



What If

They Listened to Entrepreneurs?

Henry R. Nothhaft

Can you imagine

government officials in Washington launching a new national effort to reform the public school system in America without ever talking to an educator first?

Or undertaking a vast new multi-billion-dollar war on Alzheimer's without first getting input from the nation's leading neurologists and medical researchers?

Most of us would find the above scenarios to be not very believable.

Yet when it comes to the nation's number one policy challenge today—job creation—both political parties consistently display a penchant for deaf, dumb and blind policy making that would be almost unthinkable on any other issue. Time and again, they ignore the voices of the only group in America that actually knows something about job creation: entrepreneurs.

I've been a high-tech entrepreneur and CEO for more than 35 years, and in that time I've created more than 6,000 jobs and returned \$8 billion to investors. I helped to grow the first commercial Internet company (Telenet) in the 1970s, helped develop the first voice mail and voice-data networks in the 1980s, and in the 1990s, led one of America's largest Internet service providers to a multimillion-dollar initial public stock offering (IPO) and then a 2.5 billion-dollar sale to XO Communications. Then, in the early 2000s, I was CEO of a company called Danger that developed the first popular smartphone with social networking capability, branded the T-Mobile Sidekick. We sold the company to Microsoft in 2008 for 500 hundred million dollars. The last company I led, Tessera, is at the forefront of new semiconductor miniaturization technologies that enable the creation of ever-smaller cameras, cell phones and other electronic devices.

My entrepreneurial experience has given me some first-hand insight into job creation. But truth be told, it's not as if the basic mechanism of job creation in America is a huge mystery. We know, more or less, how and why job creation occurs.

We have known ever since Nobel Prize-winning economist Robert Solow's work in the 1950s, for example, that virtually all economic growth and increases in living standards stem from breakthrough technological innovation. We also know that the only force in society that actually creates those breakthrough innovations—the kind that give birth to whole new industries and millions of new jobs—are small entrepreneurial startups.

A large innovative company such as Apple may develop very creative new products—and even whole new categories of products—such as the iPod, iPhone and iPad. But in virtually every case over the last 200 years, the breakthrough inventions that gave rise to whole new industries and millions of new jobs—think of the telegraph, telephone, automobile, airplane, and more recently, the semiconductor, personal computer, and the Internet with its \$4 trillion-a-year economy today—were all made by entrepreneurial startups.

Even more to the point, we know for a fact that entrepreneurial startups are the sole source of net new job growth in the U.S. And I mean literally 100 percent of it. Until recently, the conventional wisdom was that small businesses create most jobs. But thanks to a new Census Bureau database called Business Dynamics Statistics (BDS) that tabbed job creation with the annual number of new business starts, we now know that it's not so much small businesses that create jobs but new businesses that do so (although most are obviously also small). Of course, even among these startups, only a small percentage—usually new venture-backed high-technology ventures—are the “gazelles” who rapidly create large numbers of new jobs.

But there is no dispute that all net new job growth in the U.S. over the last 35 years has come from startups. If you took startups out of the picture and looked only at Big Business, job growth in the U.S. over the last three and a half decades would actually be negative.

As senior researcher Tim Kane of the Ewing Marion Kauffman Foundation put it, “When it comes to U.S. job growth, startup companies aren’t everything. They’re the only thing.”

Ultimately, then, everything depends upon startups: Job creation. Our standard of living. Our prosperity as a nation. The American Dream itself.

All of it depends upon technology startups being able to access capital, hire people, expand their R&D efforts and grow into independent public companies that can create the breakthrough products, services, and medical advances that drive our national prosperity.

So given the above, one would think that if the target of national policy is job creation, then policy makers would obviously want to focus the bulls-eye of that policy on startups.

But one would be wrong. Because against all logic and common sense, time and again policy makers in both parties consistently aim their job creation policies at the wrong target.

Take President Obama. Earlier this year, he convened a summit of 20 of the nation’s top CEOs to discuss ways to create more jobs. A month later, he appointed General Electric CEO Jeffrey Immelt to chair a new president’s council on jobs and competitiveness.

Now, Jeff Immelt is undoubtedly an excellent CEO—it took more than a little skill, after all, for GE to escape paying taxes on \$150 billion in revenues—but he and his fellow Fortune 100 CEOs are exactly the wrong people to talk to about job creation. In fact, although big corporations employ a significant share of the workforce and contribute strongly to total U.S. economic output, they are not major job creators. Just the opposite. As one wag noted about the president’s jobs summit, the guest list was “a who’s who of outsourcing American jobs.”

Or in the authoritative words of the Wall Street Journal on April 19: “U.S. multinational corporations ... cut their workforces in the U.S. by 2.9 million during the 2000s while increasing employment overseas by 2.4 million.”

The fault here is hardly President Obama’s or the Democrats’ alone.

For every Democratic Congress that passes a health reform bill in 2010 with new 1099 tax reporting rules that impose heavy new costs on startups and other small businesses, a Republican-led Congress passes a Sarbanes-Oxley law that forces small firms to implement the same burdensome accounting procedures meant to stop Big Business from acting irresponsibly—even though small businesses pose zero risk to the economy. The only thing this 2002 law seems to have stopped, in fact, was startups’ ability to pay the vastly increased costs of going public, thereby crippling the IPO market and job creation (92 percent of which occurs after an IPO). It certainly didn’t stop Wall Street from recklessly sinking the economy in 2008.

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Both parties also consistently ignore entrepreneurs’ unique expertise in job creation when they address the controversial topic of patent reform. I refer here not simply to the sad spectacle of the House of Representatives and Senate each holding hearings in April on ending America’s 220-year practice of granting a patent to the “first and true inventor”—written into the nation’s first patent law by the Founding Fathers—without ever inviting a single inventor to join the

Fortune 100 big shots who testified. The spokesmen for these multinationals claimed it would spur job creation to take the patent priority rights of entrepreneurs who invent something first and give them instead to businesses with the legal and financial resources to rapidly file lots of applications. Not one congressperson, Democratic or Republican, dared question why a Big Business sector that had suffered a net loss of jobs over the last 35 years was qualified to speak about job creation.

An even deeper problem with patent policy, however, is the way Republican and Democratic congresses alike over the last 15 years have diverted almost a billion dollars in fees earned by the patent office to other uses, such as the census. It should be noted that the patent office is the only fully self-supporting arm of the entire federal government, to which taxpayers contribute not one single penny, yet Congress treats it like a petty cash drawer. In any event, the result of this diversion is a patent office unable to do its job properly—at a huge cost in American jobs.

How does the inadequate funding of the patent office cost jobs? Very simply, it has resulted in a huge backlog of more than 1.2 million patent applications lying unexamined and un-issued on patent office shelves. In a May 2010 speech to a biotechnology conference, even patent office director David Kappos spoke of this backlog's cost to America.

“Hundreds of thousands of groundbreaking innovations are sitting on the shelf literally waiting to be examined,” he explained. “[This results in] jobs not being created, life-saving drugs not going to the marketplace, companies not being funded, businesses not being formed.”

How many jobs are not being created because of the patent backlog?

“Millions,” said Kappos. “Millions of jobs.”

Can we really be talking about that scale of lost jobs? According to the seminal 2008 Berkeley Patent Survey, 76 of all venture-backed entrepreneurs reported that patents were vital to their ability to obtain venture funding for their startups.

As an entrepreneur myself, I can confirm that in most (but not all) ventures, no patent means no financing means no business. Who would invest the enormous funds needed to develop a new medical treatment and bring it to market, after all, without at least the promise of exclusivity and a return on that investment offered by a patent?

In an analysis I co-authored for *The New York Times* last year with Paul Michel, the newly-retired Chief Judge of the U.S. Court of Appeals for the Federal Circuit (the main court for patent appeals), we found that simply clearing the backlog and properly funding the patent office would create as many as 2¼ million jobs over the next three years.

That's why I say that the patent office, this least-known of federal agencies, is "the biggest job creator you've never heard of" and should be renamed the Department of Innovation.

A third major impediment to job creation in the U.S. is our manufacturing policy—or rather, the lack of one. For, alone among all the major nations of the earth, the United States refuses to offer incentives for manufacturers to locate jobs within our territory. China does it. Germany does it. Pretty much every country in the OECD does it, and for a very simple reason: manufacturing is the greatest economic force multiplier around, creating up to 15 additional jobs outside of manufacturing for every position on the shop floor. Manufacturing is also what enables the wealth created by technological innovation to be diffused throughout society and thereby produce income gains not just for a highly educated elite, but for the masses of ordinary citizens as well. Simply put, manufacturing is what created the greatest middle class in the world.

But in the U.S., unfortunately, the dominant thinking among economists and policy makers over the last 30 years has been that America can "specialize in research and innovation," as *The World Is Flat* author Tom Friedman puts it, and let China and other nations do the manufacturing. But they delude themselves if they believe that manufacturing is like buggy whips in the era of automobiles—i.e., irrelevant or of little use in value creation today. We still live in a world of things, after all—

from cars and cutlery to computers and cell phones—and somebody still has to make those things. So if the U.S. is not making the advanced technology products it needs, then obviously it is buying them from countries that do. Which explains why the \$30 billion trade surplus in high-tech products that the U.S. enjoyed just 10 years ago has today become a \$56 billion deficit.

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The wholesale transfer of production offshore, however, has done more than simply erode our trade balances. It has crippled the nation's job creation engine, undermined our ability to bounce back from recession, and seriously eroded not only middle-class prosperity but the standard of living of the American people as a whole.

Since deindustrialization began in 1980, average real weekly wages for all Americans have actually fallen by a staggering 18 percent. Just between 2000 and 2008, inflation-adjusted median household income in the U.S. dropped 4.2 percent—and that's before the current recession set in.

Meanwhile, in that same period, incomes for the top 1 percent of earners have tripled. In 1973, large company CEOs were paid on average 26 times the median income. Today they receive more than 300 times the median income. And according to new research, the average American is far less likely today to rise from poverty than is a citizen of any European country. Horatio Alger, it seems, is likely to speak French or German nowadays.

For the first time in history, say Harvard professors Willy Shih and Gary Pisano, “the U.S. economy has been unable to provide a rising standard of living for the majority of its people.”

Our prosperity has been withering away. But like some giant nationwide Ponzi scheme, it was covered up first by a dot-com bubble and then a housing bubble and now a debt bubble.

No wonder people feel that upward mobility for the middle class has disappeared. *It has!*

No wonder two-income families can barely make it today, whereas just a generation ago a middle-class family could usually do fine on just one income.

No wonder America once had money for schools and GI Bills and interstate highways, but today can't even repair a couple of broken bridges without putting our grandchildren in debt.

And in case you're wondering why the recoveries after each recession feel like they're getting weaker and weaker, it's because they are. The 30-year deindustrialization process has introduced a devastating new wrinkle into capitalism's normal boom-and-bust cycle.

In the first seven recessions following World War II, it took an average of only four months for employment levels to return to normal. But after the offshoring craze began in the 1980s, the recovery from each recession started to take longer—much longer. Following the 1990–1991 recession, for example, it took 19 months before positive employment levels were reached. Following the 2000–2001 recession, after even more manufacturing jobs were lost, we needed 30 months to recover positive employment levels.

So how long will it take to recover the 8.4 million jobs lost in the current recession—not to mention the 4.5 million additional jobs that a healthy economy would normally have created over the last three years for our growing population?

Hard to say. But one thing seems clear: these jobless recoveries wouldn't be happening had we not thrown away the greatest economic force multiplier in history—manufacturing.

But possibly the biggest threat to America's future from the loss of manufacturing is the fact, now confirmed by multiple sources, that when manufacturing is offshored, innovation itself—along with the social wealth it creates—will always and inevitably follow it offshore.

Put another way, a nation that no longer makes things will eventually forget how to invent them.

Consider, after all, that manufacturers conduct 70 percent of all R&D in the U.S. So if those manufacturers move offshore, doesn't their R&D tend to go with them?

There is really no doubt anymore that it does. The Semiconductor Industry Association reports that while R&D spending by member firms increased overall between 1997 and 2007, R&D spending within the United States declined by 8.4 percent as firms shifted ever more of it overseas. The trade group expects it to decline by an additional 9.3 percent by the year 2013.

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This movement of R&D offshore to follow manufacturing has resulted in a sharp decline in U.S. R&D intensity—the percentage of GDP devoted to R&D—relative to the rest of the world. We used to have the most R&D-intensive economy in the world. Now we're eighth.

The offshoring of R&D has gotten so large, in fact, that the National Science Foundation (NSF) has for the first time started keeping track of it. The NSF reported that in 2008 \$58 billion, or one-fifth, of total R&D spending by U.S. firms took place overseas. Depending on the industry, that amounted to anywhere from 19 percent to 39 percent of industry R&D spending.

Said economist Richard Florida about the NSF report: "In key sectors of the economy, innovation appears to be following production off shore."

You can witness the erosion of America's once-vibrant innovation ecosystem even in Silicon Valley. If you doubt that, just try to get venture funding for a startup dedicated to producing tomorrow's cutting-edge semiconductors, clean energy systems, advanced displays or next-generation LED illumination products.

The odds are against you, says Conrad Burke, CEO of the hot solar startup Innovalight and winner of the Ernst & Young Entrepreneur of the Year Award for 2010. Innovalight licenses its Silicon Ink nanotechnology to foreign (mostly Chinese) solar cell manufacturers, who use it to boost solar cell efficiency by 1-3 percent, each percent increase being worth \$100 million.

"If we had had this conversation two years ago," says Burke, "I would have told you that I was planning to raise capital to build a 200-megawatt solar manufacturing plant. But pretty quickly I discovered that there's very little stomach in the venture capital community for that kind of \$90 to \$100 million capital-intensive commitment. I also realized that it would be very difficult to compete as a manufacturer in the U.S., given the incentives that China and other nations offer but America doesn't."

Bottom line, says Burke, “If I had gone out and tried to raise triple-digit millions of dollars to build a solar cell factory in the U.S., I would have been kicked out of the boardroom and down the stairs.”

But don’t just take it from him. Damon Matteo is vice president of intellectual capital at the famed Palo Alto Research Center. PARC, the inventor of laser printing, Ethernet networking, and the graphical user interface now used in all computers, develops technology in concert with private firms and then helps to spin out new businesses built around those technologies.

“We’ve got materials, hardware and science capability. And we’ve got natural language technology,” Matteo explains. “But because of the investment required to make these into going concerns, it’s hard to get any traction—any interest from the VCs—for anything that looks like a hardware or [manufacturing] or capital intensive play in cleantech.”

Even Apple co-founder Steve Wozniak doubts that a startup like Apple developing (let alone manufacturing) a new consumer product could even get funding today. “It would be much harder for that to happen today,” he told me. “It’s harder to manufacture in the U.S. And the venture capital game is different, less willing to take [those risks].”

Venture capitalist David Ladd, a former partner at the prestigious Mayfield Fund, agrees. “We would not fund a company that was building hardware or semiconductors,” he concedes. “Nor any of the tough physical sciences. It’s just too hard and expensive. We’ll invest in China instead and let them do it. So what’s left is all the Web 2.0 stuff, which I don’t consider to be true innovation, to be honest with you. Just from the street level, I can tell you that we’re seeing less and funding less true innovation these days.”

Now, in no way do I mean to denigrate the hundreds of social media startups like Twitter and Facebook that have sprung up in the last decade. They are sparking new businesses and reshaping our lives in ways that will yield great value for society in the years ahead.

Still, something vital is missing from this new crop of innovations. Jobs.

Consider this: Facebook has 500 million users and on January 3, 2011, its market value jumped from an estimated \$35 billion to a staggering estimated \$50 billion. By year-end 2011 it may top \$70 billion. Yet it employs less than 3000 people.

By way of contrast, \$35 billion Sony employs more than 170,000 people, \$50 billion Boeing employs 157,000 people, and \$70 billion Walt Disney employs 144,000 people.

Sony and Boeing, of course, are manufacturers, whereas Facebook is a light-footed Web company. So let's compare Facebook to another Web company—Google. At a comparable stage of its life, when it, too, was seven years old, Google employed 10,674 people.

And therein lies the problem with innovation today: for the first time in our history, the historic connection between technological innovation and job creation has broken down. And for the first time also, the wealth created by innovation is going mostly just to a handful of founders and venture capitalists rather than to many thousands of employees and the community at large.

In short, Facebook's market value-per-employee ratio may be a venture capitalist's dream. But it's a nightmare for a nation that has always depended on the job-creating magic of innovation for its prosperity.

So here lies America's entrepreneurial engine of job creation—the high-tech startup—hobbled by growing tax and regulatory burdens, a risk-averse venture capital industry, a dysfunctional patent office, a worsening brain drain of talent and the loss of much of our high-tech manufacturing sector.

Is there anything that can be done about it? Actually, there's a lot that we can do to revitalize our innovation ecosystem and kick-start American job creation again. Even better, the needed reforms—outlined in my new book "Great Again: Revitalizing America's Entrepreneurial Leadership" just

published by Harvard Business Press—are actually not very difficult to implement and would require little if any taxpayer funds.

But before any significant and sustained increase in the creation of good middle-class jobs can take place, the voice of the entrepreneur who is the source of all breakthrough innovation and job growth must be heard.

Sadly, however, entrepreneurs are just about the only Americans without a voice in Washington. Big Business certainly has a voice. So does labor, as do teachers, retailers, insurers, doctors, environmentalists and just about every interest group you can think of.

Only entrepreneurs lack an effective organized voice. This despite the fact that, as the distinguished economist Jonathan Hughes once put it, entrepreneurs are “the vital few” upon whom all of society depends for economic progress.

I should acknowledge that we entrepreneurs haven’t always been so good at making our voices heard. Most of us, after all, have spent all our time maniacally focused on growing our little startups into industry leaders. But with American prosperity now challenged on so many fronts, we no longer have the luxury of remaining aloof from matters of policy—not when a few simple reforms like fixing the patent office could have a material effect on our startup prospects.

Bottom line, I think it’s time Washington started listening to the voice of the startup entrepreneur who creates wealth, not the Wall Street trader who merely manipulates it. 📌

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Henry R. Nothhaft is a highly-successful serial entrepreneur and tireless advocate of smart innovation policies in Washington. The author with David Kline of *Great Again: Revitalizing America's Entrepreneurial Leadership* from Harvard Business Press, Nothhaft is graduate of the U.S. Naval Academy and a former Marine Corps officer.

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