Hello! Well, hasn't *this* just been the year? Over on this side of the monitor, in the past three months I've had both COVID and RSV. (Courtesy of my son's high school.) But I'm through both now—and looking forward to next year.

Speaking of challenging years, though, let's talk about The Boeing Company. Boeing Defense has had a very challenging year, a year that follows previous challenging years. In fact, Boeing as a company has had a challenging past few years and its stock price has reflected those challenges. The company's stock price hit a high of just under $441 per share on March 1, 2019. In contrast, on December 16, 2022—less than four years later—the stock price stood at $185 per share. That's a drop of nearly 60 percent.

That's not the end of the story. In 2020, the company was paying shareholders a dividend of about $2.00 per share. Then dividends were suspended. In 2021, Boeing paid shareholders nothing. The story was the same for 2022.

Sucks to be a shareholder in The Boeing Company, right?

You know, we've made that point before. Oh, yes—we have!

For example, in a **2018 article** , we wrote—

And what about big versus small contractors? If the Pentagon is going to award contracts based on the amount of investment that contractors are willing to make, then only the largest of contractors will win awards. The smaller contractors will be locked out of the 'pay for play' competitions.

To sum up these thoughts, it seems that certain larger contractors are willing to pay to play in long-term Pentagon contracts, betting that they will earn back developmental losses over the lives of the programs. They may be right; but we remember the story of that DOE contractor, whose program investments turned out to be larger than it ever dreamed of.

The point was (and still is): making a known investment to win a major program only works if your investment stays the same size as you first predicted. Should circumstances change and your initial investment prediction becomes “overtaken by events” then your initial Return on Investment (ROI) analysis is thrown in the trash can. At that point, you and your shareholders are well and truly screwed because you are now locked into a fixed-price (or FPIF) development program that you *must deliver*, regardless of supplier programs and regardless of COVID impacts and regardless of inflationary impacts on your budgeted costs. You *must* deliver, regardless of what it costs you.

If you don’t deliver, you will be Terminated for Default.

You have to deliver no matter what it costs; if you have schedule slips and subcontractor issues and technical issues that you thought you could solve (but which turned out to be tougher problems than your engineers predicted) and if you have ridiculous cost growth in materials and labor—and if you have labor shortages because your people are leaving in droves because you don’t pay them well or maybe they’re sick of a toxic (or inept) management culture—and if your cash-cow commercial side of your business tanks at the same time you need a cash infusion to cover your program losses … well, then. You just might be The Boeing Company.

Talk about grabbing a tiger by the tail!

In 2022, the tiger bit Boeing.

What do we mean?

Under Shadow of Financial Losses, Boeing Makes Sweeping Changes to Defense Biz (Breaking Defense, 11/17/2022)

The changes, including halving business divisions, come as Boeing’s defense sector [BDS] finds itself at a crossroads, with new leadership contending with systemic financial issues tied to its large number of fixed-price contracts with the US government. …

BDS has racked up about $4.4 billion in losses so far this year on fixed-price programs, primarily driven by the KC-46 tanker and the VC-25B programs (the latter effort better known as the next-generation Air Force One), but also including the T-7A Red Hawk trainer, MQ-25 tanker drone and Commercial Crew program with NASA.

Boeing Reorganizes Defense Business After Financial Troubles (Air & Space Forces Magazine, 11/17/22)

Boeing has faced companywide losses, including in its commercial sector. Its defense business has been a significant drag on the company's recent financial performance following losses incurred on fixed-price government contracts. In October, Boeing reported a loss of $3.3 billion in the third quarter of 2023, with its defense business $2.8 billion in the red. …

The KC-46 and VC-25B, which will become the new Air Force One, have been a significant financial drag for Boeing. The KC-46 program lost $1.2 billion, and the VC-25B program lost $766 million in the third quarter. The KC-46 has been troubled from the start, problems in its refueling system requiring a revamp and leading to delays. The VC-25B program was priced too cheaply, according to Boeing, making it a loss generator for the company. Supply chain issues and labor shortages have increased problems.

Boeing Reorganizes Defense Division After Third-Quarter Losses (Aviation Week, 11/17/2022)

Boeing's Defense, Space and Security (BDS) division announced an organizational streamlining on Nov. 17 as the $26.5 billion business unit seeks a return to growth and to curtail mounting losses on fixed-price development programs. … Boeing also announced the restructuring three weeks after BDS reported a 20% reduction in quarterly revenues and a $2.8 billion reach-forward loss on five fixed-price development programs. Those same programs have accounted for $11.5 billion in reach-forward losses overall since 2014.

But in addition to the impacts to shareholders, there are more subtle and perhaps far-reaching impacts from Boeing’s management mistakes. Richard Aboulafia discussed those impacts in a **recent editorial** at Aviation Week.

He wrote that Boeing’s current situation “is not good for the long-term health of the U.S. aerospace industry, the broader U.S. economy or the aerospace workforce. But one overlooked consequence of Boeing’s woes is the possible impact on U.S. defense.” He cites three potential impacts to the United States’ national security posture, as follows:

First, BDS execution problems mean the U.S. military services will have to keep using older, less reliable systems that are costly to operate. With KC-46 and T-7 delays, even the oldest KC-135 tankers and T-38 trainers will soldier on well past 60 years of age. Pentagon efforts to procure interim or supplemental systems—an Air Force/Navy trainer or the Air Force’s KC-Y tanker—are uncertain.

Second, an industrial base decision might have been made for the Pentagon, whether it wants one or not. BDS losses reflect low bids on relatively low-tech programs; it is not clear whether Boeing can hope to bid on new programs that require more advanced engineering, particularly if past performance is a key selection factor. … Boeing could also be disadvantaged by Pentagon concerns about the company’s in-house design capabilities. Boeing’s 2015 Long-Range Strike Bomber loss to Northrop Grumman in part reflected Air Force concerns about Boeing’s strategy of relying on Lockheed Martin for much of the design work. Relying on Saab for much of the T-7 design may be viewed as a risky tactic, too. … The Air Force’s Next-Generation Air Dominance program looms large over this. If it excludes Boeing, and if the Navy’s F/A-XX either stalls or excludes Boeing, we can assume there are now two competitors for new fixed-wing military contracts, not three. The Defense Department does not want less competition for future programs and has signaled opposition to mergers resulting in that outcome, but it might have to live with that reality anyway.

Finally, the nation’s ability to design large aircraft must be considered. The C-17 fleet is wearing out at a rate faster than expected, and the C-5M is getting quite old, too. Given the relevance of strategic airlifters for operations in the Pacific, the Pentagon will need to start funding a new program sometime in the next 10 years. … Calhoun’s new jetliner deferral means Boeing design teams will not hire new talent, resulting in smaller numbers and a much older demographic by the 2030s. We cannot rule out mass layoffs of these engineers, either. In the late 1980s and early 1990s, the C-17 program was plagued by serious overruns and delays, largely because McDonnell Douglas’s aircraft design teams were in a state of atrophy. Boeing is at risk of entering that phase and perhaps an even worse one.

So … is there a lesson or two that might be learned here?

Well, yeah. First of all, beware fixed-price (or FPIF) development contracts. We've sounded that warning before. (See **this 2018 article** .) Just … *don't.*

Second, let's talk about workforce decisions. As Aboulafia's editorial noted, without a strong engineering workforce, you don't get new products. You don't get innovation. You don't get clean-sheet *anything.* Somewhere along the line, The Boeing Company stopped being a engineering company and started being a for-profit company run by the business folks. (That's not just our outsiders' opinion. See Flying Blind: The 737 MAX Tragedy and the Fall of Boeing , by Peter Robison.)

You'd like to think that as older folks depart, they would be replaced by a cadre of young engineers, trained in the latest and greatest design tools. New blood, fresh energy, buzzing with ideas for the future. But where do those folks come from?

They don't come from St. Louis.

No offense to St. Louis! But it's not especially known for its depth of engineering talent. Not a lot of engineering schools in the area, compared to, say, Southern California. Which is where BDS's headquarters used to be, before it moved to the St. Louis area in 1997. (We should note that the HQ moved from Hazelwood to Washington, D.C. in 2016, but that didn't impact the engineering staff.)

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In November, 2015, the final C-17 left Boeing's Long Beach, CA, facility and 2,500 people were laid-off. Per a 2019 article, the C-17 plants in Wardlow "remain largely vacant."

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In 2016, Boeing moved 500 (unspecified) positions from Huntington Beach, CA to Hazelwood as part of a "facilities consolidation."

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In December of that same year, Boeing announced that 2,400 jobs would be leaving its Huntington Beach, CA, facility over the next four years (with some going to other Southern California facilities). Importantly, Boeing's Huntington Beach campus "spread across some 28 buildings on 178 acres, include[d] a design and research center focused on space access, networked systems, cybersecurity, unmanned underwater vehicles and advanced manufacturing, along with key programs in the highly classified Phantom Works program." In other words, exactly the engineering talent you would want to retain. However, Boeing was prepared for attrition. A company spokesperson was quoted as saying: "Most [job losses] would come from attrition. Some people will decide they don't want to move and will leave the company. Some number will be layoffs. All will receive separation assistance."

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In 2021, Boeing announced that 150 "supply-chain related jobs" would be moving from California and Washington State to Texas.

In summary, Boeing made several decisions over the past twenty years that negatively impacted its critical engineering workforce. Seemingly driven by a need to cut costs, it made a decision to move away from its traditional facilities—places where the company had been for decades—and consolidate to less traditional areas. Critically, it consolidated in areas that didn't have the same robust engineering talent feeders.

We get it. It's popular to hate on California. It's super-regulated. It's practically a Socialist Paradise. It's one of the most expensive places in the US to live, with high taxes imposed on both individuals and corporations. Most of those less-than-charitable accusations are true (to some extent). And yet … where is Cal-Tech located? Where is the Jet Propulsion Laboratory located? Where is Edwards Airforce Base located?

According to the 2023 graduate school **rankings** by U.S. News & World Report, four of the top ten engineering schools in the United States are located in California, as are six of the top twenty. Washington University in St. Louis is #48; Missouri University of Science and Technology (Rolla) is #92. Good schools, for sure! Yet …. We think you get the point.

The fact of the matter is that most people *like* living in Southern California. They like only dealing with snow when they choose to deal with it by driving an hour or two into the mountains. They like being able to walk on the beach if they want to, or to surf in the Pacific Ocean during January. They like living in close proximity to culture. They like it where they live and many of them don’t want to move away. They won’t move away if their jobs move; instead, they’ll find another job in a competitor.

You ever been to El Segundo? Northrop, Boeing, Raytheon Tech, Lockheed Martin – all with facilities located within two or three miles of each other’s. Sure, it’s not the same now as it was back in the day—but it’s still there, still an aerospace/defense engineering hub. The point is: if their job moves away, many people—including some of your high-potential, highly knowledgeable and experienced engineers—can just change employers without having to relocate from the West Coast to the Midwest. In fact, the better they are, the easier it will be to job-hop instead of relocate.

The question becomes: Do you put your facilities where costs are lower … or do you put them where the talent is? What’s the correct answer for the financial statements? What’s the correct answer for the future of your company?

In our view—and in the view of others—Boeing sold its future for short-term corporate profits long ago. What we are seeing now are the consequences of that decision. Unfortunately, that decision also seems to have had consequences for the national security posture of the United States.