

Why Just-in-Time Is Dead: Building a Resilient Operation Instead.

The shift from maximum efficiency to necessary redundancy in the modern supply chain.

Supply Chain · Lean · Resilience · Manufacturing

The newsletter for operations leaders who prefer reliable delivery over perfect inventory metrics.



Issue Summary

For decades, Just-in-Time (JIT) was the gold standard for manufacturing excellence. It taught us how to eliminate waste, synchronize production with demand, and keep capital from sitting idle in warehouses. In a world of predictable logistics and stable global trade routes, JIT was brilliant—it was the ultimate expression of lean thinking.

However, we are no longer living in that era. The "perfect" supply chain is an anomaly, not the rule. We have seen how easily a single port delay, a regional climate event, or a sudden geopolitical shift can turn a high-efficiency line into a graveyard of stalled machines and frustrated operators.

The core issue isn't that JIT principles are wrong; it's that many organizations mistook "lean" for "fragile." We optimized our systems so tightly against the average day that we left ourselves with zero protection against the outlier events. This issue explores why we must move from a strategy of maximum efficiency to one of necessary resilience—where intentional redundancy isn't seen as waste, but as the insurance premium required to keep the line running when the "perfect" world breaks down.

The Failure of Single_Minded Efficiency (Naming the Problem)

I call this **The Fragility Trap**.

It is a common mistake to believe that because a process is efficient on paper, it is robust in practice. In many plants, we've seen the results of this trap: an organization operates with just enough inventory to satisfy today's orders, but not enough "buffer" to survive tomorrow's hiccups. When one specialized component fails to arrive or a primary supplier faces a shortage, the entire production schedule collapses because there is no secondary path and no safety stock to lean on.

We must be clear: **Efficiency is not the same thing as stability.**

A process that works only when everything goes perfectly isn't an "optimized" process; it's a vulnerable one. We have spent years trying to shave every cent of carrying cost off our inventory, and while that looks great on a quarterly P&L statement, it creates a dangerous dependency on the continued perfection of global logistics. When we optimize for only speed or only low-cost storage, we are essentially betting that the world will always behave exactly as it did yesterday. The Fragility Trap occurs when management chooses to accept "hidden" risks—the risk of line stoppages and missed deadlines—in exchange for the visible rewards of lower overhead.

Why We Failed to Plan for Chaos

We failed because, for a long time, it was easier and cheaper to ignore the possibility of chaos than it was to build defenses against it. In our pursuit of "lean," we often replaced robust systems with single points of failure. We chose one supplier because they were the cheapest; we used one shipping route because it was the fastest; we held just enough raw material for a 24-hour cycle.

In a stable environment, these choices are smart. In an unstable one, they are liabilities. We have seen this play out repeatedly: a line stops because of a \$0.10 part that couldn't clear customs, and the resulting cost of downtime—lost labor, missed contracts, and damaged reputation—far outweighs the money saved by not holding extra stock.

The Comforting Rationalization	The Operational Reality
"Holding extra inventory is waste."	Holding critical components is a necessary buffer against reality.
"One supplier gives us better pricing."	One supplier creates a single point of failure for the entire line.
"The current logistics route is optimized."	A single localized disruption can paralyze the entire production flow.
"Just-in-Time means no waste."	Just-in-Time without redundancy is just "delayed-failure" waiting to happen.

What True Resilience Requires: The New Operational Calculus

Resilience is not a luxury or an academic concept; it is a fundamental requirement of modern manufacturing. To build a resilient operation, we have to change how we value our buffers. We need to stop looking at safety stock as "waste" and start seeing it as **insurance**.

When you see a line manager keep extra bins of fasteners near the assembly station, they aren't being "un-lean." They are ensuring that if the next truck is late or a batch fails inspection, the operators can keep moving. This isn't an admission of failure; it's a recognition of reality.

The new operational calculus requires us to weigh the cost of carrying extra inventory against the catastrophic cost of a line stoppage. If a specific component has a long lead time or comes from a volatile region, "just-in-time" is no longer the right tool for that part. We need to identify where our system's "joints" are weakest and reinforce them with intentional redundancy. Resilience means having enough of what you need, in places where it can be accessed quickly, even when the primary plan falls apart.

Three Pillars of Supply Chain Toughness (The Fix)

To move away from The Fragility Trap, we must rebuild our supply chains around three specific pillars:

1. Multi-Sourcing and Geographic Diversification

Stop putting all your eggs in one basket. If you rely on a single supplier for a critical component—no matter how good their relationship is or how low their price is—you are gambling. Resilience requires having at least two qualified sources for every "must-have" item, ideally located in different geographic regions. This ensures that if a local event shuts down one source, you have an active path to keep the line running.

2. Strategic Inventory Buffers

Not all inventory is created equal. We must categorize our parts based on their risk profile rather than just their cost. High-volume, low-risk items can stay lean. However, "critical-path" components—those with long lead times or high production impact—must have a dedicated safety buffer. This isn't about hoarding; it's about ensuring that the standard work of your operators is never interrupted by an external logistics failure.

3. Supplier Vertical Integration and Deep Partnership

Move beyond "transactional" relationships. A transaction happens when you buy a part; a partnership happens when you understand where your supplier gets *their* parts. You need to know who your supplier's suppliers are. By building deeper ties, you gain visibility into their risks. If they have a problem, you hear about it first, giving you the time to pivot before the shortage hits your floor.

Practical Steps for Your Next Gemba Walk

Don't wait for the next crisis to see where your system breaks. Use your next walk to stress-test your current assumptions with these three actions:

1. **Identify the "Single Truck" Points:** Ask your lead operators, "If this specific part didn't arrive today, how many hours could we keep running?" Walk the line and identify every component that has no local backup or safety stock. Map these out as high-risk zones.
2. **Audit the Buffer Strategy:** Look at your current inventory levels for critical components. Are they based on a "perfect" schedule or are they designed to handle a 48-hour delay? If you find a section of the line that is running with zero margin for error, it's time to advocate for a calculated buffer.
3. **Verify the "Plan B":** Sit down with your procurement team and ask them to show you the contingency plan for your top three most critical suppliers. Don't accept a verbal "we have it covered." Ask to see the list of secondary sources, their lead times, and how quickly they can be activated if the primary source fails.

If the answer is "We don't have one," then that's where you start your work for next week.

Call to Action

What single node in your supply chain is currently giving you the most anxiety? Share this issue with another leader who needs a reality check.

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

Stay curious, stay improving,

David Rodgers

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References: Assembly Magazine: Why Manufacturers Are Rethinking Just-in-Time Supply Chains