

CLSSYB

Certified Lean Six Sigma Yellow Belt

1.1.4 A Brief History and Overview of Lean

"The Lean Six Sigma Program for Sustainable Supply Chain Professionals"

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Lean History

- The Arsenal in Venice, Italy
- Honore Blanc and Interchangeable Parts
- Frederick Taylor "The Principles of Scientific Management"
- Frank & Lillian Gilbreth and motion studies
- Henry Ford and the production line
- W. Edward Deming and Total Quality Management
- Training Within Industry Service
- Toyoda and Taiichi Ohno and Toyota Production System

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What is Lean?

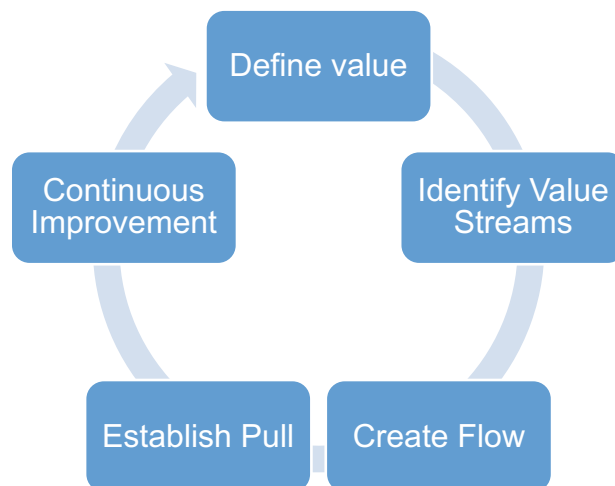
- At its base, it is the development of the worker
- It empowers the employee to make changes they feel are necessary
- Based on the Lean Principles of Value, Value Stream, Flow, Pull, Perfection
- Used to reduce the effects of the 7 Wastes

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Lean Principles



Womack, James P., and Daniel T. Jones. 1996. *Lean thinking: banish waste and create wealth in your corporation*. New York, NY: Simon & Schuster.

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Types of Waste

- Ohno's Seven Types of Waste
 - Overproduction
 - Waiting
 - Transportation
 - Processing
 - Excessive inventory
 - Unnecessary motion
 - Making defective products
- Now there are 9 Wastes including
 - WASTE in Sustainable World
 - WASTE of not Using Human Capabilities



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Lean Six Sigma Promotes a Net Circular World

- Both Lean, Six Sigma and the inputs to these theories align
 - Waste reduction includes reducing Resource Waste for a Net Circular World.
- Some modern focus of Lean include a Sustainable World
 - Example going from 7 Wastes 9 Wastes
 - INCLUDING RISK and SUSTAINABILITY
 - NOT ENGAGING OF PEOPLE TALENT

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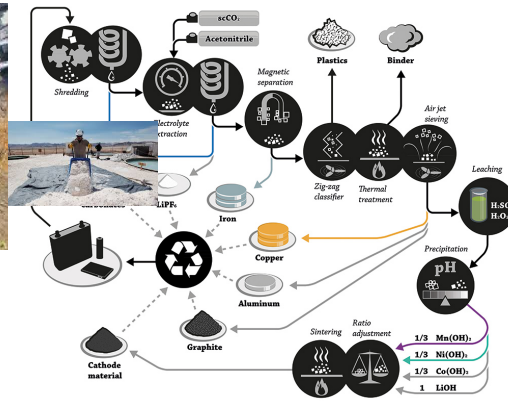
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Case Study

- LEAN SIX SIGMA For GREEN, Sustainable and RESILIENT SUPPLY CHAIN - Net CIRCULAR World is Necessary



<https://www.iscea.org/20190319.html>



Lithium Mining with blockchain or Qr Codes or RFID