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Why Is Peter Thiel Pessimistic About Technological Innovation? | Dan Wang

11-14 minutes

We've all heard this quote from Peter Thiel: "We wanted flying cars, instead we got 140 characters." It's the introduction of his VC's manifesto entitled "What Happened to the Future?", and it neatly sums up his argument that we're economically stagnant and no longer living in a technologically-accelerating civilization.

Less well-known is a slightly longer quote from Thiel that also summarizes his views on the technological slowdown. This is from a debate with Marc Andreessen:

"You have as much computing power in your iPhone as was available at the time of the Apollo missions. But what is it being used for? It's being used to throw angry birds at pigs; it's being used to send pictures of your cat to people halfway around the world; it's being used to check in as the virtual mayor of a virtual nowhere while you're riding a subway from the nineteenth century."

Why is Thiel pessimistic about the the recent pace of technological innovation and economic growth? Here's a selection of his evidence that we're no longer technologically accelerating, collected from his writings and public talks.

(Remarks from talks are lightly edited for clarity. Click here to see this article in slightly prettier formatting.)

Energy

Look at the Forbes list of the 92 people who are worth ten billion dollars or more in 2012. Where do they make money? 11 of them made it in technology, and all 11 were in computers. You've heard of all of them: It's Bill Gates, it's Larry Ellison, Jeff Bezos, Mark Zuckerberg, on and on. There are 25 people who made it in mining natural resources. You probably haven't heard their names. And these are basically cases of technological failure, because commodities are inelastic goods, and farmers make a fortune when there's a famine. People will pay way more for food if there's not enough. 25 people in the last 40 years made their fortunes because of the lack of innovation; 11 people made them because of innovation. (Source: 39:30)

Real oil prices today exceed those of the Carter catastrophe of 1979–80. Nixon's 1974 call for full energy independence by 1980 has given way to Obama's 2011 call for one-third oil independence by 2020. (Source)

"Clean tech" has become a euphemism for "energy too expensive to afford," and in Silicon Valley it has also become an increasingly toxic term for near-certain ways to lose money. (Source)

One of the smartest investors in the world is considered to be Warren Buffett. His single biggest investment is in the railroad industry, which I think is a bet against technological progress, both in transportation and energy. Most of what gets transported on railroads is coal, and Buffett is essentially betting that after the 21st century, we'll look more like the 19th rather than the 20th century. We'll go back to rail, and back to coal; we're going to run out of oil, and clean-tech is going to fail. (Source: 10:00.)

There was a famous bet in the between Julian Simon, an economist, and Paul Ehrlich in 1980 about whether a basket of commodity prices will go down in price over the next decade. Simon famously won this bet and this was sort of taken as evidence that we have tremendous technological progress and things are steadily getting better. But if you had to re-run the Simon-Ehrlich bet on a rolling decade basis then Paul Ehrlich has been winning the bet every year since 1994 when the price of this basket of goods has been getting more expensive on a decade-by-decade basis. (Source: 8:30)

Transportation

Consider the most literal instance of non-acceleration: We are no longer moving faster. The centuries-long acceleration of travel speeds — from ever-faster sailing ships in the 16th through 18th centuries, to the advent of ever-faster railroads in the 19th century, and ever-faster cars and airplanes in the 20th century — reversed with the decommissioning of the Concorde in 2003, to say nothing of the nightmarish delays caused by strikingly low-tech post-9/11 airport-security systems. (Source)

Biotech

Today's politicians would find it much harder to persuade a more skeptical public to start a comparably serious war on Alzheimer's disease — even though nearly a third of America's 85-year-olds suffer from some form of dementia. (Source)

The cruder measure of U.S. life expectancy continues to rise, but with some deceleration, from 67.1 years for men in 1970 to 71.8 years in 1990 to 75.6 years in 2010. (Source)

We have one-third of the patents approved by the FDA as we have 20 years ago. (Source: 7:35)

Space

The reason that all the rocket scientists went to Wall Street was not only because they got paid more on Wall Street, but also because they were not allowed to build rockets and supersonic planes and so on down the line. (Source: 45:50.)

Space has always been the iconic vision of the future. But a lot has gone wrong over the past couple of decades. Costs escalated rapidly. The Space Shuttle program was oddly Pareto inferior. It cost more, did less, and was more dangerous than a Saturn V rocket. It's recent decommissioning felt like a close of a frontier. (Source)

Agriculture

The fading of the true Green Revolution — which increased grain yields by 126 percent from 1950 to 1980, but has improved them by only 47 percent in the years since, barely keeping pace with global population growth — has encouraged another, more highly publicized "green revolution" of a more political and less certain character. We may embellish the 2011 Arab Spring as the hopeful by-product of the information age, but we should not downplay the primary role of runaway food prices and of the many desperate people who became more hungry than scared. (Source)

Finance

Think about what happens when someone in Silicon Valley builds a successful company and sells it. What do the founders do with that money? Under indefinite optimism, it unfolds like this:

- Founder doesn't know what to do with the money. Gives it to large bank.
- Bank doesn't know what to do with the money. Gives it to portfolio of institutional investors in order to diversify.
- Institutional investors don't know what to do with money. Give it to portfolio of stocks in order to diversify.
- Companies are told that they are evaluated on whether they generate money. So they try to generate free cash flows. If and when they do, the money goes back to investor on the top. And so on.

What's odd about this dynamic is that, at all stages, no one ever knows what to do with the money. (Source)

10-year bonds are yielding about 2%. The expected inflation over the next decade is 2.6%. So if you invest in bonds then in real terms you're expecting to lose 0.6% a year for a decade. This shouldn't be surprising, because there's no one in the system who has any idea what to do with the money. (Source: 27:35)

Science and Engineering

We have 100 times as many scientists as we did in 1920. If there's less rapid progress now than in 1920 then the productivity per scientist is perhaps less than 1% of what it was in 1920. (Source: 50:20)

The Empire State Building was built in 15 months in 1932. It's taken 12 years and counting to rebuild the World Trade Center. (Source: 36:00)

The Golden Gate Bridge was built in three-and-a-half years in the 1930s. It's taken seven years to build an access road that costs more than the original bridge in real dollars. (Source: 36:10)

When people say that we need more engineers in the U.S., you have to start by acknowledging the fact that almost everybody who went into engineering did very badly in the last few decades with the exception of computer engineers. When I went to Stanford in the 1980s, it was a very bad idea for people to enter into mechanical engineering, chemical engineering, bioengineering, to say nothing of nuclear engineering, petroleum engineering, civil engineering, and aero/astro engineering. (Source: 45:20)

Computers

Even if you look at the computer industry, there are some things that aren't as healthy as you might think. On a number of measurements, you saw a deceleration in the last decade in the industry. If you look at labor employment: It went up 100% in the 1990s, and up 17% in the years since 2000. (If you ignore the recession, it's gone up about 38% since 2003.) So it's slower absolute growth, and much lower percentage growth. (Source: 8:40)

If you measured the market capitalizations of companies, Google and Amazon (the two big computer companies created in the late-nineties) are worth perhaps two or three times as all companies combined since the year 2000. If you look at it through labor or capital, there's been some sort of strange deceleration. (Source: 9:10)

We have a large Computer Rust Belt that nobody likes to talk about. It's companies like Cisco, Dell, Hewlett Packard, Oracle, and IBM. I think that the pattern will be to become commodities that no longer innovate. There are many companies that are on the cusp. Microsoft is probably close to the Computer Rust Belt. The company that's shockingly and probably in the Computer Rust Belt is Apple. Is the iPhone 5, where you move the phone jack from the top of the phone to the bottom of the phone really something that should make us scream Hallelujah? (Source: 9:40)

The Technologically-Accelerating Civilization

I sort-of date the end of rapid technological progress to the late-60s or early-70s. At that point something more or less broke in this country and in the western world more generally which has put us into a zone where there's much slower technological progress. (Source: 39:30)

If you look at 40-year periods: From 1932 to 1972 we saw average incomes in the United States go up by 350% after inflation, so we were making four-and-a-half times as much. And this was comparable to the progress in the forty years before that and so on going back in time. 1972 to 2012: It's gone up by 22%. (Source: 14:50)

During the last quarter century, the world has seen more asset booms or bubbles than in all previous times put together: Japan; Asia (ex-Japan and ex-China) pre- 1997; the internet; real estate; China since 1997; Web 2.0; emerging markets more generally; private equity; and hedge funds, to name a few. Moreover, the magnitudes of the highs and lows have become greater than ever before: The Asia and Russia crisis, along with the collapse of Long-Term Capital Management, provoked an unprecedented 20-standard-deviation move in financial derivatives in 1998. (Source)

People are starting to expect less progress. Nixon declared the War on Cancer in 1970 and said that we would defeat cancer in 1976 by the bicentennial. Today, 42 years later we are by definition 42 years closer to the goal, but most people think that we're further than six years away. (Source: 12:10)

How big is the tech industry? Is it enough to save all Western Civilization? Enough to save the United States? Enough to save the State of California? I think that it's large enough to bail out the government workers' unions in the city of San Francisco. (Source: 29:00)

The Conclusion

The first step is to understand where we are. We've spent 40 years wandering in the desert, and we think that it's an enchanted forest. If we're to find a way out of this desert and into the future, the first step is to see that we've been in a desert. (Source)

Sources:

Thiel's central case for a technologically-decelerating civilization can be found in this essay, published at the National Review. If you'd like a video summary, take a look at this talk he gave to the Federalist Society.

Other videos:

Debate with Marc Andreessen

Federalist Society panel on regulation and technology

Singularity Address, 2011

Effective Altruism Summit

Aspen Forum

SXSW Talk

Other texts:

The Optimistic Thought Experiment

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