“American Innovation: A Competitive Crisis”
by
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at
The Chief Executives’ Club of Boston
June 12, 2008

Thank you for your warm reception. It's always great to be back in Boston -- a city I love and the community in which I started my Xerox career. The last time I was asked to address The Chief Executives’ Club of Boston my son Michael was a student at B.C. I’m happy to report that he has since graduated ... is having the time of his life making his way in advertising in New York ... and, by all accounts, will soon be in a position to contribute to his alma mater.
I had a chance over lunch to chat with some of our customers and I see a lot more of you in the audience. At the outset, I'd like to thank you for your business and your loyalty. It's something all of us at Xerox deeply appreciate ... never take for granted ... and always work hard to continue to earn.

(Pause)

It seems in some ways that my last visit in May of 2002 was only a few months ago. In other ways it seems like it was a lifetime ago. So much has happened at Xerox in the short span of 6 years.

When we last spoke Xerox was coming off a $91 million loss. It was little solace that this was an improvement over a $273 million loss the previous year. When I said I was pleased to be with all of you in 2002, the truth was I was
pleased to accept any invitation that didn’t come from a shareholder or a banker. I’ve got to tell you they were lining up at my door — and it wasn’t to invite me to lunch!

What I’d like to do with our time together is spend just a few minutes talking about the turnaround of Xerox over the past several years … draw a few “lessons learned” from that experience … use that as a platform to discuss a crisis that America faces … and leave plenty of time to take your questions.

So if you will come back with me to the year 2000 you will discover a Xerox that seemed to be in pretty good shape. We were profitable and growing. Our stock was appreciating ahead of the market. Customers and employees were relatively content. And we were setting our sights on a pretty rosy future — or so it seemed.
Some of you may remember that in late 1999 and early 2000, things at Xerox began to unravel with breath-taking speed. We attempted too much change too fast. Competition stiffened while economies here at home and around the world weakened. And we took some actions that in the broad daylight of hindsight were dumb.

All these and other forces hit us simultaneously in what we came to call "The Perfect Storm." We probably could have managed our way through a few of these issues. But the cumulative impact overwhelmed us, and set us back on our heels.

By May of 2000, we were in deep trouble. Revenue and profits were declining. Cash on hand was shrinking. Debt was mounting. Customers were irate. Employees were defecting. Shareholders saw the value of their stock cut in half and continuing to head south.
That was the day I was named President and Chief Operating Officer and typically the point in a talk like this when I would say that it fulfilled a life-long dream. In truth, it did not. And I accepted my new responsibilities with equal parts of pride and dread.

Fortunately, I had not one but two aces in the hole. The first was a loyal customer base that wanted Xerox to survive. And the second was an incredibly talented and committed workforce who love Xerox and would do anything to help save the company.

And so we went to work. We spent lots of time with customers, industry experts and employees, and most of that time was spent listening. Customers told us we had great technology, but our response to them had slipped badly. Industry experts told us our technology was leading edge,
but we had to focus on doing a few things extremely well. And employees told us they would do whatever it took to save the company, but they needed clear direction.

We’ve come a long way since then. We cut our debt by more than half and just about all of what remains is in the form of customer receivables. We more than doubled our equity. We took more than $2.5 billion out of our cost base through some very tough choices. And we consistently increased earnings -- building value for our shareholders, customers and employees.

Six years ago we lost nearly $300 million. For the past few years we’ve been making more than $1 billion. Our margins are healthy. We have plenty of money in the bank. We’re buying back stock. And we’re making strategic acquisitions to enable us to provide more value to our customers.
But that’s only part of the story. People generally get that part of the turnaround. There is nothing very mysterious about cutting costs and boosting productivity. By and large, American companies are very good at it — particularly when their backs are up against the wall.

But the real power of the Xerox turnaround is that even in the worst of times we continued to invest heavily in the best of times. Even as we were ruthless on cutting costs in order to survive, we were just as focused on investing in our future in order to be successful.

During our crisis, we didn't raid our research and development budgets. That’s an easy place to get quick money and a lot of experts were sending us there. We resisted and we’re glad we did. Together with our partner
Fuji Xerox, we've continued to invest about $1.5 billion in R&D every year.

Some people have asked me how we managed to do that -- to dramatically reduce costs in order to survive, yet protect the research and development community to insure a steady stream of new products and technology today and tomorrow.

It's a rather curious question. To me, there is no real choice. What kind of a victory would it have been to save the company, but trade-off our future? What kind of a victory would it be to avoid financial bankruptcy today only to face a technological drought tomorrow?

No, the answer was to do both -- save Xerox today and position it for success tomorrow. And that's precisely what we have done. Today we are benefiting from the power of
this investment. The last few years have been our most prolific product years in our history -- more than 100 new products in the past three years with more on the way.

In fact, two-thirds of our equipment revenues are coming from products introduced in the past two years. Take that revenue out of the Xerox equation and you would be looking at a company that was dying a slow death. And you probably wouldn't be inviting me to lunch.

Xerox, I believe, is a microcosm of our nation and its position in the global economy. When we were in a struggle for survival, it would have been very tempting to moderate our investments in research and technology -- with devastating results down the road. There is a lesson here for policy makers and corporate leaders. Stop investing today and pay the consequences tomorrow.
And that brings me to a serious challenge America faces today. Our competitiveness and technological pre-eminence is at risk for the first time since we emerged as a world leader more than a century ago. Some of the challenges are due to major changes being implemented by other economies, most notably China and India. That’s to be expected. Our capitalist and competitive society should even welcome these advances by other nations so long as they play by the same rules we do.

But other challenges are of our own doing. We are failing to invest in our own future and to nurture our own technological infrastructure - - the very infrastructure that has propelled us to world economic leadership.

Consider a few facts that bring this crisis into sharp focus:
• The number of American college students receiving degrees in science has fallen to seventeenth in the world.

• Last year, American universities granted about 400 thousand bachelor’s degrees in science and engineering. Asian universities graduated 1.2 million --- three times as many.

• The National Science Foundation reports that more than 20 percent of all science degrees are being awarded by Chinese universities. American universities, by contrast, account for only 6 percent --- behind not only China but also the European Community, Japan, Russia and India and barely ahead of South Korea.
• Federal funding for research in mathematics, science and engineering, as a share of GDP, declined by 37 percent in the past 35 years.

• A recent study by the National Center for Public Policy and Higher Education found that for every 100 students entering high school, only 18 will graduate from college.

All this is happening at precisely the worst time. The number of jobs in the U.S. economy that require science and engineering is growing, the number of people prepared to fill these jobs is shrinking, the availability of qualified people immigrating from other countries is flat and expected to decline as their home countries become more competitive and our country becomes more restrictive.
If I learned anything at Xerox the past few years -- and I believe I've learned a great deal -- it's that the difference between failure and success revolves around two connected factors -- the quality of our people and the amount of innovation they bring to the market. That's true for Xerox. I'll bet it's true for all the companies represented here today. And it's true for our country.

This was brought into sharp focus for us last year when we received the National Medal of Technology at a White House ceremony hosted by the President. The medal is the nation's highest honor for technological innovation. It was given to Xerox for more than 50 years of innovation that helped create the Information Age.

You can't help receive an accolade like that and not reflect on how much innovation has contributed to our quality
of life. But with that reflection comes a sobering thought. As a country, we are in danger of losing it. Think about it.

Most of the world’s great innovations in the 20th century were spawned by American innovation - the assembly line and mass manufacturing ... the automobile and the airplane ... the personal computer and the Internet.

As Tom Freidman puts it in *The World Is Flat*, “it is our ability to constantly innovate new products, services and companies that has been the source of America’s horn of plenty and steadily widening middle class for the last two centuries.”

It was American innovators who started IBM and Microsoft, Xerox and HP, Dell and Cisco. It matters greatly where innovation happens. Because of American innovators, most of the world’s high-paying jobs are here.
These jobs create more good jobs. And a rising tide lifts all boats.

The shrinking pool of young people with the skills to innovate won’t impact our standard of living overnight. Like a silent cancer, it will spread slowly and will be truly felt only ten or fifteen years from now when we wake up to the fact that we have a critical shortage of scientists and engineers.

And then it will be too late. This is one problem that won’t yield to a quick-fix. Scientists and engineers don’t grow on trees. They have to be educated through a long process that begins at age ten to twelve. And that takes time.

I’m not someone who typically sees the glass as half-empty. Quite the reverse. I’m an optimist. But this issue has got my attention “big time.” I’m convinced of two things. If we don’t start to address the issue now, we run the very real risk of losing our world leadership. And no one sector
can fix the problem alone -- it’s the shared responsibility of business, government and education.

An AeA report issued last year sounded the alarm on this issue. AeA likened the United States to the proverbial frog in the pot of water, oblivious to the slowly rising temperature. Here’s a quote from that report:

“When the Soviets launched Sputnik, it was more like being thrown into a pot of boiling water -- and we reacted. Today we have to act without the stimulus of an overarching, mobilizing event. Just because the threat is less obvious, doesn’t make it any less real.”

End of quote. It’s precisely because there is no imminent threat that this crisis is so alarming. Fixing it will take real leadership. We should be embarking on an all-
hands-on-deck, no-holds-barred, no-budget-too-large crash
program for science and engineering education immediately.

This is a complex long-term problem that won’t yield to
quick-fixes. Most experts suggest we need to think big and
broad. We need to be lowering the barriers for the
immigration of highly skilled workers...championing dramatic
increases in federal funding of research...dramatic
improvements in science and engineering education...and
holding a Sputnik-like national summit to focus attention on
the issue.

The devil, of course, is always in the details. But this
much is certain -- we must begin the dialogue and we must
quickly translate dialogue into meaningful action. The people
in this room have enormous power to move the agenda
forward. This is a team effort -- and tough work.
While I have the bully pulpit, I’d like to make one last point about the appalling lack of women and minorities that are choosing careers in science and engineering. This is a resource that is woefully untapped. Today, it’s part of our problem. In the future, it has to be part of the solution. Our own experience at Xerox indicates it won’t be easily fixed.

Let me illustrate this point. For years, Xerox has prided itself on being a leader in diversity. We realize that to be successful you need the best people and you get the best people by recruiting from the largest pool.

For years — decades in some cases — we’ve had active partnerships with historically black engineering schools in the South. We’ve funded scholarship programs aimed at minorities and women in professional societies like the American Chemical Association. We’ve sponsored programs to get high schoolers interested in the sciences —
programs like FIRST, the national robotics competition. We were a founding member of the National Action Committee for Minorities in Engineering.

Trust me. The list of these initiatives is long. Each summer more than 150 interns descend on Xerox labs and plants to participate in summer internships. One in five are racial minorities and one in three are women. And we've had quite a bit of success over the years.

In fact, our President, Ursula Burns, interned with Xerox as a college student back in the late 70s, signed-on and has been with us ever since. And our Chief Engineer is a woman who migrated to America from Belgium as a young adult.

But despite some great successes and decades of working on the issue, we are not anywhere near where we need to be - - not Xerox and not the United States. I just
saw a report that only seven percent of working engineers are women and only 20 percent of engineering students are women. For African Americans, the ratios are even worse. Xerox does better than the nation, but not good enough.

Fixing this - - bringing more women and minorities into the world of science and engineering - - is not only the right thing to do. It must be an essential part of any national strategy to remain competitive and continue to lead the world in innovation.

We all have influence and we need to use it. I’m not an alarmist, but I’m afraid our future as a world leader depends on it. More than a century ago, Adam Smith famously wrote that the wealth of a nation was in its people. That was true then. It’s even more true today.
The issue is not that we don’t have wonderful scientists and engineers and innovators. The issue is that we’re not developing enough of them to keep pace with the rest of the world. The incredible progress in places like China and India are well-documented. That alone should energize us.

But everywhere I travel I sense a renaissance in science and a new age of discovery. I was in Europe a couple of weeks ago addressing a group of about 200 European business leaders. We were talking about environmental sustainability – a subject you would have heard little about a decade ago in Europe. Today you get the impression they may be ahead of us.

I know I’m at risk of preaching to the choir. Many of you are doing great work to improve education in general and math and science education in particular. If you’re already involved, my message is “great but can you do more.” If
you’re not involved, my message is “figure out how you can help.”

I have enormous confidence that we can meet the challenge - - once we recognize it. Those of us in business and government ignore it at our own risk.

I thank you for your attention. I believe we all need to be part of the solution. Few things are more important.

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