Lean management & Six Sigma

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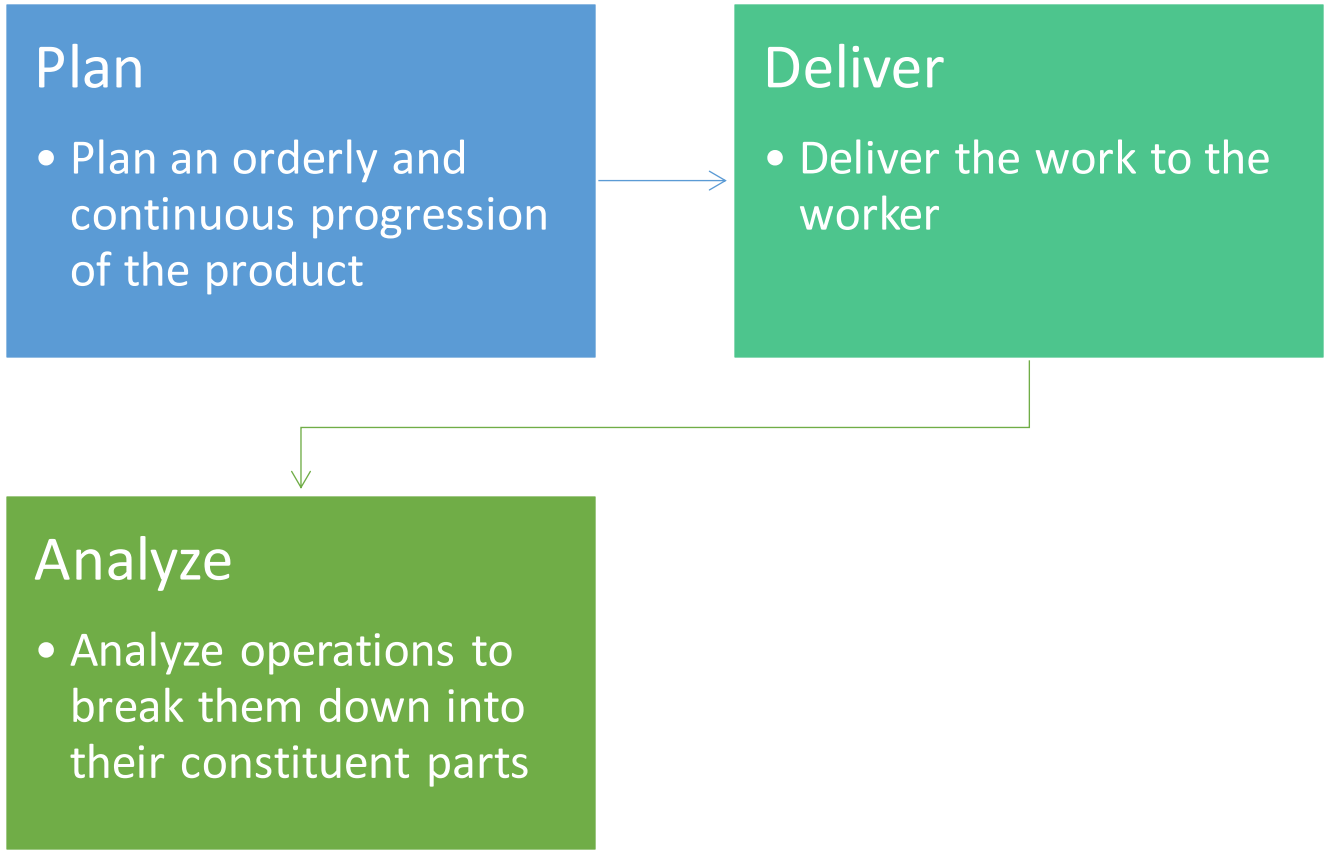
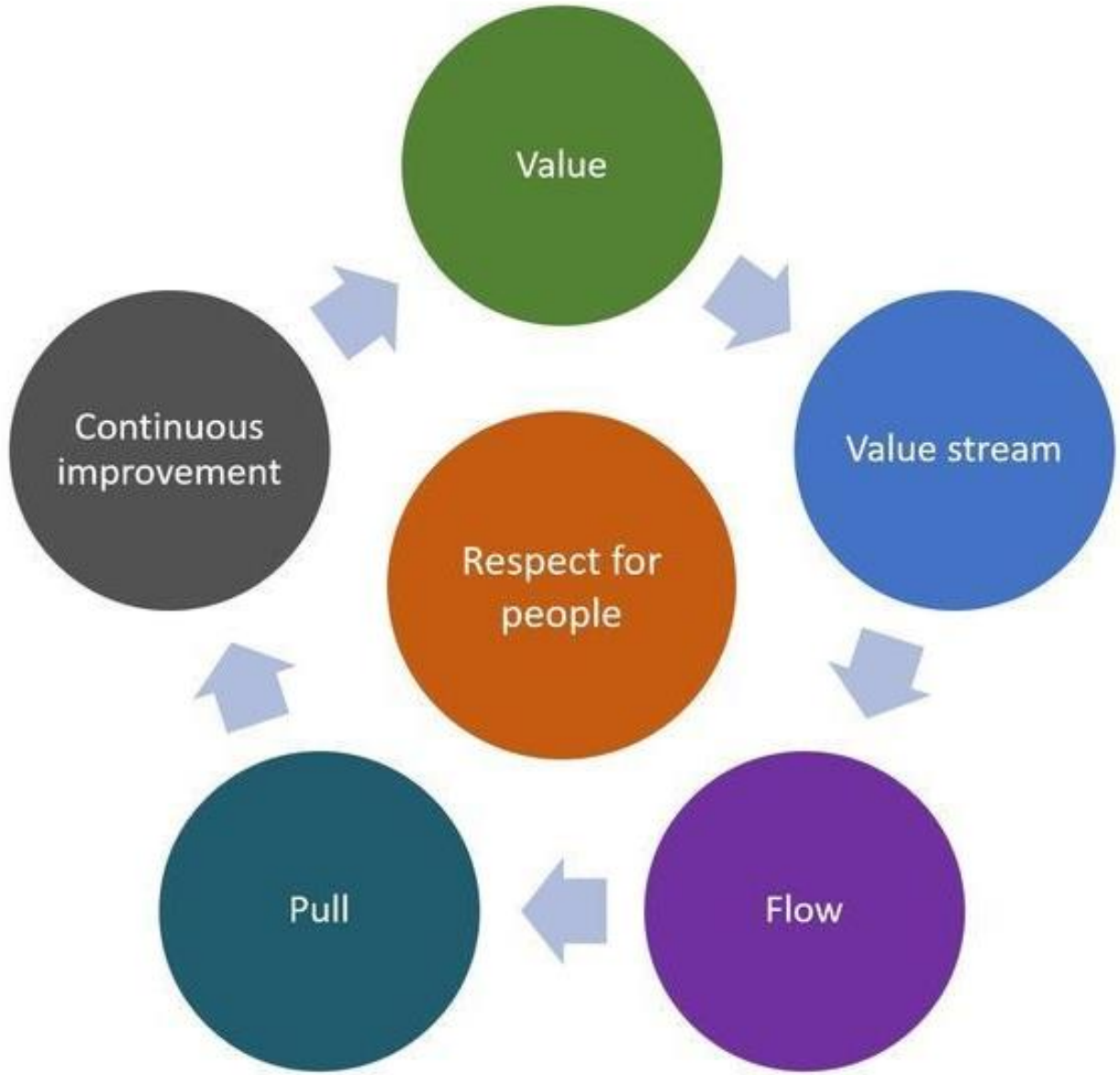
About Henry Ford

- **Henry Ford** (July 30, 1863 – April 7, 1947) was the founder of the Ford Motor Company, and the sponsor of the development of the moving assembly line technique of mass production, which has become the foundation to TPS and Lean.
- Although Ford did not invent the automobile or the assembly line, but he developed and manufactured the first automobile that many middle-class Americans could afford by reducing the production time and labor through his assembly line approach. In 1913, he built the Highland Park Ford Plant, which became the first automobile production facility in the world to implement the moving assembly line.

Henry Ford's Principles of Manufacturing



Unified Lean Manufacturing model



The TOYOTA Production System (TPS)

- Produce only what the market demands
- Use visual aids to highlight where action is needed
- Manufacture in small batch sizes

TPS is considered to be the next stage in the development of manufacturing

The ultimate goal in term of production is to achieve the highest quality, at the lowest cost, with the shortest lead time.

The TOYOTA Production System house is made up of 4 building blocks:

- Stability: The quest is to find stability in the process, in the flow of product and in the personnel.
- Standardized work: The aim is to reduce any variations caused by the operators, thus eliminating waste and achieving high level of productivity.
- Just-in-Time: Produce only what you need, when you need it.
- Autonomation: Adding an element of human judgement to automated equipment.

Traditional manufacturing VS Lean manufacturing

Traditional manufacturing

- Planned and scheduled
- Batch processing
- Excessive idle inventory
- Remote subassemblies
- Hidden quality problems
- Driven by operating efficiency

Lean manufacturing

- Customer-order driven
- One-piece processing
- Near zero idle inventory
- Synchronized processes
- Quality problems are discovered

Lean Manufacturing is driven by this equation:

Operating efficiency + Throughput + Inventory

Workplace Organization definition

The foundation many **organizations** use to launch their operational efficiency journey. It not only applies to the physical space (documents, machines, materials), but also to the digital space (information, data, records).

Workplace Organization Purpose

Control over the workplace

Perform the job effectively

Meet the required quality standards

The Visual Workplace: Without speaking a word

- An apparatus, mechanism, item, or thing that influences, directs, limits or controls behavior by making information vital to the task-at-hand available at-a-glance, to anyone and everyone who needs it.

- Performance measurable by:
  - Production analysis
  - Quality
  - Setup times
  - Delivery performance
  - Safety and attendance

5S: seiri, seiton, seisō, seiketsu and shitsuke

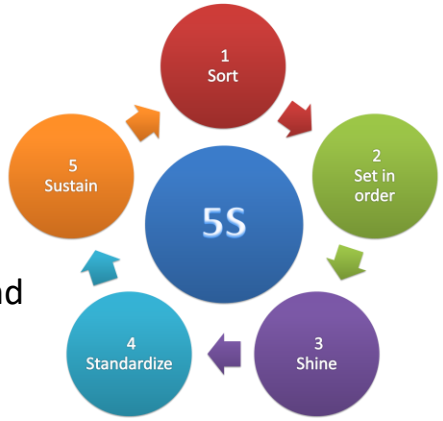
A set of tools used in visual management in workplace organization
5S is the foundation for organizing and maintaining the organized workplace

The 5S PROGRAM:

- Places a high value on safety
- Promotes employee involvement
- Creates environment for standardized work
- Supports quality by focusing on the elimination of waste

The 5S STEPS:

1. Sort : Proper arrangement of the workplace
2. Straighten: The orderliness of the workplace
3. Standardize: Specific locations of tools and methods for performing tasks
4. Sustain: The discipline of maintaining the workplace organization



The 5S CHART

The 5S steps

Level of achievement numeric indicators

NB: Everyone in the organization is responsible for executing the 5Ss

Conclusion

Lean Management and Six Sigma help improving process efficiency, optimizing resources, and increasing customer satisfaction while improving profits and curtailing cost.