

Lean manufacturing in inventory management: It is a way of producing goods that uses less of everything than mass production. It involves fewer people, less space, less money spent on tools, and less time spent on engineering. Also, It's a general process management philosophy based on the Toyota Production System.

Lean Manufacturing Inventory Management: How to be Know

It helps companies stay up-to-date with the ever-changing market and meet the needs of more sophisticated and demanding customers. The goal of lean manufacturing is to reduce both the time it takes to produce and the time it takes to respond to customers and suppliers. It also aims to reduce waste, optimize processes, and cut costs. Producing only what's needed and not having too much stock helps improve productivity and boost profits.

The History of lean manufacturing inventory management

Toyota is widely regarded as one of the world's most efficient manufacturing companies and the company that pioneered best practices for Lean Manufacturing. In recent years, Lean Manufacturing has become increasingly popular among leading manufacturing companies around the world, led by major automobile manufacturers and their equipment vendors. Lean Manufacturing is becoming increasingly important for manufacturing companies in advanced countries as they are looking for ways to compete better against their competitors in emerging markets.

In the early 1900s

Ford and his business partner, Charles E. Sorensen, developed the first Manufacturing Strategy. They connected all the features of a manufacturing system - people, machinery, tooling, and products - into a continuous system for the production of the Model T automobile, which quickly made Ford one of the wealthiest men in the world and revolutionized the way we drive. Many consider Ford the first practitioner of just-in-time and Lean Manufacturing.

Back in the 80s

The ideas of Total Quality Management and Six Sigma were brought back to US companies. TQM is all about eliminating excesses, and Six Sigma is all about reducing costs and improving quality. VA (Value Analysis) can help you reduce costs and keep quality up. Six Sigma uses VOC (Voice of the Customer) techniques to go above and beyond what customers expect. Also, Lean management is all about a combination of tools, a philosophy, and a system.

With the tools, you can choose the right technique or method to improve what needs improvement. With this philosophy, you can minimize or eliminate excesses on all the resources used in different parts of your business. Also, With the system, you can use lean to lower your costs and make sure your customers are happy. The biggest advantage of the principles is that you can identify your key attributes and apply them across different functions.

Toyota Production System (TPS)

Toyota Production System (TPS), also known as "The Toyota Way," is an operational model that originated in Japan at the beginning of the 20th century as a management system to organize manufacturing and logistics operations. At the heart of TPS are Mr. Taiichi Ohno, a Japanese industrial creator, and entrepreneur. The two pillars of TPS are continuous improvement and respecting people. Also, These two pillars are fundamental to understanding what lean manufacturing is and where its principles come from.

Just-in-time (just-in-time) production as part of TPS aims to eliminate all wasteful activities (wasted) from the processes. The goal of this method is continuous improvement. For example, if you are working in an environment where the modification times are high and there are many job categories, using the JIT system will allow you to find ways to reduce the modification times and eliminate the job types. Not only will you provide more flexibility to your people, but you will also empower them to utilize their full potential.

What is Lean Manufacturing Inventory Management and how does it perform?

Lean manufacturing, or lean production, is a management method that has been around for a long time. It was first used by Toyota in the late 1940s when they developed their operating model, known as the Toyota Production System or TPS. In 1988, the term lean existed coined by John Kruefcik.

The principles of lean manufacturing were first defined in 1996 by James Womack and daniel jones. *They defined the 5 principles of lean manufacturing:*

1. value specification
2. mapping the value stream
3. creating value flow
4. establishing pull system
5. also, focusing on perfection

The principles forming the production cycle are at the core of lean philosophy and lean thinking. Although lean manufacturing was first used in the manufacturing industry, the method is now widely used in many industries and domains.

Concept of lean manufacturing inventory management

The concept of lean manufacturing is all about getting rid of waste from every part of an organization. Waste is anything that doesn't lead to a product or service that customers want. In some industrial processes, this kind of waste can make up more than 90% of a factory's total activity. A lot of the ideas behind lean manufacturing come from Toyota's TPS, which they started using in the 1950s, and by the 1980s, they were known for how successful they were at using just-in-time manufacturing systems. The TPS originally listed 7-9 types of waste, but over time different people have come up with their list, which usually includes things like:

Over-production:

If you're producing more than you need or too soon, it can lead to obsolescence and the risk of making the wrong thing. Plus, you might have to sell it at a bad price or throw it away. But there are times when you need to keep an extra supply, even if you're a lean manufacturer.

Defects:

Defects can include paperwork errors, giving the wrong info, late deliveries, producing the wrong specs, using too many raw materials, and also having too much inventory.

Inventory:

If you have too much inventory, you'll have higher financing costs, storage costs, and a higher rate of defects.

Transportation:

Any movement of materials that don't add anything to the product, like moving stuff between workstations, is considered transportation. The goal is to make sure that the output from one process is used as the starting point for the next. Also, Transportation can lead to longer production cycles, use less labor and space, and even cause minor production delays.

Waiting:

Waiting, on the other hand, is when workers or machines are left idle due to problems with the factory floor. It can also lead to small delays between processing units, which can add up to a lot of money in labor and depreciation costs.

Motion:

Motion, meanwhile, is when workers are doing things that take them away from the actual processing work. This could be walking around the floor to look for something, or even making unnecessary or difficult movements due to bad ergonomics that slow down the workers.

Correction and Over-processing:

When something needs to be redone because it wasn't done right the first time, it can lead to a lot of wasted labor and equipment. It can also mess up the production process and cause delays. Plus, it can take up a lot of management time, which can add to the cost of the factory. On the other hand, when something needs to be over-processed, it can mean doing more processing than the customer needs in terms of quality or features, like polishing or finishing certain parts of the product.

Knowledge disconnection:

Knowledge disconnection is when information isn't available where it's needed or when it's needed. This can include things like the right procedures, specs, and ways to fix problems. If you don't have the right info, it can cause defects and hold up production. For instance, if you don't have a mixing formula, it could slow down the whole process or make defective items because of the time it takes to test them.

Lean is most popular in industries that rely on assembly or have a lot of repetitive human operations. These are often industries where productivity is heavily dependent on the productivity and attention to detail of manual workers using tools or operating machinery. For these types of companies, better systems can eliminate large amounts of waste or inefficient workflows.

Examples include wood processing, apparel manufacturing, automotive assembly, and electronic assembly, as well as equipment manufacturing. Lean Manufacturing is also suitable in industries where a strategic priority is to reduce the production cycle to the bare minimum as a competitive advantage.

What is lean manufacturing inventory management?

What techniques are used to make it work?

More and additionally organizations are turning to lean [inventory management](#) to cut costs, improve flexibility, and free up time for their clients.

Lean supply chain and lean inventory management help Small and Medium Sized (SMB) businesses become better efficient and beneficial. As companies strive to reduce waste, boost turns, and be more agile with their inventories, management experts have tried to figure out how lean can be used to create flexible and collaborative inventories.

Recent relations, such as the American Production Inventory Control Society (APICS), show that almost 30% of organizations are implementing lean principles into their inventory management.

Characteristics of Lean Manufacturing Inventory Management

To build and maintain lean inventory management, there are six key characteristics to consider:

Demand management:

Provide inventory when the customer requests it. To effectively manage demand, companies must plan sales and operations; check inventory management practices; provide a demand signal; and collaborate with customers.

Costs and waste reduction:

Lean inventory management may seem to be all about reducing waste and costs. However, this should limit the extent to which it does not detract from the value of the customer.

Process standardization:

This allows for continuous inventory flow within the company; however, certain obstacles such as transportation, batch process, and working in queues can impede the delivery of inventory.

Waste and Industry Standardization:

Standardization of processes and products among traditional partners can still result in waste, especially if common components don't standardize properly. Standardization may improve service delivery and the benefit of customers using the products; however, it also reduces the proprietary character of the product, which makes other competitive factors even more important.

Cultural Change:

Suppliers and customers must work together as a team to deliver value to end users.

Cross-Enterprise Collaboration:

Using teams within a cross-enterprise organization can help define value and understand the value stream to maximize the value delivered to customers.

Benefits of lean manufacturing inventory management:

- Reduced SKU count and inventory levels.
- Increased use of standardization in procedures and materials.
- Improved collaborations.

- A general reduction in overall costs of goods sold compared to non-lean companies.
- A lean supply chain & inventory management benefits the bottom line.

What are the Objectives of lean manufacturing inventory management?

The goal of Lean Manufacturing, also known as Lean Production, is to eliminate all waste in the manufacturing process. This will result in lower production costs, higher output, and shorter manufacturing lead times.

Some of the main objectives of Lean Manufacturing are:

Decrease defects and unnecessary physical waste:

- Excess use of raw materials
- Preventable defects
- Cost of repurposing defective items
- Unnecessary product characteristics that do not desire by customers

Cycle Times:

- Manufacturing Lead Time
- Manufacturing Cycle Time
- Waiting Times Between Processing Stages
- Process Prep Time
- Product/Model Conversion Time

Decrease Inventory Levels:

Lower inventory levels at every stage of production, especially between stages. Lower inventory levels also result in lower working capital requirements.

Increase labor efficiency:

Reduce idle time, Ensure that when workers work, they are making the most of their efforts (i.e., they are not doing repetitive tasks or repetitive motions)

Flexibility:

Create a more adaptable product portfolio with minimal switching costs and lead times.

Utilizing Equipment and Space:

Utilize equipment and production space more effectively by removing barriers and increasing the rate of output through existing equipment while reducing machine downtime.

Output:

If you can reduce cycle times, increase labor efficiency, remove bottlenecks, and reduce machine downtime, you can usually increase output significantly from your current facilities.



The Essential Guide to Lean Manufacturing Inventory Management; Photo by [Cottonbro studio](#).