

# INSIDER

## INDUSTRIAL AUTOMATION & PROCESS CONTROL

### THE MYTH OF JUST-IN-TIME

Taiichi Ohno has a lot to answer for. Of course, for the longest time, it looked like his invention, just-in-time manufacturing, was one of the central pillars of both the Toyota Manufacturing System and the entire discipline of lean manufacturing. In his defense, just-in-time worked for a very long time. It worked because it rested on some assumptions that were, frankly, expected to be natural laws.

Until they weren't.

Just-in-time worked because end to end, supply chains worked. You could schedule production knowing that your parts and subassemblies would show up, like magic, and just in time. Just-in-time also reduced inventory, which was a good thing in most countries, because enterprises were taxed on sitting inventory. It also reduced the cost of inventory that was sitting there, ready to be used. If inventory didn't show up until it was needed, it didn't have to be paid for before it was needed, either. It all worked, you see.

Until it didn't.

We got warnings in the early 2000s when severe flooding in Thailand and other countries in Southeast Asia hit semiconductor manufacturing there very hard. We didn't pay much attention, though because the supply chains returned to normal.

We got more warnings when it was discovered that there was rampant counterfeiting along the supply chains, and that many companies were using components that were not actually the components they expected. We tightened up our systems, and just kept on.

Because the economy was now global, it was basically stable, and as a global, stable system we expected it to remain so.

Until it wasn't.

Looking back, there were echoes of the problems to come in the late 1990s. Several pundits suggested that this, rather than the way it was going to work forever, was really a precarious arrangement.

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And so, it turned out to be.

This week, Boeing shut down production of 787 aircraft because of a lack of major subassemblies. All this year, production and supply chains were slowed and stopped because of a lack of semiconductor chips. Which were all made a long way away, under somebody else's control. Cassandras at the time said there would be a problem, but like all Cassandras, they weren't listened to.

What happened to the stable, global economic system?

Covid-19 and the Russian attack on Ukraine happened along with autocratic governments around the world. And Global Climate Change filled in the blanks.

**What happened to  
the stable, global  
economic system?**

So why did Just-In-Time work when Toyota did it? Toyota was in complete control of its supply chains, and it was big enough to demand compliance when requirements changed. Toyota still has a host of mon-and-pop suppliers throughout Japan, who produce one or two things for Toyota. And too, Toyota basically built one thing, or one set of things. Cars and Trucks. If you try Just-In-Time at someplace whose output is more disparate, it doesn't work all that well.

Look at a hospital. They wound up re-using once only masks and other clean garments during the height of Covid because they could not get enough. Their inventory limits were set, and their ordering quantities were established. And then they started competing with all the other hospitals in the world. It did not work, and it still isn't working well.

The Covid pandemic exposed how brittle Just-In-Time inventory really is. As we enter the upcoming Tridemic (Covid variants, RSV, and Flu variants) we see the same things happening again. Staff shortages, equipment shortages, and shortages of supplies and even shortages of basic drugs like Amoxicillin. Nothing has changed, because we are still trying to do Just-In-Time.

In February, Russia exposed how brittle things are for energy. And this winter, we are seeing the effects of Climate Change as never before. Amazon built their business on being able to deliver anything anywhere in two days. Now that they can't, their sales are dropping and so is their stock price. Not being able to deliver over the Christmas season may just be fatal.

### THE FALSE ECONOMY OF OFFSHORING

This leads us to the unfortunate companion of Just-In-Time: Offshoring.

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There is an ancient saying from Greece that goes, “Those who the gods wish to destroy, they first make mad.”

First organizing your manufacturing and distribution on Just-In-Time principles makes your supply chain vulnerable. Adding in offshoring makes it brittle, and easy to break, and makes you mad.

So how did we get here?

Remember that there are some basic “rules of accounting.” The Generally Accepted Accounting Practices, or GAAP. One of the rules is that you minimize inventory. Another is that you minimize wages. Just-In-Time inventory practices minimize inventory investment. The way you minimize wages is to move manufacturing offshore to what they used to call “low-cost-of-manufacturing” countries. If that isn’t enough, not only do you move manufacturing offshore, but you hire other companies in those countries to manufacture for you. Fabless semiconductor companies do this. They don’t make anything, they just design and factor it from another manufacturer.

Moving offshore can be drastic or not, depending on how much direct control you keep. If you move a division to Monterrey Mexico, you still run it. If you are having Foxconn build your devices in China, you don’t have as much control as if you did it yourself.

But offshoring worked, same as Just-in-Time did, because there was a stable international and political/social system. It didn’t matter that some countries were democracies and others were dictatorships, because the conduct of business was above politics.

Offshoring worked, same as Just-in-Time did, because there was a stable international and political/social system.

Then China shut down completely because of Covid-19. And then Russia, a third-rate economic power with lots of gas and oil and nuclear weapons, attacked the Ukraine, a first rate economic power, also with gas and oil, and computers and software developers and a very westernized economy. And then we started to see the effects of anthropogenic climate change. Huge storms, massive hurricanes, cyclones, terrible snowstorms. Delivery drivers caught in the weather. Ships caught at sea.

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Clearly, if you had offshored production to China, or to Ukraine, or Russia, you were, in a word, screwed. It doesn't matter how cheap you can produce your products, if you can't get them, not Just-In-Time, not ever, for years.

Economic pundits are whistling very loudly past the graveyard of ideas right now. Oh, the supply chains are working back to 2020 levels. But any intelligent inspection will show you they are not. And they may not ever be back.

The moral of the story is that we might want to take a very long close look at GAAP, and think seriously about letting inventory taxes go away, allow manufacturing companies to express their inventories as assets, not liabilities, and the same with wages and benefits. You can't make stuff if your workers don't show up because they are dead or are working someplace where the pay is better.

Once again, we need to look at what we value, and how much we value it. We need to re-evaluate what our goals are. If our goal is to create things and make money, we have to have the tools to do that, or we have to re-evaluate what we think our goals actually are.

### **INDUSTRIAL STORYTELLING, PART THREE**

When you tell a story about your company and your products, you can't just stop there. Your stories need to be about more than the widgets you make, and their "features, functions, and benefits." If you only talk about the fact that your wonderwizzer has more wobbledy than your competitors' wonderwizzer, the second time you tell the story your customers and your stakeholders will shrug their shoulders and wander away.

Right now, Teledyne ISCO is running an excellent set of stories about their employees. You get to meet a long-time ISCO employee (and not just the big dogs, either). They tell you what they like the most about their job, and they come across as genuine. Customers who already know them get a confirmation that they were right to like and trust these people, and customers who don't know them yet will probably do so soon. Even though some of these people are really low-level

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employees, they are portrayed as interesting, because THEY ARE interesting. Everybody is interesting on some level.

Look at how you tell your stories. Are your stories boring? Are you stuck with brochureware that doesn't have a soul? What can you do to improve your stories? If you can't figure it out, call me, and I'll help you.

Oh yes, and you need to use all media there are to tell your stories.

More about storytelling next time!



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