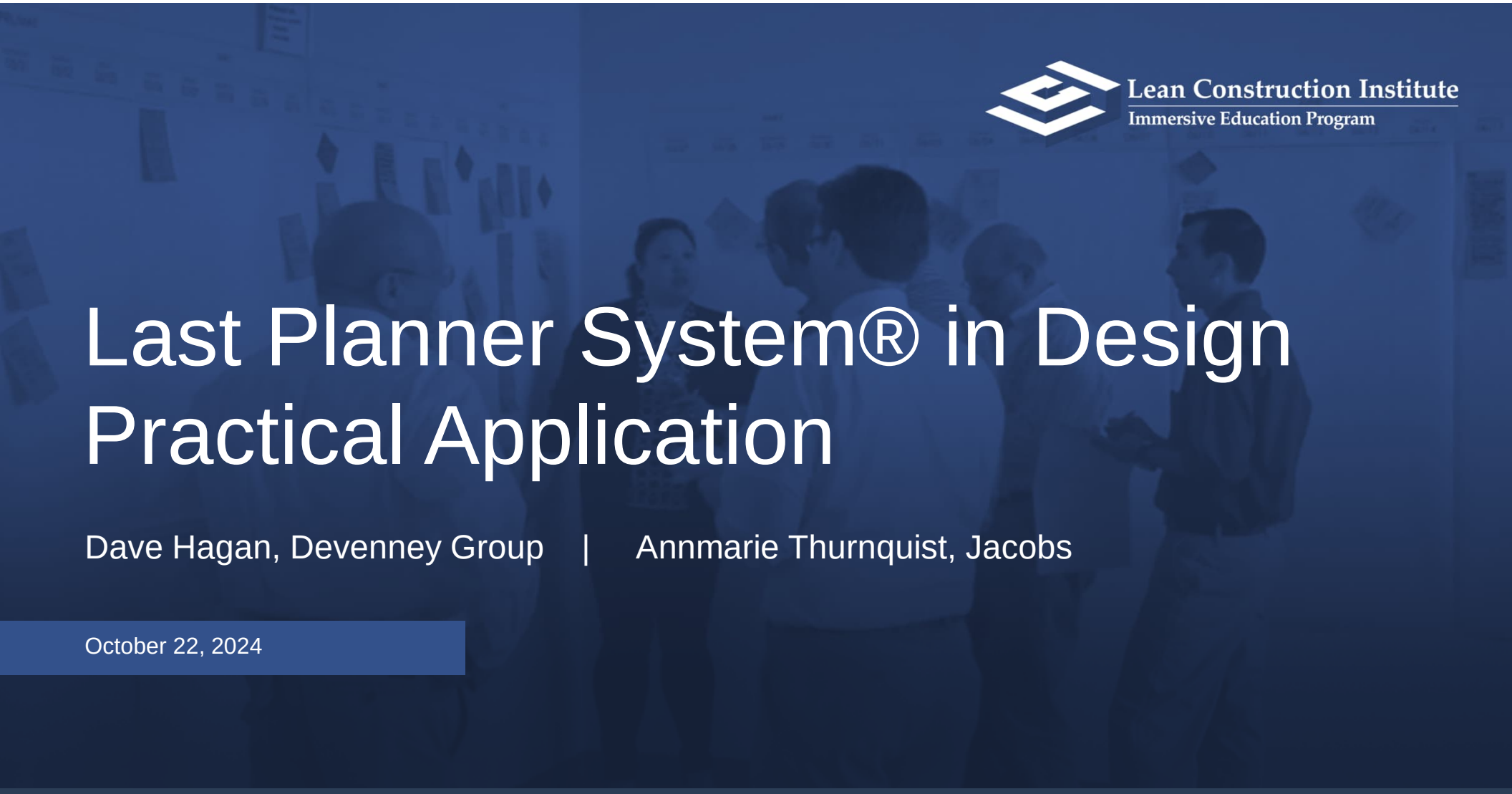

Lean Construction Institute
Immersive Education Program

Last Planner System® in Design Practical Application

Dave Hagan, Devenney Group | Annmarie Thurnquist, Jacobs

October 22, 2024

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Introductions

- Name
- Role
- Company
- Dream Sport

Boxing

Skiff

Ping Pong

Fencing

Basketball

Weightlifting

Gymnastics

Cycling

Swimming

Skateboarding

Judo

LCI Course: TUPM_11

Last Planner System® in Design
4 CEU

Sign the sign-in sheet for credit

Learning Objectives

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Participants will gain a deeper understanding of the foundational principles of each of the 5 connected conversations of LPS® in Design.

Participants will engage in all the connected conversations of LPS® from Milestone Planning to weekly or daily interaction through practical application.

Participants will experience the process of work register management of commitments and to identify/remove constraints.

Participants will gain practical insight to improve work hand off reliability utilizing LPS tools and metrics.

Learning Overview

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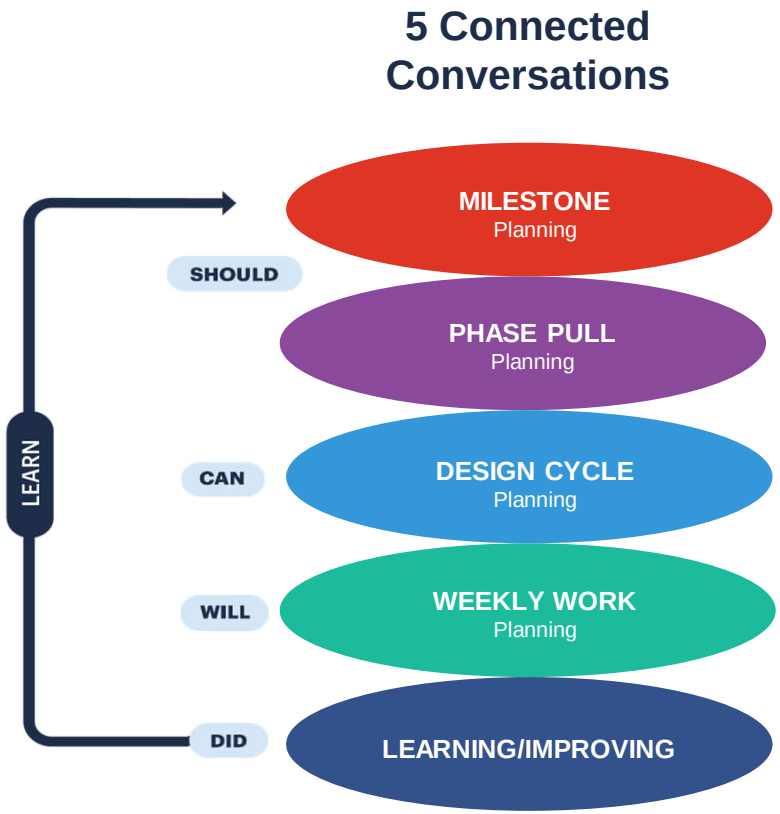
1. Why Last Planner System
2. LPS Overview
3. Milestone Planning
4. Phase Pull Planning
5. Design Cycle Planning
6. Weekly Work Planning
7. Learning/Improving



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Rules of Engagement

- 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!

Last Planner System in Design

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8:00 AM – Introductions

8:05 AM – Last Planner System® Design

9:15 AM – Break 15 Minutes

10:30 AM – Break 15 Minutes

11:50 AM – Wrap Up & Plus/Delta

12:00 PM – Adjourn

Lean Journey To Mastery

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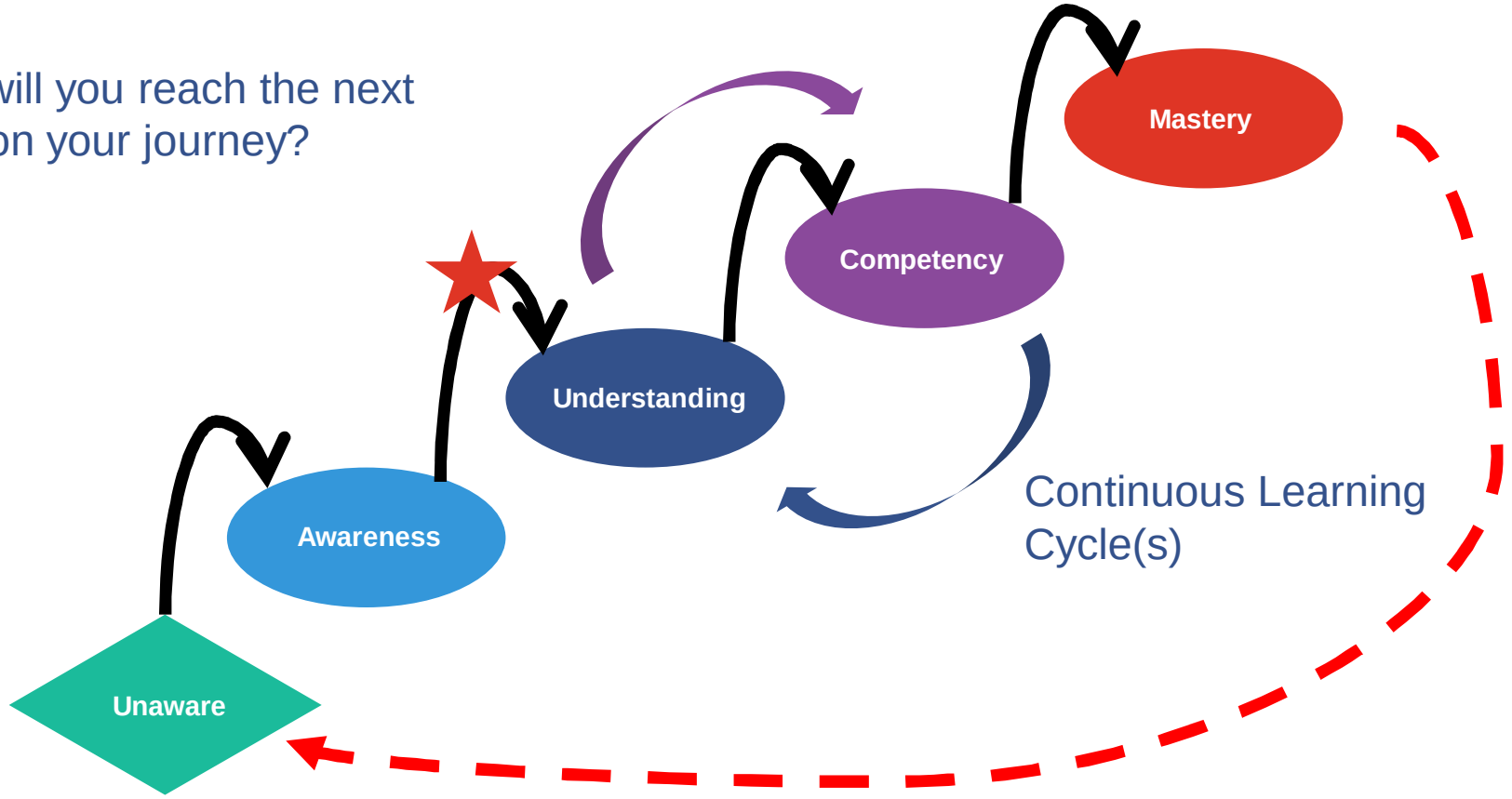
How will you reach the next level on your journey?



Lean Journey to Mastery

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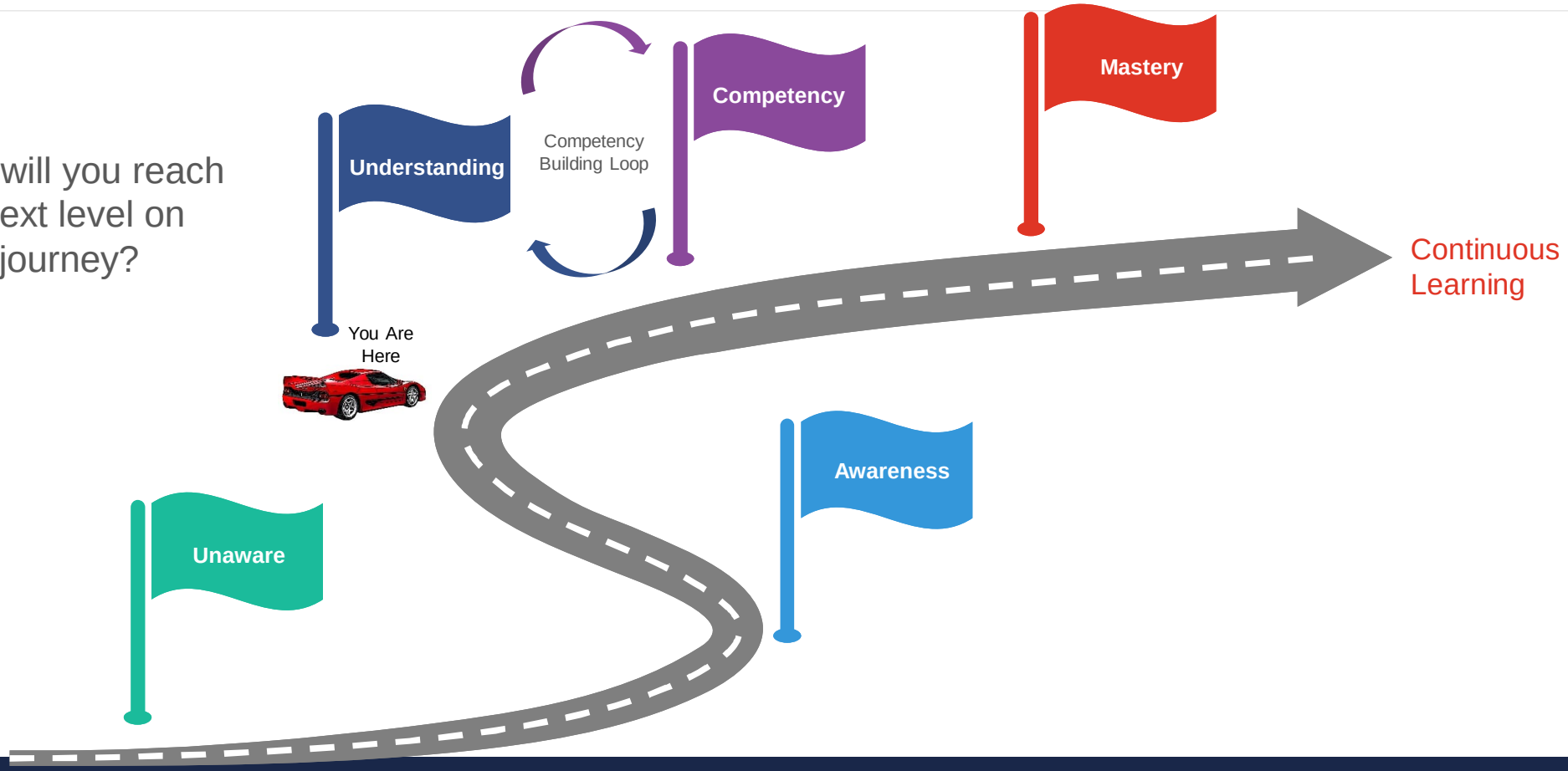

Last Planner System Trademark

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The Last Planner System® is a registered trademark of the *Lean Construction Institute*:

- Last Planner System®
- LPS®
- Last Planner® (In reference to the person not the system)

Team Formation

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Assign Team Roles:

Architect

Civil & Landscape

Structure

MEP

Interiors

Preconstruction

Owner/End-User

LPS In Design Key Principles

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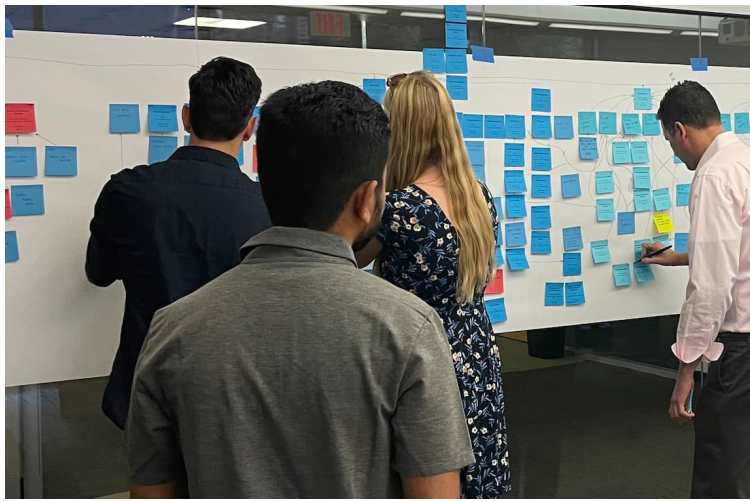
Experienced Lean practitioners state that LPS aids in:

- Align the team in information flow, controlling how information gets shared.
- Really understand needs to start an activity (what releases work?)
- Identifying key decision points – what info is needed & when. Who is needed and when to support decisions.
- Using pull to value stream map milestones, hot topics and key deliverables.
- Aligning the team with the owner's information sharing and resources needs with stakeholders.



Courtesy of Devenney Group

5 Connected Conversations Of LPS

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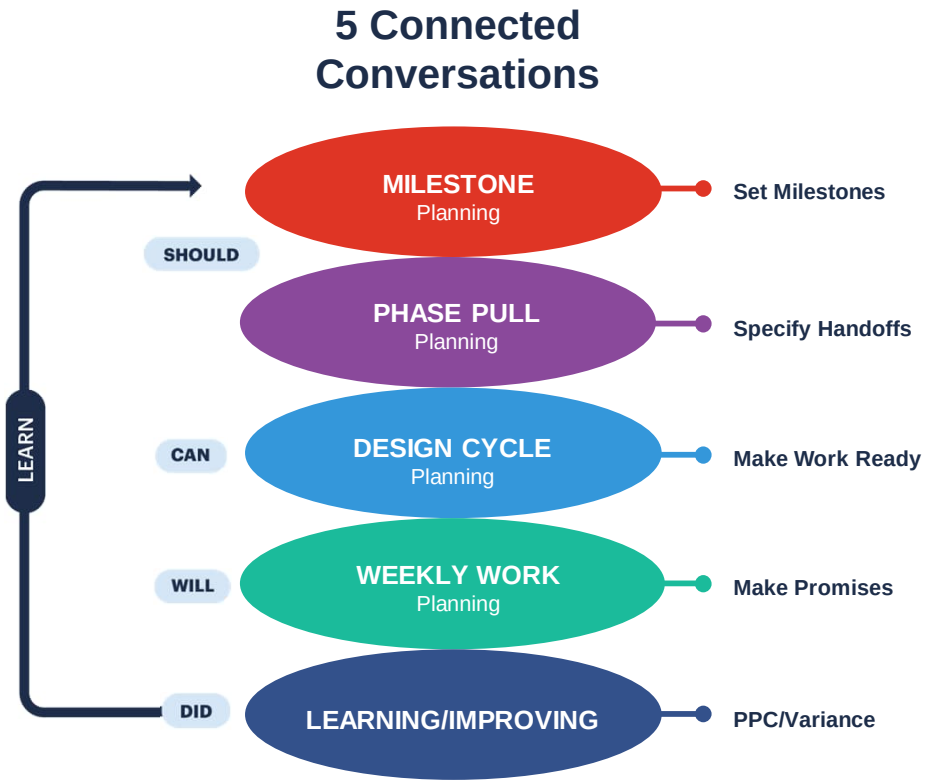
LPS is a commitment-based system integrating 5 connected planning conversations:

1. Milestone Planning (Should)
2. Phase Pull Planning (Should)
3. Design Cycle Planning (Can)
4. Weekly Work Planning (Will)
5. Learning & Improving (Did/Learn)



The Project – Heartland Middle School

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The following slides outline “The Project”
Business Case & relevant information

Simulation Project

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Business Plan:

Business Plan
Heartland Middle School

Owner Business Case

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Owner:

Heartland City

Mission Statement:

Shaping tomorrow today.
Elevating our community by elevating our kids.

Owner Business Case

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- $39MM Allowable Cost
  - Land, entitlements & utilities to site already established
- School must be open for academic year
  - (building ready by July for ~Mid-August class start)
- Design team has input to project delivery approach and will help owner group with relevant decisions/selections

Allowable Cost Breakdown

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Land is owned, entitlements and utilities to site complete

$39,000,000 Total Project Funding

Including:

- Design
- Construction
- Community Engagement
- FF&E, Soft Costs (Permitting, etc)

Owner's Program

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	Department		IU's		Area
A	Administration		1		4,380
B	Student Services		0		2,500
C	Learning Commons		1		8,150
D	Basic Instructional Area		43		44,990
E	Career Explorations		7		11,860
F	Music & Theater		4		17,505
G	Physical Education		3		18,960
H	Food Service		0		10,610
J	Utilities & Services Areas		0		9,560
	Total Instructional Units (IU's)		59		
	Total Net Square Footage				128,520
	Assumed Grossing Factor				1.33
	Estimated Gross Square Footage				170,932

Note:

Other project required auto parking for 71 IU at 250 spaces and bus parking at 32 spaces.

Project Site

- 6.8 Acre Parcel
- City has supplied main utilities to the site

Owner Provided Value/CoS

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Quantitative

- Energy efficient design
  - Low monthly utility cost
  - High % of daylighting
  - Innovative water management system
- Meet the ***Allowable Cost***
- 25% workforce inclusion (Underemployed / Community Residents – min. 10% each)
- Community engagement
  - Regularly engage with school board and community member events
- Regularly (weekly) updated progress signage at visible location
- Social Media Updates (min. 3 per week)
- Robust, proactive protection of the safety of our workers and community:
  - Weekly team safety walk-throughs
  - Short-falls remediated immediately (no more than 24 hours)
  - System for immediate reporting of safety problems identified by workers and community members
- All team members earn a fair profit
- Community stakeholder involvement in design process (e.g. advocate/advisory board involvement in design)

Team-Developed CoS: Activity

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Team Developed Conditions of Satisfaction

- Review Owner Values/Mission Statement
- Develop CoS in alignment & incorporate team objective

- Ask us anything

10 Minutes Group Exercise

Milestone Planning

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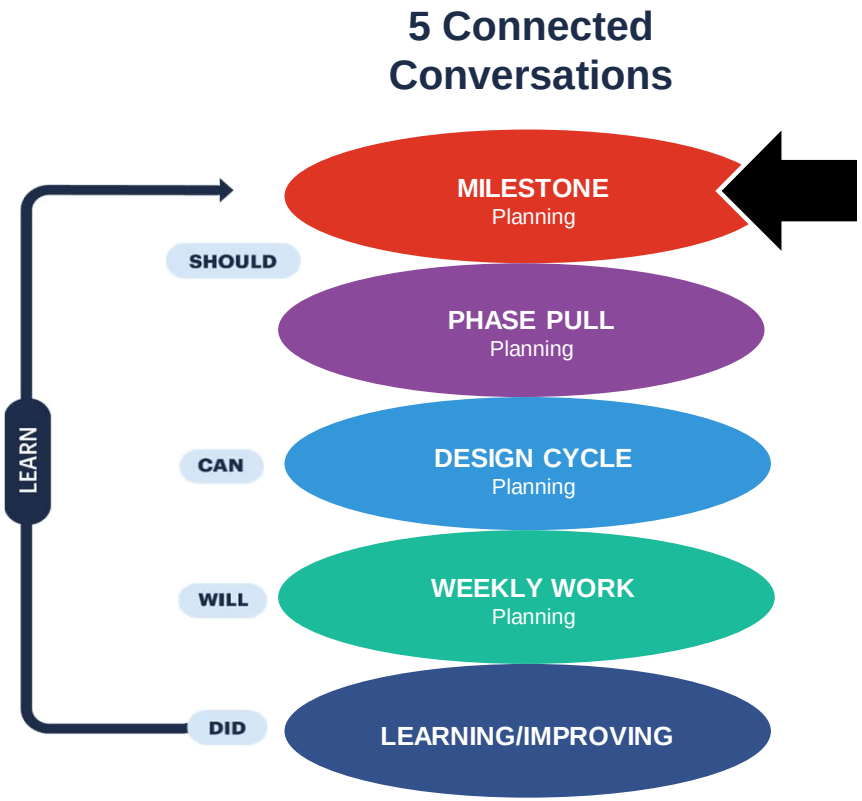
The first conversation of LPS is *Milestone Planning*.

The goal of Milestone Planning is for the team to align on and *set the milestones* for the project.

This starts the we *"should"* be able to do conversation.



Re-Defining Design Milestones

Traditional Milestones:

- Percent Complete Sets
  - 30/60/90
- Schematic, Design Development, Construction Documents

Redefined Milestones:

- Handoffs of information
- Decisions, activities and deliverables to meet a specific release of part of the project.

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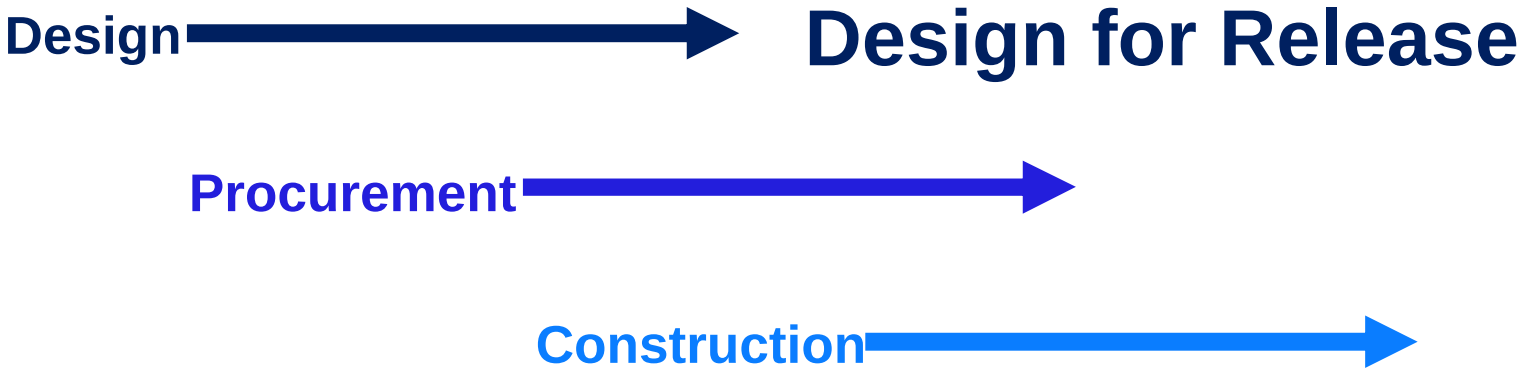
Fast Track & IPD Projects Created a Need to Redefine Design Phases

- Redefine Milestones:
  - Handoffs
  - Decisions

- Define the Customer at each phase:
  - Client
  - End User
  - Procurement / Construction



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New Design Milestones: New Thinking

Traditional milestones were based on:

- A completion
- A percentage
- A date

Redefined Milestones for fast track work are based on:

- Major decisions points
- Allowing a new area of the design to proceed
- Releasing work for construction

Brainstorming

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What are some non-traditional milestones you have used on your projects?

How do we help our teams from reverting to 30/60/90 – SD/DD/CD FEL1/2/3

Creating The Milestone Plan

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Courtesy of : The ReAlignment Group

Think differently Milestone Planning

Design Cycle Planning – Team Thinking Change

- Construction Pulling Design – Integration
- As procurement overlaps design, what things need to get ‘frozen’ earlier and how do we define
- No pencils down review periods
- How it looks on IPD vs non-IPD flow of design
- Design for releasing work, releasing other team members – vs traditionally described sets.
- Not based on percentages

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Types of Milestones

- “Frozen” plans
- Early construction packages
- Long lead items
- Owner approval requirements (board reviews, etc.)
- Validation of scope and cost alignment

Milestone Exercise

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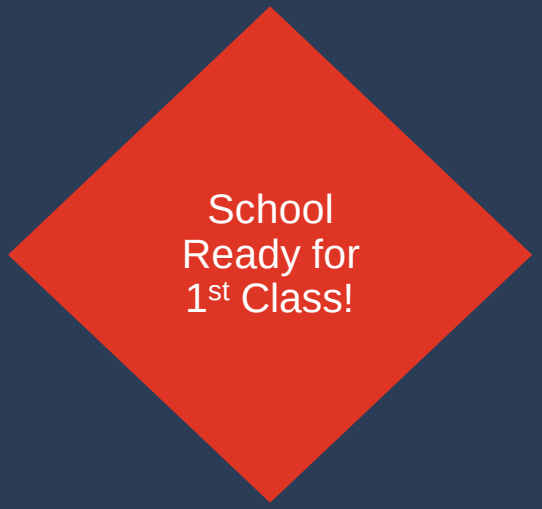
Develop Project Milestone Plan

- Color Code by phase/type of activity
- Pull back from final milestone
- Stay high level
- Refrain from:
  - 30/60/90
  - SD/DD/Final CD
  - Incorporate cost feedback
- Have fun!



45 Minutes Group Exercise

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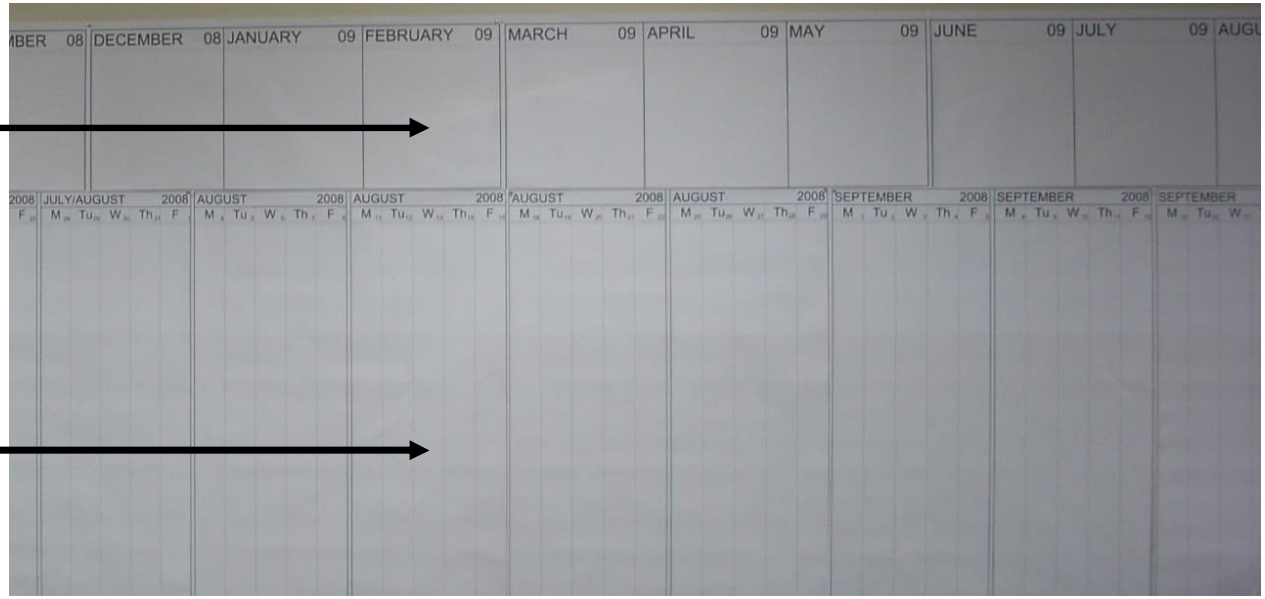
Setting Up To Plan

This set up includes a time scale (months) to transfer the Milestone Plan to once dates are determined.

This set up includes a time scale (weeks & days) for the next level Phase Pull Planning.



Phase Pull Planning

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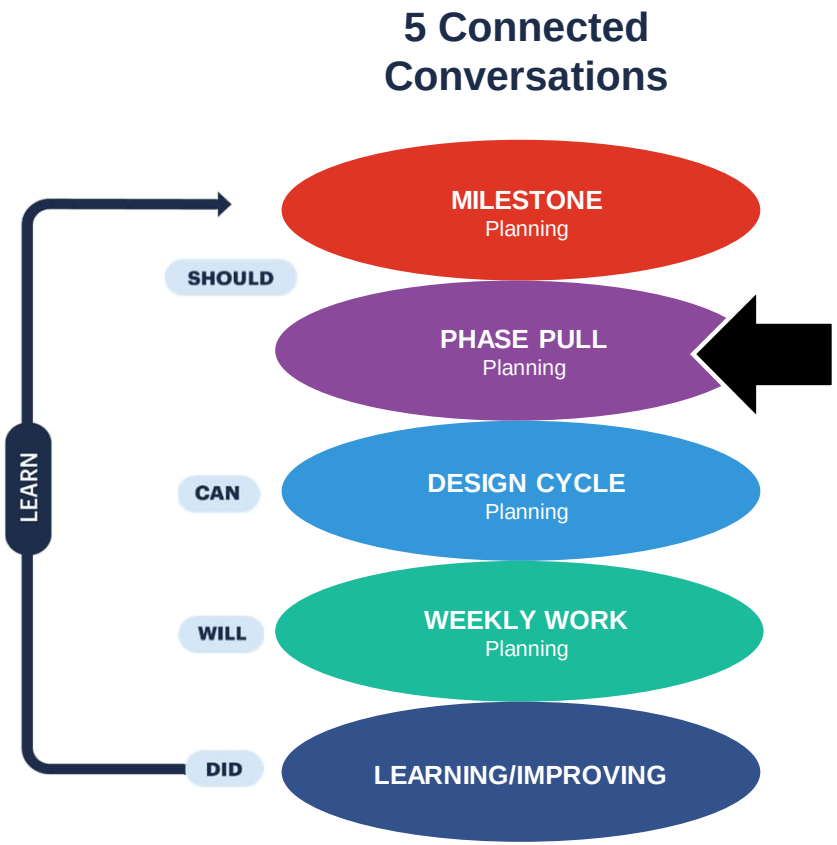
The second conversation of LPS is *Phase Pull Planning.*

The goal of Phase Pull Planning is for the team to determine the key *handoffs* of work or information needed to deliver a milestone.

This continues the we *"should"* be able to do conversation.



Uses of Pull in Design Planning

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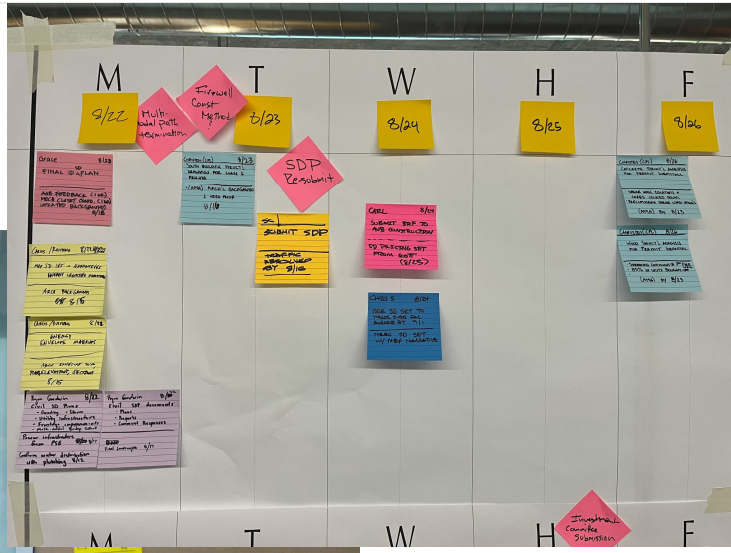
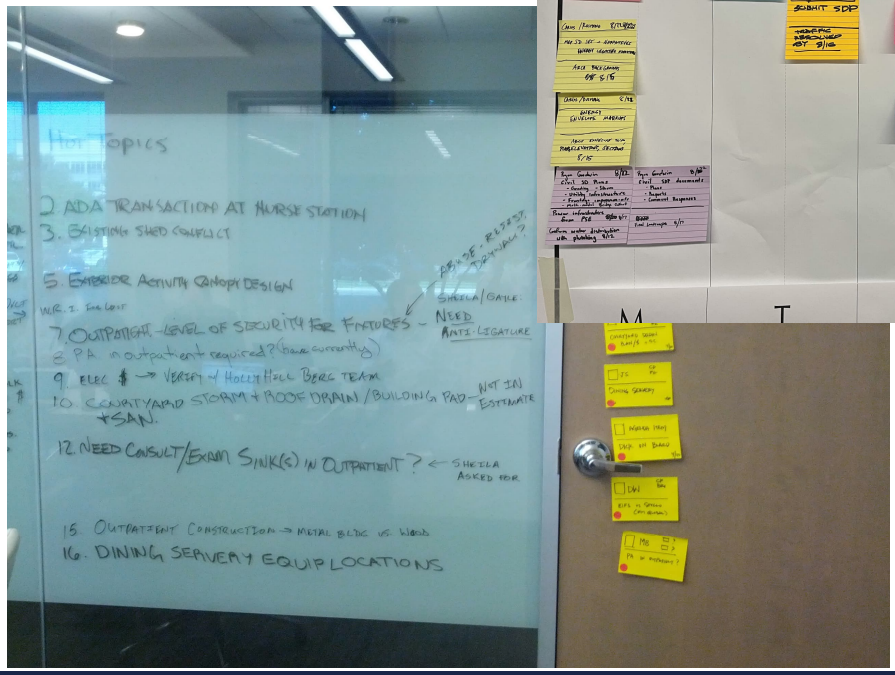
- Deliverables
- Hot Topics/Issues
- Key Client Decisions
- Production Plans





Think differently Phase Pull Planning

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Design Cycle Planning – How does this change the design thought process?

- Organized process for defining design decisions
- Cycle based planning – different order than what we're used to
- Different packages progress at different speeds
- List of decisions for each deliverable

Think differently Phase Pull Planning

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Design Cycle Planning – How does this change the design thought process?

- focus on what each package is needed for and what decisions are needed for each (are we giving customers more than they need?)
- Knowing what can wait
- Budget according to schedule
- Be comfortable with chaos

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Using the Risk & Opportunity Register

Acknowledge that a revised workflow may cause the team to undertake certain risks

ID No.	Issue	Condition of Satisfaction	probability	Cost	Response	Champion	Need by
St-01	Lead time for steel	Schedule adherence		$0 to $20,000	Assume higher weight of rooftop units for structural calculations to advance steel design dates	Sue Smith	8/1/2023

Key for Pull / Work Cycle Tags

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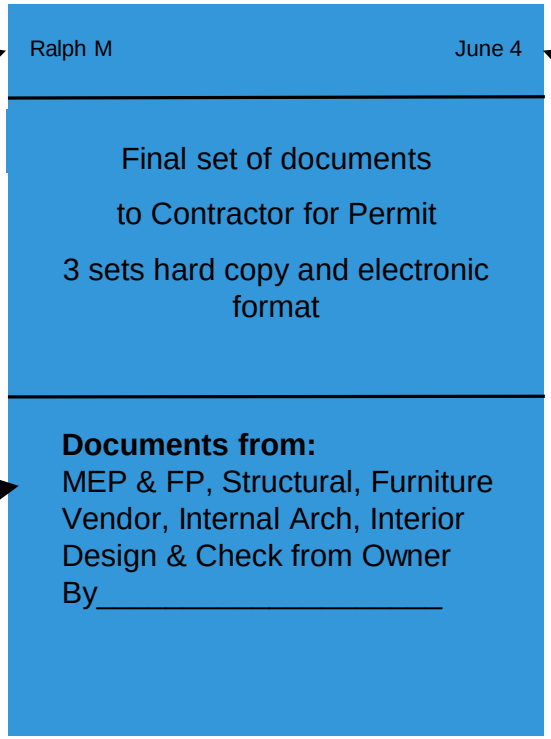
The ***Performer's*** name (not company) is placed on the tag.

Note additional information that adds clarity to the plan includes ***who*** a request is made of and the ***date*** the request is needed.



Upon negotiation of the Conditions of Satisfaction including a ***delivery date***, the date is noted.

Design Cycle Planning

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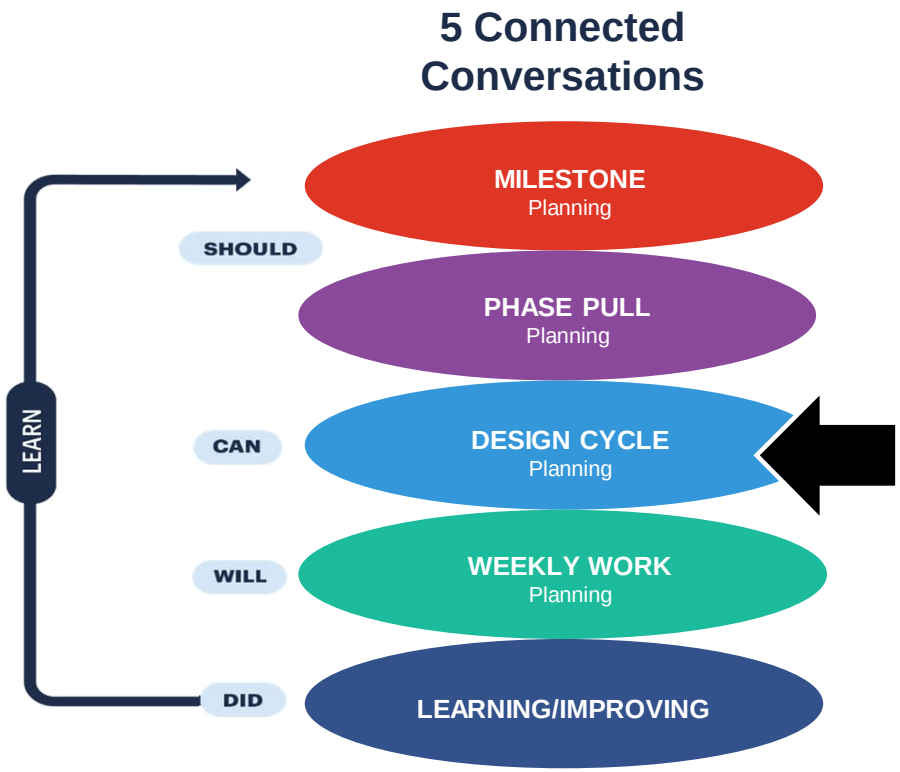
The third conversation of LPS is *Design Cycle Planning.*

The goal of this level is to continuously *advance the level of detail* of the Phase Pull Plan in 2-3 week cycles of time.

The conversation is we *"can"* do this.



Advancing The Plan

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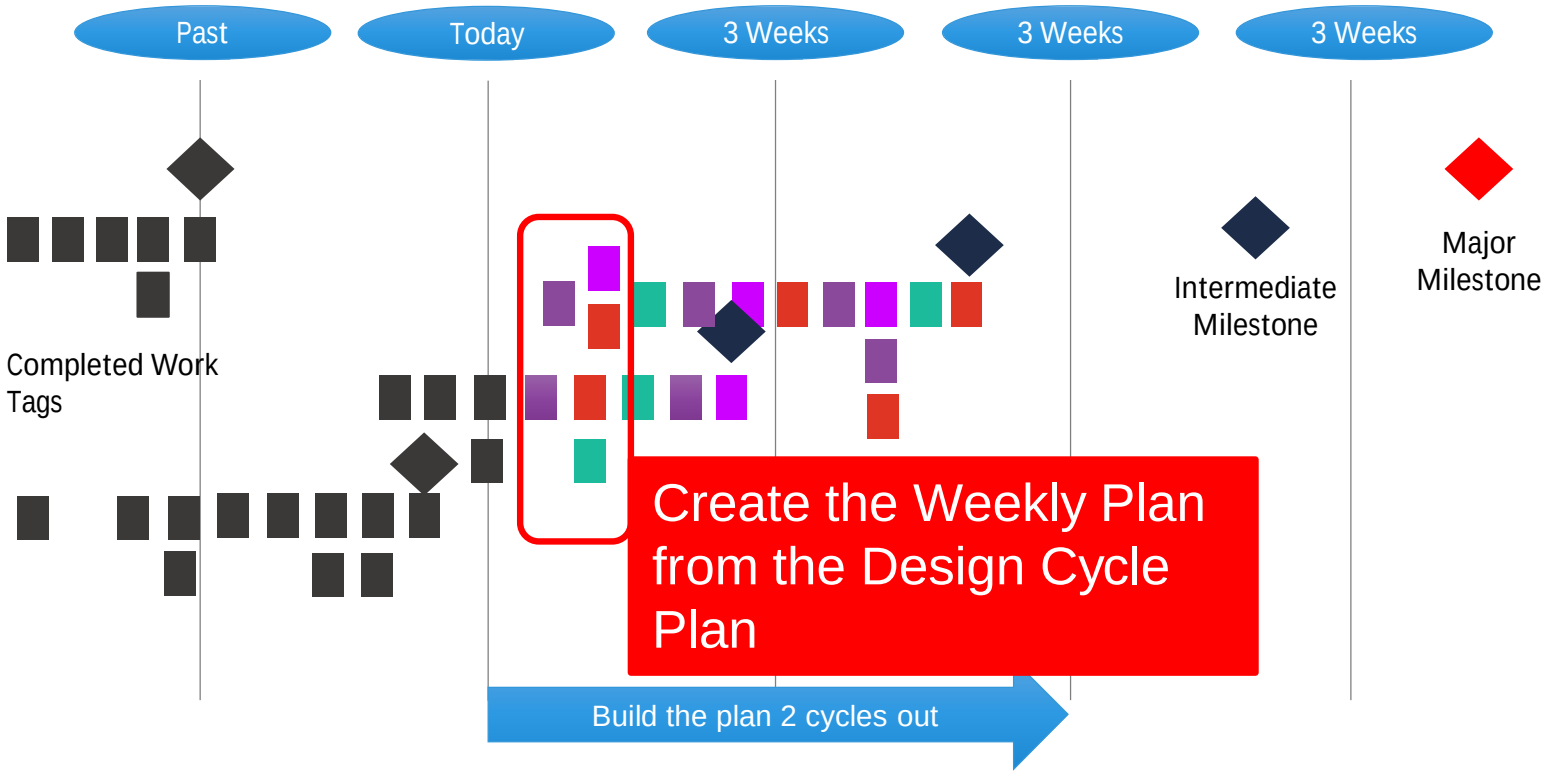

Work Cycle Planning

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Develop Design Work Cycle Plan

Name	Deliver Date
MY PROMISE •What I will Deliver •Be specific •Small batch	
MY REQUEST (S) •What I need from others •Be specific •Person /date	

- Put a date scale at top (Weeks)
- Pick a milestone that involves many participants or Hot Topic/Issue
- Color Code by discipline
- Define the milestone outcome
- Pull back from the milestone

30 min Groups at Wall

Weekly Plan Check-Ins

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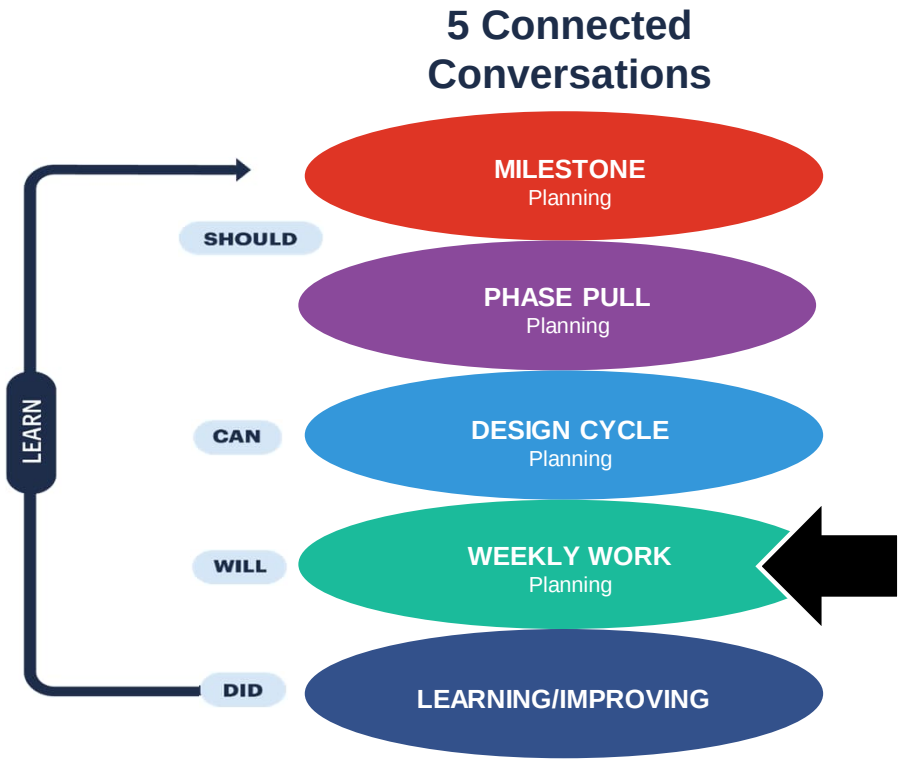
The fourth conversation of LPS is *Weekly Work Planning.*

The goal of this level is for the Last Planners to *check in on/adjust commitments* for the current week.



The Work Register

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The **Work Register** is a combination of :

- The **Commitment Log** to stay on track with the commitments made.
- The **Constraint Log** to track the roadblocks that arise for any commitment.

PROJECT: **CONSTRAINT:**

Milestone	Location	Commitment	Performer	Plan Date	Estimated Effort– Days	Task Status	Constraint	Responsible Individual	Resolution Needed	Resolution Promised Date	Date Resolved/ New Plan

COMMITMENT LOG

CONSTRAINT LOG

Weekly Work Planning

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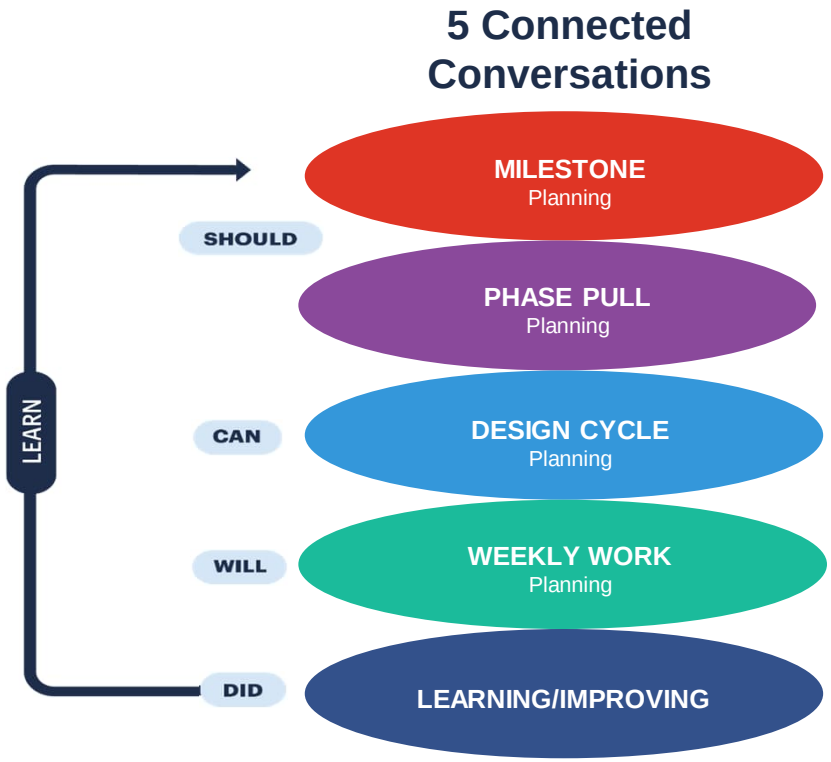
Team identifies the *promised task completions* agreed upon by the *Performers* for the upcoming week.

Then determine the *success* of the planning effort as basis of measuring PPC (Percent Plan Complete).

This is done during a *Check-in Session or Huddle.*



Conducting Check-in Sessions

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Check-in Sessions are short, high energy touch points conducted standing.

Each person answers:

1. What promises I fulfilled. (Declaring Done)
2. What promises I will fulfill. (Managing Commitment)
3. What are my constraints or concerns. (Constraint management)
4. What is the status of my commitments overall. (Am I on track).

Learning/Improving

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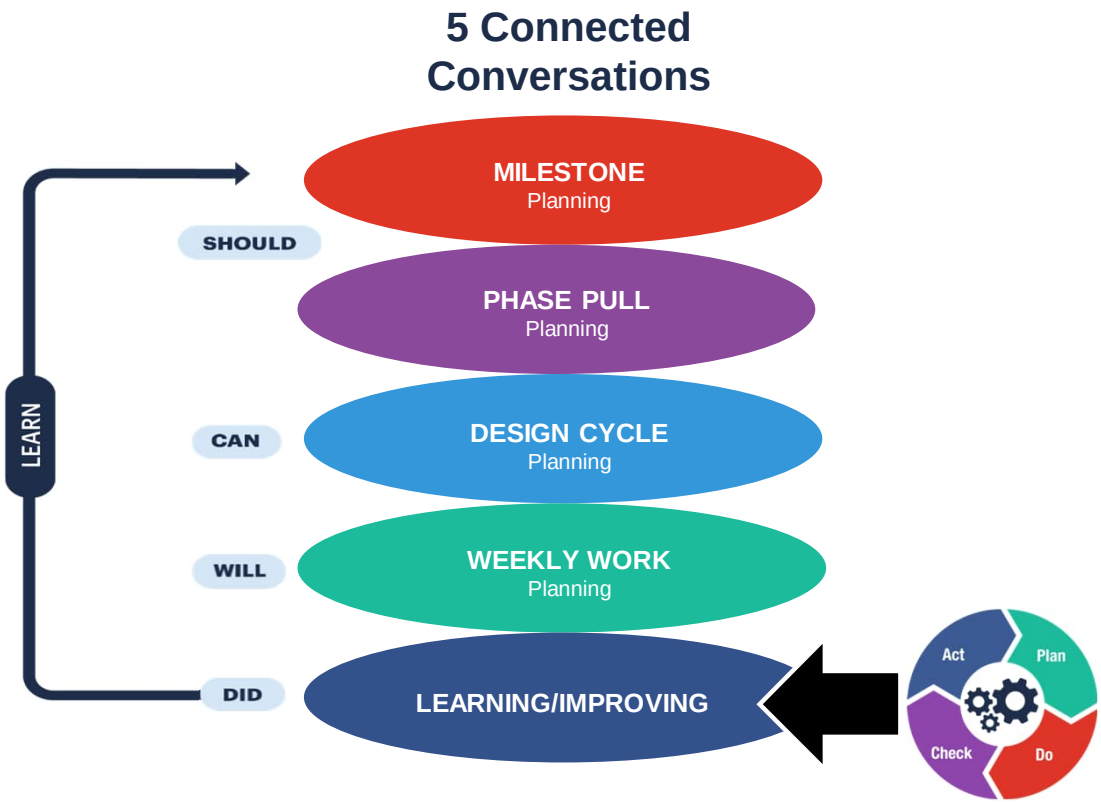
The fifth conversation is *Learning/Improving*.

The goal is for the team to *learn* from the cycle and take *actions for improving* going forward fulfilling PDCA.

The conversation is what we *"Did"* and *"Learned"*.



Learning From Check-in Sessions

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The *Commitment* and *Constraint Logs* are updated live during the Check-in Session.

The *Percent Plan Complete* (PPC) is calculated for the period or week.

PPC is the basic measure of how well the *planning system is working*

PROJECT: CONSTRAINT:

Milestone	Location	Commitment	Performer	Plan Date	Estimated Effort–Days	Task Status	Constraint	Responsible Individual	Resolution Needed	Resolution Promised Date	Date Resolved/ New Plan

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Reasons for Variance

Design Phase:

1. Overcommitted
2. Miscommunication
3. Previous work not complete
4. Change in work plan
5. Outside constraint
6. Resources not available
7. Other

Weekly Work Register Check-In

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A/D

“Stand & Deliver”

- Round robin report out
- Track variances

10 min Groups at Wall

Discussion Question

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How to Implement?

What new actions or ideas that you learned today can you take back to your project?

10 min table conversation

Lean Journey to Mastery

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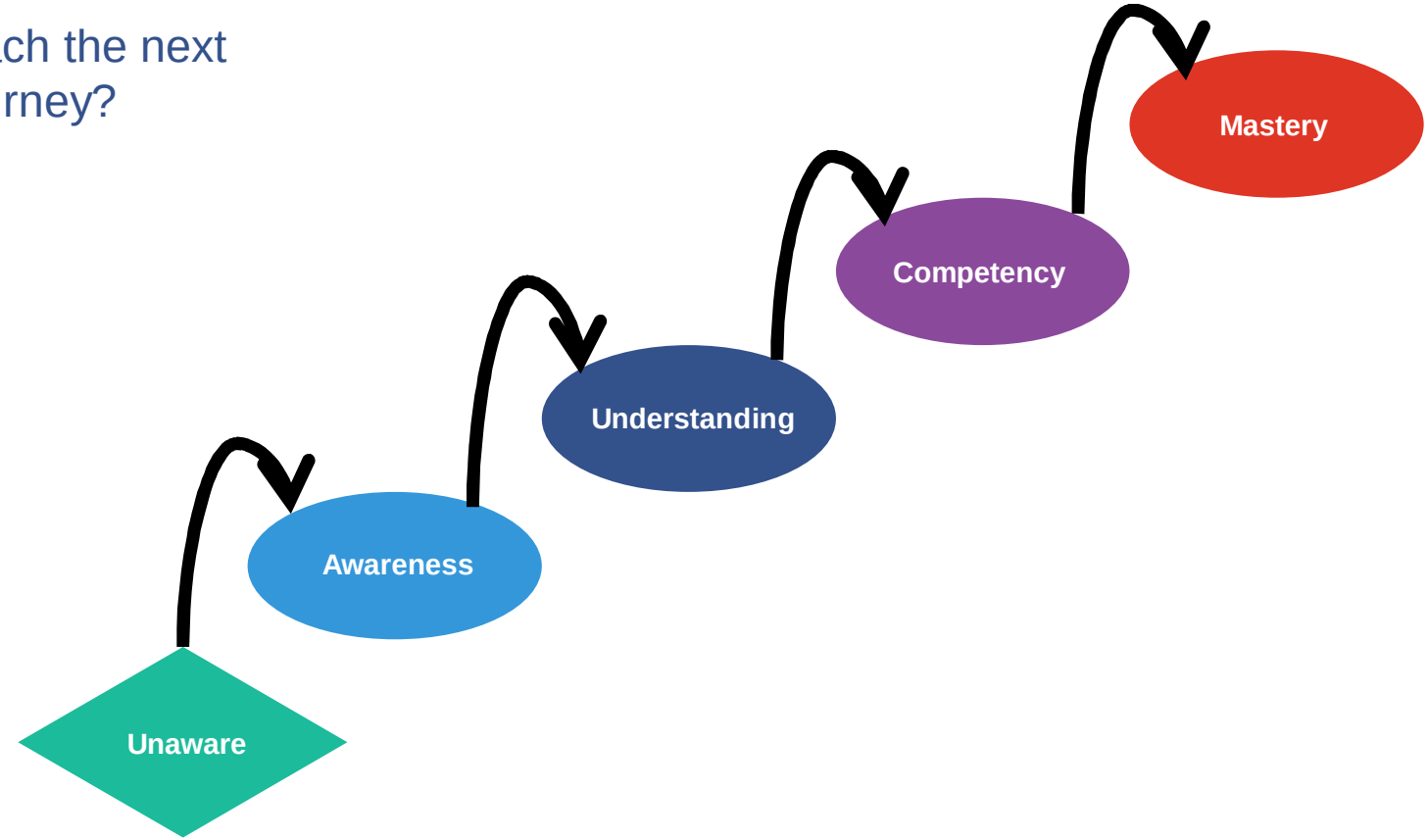
How will you reach the next level on your journey?



More on Learning

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Books:

Events:

- Local Community of Practice
- Congress (October)
- Design Forum (May)

Start learning now:
www.LeanConstruction.org

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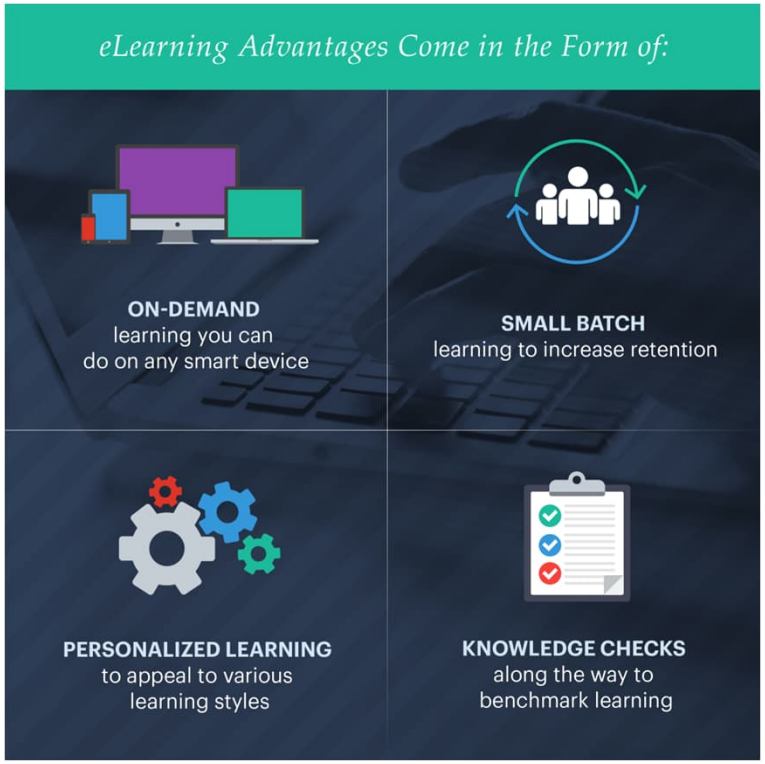
eLearning

- **Learn on your own time** without taking time off project work
- **Increase knowledge retention by up to 60%** with interactive, small-batch learning
- **Access field resources** to use with teams
- **Earn 1.5 CEUs** (self report to AGC CM-Lean and/or AIA)
- **Incentivize with LCI badging credentials** for email signatures and a certificate of completion
- **Save money** by eliminating instructor and travel expenses
- **Enterprise-level model:** unlimited access to all our eLearning courses directly from your own internal Learning Center or Learning Management System.



eLearning Courses

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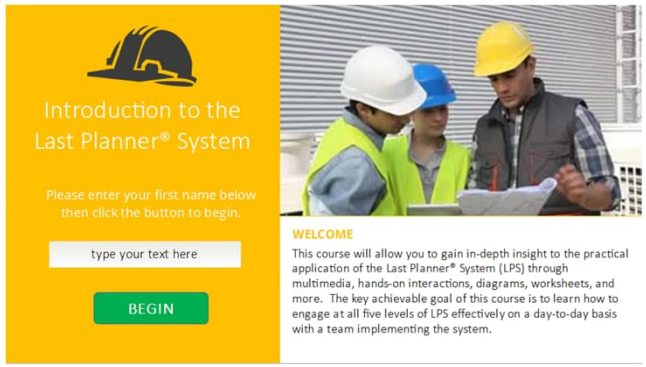
Available now:

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



Questions?

Learning Objectives Review

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Participants will gain a deeper understanding of the foundational principles of each of the 5 connected conversations of LPS® in Design.

Participants will engage in all the connected conversations of LPS® from Milestone Planning to weekly or daily interaction through practical application.

Participants will experience the process of work register management of commitments and to identify/remove constraints.

Participants will gain practical insight to improve work hand off reliability utilizing LPS tools and metrics.

Conduct Plus/Delta

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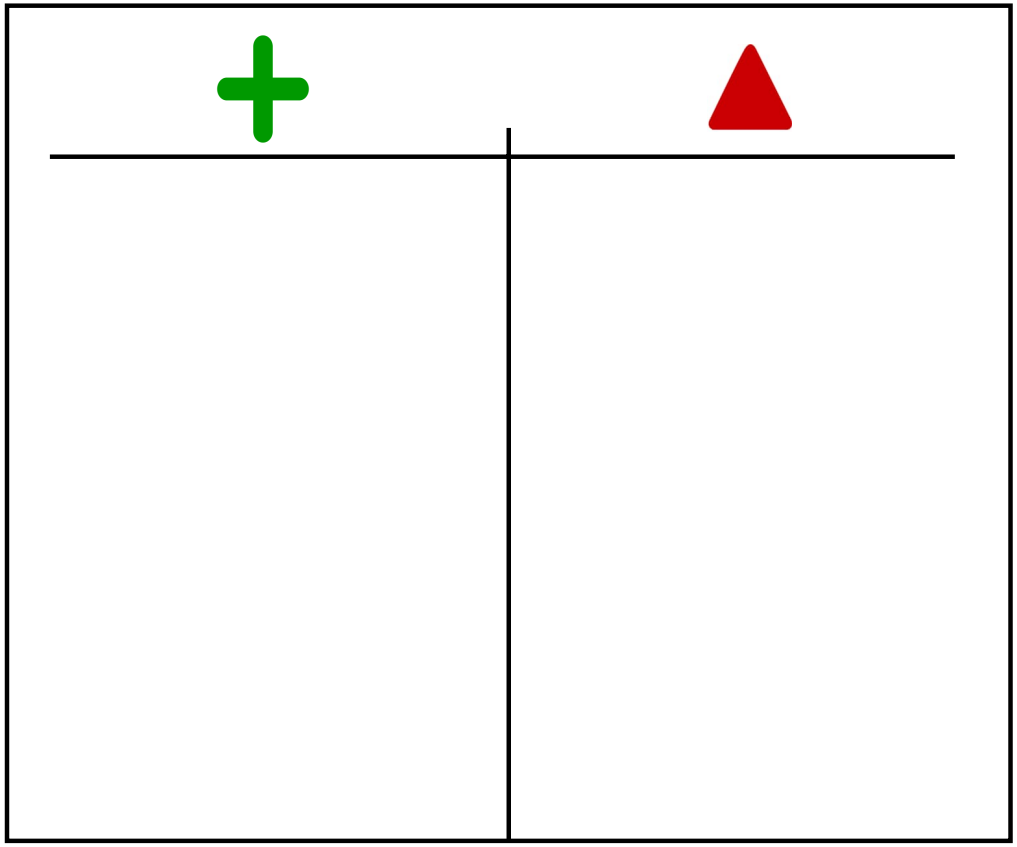
Plus: What produced *value* during the session?

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



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Immersive Education Program

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LCI Website Information

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