

Why Just-in-Time is Dead: Building Resilience into Your Operation.

Reframing safety stock from waste to strategic insurance value on the shop floor.

Supply Chain · Lean Six Sigma · Resilience · Inventory

The newsletter for operations leaders who prefer structural resilience over the illusion of perfect efficiency.



Issue Summary

For decades, the mantra of manufacturing has been lean: eliminate waste, reduce inventory, and move toward a "Just-in-Time" (JIT) model where parts arrive exactly when they are needed for production. On paper, this is a masterpiece of efficiency. It looks great in an annual report because it minimizes capital tied up in stagnant stock and maximizes floor space.

However, the reality of modern global logistics has exposed a fundamental flaw in the "perfect" JIT system. We have traded resilience for marginal gains in efficiency. In today's world—marked by unpredictable shipping delays, material shortages, and geopolitical instability—a lean inventory is often just another word for an unprotected line.

The thesis here is simple: Just-in-Time isn't dead because the principles of Lean are wrong; it's "dead" because we have reached the limit of what a fragile system can endure. To survive today's volatility, we must move toward a model of **Strategic Resilience**. This means recognizing that certain inventory is not waste—it is insurance. We need to stop trying to eliminate every safety buffer and start strategically

building redundancy where it matters most so that one missing component doesn’t grind the entire operation to a halt.

The Myth of Perfect Flow: Diagnosing Fragility

In my years on the floor, I have seen many managers celebrate "lean" inventory as a badge of honor. They point to empty racks and low-stock bins as evidence of a well-oiled machine. But there is a difference between an efficient flow and a fragile one. When we prioritize just-in-time delivery above all else, we create what I call **The Efficiency Trap**.

The Efficiency Trap occurs when a process is so tightly tuned that it has no room to absorb a single deviation. If your production line depends on a part arriving from a single supplier three states away with zero buffer, you aren't running an efficient operation; you are operating in a state of perpetual risk.

I’ve walked lines where the "perfect flow" was interrupted by something as simple as a broken pallet wrap or a late truck for a minor fastener. Because there was no safety stock, the entire line stopped. The workers sat idle, the downstream processes stalled, and the management team scrambled to find a solution that should have been handled automatically by a bin of spare parts. We must stop mistaking "low inventory" for "high performance." A system that cannot survive a single delayed shipment is not high-performing; it is brittle.

Why We Still Trust Just-in-Time (And Why It’s Failing)

The reason many plants remain tethered to extreme JIT models is rooted in how we measure success. Most of our current metrics—KPIs for inventory turnover, warehouse footprint, and capital allocation—reward the removal of "waste." Since safety stock is often categorized as waste by standard accounting logic, it gets cut. It feels like a win on the spreadsheet even if it creates a headache on the floor.

We are currently seeing a collision between these old metrics and new realities. The global supply chain is no longer stable enough to support an "at-the-edge" inventory model for critical components. Yet, many organizations are slow to change because they don't want to "mess up" their lean certifications or move away from the KPIs they’ve spent years mastering.

The following table illustrates the gap between how we report our success and what is actually happening on the floor:

The Report View (Standard Lean)	The Shop Reality (Modern Risk)
Inventory as Waste: Any part not currently being used for assembly is a cost.	Stock as Insurance: A bin of "extra" parts prevents 4 hours of downtime and lost labor.
Just-in-Time Delivery: Parts arrive exactly when the machine needs them.	Just-in-Case Buffer: Part arrivals are unpredictable; buffer stock absorbs the delay.
Single Sourcing: Consolidating spend to get better volume pricing.	Multi-Source Resilience: Paying a premium for a second source to ensure continuity.

What Happens When the Line Stops: The True Cost of Zero Inventory

When we eliminate all "waste," we often remove the buffer that protects us from the unexpected. To understand why this is dangerous, we have to look at what it actually costs when the line stops. We shouldn't just look at the cost of the missing part; we must look at the total cost of the systemic failure.

When a production line halts due to a lack of safety stock, three primary costs emerge:

1. **Lost Production Time:** Every minute an operator sits idle is a direct hit to your throughput and labor efficiency.
2. **Downstream Consequences:** A delay on Line A often causes a "bullwhip" effect where Packaging or Shipping departments are left with nothing to do, disrupting the entire facility's rhythm.
3. **Reputational Damage:** If a shipment is late because of a missing \$0.50 bolt, that fact doesn't matter to the customer. They only see a broken promise and a damaged relationship.

The cost of holding "excess" inventory in a warehouse—while measurable—is almost always lower than the catastrophic costs of a total line stoppage. A safety stock is not an admission of failure; it is a calculated investment in stability. We must stop treating buffer as a luxury we can't afford and start seeing it as the insurance policy that keeps our promises to the customer.

The Three Pillars of Resilient Operations

To move from a fragile "Just-in-Time" model to a resilient one, you need a strategy based on three pillars. This isn't about abandoning lean principles; it's about applying them intelligently where they matter most.

1. Strategic Buffering

Not every part needs a massive safety stock. A standard nut or bolt used in thousands of places can remain high-volume/low-buffer. However, "linchpin" components—parts with long lead times, specialized manufacturing requirements, or single-source origins—must have a dedicated buffer. Identify the parts that would stop your line today if they disappeared and build a "safety zone" around them.

2. Multi-Sourcing

The quest for the lowest possible unit price from a single supplier is often at odds with reliability. For critical components, you must diversify. Having two suppliers—even if one is more expensive or slightly further away—ensures that a localized failure in one supply chain doesn't paralyze your entire operation.

3. Deep Partnerships

Move away from transactional relationships where the goal is to squeeze every cent out of the supplier. Build deeper, collaborative ties with key vendors. When you have a "partnership," they are more

likely to prioritize your orders during a shortage and provide early warnings about potential delays. A good relationship is often the best defense against an unpredictable world.

Auditing Your Supply Chain: Actions You Can Take Tomorrow

You don't need a consultant to begin this transition. You can start by walking the floor and looking at the reality of your inventory levels today. On your next Gemba walk, I want you to ask these specific questions and perform these actions:

The "Stop-the-Line" Audit:

1. **Identify Linchpins:** Walk each assembly station and identify every component that is unique or hard to source. For those items, check the current stock levels. Is there enough to last through a 30-day shipping delay? If not, that's your first area for strategic buffering.
2. **Map Your Suppliers:** Create a simple list of your top 10 most critical components and identify how many suppliers provide each one. Any item with only one source is a high-risk point.
3. **Calculate the "Downtime Cost":** Pick a major assembly line and calculate exactly what it costs—in labor, overhead, and lost opportunity—to have that line sit idle for 8 hours. Compare that number to the monthly carrying cost of adding just one extra pallet of safety stock.

Immediate Actions:

- **Create a "Red List":** Identify parts with lead times over 30 days or those sourced from single providers. These items should be moved out of the standard JIT cycle and into a "Resilience" category.
- **Update your Control Plans:** Ensure that your inventory levels for these critical items are tracked as a primary metric, just like quality or safety.
- **Talk to the Operators:** Ask them which parts they find most frustrating to deal with when they run out. They usually know exactly where the "pain points" in the supply chain are hiding.

Call to Action

What single bottleneck in your current supply chain would fail first if you lost 30 days of input? Share this diagnosis with a colleague who needs to rethink their inventory policy.

Newsletter replies: newsletter@sixsigmakaizen.com · X: [@kaizen_6sigma](https://twitter.com/kaizen_6sigma)

Stay curious, stay improving,

David Rodgers

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References: The source article: [Why Just-in-Time Is Dead: Building a Resilient Operation Instead.](#)

