

# OFFSHORE OUTSOURCING AND THE FUTURE OF AMERICAN COMPETITIVENESS

*As presented before the...*

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“Is your job next?”

That was the frightening question posed by the February 3, 2003 *Business Week* cover that so effectively captures the concerns and uncertainty many Americans are feeling these days. The cover went on to declare that “[a] new round of globalization is sending upscale jobs offshore. They include chip design, engineering, basic research – even financial analysis.” It concluded with the attention-grabbing query: “Can America lose these jobs and still prosper?”

The issue of offshore outsourcing is ubiquitous these days. Fueled by genuine worker concern (especially among IT workers<sup>1</sup>), slow post-recession job growth here at home,<sup>2</sup> continuing evolution in global business models (including accelerating outsourcing),<sup>3</sup> and even political opportunism, one can find daily discussions of the trend and its implications everywhere.

Today I will (1) explain how the issue is igniting passions in the media and in Congress, (2) explore the opportunities and challenges for our nation, (3) identify several proposals by others to address it, and (4) explain how the Administration is pursuing initiatives both for immediate growth and long-term competitiveness. We are committed to promoting American growth and leadership in a globalizing world, and I am confident we will succeed.

The global competition that gives rise to offshore outsourcing accelerates creative destruction, which can be good for innovative and market-based economies overall, but terribly difficult for displaced communities and individuals in the process. America must never compete in the battle to see who can pay their workers the least, and it will take sustained innovation to ensure we don’t have to. The Administration will continue working with Congress and innovation leaders across the nation to ensure that Americans can compete and win on our own terms in the 21<sup>st</sup> century.

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The issue of offshore outsourcing is ubiquitous in the mainstream press these days. *CIO Magazine*’s September 2003 cover story – entitled “Backlash” – observes that “[a]s a growing

number of IT jobs move overseas, some CIOs and economists prophesy a political storm against offshore outsourcing.” The June 3, 2003 *Wall Street Journal* reported on efforts to block such outsourcing, writing: “Alarmed by jobs flowing overseas, where skilled workers are cheaper, state lawmakers and labor unions are fighting back.” On October 10, 2003, the *Journal* noted how “Skilled Workers Mount Opposition to Free Trade, Swaying Politicians.” And *Time Magazine’s* August 18, 2003 edition included a story entitled “Where the Good Jobs Are Going” that began: “Forget sweatshops. U.S. companies are now shifting high-wage work overseas, especially to India.”

Given the frequency of its reporting and intensity of workers’ concerns, this issue is – not surprisingly – showing up prominently on politicians’ radar screens. Many note with alarm the recent estimates of projected off-shored jobs and wages:

- A widely-quoted 2002 Forrester report estimates that over the next 15 years, 3.3 million U.S. service industry jobs – including 1 million IT service jobs – and \$136 billion in wages will “move offshore.”
- The Gartner Group predicted in July 2003 that “by year-end 2004, one out of every 10 jobs within U.S.-based IT vendors and IT service providers will move to emerging markets, as will one of every 20 IT jobs within user enterprises.”

Others point to “historic” unemployment in domains expected to be core American strengths and pillars of our future economic growth, such as information technology and electrical engineering. According to the Bureau of Labor Statistics, unemployment among electrical engineers hit 7% in the first quarter of 2003, while computer programmer unemployment was at 6.8%, both exceeding the national average for overall unemployment.

We have already seen legislative reactions at the state level to prohibit offshore outsourcing of government work, including laws proposed (but not passed) in New Jersey, Connecticut, Hawaii, Maryland, Michigan, Missouri, North Carolina, and Washington. And concerns have predictably made their way to the floors of the U.S. House of Representatives and Senate, with even some historically free-trade and innovation leaders questioning globalization trends and warning that “[w]e need to pay attention to losing our manufacturing base and now losing our high tech base.” (*Rep. Nick Smith, Chairman of the House Science Subcommittee on Research, Apr. 7, 2003*). I testified before the House Small Business Committee on this very issue on June 18, 2003, and I can assure you that Members’ interests and concerns are quite real.<sup>4</sup>

### **PUTTING TRENDS INTO CONTEXT**

Many observers suggest that global competition for white-collar service work mirrors trends we have seen for decades in other sectors and will benefit our nation. Economists tell us that advanced economies are supposed to “leverage their comparative advantages” to develop higher-wage jobs as the lower-skilled work becomes “commoditized” and migrates to lower cost producers. During the past several decades, they point out, we saw heavy competition in tradable goods (with America losing predominantly lower-wage, lower-value-added jobs) while we grew employment in knowledge-based services (with ostensibly higher-wage, higher-value-added positions), such as software and information technology. Similarly, America’s transition from an agricultural economy to an industrial economy proved highly beneficial to most citizens’ standard of living, even if the change was disruptive.

Yet one of the reasons for the sound and fury around offshore outsourcing today is that it seems we have entered a new era. Advances in communications technologies (e.g. broadband Internet) have empowered once-distant service sector workers to compete in real-time, while foreign workers and service providers continue to improve their quality, processes and expertise. We are now competing for low-skilled *and* higher-skilled work, both in IT and elsewhere, and we will need to replace both with high-skilled, high-wage opportunities to raise our standard of living. No jobs are “safe,” and our success or failure will turn on our ability to create and retain new jobs, new industries and new processes, goods and services – to innovate.

### **IS THE GLOBAL AVAILABILITY OF SERVICES GOOD OR BAD FOR AMERICA?**

As with so many global trends, there is significant disagreement over the implications of global competition in services for American prosperity and competitiveness. Many observers are pessimistic about the impact of offshore outsourcing at a time when American workers are having more difficulty finding employment, since it creates personal hardships, reduces the tax base (at least temporarily) and increases demands on our safety nets. Competitors from lower-wage nations, it is feared, could put downward pressure on profit margins and salaries going forward,<sup>5</sup> while the work being sent overseas is already migrating up the value chain from call centers, help desks and low-end programming to design, accounting, high-end programming, financial analysis and consulting.

Some raise concern about the national security implications of off-shoring, asking whether U.S. interests are put at risk by increasing dependence upon foreign nationals to handle economically critical tasks and, often, highly sensitive data – particularly in nations that have not historically been close United States allies. Many nations to which such work is sent present apparent geopolitical risk (e.g. India and Pakistan), and some ask whether the potential for disruption to American supply chains is being considered adequately. Others suggest offshore outsourcing entails many hidden costs and far fewer savings than outsourcing consultants advertise, and that offshore outsourcing is being driven by the same “herd mentality” that helped generate the NASDAQ tech bubble.<sup>6</sup> Some observers express fear that reduced wages or increased unemployment in technology jobs might discourage future generations of Americans from pursuing science and technology careers. And the opportunity to do high-wage, high-value work without immigrating to the U.S. clearly reduces the “brain gain” that has been so critical to America’s historical success.

Others suggest that the rise of global competition in service work is a net positive trend for our nation. Competition drives down prices for businesses and consumers and increases their choices. By outsourcing to lower cost operations, businesses are able to reduce their overhead, compress time-to-completion with around-the-clock operations, and focus on core, strategic investments and hiring. Many manufacturers, for example, are running leaner, more competitive operations as the result of outsourced (often off-shored) IT services, focusing their resources on the research, design and processes for improving their products.<sup>7</sup> Thus proponents argue that offshore outsourcing some service work enables employers to preserve the rest of the jobs here in the U.S.

A McKinsey Global Research Report from August 2003 estimated that roughly two-thirds of every dollar of value realized through offshore outsourcing is captured by the United States.<sup>8</sup> Some have even suggested that off-shored service work is of higher quality, although their data are often anecdotal and usually provided by those already successfully invested in off-shoring.<sup>9</sup> Optimists note that the majority of work sent offshore so far is lower-wage, represents a small fraction of the overall market for software and IT services, and will never displace the large majority of work done here in the United States. Indeed, the Bureau of Labor Statistics projected in December 2001 that the number of professional IT jobs in the United States would grow by 72.7% between 2000 and 2010. (New projections expected in March 2004 covering the 2002 to 2012 period will factor in the economic impacts of events and trends subsequent to their previous projections, e.g. the 2001 recession, 9/11 terrorist attacks, and offshore outsourcing trend).

A recent article in *Business 2.0*, entitled “The Coming Job Boom,” even implies offshore outsourcing may prove critical to America in the face of a skilled worker *shortage* caused by the imminent retirement of baby boomers. This article cited research by labor economist Anthony Carnevale, former Chairman of President Clinton’s National Commission for Employment Policy, who forecast that America will face a skilled worker gap that will grow to 5.3 million by 2010 and 14 million by 2020.<sup>10</sup>

Finally, since global competition is a two-way street, United States-based companies gain opportunities to win global business, particularly as developing nations improve their own domestic markets for hardware, software and services. In 2001, U.S. cross-border exports of IT services totaled \$10.9 billion, while imports totaled \$3 billion, yielding a trade surplus of \$7.9 billion.<sup>11</sup> In 2002, overall commercial services exports exceeded imports by \$58 billion.<sup>12</sup> Expanding operations around the globe enables American companies to operate closer to growth markets and new customers, improving economies of scale for entire enterprises with global reach and tapping the best-and-brightest talent around the world.

### **A TALE OF TWO AMERICAS?**

Of course both the optimists and the pessimists make many compelling points. And that is one of the things that make this debate so fierce – both sides have merit. In some ways it appears to be a tale of two Americas. At the broader “macro” level – looking at the economy at the national level or at our stronger multinational employers – America is better positioned to thrive in the global business environment than any other nation. Relentless productivity improvements and a significant comparative advantage in innovation enabled America to succeed impressively over the last 50 years. Despite decades of global engagement and work moving from U.S. factories to global destinations, we have led the planet in creating new jobs, new industries and improving our standard of living through productivity. We can assume the past is prologue, we are assured, and push forward to promote full and fair global competition, placing our faith in America’s unique innovation engine and entrepreneurial culture. As Federal Reserve Chairman Alan Greenspan recently stated in a Congressional hearing: “Innovation by its very nature is unforecastable.... what we do know is that if we have a sufficiently flexible labor market and a capital goods market which is functioning appropriately, that jobs will be created. They will be high tech, but we cannot know exactly where they will be.”<sup>13</sup>

At the more “micro” level – considering this trend from the perspective of specific regions, occupations or individuals – creative destruction can be a terribly difficult process, leading to community disruption, unexpected lay offs, and displaced professionals. The same McKinsey Global Research study that found America receiving roughly two-thirds of the value generated by offshore outsourcing reported a less attractive re-employment picture for displaced Americans over the period 1979-1999: “36% of displaced workers found jobs that matched or increased their wages but 55% were at best working for 85% of their former wages. As many as 25% saw pay cuts of 30% or more.”<sup>14</sup> Past performance is no guarantee of future results, pessimists argue, because America will be at a permanent cost disadvantage as billions of new workers – including many highly educated and technically-trained workers in places such as China, India, Russia and Eastern Europe – enter the global workforce. Too many Americans lack the training, education or opportunity to shift their focus mid-life and mid-career, from the jobs that are going global to the jobs we will be creating here at home.

### **WHY THIS WILL KEEP GETTING TOUGHER: LONG-TERM CHALLENGES**

Going forward, the quality and intensity of global competition is likely to increase. Foreign nations will continue to work to make their business climates and infrastructures more attractive to global innovation leaders, and many will retain a labor cost advantage for the foreseeable future. Economies around the world are educating rapidly growing numbers of scientists and technologists, building legions of competent, capable and hungry young innovators eager to compete.

We may take some comfort from the fact that we have risen to seemingly overwhelming challenges before – my office was established in the 1980s, with Congress convinced that we were insufficiently competitive with “Japan, Inc.” But our economy, people and systems will face tougher challenges in the 21<sup>st</sup> century than ever before, particularly as new technologies, rising competition and inexorable globalization accelerate the pace of change. Four long-term challenges stand out in particular.

1. Growing, training, attracting & retaining the best and brightest. Within a generation we will need a far more technically-literate, technology-savvy society than we have today – as workers, consumers and teachers. Yet American students at the K-12 level continue to lag behind their international counterparts in math and science learning. U.S. eighth graders ranked 19<sup>th</sup> out of 38 nations in math and 18<sup>th</sup> in science in the 1999 Third International Math & Science Study Repeat. The World Competitiveness Yearbook ranked the U.S. 24<sup>th</sup> out of 45 nations in science education and 18<sup>th</sup> in “attractiveness of S&T to youth.” At the same time other nations are graduating far greater numbers of scientists and engineers, further improving their capabilities to handle high-end work. While the U.S. graduated 59,500 engineers last year, China graduated 219,600.<sup>15</sup> Other nations are aggressively acting to stem their own brain drains and entice citizens trained in the U.S. to return to their native countries, and many are succeeding. *How can we grow, educate, attract and retain the best and brightest scientists and engineering students? How do we avoid a disconnect between the jobs we want to keep in the U.S. and our workforce’s ability to do them?*

2. Funding the Future. Americans enjoy and expect a very generous entitlement system. Retirees are living longer and receiving far more in government benefits than they ever paid into the system. According to the Congressional Budget Office, in 2001, the big entitlement programs accounted for 26 percent of non-interest federal spending; but in 2030, they could account for up to 70 percent. Things we can afford to provide our parents may well become too expensive for our children to pay for us. *How can we ensure sustained federal support for education, infrastructure, and research and development – the foundation for our national innovation engine and global competitiveness – in the face of such growing entitlement expenses?*
3. Defining national interests in a global economy. While policymakers are hired to promote *national* interests, it is getting much harder to define them as the global economy develops. For example, is it better for America to buy a BMW made in South Carolina or a Ford made in Canada? How about IT services procured through IBM but performed in India, versus services purchased from Infosys but staffed using H1B workers living and spending their salaries in America? Is it better to help manufacturers remain competitive by enabling them to cut IT costs through off-shoring or help IT service workers remain employed by shielding them from global competition? Certainly consumers look for value, irrespective of the national origins of the products they purchase, but policy makers are expected to operate differently.

Two real-world examples help illustrate why this is so difficult at the government level. In 2001, New Jersey's Department of Human Services (Division of Family Development) outsourced a basic call center used to support a welfare program to an Arizona firm, which then sent the work – nine jobs – to India. State legislators were outraged, and in the wake of controversy, the state returned the jobs to New Jersey. Unfortunately, the cost of the call center work was 20 percent higher when done back in the U.S., thereby reducing the amount of funds available for the welfare recipients for whom the call center is needed.

The Pentagon faced similar outrage when it sought to procure black berets from China. Lawmakers were incensed that U.S. tax dollars in the Defense Department, of all places, were not being used to support American manufacturers, and the hats were procured from a domestic supplier. Yet unfortunately this question is a bit more complicated. Since even the Defense Department faces a ceiling on its budget, Defense planners are forced to make tough choices every day. Every dollar spent on clothing is a dollar less for improving soldiers' pay (to keep military families off food stamps), supporting forward deployments, designing new defense systems to better protect our men and women in harm's way, and improving the accuracy of our precision-guided munitions to minimize noncombatant casualties. The choices become very real and very difficult. *How should we answer the question when choosing between U.S. jobs and maximizing resources for medical care for the elderly, education for our children or national security?*

4. Equipping people and building systems able to cope with change. Driven by globalization and the convergence of radically disruptive new technologies (such as nanotechnology, advanced IT and biotech), changes in the 21<sup>st</sup> century will come *faster*. The nations, firms,

and individuals who succeed will be those best able to manage the complexity and rapid change. The IT worker experience offers the quintessential example. In the late 1990s there was much talk of IT worker “shortages,” and many companies complained of difficulty in filling jobs even as many IT workers applied often but could not find work. In fact, the aggregate number of self-classified IT workers may have been near the number of corporate-classified IT jobs available – hence the extreme and understandable frustration among existing IT workers. But skill sets did not always match up. Mainframe programmers were not network administrators, Cobol is not C++, and someone ready to “hit the ground running” in Y2K remediation is not necessarily ready to tackle wireless security issues. As a report on IT worker training issued this year by my office explains,<sup>16</sup> because employers demand immediate expertise in whatever skill is “hot,” and today’s hot skill may not be in demand tomorrow, we could face a perennial skills mismatch putting great stress on our IT workforce and providers. *How do we best equip U.S. workers with the tools, opportunity and resources to constantly update their skills and the ability to compete in a just-in-time world? How do we move from a model of reactive training (after workers lose their jobs) to proactive training?*

### **SO WHAT SHOULD BE DONE?: SOME VIEWS BEFORE CONGRESS**

So what, if anything, should the government “do” to address the challenges posed by global sourcing? Proposals on the Hill and among those running for President span a wide range. Clearly the winds of protectionism are blowing, although it is hard to conceive that we’ll see a return to the days of the Smoot-Hawley Tariff.<sup>17</sup> Some of the proposals offered on the Hill include:

- Collecting better data and analyses on the trend and its implications. (*Rep. Adam Smith commissioned a Government Accounting Office report on the topic*)
- Using the bully pulpit to urge domestic procurements and/or “shame” those who outsource offshore. (*House Small Business Committee*)
- Tightening rules and enforcement for the use of L1 visas. (*Rep. Nancy Johnson & Sen. Chris Dodd*)
- Reducing the quantity of H1B visas and/or greater enforcement of the “prevailing wage” rule. (*IEEE*)
- Offering tax incentives to keep work and jobs onshore. (*various*)
- Offering tax incentives to subsidize the retraining of American workers. (*various*)
- Expanding the Trade Adjustment Assistance program to include those who lose service sector jobs to foreign competition.
- Reducing capacity building assistance to developing nations.
- Requiring companies to notify customers if overseas contractors have access to financial or personal data. (*NJ Programmers Guild*)
- Increasing “Buy American” requirements for federal procurements. (*House Armed Services Chairman Duncan Hunter*)
- Prohibiting taxpayer financed projects from going offshore.
- Requiring future trade agreements to include labor, environmental or other baselines to reduce foreign markets’ cost advantages. (*various*)
- Banning companies that move operations offshore from access to government contracts. (*Wash Tech*)
- Supporting or encouraging unionization of the technology workforce. (*CWA*)

## **SO WHAT SHOULD BE DONE?: THE BUSH ADMINISTRATION'S AGENDA**

The Administration is committed to promoting American growth and leadership in a globalizing world. Because of its implications for both jobs and competitiveness, we are keenly interested in the issue of offshore outsourcing. To address the 21<sup>st</sup> century's challenges and ensure our success, we are pursuing initiatives both for immediate-term growth and long-term competitiveness. Specifically, to remain competitive and successful:

- We must increase American economic growth and accelerate job creation. The Administration continues to offer aggressive fiscal policies that promote jobs and growth, essential economic medicine in the face of the 2000 “bubble” market collapse, 2001 recession, and continuing business uncertainty caused by global terror and the corporate finance scandals of the late 1990s. Many experts believed the 2001 tax cut moderated the recession that began just after President Bush took office. Our 2002 stimulus package extended benefits for displaced workers and accelerated depreciation schedules for businesses investment in capital equipment, which helped maintain new business investment in IT. The President's recently enacted jobs and growth package is stimulating job creation, investment and growth, including a tripling of allowances for small business investments. The Administration has no higher priority than creating jobs and growing the economy.<sup>18</sup>
- We must ensure American companies fair access to global markets. America thrives on competition, and our workforce benefits from global engagement. We are aggressively promoting export opportunities for American companies through the WTO and in multiple bilateral agreements, working to open global markets for goods and services made by American workers. But all nations of the world must play by the rules they agreed to, and the Administration is committed to opening new markets to U.S. goods and services, while enforcing existing trade agreements. All nations should compete on a level playing field. Technical (non-tariff) barriers to trade have become increasingly important here, as the U.S. depends more on technology-based trade, and we are working to prevent and knock down non-tariff trade barriers.<sup>19</sup>
- We must ensure global protection for intellectual property. The Administration is strengthening intellectual property protection – by devoting far more resources to the U.S. Patent & Trademark Office within the Commerce Department, overhauling its policies and procedures to speed operations and improve quality,<sup>20</sup> and by enforcing intellectual property rights aggressively at home and abroad. As an increasing amount of American output is creative, we need to be certain our hard work and intellectual capital are protected, to maintain the incentives underlying new industries, products and jobs.
- We must press our advantages in innovation, entrepreneurship, infrastructure and workforce talent. To maintain American leadership, competitiveness and job growth, the Administration is also pursuing a longer-term innovation agenda that seeks to press our advantages and ensure long-term success.

- To promote innovation, the President has proposed aggressive investments in new research and development – \$123 billion for 2004, up more than 25 percent since taking office, with significant increases in critical emerging technologies such as nanotechnology and life sciences. This will help ensure an ongoing innovation pipeline and a well-trained science and technology workforce. We have also been asking Congress to make the research and experimentation tax credit permanent, to reflect the importance of private investments in R&D, which are twice as large as the federal government's. The President additionally launched an initiative to improve math and science teaching at the K-12 level, devoting \$1 billion through the National Science Foundation and Department of Education over five years.
- To support an entrepreneurial business climate, the President continues to offer pro-job growth, pro-tech fiscal policies, as described above. Entrepreneurship is critical to the great American job engine, creating the new businesses and new opportunities that replace work sent offshore. The President has also proposed expanding citizens' access to quality health care by reducing costs imposed by frivolous litigation and expanding prescription drug benefits for seniors. And at the Commerce Department, the Economic Development Administration is pioneering investments and strategies that use technology investments and projects to spearhead regional growth and economic development.<sup>21</sup>
- To improve our infrastructure, the President's technology priorities include hardening the Nation's defenses, especially critical infrastructure protection and cyber security; implementing a national energy plan that uses innovative technologies to improve energy efficiency while expanding generation and transmission capacities; strongly supporting deployment and use of high-speed Internet (broadband) networks; and improving the effectiveness with which we manage radio spectrum. Led by our colleagues at Commerce's National Telecommunications and Information Administration, we have made great strides already in spectrum, breaking a two year logjam to find space for 3G services, supporting the elimination of spectrum caps, leading the development of a world-wide harmonized standard to double the amount of spectrum for WiFi in the 5GHz band, and proposing legislation to create a fund to help government users can relocate frequencies when the spectrum they are currently using is allocated for commercial use.
- Of greatest importance to this President may be the bipartisan efforts to improve our Nation's education system, exemplified by the No Child Left Behind Act. The most significant education reform in a generation, effective implementation of this legislation will be key to sustaining American leadership and productivity in the 21<sup>st</sup> Century by ensuring our children learn and know how to learn. To remain globally competitive – both as a tech-led economy and as the most-inclusive opportunity society – we must place education first, and that is what President Bush is doing.

## **CONCLUSIONS AND RECOMMENDATIONS**

Notwithstanding this ambitious agenda, much work remains. Certainly we will need further analysis to understand the impact of global competition in knowledge work on American prosperity and competitiveness, separating so-called globalization trends from the economic shocks of the post-bubble, post-recession, post-9/11, post-Enron and post-Iraq world. One thing we already know is that American workers and employers will face unprecedented global competition going forward, and we must be ready.

We will need to develop management approaches and systems that can anticipate and address rapid and complex changes in the marketplace. This means improved learning environments and training opportunities. We will need to find ways to boost the productivity and effectiveness of American knowledge workers to overcome global wage disparities, building a dynamic and responsive re-skilling landscape that uses innovation to generate new jobs, companies and opportunities. As a group of leading visionaries from education, industry, laboratories and government assembled at the Technology Administration's request recently suggested, advanced technologies may hold the key here as well.<sup>22</sup>

Last but not least, we must work with other nations around the world. The Internet itself has reaffirmed the power of "Metcalf's Law." This principle states that the value of a network increases exponentially as more people connect – going from 10 to 100 users increases the value of a network by more than a factor of 10. As we look to solve the policy challenges before us, we must look to others around the world as collaborators to make this incredible networked, digital world more valuable for everyone. While I speak often of American global competitiveness, I believe very deeply that America's future depends greatly upon the concurrent success of citizens of many other nations. Our economy grows fastest when we're able to sell our goods, products and expertise into other growing economies around the planet. We must find the win-win solutions around issues such as global sourcing, so that the rising tide can lift all boats.

Thank you for inviting me here today and for your attention.

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## **ADDENDUM**

At the Commerce Department, the Office of Technology Policy (<http://www.technology.gov/>) seeks to maximize technology's contribution to American economic growth, job creation and global competitiveness. We serve as policy analysts, ambassadors from the federal government to the innovation community, and advocates for innovation within the Department and across government. Our analytical efforts include constant review and assessment of long and short-term trends and implications and frequent recommendations to policy makers, informed through aggressive outreach to the private sector and academia.

Starting in early 2002, OTP convened a series of roundtables and outreach efforts to assess the state of innovation in America. Chaired by Deputy Secretary Samuel W. Bodman, we were particularly interested in better understanding the factors that influenced some private actors

when they were deciding where to locate their R&D and knowledge work. Our goal, of course, was to assess how we might maximize those elements that promote innovation in America, while reducing any comparative disadvantages that discourage on-shore R&D. Transcripts from these discussions can be found on our web site at <http://www.technology.gov/reports.htm>.

### **WHY INNOVATORS LOCATE KNOWLEDGE WORK ON U.S. SHORES**

According to the corporate, university and government leaders we convened, America presently remains the premier destination for innovative activity for several reasons.

1. **PEOPLE.** The R&D talent pool in this country is second to none, with industry experts, lab scientists and university researchers all contributing to an unmatched quality and quantity of expertise. For example, America publishes one-third of the world's scientific and technical articles, triple the share of the next largest country, and has the largest share of the world's science, engineering, and technical workforce.<sup>23</sup> Our university system is unequalled, attracting the best and brightest from around the world and remaining a hotbed for generating inventions and training inventors.
2. **BUSINESS CLIMATE.** America has the most entrepreneurial business climate, one promoting market-based competition, rewarding risk, permitting failure and with relatively easy access to capital. Unburdened by government-owned national champions, new ideas and new entrants are able to compete and win on the merits. In this regard we fare very well against many European competitors, where governmental burdens make entrepreneurship more difficult and less common. For example, in March 2002 the *Wall Street Journal* reported on a British study that found it takes 43 months on average to get the regulatory approval needed to open a gas station in Europe, three times longer than in the United States.
3. **INFRASTRUCTURE.** From world-class federal labs such as the National Institute of Standards & Technology and Argonne National Lab, to our telecom, energy<sup>24</sup> and transportation systems, America's infrastructure permits cutting-edge R&D almost anywhere in our nation. Innovators and technology entrepreneurs stay here to leverage these unique assets that underlie competitive discoveries and speed time-to-market.
4. **MARKET & MARKET ACCESS:** Innovators want to conduct R&D in the world's biggest and wealthiest market – close to the customer – with consumer, business and government spending encouraging innovation in America. Our culture offers a good fit for innovators – consumers are eager for new gadgets and medicines, success is rewarded handsomely and innovators are celebrated as cultural icons (e.g. Thomas Edison, Bill Gates, Albert Einstein, Jeff Bezos, etc.).
5. **INTELLECTUAL PROPERTY PROTECTION.** It is not surprising that innovators will create jobs and technologies wherever their ideas are best protected and most profitable. The United States boasts the most consistent protections for intellectual property rights, the most effective patent office, and the system least likely to limit returns on investment in intensely innovative products such as pharmaceuticals. In this area we retain a

significant advantage over rising powerhouse China, with its far less consistent commitment and ability to protect intellectual property.

6. **GOVERNMENT.** We provide an honest and transparent government, with political stability and a broad respect for the rule of law. While government taxes and regulates, we do not prop up national champions and we rely on the market, not federal agencies, to pick winners and losers.
7. **QUALITY OF LIFE.** People who can choose where to live are often attracted by America's high quality of life, the result in large part of our democracy, freedoms, clean environment and outstanding health care system. America's relative security and abundance likewise attract the best-and-brightest to live and work on our shores.

### **WHY INNOVATORS GO OFFSHORE**

At the same time, multiple factors are encouraging accelerating R&D and knowledge work in other parts of the world. While the National Science Foundation reports that the United States accounted for 44 percent of the total R&D among OECD nations in 2001 – more than the rest of the G7 nations combined – we accounted for 70 percent of this total in 1970. A great many nations have witnessed America's unparalleled economic success over the past 60 years and understandably seek to emulate it by fostering their own innovation excellence. The rest of the world is not standing still, and they are competing for a growing share of foreign direct investment in research and knowledge work. Here's why:

1. **COST.** Research and other technical talent and facilities cost appreciably less in many areas of the world. Similarly, many foreign nations offer businesses and researchers significant financial incentives to locate R&D, technical services and manufacturing within their borders.
2. **PEOPLE.** There are many highly talented researchers and technical workers among the more than six billion people on the planet who are not United States citizens, and some foreign nations such as China are now graduating more physical science and engineering students than the U.S. every year. U.S. companies facing global competition want to tap the best and the brightest, wherever they may live, and the GEs, Microsofts, IBMs and others like them are investing heavily in new research facilities in emerging technology clusters such as Bangalore, India and Guandong Province, China.
3. **MARKET ACCESS.** Many business leaders are attracted to the perceived market possibilities in rapidly developing nations such as China and India, with over 2.4 billion people between them. Proximity to customers is often essential to compete for service sector business. Other innovators believe they need to globalize their research efforts to overcome foreign government impediments to doing business (e.g. standards, VAT taxes), or to ensure they can gain needed regulatory approvals in the future (e.g. merger approvals).
4. **INFRASTRUCTURE.** Foreign governments are making their own investments in university and lab research facilities, transportation, energy and telecommunications to

more effectively compete. It is no accident that the new global clusters attracting the most foreign investment and most knowledge work are precisely those with the most advanced infrastructures (though as stated above, America retains an advantage here for now).

5. **BUSINESS CLIMATE.** A great number of top-tier innovative companies explain moves to Asia by pointing to their less burdensome taxation, regulation and litigation environments. These reflect both bottom-line and speed-to-market concerns, although many appropriately question whether nations lacking in freedom, robust intellectual property rights, and thorough worker protections can sustain innovation leadership over a long period.
6. **PROXIMITY TO OFFSHORE MANUFACTURING.** While the rise in offshore IT service work does not appear to result predominantly from the global migration of manufacturing, some suggest that other knowledge and R&D jobs may be pulled abroad by off-shored manufacturing. Semiconductor industry experts, for example, indicate chip design work needs to happen close to manufacturing facilities. Thus the movement of manufacturing work portends the movement of the more innovative activities.

## **ENDNOTES**

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<sup>1</sup> Few Americans are feeling greater uncertainty these days than information and communications technology (“IT”) workers. Over the past five years, IT workers have endured multiple shocks to IT spending and employment, including:

- the end of Y2K preparations in 1999;
- the bursting of the Internet and telecom “bubbles” in 2000;
- dramatic reductions in corporate IT spending during and after the January-September 2001 recession;
- the 9/11 terrorist attacks;
- investor and business uncertainty as the WorldCom, Enron and other business scandals of the late 1990s came to light;
- continued market caution preceding the liberation of Iraq; and

accelerating global competition.

<sup>2</sup> It is difficult to precisely separate American IT job losses due to the post-bubble business cycle from slower growth in overall IT employment resulting from global competition or “off-shoring”<sup>2</sup> work. Little data exists to demonstrate one-to-one relationships. It is certainly clear that as the growth in U.S. IT jobs slowed dramatically for multiple reasons, the volume and value of off-shored work has increased rapidly. 2001 was the first year in more than two decades with negative growth in U.S. IT employment. At the same time, the amount of IT service work done overseas has been growing for years, and growing numbers of global competitors are likely to capture increasing shares of U.S. white-collar service work.

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<sup>3</sup> See, e.g. “The Challenge of Complexity in Global Manufacturing: Critical Trends in Supply Chain Management,” Deloitte Touche 2003.

<sup>4</sup> [http://www.technology.gov/Testimony/BPM\\_030618.htm](http://www.technology.gov/Testimony/BPM_030618.htm)

<sup>5</sup> see IDC Price Erosion Study, 2003

<sup>6</sup> See CIO Magazine, The Hidden Costs of Offshore Outsourcing, Sept. 2003)

<sup>7</sup> Proctor & Gamble told Fortune Magazine it has saved \$1 billion since 1999 by concentrating back-office work in Costa Rica, the Philippines and Britain. (“In the Age of the Internet, A Company’s Location Hardly Matters,” May 12, 2003).

<sup>8</sup> See “Offshoring: Is It a Win-Win Game?” McKinsey Global Institute, Aug. 2003 ([http://www.mckinsey.com/knowledge/mgi/reports/pdfs/offshore/Offshoring\\_MGI\\_Perspective.pdf](http://www.mckinsey.com/knowledge/mgi/reports/pdfs/offshore/Offshoring_MGI_Perspective.pdf)). “Indeed, of the full \$1.45 to \$1.47 of value created globally from offshoring \$1.00 of U.S. labor cost, the U.S. captures \$1.12 to \$1.14, while the receiving country captures, on average, just 33 cents.”

<sup>9</sup> A recent survey of 145 U.S. companies by Forrester Research found that 88 percent of the firms that look overseas for services claimed to get better value for their money offshore than from U.S. providers, while 71 percent said offshore workers did better quality work. (At the same time one might note that the IEEE, a leading voice supporting American IT workers, recently awarded Wipro Technologies – one of the major Indian IT service providers – its prestigious IEEE Award for Software Process Excellence.)

<sup>10</sup> <http://www.business2.com/articles/mag/0,1640,51816,00.html>

<sup>11</sup> U.S. International Trade Commission.

<sup>12</sup> Services Exports and the U.S. Economy, ITA, March 2003.  
<http://www.ita.doc.gov/td/sif/PDF/SERVEXP32003.PDF>

<sup>13</sup> Appearance of Federal Reserve Chairman Alan Greenspan before the Financial Services Committee, United States House of Representatives, July 15, 2003. (Response to question from Delaware Rep. Michael Castle).

<sup>14</sup> [http://www.mckinsey.com/knowledge/mgi/reports/pdfs/offshore/Offshoring\\_MGI\\_Perspective.pdf](http://www.mckinsey.com/knowledge/mgi/reports/pdfs/offshore/Offshoring_MGI_Perspective.pdf)

<sup>15</sup> PCAST sourcing NSF data, 2002 Science & Technology Indicators. [FIND PRECISE URL]

<sup>16</sup> <http://www.technology.gov/reports/ITWorkForce/ITWF2003.pdf>

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<sup>17</sup> Passed in 1930, many blame this protectionist legislation for contributing to turning the 1929 stock market crash and recession into the global Great Depression.

<http://www.state.gov/r/pa/ho/time/id/17606.htm>

<sup>18</sup> See October 16, 2003 Remarks by the President in San Bernadino.

<http://www.whitehouse.gov/news/releases/2003/10/20031016-7.html>.

<sup>19</sup> For example, Commerce Secretary Don Evans announced a Standards Initiative in March 2003.

[http://www.commerce.gov/opa/press/2003\\_Releases/March/19\\_Standards.htm](http://www.commerce.gov/opa/press/2003_Releases/March/19_Standards.htm)

<sup>20</sup> See The 21<sup>st</sup> Century Strategic Plan of the U.S. Patent & Trademark Office.

<http://www.uspto.gov/web/offices/com/strat21/index.htm>

<sup>21</sup> See July 9, 2003 Remarks of Assistant Secretary David Sampson to the Pittsburgh Technology Council

<http://12.39.209.165/xp/EDAPublic/NewsEvents/Speeches/Speech07092003.xml>

<sup>22</sup> <http://www.technology.gov/reports/TechPolicy/2020Visions.pdf>.

<sup>23</sup> National Science Foundation.

<sup>24</sup> See “Power Outages in India Slowing Nation’s Economic Development,” Wall Street Journal, Oct. 3, 2003. This story opens by describing how the Chairman of Offshore Software Outsourcing firm Wipro had a presentation to clients interrupted four times by power outages, observing “the incident illustrates how India’s creaky infrastructure – inadequate power supplies, potholed roads and congested ports – hinders an economic takeoff.”