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Thousands of Stock Components

## Case Study:

# The Case for Just-In-Time Inventory Management

## Rationale Behind Just-in-Time (JIT)

By definition, waste is the unusable byproduct of something. However, because no process is totally efficient, every process necessarily contains some amount of waste. With company origins in the textile industry, Toyota realized in the 1920s that manufacturing process waste—in the form of excess inventory, defective products and extraneous process steps—was the enemy of optimal manufacturing time and cost. These realizations by company founders led to the creation of the [Toyota Production System](#) (TPS), a system that catapulted Toyota to the top of the global automotive industry. The production system was deemed the primary reason for Toyota's success and its unparalleled quality.

Principles of the system can apply to nearly every industry and process; the beauty of the TPS is its simplicity and foundation in logical improvement patterns. Many global industry-leading companies have implemented the TPS, with [excellent results](#):

- Dell – offers exceptionally short lead times by using a supply base whose inventory management is also predicated on JIT.
- Harley Davidson – inventory levels decreased by 75% with increased productivity.
- [McDonald's](#) – organize and arrange all materials the employees need to complete an order, which is only done after the order is taken. This creates the same customer experience with each visit.

One of the most utilized philosophies of the TPS is to minimize inventory. It is human nature to collect a reserve of something that might be needed; this is especially true with medical devices when time-critical care could be needed. The reality is that the actual time spent processing product (or inventory) is often less than 5%, with the remaining production cycle length consumed by the inventory queue. In JIT, there is no batch inventory queue, which is why it can enable inventory cycle reductions in [excess of 90%](#).

Customer demand mandates the amount of time each part may take to be delivered ([takt time](#)). The known process steps can be assessed to determine the time the process is expected to deliver, after which the

process owners can iterate to reduce waste wherever possible to meet or improve the takt time.

The most effective way to design out waste in managing inventory is to implement a passive, in-sequence, JIT inventory system managed by an ISO-certified partner with industry expertise. Adopting a JIT inventory flow offers numerous benefits over a batch inventory scheme:

### **Inventory Investment**

If the product was purchased in a batch quantity and was not immediately used, money was spent without a rapid return. That inventory must be stored, either on-site or at a remote warehouse, which carries both a storage fee and multiple handling/transport fees to move it back and forth. The batch inventory must also be tracked at each step in the process multiple times. With JIT, the process governs the required order cadence, reducing overhead while ensuring immediate availability, and each piece is subsequently touched as little as possible.

### **Quality**

This is where Toyota made its name; the brand has become synonymous with quality. If there is a production defect in a batch of product, the entire batch needs to be identified, located, quarantined, and evaluated to remove all defective product from inventory. In JIT, operators can locate a defect much more quickly, and (because a defined quantity of parts is not the desired outcome), a defective product can simply be pulled from production with minimal disruption to the flow if the defect were a solitary error. For continued defective parts, producing the parts one at a time will lead to much quicker diagnosis of the location of the problem, leading to a more rapid corrective action to minimize downtime. The exposure in defective inventory for the customer drops dramatically over batch production as a result. JIT production creates more opportunities for passive error detection by the nature of its process flow, as there are no parallel or redundant steps.

### **Agility**

One of the best facets of JIT inventory is the insensitivity of the management system to quantity. Passive cues indicate when inventory needs to be ordered, and if demand changes, the frequency of ordering follows in step. For a batch process, the batch size must constantly be evaluated

to ensure sufficient product in inventory without ordering excess. This is largely a [subjective, manual process](#). JIT allows for much greater product flexibility with shifts in customer type, quantity and frequency of orders.

## What to Look for in an External Just-in-Time Inventory Partner

The benefits of JIT are clear. But what is the most efficient way to implement these without disrupting the flow of business? Teaming up with an external partner that has expertise in JIT inventory management minimizes risk when moving away from batch inventory replenishing. With many companies offering this service, there are key differentiators that separate an integrated expert partner from a parallel third-party.

### **ISO certification**

There are numerous benefits to ensuring the external inventory management agency is certified in [ISO 22301:2012](#). Certification adds a level of credibility to the product offering, serving as a significant differentiator over competitors not backed by a certified partner. Legal and regulatory compliance accompany the certification, absolving any risk a company may otherwise accept when using a third party to manage its inventory.

The certification also passively safeguards against excessive damage from a supply interruption. Meeting ISO requirements provides flexibility during supply interruptions, creating the framework for resilient product streams to address the disruption. The external partner is accountable for the continuity plan.

Supply interruptions are the biggest challenge to just-in-time inventory; built-in processes, checks and documentation can greatly help to reduce this risk.

### **Stocked Inventory**

Part of the benefit of partnering with an industry-leading inventory management company is that it assumes the burden of inventory warehousing. A best-in-class external partner should stock thousands of products. Maintaining a large inventory provides rapid sourcing opportunities for a spectrum of products and decreases the sensitivity

to supply disruption to specific product types. Having the inventory management partner stock an inventory of products reduces carrying costs for the OEM, leading to higher profit margins through increased operational efficiency. Because this inventory has gone through the requisite design and performance validation, your company can adapt to rapid changes without sacrificing quality or incurring risk.

When moving to a JIT inventory management style, rapidly accessing a wide variety of inventory is critical to maintaining a consistent flow of product.

### **Expertise**

Using an external partner to manage inventory also defers a level of control and/or oversight into some of the lower-level details of the process. With rapid, just-in-time replenishment, the managing firm should have a level of engineering expertise for the products it supplies. With a deeper understanding of the product suite, the model inventory manager can provide the OEM with the best product recommendation in the event of a change, acting as a product consultant.

## **Assessment and Recommendations**

Employing a just-in-time inventory management approach is proven to be the best method to achieve minimum inventory costs and human error, higher quality and increased agility, all while experiencing reduced liability. It also implements a culture of continuous improvement by empowering all employees to take part in the process improvement, leading to increased employee engagement and buy-in.

The approach is better, but working with an ISO-certified, third-party inventory management partner with product expertise is equally important. Furthermore, teaming up with a partner who has a large inventory in stock is the best way to mitigate one of the only opportunities of JIT: sudden inventory demand changes. The combination of flexible, in-sequence, on-demand inventory replenishment and large inventory with product support knowledge can differentiate an OEM from its competition as a leader in agile, just-in-time product supply.

## References

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- Complimentary samples on most products
- Source and customize components if not in our inventory
- Easy access to required documentation, including 3D CAD models
- Educational resources on relevant industry topics
- Engineering and product development consulting services

Our full service e-commerce website features intuitive navigation and valuable tools and solutions to help you speed time to market. You will receive immediate delivery of in-stock components from our ISO 13485, ISO 9001, ISO 22301 and ISO 14001-certified facility.



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