

**“Reinventing America's Economic Future:  
Fostering Industries of the 21st Century”**

Remarks (as prepared) by Paul Otellini,  
President and Chief Executive Officer of Intel Corporation,  
at the Brookings Institution of Washington, D.C.  
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**I. THE NEW ERA OF COMPETITIVENESS**

Good morning. I want to start by thanking Darrell West and the Brookings Institution for hosting me here today.

A year ago, I came to Washington and announced that my company, Intel, would make a \$7 billion investment in our US manufacturing plants: specifically targeted to produce silicon wafers with 32 nanometer process technology – the most sophisticated technology we have ever invented.

You'll recall, of course, that when I made that announcement, the US economy was facing one of the greatest crises in our history. I called it the worst economy I had seen in my 35 years at Intel. Yet I believed that our investment was both good for our company and our country. It was a way to increase our commitment to innovation and future competitiveness.

As it turned out, America and the world avoided the worst–case economic scenarios. But, we're not out of the woods...and I'm concerned that we are not taking all of the right steps as a nation to ensure that our economy is on a long term trajectory of growth and leadership.

The United States now faces a world with much tougher competitors. Many of them are accelerating their investment in the future faster than we are.

The implications of this new era of competitiveness is my topic today. So this morning I'd like to provide an update on the investment I announced last year, and then share some thoughts on what else both business and government should to be doing – in fact, *must* be doing -- to create a globally competitive economy.

**II. UPDATE ON INTEL'S \$7 BILLION INVESTMENT**

Let me start with the investment we made in our fabs, the state-of-the-art manufacturing facilities where we produce the world's leading microprocessors.

We now have 2 factories in Oregon producing 32 nanometer chips – and our factories in Arizona and New Mexico will be in production later this year.

These factories are making tiny electronic systems embedded on a silicon chip roughly the size of a fingernail. To give you a sense of how far this technology has progressed, it is worth comparing these microprocessors to the very first ones we produced in 1971. The earliest ones contained about 2,300 transistors. The ones we are producing today hold more than a billion.

As a result, they are far more capable. They enable faster computers, the most advanced consumer electronics devices, sophisticated imaging for medical care, the brains inside the next generation of robotics, and thousands of other applications. And they do all of this consuming far less energy.

We believe these chips are the most dynamic platform for innovation that our company has ever produced.

Our investment in the US factories that are producing these chips was not a one-time gesture. Intel invests money all over the world. Seventy-five percent of our sales, after all, come from outside the US.

But 75 percent of our manufacturing and R&D spending continues to be concentrated in the United States, where we attract some of the most talented scientists and engineers from around the world.

Just last year, we invested more than \$5 billion on research and development in areas that span from the exploration of new materials to create even smaller transistors to products that we believe will transform the way that healthcare is delivered, to “future technologies” that involve augmented reality and computing that responds to human gestures.

These are long-term investments for us. Much of what we work on today will not drive meaningful business results for 5 or 10 years. But in a competitive, innovative industry, this is what you must do.

But there’s no guarantee that the U.S. will receive all of this investment in the future. We need to address the fact that government policies can create dis-incentives to investing in America. The trends are worrisome.

### ***III. THE GLOBAL RACE FOR INNOVATION***

What is true for companies is also true for countries. Global competitiveness requires continually making investments for the future: investments in the things that make innovation possible, even if they don’t yield results immediately.

Unfortunately, long-term investments in education, research, digital technology, and human capital have been steadily declining in the U.S. So, too, has the commitment to policies that made us such an entrepreneurial powerhouse for more than a century.

This is the bitter truth, and we don’t hear enough about it.

At one time, the US could boast about the best students in math, science, and engineering. Our research centers were without peer. No country was more attractive for start-up capital or global investors. We seemed a generation ahead of the rest of the world in information technology.

That simply is no longer the case. Over the past decade, our competitors have focused on the very things that made America's innovative economy the strongest in the world.

As I travel around the world, what I hear and see from business and government leaders, students and employees is very instructive. Other countries have focused on investing in innovation, creating national policies to build digital infrastructure, and have moved quickly to embrace sustainable energy.

We are seeing this not just in India and China, but in Finland, Korea, Japan, the Netherlands, and many other places.

All this activity on their part is making them far more potent competitors in the next phase of the global economy.

Last fall, in a very insightful article about American innovation, Stephen Ezell pointed out that a recent study ranked the US 6th among the top forty industrialized nations in innovative competitiveness. Not great, but not bad.

Yet the same study also measured what they called "the rate of change in innovative capacity" over the last decade – in effect, how much countries were doing to make themselves more innovative for the future.

The study relied on 16 different metrics in human capital, IT infrastructure, economic performance, and so on. On this scale, the US was ranked dead last among the same 40 nations.

The news may sound shocking. But it shouldn't be. When you take a hard look at the things that make any country competitive, it becomes clear that we are slipping.

- Consider the credits we give to business that invest in R&D. They were once the most generous in the world. Today companies find their R&D investments more valued and more rewarded by many other countries.
- Or think about our ability to win the global war for talent. Our immigration policies seem deliberately designed to prevent us from attracting the best minds in the world. American companies are given a tiny allotment of visas for foreign-born engineers and scientists. Last year the quota of visas for those with an advanced degree was completely filled by April. With such

policies, are we surprised that more and more top performing students return to their home countries after studying in our graduate schools?

- Then there are taxes. At a time when countries in Europe and Asia are clamoring to offer companies like Intel significant tax benefits to build factories, the national tax incentives for companies to invest here are few. Our combined state and federal corporate tax rate is the second highest in the industrial world. Economists at the OECD tell us it is precisely these high statutory corporate rates that punish the most dynamic and innovative firms.
- Lastly, we have significant uncertainty relative to the future costs that businesses may incur in the areas of healthcare and energy.

On all these issues there may be legitimate policy differences. But as a nation we must have a clear, enduring strategy to promote innovation, investment, and start-up companies...a set of policies that let American business confidently invest in the future, raise capital, take risks, and feel assured that we are training the talent to lead the next generation of industries.

That, after all, is what the rest of the world is doing.

- Over the next three years, for example, China, India, and South Korea will invest three times the amount that we do in clean energy technologies.
- Taiwan has made itself into an IT giant because of sound, long-term planning. After the Asian financial crisis of the 1990s, Taiwan used the opportunity to invest in IT just as Korea and Japan were cutting back spending. Today, the country is the undisputed center for PC design and innovation, exporting the computers it builds to the rest of the world.
- Then there is India. The country has put in place an aggressive program, working with several companies including Intel, to enable half a billion Internet users and 100 million broadband connections by 2012. Meanwhile, the country that invented the Internet has been slow to develop our own national broadband strategy.

The countries of Europe, Asia, Latin America, and before long, the Middle East are going to be competing with us in every sphere of the economy in the years ahead. If we want to stay with them, and remain a vibrant growth economy, we have to recommit to a strategy that drives the economic growth of the future.

Let me be clear: after the financial crisis, short-term measures were a necessary part of economic policy.

The stimulus package passed by Congress last year, for example, undoubtedly steered the economy away from more serious problems. My biggest concern though is that so much of the spending is targeted to occur in 2011 or 2012, well after most people believe the crisis will have passed. Other

countries – most notably, China – managed to put stimulus funds to work much faster and are benefiting from that now.

But stimulus spending is not a substitute for forward-looking investments that help create the underpinnings of economic growth.

And perhaps the most important of those is education – an area in which international test scores continually tell us we are failing to be competitive. But it doesn't have to remain like that.

This is an area of particular interest to me. Our business, after all, depends on a pipeline of highly skilled people to help us discover subsequent generations of innovation.

I'm very proud to tell you that over the last decade, Intel has invested nearly \$1 billion in education around the world, especially math and science education. Our goal has been to create the innovation capacity of the future by preparing teachers to integrate technology into the classroom and learning process.

Our Intel Teach program has already trained more than 7 million teachers worldwide and more than 350,000 in the US. The result is improved critical thinking, research, and problem solving skills that students need to succeed in the jobs of the future.

We see this as a vital investment in the next innovators, thinkers, scientist, builders and entrepreneurs.

This is an area where the US must succeed. Growth in math-intensive science and engineering jobs outpace overall job growth by three to one.

Think about this: According to one source, America's GDP would grow by more than a third if US students became globally competitive in math and science.

Any real strategy for future competitiveness has to address this issue. President Obama has made this issue a top focus for his administration. We see it as the responsibility of not just government, but of EVERY business that depends on highly skilled employees.

If you want to be inspired by what America's young people have to offer, join us here in DC on March 16th to celebrate the best and brightest as 40 of America's top young scientists will display their projects and vie for more than \$1 million in scholarships at the Intel Science Talent Search. This is one way we shine a light on what's possible to inspire others to achieve.

#### ***IV. TWO INTEL INITIATIVES***

I've talked a lot about how government can partner with business, and how it can establish the strongest incentives for investment. But let me also make clear that there are things business can do – and *ought to do* – regardless of what government achieves.

Today I want to talk about two specific initiatives that I hope will raise the bar for all companies that want to make a difference and invest in the future....

The first is to create jobs immediately for college graduates, especially majors in engineering and computer science. This is an indispensable resource for the US, and, in the current climate, there hasn't been enough hiring momentum for them.

Over the last several weeks, I've spoken with the CEOs of several leading companies about making sure we put this resource to work. Today I'm pleased to announce that Accenture, Adobe Systems, Autodesk, Broadcom, CDW, Cisco, Dell, eBay, EMC, GE, Google, HP, Liberty Mutual Group, Marvell Semiconductor, Microsoft, and Yahoo! have committed to join Intel in increasing their college grad hiring in the US this year. Most will join us in at least doubling our college grad hiring, leading to a total of over 10,500 new jobs this year from just these few companies. Collectively, this is a bet on America's next generation of innovators. We cannot afford to let our future scientists and engineers sit idle after graduation!

The second announcement I'd like to make looks even further into the future. I'm pleased to announce the inception of the "Invest in America Alliance", a group of leading VC companies committed to steer investments into technologies that will drive economic growth and job creation in the US. The members of this alliance have committed to invest \$3.5 billion in promising clean technology, information technology, and bio technology companies over approximately two years. As part of the alliance, Intel Capital will participate with its own \$200 million commitment.

Intel has worked with 24 leading venture capital firms to join us with their own commitments in support of the alliance including: Advanced Technology Ventures, Braemar Energy Ventures, Bridgescale Partners, Canaan Partners, DCM, Draper Fisher Jurvetson, Flywheel Ventures, Good Energies, Institutional Venture Partners, Investcorp Technology Partners, Khosla Ventures, Kleiner Perkins Caufield & Byers, Menlo Ventures, Mohr Davidow Ventures, New Enterprise Associates, North Bridge Venture Partners, QuestMark Partners, Sevin Rosen Funds, Storm Ventures, Telesoft Partners, Udata Partners, U.S. Venture Partners, Venrock and Walden International.

I believe that together our commitments to seeding the ground with start-up capital will prove to be a very rewarding investment for both the companies that contribute, and for the competitiveness of the United States. And, since venture-backed companies in the U.S. accounted for more than 12 million jobs or 11 percent of total private sector employment in 2008, these investments will also help drive job growth in the US now and in the future.

I would like to conclude on an optimistic note. A year ago, we were focused on avoiding economic calamity. Today we need to start focusing on our future.

That future is going to be more demanding, more competitive, and frankly, more disruptive to American business. But, those conditions, as anyone who has worked in Silicon Valley knows, can be exactly the right environment for new thinking and break-through innovations.

That is why fostering such an environment ought to be the essential characteristic of our economic policy and the plans of every competitive businesses. I hope that my thoughts today can help create a common ground between business and government – a shared vision that allows us to start focusing on the future, not just the crisis of the day.

All my life I have believed that America's best years are still ahead of it. If we focus, invest and work hard, that belief will hold true.

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