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BOEING AND THE DEATH OF QUALITY

In 1997, Harry Stonecipher, the CEO of a rapidly failing aerospace company, McDonnell-Douglas, bought Boeing Aircraft Company using Boeing's money in a goofy transaction that wound up with Stonecipher and his cronies in charge of the

resultant company, which ironically, he named Boeing. Boeing had always been an engineer-led and technology-driven company since its founding by William Boeing in 1916. Now, however, the company would be led by accountants and managers. Stonecipher, having worked much of his career at GE, was a disciple of Jack Welch.

The first real sign of this was the move of Boeing's world headquarters from Boeing Field to Chicago. Nobody builds airplanes in Chicago. Several Boeing officials in the Seattle HQ told me at the time that Stonecipher's idea was to move the executives out of the Seattle area, and hire more accountants and MBAs rather than engineers, and break the unions. Using the traditional 1990s tools of outsourcing, manufacturing in "right to work" states, and changing the design criteria for airplanes, Stonecipher changed radically the culture of engineering design for safety that had always been Boeing's hallmark.

Even after Stonecipher had to resign as CEO because of a relationship with a subordinate, and though his tenure at Boeing was relatively short, the changes he made to Boeing's corporate governance and culture have continued to be disastrous and counterproductive.

With the top executives in Chicago and remote from the actual business, there could no longer be "management by walking around" that was a hallmark of Boeing and Hewlett-Packard (whose namesake, David Packard, coined the phrase).

Bill Boeing and his successors, up to Stonecipher, had always believed that quality was not a cost. Quality, in design, engineering, manufacturing, and testing, was what made Boeing's airplanes the safest in the sky. From Stonecipher forward to today, quality has been a cost item,

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and debates about just how much quality is necessary for safety have swirled around every Boeing plane design since.

The MAX version of the venerable 737 airframe is not anywhere near as airworthy as its predecessors for some very good reasons. The enormously enlarged engine nacelles, mounted far forward of the wings, are an aerodynamic nightmare, and the first two major crashes of the series were all about the software package not working as advertised. The most recent contretemps, the door plug that jettisoned itself on an Alaska Airlines flight from Portland OR to Ontario CA, appears to have been caused by a multitude of errors and omissions that, if Boeing had any semblance of the quality programs that made the 747, 757, 767, 777, 787 and the original 737 the choice of airlines all over the world, would never have been allowed and once caught, heads would roll from the assembly line up to the board room. At this point, the fact that nobody has been fired for this is telling.

One of the Stonecipher era decisions was the diffusion of responsibility throughout the company and its suppliers and subcontractors. Boeing's first reaction to the blowout of the door plug was to blame the supplier who did the work. It turned out that Boeing, itself, had done the final fit and finish, not their supplier. The key takeaway here is that if everybody is responsible, then nobody is responsible. As the saying goes, success has a thousand fathers, and failure is an orphan.

“How much quality and safety can we build into this thing (or how little do we have to), and still make a lot of money?”

Now this is not a diatribe against Boeing, but rather a discussion of how the Stonecipher attitude toward cost reductions and the lessening of the importance of quality has permeated through industry and manufacturing. This is not entirely Stonecipher's or Boeing's fault of course. Teaching the GE way, Jack Welch started to have his people asking questions like, “How much quality and safety can we build into this thing (or how little do we have to), and still make a lot of money?”

When you are in an industry where a relatively small error can cause catastrophic loss of life to workers and local citizens alike, quality should not be part of the cost equation. Now look at every industry, and its threats and potential for harm, and see why maintaining quality at all costs will increase profits, not losses. As the Ford Motor Company found after the Pinto fiasco, “Quality *IS* Job One!”

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What will it take for quality to resume its place in global manufacturing? How many people need to be killed in unnecessary accidents in a variety of industries? How much money will companies have to pay for quality mistakes? The door plug incident has cost Alaska Airlines over \$125 million so far, and the lawsuits have not been settled. The issue of quality in maintenance, in training, and in the use of contract labor has caused BP untold millions of pounds, and they had to sell the refinery in question, which had produced no product for over three years.

Quality issues inhabit every aspect of manufacturing everywhere in the world. Sometimes it is taken seriously. I was in China shortly after the melamine scandal in the pharma industry, meeting with the president of a joint-venture pharmaceutical toller firm. "Come here," he said to me, motioning me to a window behind his desk. "See that patch of grass? If I ever permit something like that to happen, that's where they will take me and shoot me and charge my wife for the cost of the bullet."

Is that overdoing it? You should ask somebody who's been hurt by a quality failure that question.

THE EFFECTS OF WAR ON MANUFACTURING

The prosperity of the last 75 years has almost entirely based on the fact that there has been a global lack of war (I'd call it peace, but the number of revolutions and brush wars since 1945 has been more than can just be overlooked). This substrate of a functioning global economy has made the social, scientific, and physical prosperity of most of the globe possible. The question is now, whether that substrate is breaking down.

In February of 2022, Russia invaded Ukraine. This was clearly a Ruhr or Sudetenland grab for resources by a relatively poor larger country against a relatively prosperous smaller country. Ukraine, despite its location in Eastern Europe, is heavily westernized, and synched into the digital culture of the West. Russia, on the other hand, is not heavily invested in the Western economy, and they fundamentally lost the war on social media...the ending of their invasion is probably going to play out in the next few months. Russia had also seized Crimea earlier, in 2014, with no retaliation of note from the Western powers. Russia, like Germany in the 1930s, thus assumed that taking all of Ukraine would raise useless protests but not much more.

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Instead, Ukraine's unlooked for and vigorous resistance for over a year now has caused real problems with the economies of the globe. Natural gas, exported from Russia, has become jewel-like expensive, while starvation in Africa and the Middle East has occurred because Ukraine is formerly one of the largest grain exporting countries in the world. Harvests have not been permitted in much of the war zone.

Russia has not been deterred as yet by Ukraine's resistance, since they are being re-armed by China, Iran, and North Korea.

Then, in October 2023, after building up over 200 miles of fortified tunnels under Gaza and the West Bank, Hamas, which had been masquerading as the legitimate government of Gaza and the West Bank for more than 15 years, invaded southern Israel, butchering over 1500 civilians including atrocities to women and children. Predictably, Israel reacted with a heavy foot and has basically ruined the Gaza Strip killing many Hamas soldiers and also many civilians.



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It appears that Hamas spent all or nearly all the aid money that was supposed to assist the plight of ordinary Palestinians on building their underground fortress under Gaza. It is estimated that Hamas spent well over \$2.5 billion to do this. Hamas is also armed by Iran. And in a show of support for Hamas, the Lebanon-based Iranian client army Hezbollah (literally, "The Party of God") and the Houthi rebels in Yemen have been attacking both Israel, but also the ships passing through the Red Sea after transiting the Suez Canal. Here's why this is important: In less than three months, the cost to ship a standard 40-foot container through the Suez Canal and the Red Sea to ports in India or Europe has quadrupled from around \$1300 to around \$4300. If this continues, the global economy will find itself severely damaged by this war. Costs will rise and inflation, which just got under control after the Pandemic, will also rise. Inflation is not good for the economy and hurts companies and consumers equally badly.

In addition, the money spent on war materiel is sunk cost. It does nothing to advance the economy. One of the exceptions to this is the use of consumer drones in the Ukraine war zone. At least some dollars are going back to the non-military economy.

In the 1960s there was a slogan and a poster that said, "War is not healthy for children and other living things." There are millions of Ukrainians, Israelis, Palestinians, Syrians, Somalis, Eritrean and Ethiopian and other children who would agree. And now we have the numbers to prove that war is not healthy for the world's economy either.

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TURNING THOSE GIANTS: LESSONS FROM THE CAREER OF EMERSON'S JOHN BERRA

In March of 2024, Forbes Books will publish a memoir by retired Emerson Process Management Chairman John Berra entitled, *Turning the Giant*. It is unusual for hardcore manufacturing and automation CEOs to write memoirs. Jack Welch, Jack Stack, and some others come to mind. But this is much more than just a memoir. The subtitle is telling: *Disrupting Your Industry with Persistent Innovation*. Berra uses the format of a memoir and vignettes of his own career to discuss the benefits of persistent innovation and how he used innovation as an unbeatable tool to grow his company into the largest process automation company in the world and second largest automation company behind Siemens. This is a terrific achievement considering who the largest companies were when Berra began: Honeywell, Taylor, Foxboro, and some other companies that disappeared into my old “Directory of Lost Companies” list.



Berra presents as a man driven to succeed, to innovate, and to use innovation to make Emerson the first mover in automation and controls. He understood early in his career that controlling a plant was a three-legged stool: the sensors, the final control elements, and the control system itself. He showed that it was possible to build a company based on that three-legged stool—and that it was possible to build that stool using standards and standards-based components, and off-the-shelf components. He recognized that it was possible to leverage the technology of the office and world networking and computing components and cause the control systems and networks to improve as the general electronics and computing industry improved and released new components.

There is a story that perfectly illustrates this. Berra and his development team made the decision to use Ethernet networks for DeltaV. According to Duncan Schleiss, Berra had to explain to Chuck Knight, Chairman of Emerson Electric, why DeltaV could only have 36 nodes in its first incarnation. He explained that at least two companies were about to release new developments—managed ethernet switches-- which would essentially permit an infinite

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number of nodes. According to the story, which may well be apocryphal, Berra told Knight that everything would be fine because they were not going to deliver any DeltaV systems until they could include managed switches. Berra's entire career is full of intelligent risk taking. The DeltaV system, the HART protocol, the Foundation Fieldbus protocol, and other innovations are examples of how Berra worked to change the automation industry from proprietary Big Iron to control systems and networks that could be upgraded as the computing and technical innovations were announced by general industry. For this insight alone, John Berra is a significant force for change in the automation industry.

Berra's book is very much like the man. He has never been one for boasting and touting himself over his co-workers and reports. His book talks about what he did to create Emerson Process Management and make it the largest controls and field devices company in the world. But he uses these examples to point the way for anyone to learn to do what he did.

One of my sincere regrets in my career in automation is that when I was looking for a job in Austin, John had just announced a hiring freeze, and other opportunities kept me from ever working for and with him. I think it would have been a hell of a lot of fun.

Buy this book when it comes out. In fact, pre-order it now. https://www.amazon.com/Turning-Giant-Disrupting-Persistent-Innovation/dp/B0CN2GFJMJ/ref=sr_1_1?crid=9FUX6COB6RJ6&keywords=turning+the+giant&qid=1706670327&srefix=Turning+the+giant%2Caps%2C148&sr=8-1



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