



Lean Construction Institute  
Immersive Education Program

# Kaizen: What, Why and How

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*“LCI would like to acknowledge and thank Brian Winningham, Field Driven Lean, and Annmarie Thurnquist, Jacobs, for their leadership, work and collaboration to create this workshop. Learning opportunities like this exist because people like Brian and Annmarie engage to create them.”*

-Kristin Hill,  
LCI, Director Education Programs

# Presenter Highlights



**Trevor Otto**  
Estimating Manager  
JE Dunn Construction



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Regional Lean Services Manager  
JE Dunn Construction

LCI Course:  
Kaizen Events – Why, What and How  
4 CEU

*Sign the sign-in sheet for credit*



# Learning Objectives



Understand the importance of incorporating Kaizen into daily team work to improve outcomes.



Understand how Value Stream Mapping, the 8 Wastes and Continuous Improvement integrate into a Kaizen Event.



Discover key steps for conducting a Kaizen Event with your team.



Be able to engage with a team conducting a Kaizen Event.

# Rules of Engagement



This is a safe zone



Use E.L.M.O.



Everyone has equal status



Silence phones



Speak up and share your ideas



Be focused and engaged



Actively listen to others



Stay on time



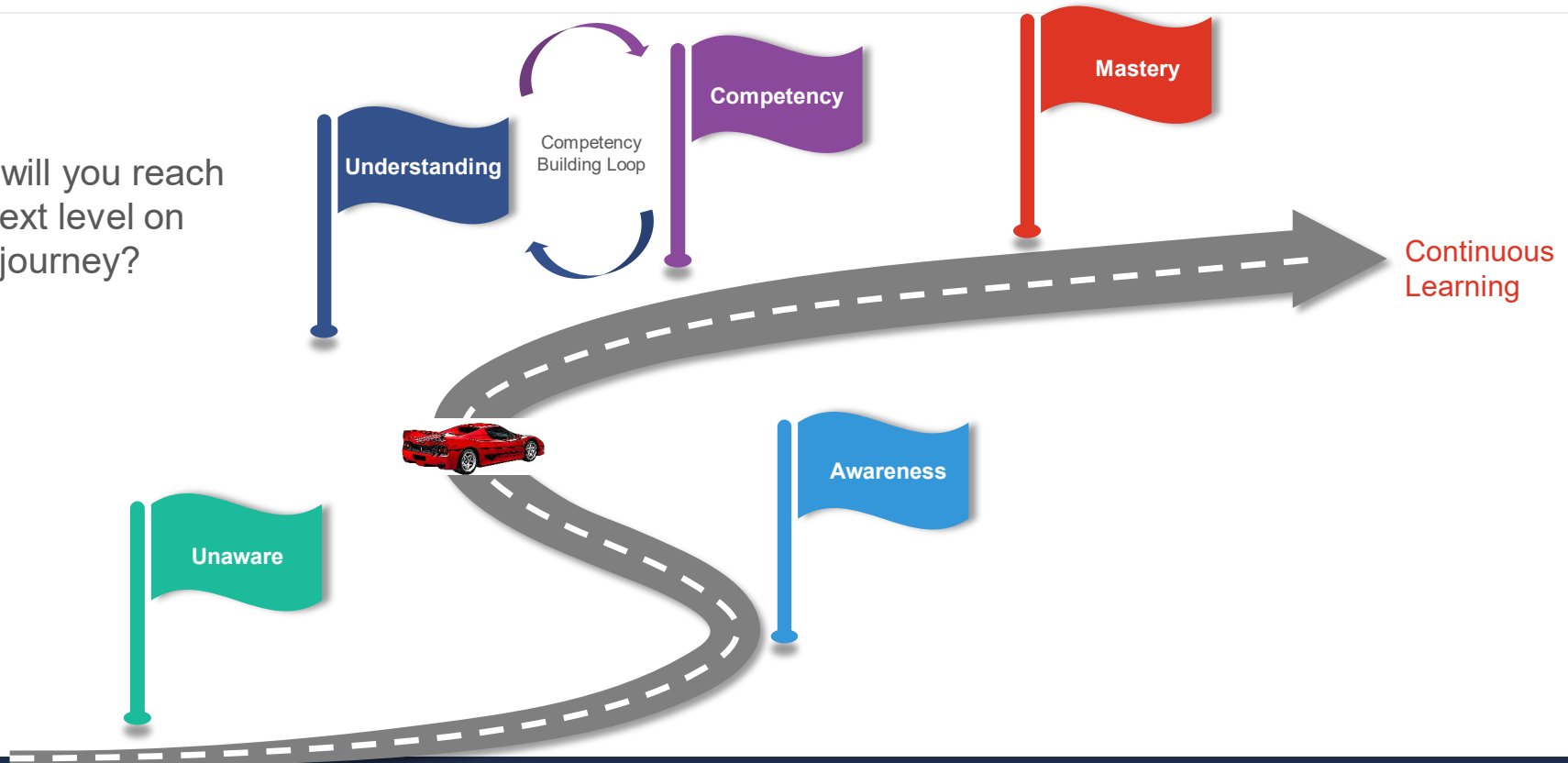
One conversation at a time



Have fun!

# Lean Journey to Mastery

How will you reach  
the next level on  
your journey?



# Introductions

Introduce yourself at your table:

- Name
- Company
- Role
- What was your favorite vacation as a kid?

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10 minutes



# Definitions

## Lean:

Culture of respect and continuous improvement aimed at creating more value for the customer while identifying and eliminating waste.

## Lean Project Delivery System:

An organized implementation of Lean Principles and Tools combined to allow a team to operate in unison to create flow.



# Six Tenets of Lean

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



# What: Kaizen Defined

*Kaizen (Continuous Improvement)* is a strategy....

- Employees at all levels of a company work together proactively to achieve regular, incremental *improvements* to processes.
- It combines the collective talents within a company to create a *powerful engine for improvement*.



# Kaizen

- Purpose is the long-term betterment of “something”
- Through a team approach
- Without large capital investments



Kaizen stresses the significance to the shop floor (actual workers) to continuous improvement

*Masaaki Imai, author of "Kaizen: Japanese spirit of improvement", founded the Kaizen Institute Consulting Group (KICG) in 1986 to help western companies to introduce the concepts, systems and tools of Kaizen.*

# Kai = Continuous Zen = Wisdom or Improvement

Small changes at all levels that lead to gradual modifications improving productivity

# What: Continuous Improvement

Lean thinking demands a *mindset of continuous improvement*.

This requires an environment where we can discuss what's not working well and find fixes.



# Discussion

How do companies or teams traditionally implement improvements?

What are the problems with these methods?

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10 minutes



## What: Kaizen Purpose

1. Problem solving to *return* a situation to standard.
2. Studying a process to *improve* on the standard.



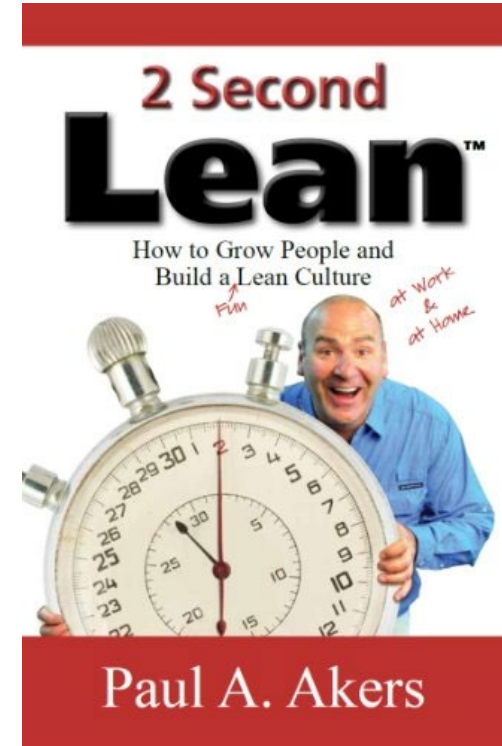
# What: Four Methodologies

1. Kaizen Teian – Bottom-up daily continuous improvement
2. Kaikaku (blitz) – Radical organizational change
3. Kakushin – Breakthrough innovative change
4. *Kaizen Events – Defined improvement event*



# What: Kaizen Bottom-up

- Daily improvements
- Actively involves all people in improving their own processes
- Drives a cultural transformation
- Requires everyone to think about improvement every day, everywhere
- Workers who are in the gemba are those more likely to identify real opportunities for improving the flow of their processes
- Paul Aaker's 2-second Lean continuous improvements



# What: Kaizen Event - “Blitz”

- Kaikaku
- Short term project to improve a specific procedure or process
- Intensive
- Usually one week
- 8 to 10 people



# What: Kakushin – Breakthrough innovation

- Means new + revolution
- Things that changes the status quo.
- Not just a big change, something new.

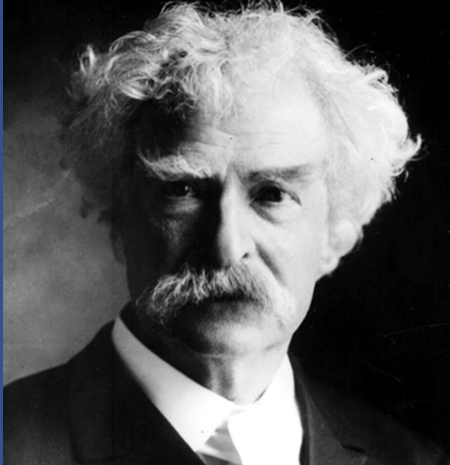


# What: Kaizen Event Defined Improvements

- Specific process improvement
- Focused improvement projects
- Typically involve Value Stream Map (VSM)
- Might last for several days or even weeks
- Lead to change in efficiency, quality or performance
- Must be aligned with broader operational goals



# Why:



*“Continuous improvement is better than delayed perfection.”*

~ Mark Twain

Resource: AZ Quotes



# Why:



*“Eighty-five percent of the reasons for failure are deficiencies in the systems and process rather than the employee. The role of management is to change the process rather than badgering individuals to do better.”*

~W. Edwards Deming

Resource: AZ Quotes

# Why:



*“Progress cannot be generated when we are satisfied with existing situations.”*

~Taiichi Ohno

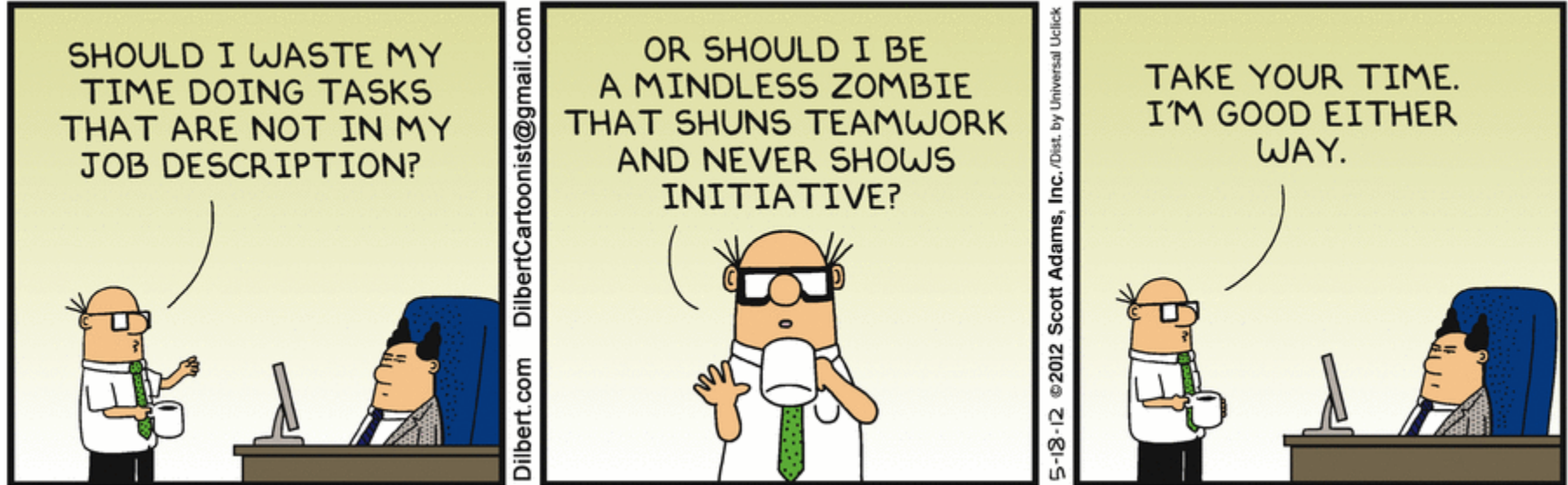
Resource: AZ Quotes

# Why: Benefits

- Immediate results by focusing on people & making small changes
- Improved product quality, communication, or competence
- Increased efficiency and productivity
- Decreased cost
- Reduced waste
- Employee satisfaction and teamwork
- Customer satisfaction



# Why: Exploring the Wastes

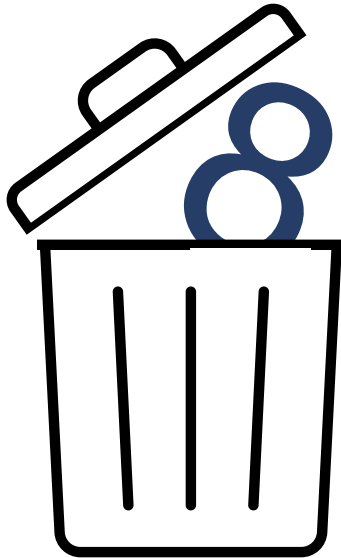


# Why: Waste Defined

Waste is any activity that requires time or resources but does *not create value* as defined by the customer.



# Identify the 8 Wastes



## Defects

Errors resulting in rework.



## Waiting

People waiting to perform work or work waiting for people.



## Overproduction

Producing more than is needed or before it is needed by the next customer in the process.



## Non-Utilized Talent

Not taking full advantage of a person's experience, knowledge, and creativity.

# Identify the 8 Wastes



**Defects**



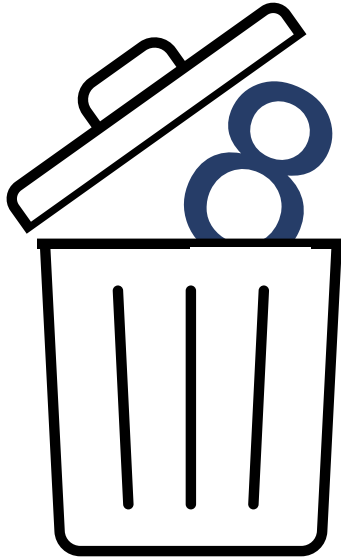
**Overproduction**



**Waiting**

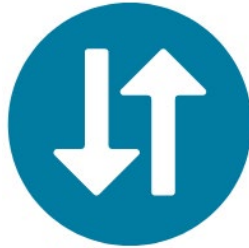


**Non-Utilized Talent**



## Transportation

Unnecessary movement of materials, equipment, information, and paperwork.



## Motion

Any unnecessary motion people perform during their work.



## Inventory

Having more material, information, tools, equipment, or work in progress than needed.



## Extra-Processing

Doing more work, extra steps, or higher quality than is needed by the customer.



# Identify the 8 Wastes



**D**efects



**O**verproduction



**W**aiting



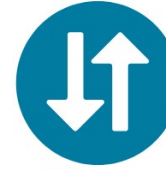
**N**on-Utilized Talent



**T**ransportation



**I**nventory



**M**otion



**E**xtra-Processing

# DOWN

# TIME

# Why: Gemba Waste Walk

Courtesy of KHS&S contractors



# Waste Walk Improvements



WASTE WALK BY  
KHS&S CONTRACTORS

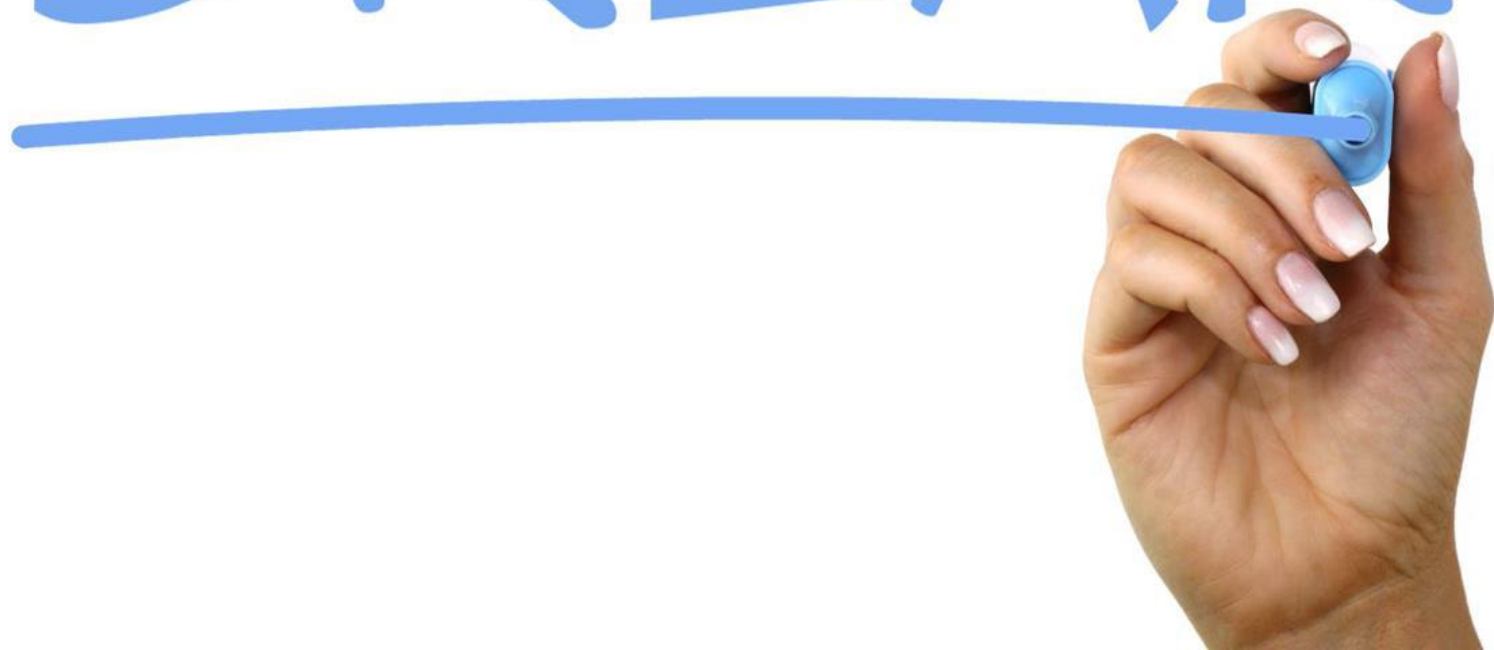
# Discussion

Identify examples of waste in design and construction



5 minutes

BREAK



## How: Kaizen Events

- Aim for *process improvement*
- Led by a *facilitator*
- Defined *roles* for team members
- Include members from all *stakeholder departments* including *management*
- Part of an *overall program* of continuous improvement to be successful
- Short duration project typically *3-5 days*



# Kaizen goals

1. Continuous improvement
2. Remove waste / non-value-add activities
3. Develop pull system / Kanban
4. Standardize work
5. Quality management



# How to achieve goals

1. Variation Reduction
2. 5S
3. Process oriented thinking
4. Employee involvement
5. Poka-yoke (error proofing)
6. Visual Factory
7. Value Stream Mapping
8. Suggestion Systems





# Variation Reduction

- Voice of the Customer defines needs or demands
- Quality metrics are determined for each product or service
- Process details are designed to meet the quality metrics



*There must be standards to have Kaizen!*

# 5S

5S could be an *actionable outcome* of a Kaizen event



# Process Oriented thinking

- Is in opposition to “results-oriented” thinking
- Analyze the process to determine the causes of problems and successes
- Fix the process and people will succeed in their work



# Employee Involvement

- 10 people's ideas are better than one
- Increased employee empowerment
- Delegate responsibility to workers



# Poka-Yoke – Error Proofing

- Utilizes a cause-and-effect analysis
- Type 1 – eliminate process from occurring (process control)
- Type 2 – detection application (stop the line)
  - Andon cord



# Visual Factory

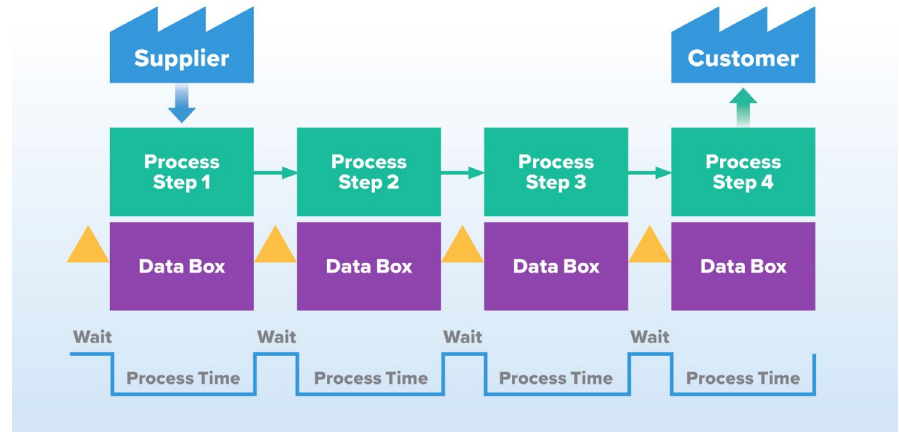
- How information is communicated in a lean environment
  - Establish information to be conveyed
  - Current vs Future state
  - Show the way things are done



# Value Stream Mapping

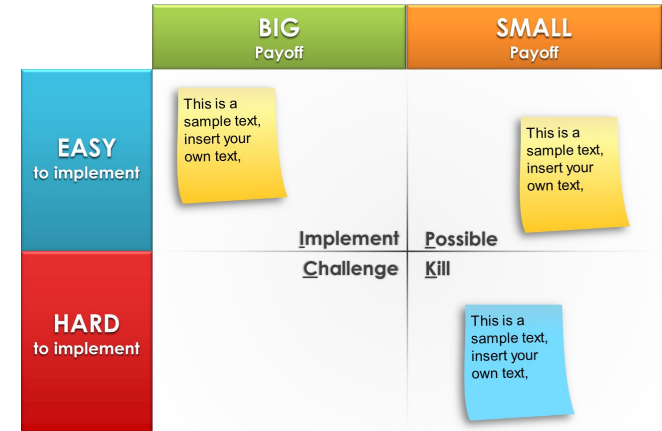
- Current state is mapped
- Identify and eliminate waste
- Provide process map for the future state

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



# Quick & Easy Kaizen Boards

- Management support must be clear, quick, and consistent
- Program structure should have a single administrator with a team of employees from all areas to review
- Visibility of the program must be consistent from rollout to implementation
- Recognition and rewards should include thanks for participating and notification within a month whether the idea is adopted

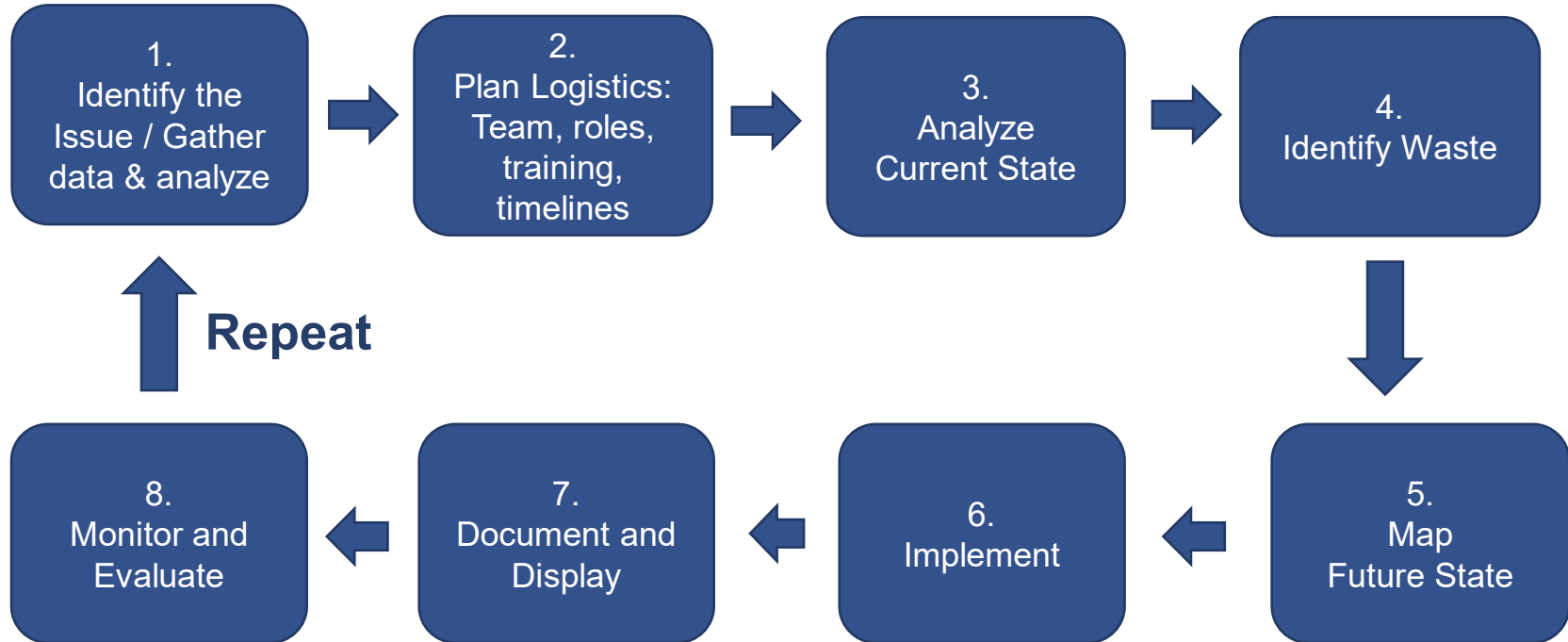




# The Process

1. Problem statement
  1. Determine the issue to be resolved or area for improvement
  2. Define roles and responsibilities
2. Objective
  1. Choose an aim (zero defects; reduce cost; increase profits)
3. Baseline or metric
  1. Analysis of variance
  2. Control charts
  3. Time studies

# How: Kaizen Flow



# 1. Identify the Issue

- Determine the *process* to improve
- Gather data
- Analyze



# Activity: 1. Identify the Process

Identify a process to improve from the list:

1. Typical change order process
2. Typical RFI process
3. Typical trip from home to LCI Congress (flying)
4. Other

---

5 minute discussion

## 2. Plan Logistics

- Appoint a skilled *facilitator*
- Ensure *leadership* is engaged
- Set the *scope and limits* of the event
- Assemble the *stakeholder team*
- *Assign* roles and responsibilities
- Define success or CoS
- *Train* as necessary
- Create the event *timeline*
- Plan the *space* for the event





Stakeholder

Timeline

CoS

Facilitator

Leadership

Stakeholder

Stakeholder

Kaizen Events



## Activity: 2. Plan Logistics

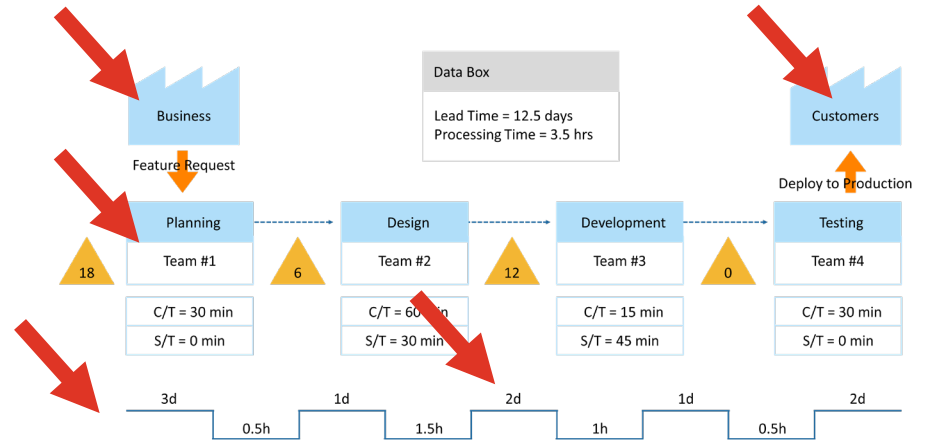
- Appoint a *facilitator*
- How would you ensure *leadership* is engaged?
- Determine *stakeholder team* and *assign roles* to play
  - Set the *scope and limits* of the event

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5 minute discussion

### 3. Analyze the Current State

- Determine the scope of the process
- Observe the process and gather data (Gemba)
- Create start and end points
- Identify the steps of the process
- Add timing and other data for each step
- Identify inefficiencies

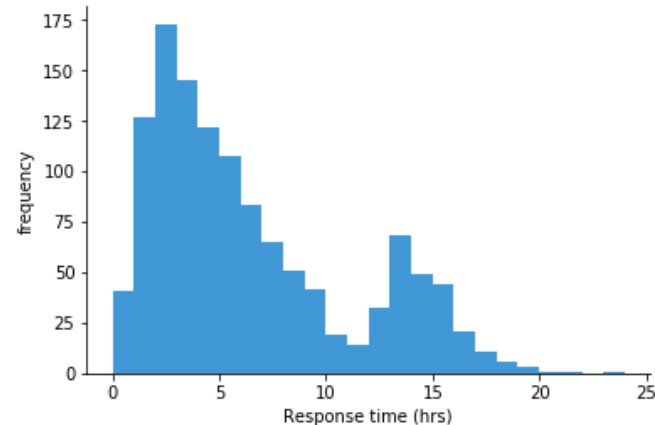




# Tools to understand the Current State

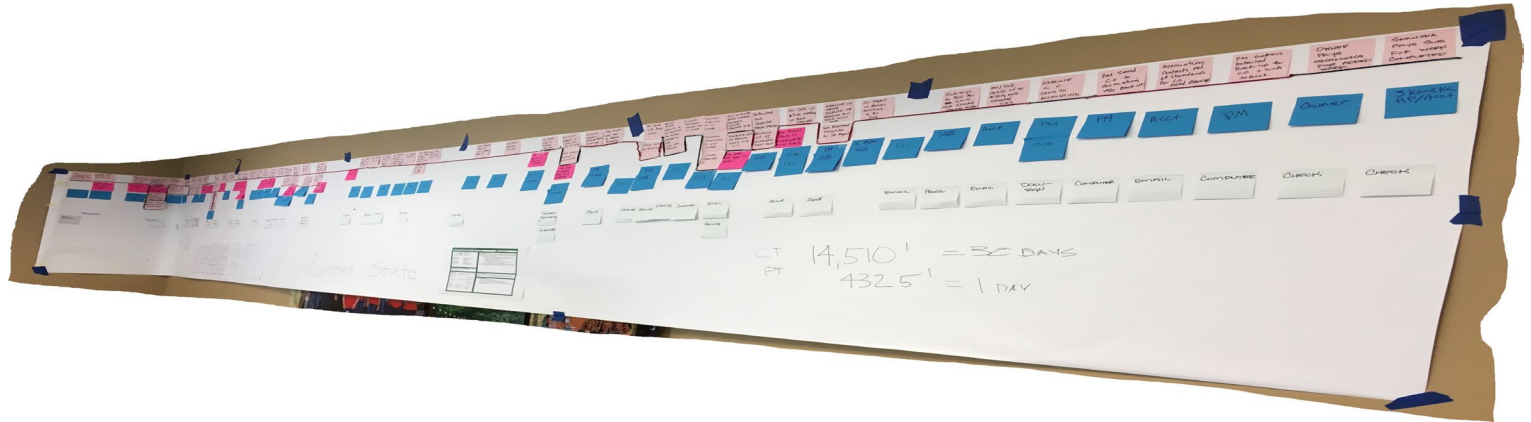
Need a statistical / quantitative study on which to base improvements

- Affinity Diagrams
- Tree Diagrams
- Interrelationship Diagrams
- Matrix Diagrams
- Prioritization matrices
- 5 Why
- Process Decision program charts
- Arrow Diagrams / CPM scheduling



# How: Value Stream Map

- VSM is a visual map of material and information
- Method for analyzing the current state and designing a future state for the series of events that take a product or service from the beginning of the specific process until it reaches the customer.



## Activity: 3. Analyze the Current State

Using post-it notes layout a typical current state for your process.

Discuss what other tools you would use to analyze your process.

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20 minute discussion

# Identify the Waste



**D**efects



**O**verproduction



**W**aiting



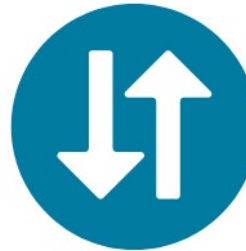
**N**on-Utilized Talent



**T**ransportation



**I**nventory



**M**otion



**E**xtra-Processing

## Activity: 4. Identify the Waste

Identify the waste in the process



10 minute discussion

## 5. Map the Future State

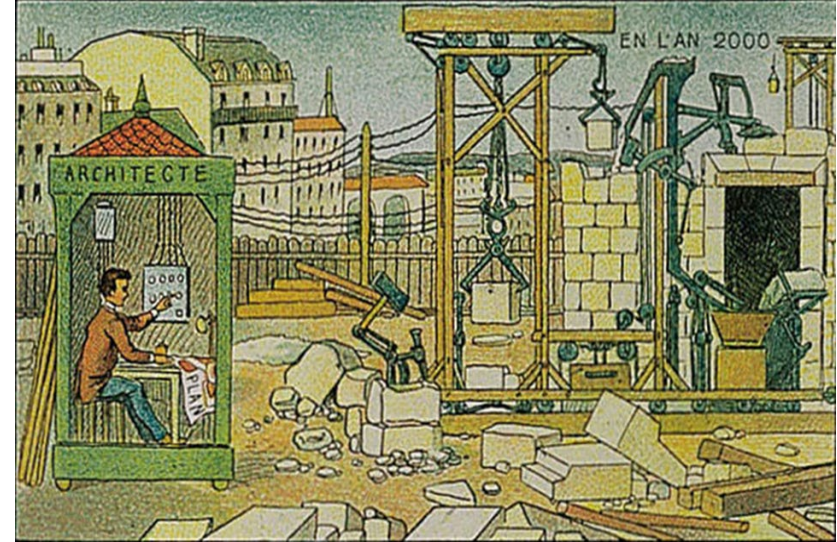
Map the new process with:

- Waste removed
- Non-value added but necessary processes minimized
- Stop-the-line features included to ensure quality
- Agility to make future improvements



# How: Create the Future State

- No restrictions!
- Imagine what could be...
- Open yourself up to change.
- Is it or could it be possible?
- **Instead of asking why? Ask why not?**
- Map it!





# How: Current State Map

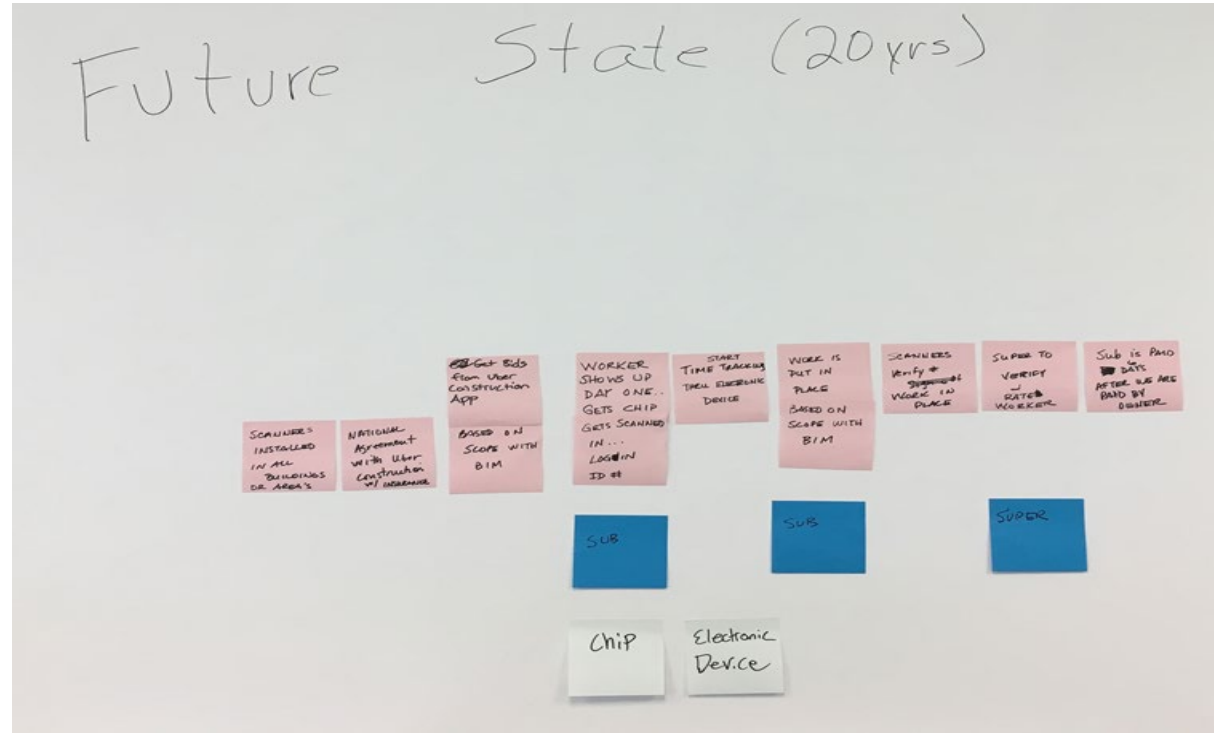
From this...





# How: Future State Map

To this...



# Activity: 5. Map the Future State

Map your future state

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15 minute discussion

## 6. Implement

Rollout the new process!

Plan for

- Training
- Work decrease during the Kaizen event
- Work stoppage if radical change is needed

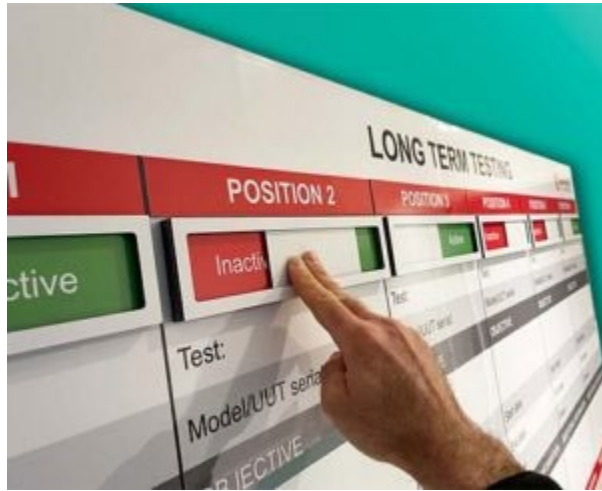
Enable employee participation

- Set up a suggestion system
- Provide forum for questions
- Create a follow-up system to address issues that arise during / as a result of the changes.



## 7. Document and Display

- Where everyone can see
- For future reference
- To instill a habit of self-inspection



## 8. Monitor and Evaluate

- Establish process metrics
- Visually track progress



# Repeat

Work towards an *Ideal State Map*:

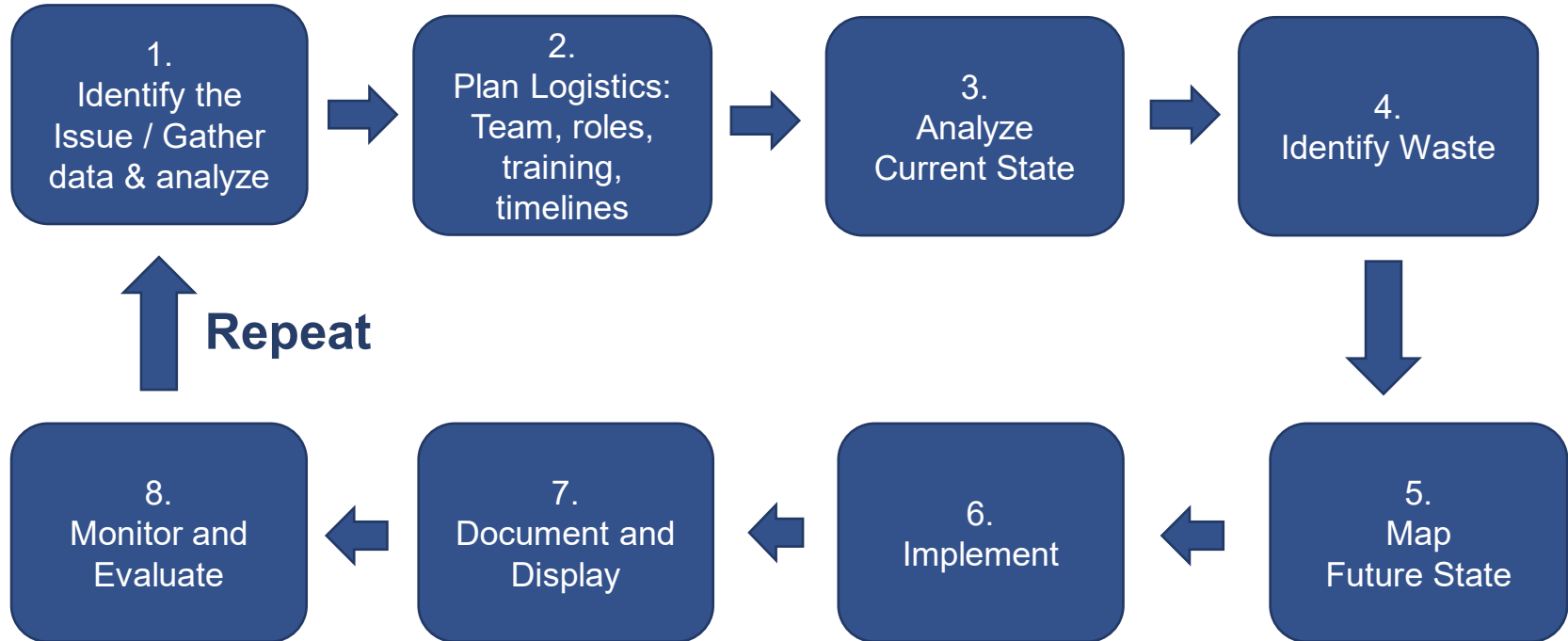
How would you setup the process from scratch?

- No boundaries
- All the money needed
- All the people needed
- All the resources wanted

Think *outside the box* time  
Future State becomes  
more *transformational*



# How: Kaizen Flow

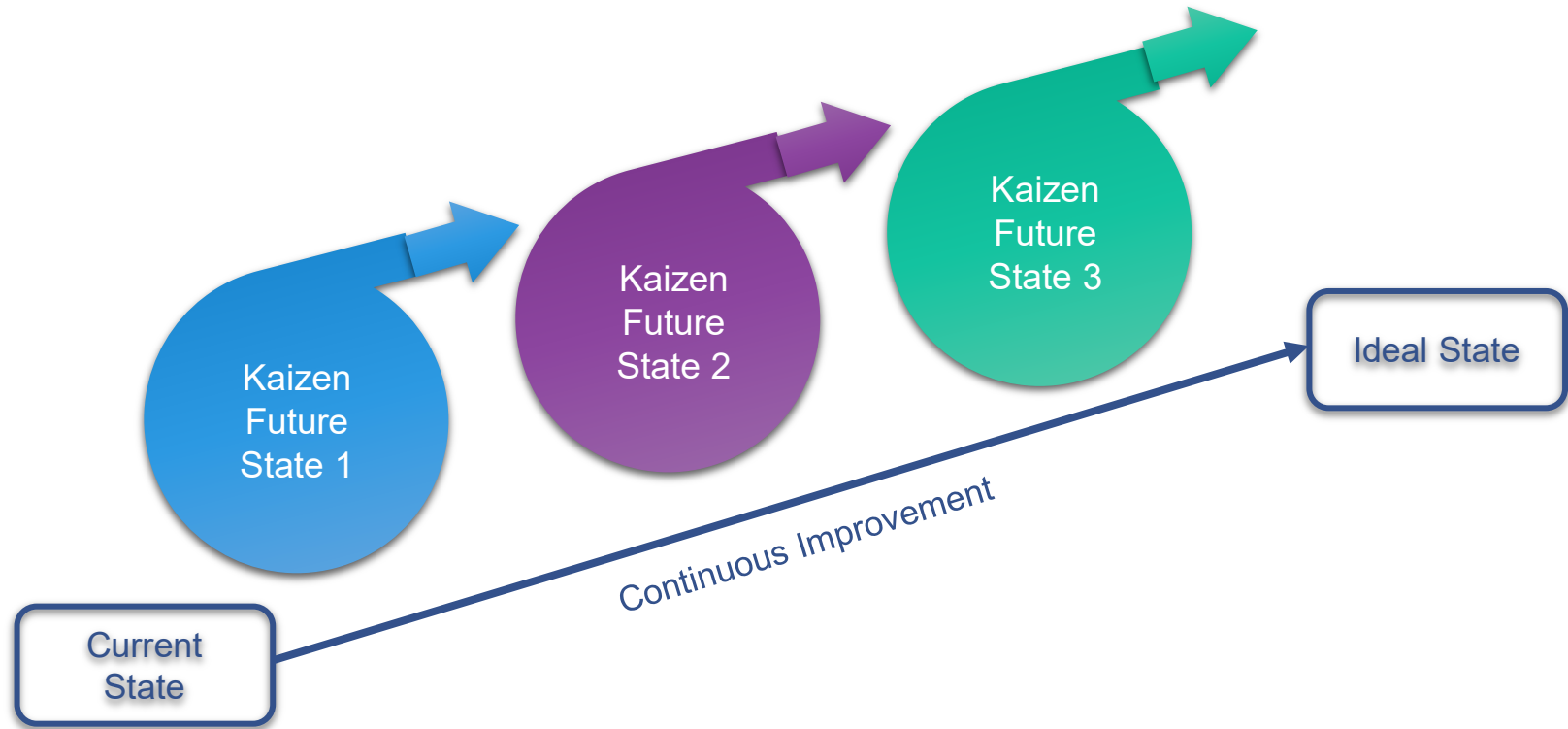


# The Canons of Kaizen

1. Contemplate, debate, analyze the process.
2. Focus on whole goal, not short term
3. Review current strategies to correct system flaws
4. Focus on people resources
5. Don't spend a lot of money
6. Make changes as soon as errors are found
7. Welcome suggestions from everyone
8. Improvement is the end all
9. Challenge conventional methods and thinking
10. Make sensible decisions



# How: Kaizen Cycles



# Keys to success

- Kaizen improvements should never be used to downsize the workforce
- Workers should receive wage increases and be cross-trained as a result of Kaizen



# Making it work

- Provide the required infrastructure
- Provide recognition – awards, incentives
- Monitor quality initiatives



# Kaizen: A Deeper Meaning

- Kaizen becomes a *learning process* not an *improvement process*
- Kaizen becomes a *people improvement system* not a *process improvement system*



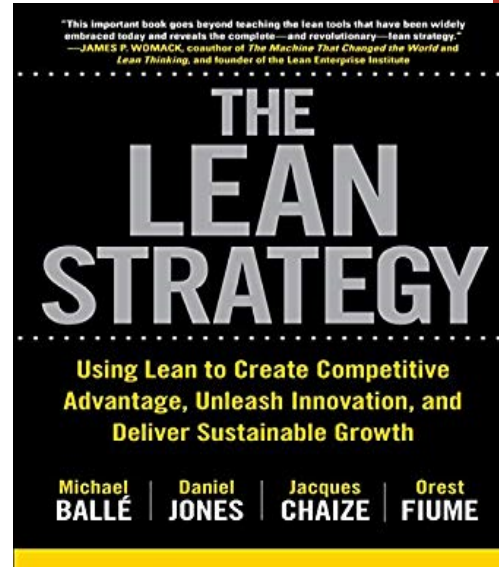
# Discussion Question



**What new actions or ideas will you implement?**

# Learning Resources

Resources used in the development of this course include:

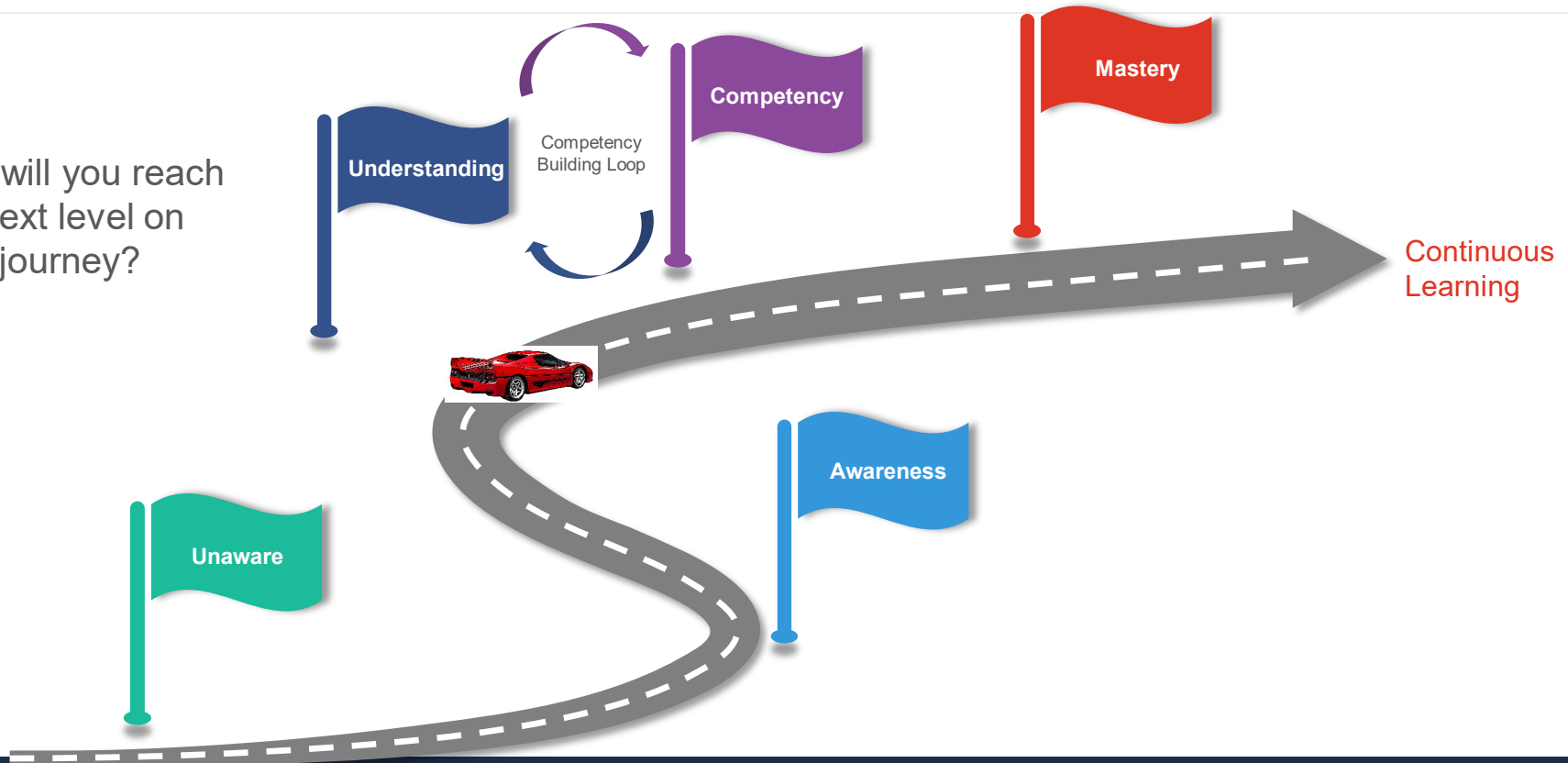


# Learning Objectives

- ✓ 1. Understand the importance of incorporating Kaizen into daily work.
- ✓ 2. Understand how Value Stream Mapping, the 8 Wastes and Continuous Improvement integrate into a Kaizen event.
- ✓ 3. Understand the steps to conducting a Kaizen event or workshop.
- ✓ 4. Be able to engage with a team in a Kaizen workshop

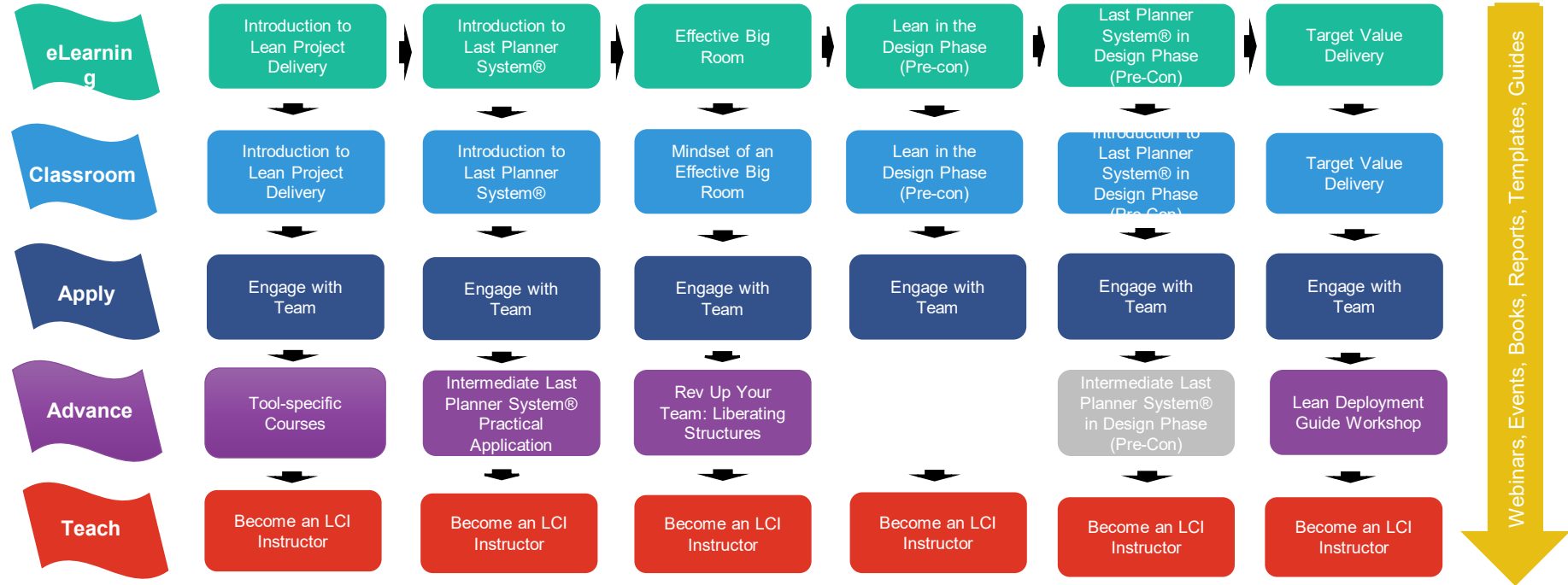
# Lean Journey to Mastery

How will you reach  
the next level on  
your journey?





# Define Your Journey



# LCI Certification





<https://leanconstruction.org/lean-certification/>



# Questions?



# Conduct Plus/Delta

 Plus: What produced *value* during the session?

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

# Presenter Contact Information



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# LCI Website Information



[www.LeanConstruction.org](http://www.LeanConstruction.org)

