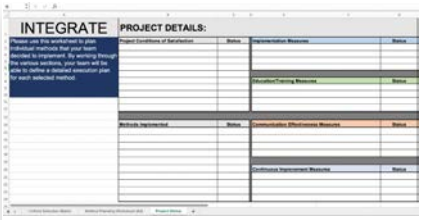

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Summary and Lessons from Hampden Medical Center Project

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Current Progress – Hampden Project

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How can I apply this to my project?

- Start with Lean Deployment Guide Day 1
- Identify Lean Champion Early; Champions by Method
- Support by Owner and Leadership
- Be deliberate with onboarding process and have continuous training
- Don't take on too much – do what's right for your project
- Continually promote a Lean culture
- Go slow to go fast and take time to plan

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INTRODUCTION TO LEAN PROJECT DELIVERY

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Insights

- Start with 'Why', followed by 'How', and then 'What'
- Be proactive versus reactive
- What matters should be measured and what is measured should matter
- Focus on continuous improvement
- Delivery method can significantly impact implementation
- Training and coaching are core parts of the planning and implementation
- Challenging to institutionalize within an organization

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Questions?

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INTRODUCTION TO LEAN PROJECT DELIVERY

Conduct Plus/Delta

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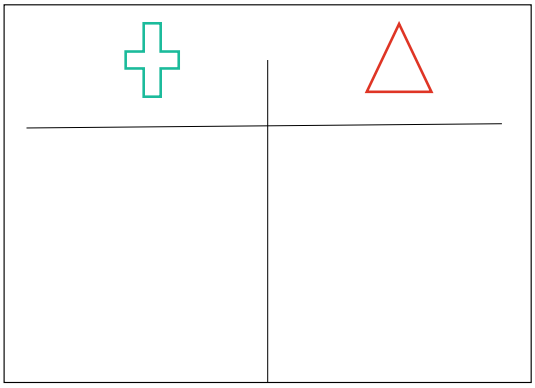
Conduct a Plus/Delta
Capture on a flip pad or white board:

Plus: What produced value during the session?

Delta: What could we change to improve the process or outcome?



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INTRODUCTION TO LEAN PROJECT DELIVERY

eLearning Courses

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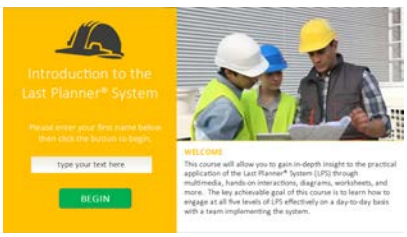
Available now:

- Introduction to the Last Planner System®
- Introduction to Lean Project Delivery
- Lean in the Design Phase
- Effective Big Room
- Target Value Delivery



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This concludes The American Institute of Architects
Continuing Education Systems Course

Lean Construction Institute info@leanconstruction.org

