Lean Facilities Management

CSN
COLLEGE OF
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Lean Facilities Management

Lean Management

- The Construction Industry Institute (CII) has defined lean management as:
- The continuous process of eliminating waste.
- Meeting or exceeding all customer requirements.
- Focusing on the entire value stream.
- Pursuing perfection in the execution of a constructed project.

Lean Facilities Management

What is Lean Facility Management?

- Lean facility management (Lean FM) is the application of the lean methodology to operating and maintaining buildings and facilities. The lean methodology is an established set of principles that has driven manufacturing for decades.
- Organizations apply lean principles to processes in order to improve the overall value of operations. The lean facilities management approach draws from the lean manufacturing philosophy which focuses on eliminating waste and streamlining operations without sacrificing productivity.

Lean Facilities Management

Origins of Lean Management

- Frank Gilbreth: In the 1890's indicated the potential for manufacturing approaches to be used in construction to improve speed and labor efficiency.
- Bricklaying: Identified wasted motion in the way bricklayers performed their job.
- Speed Work: Reorganized the workspace to reduce motion and introduced lower paid labor to assist the journeyman.
- Continuous flow

Lean Facilities Management-Manufacturing

The Toyota Experience

- The Toyota Production System is a preeminent example of lean manufacturing. When Toyota began manufacturing automobiles, Eiji Toyoda visited Ford Motor in Detroit to gain an understanding of their mass production system. At that time, Ford's operation was recognized as the world's most efficient, with a production rate of 7000 cars per year, while Toyota had only produced 2685 cars in 13 years! In effect, during 1948, a typical American auto worker produced 10 times the output of the Japanese autoworker.

Lean Facilities Management-Manufacturing

Building on Ford's Principles

- Toyoda studied Ford's operation for 3 months and saw possibilities for improving the auto production plant in Japan. Taichii Ohno, Toyota's chief engineer, had also visited Detroit on several occasions. Toyoda and Ohno recognized there was much waste or *muda* (the Japanese term for much waste) everywhere in Ford's operation. For example, there was a high cost to keep and store parts that were later to be found defective. There was also waste in manpower, waste in waiting, waste in transport, and waste of facilities. Toyota identified seven wastes in mass production systems.



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Toyota's Seven Wastes

- Overproducing
- Idle time waste
- Transporting
- Processing waste
- Inventory waste
- Wasted operator motion
- Producing defective goods

Lean Facilities Management- Improvement Tools

Kaizen – Continuous Improvement

- Kaizen is the Japanese concept of continual incremental improvement. Literally, Kai means change, and Zen means good. Kaizen has been credited as the single most important concept in Japanese management, and Japan's competitive success.
- The Japanese believe that sudden, big changes are not natural and do not last. Small incremental changes are easier and are permanent.
- To make changes toward the Lean approach, businesses must view the entire value stream.

Lean Facilities Management- Improvement Tools

Value Stream Mapping

- Represents the actions needed to create product or service from its inception as raw material until it reaches a customer in it's completed form.
- Value Streams include both Value and Non-Value adding activities.
- Value Stream maps illustrate processes, identify sources of waste, and distinguish value adding activities from non-value adding activities.
- Mapping the Value Stream is crucial for a company to define areas that need improvement.

Lean Facilities Management-Improvement Tools

Value Stream Assessment-Before moving on, answer the following questions about your own company or business:

- 1: What is your company's main objective?
- 2: What do *you* currently have to do to reach that objective?
- 3: Do other activities have to occur before you reach your objective?
- 4: Do you spend time doing things that don't add value to your company's objective?
- 5: Can you differentiate between activities that add value to what you do, and those that don't?

Lean Facilities Management- Improvement Tools



Value Adding Activities

- The activities we engage in during a typical workday either add value to your business, or they don't. As a Lean Manager, it is your job to identify the activities that are not adding value to your company, then stop doing them!

Lean Facilities Management- Improvement Tools

Non-Value Adding Activities

- Prolonged waiting periods by workers (waiting for material to arrive on a jobsite, for example)
- Rework (going back to a job and re-doing work that was done poorly, or not at all)
- Meetings (daily, weekly or monthly meetings with no clear agenda or accountability)
- Redundant Processes (reports about reports, unnecessary over-sight…)

Lean Facilities Management- Improvement Tools



The Last Planner System

- Master plan
- Pull planning
- Look-ahead schedule
- Weekly work plan
- Daily work plan
- Percentage plan complete

Lean Facilities Management- Improvement Tools



The True North Approach

- "True North" is a concept evolved from Toyota. True North is a fixed, unchanging absolute reference point which helps to navigate the ideal way of how things should be (Smalley, 2011). Over the past 50 years, with its "True North" focus, Toyota has achieved a lead position in eliminating waste, creating value and improving its own products and processes continuously (ibid). The goal is zero defects, 100% value with the lowest costs and continuous flow production.

Lean Facilities Management

Summary

We have learned the definition of Lean Management and how it was introduced by the Japanese.

The Toyota Way is the concept of eliminating waste. We learned that there are seven wastes that can keep a company from succeeding.

Kaizen is the concept of continuous improvement. Our goal in Lean Management is to continually examine our processes and find areas for improvement. When we find them, we are having a Kaizen Event.

The True North Concept

Value Stream Mapping is an essential component in Lean Management. This process allows us to identify areas in our company that need improvement.