



# The Fallacy of Treading Water

**T**reading water can save your life, but in some cases, it's exactly the wrong thing to do.

Europe is in crisis, Asia is slowing and our own economy is struggling with mounting debt and weakened fundamentals. As fiscal pressures build, research budgets have come under attack as a great place to find savings with the lowest near-term pain associated with potential reductions.

Put differently, what's easier? Kill a major acquisition program or terminate an equivalent investment in research that will not amount to anything for years to come? Do the former and people will scream bloody murder. Do the latter and there will be the inevitable outcries, but the stakeholder community will be smaller and the trickle-down economic impact lower.

This line of reasoning is compelling in its political simplicity. Yet it belies a fundamental truth. Research and innovation is the lifeblood of the American economy. It's what makes us Americans and has been the root of our prosperity since the 1940s.

Corporations, entrepreneurs, scientists and engineers have been willing to take risks, for no other reason than this American technology has enjoyed a 10-to-15 year lead over our peer competitors in most fields of endeavor. It was by taking risks that we set the agenda of industries and entire sectors of the global economy.

But across the research landscape, I see an evolution underway that should be cause for concern. Feeling the pressure of the here-and-now, many research enterprises are doing the "obvious" — scaling back high-risk undertakings to focus on near-term wins. Whereas in earlier times, research centers were enthralled with the notion of pursuing creative solutions to nagging problems, today, corporations and government labs have set their sights lower, on more incremental advances.

When we began analyzing research portfolios a decade ago, it was quite normal for organizations to focus 15 percent to 25 percent of total research investment on high-risk, high-payoff endeavors. Today, it is common for organizations to have literally zero investment in equivalent programs.

Shockingly, this is equally true of government labs, whose mandate it is to do the early-stage, high-risk research to spur innovation and help the economy find the next growth trajectory.

The leadership of our research labs is not at fault — it's the way our political, budgetary and oversight systems work. When budgets are constrained, few are willing to invest in areas that may not see a return for 10 to 15 years, if by doing so you run the risk of scaring off your friends in Congress. But this is what a country needs to do to stay ahead of its competition.

At the one moment in our history when we need to be bold and take risks, we're pushed by a shortsighted system to hunker down.

Today, American competitiveness is at risk; there are scores of examples all around us. In the 1980s, U.S. aviation technology was easily 15 to 20 years ahead of the Chinese. No one would argue that the Chinese fifth-generation fighter, the J-20, is equivalent to the Joint Strike Fighter, but it's not 20 years behind, either.

It is true that the Chinese struggle with modern aero-engine design, but they have made recent progress in this domain. Their electronics and composite materials technologies lag by about five years, but in these areas, too, they were once much further behind.

In some areas, the Chinese have been true innovators. The DF-21D anti-access weapon poses a real challenge for the U.S. In a Taiwanese scenario, the Chinese would use it to keep the U.S. surface fleet in the southern Pacific. The fact that we did not anticipate its development is bad enough. Worse is the reality that a determined onslaught of these weapons would be very difficult to counter.

Our capabilities have slipped in other fields, too. The Chinese have built major capabilities in cyberwarfare and the militarization of space.

The National Science Board notes with alarm that American investment in basic research is stagnating and even in decline in some disciplines, such as the physical and biomedical sciences. Moreover, the

federal government's contribution to academic research began falling in 2005 for the first time in a quarter of a century.

The paradox is that while we are slumping, the Chinese investment in science and technology has been growing rapidly. At last count, there were more than 160 research institutes in China and more than 60,000 scientists working in basic research. China is making the greatest gains in materials science, mathematics, physics and chemistry — the fields that have atrophied in America.

Driving risk out of the system may make sense in an age of budgetary pressures and fiscal realism. But it is the equivalent of treading water when what we really need to do is swim for the shore. Nobody is going to save us. We have to save ourselves.

I am sick of listening to people who say America is past its prime, that our condition is irreversible and that we are doomed to endure a long, slow decline. It doesn't have to be that way. There is no immutable law of physics that controls our destiny — it's just us, and our ability to do the right thing.

Innovation and invention is our future; we must not sacrifice it to pay for our past.



By **John Walker**, who leads the Defense Industries practice at Navigant, which helps companies and government organizations manage through uncertainty.

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