**24<sup>TH</sup> ANNUAL**

24<sup>TH</sup> LCI CONGRESS
OCTOBER 18-21

# Create, Manage, and Sustain a Lean Organization

David MacKay, Milestone Lean Consulting LLC

**LEAN GUMBO: THE RIGHT INGREDIENTS FOR PROJECT SUCCESS**

OCTOBER 18, 2022

# FASTER

# BETTER

# CHEAPER

**CREATING, MANAGING, AND SUSTAINING
A LEAN ORGANIZATION**

**David MacKay**   dmackay@milestonelean.com
www.milestonelean.com

MILESTONE
LEAN CONSULTING LLC

# Helping teams and organizations get great results with Lean thinking

- Last Planner® System
- 5S for the field
- Continuous Improvement
- Lean in your organization
- AGC Lean Construction Education Program for CM-Lean

*"David is a thought leader in the lean design and construction industry. He is passionate about Lean, but also practical. David can take what sounds complicated and make it simple."* - *Eric Lusis, Senior Director, Continuous Improvement, AECON GROUP, INC., Canada*

**CM-LEAN**
CERTIFICATE OF MANAGEMENT
LEAN CONSTRUCTION

**PROUD MEMBER OF**
Lean Construction Institute
*Transforming the Built Environment*

## A DEEP UNDERSTANDING OF LEAN WITH A SIMPLE APPROACH

♦Active consultant partner member of the Lean Construction Institute. LCI Los Angeles / Orange County Community of Practice Core Group

♦Created the "5S in Lean Construction" training program for the Lean Construction Institute

♦Approved and active trainer Associated General Contractors Lean Construction Education Program

♦Co-developed "Creating, Managing and Sustaining a Lean Organization" presented multiple times a LCI Congress

## EFFECTIVE TEACHER, FACILITATOR, AND COACH

♦Facilitated hundreds of Last Planner System pull planning and weekly work planning sessions for construction and design

♦Taught and mentored hundreds in planning and scheduling.

♦Coached teams in Value Stream Mapping, 5S, Root Cause Analysis, and other Lean methods

♦Brought Lean thinking and methods to projects, districts and supported North American implementation at PCL

## 30+ YEARS OF REAL CONSTRUCTION EXPERIENCE

♦Project team member on a wide variety of project types, sizes, and delivery methods including process. petro-chemical, power generation, lab and research, student and multi-family housing, sports, entertainment, theme parks, schools, medical, airport, parking structures, and others working directly with trades, owners, and design teams

♦Learning and Production Manager, Project Controls Manager, Scheduling Manager, Scheduling Engineer, assist project manager and field engineering

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# YOUR LEAN JOURNEY – Why a Journey?



The way we work

I want more

This is good
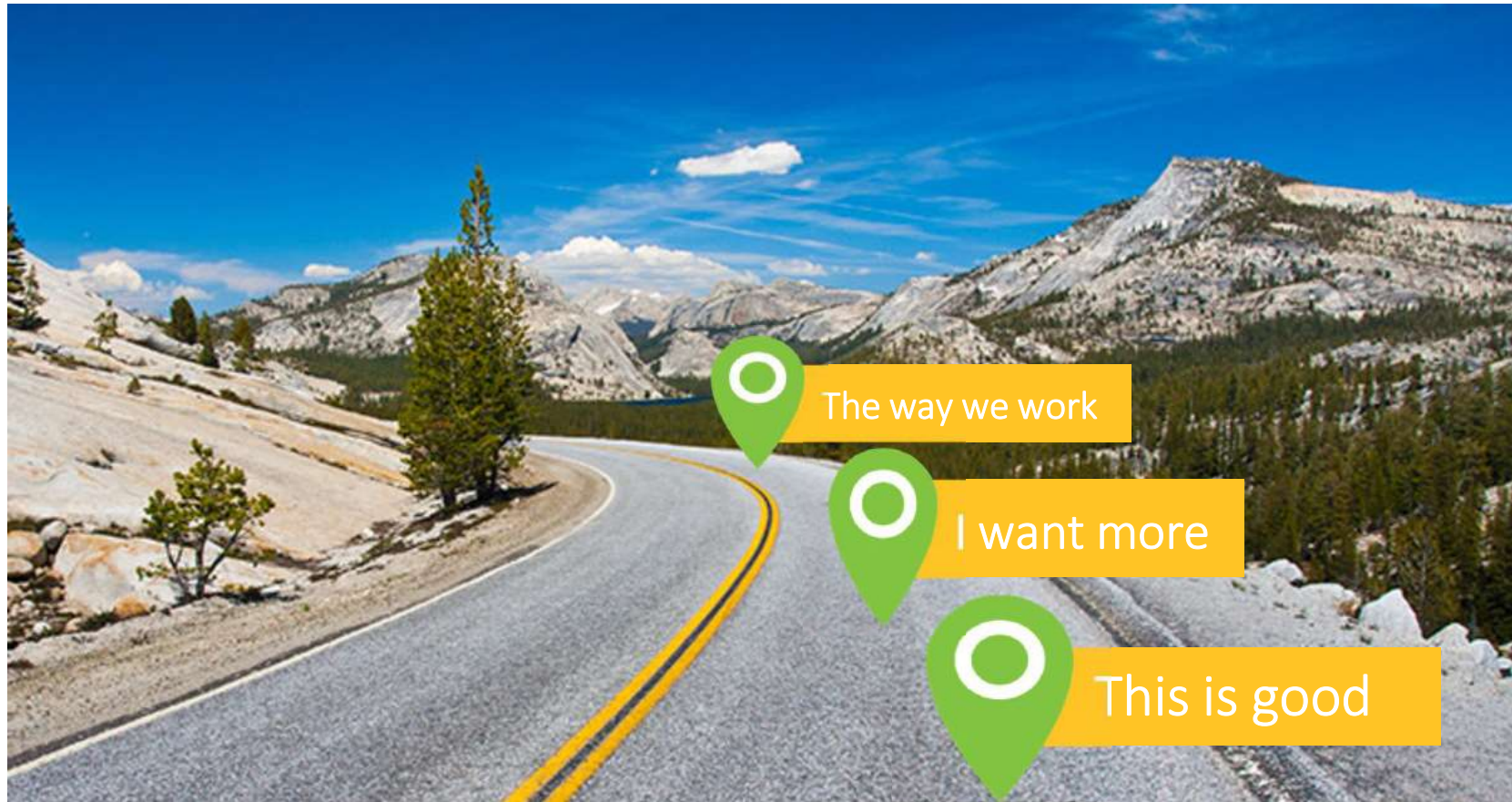
# Creating, Managing and Sustaining a Lean Organization

| 1 | **Defining Lean**<br>*...where can we go?* | What is a Lean Organization?<br>What kind of an organization do you want to be? |
|---|---|---|
| 2 | **Lean Strategy**<br>*...where are we going?* | What the organization will do to deliver value to our customers<br>Framework for how we do business |
| 3 | **Roadmap**<br>*...how do we get there?* | How we get from our current state to living our lean strategy |
| 4 | **Implementation**<br>*...the journey* | The strategy and roadmap will likely change over time<br>Continuous learning and improvement |
| 5 | **Manage & Sustain**<br>*...the journey continues* | How we keep it going as an ever-improving organization |

# What is a problem?

**The gap between where you are (current) and where you want to be (future)**

Problem solving – Closing the gap



3. How get there? **PLAN**    4. Implement

**DO**

**ADJUST**

2. Where want to be? (Future)    **CHECK**    1. Where now? (Current)

**Lean Strategy A3 for:** _____

Last Updated:

| 1. What is the problem we are trying to solve? Why is this important? |
|---|
| **Why?** |

| 2. Current Condition – How do things work today? What is our business strategy? What strengths do we have? What will inhibit achieving our goals? |
|---|
| **Where are we now? (current state)** |

| Fill in things that support achieving goals • | Fill in things that inhibit achieving goals • |
|---|---|
| | |

| 3. Target Condition – What kind of organization do we want to be? What is our "North Star"? (Our business strategy, what value we deliver, who we are, our vision). What is our Lean strategy? (How to we produce value?) |
|---|
| **Where/who do we want to be? (future state)** |

| 4. Road Map – How will we get from here to there? (Key milestones) | | How we know we are on track (Measure of Success) |
|---|---|---|
| Date | Description | Measure of Success |
| | **High level roadmap (how we get there)** | **How we know we are on track (KPI & KBI's)** |
| | | |

| 5. Implement the Plan (What actions will we take to reach our next milestones? How are we doing? | | | | |
|---|---|---|---|---|
| Supporting Goals | Activities/Steps | Accountable/ Responsible | Metric/Status | Other possible columns: Start, Finish, Status, Comments |
| A. | | | | |
| | | | | |
| | | | | |
| B. | **Implement the Plan (to first milestones)** | | | |
| | | | | |
| C. | | | | |
| | | | | |
| | | | | |

| 6. Continuously Improve: What is working? What do we need to change, im | **Check & Adjust** |
|---|---|
| | |

# Lean Organization

| Lean Project | Lean Organization |
|---|---|
| • **Usually how first experience Lean…** | • **…then we want more.** |
| • Improve schedule performance, productivity, quality, safety | • Repeat success across all our projects |
| • Lower cost | • Bring benefits of lean thinking and application to all departments and processes. |
| • Less delays and issues | |
| • Involve all parties from owner, design, GC, trades and users. | |

**&**

## Lean organizations support lean projects

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What is a Lean Organization?
Defining Lean for your Organization

# Where will your Lean journey take you?

Discuss with your table…

What does a Lean **organization** look like?

*(5 minutes)*

**Lean Strategy A3 for:** _____

**Create Your Plan**

Last Updated:

| **1. What is the problem we are trying to solve? Why is this important?** |
|---|

## Why?

| **2. Current Condition – How do things work today? What is our business strategy? What strengths do we have? What will inhibit achieving our goals?** |
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## Where are we now? (current state)

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| **3. Target Condition – What kind of organization do we want to be? What is our "North Star"? (Our business strategy, what value we deliver, who we are, our vision). What is our Lean strategy? (How to we produce value?)** |
|---|

## Where/who do we want to be? (future state)

| **4. Road Map – How will we get from here to there? (Key milestones)** | | How we know we are on track (Measure of Success) |
|---|---|---|
| Date | Description | Measure of Success |
| | | |
| | | |
| | | |
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| | | |

| **5. Implement the Plan (What actions will we take to reach our next milestones? How are we doing?)** | | | | |
|---|---|---|---|---|
| **Supporting Goals** | **Activities/Steps** | **Accountable/ Responsible** | **Metric/Status** | Other possible columns: Start, Finish, Status, Comments |
| A. | | | | |
| | | | | |
| | | | | |
| B. | | | | |
| | | | | |
| | | | | |
| C. | | | | |
| | | | | |
| | | | | |

| **6. Continuously Improve: What is working? What do we need to change, improve?** |
|---|
| |

Why do we exist as an organization? PURPOSE

How do we produce value? PROCESS

What value do we produce? PRODUCT

Who make up the organization and how do we interact? PEOPLE

© 2013 Simon Sinek, Inc.

**Basic answers that every person in the organization must know Alignment**

**What about yours?**

What does it mean to be lean?

"Lean is a way of thinking,
not a list of things to do."

- Shigeo Shingo

"Lean is a really, really different way of thinking"
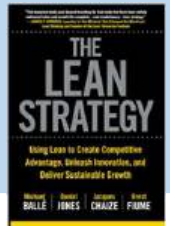
# What is Lean Construction?

Lean Construction is a "way to design production systems to minimize waste of materials, time, and effort in order to generate the maximum possible amount of value," (Koskela et al. 2002[1]).

Lean Construction recognizes that desired ends affect the means to achieve these ends, and that available means will affect realized ends (Lichtig 2004). Essentially, Lean Construction aims to embody the benefits of the Master Builder concept (Abdelhamid et al. 2008).

Lean construction supplements traditional construction management approaches with (Abdelhamid 2007): (1) two critical a~~nd~~ ~~~~ ~~~~ ~~~~ ~~~~ rate consideratio **"In any case, the term Lean Construction has escaped canonical** ) different project and **definition. There has been a number of reasons for that. The body of** While lean **knowledge is in a state of development since 1990. Nonetheless, a** l as well as how it is pra **definition is needed to be able to operationalize the concepts and** asis of Lean Construction **principles contained in the philosophy."** origin of lean construction t were observed in ~~the reliability of weekly production planning.~~

Getting work to flow reliably and predictably on a construction site requires the impeccable alignment of the entire supply chain responsible for constructed facilities such that value is maximized and waste is minimized. With such a broad scope, it is fair to say that tools found in Lean Manufacturing and Lean Production, as practiced by Toyota and others, have been adapted to be used in the fulfillment of Lean construction principles. The three unique tools and methods that were specifically conceived for lean construction are the Last Planner System, Target Value Design, and the Lean Project Delivery System.

# HOW DO WE DELIVER VALUE?

Producer  Customer

**Lean is a way of thinking about the process of adding value**

**What distinguishes Lean from other theories of production is the focus on flow efficiency over resource efficiency**

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# Lean

**Pull value to the customer with the least waste by flow efficiency and do it better and better**

## FLOW EFFICIENCY
No waste
No bottlenecks
No constraints

**PULL**
Produce in response to a demand

The Work - VALUE STREAM

**CUSTOMER**

**VALUE**
Defined by our customer

## CONTINUOUSLY IMPROVE
Efficient flow of work
*People*
*Process*
*Product*

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Eliyahu M. Goldratt
THE GOAL
20th Anniversary Edition
THEORY OF CONSTRAINTS

LEAN THINKING
BANISH WASTE AND CREATE WEALTH IN YOUR CORPORATION
James P. Womack and Daniel T. Jones

THIS IS LEAN
RESOLVING THE EFFICIENCY PARADOX
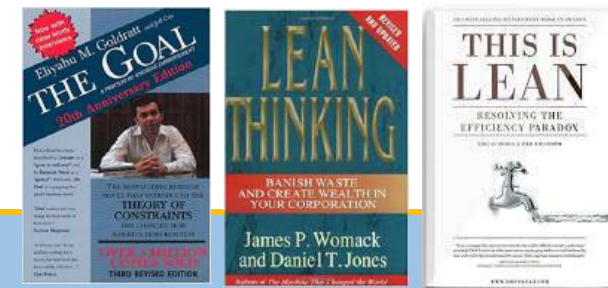
# Flow Efficiency

**Efficiency from the point of view of the thing being transformed.**

Focus on the thing being transformed
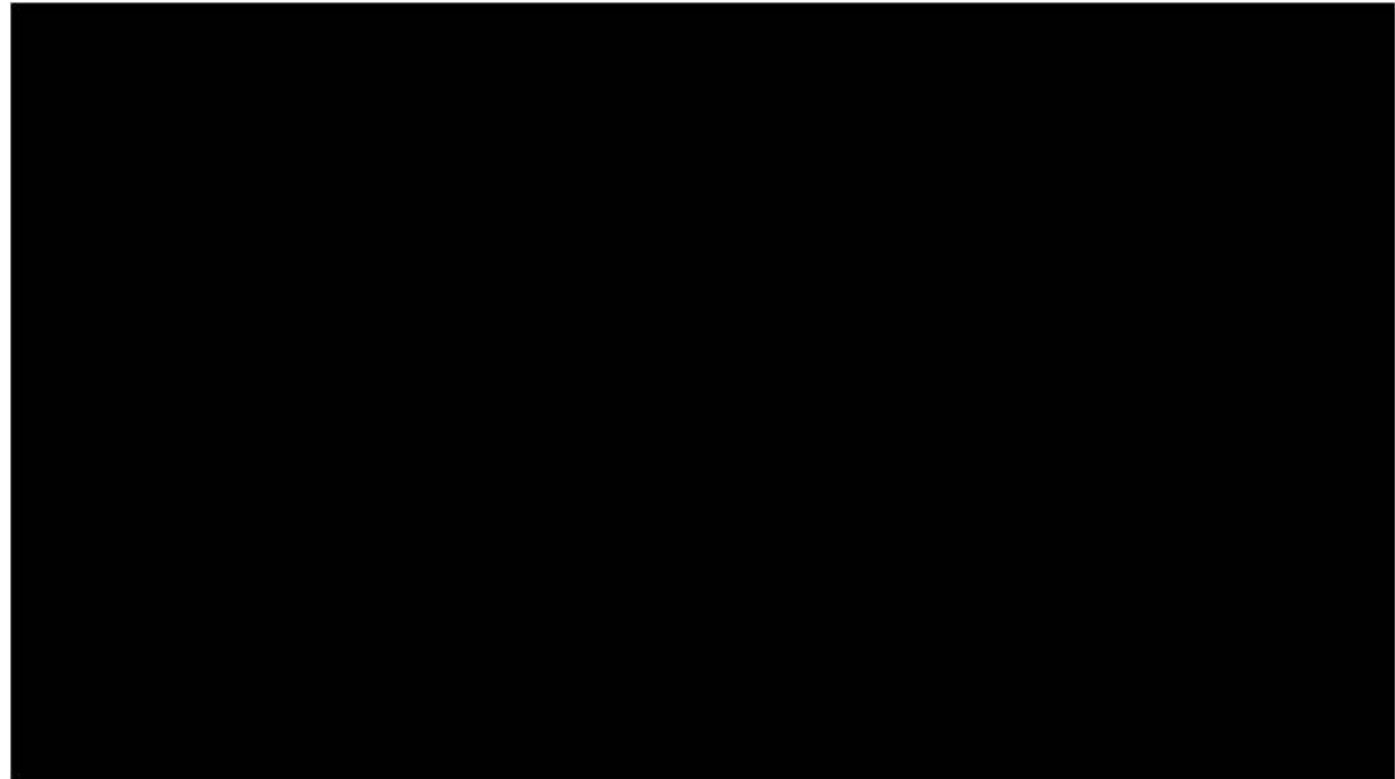


FLOW UNIT

**WHAT IS LEAN?**

**Pull value to the customer with the least waste by flow efficiency and do it better and better.**

**LEAN IS SIMPLE**

It is a way of thinking about how value is produced. The basic concepts are:

- Specify value. Defined by customer. Created by producer.
- Waste is anything that doesn't add value.
- Value stream is the set of actions to deliver a product.
- Make the value creating steps flow.
- Pull value to the customer.
- Aim for perfection.
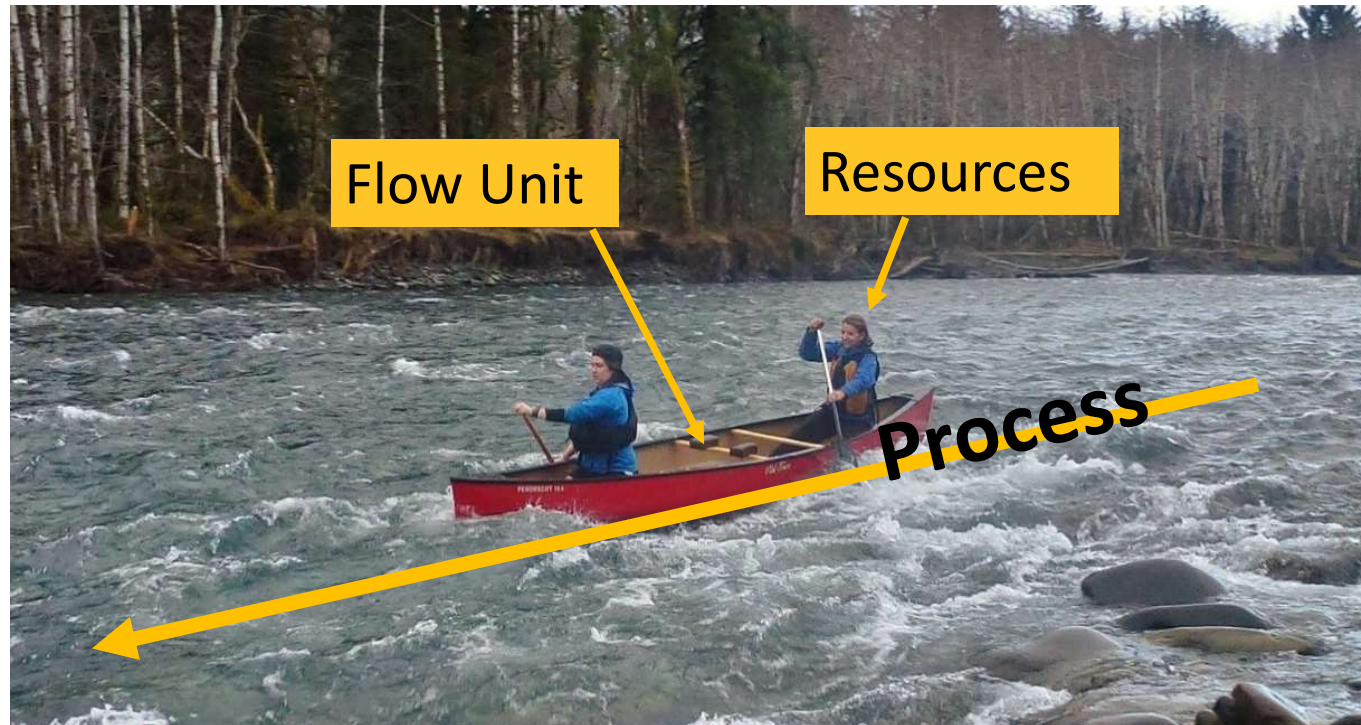
Flow Unit

Resources

Process

**FLOW EFFICIENCY compared to paddling a canoe**

Lean thinkers think in terms of process and flow
It is the responsibility of everyone in the canoe to improve

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Major Takeaway:

1. Design the best process you can
2. Document the process (Standard Work)
3. Continuously improve (Kaizen)
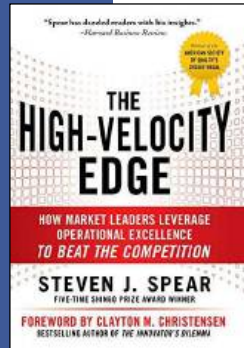
"The most basic problem is that flow thinking is counterintuitive… shift the focus from organizational categories (departments) to value-creating 'processes."

— *James Womack and Daniel Jones, Lean Thinking*
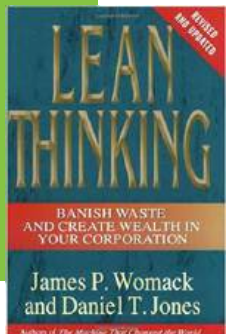
## What makes a lean organization go?

**Discuss with your table…**

What attributes, qualities, or conditions are needed for a lean organization? Why?

*(5 minutes)*



| Lean | Pull value to the customer with the least waste by flow efficiency and do it better and better |
|---|---|

**FLOW EFFICIENCY**
No waste
No bottlenecks
No constraints

**PULL**
Produce in response to a demand

The Work - VALUE STREAM → CUSTOMER

**VALUE**
Defined by our customer

**CONTINUOUSLY IMPROVE**
Efficient flow of work
People
Process
Product

# 11 Attributes of an Organization

**PURPOSE** of the organization. An understanding of who you are, why you exist. Your vision, mission, guiding principles. Customer focused. It guides goals and decisions. It is how success is measured. Alignment – Understood and practiced by everyone.

**RESPECT** is how you treat other people. Recognizes the value that each person brings. The human spirit thrives under appreciation and trust. It is critical for collaboration and improvement.

**COLLABORATION**. It is attributes of leadership, the right people, respect, and trust put to practice to accomplish more than could be achieved individually. It is aided by awareness and discipline.

**PRODUCT** what you produce and deliver. From the point of view of the customer it is why you exist. It is value from the point of view of the customer. It is what differentiates you. How is your product viewed by your existing and potential customers.

**TRUST** is based in people who are trustworthy because they are honest, capable, and reliable. It is earned. Organizational trust is built into policies and systems.

**FLOW EFFICIENCY** relates to how to produce value. Work is pulled through all the value adding steps with the least waste. Organize and manage by process/value stream.

**PEOPLE** with thinking ability, who are trustworthy, humble, self-disciplined and team centered. There is no need to motivate the right people.

**AWARENESS,** which is to see everything all the time. It is seeing things as they really are. It is understanding "why". It is the basis for good decisions. Clarity. Necessary for alignment.

**CONTINUOUS IMPROVEMENT** as a fundamental mindset. It is proactive and process based. A learning organization . It uses lean thinking. Every member is problem solver and improvement generator.

**LEADERS** who are capable, humble, ambitious for a purpose beyond themselves. They understand, live, and lead to the other principles.

**DISCIPLINE** of thought firmly based in reality. Focused action that follows through on a plan. Better than bureaucracy. It creates the space and freedom to manage not micromanage.

**What makes an organization "lean" is the people and how they interact with each other and their work… to deliver value and make work flow efficiently**
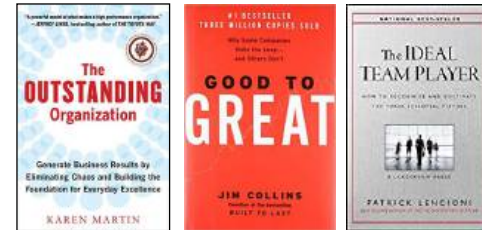
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# Lean Organization

**Organized to pull value to the customer with the least waste by flow efficiency and do it better and better to support the purpose of the organization**
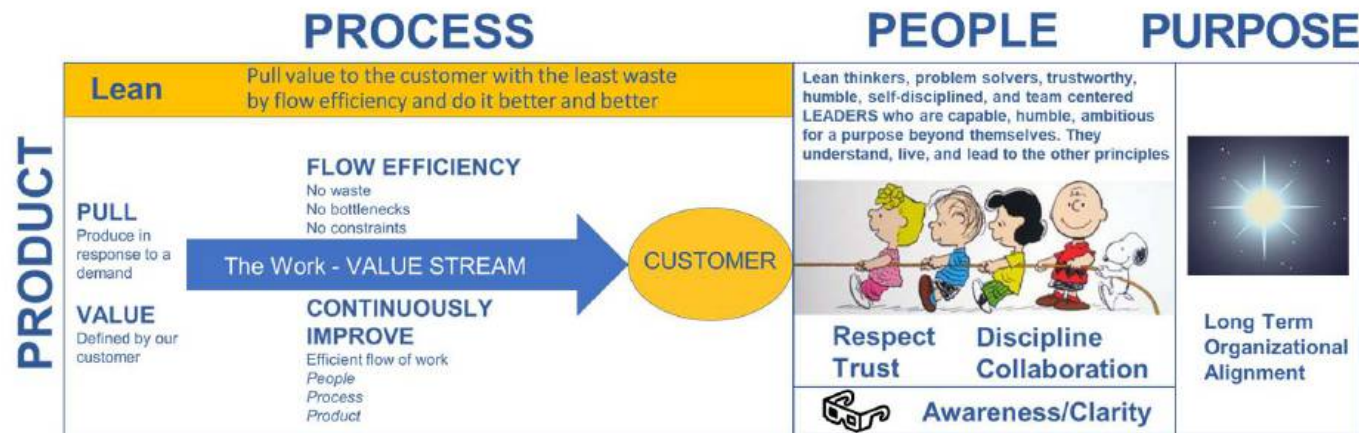
## PROCESS  PEOPLE  PURPOSE

**PRODUCT**

### Lean
Pull value to the customer with the least waste by flow efficiency and do it better and better

**FLOW EFFICIENCY**
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The Work - VALUE STREAM → CUSTOMER

**VALUE**
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**CONTINUOUSLY IMPROVE**
Efficient flow of work
People
Process
Product

Lean thinkers, problem solvers, trustworthy, humble, self-disciplined, and team centered LEADERS who are capable, humble, ambitious for a purpose beyond themselves. They understand, live, and lead to the other principles

**Respect     Discipline**
**Trust          Collaboration**

**Awareness/Clarity**

**Long Term Organizational Alignment**

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# Lean Organization

**Organized to pull value to the customer with the least waste by flow efficiency and do it better and better to support the purpose of the organization**

## PROCESS  PEOPLE  PURPOSE



**Lean** — Pull value to the customer with the least waste by flow efficiency and do it better and better

**PRODUCT**

**PULL** — Produce in response to a demand

**VALUE** — Defined by our customer

**FLOW EFFICIENCY**
- No waste
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The Work - VALUE STREAM → CUSTOMER

**CONTINUOUSLY IMPROVE** — Efficient flow of work
- People
- Process
- Product

Lean thinkers, problem solvers, trustworthy, humble, self-disciplined, and team centered LEADERS who are capable, humble, ambitious for a purpose beyond themselves. They understand, live, and lead to the other principles

**Respect Trust**  **Discipline Collaboration**

**Awareness/Clarity**

**Long Term Organizational Alignment**

### Supporting Principles
Focus on the customer
Quality at the source
Solve at the lowest level
Optimize the whole
Continuous, one-piece flow
See when flow stops
Stop and fix the problem
Just-in-Time
Last Responsible Moment
Standard Work

**5S – Sort, Straighten, Shine, Standardize, Sustain**

**Value Stream Management**

**Kanban**

**Integrated Project Delivery**
Integrated Form of Agreement
Big Room, Target Value Design, Set Based Design, Choose by Advantage

**Last Planner System®**

**Virtual Design, Visualization**

**Kitting, Prefab, Modular**

1. Design the best process you can
2. Document the process (Standard Work)
3. Continuously improve (Kaizen)

Problem Solving – Identify and close the gap between where we are and want to be

- Understand the current state
- Design a future state
- Create a transformation plan
- Implement the plan

Go-and-See

A3 Thinking

Plus/Delta, Retrospectives

Root Cause Analysis
5 Whys, Fishbone Diagrams

1. Develop **People** who apply *Lean thinking* to their daily work
2. Provide a **System** (or process) to support them

**Direction / Strategy Management**
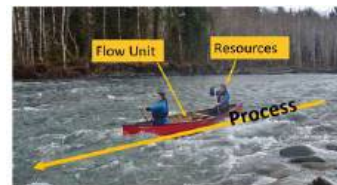
Visual Management

Study Action Teams

Lean Culture – Behavior based in principles and process

FLOW EFFICIENCY compared to paddling a canoe
Lean thinkers think in terms of process and flow
It is the responsibility of everyone in the canoe to improve

Learning Organization – Structured to continuously improve, train people in lean thinking to spot problems, maintain flow before it stops and identify and implement improvements

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# What is a "Lean Culture"?

**Culture**: the aggregate of people's behaviors

# A culture of lean thinkers – Where does it begin?

"It is impossible for a leader to lead the development of a principle-based culture until he or she has gone through the deep personal reflection required to begin a cultural transformation"
   *– Shingo Model*
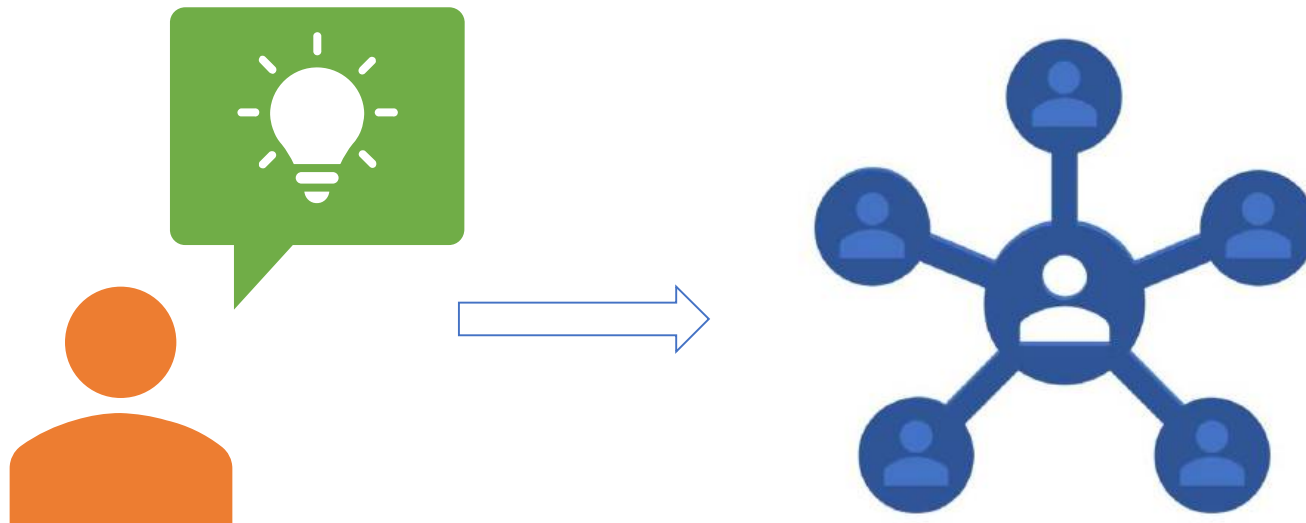
# How do I "Operationalize" the concepts and principles?

1. Develop **People** who apply *Lean thinking* to their daily work
2. Provide a **System** (or process) to support them
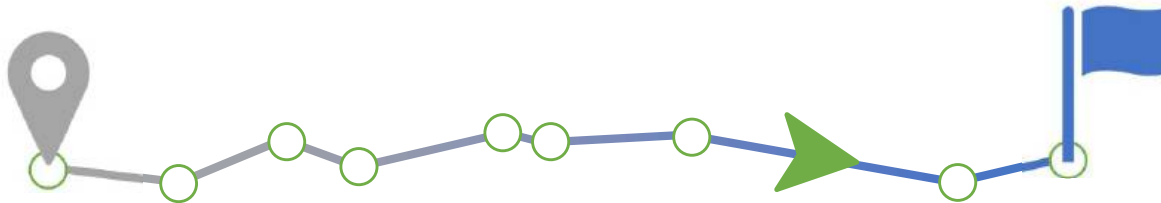
"Train the people doing the work to spot problems and then utilize their knowledge and skills to help improve the work"

— *Steven Spear,*
*The High-Velocity Edge*

# A framework for Lean– Shingo Model

# Leading a Lean Organization – Shingo Model



## RESULTS
A measurable outcome from implementation
of tools and systems
*(e.g. higher ROI, customer satisfaction, faster turnaround, etc.)*

Sustainable excellent results requires the transformation of
a culture to one where every single person is engaged
every day in making small, and from time-to-time large,
changes.

# Shingo Model: Results, Behavior and Guiding Principles

**PRINCIPLES**
Foundational rules, universal truths that govern the consequences of behavior



**MANAGERS**
Create and manage culture

Design systems that influence ideal behavior

**SYSTEMS**
A collection of tools working together to accomplish an intended outcome

| TOOL | TOOL |
|------|------|
| TOOL | TOOL |

**PEOPLE**
Operate the business

The results of an organization depend on the way people behave

The aggregate of people's behaviors makes up organizational culture

**RESULTS**

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# Shingo Model: Guiding Principles

Can you have a lean culture if leaders and staff do not know and follow these principles?

LEADERS must understand and fully embrace these principles, and put them into practice



**Results**
Create Value for the Customer

**Enterprise Alignment**
Create Constancy of Purpose
Think Systemically

**Continuous Improvement**
Flow & Pull Value · Assure Quality at the Source
Focus on Process · Embrace Scientific Thinking
Seek Perfection

**Cultural Enablers**
Lead with Humility
Respect Every Individual

# The Toyota Way…

**4P: Continuously Solving Root Problems Drives Organizational Learning**

**Principle 12:** Go see for yourself
**Principle 13:** Make decisions slowly by consensus and implement rapidly
**Principle 14:** Use Hansei (reflection) and Continuous Improvement (Kaizen) to become a Learning Organization

**Problem Solving**

**3P: Add Value to the Organization by Developing Your People and Partners**

**Principle 9:** Grow your leaders internally
**Principle 10:** Develop exceptional people and teams
**Principle 11:** Respect your Network partners

**People and Partners**

**2P: The Right Process Will Produce the Right Results**

**Principle 2:** Create Continuous Process Flow
**Principle 3:** Use Pull systems to avoid overproduction
**Principle 4:** Level out the workload
**Principle 5:** Stop and fix the problem

**Principle 6:** Work with standards
**Principle 7:** Make problems visible
**Principle 8:** Use only reliable tested technology

**Process**

**1P: Long-term Philosophy**

**Principle 1:** Base your decisions on a Long-Term Philosophy even at the expense of short-term financial goals

**Philosophy**

*Source: Jeffrey K. Liker, The Toyota Way*

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THE TOYOTA WAY
THE COMPANY THAT INVENTED LEAN PRODUCTION
14 MANAGEMENT PRINCIPLES FROM THE WORLD'S GREATEST MANUFACTURER
JEFFREY K. LIKER
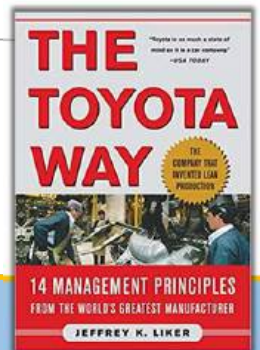
# What is a Lean Organization? – Key Takeaways

- Lean organizations support lean projects

- Aligned on purpose

- Customer centered, the organization is focused on pulling value by flow efficiency

- Leaders understand lean principles and design systems built on those principles

- Manage by value stream

- Build behaviors that create a culture of Lean Thinkers
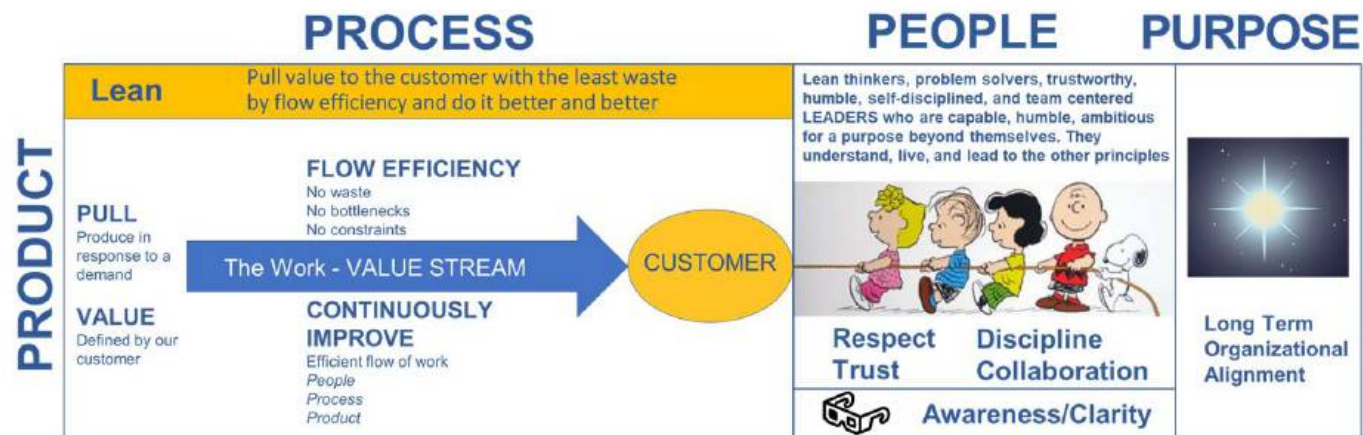
Creating your Lean Strategy & Roadmap

*…where we are going and how to get there*

Lean Construction Institute
Transforming Design and Construction

**Lean Strategy A3 for:** _____
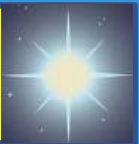
Last Updated:

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**2. Current Condition – How do things work today? What is our business strategy? What strengths do we have? What will inhibit achieving our goals?**

Fill in things that support achieving goals
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Fill in things that inhibit achieving goals
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**3. Target Condition – What kind of organization do we want to be? What is our "North Star"? (Our business strategy, what value we deliver, who we are, our vision). What is our Lean strategy? (How to we produce value?)**

**Where/what do we want to be?(future state)**

**4. Road Map – How will we get from here to there? (Key milestones)** | How we know we are on track (Measure of Success)

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**6. Continuously Improve: What is working? What do we need to change, improve?**

# What is a "lean strategy"?

**BUSINESS STRATEGY** sets the direction: <u>What</u> is our long-term vision? What markets do we serve? What value do we provide to our customers? What differentiates us in the marketplace?

**OPERATIONS STRATEGY** is focused on: <u>How</u> will you produce value? A **Lean strategy** is to do it as a continuously improving flow efficient organization. It must always connect with the business strategy.

**ROADMAP** is the plan on how you get there.

**JOURNEY** is the implementation of your roadmap.



**3. How get there?** PLAN  DO  **4. Implement**

**2. Where want to be?** (Future)  ADJUST  CHECK  **1. Where now?** (Current)

# Business Strategy

<u>What</u> is our long-term vision?

What markets do we serve?

What value do we provide to our customers?

What differentiates us in the marketplace?



What value do we provide?

Producer → ← Customer

The **North Star** metric concept is best utilized by companies that invest in long-term sustainable growth. ... The value that you create for your customers drives the **strategic** direction for your company.

So… what is your North Star?

North Star

# Operations Strategy

How will you produce value?

A **Lean strategy** is to do it as a continuously improving flow efficient organization.

It must always connect with the business strategy.

**HOW DO WE DELIVER VALUE?**

What will we look like when we fully live our Lean strategy?

North Star

# Developing YOUR Lean Strategy



The Starry Night – Vincent van Gogh 1889



Paint by Numbers for Adults - Framed Canvas and Wooden Easel Stand - DIY Full Set of Assorted Color Oil Painting Kit and Brush Accessories - Van Gogh The Starry Night 12"x16" Replica

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# Learn from others "Go and See"

While it is your strategy and your roadmap, there is much to be learned from other organizations and experts.

Understand the **underlying principles**. Why does it work? What doesn't work so well?

**Use what works for you**.
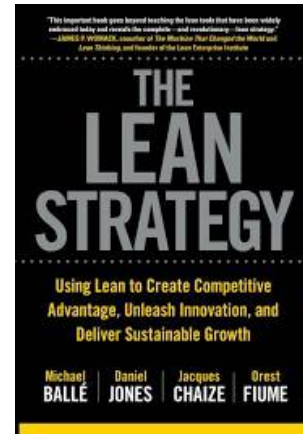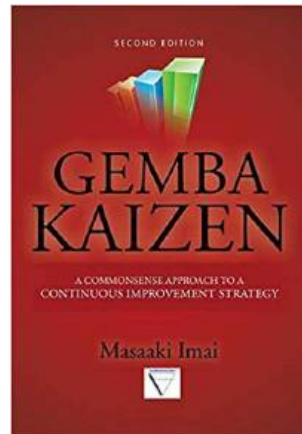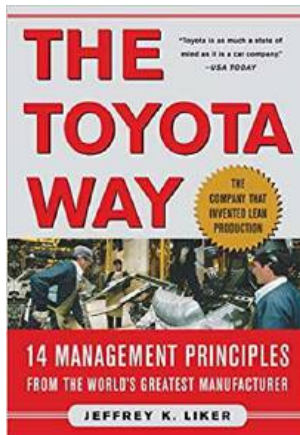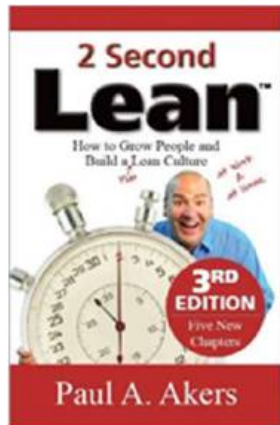
**Visit exemplary lean companies**

**Attend conferences**

**Help from Lean consultants**

# What is your lean strategy? (future state)

**Write a description of what lean will look like at your organization? (10 minutes)**

- Do we have a "purpose"? A business strategy? Are we customer centered?
- What are our value streams? What would "flow efficiency" look like?
- What will we all need to know to be a culture of "lean thinkers"?
- What lean methods and tools especially relate to our business?

**SLOW PROCEED WITH CAUTION**

**You cannot do this in 10 minutes. This is only an exercise to get thinking about possibilities.**

# Creating Your Road Map – HOW DO WE GET THERE?

Start with the right question… What problem we are solving?

Close the **gap** between where we are now (current)

and where we want to be (future)

Develop
Strategy
and
Roadmap

North
Star

# Creating Your Road Map

- **What can you reasonably accomplish?**

- **Level of leadership participation**

- **Resources**

- **What lean methods do you already use and how is it going?**

- **Think long term**



**This is a journey you can start without the whole plan**

- Get pointed in the right direction

- **Keep learning** so you can see the road ahead better

- Don't add more detail than you are ready to implement. It will change. Adjust as you go.
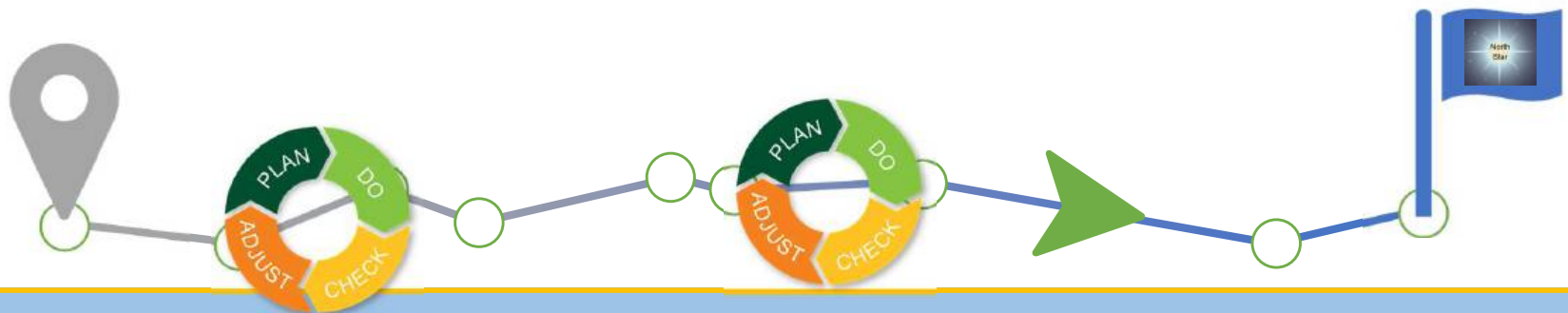
# Set progressive goals – Manage to Milestones

What will progressively build a lean organization with the least waste?

Set a foundation for growth

Cultural enablers

Build capacity

"Low hanging fruit" is short-term thinking unless it is part of a bigger plan

2 Years

1 Year

6 Months
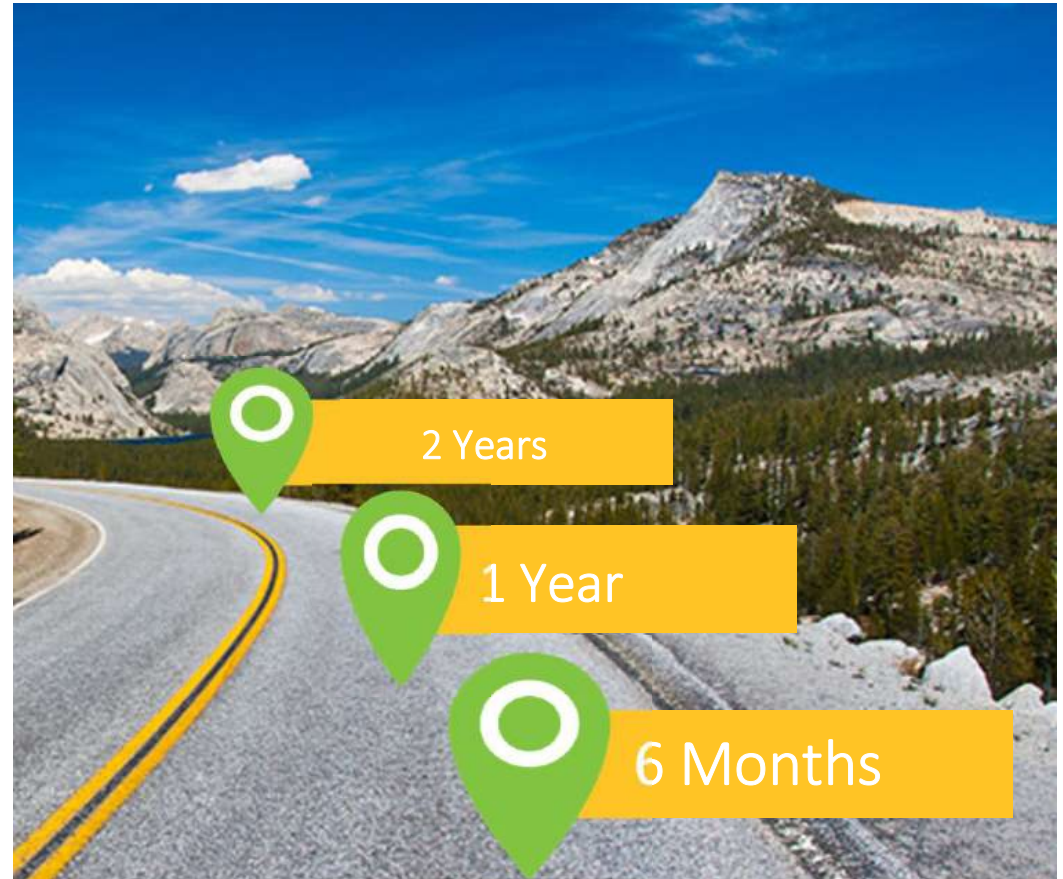
# *Gateways to Lean Behaviors – Some possible first steps…*

| Study Action Teams | Last Planner System | 5S | Value Stream Mapping |
|---|---|---|---|
|  |  | **Sort, Straighten, Shine, Standardize, Sustain**<br><br>Learn to see and remove waste, discipline to follow through, while creating a safer, more productive workspace |  |
| Book club with a purpose<br><br>As a team or group learns together, they find practical ways to apply the learning to their work | With good coaching, a team learning how to build respect, trust, and communication. They practice pull, focus on the value stream, achieving milestones, and removing waste |  | Learn to manage by value stream, to see the whole and not just the parts, to recognize how work flows, to break down barriers between departments<br><br>Teams work together to see the current state, future state and build and implement a transformation plan to get there |

1. Develop **People** who apply *Lean thinking* to their daily work
2. Provide a **System** (or process) to support them

| POSSIBLE MILESTONES | WHY |
|---|---|
| 5S is the way we work | Builds the foundation of a continuous improvement system |
| Study Action Teams | Learn together, Work on improvements together |
| Basic Lean Training for Everyone | Exposes organization to the concepts they will need<br>Gets everyone speaking the same language |
| Develop Lean Champions | They are the mechanics for the race car<br>Builds capacity to speed change |
| Build improvement processes on a project team | Gain experience and others see what can be done |
| Last Planner System on all projects | LPS touches almost everything we do. It exposes a large proportion of staff to Lean thinking. Becomes a gateway to other Lean practices |
| Value Stream Map implemented on a value stream | Builds flow thinking. Brings together multiple departments. |
| What are you already doing? Do it better. | Helps staff see what is possible. That Lean is for real. |

# EXERCISE: HOW DO WE REACH THAT GOAL?
## Our goal in 12 months is "Last Planner System the way we plan"



**Use lean thinking to work with your group to come up with a transformation plan (10 minutes)**

1. Design the best process you can
2. Document the process (Standard Work)
3. Continuously improve (Kaizen)

Let's assume… you have several projects that have used LPS with some success. But you feel that you are not getting the results that you could, and it is hit and miss across your projects. How can we make LPS the way we plan consistently and effectively?

**Check** – Where are we now? Why only marginal success?

**Adjust** – Design the best process we can. Standard. What will it look like if we reach our goal. How will we know? Measure of success? What is not included? (Can wait until the next goal)

**Plan** – How will we implement the change? What resources will we need? Who will be responsible? Possible obstacles? How will we sustain the change?



Courtesy Weaver Cooke Construction

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# Creating your Lean Strategy & Roadmap – Key Takeaways

- Create a Lean operations strategy in support of long-term business goals
- Learn about Lean principles and practice. Study examples of others. But make it your own.
- Create your roadmap – Identify achievable milestones and a timeline of steps to get there.
- Make sure your organization has the attributes, resources, and leadership to support the plan
- Don't make it overly detailed. Expect it to change.

# Implementing the plan

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# Journey

Implement the plan. Live it.

Remember: Check and adjust as you go. It will change. Always keep learning.

**Lean Strategy A3 for:** _____

**Create Your Plan**

| 1. What is the problem we are trying to solve? Why is this important? |
|---|
| |

| 2. Current Condition – How do things work today? What is our business strategy? What strengths do we have? What will inhibit achieving our goals? |
|---|

| Fill in things that support achieving goals<br>• | Fill in things that inhibit achieving goals<br>• |
|---|---|

| 3. Target Condition – What kind of organization do we want to be? What is our "North Star"? (Our business strategy, what value we deliver, who we are, our vision). What is our Lean strategy? (How to we produce value?) |
|---|
| |

| 4. Road Map – How will we get from here to there? (Key milestones) | | How we know we are on track (Measure of Success) |
|---|---|---|
| Date | Description | Measure of Success |
| | | |
| | | **How we know we are on track (KPI & KBI's)** |
| | | |
| | | |
| | | |

| 5. Implement the Plan (What actions will we take to reach our next milestones? How are we doing? | | | | |
|---|---|---|---|---|
| Supporting Goals | Activities/Steps | Accountable/ Responsible | Metric/Status | Other possible columns: Start, Finish, Status, Comments |
| A. | | | | |
| | | | | |
| | | | | |
| B. | **Implement the Plan (to first milestones)** | | | |
| | | | | |
| | | | | |
| C. | | | | |
| | | | | |
| | | | | |

| 6. Continuously Improve: What is working? What do we need to change, improve? |
|---|
| |

# Implementing the Plan – Keys to Success



- Leadership Participation
- Simple Unified Approach
- Use Lean Thinking
- Focus on People & Learning
- Sufficient Resources and Capacity
- Measure the Right Things

**IMPLEMENT THE PLAN**

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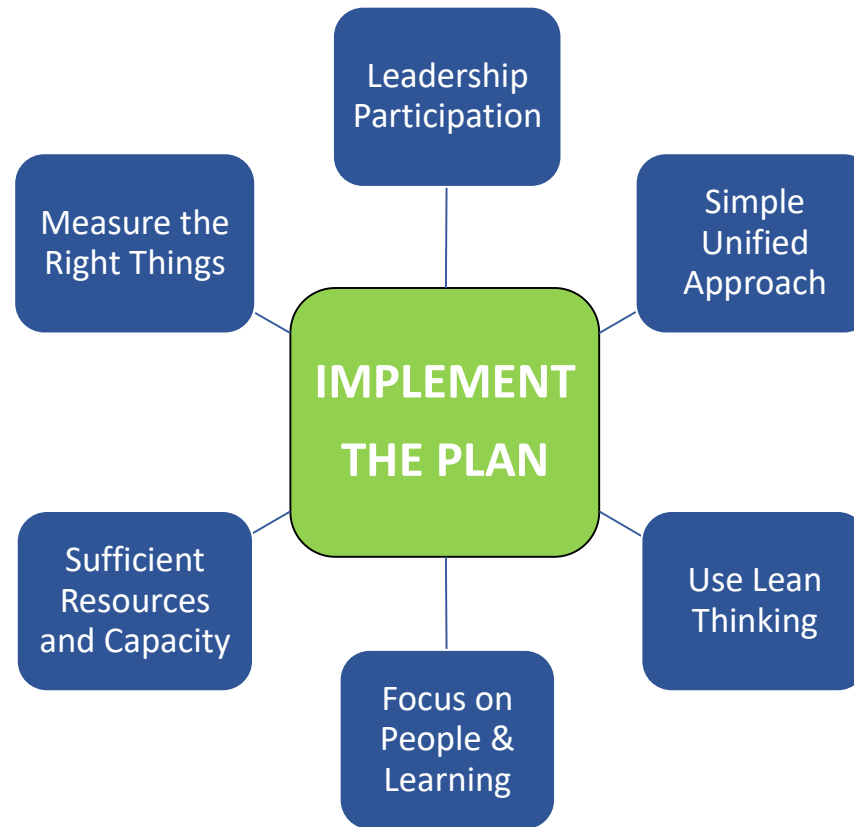
**Can you really expect a Lean Culture without a key part of the team participating?**

Difference between support and participation

How do you gain leadership participation?

# Use Lean principles in building the Lean program



Use Lean Thinking

**Simple, Unified Approach**

**Pull value to your internal customers**

**Build a culture of Lean Thinkers**

**Supports our strategy**
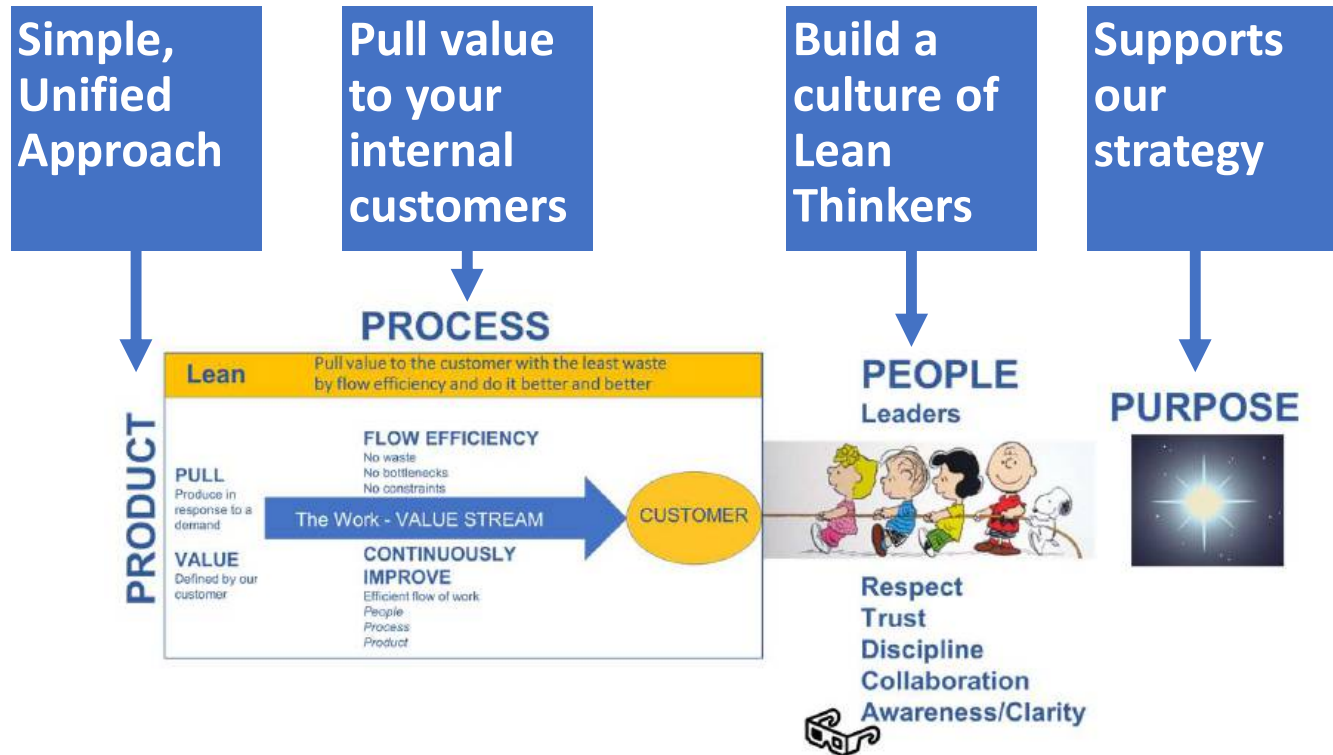
**Use Lean Thinking**



Who is the customer of our lean program **?**

**Our organization and the people who make it up**
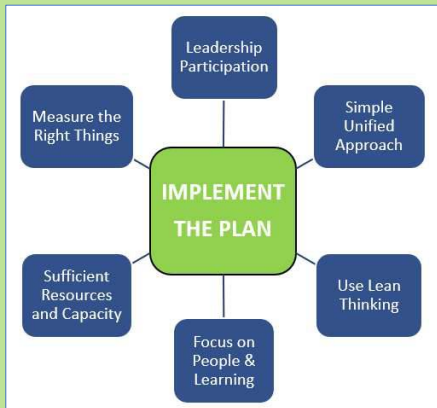
**Pull** value by delivering the **right things at the right time**

Instead of global initiatives, deliver training/coaching when you get most value

**PULL VALUE, DON'T PUSH**
**Instead of global initiatives, focus on just-in-time when people want it, can use it**

Deliver training/coaching when get most value

Tightly couple learning with doing

**Always answer "Why"**

Is this the right time? The right tool?
The right way to build awareness,
understanding, competency?

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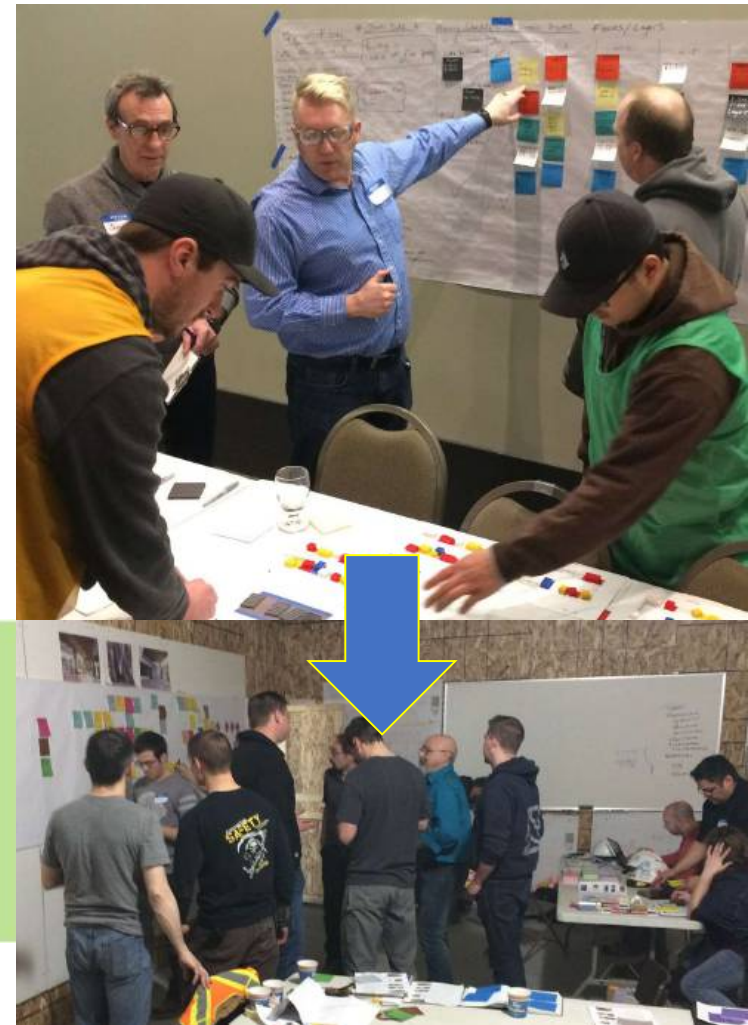
Don't become a "program" that creates **waste** or adds **burden**.
- Avoid unnecessary bureaucracy.
- Don't add without removing.

## Use Lean Thinking

**Implement the Plan diagram:**
- Leadership Participation
- Simple Unified Approach
- Use Lean Thinking
- Focus on People & Learning
- Sufficient Resources and Capacity
- Measure the Right Things
- IMPLEMENT THE PLAN

**Don't become waste yourself**
**Ask "What value are we delivering?"**

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## Lean is Simple – Keep it that way

**People have enough to do already. Do not make this difficult or a burden.**

Simple, understandable, repeatable

Linked to business strategy

Same basic training applies to everyone

All training/tools tie back to principles and strategy

**Simple Unified Approach**

Leadership Participation

Simple Unified Approach

Measure the Right Things

IMPLEMENT THE PLAN

Sufficient Resources and Capacity

Use Lean Thinking

Focus on People & Learning

- Same basic training for everyone.
- Create a common standard language
- Always explain "Why"
- Visual
- Foundation for everything you do

**Consistent, Simple, Clear**
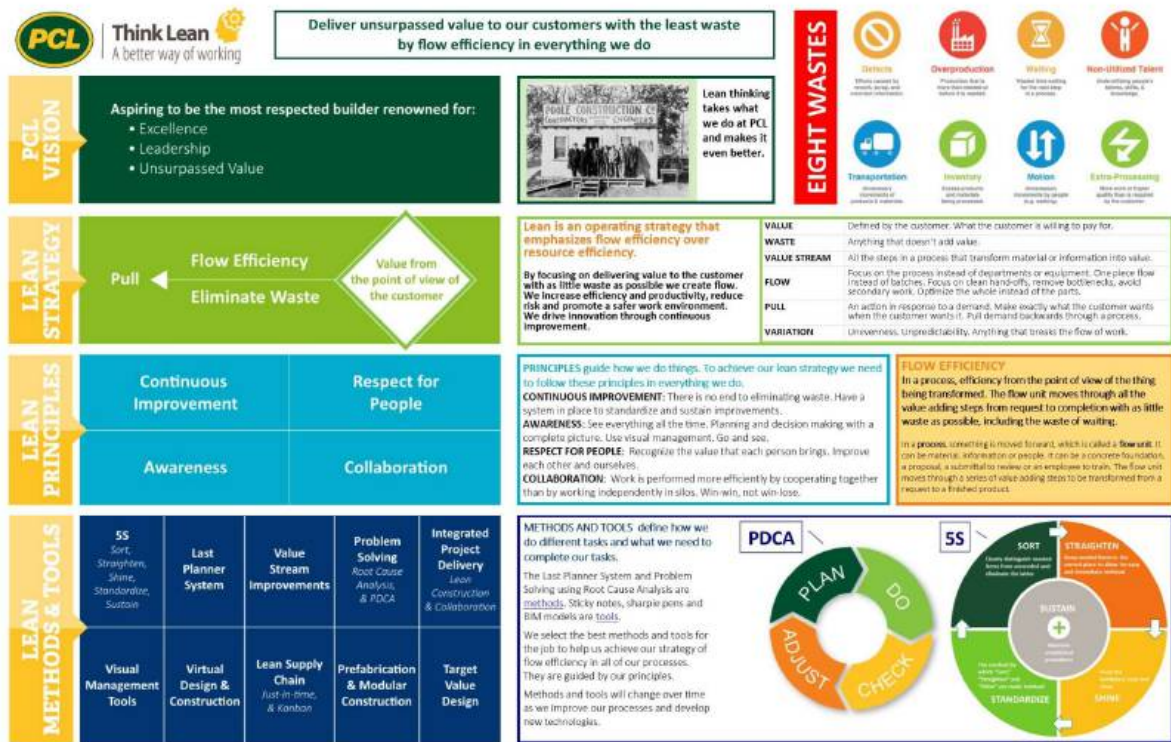
Courtesy PCL Construction

Focus on People & Learning

# Learning by doing

Recognize the difference between training and learning.

Your goal is learning. Find the best ways to achieve the goal.



A foreman meets with a crew to discuss how to improve the flow of work using a 5S assessment

***Gateways to Lean Behaviors***

**Sufficient Resources & Capacity**

# Build capacity to help your people grow

Dedicated local Lean Managers

External coaches used to develop internal trainers and coaches

Grow champions who can teach others

*Do not create bottlenecks that slow your journey*
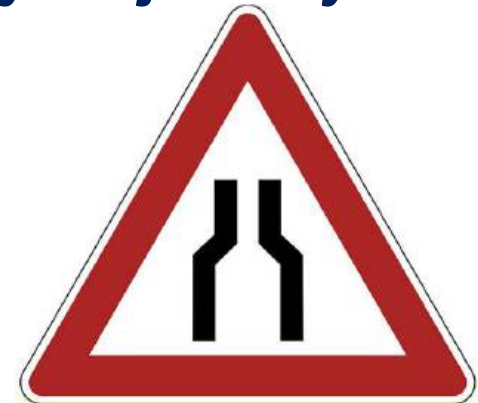
# Collaborate Across the Enterprise

- Central Lean Team provides structure, tools, and links everyone

- Dedicated local lean managers are close to the people and the work

- Project teams and departments grow champions, who become future lean leaders

- Communication grows between teams and offices and work becomes standardized for collaborative improvement

Project Team

Project Team

Office/Dept.

Local Lean Manager

Leadership Support

Central Lean Team

Local Lean Manager

Local Lean Manager
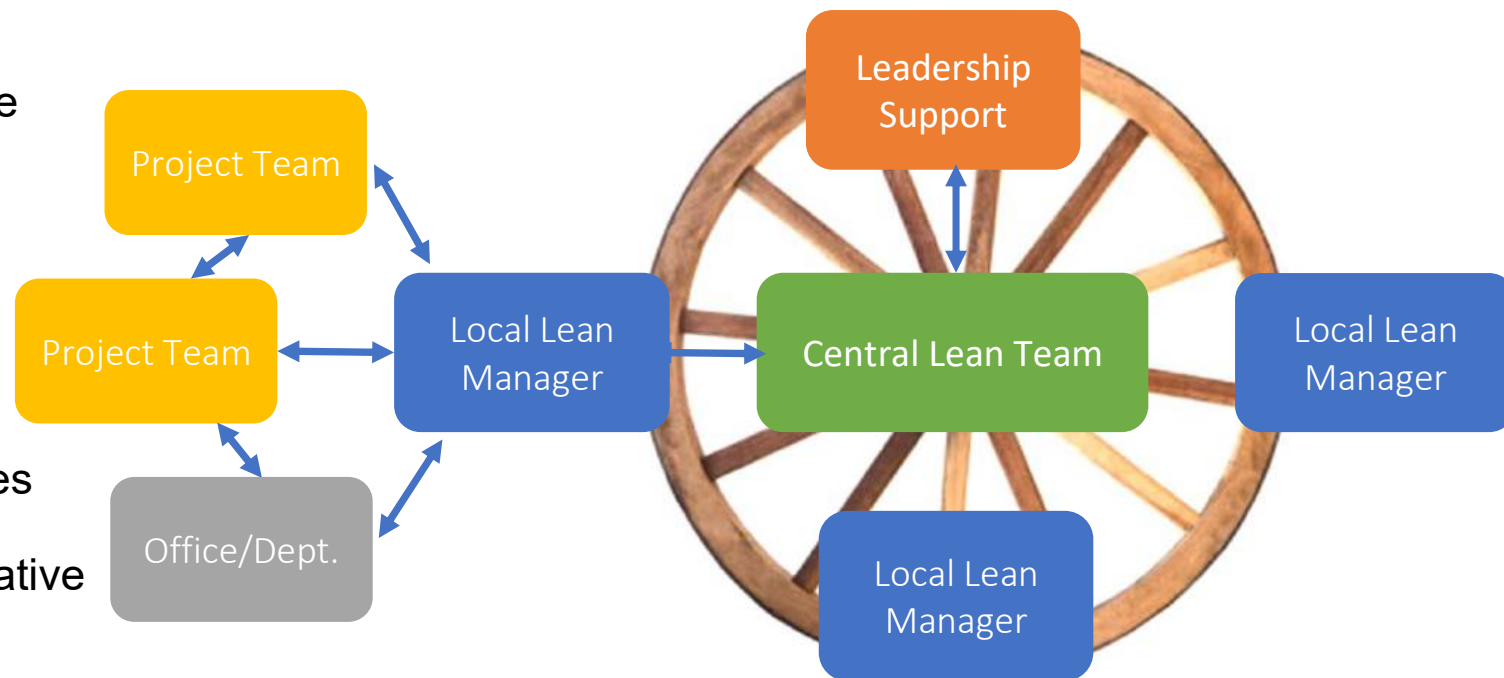
Dedicated staff and a collaborative process prevents "reinventing the wheel" and leads to standardization that can be shared across the enterprise.

LEARN



**Learning Value Stream Mapping at LCI Congress**

IMPROVE



**Working with a team to practice what was learned**

SHARE



**Another team applies what was shared to Value Stream Map**

# Build the capacity to teach others and lead change

**Study Action Team for Lean Managers and Champions**

**Keep Learning**
Attend conferences and training
LCI Congress
LCI Community of Practice
Lean Construction Blog
Lean Podcasts
YouTube
Read books



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Measure the Right Things

Why do we measure?

What do we do with the information?

Measure Performance (KPI)

+

Measure Behaviors (KBI)

To assess progress in real time

Guide decision making

Encourage right behavior

See – Understand – Act

# Measure What?

**Measure Performance**
(KPI)

$+$

**Measure Behaviors**
(KBI)

Be careful what you measure
Because that is what you will get

Example: We set an interim milestone on our roadmap…
Use the Last Planner System on all our projects

What do we measure?

Why did we set the milestone?
How does it help us achieve our vision?

Is our goal to have every team "do" the Last Planner System?

**In your breakout…**
Take five minutes and discuss what to measure. Report back with the best measurements and why.

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# Implementing the Plan – Keys Takeaways

Leaders are participants

Keep it simple

Use the same Lean thinking to implement the roadmap that you are trying to build into your organization. You will get much better results.

Create a common standard for lean that can apply across the enterprise

Tightly couple learning with doing and learning by doing

Get expert help and build capacity in local Lean leaders

Never lose sight of your "North Star". Set milestones that progressively help you achieve your Lean Strategy. Measure to those milestones

It's a long journey, but each step brings better results
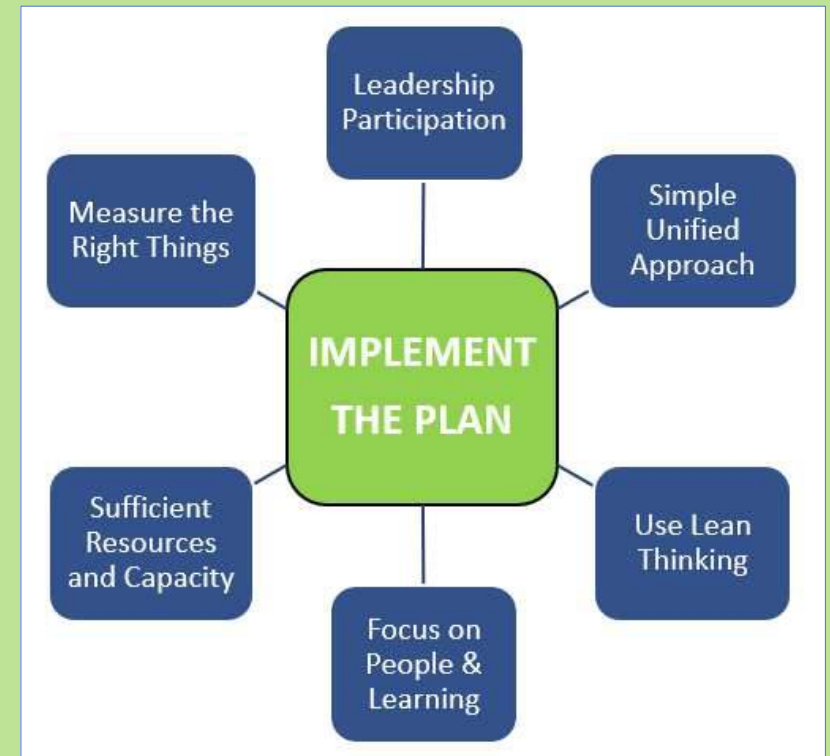
# Managing & Sustaining your Lean Organization

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# Keys to Success & Pitfalls to Avoid

Have you struggled with your lean program?

Share with the group…
What has been your experience?
What do you think is the reason?

**Why do many Lean programs fail?**

**They don't manage to this**



**A lean organization**



Like ice melting in a drink, gradually, Lean is no longer an initiative. It is the way you work.

**Lean Strategy A3 for:** _____

Last Updated:

**1. What is the problem we are trying to solve? Why is this important?**

**2. Current Condition – How do things work today? What is our business strategy? What strengths do we have? What will inhibit achieving our goals?**

**Where are we now? (current state)**

| Fill in things that support achieving goals | Fill in things that inhibit achieving goals |
|---|---|
| • | • |

**3. Target Condition – What kind of organization do we want to be? What is our "North Star"? (Our business strategy, what value we deliver, who we are, our vision). What is our Lean strategy? (How to we produce value?)**

**Where/who do we want to be? (future state)**

**4. Road Map – How will we get from here to there? (Key milestones)** — How we know we are on track (Measure of Success)

| Date | Description | Measure of Success |
|---|---|---|
| | | |
| | | |
| | | |

**High level roadmap (how we get there)**

**How we know we are on track (KPI & KBI's)**

**5. Implement the Plan (What actions will we take to reach our next milestones? How are we doing?**

| Supporting Goals | Activities/Steps | Accountable/ Responsible | Metric/Status | Other possible columns: Start, Finish, Status, Comments |
|---|---|---|---|---|
| A. | | | | |
| | | | | |
| | | | | |
| B. | | | | |
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| | | | | |
| | | | | |

**Implement the Plan (to first milestones)**

**6. Continuously Improve: What is working? What do we need to change, im...**

**Check & Adjust**

# How do we "sustain" the progress we have made?

- Sustain begins from the moment there is something to sustain



**5S**

## Managing & Sustaining

| |
|---|
| **Patiently keep building** |
| **Grow Lean Leadership** |
| **Manage to Key Behaviors** |
| **Manage by value streams** |
| **Develop Lean Thinkers** |
| **Continuously improve** |

- Don't try to force a big win.
- Fix one thing at a time.
- Focus on what you can change
- Small batches. There is more value in finishing something.
- Improve with each step

**Manage and Sustain starts from the very first step.**

## Step by step patiently build a Lean culture
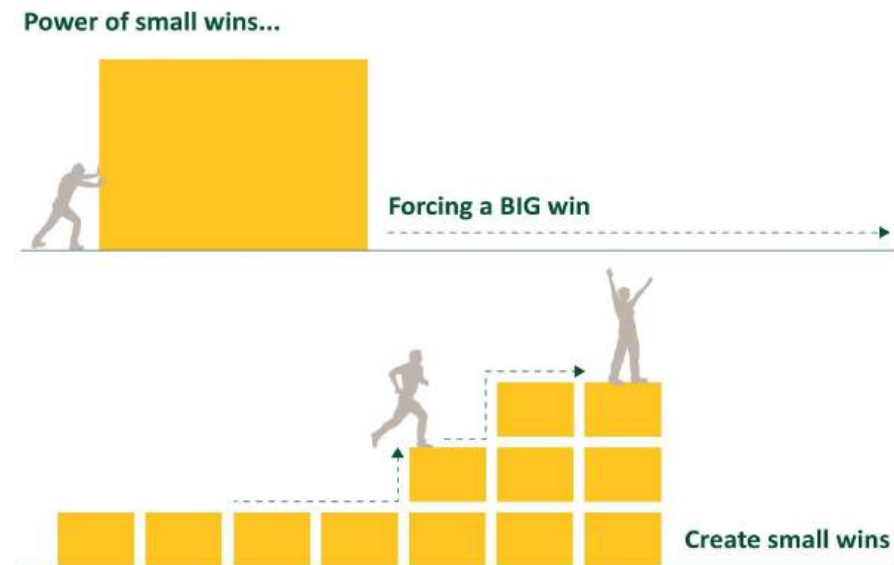
Power of small wins...

Forcing a BIG win

Create small wins

## Managing & Sustaining

- **Patiently keep building**
- **Grow Lean Leadership**
- **Manage to Key Behaviors**
- **Manage by value streams**
- **Develop Lean Thinkers**
- **Continuously improve**

1. Develop **People** who apply *Lean thinking* to their daily work
2. Provide a **System** (or process) to support them

A Lean transformation requires…
**a personal transformation at the leadership level about how to think about solving problems**

You can't manage what you don't understand. You can't lead what you don't live



**Leader Standard Work**

- Learn as much as you can
- Learn to be a teacher/coach
- Role model lean principles
- Strategy Deployment
- Design lean value streams
- Enable employees in the flow to improve the flow

**Lean Leaders Grow by…**
**- participate in creating and living the roadmap**
**- get involved and understand lean tool**
**- be humble, accept that you can improve**

## Managing & Sustaining

| |
|---|
| **Patiently keep building** |
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1. Develop **People** who apply *Lean thinking* to their daily work
2. Provide a **System** (or process) to support them

**Hire the best people you can**

**Develop a standard for hiring Document the process for hiring to ensure the standard is met**

**Train and equip them, and trust them to do the job**

**Onboarding process that includes training in job competency and lean thinking**

**Show appreciation, celebrate success**

**People thrive when they are trusted and appreciated. We all want to be needed.**



The IDEAL TEAM PLAYER — PATRICK LENCIONI

GOOD TO GREAT — JIM COLLINS

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**Managing & Sustaining**

| |
|---|
| **Patiently keep building** |
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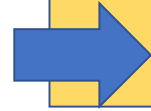
1. Develop **People** who apply *Lean thinking* to their daily work
2. Provide a **System** (or process) to support them

1. Design the best process you can
2. Document the process (Standard Work)
3. Continuously improve the process (Kaizen)

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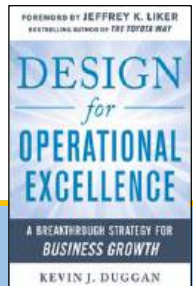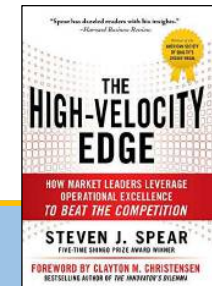
# Value Stream



**The sequence of activities an organization undertakes to deliver on a customer request.**

Examples:
- Project from Notice to Proceed through Final
- Equipment from order to delivery
- Hiring from request to on board

*Wherever there is a request and a deliverable, there is a **value stream***

# Value Stream Management

- Builds customer-centric processes
- Organize in a way that best serves the reason they exist
- Focus on flow and the flow unit
- Breaks down "Silos". Encourages collaboration.
- Awareness and clarity as everyone sees how value flows and when it stops (Can't manage what you can't see)

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# Value Stream MAPPING
## (Value Stream Improvement)

**See how work flows through an entire system**

- Big picture, Visual, See what is really happening
- Data-driven. Not just steps.
- Exposes disconnects, gaps and bottlenecks
- Remove waste
- Establish standard for consistent performance
- Is a process for continuous improvement



**Value Stream Map**

A Value Stream Map displays the high level process steps along with key process data.

Supplier — Process Step 1 (Data Box) — Process Step 2 (Data Box) — Process Step 3 (Data Box) — Process Step 4 (Data Box) — Customer

Wait | Process Time

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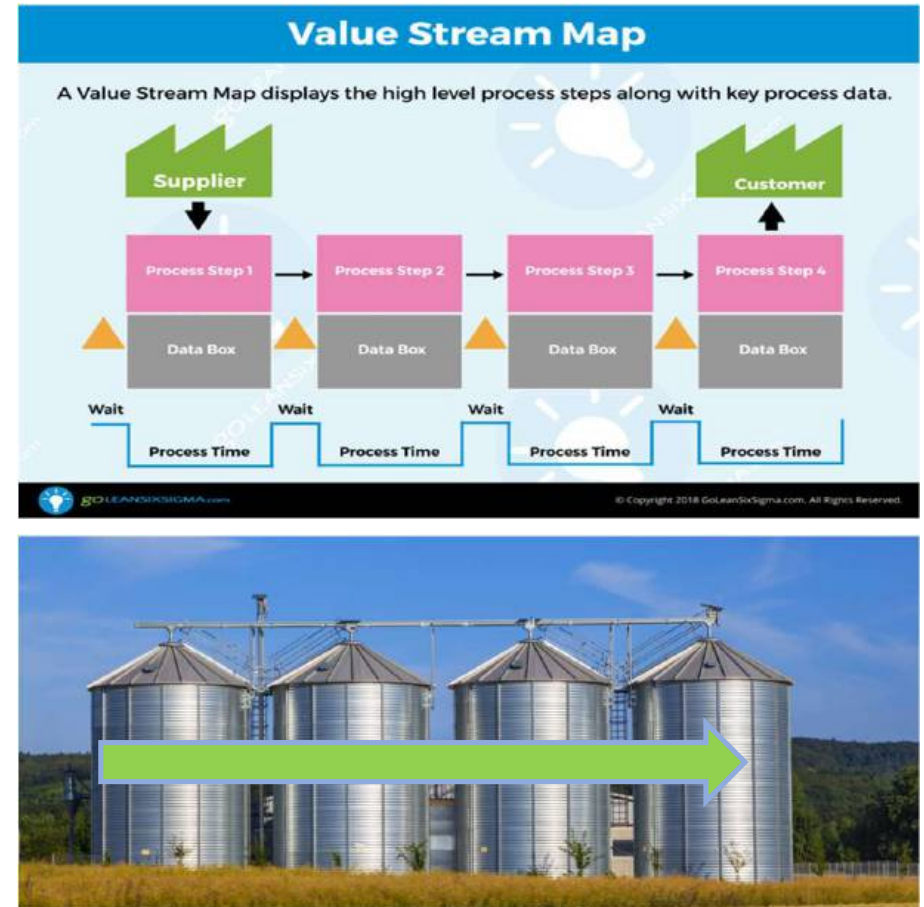
# Value Stream Map

Sequence of processes to transform a customer request into a finished good or service delivered to the customer



ABC TECHNOLOGY, INC.
Current State Value Stream Map
Name of Value Stream Being Mapped
Demand Rate = XX/Year
Name of Value Stream Champion
Mapping Date

CUSTOMER

INFORMATION FLOW

IT-1

IT-2

WORK FLOW

| | PROCESS 1 | PROCESS 2 | PROCESS 3 | PROCESS 4 | PROCESS 5 |
|---|---|---|---|---|---|
| | FUNCTION A | FUNCTION B | FUNCTION C | FUNCTION D | FUNCTION E |
| | 5 | 11 | 3 | 7 | 4 |
| | LT = 1 DAYS | LT = 0.5 DAYS | LT = 5 DAYS | LT = 2 DAYS | LT = 1 DAYS |
| | PT = 10 MINS | PT = 5 MINS | PT = 120 MINS | PT = 30 MINS | PT = 15 MINS |
| | %C&A = 50% | %C&A = 75% | %C&A = 85% | %C&A = 99% | %C&A = 95% |

1 ITEM

45 ITEMS

10 ITEMS

**Work in Progress**

TIMELINE

| 1 DAYS | 0.5 DAYS | 5 DAYS | 2 DAYS | 1 DAYS |
|---|---|---|---|---|
| 10 MINS | 5 MINS | 120 MINS | 30 MINS | 15 MINS |

**TOTAL LEAD TIME**

TOTAL LT = 9.5 DAYS
TOTAL PT = 180 MINS
ACTIVITY RATIO = 3.9%
ROLLED %C&A = 30%

**Total Lead Time, process time, ratio of time value added, and percent complete and accurate (measure of reliability)**

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# Process blocks
(usually a hand-off point)

**LEAD TIME (LT)**

Throughput time for the process. Time from the moment work is available in the queue until it is completed (Cycle time)

**PROCESS TIME (PT)**

Total time to actually perform the process (transform input to output for one unit of work)
Includes doing, read, think, meetings, etc.
Not include waiting, delays, interruptions

**PERCENT COMPLETE AND ACCURATE**

Quality. Ask downstream customer what percentage of the time they receive the work "usable as is", no corrections required, no missing information
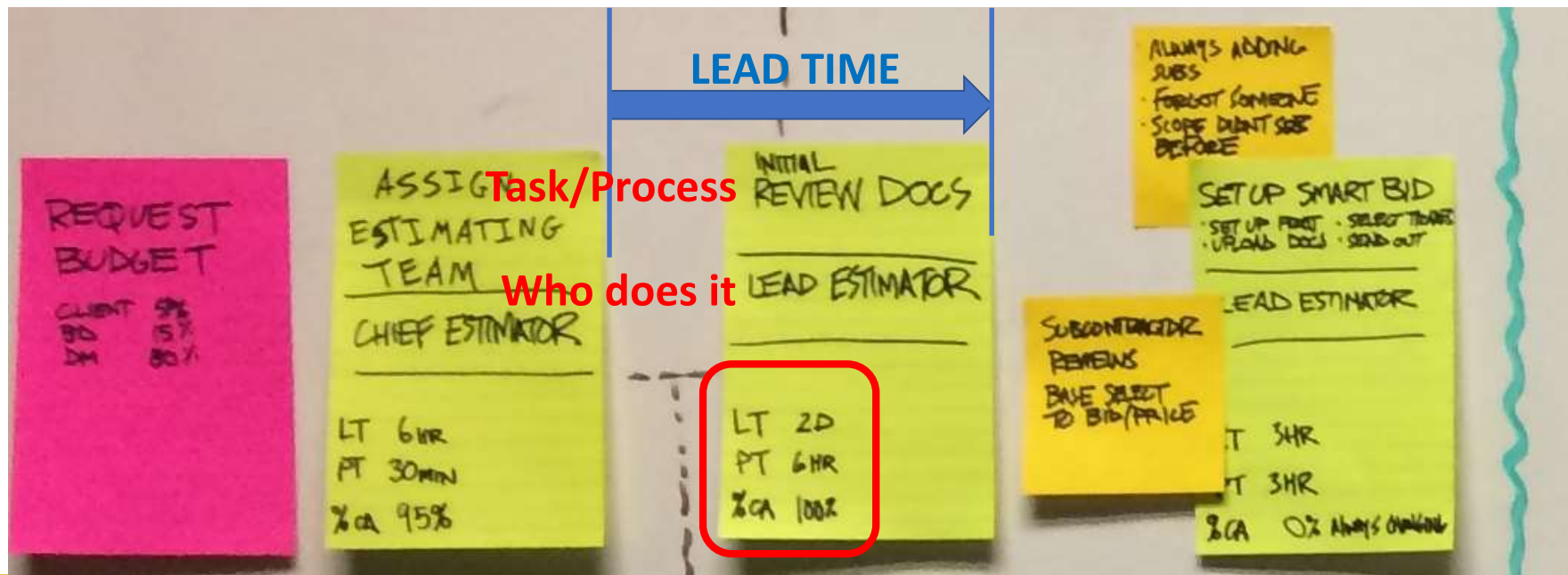
# Value Stream Improvement

| Prepare | Understand Current State | Design Future State | Develop Transformation Plan | Execute & Sustain Transformation |
|---|---|---|---|---|
| Several weeks prior to mapping | Three Consecutive Days | | | Weeks to Several Months |
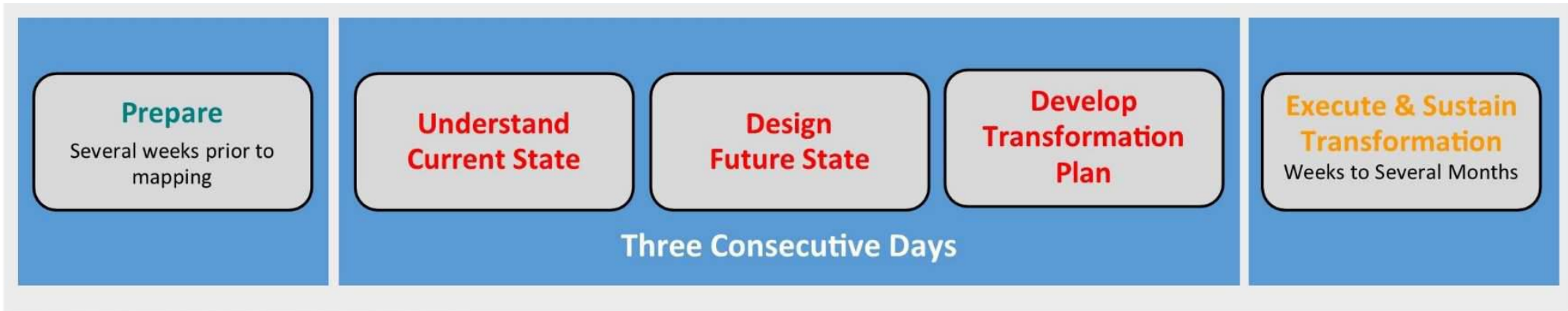
based on Value Stream Mapping by Karen Martin and Mike Osterling
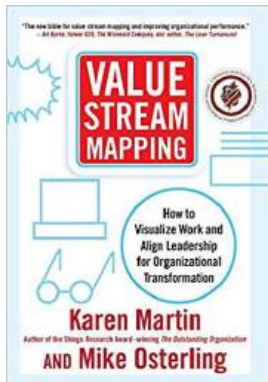
# VALUE STREAM MAP
## PREPARE



**Begin at least 4 weeks before mapping...**
- **Create the Charter**
- **Build leadership support**
- **Form the team**
- **Collect relevant data**
- **Socialize the Charter**

# VALUE STREAM MAP
## CURRENT STATE



VALUE STREAM IMPROVEMENT PROCESS
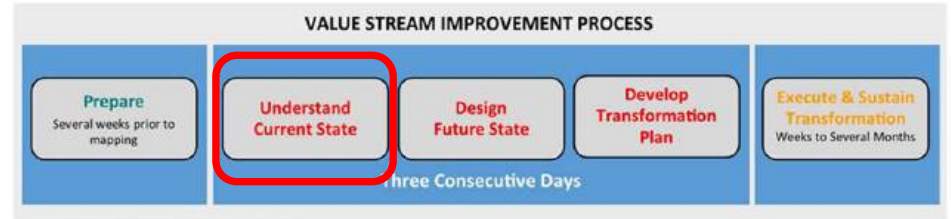
- Depict the value stream process blocks
  - Chunk the work (Focus on handoffs)
- Do not solve problems or jump to solutions. Focus on understanding.
- Walk the value stream together. Talk to those who do the work. Just observe, ask questions, listen.
- Calculate LT, PT, and %C&A (other observations can be added to a list)



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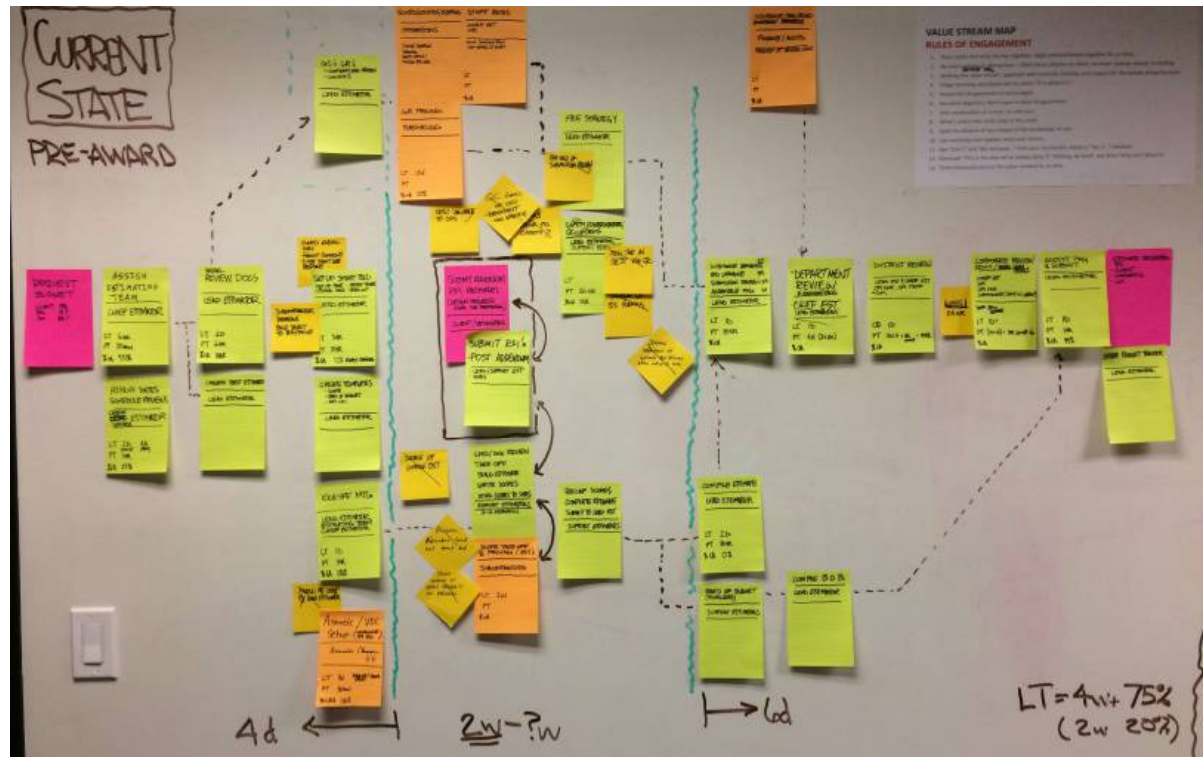
# VALUE STREAM MAP
## FUTURE STATE
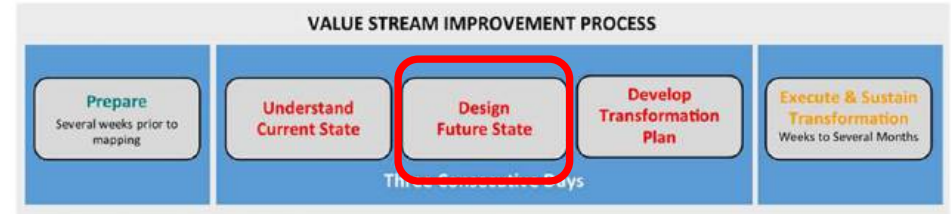


- **Determine what work should be done. Remove waste**
- **Use pull for right work, right sequence, at right time**
- **Make work flow**
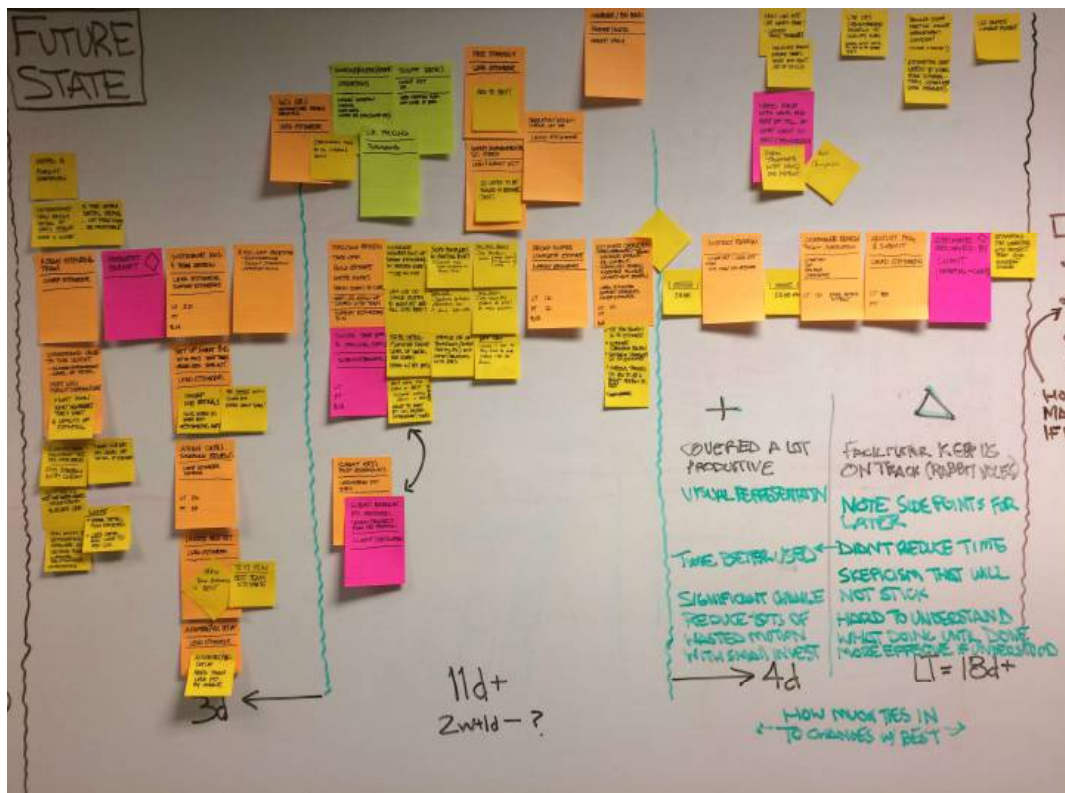
# See Flow
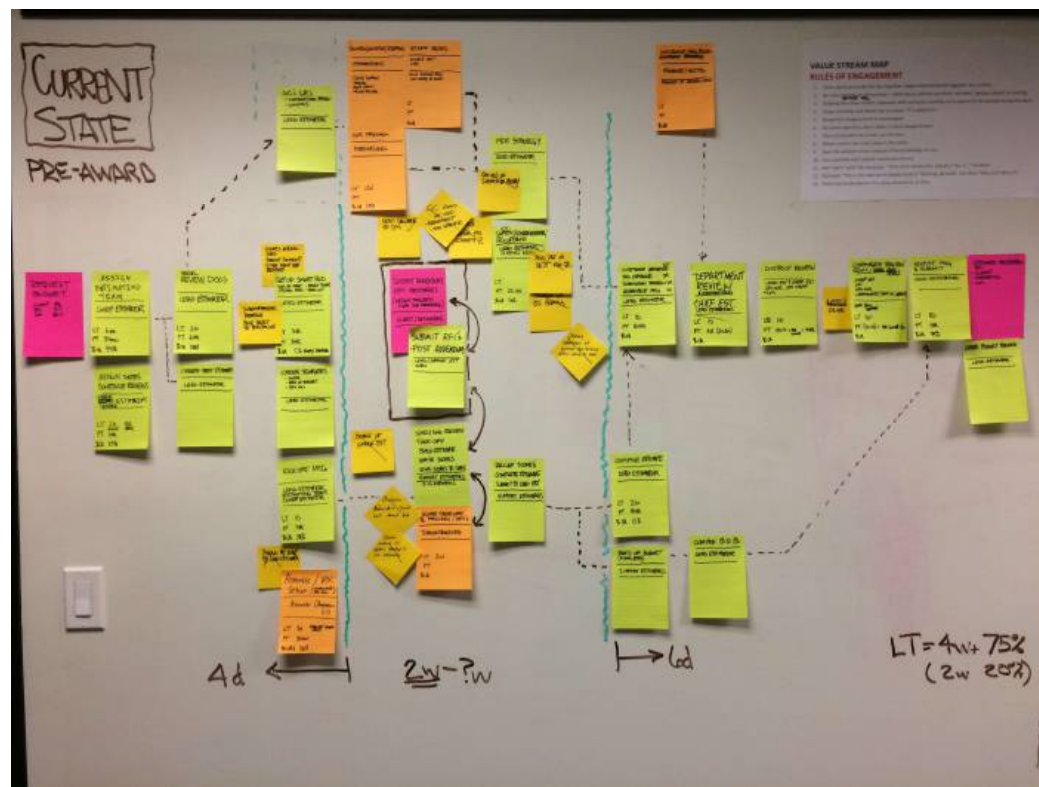
# VALUE STREAM MAP
# TRANSFORMATION PLAN

**Develop the transformation plan**
- **Just-do-its**
- **Kaizen Events**
- **Projects**



VALUE STREAM IMPROVEMENT PROCESS

| Prepare — Several weeks prior to mapping | Understand Current State | Design Future State | Develop Transformation Plan | Execute & Sustain Transformation — Weeks to Several Months |

Three Consecutive Days

based on Value Stream Mapping by Karen Martin and Mike Osterling
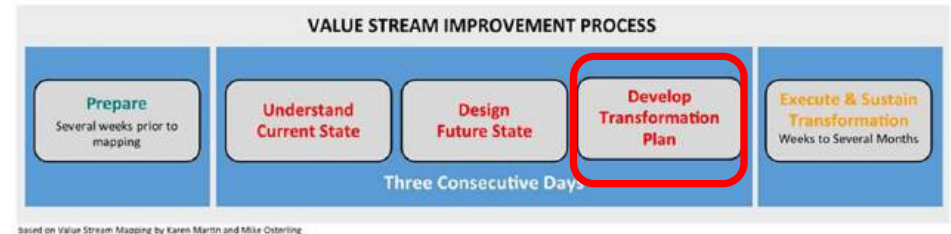


**Value Stream Transformation Plan**

| Value Stream | Outpatient Imaging | | Scheduled Review Dates | |
|---|---|---|---|---|
| Executive Sponsor | Allen Ward | | 1-Nov-13 | |
| Value Stream Champion | Paul Scanner | | 21-Nov-13 | |
| Value Stream Mapping Facilitator | Dave Parks | | 13-Dec-13 | |
| Date Created | 10/18/2012 | | 10-Jan-14 | |

| FS VSM Block # | Measurable Target | Proposed Countermeasure | Exec. Method* | Owner | Planned Timeline for Execution 1 2 3 4 5 6 7 8 9 10 11 12 | Status |
|---|---|---|---|---|---|---|
| 2 | Improve quality of referral to 85% | Implement standard work for referral process | KE | Sean Michaels | | 100% |
| 3,4 | Reduce lead time between scheduling and preregistration step to 45 minutes | Cross-train and co-locate work teams | PROJ | Dianne Marie | | 75% |
| 4 | Only one check in per patient | Collect copays in Imaging | KE | Ryan Austin | | 50% |
| 4 | Reduce wait time in waiting area by 50% | Balance work / level demand | KE | Dianne Marie | | 50% |
| 6 | Eliminate 6 hour lead time associated with transcription step | Implement voice recognition technology | PROJ | Dave Gerald | | 50% |
| 7 | Eliminate redundant data entry | Auto populate between PACS and Meditech | PROJ | Dave Gerald | | 25% |
| 5 | Visually managed inventory; no outages or expired items | 5S CT supplies area; implement kanban | KE | Michael O'Shea | | 100% |
| 6 | Reduce imaging LT to one hour | Assign value-stream specific radiologists | PROJ | Martha Allen | | 25% |
| 8 | Reduce report delivery LT to 30 minutes | Increase % of physicians receiving electronic delivery | PROJ | Martha Allen | | 0% |
| 7 | Reduce LT at image review to 1 day | Visual metrics and indicators | JDI | Dave Gerald | | 100% |

**Agreement**

| Executive Sponsor | Value Stream Champion | Value Stream Mapping Facilitator |
|---|---|---|
| Signature: | Signature: | Signature: |
| Date: | Date: | Date: |

* Execution Method = JDI (Just-do-it), KE (Kaizen Event), or Proj (Project)   v18   © 2014 The Karen Martin Group, Inc.

# VALUE STREAM MAP
## EXECUTE PLAN



VALUE STREAM IMPROVEMENT PROCESS

| Prepare | Understand Current State | Design Future State | Develop Transformation Plan | Execute & Sustain Transformation |

based on Value Stream Mapping by Karen Martin and Mike Osterling
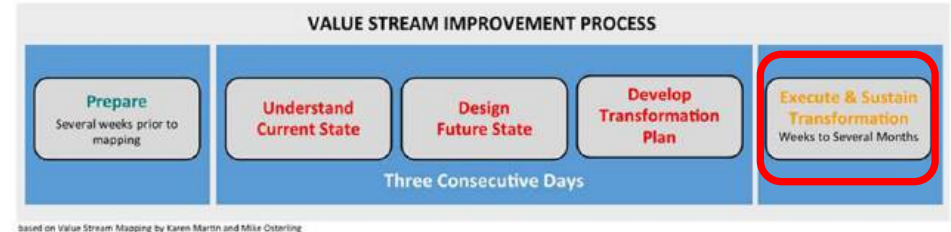
- Transformation will take place over weeks to several months
- Team meets regularly to review progress and course correct as needed
- Assign a value stream manager/champion. This is a permanent role
- Repeat the process regularly



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1. Develop **People** who apply *Lean thinking* to their daily work

2. Provide a **System** (or process) to support them

---

1. Design the best process you can

2. Document the process (Standard Work)

3. Continuously improve (Kaizen)



**Value Stream Maps and supporting processes become the standards to support those who do the work**

**Awareness/Clarity**

**Simple**

**Visual**

**Easy to understand**

**Someone responsible for the standard**

**Train to it, Use it**

**Improvements reflected in it**

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# Example of a standard process for Design-Build Proposals

**Organized by workflow, not by department**
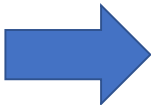
**Created as the result of value stream mapping and follow-up implementation**
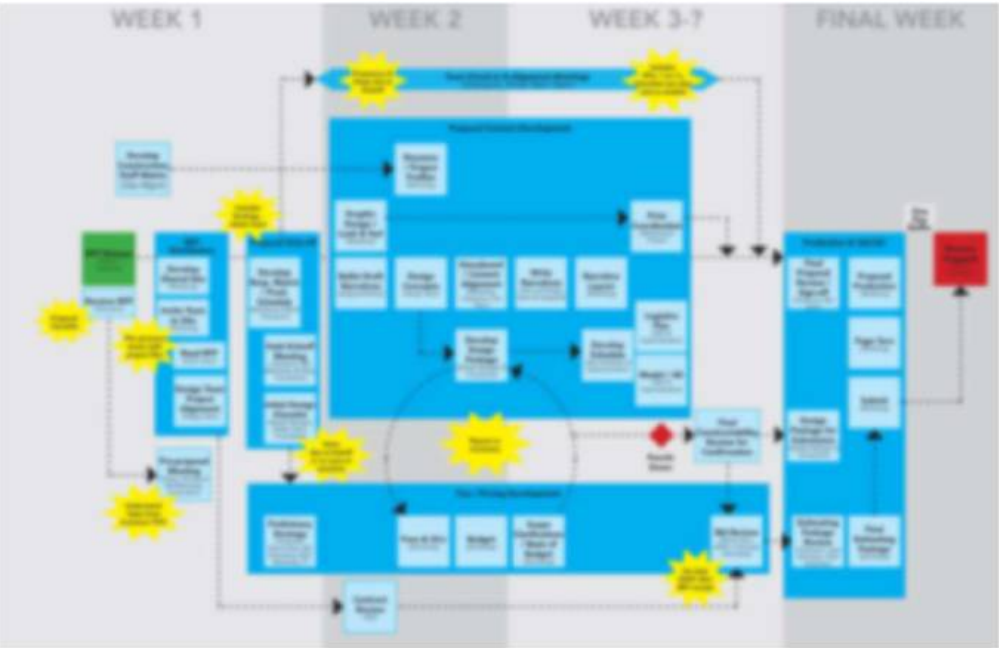


Note: Intentionally blurred

**There are many sub-processes, but this document is the basis for planning and executing DB proposals**

**There is a value-stream owner responsible that the process is understood and followed by the proposal team, starting with the assigned project manager**

# Example of a standard process for the Last Planner System

**Standard agendas for phase pull and weekly work planning**

**Standard tools**



**Answer to "Why?"**

**Standard process for schedule reviews, phase pulls, make ready, weekly planning, and daily huddles**

**Standard minimum milestones and phase pulls**

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# Example of a standard process for 5S

**Standard wording for subcontracts**

**"How to" on a project**

**Helpful tools to apply on project**

(This is for the team to use as an assessment tool, not a scorecard)



**Designed to help, not create a lot of rules**

**Basis for training**

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## Managing & Sustaining

| |
|---|
| **Patiently keep building** |
| **Grow Lean Leadership** |
| **Manage by Key Behaviors** |
| **Manage to value streams** |
| **Develop Lean Thinkers** |
| **Continuously improve** |

1. Develop **People** who apply *Lean thinking* to their daily work

2. Provide a **System** (or process) to support them

---

1. Design the best process you can

2. Document the process (Standard Work)

3. Continuously improve (Kaizen)



Standardization does not stifle improvement and innovation, it is the **basis** for improvement and innovation.

# What is continuous improvement?

A systematic ongoing effort to improve

Get better and better at moving the canoe down the river



## Continuous

Ongoing. Never ending. Always looking to improve and a process to do it.

## Improvement

The product
The planning
The production
The paddles
The people



*Lean thinkers* – Improve the flow of value and reduce the waste.

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# What is a continuous improvement mindset?

**My Job = Doing the Work**

**+ Improving the Work**



Worker

Worker

**Process**

...Everyone PDCA Every Day!

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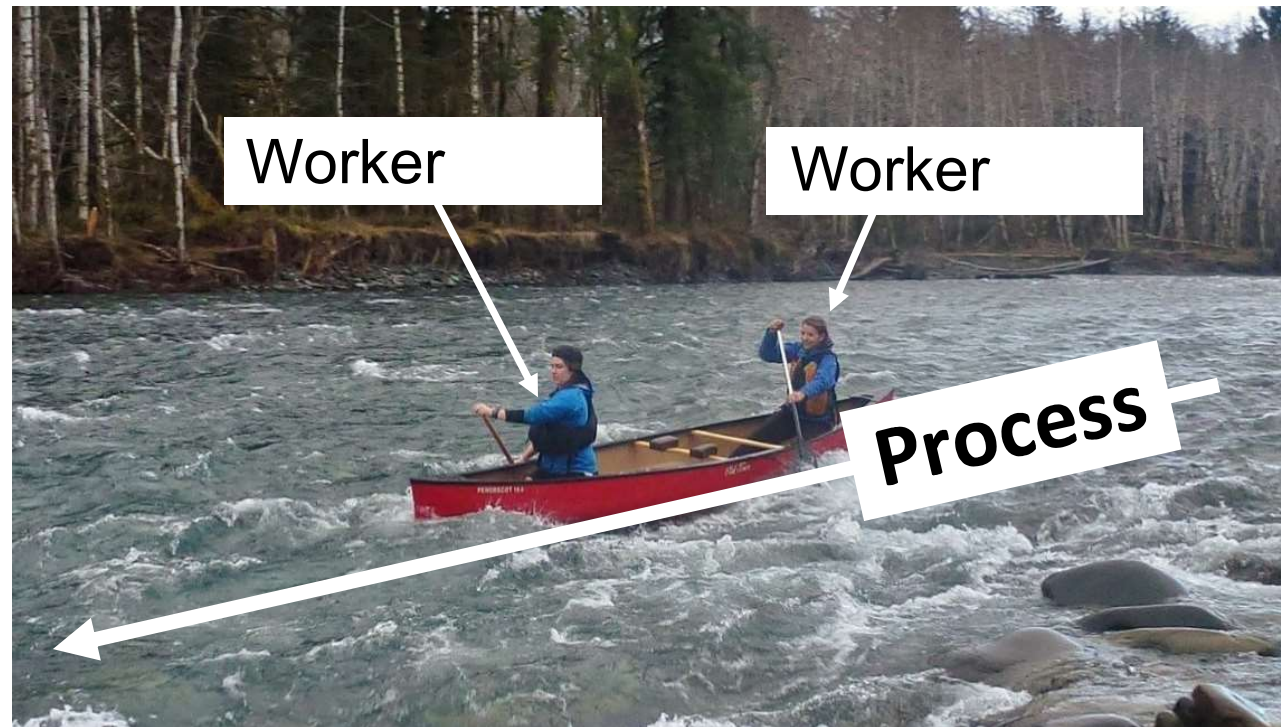
**5S is about SIMPLE.**

It is common sense and the discipline to follow through.

| SORT |
| --- |

| STRAIGHTEN |
| --- |

| SHINE |
| --- |

| STANDARDIZE |
| --- |

| SUSTAIN |
| --- |
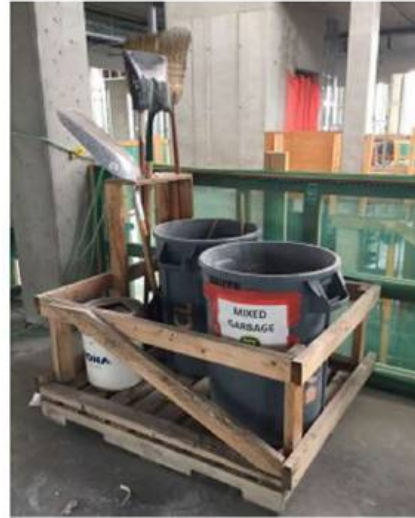


**Make it easy to stay clean**



**What is good? What can improve?**



**Which one "shines"?**

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# **5S** Virtual Assessment – SHT MTL & SHIPPING

# Why do we want to do this?

By chance? Or design?
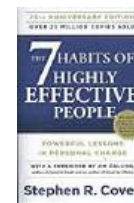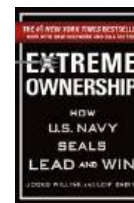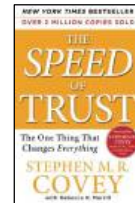
Which will get better results?



OR

# How do we get there from here?

1. Develop **People** who apply *Lean thinking* to their daily work – THAT INCLUDES YOU

**Consultant Training, Coaching and Facilitation**

"Train the people doing the work to spot problems and then utilize their knowledge and skills to help improve the work"

*– Steven Spear,*
*The High-Velocity Edge*

"Lean is a really, really different way of thinking"

# Managing & Sustaining – Key Takeways

- Leadership participation is required to sustain a culture of Lean thinkers.
- Set new targets for the lean program as you go.
- Never lose sight of your "North Star". Your competitive edge is the value you deliver and that you can do it better, faster and cheaper.
- Be a learning organization. Everyone is involved in improving flow of value every day. Keep investing in your people because people create value.
- Have a process for not only capturing, but implementing, improvements as standard work.
- Keep learning, continue learning, don't stop learning
- Have fun. Celebrate success. Everyone wants fulfillment beyond a paycheck.

| |
|---|
| **Patiently keep building** |
| **Grow Lean Leadership** |
| **Manage by Key Behaviors** |
| **Manage to value streams** |
| **Develop Lean Thinkers** |
| **Continuously improve** |

# Did the course meet your expectations?

## Contact Us

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Questions?



| ✚ | △ |
|---|---|
| **Plus:** What produced <u>value</u> during the session? | **Delta:** What could we <u>change to improve</u> the process or outcome? |

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In the spirit of continuous improvement, we would like to remind you to complete this session's survey! We look forward to receiving your feedback.

24TH LCI CONGRESS
OCTOBER 18-21

Thank you for attending this presentation. Enjoy the rest of the 24th Annual LCI Congress!

**David MacKay**

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