CONSTRUCTION BUSINESS OWNER WEBINAR

WHAT DOES LEAN REALLY MEAN?

Understanding lean construction & creating a plan for more profit

Presented by
Eddie Martinez
Corporate Safety Director, MCM

Sponsored by

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OUR SPEAKER

Eddie Martinez

Corporate Safety Director, MCM

Eddie Martinez is an executive at MCM, one of the fastest growing construction companies in South Florida. MCM is currently participating on a lean construction project in Miami, Florida. Martinez holds a bachelor's degree in construction management from Florida International University and has more than 20 years of experience in construction.

Overview

+ Introduction
+ What “lean” means in construction
+ History of lean
+ The benefits of lean construction for your business
+ Lean construction principles you can apply
+ 45-minute presentation with 15 minutes for Q&A

Introduction

- Eddie Martinez
- 20 years in the construction industry
- Director of a construction company
- Degree in Construction Management
- A passion for learning and helping others

What Does Lean Really Mean?

+ Lean construction is a set of principles and tools to facilitate planning and control, **maximize value, and minimize waste** throughout the construction process.

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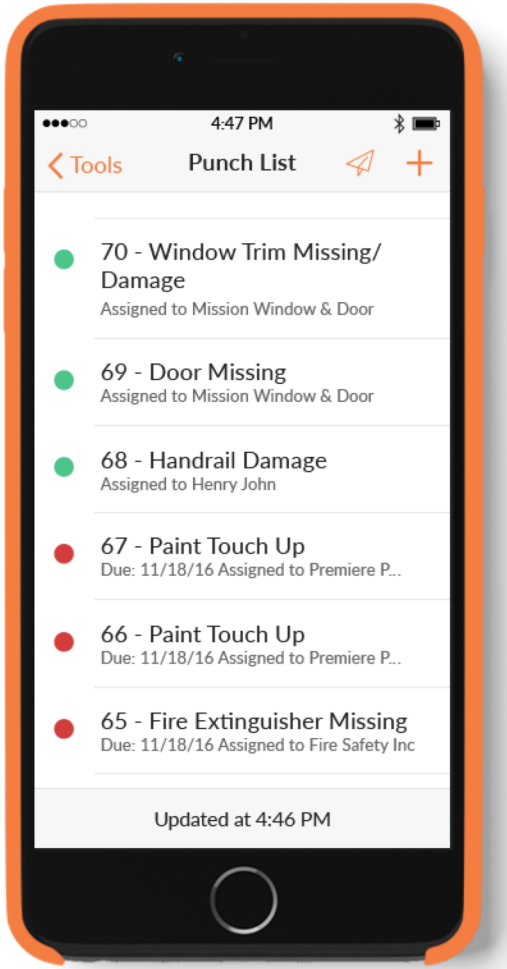
Why Lean?

+ The Lean Construction Principles help your project run efficiently and provide control measures which help limit the following:

  > Schedule delays
  > Poor quality
  > Claims
  > Change orders

What If…

- + Greatly reduce or eliminate
  - > Change orders
  - > Schedule delays
  - > Claims
- + Improve predictability
  - > Delivery date
  - > Final cost
- + Improve safety and quality



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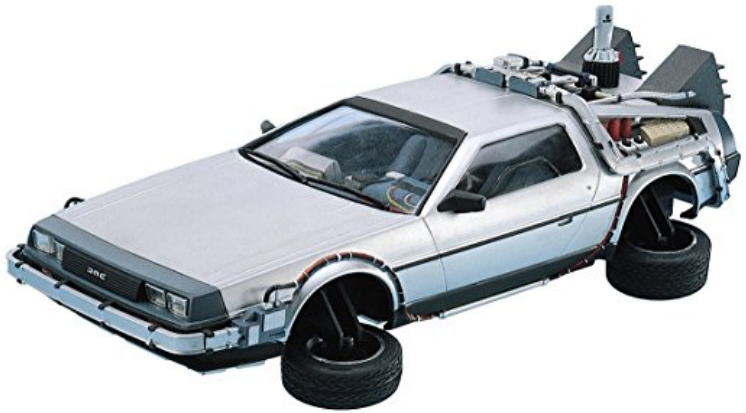
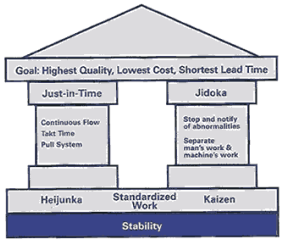
The Lean Time Machine



The History of Lean



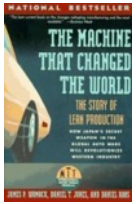
Toyota Production System "House"

Taiichi Ohno —
Father of the Toyota
Production System

- Just-In-Time (JIT)
- Continuous Improvement
- Respect for People
- 7 Types of Waste
- 5S Program

Total Quality Management
(TQM)
Theory of Constraints
(TOC)

U.S. Auto Industry
Awoken To
LEAN Manufacturing



1950 1955 1960 1965 1970 1975 1980 1985 1990

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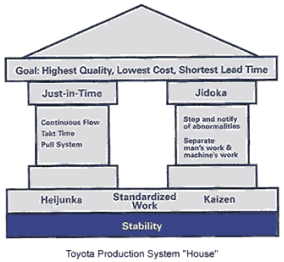
Why Lean?

- Taiichi Ohno — Father of the Toyota Production System
  - Just-In-Time (JIT)
  - Continuous Improvement
  - Respect for people
  - 7 types of waste
  - 5S program

Some Lean History



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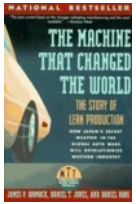

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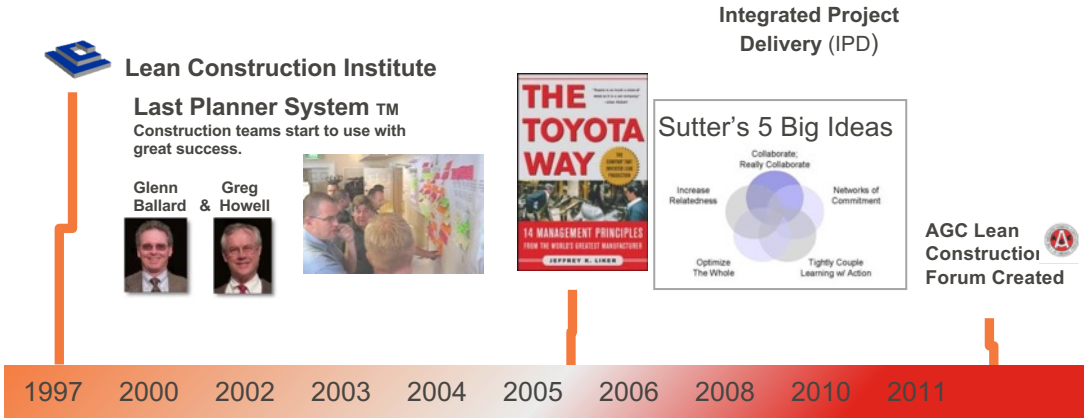
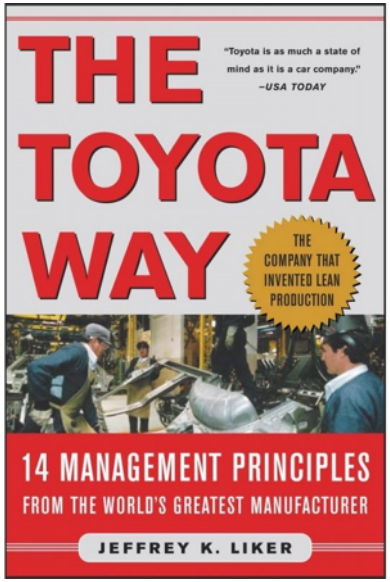
History of Lean (Continued)



The Toyota Way



+ Started in 1920s building looms, then cars in the 1940s
+ Describes the Toyota Production System (TPS)– Taiich Ohno
+ Part of business philosophy known as the “Toyota Way”
+ Uses various tools to support TPS
+ Based on the14 management principles

The Toyota Way

RESPECT FOR PEOPLE		CONTINUOUS IMPROVEMENT		
Respect	**Teamwork**	**Challenge**	**Kaizen**	**Genchi Genbutsu**
• Respect others • Make every effort to understand each other • Take responsibility • Do our best to build mutual trust	• Stimulate personal and professional growth • Share opportunities for development • Maximize team and individual performance	Long term vision to meet challenges with courage and creativity to realize our dreams	Improve business operations all the time by always trying for innovation and evolution	Go to the source to find the facts to make correct decisions and build consensus and trust

The Toyota Way - Highlights

+ Stop the process immediately
+ Note: If you would like to get this book for FREE, please send me a message

The Toyota Way Philosophy

- Very different Mission Statement:
  - Honor with fair and open corporate activities
  - Respect other cultures and contribute to social & economic activities
  - Dedication to clean and safe products that enhance the quality of life
  - Creativity to develop new technology & products to fulfill the needs of the customer
  - Foster a culture to support teamwork and trust
  - Pursue growth and harmony
  - Work to develop long-term partnerships

14 Management Principles

1. Base decisions on long-term goals
2. Create continuous flow process
3. Use “pull” system to avoid overproduction
4. Level out the workload
5. Build culture to stop and fix problems
6. Standardize tasks
7. Use visual controls

14 Management Principles

8. Use only reliable & tested technology
9. Grow leaders within the company
10. Develop exceptional people
11. Respect your suppliers & partners
12. Go see for yourself
13. Make decisions slowly & by consensus
14. Become a learning organization

What is Lean Construction?

Lean Construction is Philosophy and Practice:

- Derived from the Toyota Production System
- Focuses on elimination of waste, continuous improvement, and customer value
- Can be incorporated using any contracting method
- Internal to a project and/or a company
- Requires a change in culture

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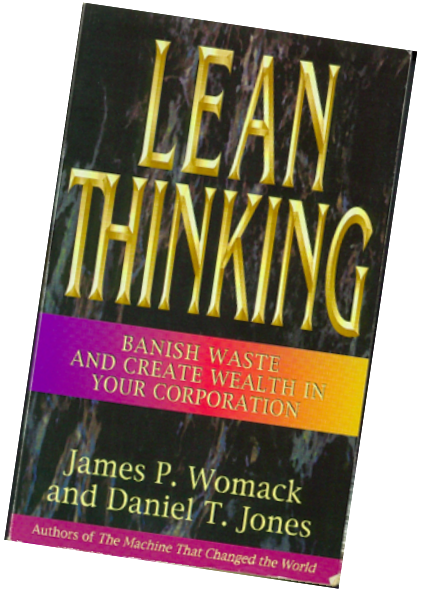
The Construction Project Team

Lean Thinking



“The actual amount of time needed to progress from contract to completion for the typical home, if all of the relevant skills and materials were marshalled in the proper sequence, could be reduced from 6 months to 15 days using current construction techniques.”

- Womack & Jones 1996

What is Lean Thinking?

1. Understand VALUE from the customer's perspective
2. Understand the VALUE STREAM – *All* steps in the process
3. Create FLOW by reducing waste
4. Use the principle of PULL
5. Endlessly pursue PERFECTION

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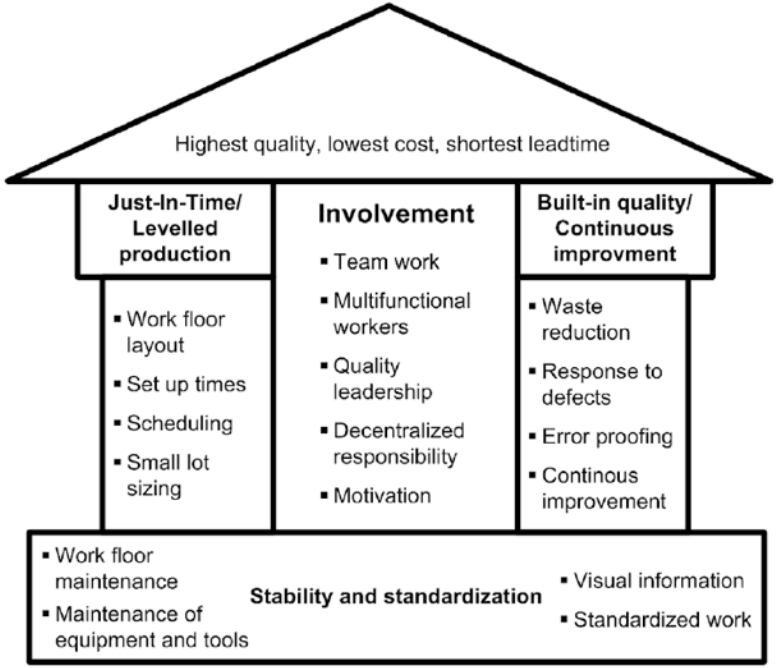
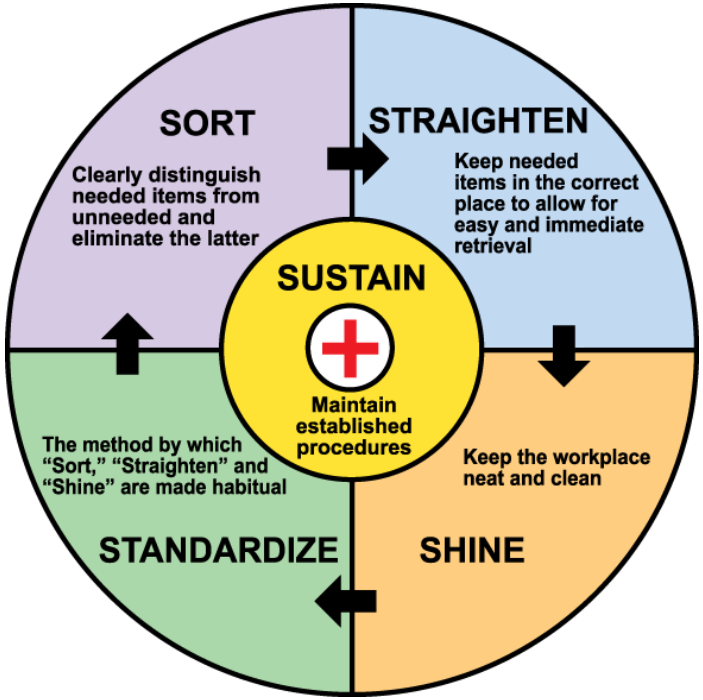
The Lean Model



The 5S – The Five Pillars



The 5S - Construction

A clean, well-organized and safe work environment is, of course, an efficient and productive work environment.

- Everything On Wheels
- Nothing Hits the Ground
- Subcontractor Laydown Areas
- Continuous Cleaning
- Sustaining the Plan

What Do You See?

- When you look at a construction project, an office, a fabrication shop…what do you see?
- Lots of people busy working
- Busy at what?
- Activity = work + waste

The 3 Elements of a Day

Value Adding

Something changes to get closer to what the customer wants

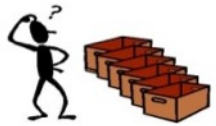
Support Activity

Something we currently have to do but does not in itself add value for the customer

Waste

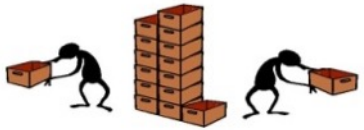
Transport
Inventory
Motion
Waiting
Over Process
Over Production
Defects

What Is Waste?



1. Overproduction

2. Waiting



3. Inventory

4. Movement

5. Effort

6. Rework of Errors

7. Processing

Under-utilized Talent

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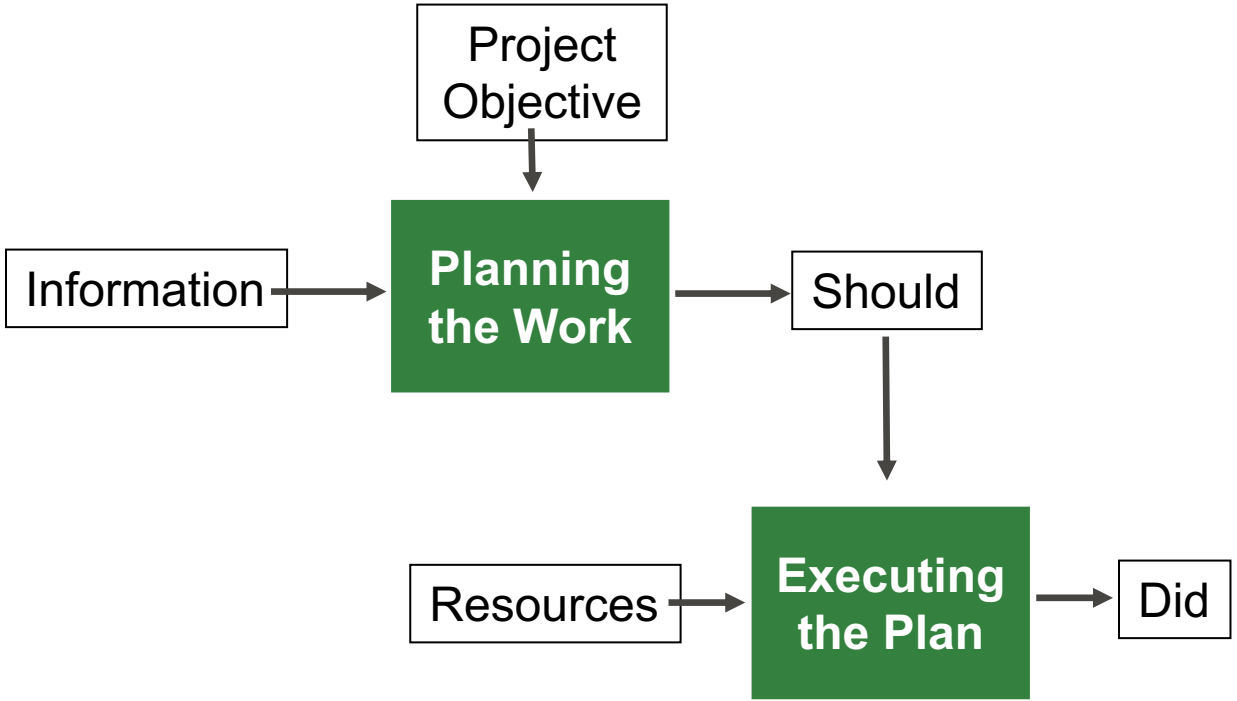
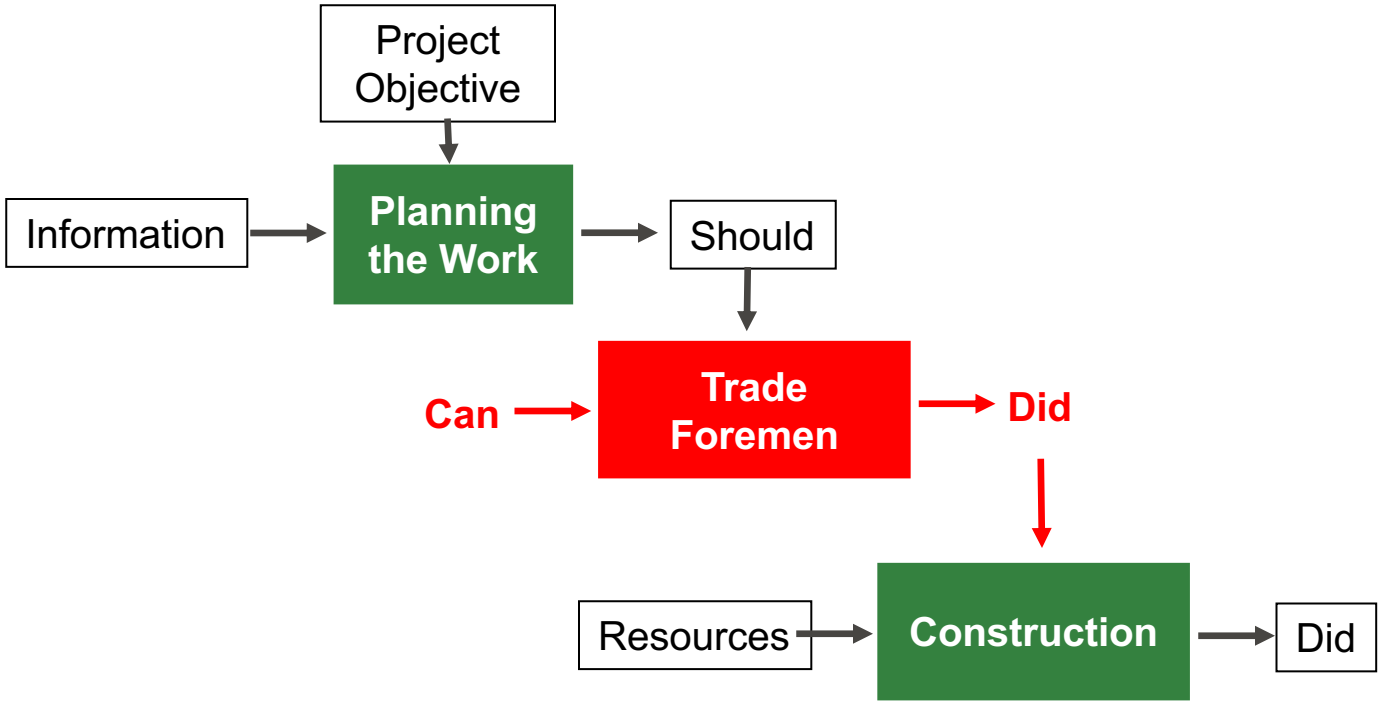
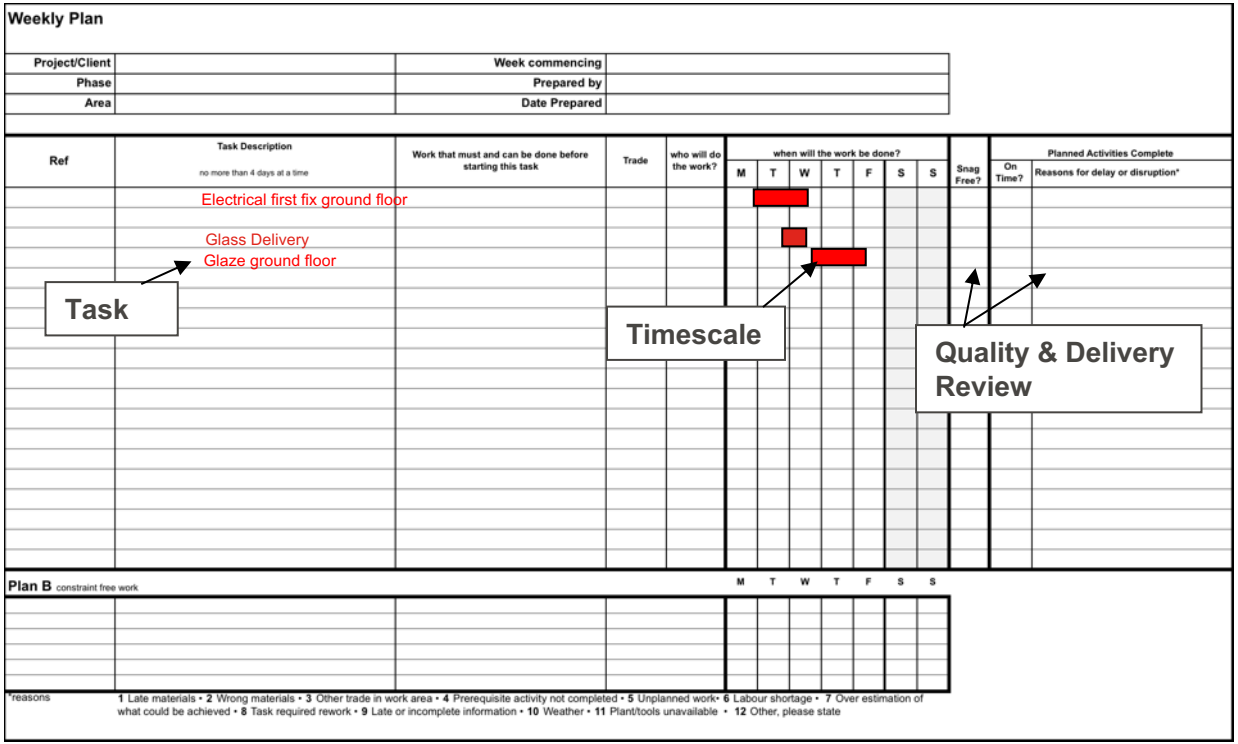
Traditional Planning



Last Planner



Weekly Work Plan



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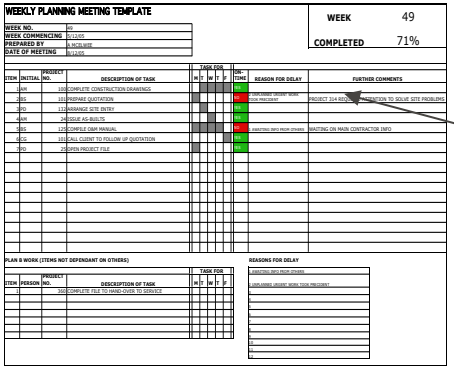
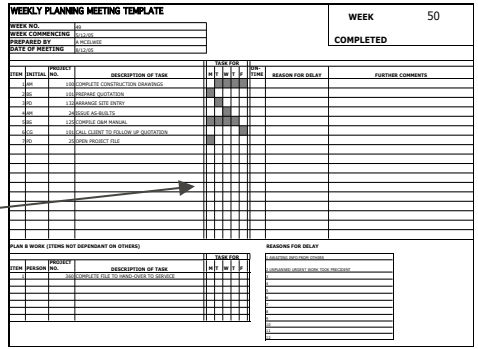
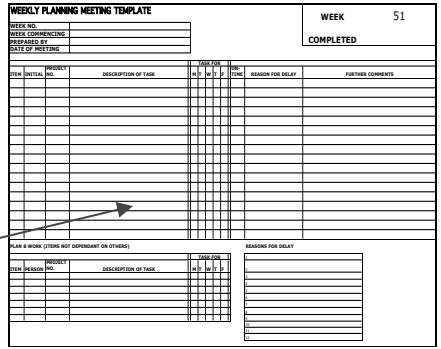
Three-Week Rolling Program



Review Last Week



Discuss this week



Plan next week

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Steps to Consider During Planning

- Introduction to the Project
  - Background, target dates, milestones, critical paths
- Program with target dates and milestones sign posted - Map the program in detail by the week
- Challenge the program produced and re-juggle activities as necessary
  - Consider NEXT customer needs and wants
  - Consider work sequence and inter-trade impact
  - Can the program be realistically pulled back?
- Capture key issues raised during the process for discussion and action

Collaboration Between the Teams

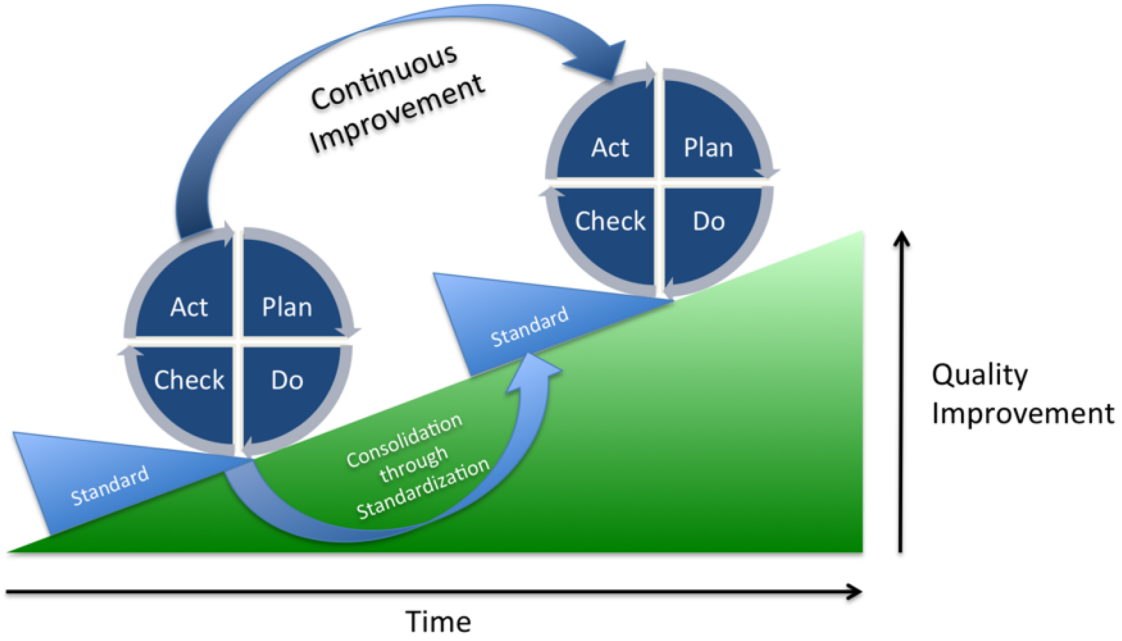
Collaboration

Trades

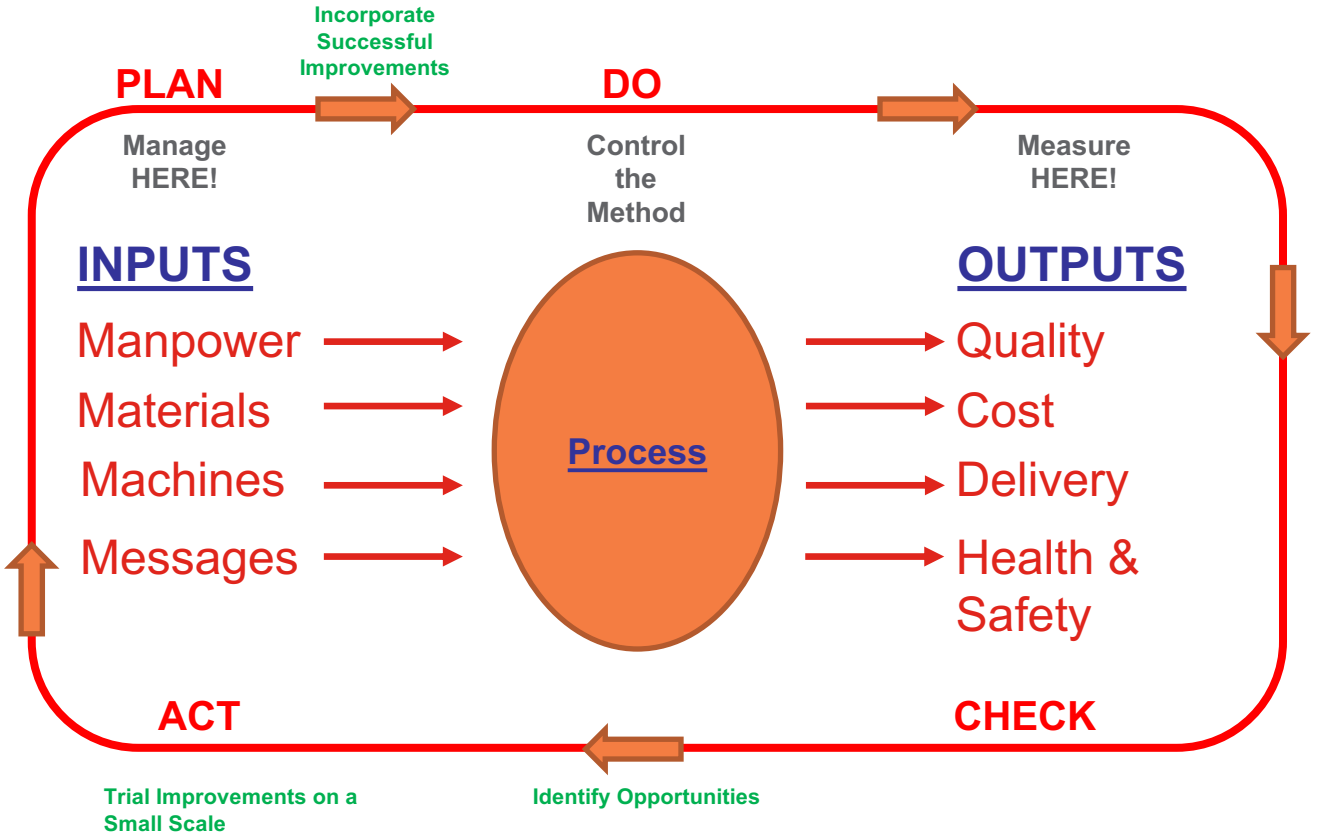
Subcontractor

Architect

Continuous Improvement



Plan, Do, Check, Act



Example: Prefab Rebar Cages

Example: Prefab Rebar Cages

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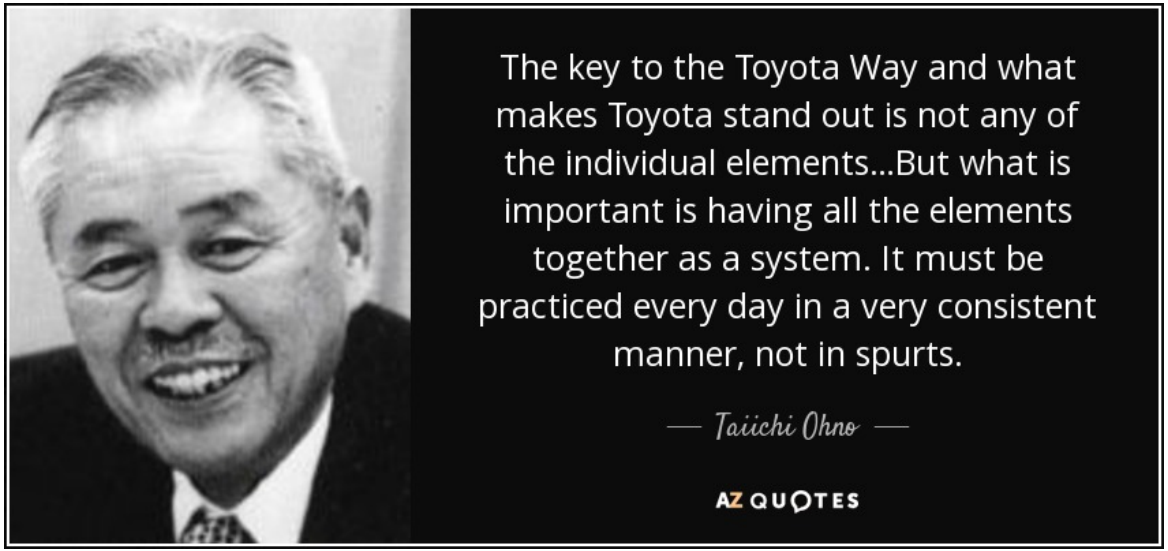
Example: Prefab Rebar Cages

Lean Myths

- The Japanese invented lean
- Offsite manufacturing is lean
- Lean means cutting everything to the bone
- It's a silver bullet
- You need to use all the lean tools like value stream mapping, 5s, Single Minute Exchange of Dies (SMED), and just in time to be lean

Quote


The key to the Toyota Way and what makes Toyota stand out is not any of the individual elements...But what is important is having all the elements together as a system. It must be practiced every day in a very consistent manner, not in spurts.
— Taiichi Ohno —
AZ QUOTES

Summary

- Lean construction is a set of principles and tools to facilitate planning and control, **maximize value, and minimize waste** throughout the construction process.
- Lean focuses on increasing flow by reducing waste
- Collaboration
- Continuous improvement
- Plan, Do, Check, Act
- Thank you

Keep in Touch

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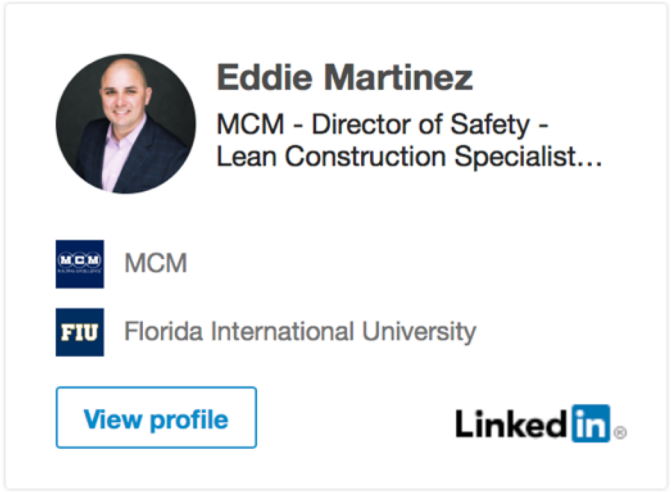

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QUESTIONS?

Have a question for today's presenter?

Type it into the chat feature!

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