



Lean, Continuous Improvement

Arun Prasath Kanagaraj Sridevi
Pradeep Marimuthu
Sreeraj Rajeev
Pooja Singh
Soundarajan Duraisamy

Contents

- Concept and Origin of Lean
- 5 Principles of Lean
- Value Added & Non-Value Added Activity
- 8 types of Waste
- Lean Tools with examples

What Is Lean ?

- Lean is doing more with less. Use the least amount of Effort, equipment, time, energy, materials, and capital while giving the customer exactly what they want (Womack, J. P., & Jones, D. T. 1996).
- Lean Emphasizes continuous improvement, respect for people, and focusing on delivering value to customers. Lean principle applies to industries like Manufacturing, healthcare, service, and software development.

History of Lean

- The origins of lean can be traced back to the Toyota Production System (TPS), developed by Toyota Motor Corporation in Japan following World War II. The father of the system was Sakichi Toyoda. The founder of Toyota. (Łukasz Dekier,2012).
- Sakichi Toyoda, who once worked in the textile industry, invented a motor-driven loom with a specialized mechanism to stop production if in case of breaking off the thread. This working mechanism was the foundation for **Jidoka** (Automation with human manufacturing), one of the two important pillars on which the Toyota Production System was built. With the application of a fault detection sensor, the defects stemming from human-related imperfections were reduced and the production capacity was elevated.



(Miliarder, 2009)

5 Principles of Lean



(PlanetTogether, 2021)

Value Added (VA)& Non-value Added Activity

- Value-added and non-value-added activity notions are frequently discussed in discussions about process improvement and waste reduction.
- In lean continuous improvement principles, the identification and maximization of value-added activities within processes are critical.
- These tasks are vital in fulfilling customer needs, improving the caliber of goods or services, and ultimately raising consumer satisfaction.

Value Added (VA) Activity

- Value-added activities within processes should be identified and maximized, according to lean continuous improvement principles. These tasks are emphasized as critical to fulfilling customer needs, improving the caliber of goods or services, and eventually raising satisfaction among consumers. VAA include :
 1. Production Process
 2. Customization
 3. Quality Assurance
 4. Research and Development

Non-Value Added activity

- The focus of lean continuous improvement is on identifying and reducing or getting rid of non-value-added activities in processes. These activities are seen as wasteful uses of resources that do not improve the caliber of the final product or service or customer satisfaction (Spear & Bowen, 1999). NAA include
 1. Waiting
 2. Transportation
 3. Overproduction

Eight Types of waste

When the term lean manufacturing is mentioned, the first thing that comes to mind is waste reduction via the removal of the eight wastes that are commonly referred to as Muda. The Toyota Production System served as the main source of Muda, which is a combination of three Japanese "Mu" words:

Waste (Muda), unevenness (Mura), and burden (Muri) The Japanese quickly identified each of these as a form of waste and included them to improve business operations. (Tye, 2019)

Following are the eight types waste:



(www.linkedin.com, n.d.)

Lean Management Tools:

Lean Management uses many lean tools to improve production and efficiency by getting the most out of each resource. The goal of lean Management is to find better ways to do things: requiring less effort, less time, and fewer resources.

Some of the main Lean Management Tools are...

- 5S + Safety (6S) Method
- Just In Time (JIT)
- Gemba Walk

5S + Safety Method:

The 5S method is a fundamental lean concept that ensures operational stability, enabling continuous improvement. (Filip and Marascu-Klein, 2015).

6S LEAN WORKPLACE

- 1. SORT**
Organization – keeping only what is necessary and discard everything else – when in doubt, throw it out

- 2. SET IN ORDER**
Orderliness – arranging and label only necessary items for easy use and return by anyone

- 3. SHINE**
Cleanliness – keeping everything swept and clean for inspection – for safety and preventative maintenance

- 4. STANDARDIZE**
Standardized cleanup – the state that exists when the first three pillars or “S’s” are properly maintained

- 5. SUSTAIN**
Sustaining the discipline – making a habit of properly maintaining correct procedures

- 6. SAFETY**
Accident prevention – awareness of all activities to identify and eliminate hazards for a zero accident and injury-free workplace


(Lentink Website, n.d.)

HOW HARLEY DAVIDSON IMPROVED ITS BUSINESS?

Harley-Davidson used the 5S's to simplify their warehouse locations by operating lean.

- Implementing CIS to stabilize the production system.
- Providing Training for their employees and encouraging them to solve problems using lean methods & tools
- The change in operating lean using the 5S's saved Harley-Davidson and the other two companies a great deal of costs in time and safety measures. (The Manufacturing Leadership Council, 2018).

JUST IN TIME (JIT)

- JIT is a philosophy that aims to deliver goods at the optimal time and location.
- JIT is more than just inventory reduction or manufacturing processes
- JIT is also known as lean systems or lean production. (Operations Management Just-In-Time & Lean System, n.d.).

JIT consists of.,

- Elimination of Waste
- A Broad View of Operations
- Simplicity
- Continuous Improvement
- Visibility
- Flexibility

DELL & JIT

- Dell is a pioneering company that has implemented the JIT approach in its manufacturing and production activities.
- JIT has made value-added activities such as direct models a viable business strategy.
- JIT helps the company reduce waste by manufacturing only what is required and delivering it at the right time and place (Free Essays, n.d.).



(Academy of Achievement, 2023)

GEMBA WALK

- Essential lean tool because it provides a close detailed view of behaviors, "understanding by seeing".
- an important lean leadership tool because it allows lean managers to interact directly with the operators at their actual workplace.
- Helps to recognize employee contributions, boost morale, and gain trust in sharing information for continuous improvement (Romero et al., 2020).

Elements of Gemba Walk

are.,

- Location
- Observation
- Teaming
- Reflecting

IMPROVING BRAND EXPERIENCE - STARBUCKS

- Starbucks encourages Gemba walks as a way to maintain quality and consistency across its global stores..
- District managers and senior executives visit stores to evaluate service, product quality, and overall customer satisfaction.
- The feedback gathered during Gemba walks helps Starbucks improve its operations and training procedures, resulting in a consistent brand experience (www.linkedin.com, n.d.).



(Staff, 2022)

References:

- Hirano, H. (1995). 5S for operators: 5 pillars of the visual workplace. New York, NY: Productivity Press.
- Jones, D., & Womack, J. (1996). Lean thinking: Banish waste and create wealth in your corporation. New York, NY: Free Press.
- Womack, J. P., & Jones, D. T. (1996). Lean Thinking: Banish Waste and Create Wealth in Your Corporation. Simon & Schuster.
- Liker, J. K. (2004). The Toyota Way: 14 Management Principles from the World's Greatest Manufacturer. McGraw-Hill Education
- Dekier, Ł. (2012). The Origins and Evolution of Lean Management System. Journal of International Studies, 5(1), 46-51
- PlanetTogether (2021). Five Principles of Lean Manufacturing. [online] www.planettogether.com. Available at: <https://www.planettogether.com/blog/five-principles-of-lean-manufacturing>.
- Lentink Website. (n.d.). 5S+SAFETY. [online] Available at: <https://www.lentink.nl/en/about-us/news/181/5s-safety> [Accessed 25 Feb. 2024].
- The Manufacturing Leadership Council. (2018). At Harley-Davidson, Continuous Improvement is a Multi-Pronged Strategy. [online] Available at: <https://manufacturingleadershipcouncil.com/at-harley-davidson-continuous-improvement-is-a-multi-pronged-strategy-9230/>.
- Filip, F.C., Marascu-Klein, V., 2015. The 5S lean method as a tool of industrial management performances. IOP Conf. Ser.: Mater. Sci. Eng. 95, 012127. <https://doi.org/10.1088/1757-899X/95/1/012127>
- Tye, R. (2019). Lean Six Sigma Green Belt Training: Group 1-2020. [online] Haldan Consulting. Available at: <https://haldanconsulting.com/the-8-wastes-of-lean/>.

References:

- Filip, F.C., Marascu-Klein, V., 2015. The 5S lean method as a tool of industrial management performances. IOP Conf. Ser.: Mater. Sci. Eng. 95, 012127. <https://doi.org/10.1088/1757-899X/95/1/012127>
- Operations Management Just-In-Time & Lean System. (n.d.). Available at: <https://courses.aiu.edu/Operations%20Management/Sec%2010/10.Just-In-Time%20&%20Lean%20System.pdf>.
- Academy of Achievement. (2023). Michael S. Dell. [online] Available at: <https://achievement.org/achiever/michael-dell/>.
- Staff, iSixSigma (2022). Successful Reinvention Focused on Customers and Quality. [online] isixsigma.com. Available at: <https://www.isixsigma.com/dmaic-methodology/successful-reinvention-focused-on-customers-and-quality/>.
- Romero, D., Gaiardelli, P., Wuest, T., Powell, D. and Thürer, M. (2020). New Forms of Gemba Walks and Their Digital Tools in the Digital Lean Manufacturing World. IFIP Advances in Information and Communication Technology, pp.432-440. doi:https://doi.org/10.1007/978-3-030-57997-5_50.
- www.linkedin.com. (n.d.). Exploring Gemba Walks: History, Benefits, and Real-Life Examples. [online] Available at: <https://www.linkedin.com/pulse/exploring-gemba-walks-history-benefits-real-life-examples-palmer/> [Accessed 22 Feb. 2024].
- www.linkedin.com. (n.d.). EIGHT TYPES OF WASTE-LEAN WAY. [online] Available at: <https://www.linkedin.com/pulse/eight-types-waste-lean-way-mohamed-ibrahim-sheik-abdullah/> [Accessed 25 Feb. 2024].



Thank you for your
Attention..!