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INDUSTRIAL AUTOMATION & PROCESS CONTROL

MANUFACTURING IN A BRITTLE WORLD

Until the Covid-19 Pandemic, we all believed that the global economy, and its associated global culture was knit together out of many disparate strands, and like all multi-stranded cable, had lots of give and flexibility.

After Covid, we know that's not true. You can't lose several million people in just a couple of years and expect everything to operate flawlessly. Especially when the vast majority of those people were productive workers in fields as disparate as food processing and healthcare. No wonder the first thing that happened as the Pandemic eased was "the great resignation." People figured out that they not only could go where they were paid and treated better, they *should* do that, because the Pandemic showed them that life wasn't safe, and it could be once again, "nasty, brutish, and short."

When Russia invaded Ukraine, the resulting disruptions have seriously affected the ability of people in Europe, the Middle East and Africa to stave off starvation, since Ukraine and Russia are two of the largest producers of wheat in the world. If you drive tanks over and shell wheat fields, it's hard to harvest. In North America, the epidemic of avian flu has forced millions of chickens to be destroyed, and the market for eggs has been significantly affected.

Almost nobody with a brain and eyes disputes the effects of climate change any more. We have seen too many high-powered storms, huge hurricanes, typhoons, thunder snow, and torrential rains that would be better expected in the Amazon bashing the coast of California. These storms and weather events have a direct effect on supply chain availability.

The end result of all this is a perfect storm of ways to hurt the global economy and culture. Any one of them can have a profound impact...but together they are devastating.

What we have is a global economy that is brittle. Any small stress, any at all, and the economy will snap.

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Now, let's add to this the effects of cultural change and what Joy Ward likes to call "TechnoTrauma." The world is reeling from the effects of too-rapid change, both technical and cultural. Things that used to be bedrock beliefs are not bedrock any longer. Same sex marriage, women's reproductive health, the end of the American dream, are no longer the stuff of fringe groups, but are now mainstream. Every person wants to have the ability to get ahead. Unfortunately, it looks like that may not be possible for the majority of global citizens. The super-rich *do* have different rules.

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The tumult and turbulence of the strained economy and the strained cultural norms are likely to fuel the increasing authoritarian political agendas around the world.

With the global economy and the global culture in tatters and exhibiting

extreme brittleness, what's a poor manufacturer to do?

There are some clear pathways forward for companies in this brittle economy. These steps can be taken by any company from fast food to high tech manufacturing.

Keep your word. If you make promises, keep them. Your word is your bond. If you want to differentiate yourself from the rest of the herd, keep your word.

Keep your supply chains short and local. You can't make product if you can't get raw materials or components. Even if it costs more to produce locally, over any reasonable baseline having bulletproof supply chains will cost less than trying to source everything from the lowest cost of manufacture countries. You will also have more control over deliveries, and you will also have better quality and quality control.

Automation is your friend. Better control and instrumentation will allow you to stabilize your manufacturing program and make you more agile and able to change production schemes rapidly. It will also improve your maintenance and reduce downtime. Properly done, automation will cut costs, improve production, improve quality, and increase profitability.

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Your workers are your most important asset. Really. You can say this all you want but unless you actually practice this as a major axiom you won't get the benefit you can achieve by having your workers completely in alignment with your goals as a company, and you will lose them as soon as they can find new jobs. Remember, unemployment is at approximately 3%, which is defined as full employment. Jobs are still going begging. Don't let them be yours. Hiring and training the best you can get may cost you more, but it will pay dividends you can't get otherwise.

Focus on quality. This is once again a critical parameter in your success in a brittle economy. Never focus on lowest cost, always focus on being the best in your economic sector. You will get your price. You will increase profit, increase sales, and improve your reputation. Many people will pay extra for higher quality because it enhances their own products in what is really an inexpensive way.

If the economy and the culture of the world continues to be brittle and fragments even more, we may all lose, but by being agile and concentrating on being the best you can be, making the best stuff you can, and having the best workforce you can hire and train, you have the best chance to make it over time.

GIGWORKING AND THE GIG ECONOMY

As we have talked about before, the economy and the global culture are brittle and fragmenting. TechnoTrauma has taken all the certainty out of careers in commerce and manufacturing. Nobody knows if they'll be employed tomorrow or next week. Google has laid off 20,000 workers (knowledge workers, engineers, programmers, scientists—not usually subject to layoffs) and Amazon, Twitter, Netflix and other tech giants have done so as well. Suddenly, about 100,000 highly educated, highly paid tech workers have been pitched onto the street to join the Gig Economy.

There have always been people who thrive working gig by gig, making sure that their status as freelancers gave them the independence and control that they wanted. But that's different from people being forced to work gig by gig.

What the so-called Gig Economy does is create an entire class of temporary workers, mostly highly trained and high-tech capable workers, who are pitted against each other on a regular basis to drive their prices down and drive them to accept unfair contracts and poor working conditions.

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It is a return to the 19th century. As the Upwork commercial says, “We can staff up, we can staff down.” But only the gig workers are hurt when their livelihoods are removed. It isn’t just the venture capitalists that take risks on new tech ventures. All the employees do too, and most of them risk more—some risk all.

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The Gig Economy has been a feature (or is it a bug?) of high-tech work for decades. There are staffing companies who make their livings feeding gig workers to Amazon, Microsoft, Google, Meta, and the rest. Their employees do the same work as workers who actually work for Amazon, Microsoft, Google, Meta and the rest—they just don’t get paid the same, they don’t get the same benefits, and when it is time to “staff down” they are the first to go. So, how is it that the Gig Economy is viewed as liberating and shiny?

But if what you want to do is create a powerhouse company that is here for the long haul, hiring workers out of the Gig Economy and giving them permanent postings with good pay and benefits, and protecting them from the vicissitudes of being high-tech piece workers, will give you a top-notch staff that is loyal and committed. It is hard to beat that. And in this age of a brittle economy and culture, having loyal and committed staff means that you have an edge over your competition who are still treating workers like nuts and bolts. Salaries and benefits may cost you more, but your workforce will make up for it in spades.

INDUSTRIAL STORYTELLING, PART FOUR

This part is about trust. How to gain it. How to lose it. How to abuse it. Many people believe that once you get a customer to trust you and your product, you can keep them forever, no matter what you do to the product and the customer.

This is, fortunately, not true.

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Gareth Edwards wrote about this in November 2022 on www.every.to, in a piece he called “Breaching the Trust Thermocline Is the Biggest Hidden Risk in Business.” What’s a thermocline? It is the point where warmer water meets colder water in a lake or ocean. The shift of temperature as you go deeper is sometimes imperceptible but then it suddenly changes. That’s the thermocline.

In business, companies often act as though their trust current with their customers is a linear function. That is, once begun it keeps on going. This is not true. What the trust relationship between you and your customers actually is, is a thermocline. It is a non-linear function. Suddenly, and without warning, the bottom drops out of your business, and you simply run off a cliff. You can’t regain what you had, and it may take decades to fix the problem. You may not have decades. The business superhighway is littered with the corpses of companies who abused their customers’ trust just a little too much. This abuse of trust is like the way you boil a frog. Just a little hotter and again a little hotter, until the frog is parboiled.

The airlines have pursued the trust thermocline vigorously. Smaller seats, shorter seat pitch, narrower aisles, smaller overseat bins. Just a little, not too much, but enough to squeeze a little more profit from their customers. Then something happens like the Southwest computer disaster in December 2022. They have completely breached their customers’ trust, and it will take a long time to fix it.

Automation companies who reduce quality “just a little bit, nobody will notice” are often surprised when people stop buying their poor-quality products.

Edwards uses several examples of this in his article, especially in high tech and streaming media companies. He notes that Netflix is losing customers because they have dipped below the trust thermocline. Edwards says, “At its simplest, the trust thermocline represents the point at which a consumer decides that the mental cost of staying with a product is outweighed by their desire to abandon it.”

Why is there a mental cost? It is because at bottom, the customers’ relationship with your company and your products is based on emotion, not features, function or benefits. We buy things and services based on our emotions. We dress up the decision with facts and figures, but the end result is emotion. In the late 1990s, I happened to talk to a customer who was looking for a radar-based level gauge that could be used in a tipping bucket in an aluminum smelter. I

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gave him the names of five companies who had done that application successfully multiple times. I later found that he never bothered to call those companies because his Rosemount rep told him that Rosemount would have a radar level gauge in a few weeks. I have no idea what he did when the Rosemount gauge took more than a year to make it to market and wasn't effective in that application in the first iteration. He said that if Rosemount was going to make it, he would wait. Because, he said, he preferred to buy from them over anybody else. "I just feel more comfortable with Rosemount," he said. Pure emotion. Never doubt it.

It takes a lot to abuse your customers' trust to the point that you lose them to other companies. But once it happens, it happens suddenly, and is not reversible. It is a tipping function, and when the tipping point is reached, you must go over the cliff with it.

So, if you want to stay above the trust thermocline, you need to never shave the quality of your product. Don't reduce the content and keep the price the same. Don't remove features. "The customers will never notice," is a dangerous point of view. Customers *always* notice. They may not say anything at the time, but you are getting closer to the trust thermocline. Once you stop caring for your customers, you can almost never stop. And eventually, the "stickiness" of your customers' emotional attachment to you and your products will end.

Can you come back from below the trust thermocline? Edwards points to the famous case of Microsoft, who so abused their desktop customers that it took a hard pivot toward X-Box and twenty years to get back their customers' trust—and note that it is generally a different set of customers. Unless you have Microsoft's resources, it is simply better not to abuse your customers.

One of the easiest ways to drive your customers across the trust thermocline is to tell your story in a way that is not consistent with what you actually do. If the customer believes that they will be getting what you promise, either explicitly or implicitly, and you don't deliver, the cognitive dissonance and emotional upset will drive them away from you faster than just delivering poor product will.

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WALT BOYES is a principal with Spitzer and Boyes LLC. He is a Life Fellow of the International Society of Automation, a Fellow of the Institute of Measurement and Control, a Chartered Measurement and Control Technologist, and a member of the Association of Professional Futurists. From 2003 to 2013 Walt was Editor in Chief of *Control* magazine, and from 2014 he has been Editor and Publisher of the INSIDER. From 2016 to 2022 he acted as Editor of the alternate history magazine, *The Grantville Gazette* and as Editor in Chief of *Eric Flint's Ring of Fire Press*, and he recently joined Untreed Reads Publishing, along with Joy Ward, as SFF/AltHist Editors. Walt is available for consulting and for speaking engagements both in person and online.

Contact him at waltboyes@spitzerandboyes.com or waltboyes@gmail.com , or by phone at +1-630-639-7090.