

# Lean – A Means to Achieve Supply Chain Efficiency

## What is Lean Production?

Lean is about doing more with less: less time, inventory, space, labour, and money. "Lean manufacturing", a shorthand for a commitment to eliminating waste, simplifying procedures and speeding up production.

Lean Manufacturing is, in its most basic form, the systematic elimination of waste – overproduction, waiting, transportation, inventory, motion, over-processing, defective units – and the implementation of the concepts of continuous flow and customer pull.

Five areas drive lean manufacturing/production:

1. cost
2. quality
3. delivery
4. safety, and
5. morale.

Just as mass production is recognized as the production system of the 20th century, lean production is viewed as the production system of the 21st century.

## Lean Production Overview

- Non-value added activities or waste are eliminated through continuous improvement efforts

- Focus on continuous improvement of processes - rather than results - of the entire value chain
- The lean manufacturing mindset: concept, way of thinking - not techniques; culture - not the latest management tool
- Continuous product flow is achieved through physical rearrangement and system structure & control mechanisms
- Single-piece flow / small lot production: achieved through equipment set up time reduction; attention to machine maintenance; and orderly, clean work place
- Pull reduction / **Just-in-time** inventory control.

## Basic Elements of Lean Manufacturing

The basic elements are waste elimination, continuous one piece workflow, and customer pull. When these elements are focused in the areas of cost, quality and delivery, this forms the basis for a lean production system.

The lean production concept was to a large extent inspired by the **Kaizen** (literally translated *'improving'*) - the Japanese strategy of continuous improvement. Employee empowerment and promotion among them of a way of thinking oriented at improving processes, imitation of customer relationships, fast product development and manufacturing, and collaboration with suppliers are the key strategies of leading lean companies.

The literature on JIT and Lean contains several seminal books, amongst them by Womack and Jones, Schonberger, Hall, Goldratt, and Imai. These built on the "greats": Deming, Juran, and Ohno. To distil them is a daunting task, but certainly there are common themes. These 15 seem to be at the core:

1. **CUSTOMER** – As the customer is the starting and ending point the key thing is to maximise value to the customer. This means optimising around the customer, not around internal operations. So we must understand the customer's true demand, what he would really like, not what can be supplied.
2. **SIMPLICITY** - Simplicity pervades. Simplicity in operation, in system, in technology, in control is the goal. It applies to product bespoke and standardising, to suppliers through working closely with a few trusted partners, to production, by creating focused activities in a system consistent with quality requirements.
3. **VISIBILITY** - Seek to make all operations as visible and transparent as possible. Control by sight.
4. **REGULARITY** - Regularity makes for "no surprises" operations. We run our lives on regularity (sleep, breakfast, etc); we should run our operations on this basis too. Seek "repeater" products and run them in the same time slots - this cuts inventory, improves quality, and allows simplicity of control. "Time pacing" in new product introduction shortens the development cycle and makes innovation the norm.
5. **SYNCHRONISATION** - Seek "keep it moving" production – where possible. Seek flow, and synchronise activities so that the streams meet just in time.
6. **PULL** - Seek for operations to work at the customer's rate of demand. Avoid overproduction. Have pull-based demand chains, not push or supply-based chains. Pull should take place at the customer's rate of demand.
7. **WASTE** - Waste is endemic. All people should learn to recognise it and seek to reduce it always.
8. **PROCESS** - Organise and think by process, the production system (supply chain) perspective. Think horizontally, not vertically so that you concentrate on the way the product moves, not on the way equipment or people or services move. Map to understand the process.
9. **PREVENTION** - Seek to prevent problems, rather than to inspect and fix. Shift the emphasis from failure and appraisal to prevention. Inspecting the process, not the product, is prevention.
10. **TIME** - Seek to reduce overall time to make, to deliver, and to introduce new products. Use simultaneous, parallel, and overlapping operations in operations, design, and support services. Seek never to delay a value-adding step by a non value-

adding step. Time is the best single overall measure.

11. **IMPROVEMENT** - Improvement, and continuous improvement in particular, is everyone's concern. Make improvement both "enforced" and passive, both incremental and breakthrough. Improvement goes beyond waste reduction to include innovation.
12. **PARTNERSHIP** - Seek co-operative working both internally between activities, and externally with suppliers. Supply chains compete, not companies. Employees are partners too. Seek to build trust.
13. **MANAGEMENT** - Go to the workplace and seek the facts. Manage by walking around. Implementation takes place on the floor, not in the office.
14. **VARIATION** - Variation is found in every activity (process). Seek to reduce it. Measure it, know the limits and build in appropriate flexibility.
15. **PARTICIPATION** - Give staff the first opportunity to solve problems. All employees should share responsibility for success and for failure. True

participation implies full information sharing.

### Implementing Lean

An effective approach to implementation comprises two elements: building implementation plans for a Lean strategy, and turning these into a collective effort to deliver the new strategy. The starting point is to begin with the issues managers need to grapple with when planning for implementation. There are 4 areas to tackle:

1. **Basic Aims:** what ideas are available, what resources are necessary to exploit the new strategy, who controls them?
2. **Critical Elements:** what are the critical factors for success, who controls them, who will co-operate and respond, who will counter and resist?
3. **Time Lines:** for development, communication, negotiation and delays
4. **'Game plan':** what is the implementation plan, is there a champion that can drive change, what collective effort can be harnessed?

Such a programme anticipates implementation barriers as early as possible, identifies the key players that could support (or hinder) progress, and allows credible and coasted implementation strategies to achieve a collected effort and develops the behaviour required to support the strategy.

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Best wishes,



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